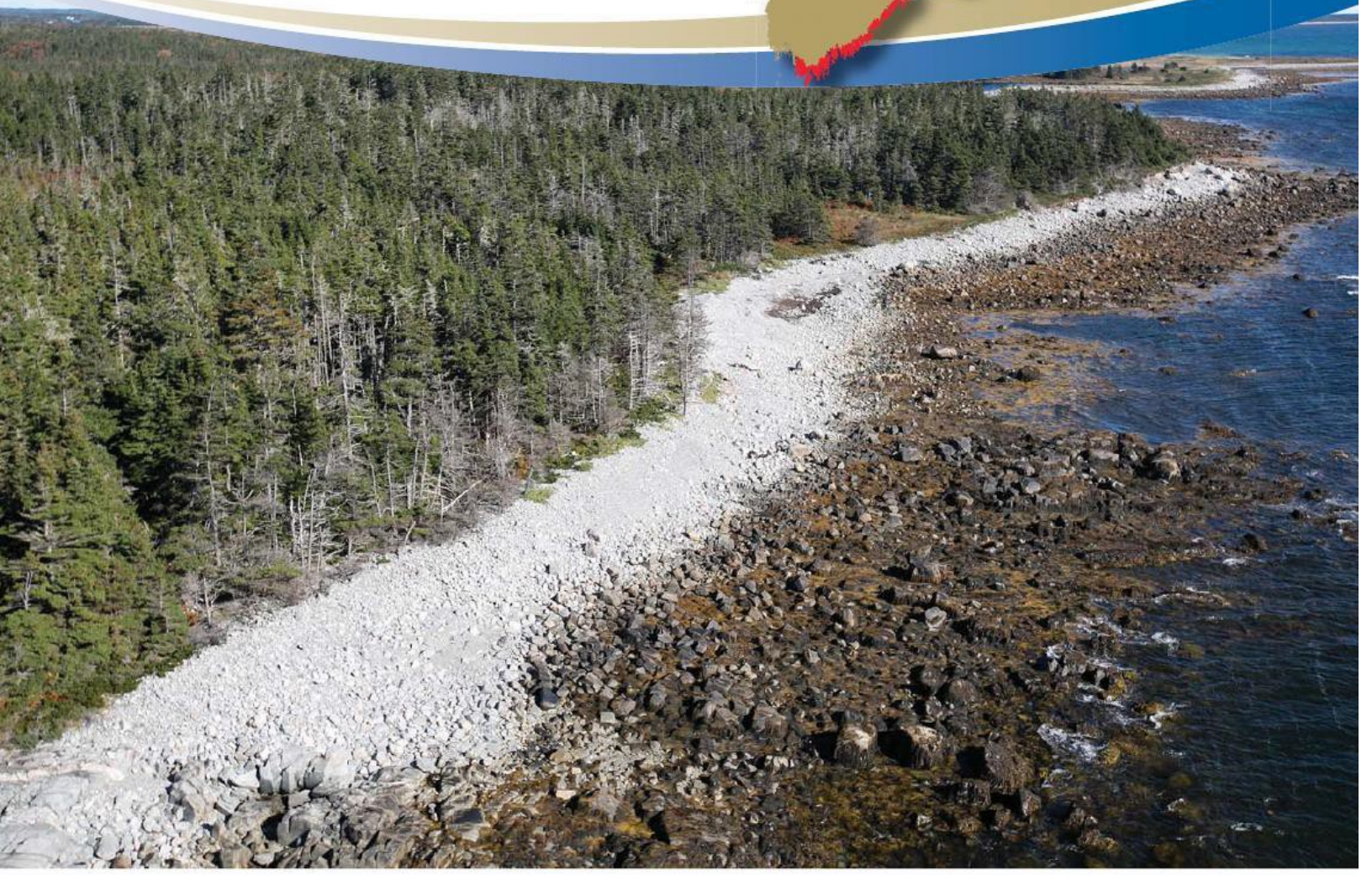
Department of Natural Resources

ECOLOGICAL LANDSCAPE ANALYSIS SOUTH SHORE ECODISTRICT 830

PART 3: Landscape Analysis for Forest Ecosystem Planners



ELA 2015-830

NOVA SCOTIA

Ecological Landscape Analysis, Ecodistrict 830: South Shore

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This report, one of 38 for the province, provides descriptions, maps, analysis, photos and resources of the South Shore Ecodistrict.

The Ecological Landscape Analyses (ELAs) were analyzed and written from 2005 – 2009. They provide baseline information for this period in a standardized format designed to support future data updates, forecasts and trends. The original documents are presented in three parts: Part 1 – *Learning About What Makes this Ecodistrict Distinctive* – and Part 2 – *How Woodland Owners Can Apply Landscape Concepts to Their Woodland.* Part 3 – *Landscape Analysis for Forest Planners* – will be available as a separate document.

Information sources and statistics (benchmark dates) include:

- Forest Inventory (2002) – stand volume, species composition
- Crown Lands Forest Model landbase classification (2006) – provides forest inventory update for harvesting and silviculture from satellite photography (2005), silviculture treatment records (2006) and forest age increment (2006)
- Roads and Utility network – Service Nova Scotia and Municipal Relations (2006)
- Significant Habitat and Species Database (2007)
- Atlantic Canada Data Conservation Centre (2013)

Conventions

Where major changes have occurred since the original ELA report was written, the new information will be provided in *italics,* so that the reader can see how some conditions have changed since the benchmark date of the ELA.

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Part 3: Landscape Analysis of South Shore – *For Forest Ecosystem Planners*

This in-depth Ecological Landscape Analysis (ELA) report is a lightly edited version of the original ELA produced by Department of Natural Resources (DNR) as an internal document to assist with Crown land planning. The report provides information for planners, forest managers, ecologists, technicians, and woodland owners seeking detailed planning resources. In coming years the DNR will continue to develop landscape planning approaches and introduce additional tools to support sustainable management and biodiversity conservation. The Department is working with stakeholders to explore novel planning approaches using these methods.

The ELA provides tools to recognize and pursue common goals for sustaining ecosystem values across all ownerships within the province's diverse landscapes. The ELA is not a plan, but instead supports planning by providing a framework of ecosystem mapping, indicators, fine-scaled features, and landscape functions that help describe landscapes as ecological systems. The report comprises the four major sections outlined below, along with theme maps and appendices containing detailed data summaries:

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Understanding the Landscape as an Ecological System

(Appendices 1, 2a, 2b; Map 2)

Landscapes are large areas that function as ecological systems and respond to a variety of influences. Landscapes are composed of smaller ecosystems, known as elements, which were interpreted through analysis using the ecosection layer of the Ecological Land Classification (ELC) for Nova Scotia. Elements are described by their potential vegetation (e.g. climax forest type) and physical features (e.g. soil, landform). These characteristics help determine historical vegetation patterns and promote an understanding of present distributions and potential habitat

development. Across the province about three dozen elements were identified in the ELAs and mapped to show their distribution across ecodistricts and ecoregions.

Elements Within Landscapes (Map 2)

The landscape analysis identified and mapped 11 distinctive elements in the South Shore Ecodistrict – one matrix, nine patches, and a corridor. A matrix is the dominant element. Patches are smaller yet still distinctive elements. Corridors are natural linear elements, such as river valleys, that extend across ecodistricts (see connectivity section for full discussion of matrix, patch and corridor concepts).

In the **Coastal Spruce** matrix element, representing 42% of the ecodistrict, forests of black spruce with lesser amounts of white spruce and balsam fir are typical. Earlier successional forests will have red maple and white birch but these species are quickly overtaken by the spruce.

Coastal Bogs and Hummocks, the largest patch element representing 13% of the ecodistrict, comprises treeless bogs and low hummocks forested with slow growing black spruce, balsam fir, and tamarack. The element occurs primarily between Round Bay and Barrington.

The other patch elements, in order of size, are **Coastal Spruce Pine Hummocks**, **Coastal Mixedwood Hills and Drumlins**, **Coastal Spruce Ridges**, **Coastal Spruce Flats**, **Wetlands**, **Coastal Spruce Pine Oak Hills and Hummocks**, **Coastal Beach**, and **Salt Marsh**.

Valley Corridors, a linear element associated with major watercourses in the ecodistrict, plays an important role in regulating water temperature, input of nutrients, and erosion control.

Flow – Element Interactions (Appendix 1; Map 2)

Flow phenomena are the features that move across and through landscapes. They can be energy or material, living or non-living. Diaz and Apostol (1992) suggest that the most relevant flows for landscape analysis may include water, wind, fire, animals, plants, and humans.

The following flows were considered in the analysis of this ecodistrict and are described in Appendix 1: people and transportation, deer, piping plover, fox sparrow, moose, water, and osprey.

The main purpose in describing flows, and their relationship to the elements, is to provide insight into the role of each element. This will inform understanding of each element's contribution to overall landscape function.

River corridors promote connectivity.

Landscape Connectivity (Appendices 2a, 2b; Map 2)

Connectivity refers to the ease or difficulty that resources, such as water, animals, or even events – such as fires – can move within an area. As a basic ecological requirement, the ability to move without excessive risk is of critical importance for maintaining biodiversity at all levels, including genetic, individual, species, population, community, and ecosystem.

Connectivity takes many forms and operates at a wide range of scales. Among the structural ecosystem components that support movement, three major systems can be identified:

Matrix Ecosystems – Matrix implies large areas of broadly similar habitat in which movement is not constrained to particular routes. The slow spreading and mixing of species through the dominant community characterizes the ecosystem matrix. This "percolation" is dependent on the large patch conditions, which may be vulnerable to fragmentation. Interior habitat is often an important feature of matrix ecosystems.

Patch Ecosystems – The movement of species among patches of suitable habitat is dictated by the arrangement and size of patches and by a number of species' specific measures. Patches of suitable habitat must occur at acceptable distances over time. Some patch habitats have critical functions and must be continuously sustained, such as wetlands for migrating birds, feeding areas for deer, and calving grounds for moose. Other patches may be dynamic, shifting about the landscape as ecosystems evolve. Edge and interior habitat conditions are important features of patch ecosystems, as well as natural isolation.

Linear Corridor Ecosystems – Flow along popular routes is dictated by enduring physical features, such as river valleys. Linear flow often requires continuous connection, such as rivers. Breaks in the connection serve as obstacles. It is a characteristic of continuous linear features that they often serve as connective corridors for some species and barriers for others.

Coastal Spruce is the dominant matrix element in the ecodistrict. This element is generally well-distributed throughout the landscape. A few gaps occur, in areas such as the Aspotogan Peninsula, southeast of Grimms Settlement, and south of Barrington. The many harbours in the ecodistrict also separate parts of the matrix from each other.

The matrix, because of its relative size and distribution, has an important role to play in connectivity. Likely because of lower site capability, low wood volumes, and wet areas, the matrix does not have a history of much harvesting. The interior of most areas of the matrix contains relatively few or no roads with a lot of late seral softwoods and mid seral hardwoods. Fragmentation does not appear to be a major issue.

Because of the narrow width of the ecodistrict and its major settlement and higher road densities at the mouths of rivers, connectivity within the ecodistrict is somewhat compromised for species that cannot pass through or above the many harbours. The possibility highlights the need for maintaining connectivity by ensuring that forested routes in adjacent ecodistricts allow species to bypass areas of settlement. A combination of riparian zone management and forested land bridges between riparian zones could accomplish the same result.

The internal composition and amount of edge of some of the patch elements will be of concern to species requiring interior forest habitat.

Links to Neighbouring Ecodistricts (Appendices 1, 2a; Map 2)

Map 2 identifies some of the linkages to neighbouring areas or ecodistricts. The hydrological system provides significant linkages. The many waterways of the ecodistrict provide linkages to various ecodistricts, including LaHave Drumlins, Rossignol, South Mountain, Western Barrens, and Tusket Islands. The major rivers all link to the Atlantic Ocean.

Transportation routes connect the South Shore Ecodistrict to Tusket Islands, Sable, Rossignol, LaHave Drumlins, and South Mountain ecodistricts. Human activities, such as fishing, hunting, tourism, recreation, and commerce, also provide connections. The forest provides a link to the inland ecodistricts and the Atlantic Ocean. Future management activities might recognize significant links to neighbouring ecodistricts and manage forests in those areas to enhance and sustain connectivity.

Landscape Indicators (Appendices 3, 6, 7, 8, 9, 10, 11; Maps 3, 4, 5, 9, 10)

Indicators provide standard measures for assessing landscape conditions. Indicators can be used to develop goals, identify priority actions, assess trends, and support the evaluation of scenarios.

Forest Composition Indicators (Appendices 8, 10; Maps 4, 9, 10)

Managing landscapes for biodiversity requires a variety of planning approaches and tools. Sustaining forest composition diversity by reflecting natural patterns of disturbance and succession is one approach that DNR is employing to try and realize this objective. A number of additional approaches and planning tools are being developed which will be integrated with objectives defined in the ELA protocol.

Human activities, such as forest harvesting, can shape the structure and composition of the forested landscape and should be planned to help support landscape composition goals.

At a landscape planning scale, the variety of habitats can be broadly described in terms of the composition of development classes, seral stages, and covertypes.

Development class indicators describe changes in structure and process as forests age and trees grow larger. For landscape management purposes, four development classes are recognized:

- forest establishment (0 to 6 m height)
- young competing forest (7 to 11 m height)
- mature forest (> 11 m height; including multi-aged and old forest)
- multi-aged / old forest (multiple layered / Old Forest Policy)

Seral stage indicators describe changes in species composition of forest communities as succession progresses from domination of early seral “pioneer” species following disturbance,

toward late seral communities dominated by long-lived, shade-tolerant "climax" species. Seral stage is dependent on the composition of tree species of a forest, irrespective of age. For landscape management purposes, three seral stages are recognized:

- early (seral score 10 to 23)
- mid (seral score 24 to 37)
- late (seral score 38 to 50)

A look-up table (see Appendix 8) assigns each species in the forest inventory a value from one to five representing its position on the successional scale. These values are applied to the species composition data in the forest inventory to calculate a seral score, which may range from 10 to 50.

Covertype indicators further refine landscape composition by distinguishing forests of different community conditions. Management generally recognizes three forest covertypes:

- softwood (overstory cover of softwood species is 75% or more)
- hardwood (overstory cover of hardwood species is 75% or more)
- mixedwood (overstory cover of either softwood or hardwood is between 25% and 75%)

Target Ranges for Composition Indicators

Table 7 provides target ranges for development class and seral stage composition appropriate for different disturbance regimes. These ranges have been derived from the professional judgment of DNR forest ecologists to guide composition objectives for large landscape areas. This guidance can be used to assess how land holdings contribute to the overall ecodistrict structure by referring to the element analysis section which summarizes the levels of these indicators.

A full description of definitions and mapping of Nova Scotia's disturbance regimes is contained in the report "Mapping Nova Scotia's Natural Disturbance Regimes" available from the DNR website (http://novascotia.ca/natr/library/forestry/reports/NDRreport3.pdf).

Table 7 - Landscape Composition Target Ranges (by Development Class / Disturbance Regime)

Natural Disturbance Regime	Development Class			
	Forest Establishment	Young Competing Forest	Mature Forest (including multi-aged and old forest)	Multi-aged and Old Forest
Frequent Stand Initiating	5 - 30%	5 - 30%	>40% early, mid, and late seral representation	>8%
Infrequent Stand Initiating	5 - 20%	5 - 20%	>60% most in mid and late seral stages	>16%
Gap Replacement	0 - 15%	0 - 15%	>70% most in late seral stage	>24%

Forest Vegetation Types for Seral Stages in Each Element

Each element contains a number of forest stands that can be classified by vegetation, soil, and ecosites. The DNR publication ***Forest Ecosystem Classification for Nova Scotia, Part I: Vegetation Types (2010)*** (http://novascotia.ca/natr/forestry/veg-types/veg-navigation.asp) is helpful in identifying forest plant communities. Table 8 presents a description of the vegetation types likely to be found within elements, along with the current percentage of each seral stage.

Table 8 – Forest Vegetation Types[1] Within Elements in South Shore

Element	Seral Stage					
	Early	% *	Middle	%	Late	%
Coastal Mixedwood Hills and Drumlins	OF1, OF2, OF4	2.0	CO5	24.0	**CO4, CO6**	63.0
Coastal Spruce Pine Hummocks	SP6	15.0	CO5	46.0	**CO1,** CO4	35.0
Coastal Spruce	OW1, OW2, CO5, SP1				**CO1, CO2, CO4,** SP4	
Coastal Spruce Pine Oak Hills and Hummocks	CO4, CO5				CO1, **SP4**	
Coastal Spruce Flats	CO1, **SP7**, WC1, WC2					
Coastal Spruce Ridges	**CO1**, CO2, CO4					
Coastal Bogs and Hummocks	WC1, WC2, WC3, WC6, WC7, WD2, WD3, WD4, WD6, CO1, CO4, SP7					
Salt Marsh	Grasslands of *Spartina spp.*					
Coastal Beach	CO7, Beach grass, Bayberry, Rose spp., White spruce					
Wetlands	WC1, WC2, WC3, WC6, WC7, WD2, WD3, WD4, WD6, SP7					

View forest groups and vegetation types at
http://novascotia.ca/natr/forestry/veg-types/veg-navigation.asp
To help with identification of vegetation types, the 14 forest groups in Nova Scotia designated by DNR are: Cedar (CE), Coastal (CO), Flood Plain (FP), Highland (HL), Intolerant Hardwood (IH), Karst (KA), Mixedwood (MW), Old Field (OF), Open Woodland (OW), Spruce Hemlock (SH), Spruce Pine (SP), Tolerant Hardwood (TH), Wet Coniferous (WC), Wet Deciduous (WD)
Bolded vegetation types indicate typical late successional community
[1] Forest Ecosystem Classification for Nova Scotia (2010)
*Percentage of element in each successional stage. Percentages may not total 100 due to unclassified lands (such as clearcuts and regenerating stands) not being included.

Land Use Indicators (Appendices 3, 4, 5; Maps 6, 7)

Two indices (Ecological Emphasis Index and Road Index) have been developed to measure the relative pressure that current human land use exerts on ecosystems.

Ecological Emphasis Index (Appendices 11, 12; Map 3)

A variety of land management practices occur across landscapes, ranging from natural reserve areas to highly modified urban environments. Conserving biodiversity requires a balancing of land use practices to sustain ecological integrity.

To assist in assessing land use intensities and develop appropriate practices, four levels of ecological integrity are defined based on the degree that the conservation of natural conditions is emphasized in the management practices and policies applied to the land:

- Reserve, such as parks or wilderness areas
- Extensive, which are lands managed or restored for multiple values using ecosystem-based techniques
- Intensive, optimizing resource production by management techniques that may reduce biological diversity, such as plantations; but also meet the Wildlife Habitat and Watercourses Protection Regulations (NSDNR, 2002)
  (See http://www.gov.ns.ca/natr/wildlife/habitats/protection)
- Converted, lands altered for agriculture, roads, or other human activities

All lands within the ecodistrict are assessed at the stand level and assigned one of these four ecological emphasis classes (EEC) based on past practices. These classes are mapped over all areas of the landscape using a one hectare grid. The Ecological Emphasis Index (EEI) is determined by assigning a weighting value to each class: Reserve (100), Extensive (75), Intensive (25), and Converted (0). An overall index value may be calculated for any area of interest, such as element, ecosection, ecodistrict, or ecoregion, by averaging the index values within the area to provide a relative indication of land use pressure.

The overall ecological index for the South Shore is 64 to 68 (Appendices 12a and 12b). The index is highest, or more natural, in the Coastal Spruce, Coastal Bogs and Hummocks, and Wetlands elements and lowest in Valley Corridors.

About 74% of the land falls in the extensive ecological emphasis class (Appendix 12a). This implies land managed for multiple values using ecosystem-based techniques that conserve biodiversity and natural ecosystem conditions and practices.

Nine percent of the ecodistrict has been converted from forests to other uses. This is land that has been changed to an unnatural state for human use or areas where practices have significantly degraded site productivity.

The reserve class accounts for 6% of the land area. The reserve class is divided into two categories: legal reserves and policy reserves. Legal reserves have legal status under IUCN (International Union for the Conservation of Nature and Natural Resources) codes of I, II, or III, such as wilderness areas, protected beaches, and designated provincial parks. Policy reserves are those set aside under various provincial policies, such as the Old Forest Policy.

The intensive ecological emphasis class (7% of area) is land managed intensively to optimize resource production from sites maintained in a native forested state. Management may eliminate or reduce the duration of some development processes, particularly old forest stages and may result in non-natural succession. Practices may produce unnatural conditions such as exotic species, old field spruce, and monoculture plantations, or reduce structure and composition below ecologically desirable levels. Despite intensive practices, these lands are an important component of landscape structure and composition.

Unclassified lands account for 4% of area.

DNR will continue to develop and evaluate other measures of conservation risk.

Road Index (Appendices 6, 7; Map 5)

The GIS-based "Road Index" provides a standard assessment and mapping of road distributions across ecodistricts to assist planners to objectively explore options for managing road networks and assess the intersection of road affects with other features of the landscape. Density, distance, and type of linear feature (e.g. road types, power lines) are used to calculate index values that indicate relative road pressure. The index value is mapped over all areas of the landscape using a one hectare grid. The overall index may be calculated for any area of interest, such as element, ecosection, ecodistrict, or ecoregion, by averaging the index values within the area to provide a relative indication of land use pressure. The index provides a numerical indicator of road influence that can be used to monitor temporal changes and compare different landscapes.

In discussing road ecology, Forman (2004) describes five distinctive landscape types in North America: city-suburb, agricultural, forestry, arid-grassland, and natural landscape. Each landscape type has a characteristic pattern of road networks with distinctive ecological effects and planning considerations (Forman & Hersperger 1996). These were adapted in Nova Scotia to classify five Road Index Benchmark Ranges associated with particular land use settings:

- Remote Landscape (RI 0 to 6): Unpopulated with few roads, trails, or other linear features
- Forest Resource (RI 7 to 15: Forest access roads are the primary linear feature
- Mixed Rural (RI 16 to 24): Mixed land use of rural settlement, forestry, and agriculture
- Agriculture/Suburban (RI 25 - 39): Suburban settlement and/or open agricultural fields
- Urban (RI 40 to 100): Urban environment with high building densities, roads, and few tracts of undeveloped land outside municipal parks

Road, trail, and utility corridors are vital components of human land use. However, transportation systems are expensive and produce many undesirable environmental effects, such as chronic siltation, invasion routes for exotic species, fragmentation, loss of productive land, and increased human presence.

Low road density areas are important features for biodiversity conservation. Planning should consider block scheduling options, life expectancy, class requirements, decommissioning strategies, and overall landscape function, in order to develop efficient access systems designed to minimize environmental impacts.

South Shore has an overall Road Index value of 12 (Appendix 7, Table 3), which falls within the Forest Resource category denoting an area without significant settlement where forest resource access roads are the primary type of road.

Generally, the higher RI values follow the coast where most of the settlement occurs, such as along the ecodistrict's northern boundary where a lot of the primary access is present. The resulting

general pattern is one of points of land jutting out into the Atlantic Ocean whose periphery has higher road indices. The interior of these points is generally characterized by a remote interior cove with few roads. The core interior areas are generally larger in the western portion of the ecodistrict.

The elements with the higher road indices are Valley Corridors and Salt Marsh.

Roads often have negative ecological effects. Efforts to minimize their impacts would – because of the land ownership in the ecodistrict – require co-operation among the Crown, private woodland owners, and municipal bodies.

Actions that might be considered across the landscape include:

- For Crown blocks, road and trail plans should be developed that consider the far-reaching implications of construction on the ecological landscape. Proper planning can reduce the effects of construction on fragmentation, aquatic ecosystems, sensitive sites, and protected areas.
- Road and trail maintenance plans should be developed to ensure that deterioration does not cause negative ecological effects.
- Road decommissioning: Road systems should be analysed to determine where recreational activities, connectivity, and closeness to reserve areas might be considered. Decommissioning implies returning the road to as natural a state as possible, removal of bridges and culverts, and establishment of a new forest.
- Minimizing the impact of road and trail construction by ensuring that best management practices are used in all facets of construction.
- Encouraging the sharing of road networks to lessen the amount of road construction required.

Fine Scale Features (Appendices 3, 4, 5; Maps 6, 7)

Data on the status and location of priority species, ecological land classification, representivity analysis, and other landscape characterization themes were used to identify special occurrences, rare ecosections, and ecological representivity. These fine scale features, which occur at a sub-landscape level, may require special management practices to conserve their uncommon characteristics.

Lindenmayer and Franklin (2002) refer to the importance of identifying “midspatial-scale” features and “patch-level habitats,” including: 1) aquatic ecosystems, such as streams, lakes, and ponds; 2) wildlife corridors; 3) specialized habitats, such as cliffs, caves, thermal habitats, meadows, and vernal pools; 4) biological hotspots or places of intense biological activity, such as calving sites, over wintering grounds, and spawning habitats; and 5) remnants of old forest.

Priority Species and Other Special Occurrences (Appendix 3; Map 6)

Landscapes and ecosystems comprise many species of plants, animals, and other organisms. Some of these species are given priority in planning, management, and stewardship because they are rare,

and/or at risk of going extinct locally or on a larger scale. The status and location of these species are important and data are collected, compiled, and assessed on an ongoing basis.

The primary species data used in this report are from the Atlantic Canada Conservation Data Centre and DNR's Significant Habitat Database. Efforts are made to ensure data are as accurate and up-to-date as possible. Lists and maps indicate what is currently known. Due diligence tied to planning, management, and stewardship may require that surveys be carried out to update information or to fill gaps in our knowledge. Priority species may require special actions in terms of forest management and other activities that alter habitat and the landscape. If more information is required or if management specific to a priority species need to be developed, a regional biologist, Wildlife Division staff, or other species experts should be contacted.

This section includes species at risk (refer to Table 1a, Appendix 3), species of conservation concern (Table 1b, Appendix 3), other conservation features (Table 1c, Appendix 3), and heritage features (Table 1d, Appendix 3, where available). *The list of species at risk and species of conservation concern was obtained from the Atlantic Canada Conservation Data Centre (ACCDC) databases, current to 2013*.

Species at Risk

The term "species at risk" is generally used to describe those species that are, to some extent, protected under provincial or federal endangered species legislation. Usually these species are protected where they occur on provincial, federal, and private lands. In Nova Scotia, the two main pieces of endangered species legislation are the Nova Scotia Endangered Species Act (NSESA) and the federal Species at Risk Act (SARA). Species can be classified as "endangered," "threatened," "vulnerable/special concern," or as "extinct" or "extirpated." In most cases for species at risk, recovery planning and special management are in place, as well as legal protection (See http://novascotia.ca/natr/wildlife/biodiversity/at-risk-overview.asp).

Species of Conservation Concern

The term "species of conservation concern" refers to those species that are a high priority for conservation and special attention during planning, management, and stewardship. These species may be rare and/under a variety of threats but the threats do not currently warrant species at risk designation. In some cases these species could meet the criteria for a species at risk but a formal species at risk assessment has not been done. Species of conservation concern are a priority in landscape planning because a focus on them now can prevent these species from becoming species at risk later.

Species Ranking and Coding Systems

A number of ranking and coding systems identify and convey the status of species at risk and species of conservation concern. Some of this information is provided in Appendix 3 and Map 6 and is routinely used in planning, management, and stewardship activities.

Colour-coded “traffic light” systems are used provincially and nationally. These systems use “red to orange/yellow to green” categories to indicate the most at risk species (red) to the least at risk species (green). Details of these systems are available from the Wildlife Division.

A second system commonly used is NatureServe Conservation Data Centre system. This system uses numbers from one (extremely) to five (widespread, abundant) to denote the relative rarity and conservation concern for species. At the provincial scale, numbers are prefixed with “S” to indicate that this is a state/provincial level rank. Ranks at the National (N) and Global (G) levels are also available for all species. In Nova Scotia, the Atlantic Canada Conservation Data Centre (http://www.accdc.com/) works with partners to provide ranks and data on species’ occurrence.

As of 2014 in the South Shore Ecodistrict, 22 species are designated under either the NSESA: 13 endangered, three threatened, and six vulnerable. An additional four species are designated under the federal SARA: one threatened and three of special concern; and a further four species listed by the COSEWIC: one endangered, two threatened, and one special concern. In addition to the listed species, the national General Status process also identifies 22 orange-listed species, 56 yellow-status species, and 39 green-listed species.

Old Forest

The Interim Old Forest Policy requires a minimum of 8% of Crown land within each ecodistrict be identified and protected. The stands are selected to provide representation of landscape elements with the best old forest and old forest restoration opportunities. *In 2012, DNR released an updated Old Forest Policy, containing new integrated resource management (IRM) decision-making procedures (see http://novascotia.ca/natr/library/forestry/reports/Old-Forest-Policy-2012.pdf).*

The bS-wS forest has no area identified under the Old Forest Policy. The Crown owns very little land that supports this type of climax forest. For species associations not well represented on Crown lands, participation by private land owners will be required.

Mammals

The mainland moose has been designated an endangered species under the Nova Scotia Endangered Species Act. Mainland moose are genetically distinct from those on Cape Breton Island where moose populations are healthy.

One of the remnant populations of moose on the mainland is in southwestern Nova Scotia in a large area containing most of the Tobeatic Wilderness Area and extending southwest to Pubnico, southeast to Liverpool, and northwest to Digby. This area is considered to be occupied moose habitat (an area with recurrent observations of moose over time). Much of this ecodistrict is within this zone of occupied habitat. The areas of most frequent sightings lie between Sable River, Shelburne, and Port Joli. Occasional road kills occur.

Moose are commonly associated with forested landscape habitats that have been altered by a disturbance regime, such as fire, wind, disease, or timber harvesting. The habitat requirements of moose are largely dependent on successional forest stages. Early successional hardwood trees and

shrubs provide important browse while mature conifer cover is valuable for shelter and protection in winter and summer.

Prior to the introduction of forest harvesting as an agent of disturbance, the availability of moose habitat would have been historically tied to natural disturbances. The fact that little forest harvesting occurs in the ecodistrict and that fire suppression response times have improved has probably resulted in less of the available type of habitat that moose require for browse.

The availability of suitable habitat for mainland moose is crucial in maintaining the animal's future presence, and timber harvesting practices currently play a role in creating changes in the forest landscape. This change is important in providing food for moose, such as the succulent twigs, stems, and foliage of young deciduous trees and shrubs.

Birds

Thirteen bird species occurring in the South Shore Ecodistrict are listed under the NSESA: red knot *rufa* ssp, roseate tern, piping plover *melodus* ssp (all nationally endangered); olive-sided flycatcher, common nighthawk (*Chordeilis minor*), and Canada warbler (all three nationally threatened); rusty blackbird, harlequin duck – eastern population, Barrows goldeneye, and Ipswich sparrow (all nationally of special concern); and eastern wood-pewee, bobolink, and barn swallow. Harlequin duck is endangered in Nova Scotia and a species of special concern under SARA. The duck is a winter resident that can be seen offshore, often in rough surf. The red knot is a migratory shorebird listed as endangered in Nova Scotia and under SARA. Short-eared owl is listed under the federal SARA as a species of special concern. A further three species are listed by COSEWIC: wood thrush and bank swallow (both as threatened), and buff-breasted sandpiper (special concern).

Some of the most beautiful sand and cobble beaches in Nova Scotia are found in this ecodistrict, and these provide some of the most important piping plover breeding habitat in the province. Piping plovers nest on the ground in sand or cobble, laying camouflaged eggs which take about a month to hatch. The eggs and then the chicks are subject to a number of hazards, including predators and tides, but it is human use of the beaches that can have the greatest impact. This impact can be in the form of driving vehicles on beaches, stepping on nests, walking with dogs, or creating a disturbance

To date, 23 yellow-status bird species have been documented as occurring in the ecodistrict. Purple sandpipers, red knot, Atlantic brant, and harlequin ducks breed in northern Canada; the remainder of the yellow-status species listed likely nest in the ecodistrict.

Reptiles

Although eastern ribbonsnake (*Thamnophis sauritus*) and Blanding's turtle – Nova Scotia population (*Emydoidea blandingii*) are mainly found much farther inland, there are records of both species in the South Shore Ecodistrict. This species of ribbonsnake has a yellow status and is listed as threatened in Nova Scotia and Canada. The Nova Scotia population of Blanding's turtle is listed as endangered provincially and nationally.

Fish

Atlantic salmon (*Salmo salar*) historically utilized a number of rivers that empty into the Atlantic in the South Shore Ecodistrict, including the Barrington, Clyde, Roseway, Jordan, East, Sable, and Tidney river systems. Salmon are presently considered to be extirpated from these rivers. Soils in this and adjoining ecodistricts have a low capacity for buffering acid precipitation and acid rain is believed to be the major cause of salmon and trout declines in the rivers of southwestern Nova Scotia and elsewhere in the province. The Atlantic salmon has a red status in Nova Scotia and has been designated nationally as endangered.

Another anadromous fish species at risk in Nova Scotia, which occurs in the ecodistrict, is the Atlantic whitefish (*Coregonus huntsmani*). It is a red-status species, listed as endangered provincially and nationally. The Petite Rivière watershed is the only location in the world where this species exists.

Insects

Three insect species considered to be of concern in Nova Scotia have been noted as occurring in this ecodistrict: monarch butterfly (*Danaus plexippus*) (yellow status); and two dragonflies, prince baskettail (*Epitheca princeps*) (yellow status) and seaside dragonlet (*Erythrodiplax berenice*) (yellow status). The seaside dragonlet is notable as one of the few dragonflies in Nova Scotia that inhabits salt marshes, where it breeds in brackish pools.

Lichens

The South Shore Ecodistrict supports part of a globally significant coastal forest that has the highest diversity of lichens in Nova Scotia. Mature balsam fir forests and red maple wetlands, riparian areas, or fens with associated *Sphagnum* species are important habitats that support lichen species of global significance and rarity – and other associated rare species – particularly if the forests are cool with high humidity.

The nationally and provincially endangered boreal felt lichen (*Erioderma pedicellatum*) is found in small numbers in cool moist forested habitats. Boreal felt lichen is listed as globally critically endangered by the International Union for the Conservation of Nature (IUCN) and occurs in only five locations in the world. Boreal felt lichen occurs on the trunks of black spruce and balsam fir in cool, moist woodlands within 25 kilometres of the coast. The South Shore Ecodistrict is one of the key areas providing the necessary habitat for the lichen. This species has particular importance as an environmental indicator due to its sensitivity to air pollution and has declined dramatically over the last few decades.

Vole ears lichen (*Erioderma mollissimum*) is also nationally and provincially endangered. The highest population in the world occurs in the South Shore and Sable ecodistricts. Blue felt lichen (*Degelia plumbea*), a national species of special concern and listed as vulnerable under the NSESA, occurs in the South Shore Ecodistrict. Nova Scotia has the highest population in North America of this species.

The richness of the coastal lichen forests in the ecodistrcit is indicated by the relatively high number of species of concern that are found here. Five lichen species are orange-listed (may be at risk): powder-tipped antler lichen (*Everniastrum catawbiense*), rimmed shingles lichen (*Fuscopannaria leucosticta*), poor-man's shingles lichen (*Parmeliella parvula*), powdered moon lichen (*Sticta limbata*), and bottlebrush frost lichen (*Physconia detersa*).

Ghost antler lichen (*Pseudevernia cladonia*) is a yellow-listed species of special concern nationally under the SARA. A further nine species are also yellow listed (sensitive): blistered tarpaper lichen (*Collema furfuraceum*), blistered tarpaper lichen (*Collema nigrescens*), blistered jellyskin lichen (*Leptogium corticola*), stretched jellyskin lichen (*Leptogium milligranum*), appressed jellyskin lichen (*Leptogium subtile*), naked kidney lichen (*Nephroma bellum*), bottlebrush frost lichen (*Physconia detersa*), peppered moon Lichen (*Sticta fuliginosa*), and warty beard lichen (*Usnea ceratina*).

More than 19 lichen species that have suffered significant declines in New England occur in South Shore, including at least two species that are believed to be extirpated from New England. Most of these lichens are cyanolichens and very sensitive to air pollution, acid rain, and activities such as deforestation that may lead to drying or a decrease in the humidity of their habitat.

In addition to the cyanolichens, a number of other significant lichens occur, including two globally rare lichens, black-foam lichen (*Anzia colpodes*), and veined shingle lichen (*Pannaria lurida*), which are being assessed by COSEWIC. Early data analysis suggests that Nova Scotia may have the highest world populations of the black-foam lichen. Powdered moon lichen and white-rimmed shingle lichen are orange-listed species and are either under review by COSEWIC or recommended for COSEWIC review.

Plants

A total of 33 plant species known to occur in the South Shore Ecodistrict are considered to be species at risk or species of conservation concern: four with red status, nine with orange status, and 20 with yellow status.

Two of the 33 species are listed under the NSESA: thread-leaf sundew (*Drosera filiformis*) is endangered (also endangered in Canada) and eastern lilaeopsis (*Lilaeopsis chinensis*) is threatened (special concern in Canada). Thread-leaf sundew grows in bogs and occurs on only five sites in Canada and four of these are in the South Shore Ecodistrict. The fifth site is in the adjacent Sable Ecodistrict.

Other red-status plant species in the ecodistrict include Nantucket serviceberry (*Amelanchier nantucketensis*) and Long's sedge (*Carex longii*). Yellow-status plant species found in the ecodistrict include pinebarren golden heather (*Hudsonia ericoides*), southern mudwort (*Limosella australis*), Greenland stitchwort (*Minuartia groenlandica*), and seaside brookweed (*Samolus valerandi* ssp. *parviflorus*).

Thirteen of the red-listed or yellow-listed species belong to an important group of geographically isolated plants known as the Atlantic Coastal Plain Flora (ACPF), which occur primarily in

southwestern Nova Scotia. Such species include Nantucket serviceberry, Long's Sedge (*Carex longii*), Wiegand's sedge (Carex wiegandii), thread-leaf sundew, Olney's bulrush (*Schoenoplectus americanus*), swamp loosestrife (*Decodon verticillatus*), eastern lilaeopsis, grassleaf rush (*Juncus marginatus*), and beaked spikerush (*Eleocharis rostellata*).

Rare Ecosections (Appendices 3, 12b; Map 7)

The Ecological Land Classification for Nova Scotia (Neily et al. 2003) classifies ecosections based on similar characteristics of landform, soils, and vegetation. These are the smallest mapped unit, and they repeat within ecodistricts. Ecosections have characteristic natural disturbance regimes and climax types.

Landscape elements were identified by combining ecosections with similar characteristics. Table 9 provides explanations of ecosections and their relationship to elements.

Ecosections that are rare (< 2% of ecodistrict area) or under high land use pressure (> 75% land conversion) are identified in Appendix 3.

South Shore has eight ecosections that make up less than 2% of the ecodistrict – ICHO, ICSM, IMKK, WCHO, WCKK, WFDM, WMKK, and WMSM. Ecosections ICSM, IMKK, WFDM, and WMSM also comprise less than 2% of the ecoregion. WFDM and WMDM have relatively high conversion rates – 45% and 31% respectively.

The Forest Ecosystem Classification system indicates that red spruce, white pine, and yellow birch are the climax species on the sheltered occurrences of WMDM and WFDM. It is possible that the area that could be occupied by this species' association is less than 2% of the ecodistrict.

Red maple is listed as a climax species, likely in fen type wetlands and occurs in only 0.4% of the ecodistrict and 0.2% of the ecoregion.

Table 9 – Elements, Ecosections, Disturbance Regimes and Climax Types			
830 South Shore Ecodistrict			
Landscape Element and Type	**Ecosections***	**Dominant Natural Disturbance Regime**	**Dominant Climax Type**
Coastal Spruce (Matrix)	IMHO	Frequent	balsam Fir (bF), black Spruce (bS), white Spruce (wS)
Coastal Bogs and Hummocks (Patch)	PMHO	Frequent	bS, tamarack (tL)
Coastal Spruce Pine Hummocks (Patch)	WMHO	Frequent	bS, bF, wS, white Pine (wP), red Oak (rO)
Coastal Mixedwood Hills and Drumlins (Patch)	IMKK WFDM WMDM WMKK	Frequent	bF, bS, wS, red Maple (rM), white Birch (wB), yellow Birch (yB)
Coastal Spruce Ridges (Patch)	IMRD WMRD WMSM	Frequent	bS, wS, bF
Coastal Spruce Flats (Patch)	ICSM IMSM	Frequent	bS
Wetlands (Patch)	WTLD	Open Seral (Frequent)	bS, tL, rM
Coastal Spruce Pine Oak Hills and Hummocks (Patch)	ICHO WCHO WCKK	Frequent	bS, wP, rO
Coastal Beach (Patch)	XXCB	N/A	N/A
Salt Marsh	XXMS	Open Seral (Frequent)	*Spartina spp.* (cordgrass)
Valley Corridors (Corridor)	Various	Various	Various

***Ecosection Explanations**: For example, in **WMHO**, **W** stands for Well-drained under Soil Drainage **M** stands for Medium-textured under Soil Texture and **HO** stands for Hummocky under Topographic Pattern

Soil Drainage: **W –** Well-drained **I –** Imperfectly drained **P** – Poorly drained **WTLD** – Wetland

Soil Texture: **C** – Coarse-textured soils (e.g. sands) **M** – Medium-textured soils (e.g. loams) **F** – Fine-textured soils (e.g. clays)

Topographic Pattern: **SM** – Smooth or flat **KK** – Hills **HO** – Hummocky **DM** – Drumlinoid **RD** – Ridges **DS** – Canyons and steep slopes

Ecological Representivity (Appendices 4, 5)

Ecological representivity describes the degree that the range of natural ecosystem diversity (elements, ecosections) is secured within reserve systems (e.g. Parks, Wilderness, Old Growth Policy).

The overall goal is biodiversity conservation through protection of natural habitat diversity. Ecological representation is employed as a "coarse scale" ecosystem planning concept. The analysis evaluated and identified the reserve status of the ecosections and climax communities located within the ecodistrict where two levels of reserves were recognized: legally protected reserves, such as Wilderness Areas; and policy protected reserves under the IRM classification to include old forest, Eastern Habitat Joint Venture Sites, non-designated provincial park reserves, and non-designated sites of ecological significance.

Appendix 4 lists the area under legal and policy reserves by ecosection within the ecodistrict and Appendix 5 indicates the amount of reserve in the ecodistrict.

Opportunities to improve representation might include the addition of ecosections that form less than 2% of the ecodistrict or ecoregion with little or no representation (ICHO, ICSM, IMKK, WFDM, WMKK, and WMSM) and the uncommon climax community types such as red spruce, white pine, yellow birch, and also red maple fens. There is little or no Crown land in any of these ecosections, so increased areas in representation would require participation of private landowners or land purchase programs.

ELA Summary

Element Interpretation (All appendices and maps)

The South Shore Ecodistrict extends about 180 kilometres along the Atlantic Ocean coast from the Aspotogan Peninsula to Pubnico Harbour and extends inland approximately 10 kilometres.

The coastline is irregular, with many bays, inlets, headlands, and islands. The coastline reflects the inland geology and landforms of the adjacent ecodistricts with bedrock of granite, slates, and quartzites and a landscape of low hills and hummocks, extensive flats, and scattered drumlins.

Coarse, sandy beaches are common along with small scattered salt marshes. Coastal barrens and headlands can be extensive throughout this ecodistrict, particularly in the western portion.

A homogenous softwood forest of black and white spruce and fir drapes most of the coastal area with mixedwood forests more common inland.

The climate of the South Shore is influenced by the warmer waters of the Gulf Stream more than the Eastern Shore (820) and Cape Breton Coastal (810) ecodistricts, which are cooled by the colder waters of the Labrador Current before the current deflects out into the Atlantic Ocean. Its location on the Atlantic coast means that South Shore is cooler in summer and milder in winter than the adjacent inland ecodistricts. Periods of foggy weather are common.

Black spruce is the dominant species along the shore, with white spruce and balsam fir. The coastal headlands receive the brunt of the Atlantic winds, which favours coastal forests of black and white spruce where the trees are severely stunted. Once the impact of this exposure is diminished, either by shelter from established spruce or distance from the coast, other tree species (such as red spruce, white pine, red oak, and yellow birch) will establish in the ecodistrict, although the thin soil can be a serious impediment. Balsam fir forests are prominent farther inland.

The absence of red spruce, except for the most sheltered locations in the ecodistrict, is usually an indicator of the coastal influence of the Atlantic Ocean. The climax forest on hills and drumlins with well-drained soils is most likely a mixedwood forest of red oak and white pine. In wet, peaty areas, black spruce, larch, and alders are found.

This ecodistrict excludes the inner islands of Mahone Bay, which for the most part are within the LaHave Drumlins Ecodistrict.

Forests in this ecodistrict have been heavily impacted by human activity.

Natural disturbance agents in the ecodistrict are primarily associated with hurricanes and exposure from storms due to the proximity to the Atlantic Ocean. Much of the forest is on imperfectly drained soils and is prone to blowdown which, once started, can quickly expand small areas into larger ones.

Insect defoliation has not been a significant factor in forest disturbance although the balsam woolly adelgid is currently damaging and causing mortality in balsam fir forests throughout the ecodistrict – only colder winter temperatures (-30°C) will reduce its impact on the forests.

The poor nature of much of the soils in the coastal ecodistrict, especially in the western portion, and on many of the ridged ecosections near Lunenburg, has created ecosystems vulnerable to fire. The flammable ericaceous-dominated barrens and poorly stocked spruce forests are susceptible to fire. While naturally ignited forest fires are not considered a likely cause of disturbance in this ecodistrict due to the moist climate, the potential for significant burn acreage is possible when an ignition occurs in the ecodistrict or originates in the drier adjacent ecodistricts and is pushed by winds into the flammable coastal region.

Coastal Spruce

(Matrix) (IMHO ecosection) (54,989 ha)

This matrix element represents 42% of the ecodistrict. The element occurs on hummocky ground and comprises imperfectly drained loamy soils. Slow growing stunted black spruce is the climax species. Ericaceous species are common.

A report in the early 1900s classifies most of the element as barren with some agriculture occurring along the major roads near the coast. As is true in many parts of western Nova Scotia, fires set by man has contributed to the creation of barrens.

Currently, as it was in the past, settlement occurs in large part along the coastal areas with the interior largely uninhabited.

The element covertype comprises 53% softwood, 37% mixedwood, and 9% hardwood. The majority of the softwood is late seral black spruce with lesser amounts of white spruce and balsam fir. The mixedwood is mainly mid seral spruce, usually black with some intolerant hardwoods such as red maple, white birch, or poplar. The hardwood covertype is usually red maple, white birch, or aspen.

Numerous slow moving streams pass through the element and wetlands within the element are often their headwaters.

Generally, fragmentation does not appear to be an issue in the matrix as the interior of the element is largely remote with few or no roads. Connectivity may be of concern around the larger centres. This could be addressed by maintaining connectivity of aquatic systems and land bridges between aquatic systems that flow into the ecodistrict.

About 7% of the matrix is in the reserve category. About 3,700 hectares have been converted from a forested state to other uses – mainly along the coast in the westerly portion.

The Ecological Emphasis Index is quite high (67 to 69) reflecting the amount of area in extensive classification. Approximately 26% of the black spruce (the climax species in the element) located on Crown land in the ecodistrict has been identified under the provincial Old Forest Policy for Crown land.

Flows

People and transportation (settlement, fishing communities, recreation, hunting, trapping, ATV use); deer (winter cover, food); fox sparrow (potential habitat in dead and dying spruce); moose (travel, thermal refuge in wet areas between Jordan River and Port Mouton); osprey (feeding and nesting).

Composition

South Shore Ecodistrict 830 (based on statistics up to 2007)

Composition of Coastal Spruce

Development Class	Establishment	Young Competing	Mature (incl. multi-aged and old forest)	Multi-aged and Old Forest
	8%	34%	58% (31 Mat + 27 OF)	27%
Seral Stage	Early	Mid	Late	Unclassified
	5%	50%	40%	5%
Covertype	Softwood	Hardwood	Mixedwood	Unclassified
	53%	9%	37%	1%

Desired Condition

Black spruce with near equal representation in development classes. Some old growth present.

Issues

- converted coastal areas
- connectivity around larger centres
- unbalanced development class structure

Coastal Bogs and Hummocks

(Patch) (PMHO ecosection) (17,045 ha)

The Coastal Bogs and Hummocks element, the largest patches in the ecodistrict, is located primarily in Shelburne County. Large areas can be found south of Barrington and near Round Bay. These poorly drained, loamy soils are characterized by a large number of bogs interspersed at slightly higher elevations by areas of mostly slow growing black spruce with an understory of ericaceous vegetation.

Little past harvesting has occurred in the element with the possible exception of some spruce for local firewood consumption. Lakes and slow moving waterways are associated with this element.

Because there are so many wetlands in this element it, like the Wetlands element, is of high biodiversity concern. Connectivity among patches of this element may be of concern because of the more urban-like nature of the landscape between patches.

Indiscriminate use of ATVs has historically been a problem in the general region.

The reserve category comprises 17% of the element. The EEI is the highest in the ecodistrict (74), reflecting little land use pressure.

Flows

People and transportation (trapping, hunting); deer (limited cover); fox sparrow (habitat); moose (habitat from Jordan River to Port Mouton); water (wetlands - collection, storage, filtration, groundwater recharge); osprey (feeding and nesting).

Composition

South Shore Ecodistrict 830 (based on statistics up to 2007)

Composition of Coastal Bogs and Hummocks

Development Class	Establishment	Young Competing	Mature (incl. multi-aged and old forest)	Multi-aged and Old Forest
	8%	48%	44% (21 Mat + 23 OF)	23%
Seral Stage	Early	Mid	Late	Unclassified
	1%	35%	62%	2%
Covertype	Softwood	Hardwood	Mixedwood	Unclassified
	79%	1%	19%	1%

Desired Condition

Undisturbed wetlands with undisturbed vegetated patches.

Issues

- connectivity around larger settlements
- possible use of ATVs

Coastal Spruce Pine Hummocks
(Patch) (WMHO ecosection) (16,421 ha)

This patch element, one of the larger in the ecodistrict, stretches in areas from Port Clyde to the Aspotogan Peninsula. Well-drained loamy soils on hummocky ground are a characteristic feature. The climax forest is black spruce with some white pine and occasionally red oak. Scattered small wetlands are present and large wetlands can be found south of Port Mouton Head and at Western Head, Shelburne County.

Past practices on this element varied. A report in the early 1900s indicated some areas from the centre of the ecodistrict eastward were farmed while much of the remainder was either severely culled softwood or in the west, barrens. Ericaceous vegetation is a common occurrence. More recent times has seen some harvesting as these are some of the better sites in the ecodistrict.

The current forest has near equal amounts of softwood (35%) and mixedwood (40%) covertypes. Hardwoods make up 24% of the area.

The softwood covertype is mostly late seral black spruce with some white pine. Lesser amounts of white spruce and fir are present.

Mixedwoods are mostly mid seral with a balanced mixture of development classes. Black spruce often occurs with intolerant hardwoods such as red maple, white birch, and poplar. Red oak occasionally is part of the mix.

The hardwood covertype is early or mid seral, featuring species such as red maple, white birch, poplar, and occasionally red oak.

The element is dominated by mature or multi-aged forest. Larger mature patches benefiting wildlife species requiring interior forest habitat appears to be lacking.

This element has about 4% of its area in the reserve category. About 12% of the element has been converted to other uses.

The climax species association for this ecodistrict of black spruce-white pine has about 900 hectares identified on Crown land under the provincial Interim Old Forest Policy.

The EEI for this element is 61 to 64.

Flows

People and transportation (settlement, tourism, beaches, parks, hunting); deer (wooded swamps provide winter cover); fox sparrow (potential habitat in dead and dying trees); water (input to streams and wetlands); osprey (feeding and nesting).

Composition

South Shore Ecodistrict 830 (based on statistics up to 2007)

Composition of Coastal Spruce Pine Hummocks

Development Class	Establishment	Young Competing	Mature (incl. multi-aged and old forest)	Multi-aged and Old Forest
	6%	23%	71% (41 Mat + 30 OF)	30%
Seral Stage	Early	Mid	Late	Unclassified
	15%	46%	35%	4%
Covertype	Softwood	Hardwood	Mixedwood	Unclassified
	36%	24%	40%	0%

Desired Condition

A variety of development and seral stages. The largest area comprises mature forests with early, mid, and late seral representation. Late seral species being black spruce, white pine, and occasionally red oak.

Issues

- lack of interior forest habitat
- low area in establishment development stage (6%)

Coastal Mixedwood Hills and Drumlins

(Patch) (IMKK, WFDM, WMDM and WMKK ecosections) (10,289 ha)

Well-drained drumlins and hills make up the majority of this element. Most of the element is confined to Lunenburg County, although some does occur on the Aspotogan Peninsula. Climax species varies depending on exposure. Black and white spruce with balsam fir are expected on sites exposed to the ocean, and tolerant softwoods with yellow birch on the inland more sheltered sites.

Numerous headwaters and a few scattered wetlands are present.

During the early 1900s, much of the element was either farmland or severely culled softwood stands.

The current forest exhibits a lot of variety for a coastal ecodistrict.

Softwood covertypes occur on 73% of the forest – they are mostly late seral species such as black or white spruce and fir on exposed sites, or red spruce on more sheltered sites. Most of the softwood is mature or multi-aged. Mixedwoods are largely mid seral with a mix of developmental stages featuring red maple, white birch, and poplar with red or black spruce. Yellow birch and white pine may also occur. The hardwood covertype is largely intolerant species.

The element comprises of four ecosections. Three of the ecosections – WFDM, WMKK, and IMKK – are considered uncommon. They make up 1.5%, 1.2%, and 0.9% of the ecodistrict, respectively. Two of the ecosections would also be uncommon at the ecoregional level with WFDM at 1.4% of the ecoregion and IMKK at 0.5%. WMDM is 31% converted and WFDM is 45% converted. None of the four ecosections has much area in the reserve category – of the total ecodistrict area WMDM reserve makes up 0.3%: WFDM 0.9%, WMKK 0%, and IMKK 0.1%.

There are no black spruce-white spruce forest types or tolerant mixedwood forest types identified on Crown land under the provincial Old Forest Policy.

Lack of roads in interior forest habitat and connectivity (settlement and areas with roads) are likely issues within the element.

Flows

People and transportation (settlement, ribbon development); deer (good habitat); water (headwaters, nutrient impact into smaller streams and wetlands).

Composition

South Shore Ecodistrict 830 (based on statistics up to 2007)

Composition of Coastal Mixedwood Hills and Drumlins

Development Class	Establishment	Young Competing	Mature (incl. multi-aged and old forest)	Multi-aged and Old Forest
	16%	15%	69% (29 Mat + 40 OF)	40%
Seral Stage	Early	Mid	Late	Unclassified
	2%	24%	63%	11%
Covertype	Softwood	Hardwood	Mixedwood	Unclassified
	73%	3%	21%	3%

Desired Condition

On sheltered sites generally a mature, uneven-aged, mixedwood forest of tolerant mixedwoods; Exposed sites featuring black spruce, white spruce, and balsam fir.

Issues

- representivity
- converted areas
- old growth

- lack of interior forest habitat without roads
- connectivity between patches

Coastal Spruce Ridges
(Patch) (IMRD, WMRD and WMSM ecosections) (8,651 ha)

Extending in patches from the Liverpool area to the Aspotogan Peninsula and primarily along the coast, most of this element has a ridged topography. The element also includes the islands of the coast near Crescent Beach. About 20% of the element has a flat topography (Moshers Island and small surrounding islands). The climax species association in this coastal environment is black spruce-white spruce.

The current forest is mostly softwood covertype (76%) which is mainly mature or multi-aged late seral black and white spruce. Mixedwoods (19%) are generally mid seral comprising intolerant hardwoods with black or white spruce and are often multi-aged. The hardwood component (3%) is often intolerant hardwoods.

Numerous waterways and scattered wetlands are a feature of this element. Past history shows some occurrences of farmland (particularly in Lunenburg County), culled softwood stands, and barrens. None of the ecosections in this element has large areas of land in the reserve category.

There is a lack of interior forest habitat in the element and connectivity among areas is an issue. No black spruce-white spruce forest types have been identified in the limited Crown landbase under the provincial Old Forest Policy.

Flows

People and transportation (settlement, fishing communities); deer (cover, some food); fox sparrow (habitat); water (input to numerous streams and interconnected wetlands); osprey (feeding and nesting).

Composition

South Shore Ecodistrict 830 (based on statistics up to 2007)
Composition of Coastal Spruce Ridges

Development Class	Establishment	Young Competing	Mature (incl. multi-aged and old forest)	Multi-aged and Old Forest
	10%	20%	70% (18 Mat + 52 OF)	52%
Seral Stage	Early	Mid	Late	Unclassified
	1%	28%	66%	5%
Covertype	Softwood	Hardwood	Mixedwood	Unclassified
	76%	3%	19%	2%

Desired Condition

A landscape dominated by slower growing white and black spruce.

Issues

- an uncommon ecosection (WMSM)
- representivity
- interior forest habitat
- connectivity among patches or areas
- old forest

Coastal Spruce Flats
(Patch) (ICSM and IMSM ecosections) (8,068 ha)

This patch element is found scattered throughout the ecodistrict. Occurring on flat terrain, this element has generally loamy soils that are imperfectly drained and often wet. Wetlands in the form of bogs or swamps are present, often containing areas of black spruce, red maple, or larch. Slightly better drainage gives rise to a climax forest of slow growing black spruce.

Waterways are a prominent feature of some of the larger areas, such as those located south of Liverpool and north of Voglers Cove. Occasionally, as at East Baccaro and Jordan Ferry, this element is a headland. Historically, the areas have been little used for agriculture or forestry.

Ecosection ICSM, which makes up a small portion of this element, accounts for only 0.3% of the ecodistrict and 0.2% of the ecoregion. This ecosection can be found at Port Clyde. Ecosection ICSM has no area in the reserve category, while IMSM has 1.1% of its area in reserve.

Flows

People and transportation (fishing, trapping); deer (cover, water); water (input to streams); osprey (feeding, nesting).

Composition

South Shore Ecodistrict 830 (based on statistics up to 2007)
Composition of Coastal Spruce Flats

Development Class	Establishment	Young Competing	Mature (incl. multi-aged and old forest)	Multi-aged and Old Forest
	6%	24%	70% (25 Mat + 45 OF)	45%
Seral Stage	Early	Mid	Late	Unclassified
	7%	37%	52%	4%
Covertype	Softwood	Hardwood	Mixedwood	Unclassified
	63%	6%	29%	2%

Desired Condition

Imperfectly drained flat terrain with a mixture of wetlands and slow-growing black spruce.

Issues

- uncommon ecosection
- representivity

Wetlands
(Patch) (WTLD ecosection) (5,950 ha)

The Wetlands element is found throughout the ecodistrict, but the majority of the element occurs in the western end. These larger mapped wetland complexes are most often bogs, which include small areas of stunted black spruce or sometimes larch. Bogs are often associated with slow moving streams.

The largest bog wetlands in the ecodistrict are on Cape Sable Island and the Woods Harbour-Pubnico areas. Occasionally, fen wetlands form part of this element. Red maple is associated with this wetland type. Countless smaller wetlands (too small to be mapped at the Ecological Land Classification scale) occur throughout. Also present are wooded swamps, which are difficult to inventory using traditional aerial photography.

Wetlands are often headwaters of streams within the ecodistrict. Wetlands play an important role in water collection, storage, filtration, and groundwater recharge. They are of high biodiversity concern and land use practices nearby should attempt to limit any negative influence on the wetlands. Only 0.6% of the Wetland ecosection is in the reserve category. ATV use is of concern on some of the wetlands.

Flows

People and transportation (trapping, fishing); deer (limited cover); fox sparrow (potential habitat); moose (habitat from Jordan River to Port Mouton); water (water storage, purifier, recharge).

Composition

South Shore Ecodistrict 830 (based on statistics up to 2007)
Composition of Wetlands

Development Class	Establishment	Young Competing	Mature (incl. multi-aged and old forest)	Multi-aged and Old Forest
	9%	43%	48% (25 Mat + 23 OF)	23%
Seral Stage	Early	Mid	Late	Unclassified
	6%	48%	41%	5%
Covertype	Softwood	Hardwood	Mixedwood	Unclassified
	73%	3%	22%	2%

Desired Condition

Undisturbed wetlands maintaining natural connections. Wetland integrity maintained in adjacent resource uses.

Issues

- representivity
- ATV use

Coastal Spruce Pine Oak Hills and Hummocks
(Patch) (ICHO, WCHO and WCKK ecosections) (5,493 ha)

This patch element features sandy soils located on hills or hummocks. The largest areas can be found on the Aspotogan Peninsula, near Liverpool, and in the Port Clyde area. The element is quite variable in nature. Dry sites have a black spruce-red maple-jack pine climax forest. Well-drained inland sites support a red oak-white pine-red maple climax and areas close to the coast black and white spruce.

A report from the early 1900s showed areas of barren, farmland, and severely culled softwoods.

The element often contains or abuts waterways. Wetlands are common in some of the element.

The majority of the forest is either young or multi-aged. The age class is unbalanced with only 6% of the forest in the establishment stage.

Softwoods are the most common covertype and late seral species such as black spruce are prevalent. Mixedwoods are usually mid seral with black spruce occurring among intolerant hardwoods. The hardwood covertype is usually intolerant hardwoods.

Ecosections comprising this patch – WCKK, WCHO, and ICHO – make up 1.9%, 1.3%, and 0.9% of the ecodistrict area, respectively. These are uncommon ecosections with ICHO being considered unique and WCKK and WCHO rare. ICHO is located near Port Clyde. ICHO also makes up only 2% of the ecoregion. WCHO is 26% converted in the ecodistrict. ICHO has no area in the reserve category.

Flows

People and transportation (settlement); deer (browse and cover); fox sparrow (habitat in dead and dying spruce); water (input to waterways and wetlands, wetland functions of collection, storage, filtration, and groundwater recharge).

Composition

South Shore Ecodistrict 830 (based on statistics up to 2007)
Composition of Coastal Spruce Pine Oak Hills and Hummocks

Development Class	Establishment	Young Competing	Mature (incl. multi-aged and old forest)	Multi-aged and Old Forest
	6%	37%	57% (20 Mat + 37 OF)	37%
Seral Stage	Early	Mid	Late	Unclassified
	10%	37%	50%	3%
Covertype	Softwood	Hardwood	Mixedwood	Unclassified
	62%	11%	27%	0%

Desired Condition

A mix of development classes and seral stages with the highest amount in a mature state with early, mid, and late seral representation. Climax species dependent on site conditions (dry, coastal, or inland).

Issues

- representivity of ICHO
- uncommon ecosections (WCKK, WCHO, ICHO)
- converted area (WCHO)
- low amount of establishment stage forest cover

Coastal Beach
(Patch) (XXCB ecosection) (1,322 ha)

There are numerous sandy beaches along the ecodistrict shoreline. Some of these have been afforded legal protection through the Beaches Act.

The beaches are generally highly valued for their aesthetic and recreational values. Although the beaches do not exhibit a great deal of biodiversity, they and their associated sand dunes provide habitat for shorebirds, micro-organisms, and crustaceans. The piping plover is an endangered species and some of the beaches provide habitat critical for their survival.

The beach ecosystem is sensitive and human disturbance (ATV use, sand removal, housing development) can have a major impact. Efforts to control beach ecosystems by artificial means, a rising sea-level and subsequent shore erosion often result in changes to natural processes with further impacts or erosion to the ecosystem.

The coastal environment is constantly changing and efforts in the future should be made to keep it in as natural a state as possible state. Of further concern to many is the possible limited access to beaches because so much of the coastline is in private ownership.

Any trees in the Coastal Beach element are primarily an intrusion from an adjoining element and in most cases would likely be white or black spruce.

About 20% of this element is in the reserve category.

Flows

People and transportation (recreation, parks, clamming, ATV use); deer (kelp - food source); piping plover (important habitat on selected beaches).

Composition

South Shore Ecodistrict 830 (based on statistics up to 2007)
Composition of Coastal Beach

Development Class	Establishment	Young Competing	Mature (incl. multi-aged and old forest)	Multi-aged and Old Forest
	5%	25%	70% (51 Mat + 19 OF)	19%
Seral Stage	Early	Mid	Late	Unclassified
	2%	21%	77%	0%
Covertype	Softwood	Hardwood	Mixedwood	Unclassified
	82%	4%	14%	0%

Desired Condition

Landforms following natural developmental processes with minimal human impact.

Issues

- ATV use
- potential future development near beaches
- access

Salt Marsh
(Patch) (XXMS ecosection) (941 ha)

Numerous small salt marshes are present along the ecodistrict coastline. They form in sheltered intertidal areas in estuaries, behind spits, bars or islands, and in protected bays where there is regular flooding and sources of sediment.

Salt marshes are very productive ecosystems and provide a major food source for marine organisms, which are in turn consumed by species higher in the food chain such as fish and shore birds. Salt marshes are considered a nursing area for some species of fish.

Possible areas of concern in maintaining the integrity of salt marshes are development of road networks that could affect the interaction of the fresh water and salt water exchange or affect the deposition of silt. Road construction on or near salt marshes should be minimized and if present

any water flow structures should be functioning properly. Some of the element Salt Marsh has roads running into or beside marshes.

The element has a Road Index of 33, nearly three times the average of 12 (Appendix 7, Table 3).

Small islands, mostly of black and white spruce, may be present within the Salt Marsh element.

Flows

People and transportation (roads, hunting, trapping, bird watching); deer (succulent food); water (nutrient mixing); osprey (hunt in vicinity of salt marshes).

Composition

South Shore Ecodistrict 830 (based on statistics up to 2007)

Composition of Salt Marsh

Development Class	Establishment	Young Competing	Mature (incl. multi-aged and old forest)	Multi-aged and Old Forest
	4%	40%	56% (31 Mat + 25 OF)	25%
Seral Stage	Early	Mid	Late	Unclassified
	4%	20%	73%	3%
Covertype	Softwood	Hardwood	Mixedwood	Unclassified
	86%	2%	12%	0%

Desired Condition

A naturally functioning salt marsh with little or no human impact.

Issues

- high road index
- alteration by existing roads or possible future development

Valley Corridors

(Corridor) (Various ecosections) (1,318 ha)

Valley corridors of varying widths are present along waterways. These corridors have been delineated along some of the ecodistrict's major rivers (Barrington, Clyde, Roseway, Jordan, Sable, Broad, Five Rivers, Mersey, Medway, Petite Rivière, and LaHave).

Riparian corridors in woodland ecosystems play important roles in regulating water temperature, input of nutrients, and erosion control. They are also important ecologically because of the diversity and richness of species occupying them.

Pre-European settlement climax forests in the corridor likely comprised black spruce, white pine, maples, and wetlands. Currently, black spruce, white pine, and some wetlands are present along with white spruce and red maple.

Because the South Shore Ecodistrict is narrow, corridors identified are located in part along the mouths of the rivers. Historically, most of these corridors were the locations of some of the early settlements and with the passing of time the settlements along the corridors have expanded seaward as the waterways fan out, forming harbours. Locations with seaside views are popular building lots.

This element has one of the higher conversion rates at 22% of the element area (Appendix 12a).

The Road Index value of 54 is highest of all elements in the ecodistrict (Appendix 7, Table 3).

Efforts should be made, as far as possible, to restore natural forest along the waterways and to minimize any pollution that might result from human habitation and road use.

Flows

People and transportation (settlement); deer (travel along corridor where cover exists); piping plover (habitat along estuaries of Sable and Broad rivers); fox sparrow (habitat where river runs through dead or dying white or black spruce); moose (habitat along and between Jordan and Broad rivers); water (nutrient input); osprey (habitat).

Composition

South Shore Ecodistrict 830 (based on statistics up to 2007)

Composition of Valley Corridors

Development Class	Establishment	Young Competing	Mature (incl. multi-aged and old forest)	Multi-aged and Old Forest
	2%	20%	78% (48 Mat + 30 OF)	30%
Seral Stage	Early	Mid	Late	Unclassified
	8%	49%	42%	1%
Covertype	Softwood	Hardwood	Mixedwood	Unclassified
	47%	8%	45%	0%

Desired Condition

In as much as possible naturally vegetated corridors along waterways. Human impact minimized.

Issues

- converted area
- high road index

Ecosystem Issues and Opportunities (All appendices and maps)

Management of the forest resource in the South Shore Ecodistrict should focus on forest biodiversity conservation across the range of spatial scales. General principles could include maintenance of connectivity, maintenance of landscape heterogeneity, maintenance of stand structural complexity, and maintenance of the integrity of aquatic systems (Lindenmayer and Franklin 2002). Actions taken toward these principles could consider:

- managing climax forest communities according to their natural disturbance regime (NDR)
- promoting late seral stands in silvicultural practices
- encouraging patch or area aggregation to increase the amount of interior forest habitat in some of the patch elements
- encouraging the formal protection of old forests on private land
- addressing connectivity issues around settlements and among patches
- educating the public to the harmful effects of fire on site productivity and all-terrain vehicles on wetlands
- recognizing the importance of riparian corridors along all watercourses as protection of aquatic habitat, as habitat itself, and for the role riparian corridors can play in connectivity throughout the landscape
- improving representivity by considering additional ecosections – ICHO, ICSM, IMKK, WFDM, WMKK, and WMSM – along with the less common community types of red spruce-white pine-yellow birch and red maple fens
- striving to limit alteration of areas in and around salt marshes and coastal beaches
- attempting to acquire more land along the coast to ensure public access

Appendix 1: Flow - Element Interactions

Element	People and Transportation	Deer	Piping Plover	Fox Sparrow	Moose	Water	Osprey
Matrix Coastal Spruce	- settlement around the shore - fishing communities - recreation - hunting - trapping - ATV use	- winter cover - wooded swamps provide food - cutovers - browse	----------	- potential habitat (old and dying softwood, nesting, feeding) - also habitat on islands	- travel, thermal refuge, food in wet areas (Jordan River to Port Mouton)	- estuaries habitat for birds - nutrient input - filtration, storage, groundwater recharge - headwaters of many small streams - nutrient input	- feeding and nesting
Patches Coastal Bogs and Hummocks	- trapping, some hunting	- limited cover, some browse	----------	- potential habitat	- habitat Jordan River to Port Mouton	- wetlands (wetland functions of collection, filtration, storage, groundwater recharge)	- feeding and nesting
Coastal Spruce Pine Hummocks	- settlement - tourism - beaches - parks - hunting	- winter cover - wooded swamps provide cover - browse in cutovers	----------	- potential habitat in dead and dying softwoods	----------	- input to stream and wetlands	- feeding and nesting
Coastal Mixedwood Hills and Drumlins	- settlement (ribbon development)	- good habitat, cover, food	----------	----------	----------	- headwater - nutrient input into smaller streams and wetlands	----------
Coastal Spruce Ridges	- settlement - fishing communities	- cover, some food	----------	- habitat	----------	- input to numerous streams and interconnected wetlands - wetland functions (storage, collection, filtration, recharge)	- feeding and nesting
Coastal Spruce Flats	- fishing - trapping	- cover - water	----------	----------	----------	- wetlands - input to streams	- feeding and nesting

Appendix 1: Flow - Element Interactions

Element	People and Transportation	Deer	Piping Plover	Fox Sparrow	Moose	Water	Osprey
Wetlands	- trapping - fishing	- limited cover	----------	- potential habitat	- habitat (Jordan River to Port Mouton)	- water storage, purifier, recharge	----------
Coastal Spruce Pine Oak Hills and Hummocks	- settlement	- some browse and cover	----------	- in dead and dying black/white spruce	----------	- wetland functions - input to waterways and wetlands	----------
Coastal Beach	- recreation (swimming) - parks - clamming - ATV	- kelp food source	- important habitat (Cape Sable Island, Baccaro, Cherry Hill)	----------	----------	----------	----------
Salt Marsh	- roads - hunting - trapping - bird watching	- some succulent plants	- possible if adjacent to beach	----------	----------	- nutrient mixing - dissipate wave action	- hunt in vicinity of salt marshes
Corridor Valley Corridors Barrington, Clyde, Roseway, Jordan, Sable, Five Rivers, Mersey, Broad, Medway, LaHave, and Petite Rivière corridors	- settlement around mouths of rivers - recreation canoeing, power boats - fishing	- travel along corridors where cover exists	- habitat (the estuaries of Sable and Broad rivers)	- habitat where river runs through dead or dying white or black spruce	- general habitat between and along Jordan and Broad rivers	- nutrient input	- habitat

Appendix 2a: Landscape Connectivity Worksheet

Feature	Structure Type (corridor, matrix, patch, island)	Importance in Ecodistrict (high, moderate, low)	Significant Cases (species, ecosections, specific rivers)	Scale and Pattern of Operation (local, landscape)	Associated Natural Disturbance Regime	Characteristic Community	Characteristic Neighbour(s)	Barriers - Impediments to Functionality	Significant Issues	Management Strategy
Coastal Spruce	Matrix	High	IMHO	Landscape	Frequent	- black spruce wetlands	- Wetlands - Coastal Spruce Flats - Coastal Mixedwood Hills and Drumlins - Coastal Spruce Ridges	- road density and settlement - species composition - invasive species - species composition	- road density and habitation along elements coastline creating unnatural conditions - man made fires set at short intervals affecting species and site productivity (particularly Shelburne County) - potential future problem with proliferation of scotch broom - harvesting practices	- preservation of sections of intact element along coastline - land purchase - education - municipal laws - fire suppression and education - manage climax stands according to natural disturbance regime - promote late seral species through silvicultural practices
Coastal Bogs and Hummocks	Patch	High	- large area with bog complexes south of Barrington, north of Round Bay, and at Lower East Pubnico	Local	Frequent	- wetlands (bogs) with patches of black spruce, red maple, tamarack	- Matrix Wetlands	- barriers - localized interior interruptions caused by road construction (Sable River) - damage to integrity - damage to integrity	- intervening areas between large patches suburban in nature - ATV use - man made fires	- use waterways and sufficient buffers to maintain/enhance connectivity - education and enforcement

Appendix 2a: Landscape Connectivity Worksheet

Feature	Structure Type (corridor, matrix, patch, island)	Importance in Ecodistrict (high, moderate, low)	Significant Cases (species, ecosections, specific rivers)	Scale and Pattern of Operation (local, landscape)	Associated Natural Disturbance Regime	Characteristic Community	Characteristic Neighbour(s)	Barriers - Impediments to Functionality	Significant Issues	Management Strategy
Coastal Spruce Pine Hummocks	Patch	Moderate	----------	Landscape	Frequent	Climax - black spruce white pine, scattered red oak Current - intolerant mixedwoods and hardwoods - black spruce white spruce	- Matrix, Coastal Spruce Flats	- amount of edge caused by settlement and road construction	- settlement and road construction	- encourage aggregation within patches or connectivity of patches within a patch
Coastal Spruce Flats	Patch	Moderate	IMSM, ICSM	Landscape	Frequent/ Open Seral	- wetlands (bogs and swamps) with patches of black spruce, red maple, larch, balsam fir	- Matrix, most other elements	- patch isolation	- condition of intervening elements and patches of settlements and roads	- assure some connectivity by management of riparian zones and land bridge connections
Wetlands	Patch	High	- major ones in the west (Lower East Pubnico, Clarks Harbour)	Landscape	Open Seral	- wetland species, black spruce	- Matrix, Coastal Bogs and Hummocks	- maintenance of wetland integrity	- ATV use - possible impact on wetlands from road construction	- enforcement and education - best management practices

Appendix 2a: Landscape Connectivity Worksheet

Feature	Structure Type (corridor, matrix, patch, island)	Importance in Ecodistrict (high, moderate, low)	Significant Cases (species, ecosections, specific rivers)	Scale and Pattern of Operation (local, landscape)	Associated Natural Disturbance Regime	Characteristic Community	Characteristic Neighbour(s)	Barriers - Impediments to Functionality	Significant Issues	Management Strategy
Coastal Spruce Pine Oak Hills and Hummocks	Patch	Moderate	- WCKK , WCHO, ICHO - Aspotogan Peninsula	Local	Frequent	- black spruce, jack pine, red maple (dry sites) - red oak, white pine, red maple (inland) - black spruce, white spruce (coastal)	- Matrix Coastal Bogs and Hummocks	- loss of habitat, age class distribution - isolation	- conversion - amount of mature forest - condition of intervening elements (development, road construction)	- let forest grow - assure some connectivity by management of riparian zones and land connections
Coastal Mixedwood Hills and Drumlins	Patch	Moderate	WMDM, WFDM	Local	Frequent/ Gap	Climax - tolerant mixedwood (sheltered sites) - black spruce, white spruce (exposed sites) Current - black /red spruce, white spruce - intolerant mixedwood	- matrix, Coastal Spruce Pine Hummocks - Coastal Spruce Flats	- amount of edge, conversion, internal composition, patch size, coastal access	- settlement, road construction, harvesting practices	- where possible patch aggregation - harvesting practices consistent with natural disturbance regime - land purchase
Coastal Spruce Ridges	Patch	Moderate	IMRD, WMRD WMSM	Local	Frequent	- black spruce, white spruce	- Coastal Spruce Pine Hummocks Matrix, Coastal Mixedwood Hills and Drumlins	- amount of edge, lack of interior mature habitat	- settlement, road construction	- patch aggregation - land purchase

Appendix 2a: Landscape Connectivity Worksheet

Feature	Structure Type (corridor, matrix, patch, island)	Importance in Ecodistrict (high, moderate, low)	Significant Cases (species, ecosections, specific rivers)	Scale and Pattern of Operation (local, landscape)	Associated Natural Disturbance Regime	Characteristic Community	Characteristic Neighbour(s)	Barriers - Impediments to Functionality	Significant Issues	Management Strategy
Coastal Beach	Patch	High	----------	Local	----------	- beach grass, dune grass, beach pea	- Matrix, Salt Marsh, Coastal Mixedwood Hills and Drumlins	- control of natural functions by man - loss of integrity	- breakwaters armoring - vehicular traffic	- allow natural beach processes where possible - maintain dunes - education and enforcement
Salt Marsh	Patch	High	----------	Local (small area but occurring throughout ecodistrict)	----------	----------	- Wetland Matrix, Coastal Bogs and Hummocks, Coastal Beach	----------	----------	----------
Valley Corridors	Corridor	High	- Barrington, Clyde, Roseway, Jordan, Sable, Broad, Five, Mersey, Medway, Petite Rivière, and LaHave rivers	- landscape (connecting ecodistricts)	- various depending on adjacent community generally frequent	- black spruce, white spruce, white pine, red maple	- all elements	- conversion	- development - pollution	- restorative measures - riparian zone management - land use planning - ensure proper waste disposal and road management practices

Appendix 2b: Connective Management Strategies

Structure Type	Attributes	Conditions of Concern	Management Strategies
Matrix	percolation, large patch, interior habitat	fragmentation, excessive edge	1. Promote contiguous forest structure using strategies such as patch aggregation and overstory sustaining selection cutting 2. Promote large patch structure and interior conditions 3. Mitigate large scale, long term, fragmentation of the matrix that could impede percolation 4. Manage age and structure appropriate to NDR. For gap and infrequently disturbed ecosections maintain 60% mature
Patch Ecosystems	patch size, nearest neighbour, edge / interior, intervening habitat condition	undesirable connections, internal composition, excessive separations, threats to key patch	1. Identify and map key patch representatives (high quality, or critical link/distance) 2. Maintain natural isolations, as well as necessary "nearest neighbour" distances 3. Identify potential metapopulation habitat dynamics (if applicable)
Linear Corridors	continuous connection	barriers, interruptions, excessive edge	1. Mitigate unnatural barriers 2. Map and Manage along natural boundaries 3. Conserve "interior" conditions where appropriate through strategic management of neighbouring ecosystems 4. Sustain continuity, through management of overstory and interior structure appropriate to NDR 5. Follow habitat regulations for buffer management. Establish wider buffers with natural boundaries along major waterways

Appendix 3: Special Occurrences (Ecodistrict 830)

Table 1a: Species at Risk (species protected by endangered species legislation on all lands)

SPECIES		DESIGNATION		
Common Name	**Scientific Name**	**Provincial**	**Federal**	**COSEWIC**
BIRDS				
Short-eared Owl	*Asio flammeus*	N/A	Special Concern	Special Concern
Barrows Goldeneye	*Buchephela islandica*	Vulnerable	Special Concern	Special Concern
Red Knot rufa ssp	*Calidris canutus rufa*	Endangered	N/A	Endangered
Common Nighthawk	*Chordeilis minor*	Threatened	Threatened	Threatened
Piping Plover melodus ssp	*Charadrius melodus melodus*	Endangered	Endangered	Endangered
Olive-sided Flycatcher	*Contopus cooperi*	Threatened	Threatened	Threatened
Eastern Wood-Pewee	*Contopus virens*	Vulnerable	N/A	Special Concern
Bobolink	*Dolichonyx oryzivorus*	Vulnerable	N/A	Threatened
Rusty Blackbird	*Euphagus carolinus*	Endangered	Special Concern	Special Concern
Barn Swallow	*Hirundo rustica*	Endangered	N/A	Threatened
Harlequin Duck - Eastern pop.	*Histrionicus histrionicus* pop. 1	Endangered	Special Concern	Special Concern
Wood Thrush	*Hylocichla mustelina*	N/A	N/A	Threatened
Ipswich Sparrow	*Passerculus sandwichensis princeps*	Vulnerable	Special Concern	Special Concern
Bank Swallow	*Riparia riparia Sterna*	N/A	N/A	Threatened
Roseate Tern	*dougallii Tryngites*	Endangered	Endangered	Endangered
Buff-breasted Sandpiper	*subruficollis Wilsonia*	N/A	N/A	Special Concern
Canada Warbler	*canadensis*	Endangered	Threatened	Threatened
DICOTS				
Thread-leaved Sundew	*Drosera filiformis*	Endangered	Endangered	Endangered
Eastern Lilaeopsis	*Lilaeopsis chinensis*	Vulnerable	Special Concern	Special Concern
FISH				
Atlantic Whitefish	*Coregonus huntsmani*	Endangered	Endangered	Endangered
Atlantic Salmon (Southern Uplands population)	*Salmo salar*	N/A	N/A	Endangered
INSECTS				
Monarch	*Danaus plexippus*	N/A	Special Concern	Special Concern
LICHENS				
Blue Felt Lichen	*Degelia plumbea Erioderma*	Vulnerable	Special Concern	Special Concern
Graceful Felt Lichen	*mollissimum Erioderma pedicellatum* (Atlantic	Endangered	N/A	Endangered
Boreal Felt Lichen - (Atlantic pop.)	pop.)	Endangered	Endangered	Endangered
Ghost Antler Lichen	*Pseudevernia cladonia*	N/A	Special Concern	Special Concern
MAMMALS				
Moose	*Alces americanus*	Endangered	N/A	N/A
Harbour Porpoise (Northwest Atlantic pop.)	*Phocoena phocoena* (NW Atlantic pop.)	N/A	Threatened	Special Concern

Appendix 3: Special Occurrences (Ecodistrict 830)

Table 1a: Species at Risk (species protected by endangered species legislation on all lands)

SPECIES		DESIGNATION		
Common Name	**Scientific Name**	**Provincial**	**Federal**	**COSEWIC**
REPTILES				
Blanding's Turtle - Nova Scotia pop.	*Emydoidea blandingii*	Endangered	Endangered	Endangered
Eastern Ribbonsnake - Atlantic pop.	*Thamnophis sauritus* pop. 3	Threatened	Threatened	Threatened

Appendix 3: Special Occurrences (Ecodistrict 830)

Table 1b: Other Species of Conservation Concern (other species that are a priority for planning, management, and stewardship action)

SPECIES		DESIGNATION	
Common Name	**Scientific Name**	**Provincial General Status Rank**	**ACCDC S-Rank***
AMPHIBIANS	-		
Four-toed Salamander	*Hemidactylium scutatum*	Secure (Green)	S3
BIRDS			
Spotted Sandpiper	*Actitis macularius*	Sensitive (Yellow)	S3S4B
Razorbill	*Alca torda Branta*	Sensitive (Yellow)	S1B,S4N
Brant	*bernicla Bucephala*	Sensitive (Yellow)	S3M
Common Goldeneye	*clangula Calidris*	Secure (Green)	S2B,S5N
Purple Sandpiper	*maritima Calidris*	Sensitive (Yellow)	S3N
Least Sandpiper	*minutilla Calidris*	Secure (Green)	S1B,S5M
Semipalmated Sandpiper	*pusilla Cepphus*	Sensitive (Yellow)	S3M
Black Guillemot	*grylle*	Secure (Green)	S3S4
Semipalmated Plover	*Charadrius semipalmatus*	Secure (Green)	S1S2B,S5M
Killdeer	*Charadrius vociferus*	Sensitive (Yellow)	S3S4B S3?B
Black-billed Cuckoo	*Coccyzus erythropthalmus*	May Be At Risk (Orange)	S3B S3S4B
Gray Catbird	*Dumetella carolinensis*	May Be At Risk (Orange)	S1B,S4S5N
Yellow-bellied Flycatcher	*Empidonax flaviventris*	Sensitive (Yellow)	S3S4B
Atlantic Puffin	*Fratercula arctica*	Sensitive (Yellow)	S3B,S4N
Wilson's Snipe	*Gallinago delicata*	Sensitive (Yellow)	S1B
Common Loon	*Gavia immer*	May Be At Risk (Orange)	S1?B,S5N
American Oystercatcher	*Haematopus palliatus*	Undetermined	S3M
Ring-billed Gull	*Larus delawarensis*	Secure (Green)	S3B,S5N
Hudsonian Godwit	*Limosa haemastica*	Sensitive (Yellow)	S3M
Red-breasted Merganser	*Mergus serrator*	Secure (Green)	S1B
Hudsonian Whimbrel	*Numenius phaeopus hudsonicus*	Sensitive (Yellow)	S4S5B
Black-crowned Night-heron	*Nycticorax nycticorax*	May Be At Risk (Orange)	S3S4B
Leach's Storm Petrel	*Oceandroma leucorhoa*	Secure (Green)	S3S4
Fox Sparrow	*Passerella iliaca*	Secure (Green)	S3B
Gray Jay Cliff	*Perisoreus canadensis*	Sensitive (Yellow)	S3
Swallow	*Petrochelidon pyrrhonota*	May Be At Risk (Orange)	S2S3M
Great Cormorant	*Phalacrocorax carbo*	Sensitive (Yellow)	S2S3M
Red Phalarope	*Phalaropus fulicarius*	Sensitive (Yellow)	S3M S3
Red-necked Phalarope	*Phalaropus lobatus*	Sensitive (Yellow)	S2B,S4S5N
American Golden-Plover	*Pluvialis dominica*	Sensitive (Yellow)	S3S4B S3B
Boreal Chickadee	*Poecile hudsonica*	Sensitive (Yellow)	S3B
Black-legged Kittiwake	*Rissa tridactyla*	Sensitive (Yellow)	
Eastern Phoebe	*Sayornis phoebe*	Sensitive (Yellow)	
Common Tern	*Sterna hirundo*	Sensitive (Yellow)	
Arctic Tern	*Sterna paradisaea*	May Be At Risk (Orange)	

Appendix 3: Special Occurrences (Ecodistrict 830)

Table 1b: Other Species of Conservation Concern (other species that are a priority for planning, management, and stewardship action)

SPECIES		DESIGNATION	
Common Name	**Scientific Name**	**Provincial General Status Rank**	**ACCDC S-Rank***
Greater Yellowlegs	*Tringa melanoleuca*	Sensitive (Yellow)	S3B,S5M
Willet	*Tringa semipalmata*	May Be At Risk (Orange)	S2S3B
Solitary Sandpiper	*Tringa solitaria*	Secure (Green)	S1?B,S4S5M
Tennessee Warbler	*Vermivora peregrina*	Sensitive (Yellow)	S3S4B
Wilson's Warbler	*Wilsonia pusilla*	Sensitive (Yellow)	S3S4B
BRYOPHYTES			
a Moss	*Campylostelium saxicola*	Sensitive (Yellow)	S2?
DICOTS			
Nova Scotia Agalinis	*Agalinis neoscotica*	Secure (Green)	S3
Fernald's Serviceberry	*Amelanchier fernaldii*	Undetermined	S2?
Nantucket Serviceberry	*Amelanchier nantucketensis*	At Risk (Red)	S1
Canada Anemone	*Anemone canadensis*	May Be At Risk (Orange)	S2
Yellow Bartonia	*Bartonia virginica*	Secure (Green)	S3
Seaside Spurge	*Chamaesyce polygonifolia*	Secure (Green)	S3
Red Pigweed	*Chenopodium rubrum*	May Be At Risk (Orange)	S1?
Chinese Hemlock-parsley	*Conioselinum chinense*	Sensitive (Yellow)	S2
Swedish Bunchberry	*Cornus suecica*	Sensitive (Yellow)	S1S2
Water Pygmyweed	*Crassula aquatica*	Sensitive (Yellow)	S2
Buttonbush Dodder	*Cuscuta cephalanthi*	May Be At Risk (Orange)	S1
Swamp Loosestrife	*Decodon verticillatus*	Sensitive (Yellow)	S3
Downy Willowherb	*Epilobium strictum*	Sensitive (Yellow)	S3
Common Bedstraw	*Galium aparine*	Exotic	S1
Pinebarren Golden Heather	*Hudsonia ericoides*	Sensitive (Yellow)	S2
Inkberry	*Ilex glabra*	Secure (Green)	S5
Southern Mudwort	*Limosella australis*	Sensitive (Yellow)	S3
Yellow-seeded False Pimperel	*Lindernia dubia*	Secure (Green)	S3S4
Greenland Stitchwort	*Minuartia groenlandica*	Sensitive (Yellow)	S2
Northern Bayberry	*Myrica pensylvanica*	Secure (Green)	S5
Narrow-leaved Evening Primrose	*Oenothera fruticosa ssp. glauca*	Undetermined	S2
Sharp-fruited Knotweed	*Polygonum raii*	Undetermined	S2S3
Climbing False Buckwheat	*Polygonum scandens*	Sensitive (Yellow)	S3
Canada Cinquefoil	*Potentilla canadensis*	Undetermined	S3?
Eastern Cudweed Cursed	*Pseudognaphalium obtusifolium*	Secure (Green)	S3S4
Buttercup Virginia	*Ranunculus sceleratus*	May Be At Risk (Orange)	S1S2
Meadow Beauty Knotted	*Rhexia virginica*	Secure (Green)	S3
Pearlwort	*Sagina nodosa*	Secure (Green)	S2S3
Knotted Pearlwort	*Sagina nodosa ssp. borealis*	Secure (Green)	S2S3

Appendix 3: Special Occurrences (Ecodistrict 830)

Table 1b: Other Species of Conservation Concern (other species that are a priority for planning, management, and stewardship action)

SPECIES		DESIGNATION	
Common Name	**Scientific Name**	**Provincial General Status Rank**	**ACCDC S-Rank***
Seaside Brookweed	*Samolus valerandi ssp. parviflorus*	Sensitive (Yellow)	S2
Elliott's Goldenrod	*Solidago latissimifolia*	Secure (Green)	S3
White Sea-blite	*Suaeda maritima ssp. richii*	Undetermined	S1
Canada Germander	*Teucrium canadense*	Sensitive (Yellow)	S3
Zigzag Bladderwort	*Utricularia subulata*	Secure (Green)	S3
Northern Blueberry	*Vaccinium boreale*	May Be At Risk (Orange)	S2
Highbush Blueberry	*Vaccinium corymbosum*	Secure (Green) Sensitive	S3
Northern Bog Violet	*Viola nephrophylla*	(Yellow)	S2
FERNS AND THEIR ALLIES			
Cut-leaved Moonwort	*Botrychium dissectum*	Secure (Green)	S3
Least Moonwort	*Botrychium simplex*	Sensitive (Yellow)	S2S3
Northern Adder's-tongue	*Ophioglossum pusillum*	Sensitive (Yellow)	S2S3
Little Curlygrass Fern	*Schizaea pusilla*	Secure (Green)	S3
FISH			
Striped Bass	*Morone saxatilis*	May Be At Risk (Orange)	S1
INSECTS			
Common Roadside-Skipper	*Amblyscirtes vialis*	Secure (Green)	S3
Eastern Red Damsel	*Amphiagrion saucium*	Secure (Green)	S2
Prince Baskettail	*Epitheca princeps*	Sensitive (Yellow)	S3
Juvenal's Duskywing	*Erynnis juvenalis*	Secure (Green)	S1S2
Seaside Dragonlet	*Erythrodiplax berenice*	Sensitive (Yellow)	S3
Harvester	*Feniseca tarquinius*	Secure (Green)	S3S4
Northern Pearly-Eye	*Lethe anthedon*	Secure (Green)	S3
Compton Tortoiseshell	*Nymphalis l-album*	Secure (Green)	S1S2
Question Mark	*Polygonia interrogationis*	Secure (Green)	S3
Striped Hairstreak	*Satyrium liparops*	Undetermined	S2
LICHENS			
Black-foam Lichen Blistered	*Anzia colpodes Collema*	Sensitive (Yellow)	S3?
Tarpaper Lichen Blistered	*furfuraceum Collema*	Sensitive (Yellow)	S3?
Tarpaper Lichen Powder-	*nigrescens Everniastrum*	Sensitive (Yellow)	S2S3
tipped Antler Lichen Rimmed	*catawbiense*	May Be At Risk (Orange)	S1S2
Shingles Lichen Blistered	*Fuscopannaria leucosticta*	May Be At Risk (Orange)	S1S2
Jellyskin Lichen Stretched	*Leptogium corticola*	Sensitive (Yellow)	S2S3
Jellyskin Lichen	*Leptogium milligranum*	Sensitive (Yellow)	S2S3

Appendix 3: Special Occurrences (Ecodistrict 830)

Table 1b: Other Species of Conservation Concern (other species that are a priority for planning, management, and stewardship action)

SPECIES		DESIGNATION	
Common Name	**Scientific Name**	**Provincial General Status Rank**	**ACCDC S-Rank***
Appressed Jellyskin Lichen	*Leptogium subtile*	Sensitive (Yellow)	S1S3
Naked Kidney Lichen	*Nephroma bellum*	Sensitive (Yellow)	S3?
Veined Shingle Lichen	*Pannaria lurida*	May Be At Risk (Orange)	S1?
Poor-man's Shingles Lichen	*Parmeliella parvula*	May Be At Risk (Orange)	S1?
Bottlebrush Frost Lichen	*Physconia detersa*	Sensitive (Yellow)	S2S3
Peppered Moon Lichen	*Sticta fuliginosa*	Sensitive (Yellow)	S3?
Powdered Moon Lichen	*Sticta limbata*	May Be At Risk (Orange)	S1S2
Warty Beard Lichen	*Usnea ceratina*	Sensitive (Yellow)	S2S3
MAMMALS			
Cougar - Eastern population	*Puma concolor* pop. 1	Undetermined	SH
MONOCOTS			
Atlantic Sedge	*Carex atlantica ssp. capillacea*	Undetermined	S2
Long's Sedge	*Carex longii Carex*	At Risk (Red)	S1?
Wiegand's Sedge	*wiegandii*	May Be At Risk (Orange)	S1
Toothed Flatsedge	*Cyperus dentatus*	Secure (Green)	S3S4
Deer-tongue Panic Grass	*Dichanthelium clandestinum*	Secure (Green)	S3
Beaked Spikerush	*Eleocharis rostellata*	Sensitive (Yellow)	S3
Russet Cotton-Grass	*Eriophorum chamissonis*	Secure (Green)	S3S4
Lesser Rattlesnake-plantain	*Goodyera repens*	Sensitive (Yellow)	S3
Greene's Rush	*Juncus greenei*	May Be At Risk (Orange)	S1S2
Grassleaf Rush	*Juncus marginatus*	Sensitive (Yellow)	S3
Loesel's Twayblade	*Liparis loeselii*	Secure (Green)	S3S4
Southern Twayblade	*Listera australis*	May Be At Risk (Orange)	S2
Tuckerman's Panic Grass	*Panicum tuckermanii*	Sensitive (Yellow)	S2S3
Canada Rice Grass	*Piptatherum canadense*	Sensitive (Yellow)	S2
Southern Rein Orchid	*Platanthera flava var. flava*	Secure (Green)	S1S2
Hooker's Orchid	*Platanthera hookeri*	Secure (Green)	S3
Small Round-leaved Orchid	*Platanthera orbiculata*	Secure (Green)	S3
Olney's Bulrush	*Schoenoplectus americanus*	Sensitive (Yellow)	S3
Narrow-leaved Blue-eyed-grass	*Sisyrinchium angustifolium*	Secure (Green)	S3S4
Eastern Blue-Eyed-Grass	*Sisyrinchium atlanticum*	Secure (Green)	S3S4
Round-leaved Greenbrier	*Smilax rotundifolia (*Atlantic pop.)	Secure (Green)	S3
Shining Ladies'-Tresses	*Spiranthes lucida*	May Be At Risk (Orange)	S2
Gaspe Arrowgrass	*Triglochin gaspensis*	Undetermined	S1?

Appendix 3: Special Occurrences (Ecodistrict 830)

Table 1b: Other Species of Conservation Concern (other species that are a priority for planning, management, and stewardship action)

*Atlantic Canada Conservation Data Centre S-Ranks, where S1: extremely rare; S2: rare; S3: uncommon; S4: usually widespread, fairly common; S5: widespread, abundant; S#S#: A range between two consecutive ranks for a species/community denotes uncertainty about the exact rarity (e.g. S1S2); Consult http://www.accdc.com/en/ranks.html for descriptions of other ranks.

Provincial General Status Ranks as assessed in 2010 (http://www.wildspecies.ca/wildspecies2010).

Appendix 3: Special Occurrences (Ecodistrict 830)
Table 1c – Other Conservation Features

Feature	Type	Information Source	Legislation or Status Ranking System
Loon Nesting Lakes	Bird Habitat	Significant Habitats of Nova Scotia Database	Nova Scotia Environment Act Nova Scotia Forests Act (subsection: Wildlife Habitat and Watercourses Protection Regulations)
Eagle Nests	Bird Habitat	Significant Habitats of Nova Scotia Database	Nova Scotia Wildlife Act (NSWA)
Osprey Nests	Bird Habitat	Significant Habitats of Nova Scotia Database	Nova Scotia Wildlife Act
Migratory Shorebird Roosts	Bird Habitat	Local knowledge	Nova Scotia Wildlife Act
Atlantic Coastal Plain Flora habitat	Species	ACCDC Database	Nova Scotia Endangered Species Act Species at Risk Act
Coastal Lichen Forest	Ecosystems/ Species	ACCDC Database	Nova Scotia Endangered Species Act Species at Risk Act
Nature Reserves – Northwest Brook, Port L'Hebert, Carters Beach, Coffin Island, Ragged Harbour, Cherry Hill Beach, Blandford, Crow Neck	Ecosystems/ Habitat	DNR Restricted Land Use Database	Special Places Protection Act
Wilderness Areas – Port La Tour Bogs, Bowers Meadows	Ecosystems/ Recreation	DNR Restricted Land Use Database	Nova Scotia Wilderness Areas Protection Act
Provincial Parks – Bayswater Beach, The Islands, Roseway Beach, Summerville Beach, Graves Island, Rissers Beach, Sand Hills Beach, Second Peninsula, and Thomas Raddall	Ecosystems/ Recreation	DNR Restricted Land Use Database	Nova Scotia Parks Act

Appendix 3: Special Occurrences (Ecodistrict 830)
Table 1c – Other Conservation Features

Feature	Type	Information Source	Legislation or Status Ranking System
Operational Non Designated Parks and Reserves – Baker Inlet, Bear Point, Blanche, Broad River, Bulls Head, Bush Island, Cape Negro, Crow Neck Island, Doctors Cove, Feltzen South, First Peninsula, Hirtles Beach, Hollahan Lake, Long Point, Louis Head Beach, McNutts Island, Middle East Pubnico, Moshers Beach, North East Point, Roseway Beach, Sand Hills Beach, Summerville Centre, and Upper Blandford	Ecosystems/ Recreation	DNR Restricted Land Use Database	Nova Scotia Wildlife Act
Rivers – Barrington, Clyde, Roseway, Jordan, Sable, Tidney, Broad, Five Rivers, Mersey, Medway, Petite Rivière, and LaHave	Ecosystems	Service Nova Scotia	Nova Scotia Forest Act (Wildlife Habitat and Watercourse Protection Regulations) Nova Scotia Environment Act
National Historic Sites and Parks – Kejimkujik National Park Seaside Adjunct	Ecosystems	DNR Restricted Land Use Database	Canada National Parks Act

Appendix 3: Special Occurrences (Ecodistrict 830)
Table 1d – Heritage Features

Feature	Type	Information Source
National Historic Site – Fort St. Louis	Cultural/Community Heritage	NSDNR Restricted Land Use Database

Appendix 3: Special Occurrences

Table 2: Comparison of Ecological Emphasis Classification Index by Ecosection (Within Ecodistrict and Ecoregion)

Ecosections that form 2% or less of the ecodistrict and/or ecoregion area or are more than 75% converted are highlighted. The table provides a sense of how unique or uncommon an ecosection and its associated climax communities are within the ecodistrict and across the ecoregion. The EEC Index value conveys an indication of relative land use pressure on the ecosection.

Ecosection	Climax Type	Ecodistrict Occurrence						Ecoregion Occurrence					
		Area of Ecosection		Area of Climax Type (1, 2, 3) *		EEC Index ecosection	% Converted	Area of Ecosection		Area of Climax Type (1, 2, 3) *		EEC Index ecosection	% Converted
		Ha	%	Ha	%			Ha	%	Ha	%		
ICHO	bS	1,154	0.9	25,631	19.0	63 to 64	13.0	9,115	2.0	86,879	18.6	70	7.6
ICSM	wetlands	348	0.3	0	0.0	69 to 73	2.0	882	0.2	0	0.0	68 to 69	4.7
IMHO	bS wP	55,597	41.1	81,211	60.1	66 to 69	6.8	129,784	27.9	81,211	17.4	67 to 70	5.4
IMKK	bS	1,175	0.9	25,631	19.0	54 to 57	14.8	2,289	0.5	86,879	18.6	62 to 65	9.5
IMRD	bS wP	3,486	2.6	81,211	60.1	62 to 66	9.1	13,717	2.9	81,211	17.4	66 to 71	6.0
IMSM	bS	7,731	5.7	25,631	19.0	65 to 67	6.9	12,363	2.7	86,879	18.6	62 to 64	8.3
PMHO	wetlands	17,060	12.6	0	0.0	74.0	2.3	20,283	4.4	0	0.0	73 to 74	2.1
WCHO	bS	1,818	1.3	25,631	19.0	49 to 51	25.9	21,248	4.6	86,879	18.6	66 to 67	12.5
WCKK	bS	2,629	1.9	25,631	19.0	69 to 70	7.8	30,806	6.6	86,879	18.6	80 to 81	4.1
WFDM	bS	2,074	1.5	25,631	19.0	29 to 31	45.0	6,656	1.4	86,879	18.6	40 to 43	33.7
WMDM	bS wP	5,552	4.1	81,211	60.1	41 to 47	31.0	27,860	6.0	81,211	17.4	52 to 60	14.4
WMHO	bS wP	16,577	12.3	81,211	60.1	61 to 63	12.3	37,939	8.1	81,211	17.4	60 to 64	11.2
WMKK	bS	1,574	1.2	25,631	19.0	60 to 65	12.6	47,030	10.1	86,879	18.6	61 to 69	6.2
WMRD	bS	3,624	2.7	25,631	19.0	66	5.3	11,884	2.6	86,879	18.6	70 to 71	4.1
WMSM	bS	1,606	1.2	25,631	19.0	61 to 63	14.7	1,606	0.3	86,879	18.6	60 to 62	14.7
WTLD	wetlands	5,981	4.4	0	0.0	69	3.7	14,587	3.1	0	0.0	72 to 73	2.5

*Area of Climax Type refers to the total area of the climax community in the ecodistrict and in the ecoregion.

Appendix 4: Ecological Representivity Worksheet

Ecosystem			Crown Responsibility	Legal Reserves		Policy Reserves (including unproclaimed legal reserve proposals)		Ecological Emphasis Classification "Reserve Class"					
Ecosection	Climax Type	Area (ha)	Percent of Area on Crown (%)	Crown Area (ha)	Private Area (ha)	Crown Area (ha)	Private Area (ha)	Crown		Private		Total Reserve	
								ha	% (EcoS)	ha	% (EcoS)	ha	% (EcoS)
IMHO	bS wP	55,597	18.8	3,062	110	534	0	3,596	6.5	110	0.2	3,706	6.7
PMHO	wetlands	17,060	25.0	2,475	141	253	0	2,728	16.0	141	0.8	2,870	16.8
WMHO	bS wP	16,577	10.1	709	7	14	0	723	4.4	7	0.0	730	4.4
IMSM	bS	7,731	7.1	87	0	0	0	87	1.1	0	0.0	87	1.1
WTLD	wetlands	5,981	48.9	25	0	8	0	34	0.6	0	0.0	34	0.6
WMDM	bS wP	5,552	0.2	0	1	4	10	4	0.1	11	0.2	15	0.3
XXWA	NONE	4,673	3.8	0	0	0	0	0	0.0	0	0.0	0	0.0
WMRD	bS	3,624	2.2	0	19	2	0	2	0.1	19	0.5	22	0.6
IMRD	bS wP	3,486	0.2	0	1	5	0	5	0.2	1	0.0	6	0.2
WCKK	bS	2,629	25.1	2	0	243	0	245	9.3	0	0.0	245	9.3
WFDM	bS	2,074	1.4	0	0	20	0	20	0.9	0	0.0	20	0.9
WCHO	bS	1,818	9.2	60	0	17	0	77	4.2	0	0.0	77	4.2
WMSM	bS	1,606	0.7	0	12	5	0	5	0.3	12	0.8	17	1.0
WMKK	bS	1,574	1.3	0	0	0	0	0	0.0	0	0.0	0	0.0
XXCB	coastal beach	55,597	18.8	3,062	110	534	0	3,596	6.5	110	0.2	3,706	6.7
IMKK	bS	17,060	25.0	2,475	141	253	0	2,728	16.0	141	0.8	2,870	16.8
ICHO	bS	16,577	10.1	709	7	14	0	723	4.4	7	0.0	730	4.4
XXMS	salt marsh	7,731	7.1	87	0	0	0	87	1.1	0	0.0	87	1.1
ICSM	wetlands	5,981	48.9	25	0	8	0	34	0.6	0	0.0	34	0.6
Total		**129,982**		**6,420**	**291**	**1,105**	**10**	**7,525**		**302**		**7,826**	

See Appendix 12b for full Ecological Emphasis worksheet.

Appendix 5: Ecodistrict Reserves and Protected Areas Summary

Legal Reserves			Policy Reserves (including unproclaimed legal proposals)		
Act Designation	Area by Ownership		Policy Program	Area by Ownership	
	Crown (ha)	Private (ha)		Crown (ha)	Private (ha)
Wilderness Areas	3,974	0	Old Forest	1,805	0
Designated Provincial Parks and Park Reserves	603	0	National Parks and Adjuncts	1,447	0
National Parks and Adjuncts	514	0	Protected Beaches	261	14
Protected Beaches	281	114	Designated Provincial Parks and Park Reserves	253	0
Nature Conservancy of Canada	0	154	Operational Non Designated Parks and Reserves	131	0
Sites of Ecological Significance Under Moratorium	9	0	Areas under the Special Places Act	127	0
Operational Non Designated Parks and Reserves	4	0	Kingsburg Coastal Conservancy	0	17
Kingsburg Coastal Conservancy	0	1.7			

Source: Crown Lands Forest Model Landbase Classification
Some of these programs may occur in the same area. For example, much of the Old Forest Policy forests are located in the Wilderness Areas.

Appendix 6: Description of Road Density Index

Road, trail, and utility corridors provide the background structure for transporting people and goods and are integral components of human land use. However, transportation systems are expensive and have a wide range of negative environmental impacts including, watercourse siltation, habitat fragmentation, dispersal obstruction, plant and animal mortality, exotic species invasion, loss of productive land, and an overall increase in human presence (Forman & Deblinger 2000, Reed et. al. 1996, Lindenmayer & Franklin 2002).

In order to reduce conflicts with natural systems and improve transportation safety there is clearly a need to incorporate landscape ecology into the planning of transportation networks (Forman 2004, Forman & Hersperger 1996, Spellerberg 1998). The emerging science of road ecology advocates integrating spatial analysis of the transportation system with ecological landscape analysis as a fundamental step in transportation system planning (Forman 1999, Lindenmayer & Franklin 2002, Diaz & Apostol 1992).

Efficient access systems can be strategically designed to minimize environmental impacts by incorporating factors such as harvest scheduling, life expectancy, location, road class requirements, decommissioning, and mitigation measures (Lindenmayer & Franklin 2002, Forman, 2004). Selection of transportation routes should incorporate knowledge of landscape functions to improve compatibility with natural ecosystem flows and connectivity (Forman & Hersperger, 1996). Furthermore, areas without roads and/or few roads are important for biodiversity conservation and should be considered during planning (USDA Forest Service 1999).

The GIS-based “Road Index” procedure calculates and maps the spatial influence of the transportation network. It is a management tool designed to help planners gauge the relative influence of man-made linear features within landscapes. It was designed to help integrate the transportation system into an ecological landscape analysis process. In addition to mapping, the index provides a numerical indicator of road influence that can be used to monitor temporal changes and compare different landscapes.

Main Concepts

The influence of the transportation network on the ecological landscape varies with three main factors: 1) the type of transportation feature (e.g. highway, power line, trail, etc.); 2) the density of linear features in a given area; and 3) the distance of an area from transportation features (Forman 2004, Lindenmayer & Franklin 2002, Forman & Deblinger 2000). The Road Index is a weighting of these three factors reflecting their relative influence on ecosystem function.

Road density has a well-documented influence on many factors, including wildlife movements, fragmentation, human access, hydrology, and fire patterns (Forman and Hersperger, 1996). Forman & Deblinger (2000) report great variance in road effect zones, with average cumulative effects extending 300 metres from road edges, and some impacts penetrating up to a kilometre. Consequently, Index values are determined by assessing the transportation network within a one kilometre radius. The Index algorithm is applied to a grid of one hectare squares representing the landscape in question. The calculation provides a measure of the density of the transportation network and the specific distance to the transportation features.

The resulting index values are scaled to provide a potential range of 0 to 100. For the purpose of map interpretation, these values have been grouped into benchmark ranges that reflect characteristic patterns of land use in Nova Scotia.

In Nova Scotia, as in most populated jurisdictions, transportation networks are continuously changing as new roads and utilities are constructed and unused roads and trails deteriorate. As such, any analysis of the current state of these features must be based on reasonably up-to-date data. In this province, the Geomatics Centre, administered by Service Nova Scotia and Municipal Relations, is responsible for mapping transportation features which they include in their 1:10000 topographic series mapping.

On a provincial level, this work is updated on a ten-year repeat cycle and includes changes to existing features and the delineation of new features. Before undertaking road analysis, the Geomatics Centre should be contacted to ensure that the most current data is used to calculate the Road Index values. This data should be further updated using Landsat satellite imagery to add significant new roads and utilities that are over 500 metres in length on lands currently with a remote or forest resource index value.

DNR Forestry Branch maintains a table relating the topographic series attribute coding used by the Geomatics Centre to the feature categories used in the Road Index calculations, along with ArcView programs allowing the data to be formatted correctly. An inventory of recent Landsat satellite images is also available.

Full report contained in the Ecological Landscape Analysis Guidebook
http://www.gov.ns.ca/natr/library/forestry/reports/Procedural%20Guide%20For%20Ecological%20Landscape%20Analysis.pdf

Appendix 7: Road Density Index Worksheets

Road index values for all tables are benchmarks that will be monitored over time to evaluate trends.

Table 1: Length of Access Systems and Index Weighting for Different Road Types

Road Type	Road Index Weighting	Length (km)
Trails, tracks, abandoned roads, and railways	1	121
Utility corridors	3	974
Gravel Roads and active railways	6	665
Paved streets and roads collectors	10	613
Highways	15	36

Table 2: Distribution of Road Index Classes

Road Index Value		Area of Ecodistrict Affected	
Indication	Range	Hectares	Percent
Remote	0 to 6	39,506	29.7
Forest Resource	7 to 15	34,419	25.8
Mixed Rural	16 to 24	25,533	19.2
AgricultureSuburban	25 to 39	31,873	23.9
Urban	40 to 100	1,841	1.4
Total		**133,173**	**100.0**

Table 3: Road Index Values for Each Landscape Element Type

Landscape Element	Area (ha)	Road Index
Coastal Spruce	54,502	9
Coastal Bogs and Hummocks	16,926	8
Coastal Spruce Pine Hummocks	16,270	14
Coastal Mixedwood Hills and Drumlins	10,121	17
Coastal Spruce Ridges	8,258	11
Coastal Spruce Flats	7,958	11
Wetlands	5,930	9
Coastal Spruce Pine Oak Hills and Hummocks	5,416	15
Coastal Beach	1,090	18
Valley Corridors	1,173	46
Salt Marsh	862	33
Total	**128,406***	**12**

*Water is excluded from this table. Rounding, overlapping, and averaging of figures may lead to small differences in tables.

Appendix 8: Development Classes and Seral Stages

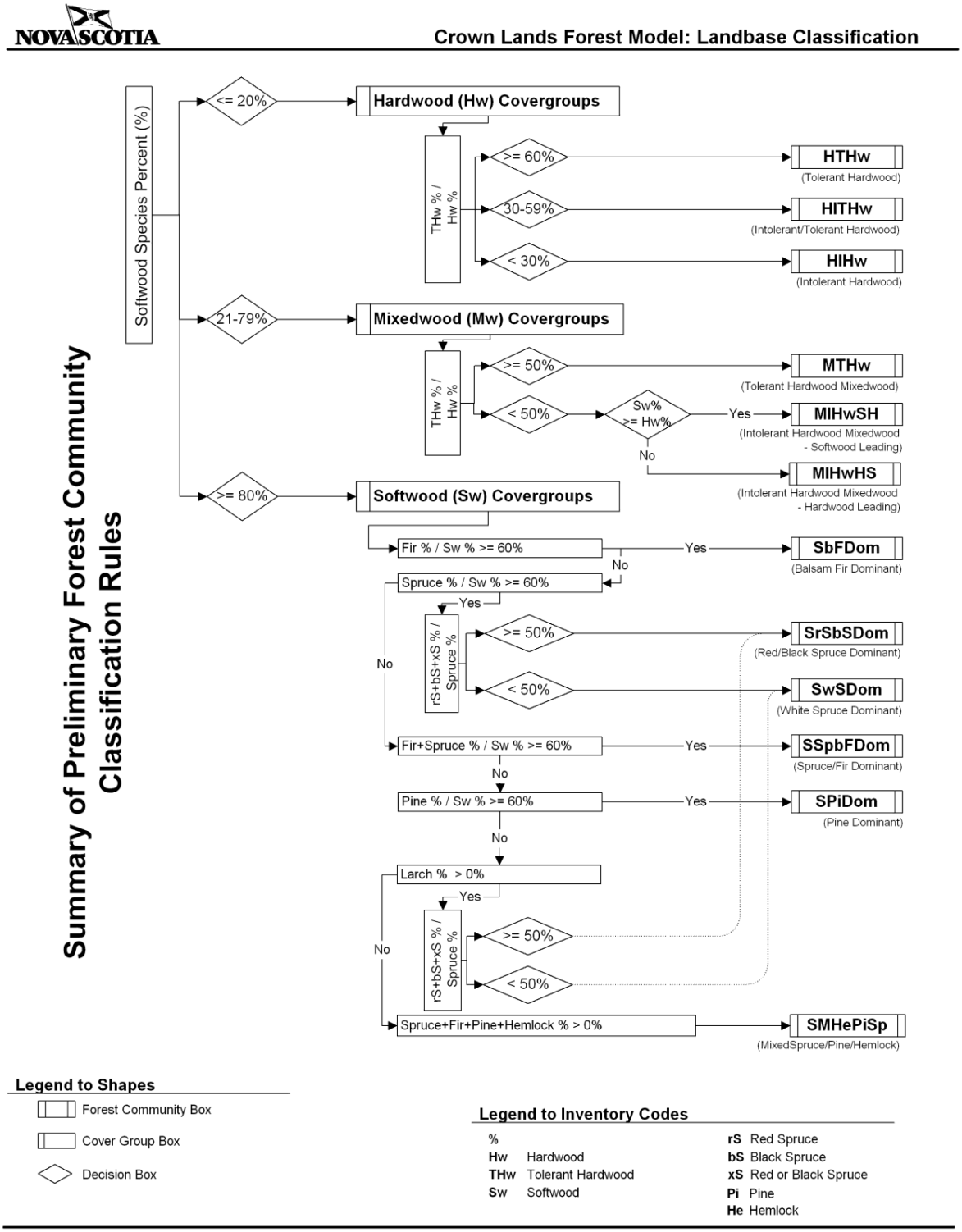
Development Class	Seral Stage
1. Forest Establishment (Height 0 to 6 m) • establishment of new growth following a stand-initiating disturbance • high diversity of forbs, shrubs, and tree regeneration, many of which are short-live shade-intolerant "pioneer" species • peak seed production by forbs and shrubs • approximate age 0 to 25 years	Early Seral Species (Score 10 to 23) • new growth dominated by pioneer tree species or unclassified regeneration Mid Seral Species (Score 24 to 37) • regeneration composed of a mixture of pioneer, mid-climax, and climax species Late Seral Species (Score 38 to 50) • regeneration dominated by climax species
2. Young Forest (Height 7 to 11 m) • young forests with developing tree canopies characterized by vigorous self-thinning and crown differentiation • early tree seed production, no understory development • approximate age 25 to 40 years	Early Seral Species (Score 10 to 23) • canopy dominated by pioneer tree species Mid Seral Species (Score 24 to 37) • canopy composed of a mixture of pioneer, mid-climax, and climax species Late Seral Species (Score 38 to 50) • canopy dominated by climax species
3. Mature Forest (Height > 11 m) • stands dominated by upper canopy with full differentiation into dominance classes • self-thinning process reduced • tree seed production prominent and regular • individual tree mortality creates canopy gaps that are soon closed by neighbouring tree growth • increased light initiates regeneration and early understory development • approximate age 40 to 125 years	Early Seral Species (Score 10 to 23) • canopy dominated by pioneer species • over maturity initiates canopy breakup and understory development Mid Seral Species (Score 24 to 37) • climax species in mixture with pioneers in the overstory • often reflecting a transition to climax domination following a period of sub-canopy development Late Seral Species (Score 38 to 50) • canopy dominated by climax species • over maturity initiates gap dynamic processes leading to multi-aged and old growth conditions
4. Multi-aged and old growth forest (Varying height and age and Old Growth ID) • dominant overstory exhibiting a variety of crown sizes and canopy densities • canopy gaps promote development of multi-layered understory and recruitment to overstory	Early Seral Species (Score 10 to 23) • canopy likely to break up and be replaced by developing understory Mid Seral Species (Score 24 to 37) • pioneer dominated overstory with canopy recruitment from a climax species-dominated understory Late Seral Species (Score 38 to 50) • climax species-dominated overstory maintained through gap dynamic processes

Summary of species-level seral score values by ecodistrict (Source: NSDNR - January 2014 revision)

Species		Ecodistrict																																						
		100	210	220	310	320	330	340	350	360	370	380	410	420	430	440	450	510	520	530	540	550	560	610	620	630	710	720	730	740	750	760	770	780	810	820	830	840	910	
Code	**Name**																																							
AS	ash	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
BA	black ash	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
BC	black cherry	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
BE	beech	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
BF	balsam fir	5	5	5	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	5	5	1	1
BP	balsam poplar	1	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	3	1
BS	black spruce	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
EC	eastern cedar	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
EH	eastern hemlock	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	exotic species	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GB	grey birch	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
IH	intolerant hardwood	3	2	4	2	2	2	2	2	4	2	2	2	2	2	2	2	2	2	2	2	4	3	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2
IW	ironwood	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
JP	jack pine	2	3	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LA	largetooth aspen	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
OH	other hardwood	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
OS	other softwood	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
PC	pin cherry	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
RM	red maple	3	2	4	2	2	2	2	2	4	2	5	2	2	2	2	2	2	2	2	2	5	3	2	2	2	2	2	2	2	2	2	3	2	3	3	2	2	2	2
RO	oak	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
RP	red pine	3	3	3	3	3	3	3	3	3	4	3	3	3	4	3	3	3	3	4	4	4	4	4	4	4	3	4	3	3	3	4	4	3	4	4	3	3	3	3
RS	red spruce	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
SM	sugar maple	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
ST	striped maple	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TA	aspen	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TH	tolerant hardwood	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
TL	eastern larch	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
UC	unclassified	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WA	white ash	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
WB	white birch	3	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
WE	white elm	2	2	4	2	4	2	2	2	2	2	2	2	2	2	2	2	4	4	4	2	2	2	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2
WP	white pine	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
WS	white spruce	4	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	5	4	1	1
XS	red and black spruce	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
YB	yellow birch	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

A look-up table assigns each species in the forest inventory a value from one to five for its position on the successional scale. The look-up table may change by ecodistrict since climax on the coast or the Cape Breton Highlands differs from inland and lowland districts. This successional value is multiplied by the species' percent in the stand to give a stand successional score. Each stand may have up to four species, and the four percentages add to 10, so the stand successional scores range from 10 to 50. These scores are subdivided into three successional categories: 10 to 23 early, 24 to 37, mid and 38 to 50 late.

Appendix 9: Vegetation Community Classification – Forest Model



Appendix 10: Table 1: Forest Landscape Composition Worksheet (South Shore 830)

Element	Ecosection (% land area)	Covertype	Climax Species (M=Mid; L=Late Seral)	Natural Disturbance Regime	Total Land Area of Potential Forest* (ha; %)	Seral Stage	Current Forest - GIS Inventory							
							Development Class (ha)				Total Forested Area (ha)	Covertype (ha; %)	Seral Stage Summary (ha; %)	
							Establish-ment (1)	Young Forest (2)	Mature Forest (3)	Multi-aged (4)				
Coastal Spruce	IMHO (100.0%)	Softwood	bS (L) bF	Frequent	54,989; 100.0	Early	31	72	19	24	146	21, 021; 53.0	EARLY	2,109; 5.3
						Mid	311	2,624	1,190	1,836	5,961			
						Late	648	4,989	4,177	4,296	14,111			
						Uncl	804	0	0	0	804			
		Mixedwood	wB, bF (M)	Frequent		Early	29	204	297	80	609	14,591; 36.8	MID	19,941; 50.3
						Mid	199	3,844	4,658	3,392	12,092			
						Late	8	315	440	788	1,551			
						Uncl	339	0	0	0	339			
		Hardwood				Early	60	498	624	126	1,309	3,375; 8.5	LATE	15,819; 39.9
						Mid	31	775	964	117	1,887			
						Late	10	76	62	11	158			
						Uncl	21	0	0	0	21			
		Unclassified				Early	46	0	0	0	46	638; 1.6	UNCL	1,755; 4.4
						Mid	0	0	0	0	0			
						Late	0	0	0	0	0			
						Uncl	592	0	0	0	592			
Total					**54,989***	**# ha**	**3,128**	**13,397**	**12,430**	**10,669**	**39,624**			
						%	**7.9%**	**33.8%**	**31.4%**	**26.9%**	**100.0%**			

Left side of table refers to "potential" forest, interpreted from the Ecological Land Classification. Right side refers to "current" forest condition, summarized from inventory in the Forest Model. All multi-aged stands can be considered mature and added to mature totals. *Total area of element.

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Element	Ecosection (% land area)	Covertype	Climax Species (M=Mid; L=Late Seral)	Natural Disturbance Regime	Total Land Area of Potential Forest* (ha; %)	Seral Stage	Current Forest - GIS Inventory							
							Development Class (ha)				Total Forested Area (ha)	Covertype (ha; %)	Seral Stage Summary (ha; %)	
							Establish-ment (1)	Young Forest (2)	Mature Forest (3)	Multi-aged (4)				
Coastal Bogs and Hummocks	PMHO (100.0%)	Softwood	bS (L)	Frequent	5114; 30	Early	4	19	5	11	39	5,952; 79.0	EARLY	82; 1.1
						Mid	20	700	224	401	1,345			
						Late	351	2,264	889	1,017	4,521			
						Uncl	47	0	0	0	47			
		Mixedwood				Early	1	15	0	4	19	1,392; 18.5	MID	2,600; 34.5
						Mid	17	560	387	241	1,206			
						Late	3	56	24	78	161			
						Uncl	6	0	0	0	6			
		Hardwood				Early	1	11	2	3	17	67; 0.9	LATE	4,682; 62.2
						Mid	1	20	27	1	49			
						Late	0	0	0	0	0			
						Uncl	0	0	0	0	0			
		Unclassified				Early	7	0	0	0	7	121; 1.6	UNCL	168; 2.2
						Mid	0	0	0	0	0			
						Late	0	0	0	0	0			
						Uncl	4	19	5	11	39			
Total					**17, 045***	**# ha**	**461**	**3,664**	**1,563**	**1,767**	**7,456**			
						%	**6.2%**	**49.1%**	**21.0%**	**23.7%**	**100.0%**			

Left side of table refers to "potential" forest, interpreted from the Ecological Land Classification. Right side refers to "current" forest condition, summarized from inventory in the Forest Model. All multi-aged stands can be considered mature and added to mature totals. *Total area of element.

Appendix 10: Table 1: Forest Landscape Composition Worksheet (South Shore 830)

Element	Ecosection (% land area)	Covertype	Climax Species (M=Mid; L=Late Seral)	Natural Disturbance Regime	Total Land Area of Potential Forest* (ha; %)	Seral Stage	Current Forest - GIS Inventory							
							Development Class (ha)				Total Forested Area (ha)	Covertype (ha; %)	Seral Stage Summary (ha; %)	
							Establish-ment (1)	Young Forest (2)	Mature Forest (3)	Multi-aged (4)				
Coastal Spruce Pine Hummocks	WMHO (100.0%)	Softwood	bS wP (L)	Frequent	16,421; 100.0	Early	28	9	8	1	46	4,322; 35.8	EARLY	1,817; 15
						Mid	15	276	238	273	803			
						Late	40	565	1,326	1,278	3,209			
						Uncl	264	0	0	0	264			
		Mixedwood	wP, rO (L)			Early	14	79	51	21	165	4, 812; 39.8	MID	5533; 45.8
						Mid	91	751	1,735	1,176	3,753			
						Late	6	61	312	405	783			
						Uncl	111	0	0	0	111			
		Hardwood				Early	31	618	712	240	1,601	2,852; 23.6	LATE	4,230; 35.0
						Mid	19	318	463	178	977			
						Late	0	102	109	28	238			
						Uncl	35	0	0	0	35			
		Unclassified				Early	5	0	0	0	5	91; 0.8	UNCL	496; 4.1
						Mid	0	0	0	0	0			
						Late	0	0	0	0	0			
						Uncl	86	0	0	0	86			
Total					**16,421***	**# ha**	**744**	**2,778**	**4,955**	**3,599**	**12,076**			
						%	**6.2%**	**23.0%**	**41.0%**	**29.8%**	**100.0%**			

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Appendix 10: Table 1: Forest Landscape Composition Worksheet (South Shore 830)

Element	Ecosection (% land area)	Covertype	Climax Species (M=Mid; L=Late Seral)	Natural Disturbance Regime	Total Land Area of Potential Forest* (ha; %)	Seral Stage	Current Forest - GIS Inventory							
							Development Class (ha)				Total Forested Area (ha)	Covertype (ha; %)	Seral Stage Summary (ha; %)	
							Establish-ment (1)	Young Forest (2)	Mature Forest (3)	Multi-aged (4)				
Coastal Mixedwood Hills and Drumlins	WMDM (53.5%) WFDM (20.2%) WMKK (14.9%) IMKK (11.4%)	Softwood	bS wS bF (L) (exposed sites)	Frequent		Early	1	1	2	2	5	4,677; 73.3	EARLY	149; 2.3
						Mid	67	144	123	205	539			
						Late	163	649	1,191	1,634	3,636			
						Uncl	497	0	0	0	497			
		Mixedwood	rS wP yB (L) (sheltered sites)	Frequent		Early	8	13	20	22	63	1,348; 21	MID	1,533; 24.0
						Mid	17	107	307	458	890			
						Late	3	11	108	206	327			
						Uncl	69	0	0	0	69			
		Hardwood	rM, wB (M)	Frequent		Early	16	6	31	10	63	195; 3.1	LATE	3,986; 62.5
						Mid	26	17	45	16	104			
						Late	0	2	21	0	23			
						Uncl	6	0	0	0	6			
		Unclassified				Early	18	0	0	0	18	161; 2.5	UNCL	713; 11.2
						Mid	0	0	0	0	0			
						Late	0	0	0	0	0			
						Uncl	142	0	0	0	142			
Total					**10,289***	**# ha**	**1,032**	**948**	**1,848**	**2,554**	**6,382**			
						%	**16.2%**	**14.8%**	**29.0%**	**40.0%**	**100.0%**			

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Appendix 10: Table 1: Forest Landscape Composition Worksheet (South Shore 830)

Element	Ecosection (% land area)	Covertype	Climax Species (M=Mid; L=Late Seral)	Natural Disturbance Regime	Total Land Area of Potential Forest* (ha; %)	Seral Stage	Current Forest - GIS Inventory							
							Development Class (ha)				Total Forested Area (ha)	Covertype (ha; %)	Seral Stage Summary (ha; %)	
							Establish-ment (1)	Young Forest (2)	Mature Forest (3)	Multi-aged (4)				
Coastal Spruce Ridges	WMRD (41.6%) IMRD (39.9%) WMSM (18.6%)	Softwood	bS, wS, bF (L)	Frequent	8,170; 94.4	Early	4	3	0	10	18	4,216; 76.4	EARLY	66; 1.2
						Mid	47	158	33	403	641			
						Late	219	763	501	1,907	3,389			
						Uncl	168	0	0	0	168			
		Mixedwood				Early	0	7	0	2	9	1,041; 18.9	MID	1,532; 27.8
						Mid	13	125	263	375	776			
						Late	5	22	85	137	248			
						Uncl	8	0	0	0	8			
		Hardwood				Early	0	11	26	1	38	156; 2.8	LATE	3,641; 66
						Mid	3	25	53	35	115			
						Late	0	0	3	0	3			
						Uncl	0	0	0	0	0			
		Unclassified				Early	1	0	0	0	1	103; 1.9	UNCL	278; 5.0
						Mid	0	0	0	0	0			
						Late	0	0	0	0	0			
						Uncl	102	0	0	0	102			
Total					**8,651***	**# ha**	**569**	**1,113**	**963**	**2,870**	**5,516**			
						%	**10.3%**	**20.2%**	**17.5%**	**52.0%**	**100.0%**			

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Appendix 10: Table 1: Forest Landscape Composition Worksheet (South Shore 830)

Element	Ecosection (% land area)	Covertype	Climax Species (M=Mid; L=Late Seral)	Natural Disturbance Regime	Total Land Area of Potential Forest* (ha; %)	Seral Stage	Current Forest - GIS Inventory							
							Development Class (ha)				Total Forested Area (ha)	Covertype (ha; %)	Seral Stage Summary (ha; %)	
							Establish-ment (1)	Young Forest (2)	Mature Forest (3)	Multi-aged (4)				
Coastal Spruce Flats	IMSM (95.7%) ICSM (4.3%)	Softwood	bS (L)	Frequent	5,509; 68.3	Early	12	2	0	8	22	3,575; 63.4	EARLY	369; 6.6
						Mid	21	277	145	234	676			
						Late	39	592	441	1,643	2,714			
						Uncl	163	0	0	0	163			
		Mixedwood				Early	2	40	53	28	122	1,632; 29	MID	2,077; 36.9
						Mid	9	333	479	457	1,277			
						Late	0	49	38	136	222			
						Uncl	9	0	0	0	9			
		Hardwood				Early	3	44	124	37	208	342; 6.2	LATE	2,945; 52.3
						Mid	0	28	86	10	124			
						Late	0	1	4	3	8			
						Uncl	2	0	0	0	2			
		Unclassified				Early	17	0	0	0	17	87; 1.5	UNCL	244; 4.2
						Mid	0	0	0	0	0			
						Late	0	0	0	0	0			
						Uncl	70	0	0	0	70			
Total					**8,068***	**# ha**	**346**	**1,366**	**1,369**	**2,555**	**5,636**			
						%	**6.1%**	**24.2%**	**24.3%**	**45.3%**	**100.0%**			

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Appendix 10: Table 1: Forest Landscape Composition Worksheet (South Shore 830)

Element	Ecosection (% land area)	Covertype	Climax Species (M=Mid; L=Late Seral)	Natural Disturbance Regime	Total Land Area of Potential Forest* (ha; %)	Seral Stage	Current Forest - GIS Inventory							
							Development Class (ha)				Total Forested Area (ha)	Covertype (ha; %)	Seral Stage Summary (ha; %)	
							Establish-ment (1)	Young Forest (2)	Mature Forest (3)	Multi-aged (4)				
Wetlands	WTLD (100.0%)	Softwood	bS (L)	Frequent	595; 10.0	Early	4	21	27	17	68	1,306; 73.2	EARLY	110; 6.2
						Mid	27	224	56	168	474			
						Late	48	385	177	114	723			
						Uncl	41	0	0	0	41			
		Mixedwood				Early	0	2	12	1	15	394; 22.1	MID	850; 47.6
						Mid	1	116	142	103	362			
						Late	0	0	6	8	13			
						Uncl	4	0	0	0	4			
		Hardwood				Early	0	12	15	0	28	42; 2.4	LATE	738; 41.4
						Mid	4	4	6	0	14			
						Late	0	1	0	0	1			
						Uncl	0	0	0	0	0			
		Unclassified				Early	0	0	0	0	0	40; 2.2	UNCL	85; 4.8
						Mid	0	0	0	0	0			
						Late	0	0	0	0	0			
						Uncl	40	0	0	0	40			
Total					**5,950***	**# ha**	**167**	**765**	**441**	**409**	**1,782**			
						%	**9.4%**	**42.9%**	**24.7%**	**23.0%**	**100.0%**			

Left side of table refers to "potential" forest, interpreted from the Ecological Land Classification. Right side refers to "current" forest condition, summarized from inventory in the Forest Model. All multi-aged stands can be considered mature and added to mature totals. *Total area of element.

Appendix 10: Table 1: Forest Landscape Composition Worksheet (South Shore 830)

Element	Ecosection (% land area)	Covertype	Climax Species (M=Mid; L=Late Seral)	Natural Disturbance Regime	Total Land Area of Potential Forest* (ha; %)	Seral Stage	Current Forest - GIS Inventory							
							Development Class (ha)				Total Forested Area (ha)	Covertype (ha; %)	Seral Stage Summary (ha; %)	
							Establish-ment (1)	Young Forest (2)	Mature Forest (3)	Multi-aged (4)				
Coastal Spruce Pine Oak Hills and Hummocks	WCKK (47.8%) WCHO (32.5%) ICHO (19.6%)	Softwood	bS, wP (L)	Frequent	5493; 100.0	Early	6	6	1	0	12	2,263; 61.7	EARLY	376; 10.3
						Mid	23	242	106	210	581			
						Late	62	638	279	622	1,601			
						Uncl	68	0	0	0	68			
		Mixedwood	wP, rO (L)	Frequent		Early	0	64	17	22	103	993; 7.1	MID	1,345; 36.7
						Mid	10	251	135	264	660			
						Late	5	42	24	148	219			
						Uncl	11	0	0	0	11			
		Hardwood	rO, rM (L)	Frequent		Early	1	89	123	47	260	390; 10.6	LATE	1,846; 50.3
						Mid	5	34	43	23	105			
						Late	0	10	14	1	26			
						Uncl	0	0	0	0	0			
		Unclassified				Early	1	0	0	0	1	21; 0.6	UNCL	100; 2.7
						Mid	0	0	0	0	0			
						Late	0	0	0	0	0			
						Uncl	21	0	0	0	21			
Total					**5,493***	**# ha**	**212**	**1,375**	**742**	**1,338**	**3,667**			
						%	**5.8%**	**37.5%**	**20.2%**	**36.5%**	**100.0%**			

Left side of table refers to "potential" forest, interpreted from the Ecological Land Classification. Right side refers to "current" forest condition, summarized from inventory in the Forest Model. All multi-aged stands can be considered mature and added to mature totals. *Total area of element.

Appendix 10: Table 1: Forest Landscape Composition Worksheet (South Shore 830)

Element	Ecosection (% land area)	Covertype	Climax Species (M=Mid; L=Late Seral)	Natural Disturbance Regime	Total Land Area of Potential Forest* (ha; %)	Seral Stage	Current Forest - GIS Inventory							
							Development Class (ha)				Total Forested Area (ha)	Covertype (ha; %)	Seral Stage Summary (ha; %)	
							Establish-ment (1)	Young Forest (2)	Mature Forest (3)	Multi-aged (4)				
Coastal Beach	XXCB	Softwood				Early	0	0	0	0	0	123; 81.8	EARLY	3; 2.2
						Mid	4	0	5	7	16			
						Late	2	30	54	21	106			
						Uncl	0	0	0	0	0			
		Mixedwood				Early	0	0	0	0	0	21; 14.3	MID	31; 20.6
						Mid	0	6	5	1	12			
						Late	0	1	9	0	9			
						Uncl	0	0	0	0	0			
		Hardwood				Early	0	2	1	0	3	6; 3.9	LATE	115; 77.0
						Mid	0	0	3	0	3			
						Late	0	0	0	0	0			
						Uncl	0	0	0	0	0			
		Unclassified				Early	0	0	0	0	0	0; 0.0	UNCL	0.3; 0.2
						Mid	0	0	0	0	0			
						Late	0	0	0	0	0			
						Uncl	0	0	0	0	0			
Total					**1,322***	**# ha**	**7**	**38**	**76**	**29**	**150**			
						%	**4.9%**	**25.1%**	**50.8%**	**19.3%**	**100.0%**			

Left side of table refers to "potential" forest, interpreted from the Ecological Land Classification. Right side refers to "current" forest condition, summarized from inventory in the Forest Model. All multi-aged stands can be considered mature and added to mature totals. *Total area of element.

Appendix 10: Table 1: Forest Landscape Composition Worksheet (South Shore 830)

Element	Ecosection (% land area)	Covertype	Climax Species (M=Mid; L=Late Seral)	Natural Disturbance Regime	Total Land Area of Potential Forest* (ha; %)	Seral Stage	Current Forest - GIS Inventory							
							Development Class (ha)				Total Forested Area (ha)	Covertype (ha; %)	Seral Stage Summary (ha; %)	
							Establish-ment (1)	Young Forest (2)	Mature Forest (3)	Multi-aged (4)				
Valley Corridors	IMHO (45.1%) WMHO (12.0%) ICHO (5.8%) WMDM (3.7%) WMKK (3.0%) IMRD (2.7%) WTLD (2.6%) WMRD (2.2%) WCHO (2.1%)	Softwood	bS, wS, bF, (wP) (L)	Frequent	1,013; 76.8	Early	0	1	0	0	1	304; 46.5	EARLY	48; 7.4
						Mid	0	11	21	26	58			
						Late	1	53	101	84	238			
						Uncl	7	0	0	0	7			
		Mixedwood	bS, rM (M)	Frequent		Early	0	9	7	5	21	295; 45.1	MID	320; 48.9
						Mid	1	44	143	52	240			
						Late	0	9	9	14	33			
						Uncl	1	0	0	0	1			
		Hardwood				Early	0	4	13	10	26	55; 8.4	LATE	278; 42.4
						Mid	0	0	19	3	22			
						Late	0	0	5	1	6			
						Uncl	0	0	0	0	0			
		Unclassified				Early	0	0	0	0	0	0.4; 0	UNCL	8; 1.3
						Mid	0	0	0	0	0			
						Late	0	0	0	0	0			
						Uncl	0	0	0	0	0			
Total					**1,318***	**# ha**	**11**	**131**	**317**	**195**	**654**			
						%	**1.7%**	**20.0%**	**48.5%**	**29.8%**	**100.0%**			

Left side of table refers to "potential" forest, interpreted from the Ecological Land Classification. Right side refers to "current" forest condition, summarized from inventory in the Forest Model. All multi-aged stands can be considered mature and added to mature totals. *Total area of element.

Appendix 10: Table 1: Forest Landscape Composition Worksheet (South Shore 830)

Element	Ecosection (% land area)	Covertype	Climax Species (M=Mid; L=Late Seral)	Natural Disturbance Regime	Total Land Area of Potential Forest* (ha; %)	Seral Stage	Current Forest - GIS Inventory							
							Development Class (ha)				Total Forested Area (ha)	Covertype (ha; %)	Seral Stage Summary (ha; %)	
							Establish-ment (1)	Young Forest (2)	Mature Forest (3)	Multi-aged (4)				
Salt Marsh	XXMS	Softwood		Open Seral		Early	0	1	2	0	4	152; 86.2	EARLY	8; 4.4
						Mid	1	15	5	2	24			
						Late	1	51	36	33	121			
						Uncl	4	0	0	0	4			
		Mixedwood				Early	0	0	3	0	3	22; 12.2	MID	36; 20.1
						Mid	0	2	6	3	11			
						Late	0	0	3	3	6			
						Uncl	1	0	0	0	1			
		Hardwood				Early	0	0	0	0	1	3; 1.5	LATE	128; 72.6
						Mid	0	0	0	1	1			
						Late	0	0	0	1	1			
						Uncl	0	0	0	0	0			
		Unclassified				Early	0	0	0	0	0	0.2; 0.1	UNCL	5; 2.9
						Mid	0	0	0	0	0			
						Late	0	0	0	0	0			
						Uncl	0	0	0	0	0			
Total					**941***	**# ha**	**6**	**70**	**56**	**44**	**177**			
						%	**3.6%**	**39.8%**	**31.5%**	**25.0%**	**100.0%**			

Left side of table refers to "potential" forest, interpreted from the Ecological Land Classification. Right side refers to "current" forest condition, summarized from inventory in the Forest Model. All multi-aged stands can be considered mature and added to mature totals. *Total area of element.

Appendix 10: Table 2: Composition of Forest Communities (in South Shore Grouped by Landscape Element)

Element	Ecosections	Dominant NDR	Dominant Climax Type	Covertype	Forest* Community (Crown Model)	Area (ha)	Percent of Forest Community	Successional Stage	Successional Types
Coastal Spruce	IMHO	Frequent	bS, bF	S	SrSbDom	12,038	30.9%	L	**Mid** wB, bF **Moist** bS **Wet** wetlands, patches of bS, rM, tL, bF, alders, willows
				S	SSpbFDom	3,358	8.6%	L	
				S	SwSDom	2,740	7.0%	E	
				S	SbFDom	2,355	6.0%	L	
				S	SPiDom	351	0.9%	L	
				S	SMHePiSp	178	0.5%	L	
				M	MIHwSH	9,832	25.2%	E	
				M	MIHwHS	4,547	11.7%	M	
				M	MTHw	212	0.5%	L	
				H	HIHw	2,862	7.3%	E	
				H	HITHw	375	1.0%	M	
				H	HTHw	139	0.4%	L	
Total						**38,987**	**100.0%**		

*Forest Community Codes:			
	SrSbSDom-Red Black Spruce Dominant SwSDom-White Spruce Dominant SspbFDom-Spruce Fir Dominant SbFDom-Balsam Fir Dominant	SpiDom-Pine Dominant SMHePiSp-Mixed Spruce Pine Hemlock MIHwSH-Intolerant Hardwood Mixedwood S MIHwHS-Intolerant Hardwood Mixedwood H	MTHw-Tolerant Hardwood Mixedwood HIHw-Intolerant Hardwood HTHw-Tolerant Hardwood HITHw-Intolerant Tolerant Hardwood

Appendix 10: Table 2: Composition of Forest Communities (in South Shore Grouped by Landscape Element)

Element	Ecosections	Dominant NDR	Dominant Climax Type	Covertype	Forest* Community (Crown Model)	Area (ha)	Percent of Forest Community	Successional Stage	Successional Types
Coastal Bogs and Hummocks	PMHO	Open Seral	Wetlands	S	SrSbSDom	4,164	56.2%	L	**Moist** bS Wetlands with patches of bS, rM, tL, bF, alders and willows
				S	SwSDom	936	12.6%	E	
				S	SSpbFDom	739	10%	M	
				S	SbFDom	105	1.4%	L	
				S	SPiDom	7	0.1%	L	
				M	MIHwSH	1,085	14.6%	E	
				M	MIHwHS	301	4.1%	M	
				M	MTHw	6	0.1%	L	
				H	HIHw	61	0.8%	E	
				H	HITHw	5	0.1%	M	
Total						**7,411**	**100.0%**		

*Forest Community Codes:			
	SrSbSDom-Red Black Spruce Dominant SwSDom-White Spruce Dominant SspbFDom-Spruce Fir Dominant SbFDom-Balsam Fir Dominant	SpiDom-Pine Dominant SMHePiSp-Mixed Spruce Pine Hemlock MIHwSH-Intolerant Hardwood Mixedwood S MIHwHS-Intolerant Hardwood Mixedwood H	MTHw-Tolerant Hardwood Mixedwood HIHw-Intolerant Hardwood HTHw-Tolerant Hardwood HITHw-Intolerant Tolerant Hardwood

Appendix 10: Table 2: Composition of Forest Communities (in South Shore Grouped by Landscape Element)

Element	Ecosections	Dominant NDR	Dominant Climax Type	Covertype	Forest* Community (Crown Model)	Area (ha)	Percent of Forest Community	Successional Stage	Successional Types
Coastal Spruce Pine Hummocks	WMHO	Frequent	bS, wP	S	SrSbSDom	2,402	20.0%	L	**Early** ltA, tA, wB, rM **Mid** rO, rM **Late** bS, wP, (rO)
				S	SwSDom	801	6.7%	E	
				S	SSpbFDom	591	4.9%	M	
				S	SbFDom	294	2.5%	M	
				S	SMHePiSp	139	1.2%	L	
				S	SPiDom	95	0.8%	L	
				M	MIHwSH	3,061	25.5%	E	
				M	MIHwHS	1,594	13.3%	E	
				M	MTHw	157	1.3%	L	
				H	HIHw	2,378	19.8%	E	
				H	HITHw	238	2.0%	M	
				H	HTHw	236	2.0%	E	
Total						**11,985**	**100.0%**		

*Forest Community Codes:			
	SrSbSDom-Red Black Spruce Dominant SwSDom-White Spruce Dominant SspbFDom-Spruce Fir Dominant SbFDom-Balsam Fir Dominant	SpiDom-Pine Dominant SMHePiSp-Mixed Spruce Pine Hemlock MIHwSH-Intolerant Hardwood Mixedwood S MIHwHS-Intolerant Hardwood Mixedwood H	MTHw-Tolerant Hardwood Mixedwood HIHw-Intolerant Hardwood HTHw-Tolerant Hardwood HITHw-Intolerant Tolerant Hardwood

Appendix 10: Table 2: Composition of Forest Communities (in South Shore Grouped by Landscape Element)

Element	Ecosections	Dominant NDR	Dominant Climax Type	Covertype	Forest* Community (Crown Model)	Area (ha)	Percent of Forest Community	Successional Stage	Successional Types
Coastal Mixedwood Hills and Drumlins	WMDM WFDM WMKK IMKK	Frequent	bS, wS, bF on exposed sites rS, wP, yB on sheltered sites	S	SrSbSDom	2,594	41.7%	L	**Sheltered Sites** early - rM, wB, tA, ltA mid - bF, rS late - rS, wP, yB **Exposed Sites** - bS, wS, bF
				S	SwSDom	1,045	16.8%	E/L	
				S	SSpbFDom	699	11.2%	M	
				S	SbFDom	230	3.7%	L	
				S	SMHePiSp	95	1.5%	L	
				S	SPiDom	16	0.3%	L	
				M	MIHwSH	884	14.2%	E	
				M	MIHwHS	300	4.8%	M	
				M	MTHw	164	2.6%	L	
				H	HIHw	150	2.4%	E	
				H	HITHw	23	0.4%	M	
				H	HTHw	23	0.4%	L	
Total						**6,221**	**100.0%**		

*Forest Community Codes:	SrSbSDom-Red Black Spruce Dominant SwSDom-White Spruce Dominant SspbFDom-Spruce Fir Dominant SbFDom-Balsam Fir Dominant	SpiDom-Pine Dominant SMHePiSp-Mixed Spruce Pine Hemlock MIHwSH-Intolerant Hardwood Mixedwood S MIHwHS-Intolerant Hardwood Mixedwood H	MTHw-Tolerant Hardwood Mixedwood HIHw-Intolerant Hardwood HTHw-Tolerant Hardwood HITHw-Intolerant Tolerant Hardwood

Appendix 10: Table 2: Composition of Forest Communities (in South Shore Grouped by Landscape Element)

Element	Ecosections	Dominant NDR	Dominant Climax Type	Covertype	Forest* Community (Crown Model)	Area (ha)	Percent of Forest Community	Successional Stage	Successional Types
Coastal Spruce Ridges	IMRD WMRD WMSM	Frequent	bS, wS, bF	S	SrSbSDom	2,828	52.2%	L	**Mid** bF
				S	SSpbFDom	825	15.2%	M	
				S	SwSDom	370	6.8%	L	
				S	SMHePiSp	101	1.9%	L	
				S	SbFDom	54	1.0%	M	
				S	SPiDom	37	0.7%	L	
				M	MIHwSH	722	13.3%	E	
				M	MIHwHS	314	5.8%	E	
				M	MTHw	5	0.1%	L	
				H	HIHw	110	2.0%	E	
				H	HITHw	44	0.8%	M	
				H	HTHw	3	0.1%	L	
Total						**5,413**	**100.0%**		

*Forest Community Codes:			
	SrSbSDom-Red Black Spruce Dominant SwSDom-White Spruce Dominant SspbFDom-Spruce Fir Dominant SbFDom-Balsam Fir Dominant	SpiDom-Pine Dominant SMHePiSp-Mixed Spruce Pine Hemlock MIHwSH-Intolerant Hardwood Mixedwood S MIHwHS-Intolerant Hardwood Mixedwood H	MTHw-Tolerant Hardwood Mixedwood HIHw-Intolerant Hardwood HTHw-Tolerant Hardwood HITHw-Intolerant Tolerant Hardwood

Appendix 10: Table 2: Composition of Forest Communities (in South Shore Grouped by Landscape Element)

Element	Ecosections	Dominant NDR	Dominant Climax Type	Covertype	Forest* Community (Crown Model)	Area (ha)	Percent of Forest Community	Successional Stage	Successional Types
Coastal Spruce Flats	IMSM ICSM	Frequent	bS (wetlands)	S	SrSbSDom	2,417	43.6%	L	**Wet** wetlands, patches of bS, rM, tL, bF, alders and willows **Moist** bS
				S	SSpbFDom	514	9.3%	M	
				S	SwSDom	357	6.4%	E	
				S	SbFDom	172	3.1%	M	
				S	SMHePiSp	89	1.6%	L	
				S	SPiDom	25	0.5%	L	
				M	MIHwSH	1,143	20.6%	E	
				M	MIHwHS	477	8.6%	E	
				M	MTHw	11	0.2%	L	
				H	HIHw	313	5.6%	E	
				H	HITHw	20	0.4%	M	
				H	HTHw	10	0.2%	L	
Total						**5,549**	**100.0%**		

*Forest Community Codes:	SrSbSDom-Red Black Spruce Dominant SwSDom-White Spruce Dominant SspbFDom-Spruce Fir Dominant SbFDom-Balsam Fir Dominant	SpiDom-Pine Dominant SMHePiSp-Mixed Spruce Pine Hemlock MIHwSH-Intolerant Hardwood Mixedwood S MIHwHS-Intolerant Hardwood Mixedwood H	MTHw-Tolerant Hardwood Mixedwood HIHw-Intolerant Hardwood HTHw-Tolerant Hardwood HITHw-Intolerant Tolerant Hardwood

Appendix 10: Table 2: Composition of Forest Communities (in South Shore Grouped by Landscape Element)

Element	Ecosections	Dominant NDR	Dominant Climax Type	Covertype	Forest* Community (Crown Model)	Area (ha)	Percent of Forest Community	Successional Stage	Successional Types
Wetlands	WTLD	Open Seral	wetland with patches of bS, rM, tL, bF, alders, willows	S	SrSbSDom	637	36.6%	L	**Moist** bS
				S	SSpbFDom	278	16.0%	M	
				S	SwSDom	221	12.7%	E	
				S	SbFDom	170	9.7%	M	
				M	MIHwSH	257	14.8%	E	
				M	MIHwHS	137	7.9%	E	
				H	HIHw	41	2.4%	E	
				H	HTHw	1	0.1%	L	
Total						**1,741**	**100.0%**		

*Forest Community Codes:	SrSbSDom-Red Black Spruce Dominant SwSDom-White Spruce Dominant SspbFDom-Spruce Fir Dominant SbFDom-Balsam Fir Dominant	SpiDom-Pine Dominant SMHePiSp-Mixed Spruce Pine Hemlock MIHwSH-Intolerant Hardwood Mixedwood S MIHwHS-Intolerant Hardwood Mixedwood H	MTHw-Tolerant Hardwood Mixedwood HIHw-Intolerant Hardwood HTHw-Tolerant Hardwood HITHw-Intolerant Tolerant Hardwood

Appendix 10: Table 2: Composition of Forest Communities (in South Shore Grouped by Landscape Element)

Element	Ecosections	Dominant NDR	Dominant Climax Type	Covertype	Forest* Community (Crown Model)	Area (ha)	Percent of Forest Community	Successional Stage	Successional Types
Coastal Spruce Pine Oak Hills and Hummocks	WCKK WCHO ICHO	Frequent	bS, wP	S	SrSbSDom	1,623	44.5%	L	**Dry Shallow Sites** bS, jP, rM **Well-drained Inland Sites** rO, wP, rM **Coastal Sites** bS, wS, bF **Moist Sites** bS, jP
				S	SSpbFDom	320	8.8%	M	
				S	SwSDom	268	7.3%	L/E	
				S	SbFDom	37	1.0%	M	
				S	SpiDom	16	0.4%	L	
				M	MIHwSH	562	15.4%	E	
				M	MIHwHS	358	9.8%	E	
				M	MTHw	73	2.0%	L	
				H	HIHw	335	9.2%	E	
				H	HTHw	30	0.8%	L	
				H	HITHw	25	0.7%	M	
Total						**3,646**	**100.0%**		

*Forest Community Codes:			
	SrSbSDom-Red Black Spruce Dominant SwSDom-White Spruce Dominant SspbFDom-Spruce Fir Dominant SbFDom-Balsam Fir Dominant	SpiDom-Pine Dominant SMHePiSp-Mixed Spruce Pine Hemlock MIHwSH-Intolerant Hardwood Mixedwood S MIHwHS-Intolerant Hardwood Mixedwood H	MTHw-Tolerant Hardwood Mixedwood HIHw-Intolerant Hardwood HTHw-Tolerant Hardwood HITHw-Intolerant Tolerant Hardwood

Appendix 10: Table 2: Composition of Forest Communities (in South Shore Grouped by Landscape Element)

Element	Ecosections	Dominant NDR	Dominant Climax Type	Covertype	Forest* Community (Crown Model)	Area (ha)	Percent of Forest Community	Successional Stage	Successional Types
Coastal Beach				S	SwSDom	77	51.7%	L	
				S	SrSbSDom	27	18.3%	L	
				S	SSpbFDom	10	7.0%	M	
				S	SbFDom	8	5.2%	E	
				M	MIHwSH	16	10.9%	E	
				M	MIHwHS	5	3.1%	E	
				H	HIHw	6	3.9%	E	
Total						**149**	**100.0%**		

*Forest Community Codes:	SrSbSDom-Red Black Spruce Dominant SwSDom-White Spruce Dominant SspbFDom-Spruce Fir Dominant SbFDom-Balsam Fir Dominant	SpiDom-Pine Dominant SMHePiSp-Mixed Spruce Pine Hemlock MIHwSH-Intolerant Hardwood Mixedwood S MIHwHS-Intolerant Hardwood Mixedwood H	MTHw-Tolerant Hardwood Mixedwood HIHw-Intolerant Hardwood HTHw-Tolerant Hardwood HITHw-Intolerant Tolerant Hardwood

Appendix 10: Table 2: Composition of Forest Communities (in South Shore Grouped by Landscape Element)

Element	Ecosections	Dominant NDR	Dominant Climax Type	Covertype	Forest* Community (Crown Model)	Area (ha)	Percent of Forest Community	Successional Stage	Successional Types
Valley Corridors	ICHO IMHO IMKK IMRD IMSM PMHO WCHO WMDM WMHO WMKK WMRD WTLD XXCB XXSM	Frequent	Variable depending on element through which it passes. See description of dominant climax types for each element in this appendix.	S	SrSbSDom	186	28.5%	L	See successional types under individual element in this appendix.
				S	SwSDom	50	7.6%	E/L	
				S	SSpbFDom	33	5.1%	M	
				S	SPiDom	16	2.5%	L	
				S	SMHePiSp	12	1.8%	L	
				S	SbFDom	7	1.0%	L	
				M	MIHwSH	187	28.6%	E	
				M	MIHwHS	97	14.9%	M	
				M	MTHw	11	1.7%	L	
				H	HIHw	46	7.0%	E	
				H	HITHw	6	1.0%	M	
				H	HTHw	3	0.5%	L	
Total						**654**	**100.0%**		

*Forest Community Codes:			
	SrSbSDom-Red Black Spruce Dominant SwSDom-White Spruce Dominant SspbFDom-Spruce Fir Dominant SbFDom-Balsam Fir Dominant	SpiDom-Pine Dominant SMHePiSp-Mixed Spruce Pine Hemlock MIHwSH-Intolerant Hardwood Mixedwood S MIHwHS-Intolerant Hardwood Mixedwood H	MTHw-Tolerant Hardwood Mixedwood HIHw-Intolerant Hardwood HTHw-Tolerant Hardwood HITHw-Intolerant Tolerant Hardwood

Appendix 10: Table 2: Composition of Forest Communities (in South Shore Grouped by Landscape Element)

Element	Ecosections	Dominant NDR	Dominant Climax Type	Covertype	Forest* Community (Crown Model)	Area (ha)	Percent of Forest Community	Successional Stage	Successional Types
Salt Marsh		Open Seral	Cordgrass spp.	S	SwSDom	67	38.0%	E/L	
				S	SrSbSDom	52	29.4%	L	
				S	SSpbFDom	22	12.7%	M	
				S	SbFDom	11	6.2%	L	
				M	MIHwSH	10	5.7%	E	
				M	MIHwHS	8	4.5%	M	
				M	MTHw	4	2.0%	L	
				H	HIHw	1	0.8%	E	
				H	HTHw	1	0.7%	L	
Total						**176**	**100.0%**		

*Forest Community Codes:	SrSbSDom-Red Black Spruce Dominant SwSDom-White Spruce Dominant SspbFDom-Spruce Fir Dominant SbFDom-Balsam Fir Dominant	SpiDom-Pine Dominant SMHePiSp-Mixed Spruce Pine Hemlock MIHwSH-Intolerant Hardwood Mixedwood S MIHwHS-Intolerant Hardwood Mixedwood H	MTHw-Tolerant Hardwood Mixedwood HIHw-Intolerant Hardwood HTHw-Tolerant Hardwood HITHw-Intolerant Tolerant Hardwood

Appendix 10:
Table 3: Summary of "Potential Climax" Forest Abundance
(Based on ELC Interpretations)

Climax Type	Ecodistrict		Ecoregion	
	Hectares	Percent	Hectares	Percent
bS wP	81,211	60.1%	81,211	17.4%
bS	25,631	19.0%	86,879	18.6%
bS wS	773	0.6%	64,953	13.9%
rM	598	0.4%	922	0.2%
Total	**108,213**	**80.1%***	**233,964**	**50.2%****

*Total does not add up to 100% because wetlands not added.
**Total does not add up to 100% because not all climax vegetation types in region are found in this ecodistrict
Source: Crown Lands Forest Model Landbase Classification.

Appendix 11: Ecological Emphasis Classes and Index Values

The classification includes all upland conditions, both forested and non-forested, under all types of administration and land use practices. It does not include water or other non-terrestrial conditions.

Ecological Emphasis Class	Conservation Factor	Description
Reserve	**1**	• Reserved lands which meet biodiversity conservation goals through preservation of natural conditions and processes. Resource management activities are not usually permitted except where required to perpetuate desired natural conditions. This class is assigned based on the types of laws and policies governing the management (for example: Wilderness, Parks, Conservation Easement, Old Forest Policy).
Extensive	**0.75**	• Lands managed for multiple values using ecosystem-based techniques that conserve biodiversity, and natural ecosystem conditions and processes. • Forestry practices employ ecosystem-based prescriptions which consider natural disturbance regimes, successional trends, structure, and composition. Natural regeneration is favoured to provide the next forest. Practices may include protection from fire and insects. • Management complies with the Forest Code of Practice, and excludes the use of herbicides, exotic tree species, off-site native species, genetically modified organisms, and stand conversion.
Intensive	**0.25**	• Lands managed intensively to optimize resource production from sites maintained in a native state (e.g. forested). Despite intensive practices these lands are an important component of landscape structure and composition. • Management may eliminate or reduce the duration of some development processes, particularly mature old forest stages, and may result in non-natural succession. Practices may produce unnatural conditions such as exotic species, old field spruce, and monoculture plantations, or reduce structure and composition below ecologically desirable levels. Forests are protected from fire, insects, and competing vegetation. • Management adheres to environmental regulations and policies such as the Wildlife Habitat and Watercourse Protection Regulations and Forest Code of Practice.
Converted	**0**	• Land converted to an unnatural state for human use or areas where practices have significantly degraded site productivity (e.g. agriculture, urban development roads, Christmas trees, seed orchards, forest soil compaction).

Appendix 12a: Ecological Emphasis Index Worksheet – Elements

Landscape Element	Total Land Area (ha)	Ecological Emphasis Classes					Ecological Emphasis Index	
		Reserve Area (ha)	Extensive Forest Management Area (ha)	Intensive Forest Management Area (ha)	Conversion to Non-Forest Area (ha)	Unclassified Land Use Area (ha)	Effective Area Range (ha)	EEC Index Range
Coastal Spruce	54,968	3,703	41,973	3,376	3,695	2,221	36,582 to 37,693	67 to 69
Coastal Bogs and Hummocks	17,043	2,869	12,438	1,154	389	191	12,535 to 12,630	74
Coastal Spruce Pine Hummocks	16,417	730	11,732	1,150	1,979	825	10,023 to 10,436	61 to 64
Coastal Mixedwood Hills and Drumlins	10,286	36	5,131	1,136	2,967	1,015	4,423 to 4,930	43 to 48
Coastal Spruce Ridges	8,646	45	6,957	579	726	339	5,492 to 5,662	64 to 65
Coastal Spruce Flats	8,063	87	6,627	481	538	330	5,260 to 5,425	65 to 67
Wetlands	5,947	34	5,252	355	219	88	4,083 to 4,127	69
Coastal Spruce Pine Oak Hills and Hummocks	5,489	321	3,935	320	794	118	3,382 to 3,442	62 to 63
Coastal Beach	1,321	350	784	73	115	1	956	72
Valley Corridors	1,313	53	908	52	285	15	750 to 758	57 to 58
Salt Marsh	940	49	708	72	106	5	599 to 602	64
Total	**130,433**	**8,277**	**96,446**	**8,748**	**11,813**	**5,148**	**84,086 to 86,661**	**64 to 66**

These classes have been given a weighting percentage representing their ecological emphasis level: Reserve (100), Extensive (75), Intensive (25), and Converted (0). These percentages are applied to the area of land in each class to determine the "effective area" which is divided by "total area" to calculate the index.

The Unclassified land is too young to determine if it is being managed extensively or intensively. Therefore, an EEI range is reported based on it being all one or the other.

Water was not included as an element type. Areas were rounded to the nearest hectare.

EEI values are benchmarks that will be monitored over time.

Appendix 12b: Ecological Emphasis Index Worksheet – Ecosections

Ecosection	Total Land Area (ha)	Ecological Emphasis Classes					Ecological Emphasis Index	
		Reserve Area (ha)	Extensive Forest Management Area (ha)	Intensive Forest Management Area (ha)	Conversion to Non-Forest Area (ha)	Unclassified Land Use Area (ha)	Effective Area Range (ha)	EEC Index Range
ICHO	1,154	0	965	19	150	21	733 to 744	64
ICSM	348	0	307	4	7	30	239 to 254	69 to 73
IMHO	55,597	3,706	42,467	3,399	3,786	2,239	36,966 to 38,085	66 to 69
IMKK	1,175	1	775	160	174	65	639 to 671	54 to 57
IMRD	3,486	6	2,735	147	317	281	2,164 to 2,305	62 to 66
IMSM	7,731	87	6,334	477	533	301	5,032 to 5,182	65 to 67
PMHO	17,060	2,870	12,457	1,154	389	190	12,548 to 12,643	74
WCHO	1,818	77	1,008	211	471	52	898 to 924	49 to 51
WCKK	2,629	245	2,040	91	206	46	1,809 to 1,832	69 to 70
WFDM	2,074	20	589	421	933	111	594 to 650	29 to 31
WMDM	5,552	15	2,577	535	1,720	705	2,258 to 2,610	41 to 47
WMHO	16,577	730	11,825	1,154	2,044	824	10,093 to 10,505	61 to 63
WMKK	1,574	0	1,217	22	198	137	952 to 1021	60 to 65
WMRD	3,624	22	3,021	386	193	3	2,384 to 2,386	66
WMSM	1,606	17	1,244	53	237	55	977 to 1004	61 to 63
WTLD	5,981	34	5,284	354	223	87	4,107 to 4,150	69
XXCB	1,416	403	796	90	127	0	1,023	72
XXMS	1,097	49	847	74	123	5	703 to 706	64
Total	**130,497**	**8,279**	**96,487**	**8,751**	**11,828**	**5,151**	**84,120 to 86,696**	**64 to 66**

For an explanation of calculations and other information to help better understand this table, please refer to the bottom of Appendix 12a.

Appendix 13:

Glossary B: Terms in Parts 1, 2, and 3

Aspect	The direction of a downhill slope expressed in degrees or as a compass point.
Atlantic Coastal Plain Flora (ACPF)	A group of 90 species of taxonomically unrelated wetland plants that inhabit lake and river shores, bogs, fens, and estuaries and which are found primarily in southwestern Nova Scotia. The distribution of this group of plants extends down the eastern coast of the USA with isolated populations in Nova Scotia and along the Great Lakes.
Biodiversity	The diversity of plants, animals, and other living organisms, in all their forms and level of organization, including genes, species, ecosystems, and the evolutionary and functional process that link them.
Canopy	The uppermost continuous layer of branches and foliage in a stand of trees.
Climax forest community	A relatively stable and self-perpetuating forest community condition that maintains itself (more or less) until stand-level disturbance causes a return to an earlier successional stage. The final stage of natural succession for its environment.
Climax vegetation	A forest or non-forest community that represents the final stage of natural succession for its environment.
Coarse filter approach	A habitat-based approach to conserving biodiversity by maintaining a natural diversity of structures within stands, and representation of ecosystems across landscapes. The intent is to meet the habitat requirements of most native species over time. Usually combined with a fine filter approach to conserve specific rare species and ecosystems.
Coarse Woody Debris (CWD)	Dead tree stems greater than 7.5 centimetres in diameter and laying horizontally at 45 degrees or less. Provides habitat for many species and is a source of nutrients for soil development.
Commercial thinning	Silviculture treatment that “thins” out an overstocked stand by removing trees that are large enough to be sold as products, such as poles or fence posts. This treatment is carried out to improve the health and growth rate of the remaining crop trees.

Composition	The proportion of biological components within a specified unit such as a stand or landscape: **Stand or Species Composition.** The proportion of each plant species in a community or stand. May be expressed as a percentage of the total number, basal area, or volume of all species in that community. **Landscape Composition.** The proportion of each community type within a landscape. Community type may be defined by vegetation type, covertype, seral stage, or development class (age).
Connectivity	The way a landscape enables or impedes movement of resources, such as water and animals.
Converted	Lands removed from a natural state (e.g. forest) and changed to other uses (e.g. agriculture, urban, settlement, road).
Corridor	Corridors are natural linear communities or elements, such as river valleys, that link parts of the ecodistrict. They are a fundamental feature of the "matrix, patch, corridor" concept of landscape structure.
Crown land and Provincial Crown land	Used in the Ecological Landscape Analysis to include all land under the administration and control of the Minister of Natural Resources under the Forests Act, Section 3; as well as the lands under the administration and control of the Minister of Environment under the Wilderness Areas Protection Act. Also includes Federal Parks in the accounting of protected area representation.
Covertype	Refers to the relative percentage of softwood versus hardwood species in the overstory of a stand. In this guide, covertype classes are: **Softwood:** softwood species compose 75% or more of overstory **Hardwood:** hardwood species compose 75% or more of overstory **Mixedwood:** softwood species composition is between 25% and 75%
Development class	The description of the structure of forests as they age and grow (e.g. establishment forest, young forest, mature forest, multi-aged / old forest).
Disturbance	An event, either natural or human-induced, that causes a change in the existing condition of an ecological system.
Ecodistrict	The third of five levels in the Ecological Land Classification for Nova Scotia Volume 1, and a subdivision of ecoregions. Characterized by distinctive assemblages of relief, geology, landform, and vegetation. Used to define the landscape unit for these Ecological Landscape Analysis reports.

Ecological land classification	A classification of lands from an ecological perspective based on factors such as climate, physiography, and site conditions. The Ecological Land Classification for Nova Scotia Volume 1 delineates ecosystems at five hierarchical scales: ecozone, ecoregion, ecodistrict, ecosection, and ecosite.
Ecological integrity	The quality of a natural unmanaged or managed ecosystem in which the natural ecological processes are sustained, with genetic, species, and ecosystem diversity assured for the future.
Ecoregion	The second level of the Ecological Land Classification for Nova Scotia Volume 1, and a subdivision of ecozone. Used to characterize distinctive regional climate as expressed by vegetation. There are nine ecoregions identified in Nova Scotia.
Ecosection	The fourth of five levels in the Ecological Land Classification for Nova Scotia Volume 1, and a subdivision of ecodistricts. An ecological land unit with a repeating pattern of landform, soils, and vegetation throughout an ecodistrict.
Ecosite	The fifth of five levels in the Ecological Land Classification for Nova Scotia Volume 1, and a subdivision of ecosections. Characterized by conditions of soil moisture and nutrient regimes. Although not mapped, the Acadian and Maritime Boreal ecosites of the province are fully described in the Forest Ecosystem Classification for Nova Scotia (2010).
Ecosystem	A functional unit consisting of all the living organisms (plants, 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. An ecosystem can be of any size – a log, pond, field, forest, or the Earth's biosphere – but it always functions as a whole unit. Ecosystems are commonly described according to the major type of vegetation, such as a forest ecosystem, old-growth ecosystem, or range ecosystem. Can also refer to units mapped in the DNR Ecological Land Classification system.
Ecozone	The first of five levels in the Ecological Land Classification for Nova Scotia Volume 1. Ecozones are continental ecosystems characterized by the interactions of macroclimate, soils, geographic, and physiographic features. The entire province is contained within the Acadian ecozone, one of 15 terrestrial ecozones in Canada.
Edge effect	Habitat conditions (such as degree of humidity and exposure to light or wind) created at or near the more-or-less well-defined boundary between ecosystems, as, for example, between open areas and adjacent forest.

Element	A landscape ecosystem containing characteristic site conditions that support similar potential vegetation and successional processes. Elements were mapped by combining ecosections with similar climax vegetation and natural disturbance interpretations. Depending on their role in the ecosystem, elements may be described as matrix, patch or corridor.
Endangered species	A wildlife species facing imminent extirpation or extinction. A species listed as endangered under the federal or Nova Scotia endangered species legislation (NS Endangered Species Act or federal Species at Risk Act).
Even-aged	A forest, stand, or vegetation type in which relatively small age differences exist between individual trees. Typically results from stand-initiating disturbance.
Extensive land use	Lands managed for multiple values using ecosystem-based techniques that conserve biodiversity and natural ecosystem conditions and processes.
Extinct species	A species that no longer exists. A species declared extinct under federal or Nova Scotia endangered species legislation (NS Endangered Species Act or federal SARA).
Extirpated species	A species that no longer exists in the wild in Nova Scotia but exists in the wild outside the province. A species declared extirpated under federal or Nova Scotia endangered species legislation (Nova Scotia Species at Risk Act or federal SARA).
Fine filter approach	An approach to conserving biodiversity that is directed toward individual species and critical ecosystems that are typically rare or threatened. This approach is usually combined with the coarse filter approach to conserving natural ranges of habitat.
Forest management	The practical application of scientific, economic, and social principles to the administration and working of a forest for specified objectives. Particularly, that branch of forestry concerned with the overall administrative, economic, legal, and social aspects and with the essentially scientific and technical aspects, especially silviculture, protection, and forest regulation.
Frequent stand initiating	Disturbances usually occur more frequently than the average lifespan of the dominant species and are of sufficient intensity to destroy most of the existing trees, promoting a new forest within relatively short periods of time.

Gap replacement	An absence of stand-initiating disturbances supports the development of a dominant overstory that is sustained through dynamic processes of canopy gap formation, understory development, and overstory recruitment. Gap formation ranges from individual tree mortality to periodic gap formation events that are rarely of a stand-initiating intensity.
Habitat	The place where an organism lives and/or the conditions of that environment including the soil, vegetation, water, and food.
Infrequent stand initiating	The time between stand-initiating disturbances is usually longer than the average longevity of dominant species, thereby supporting processes of canopy gap formation and understory development in mature forests.
Inherent conditions	Refers to the natural condition of ecosystems based on their enduring physical features. This is the potential condition expected in the absence of human influence.
Integrated Resource Management (IRM)	A decision-making process whereby all resources are identified, assessed, and compared before land use or resource management decisions are made. The decisions themselves, whether to approve a plan or carry out an action on the ground, may be either multiple or single use in a given area. The application of integrated resource management results in a regional mosaic of land uses and resource priorities which reflect the optimal allocation and scheduling of resource uses.
Intensive land use	Lands managed intensively to optimize resource production from sites maintained in a forested state.
Land capability (LC)	LC values represent the maximum potential stand productivity (m^3/ha/yr) under natural conditions.
Landform	A landscape unit that denotes origin and shape, such as a floodplain, river terrace, or drumlin.
Landscape	An expanse of natural area, comprising landforms, land cover, habitats, and natural and human-made features that, taken together, form a composite. May range in scale from a few hectares to large tracts of many square kilometres in extent.
Long range management frameworks	A strategic, integrated resource plan at the subregional level. It is based on the principles of enhanced public involvement, consideration of all resource uses and values, consensus-based decision making, and resource sustainability.

Matrix	A widespread vegetation forest community which dominates the landscape and forms the background in which other smaller scale communities (patches) occur. The most connected or continuous vegetation type within the landscape, typically the dominant element. (Matrix is a fundamental feature of the "matrix, patch, corridor" concept of landscape structure).
Mature forest	A development class within the sequence of: 1) forest establishment; 2) young forest; 3) mature forest; and 4) multi-aged and old growth. Mature forests include multi-aged and old growth. Forests are typically taller than 11 metres, have an upper canopy fully differentiated into dominance classes, and regularly produce seed crops. Mature forests may develop over long periods, transitioning from early competitive stages where canopy gaps from tree mortality soon close, to later stages where openings persist and understories develop to produce multi-aged and old growth.
Memorandum of understanding (MOU)	An agreement between ministers defining the roles and responsibilities of each ministry in relation to the other or others with respect to an issue over which the ministers have concurrent jurisdiction.
Mixed stand	A stand composed of two or more tree species.
Multiple use	A system of resource use where the resources in a given land unit serve more than one user.
Natural disturbance	A natural force that causes significant change in forest stand structure and/or composition such as fire, wind, flood, insect damage, or disease.

Natural disturbance regimes	The patterns (frequency, intensity, and extent) of fire, insects, wind, landslides, and other natural processes in an area. Natural disturbances inherently influence the arrangement of forested ecosystems and their biodiversity on a given landscape. Three disturbance regimes recognized in Nova Scotia are: **Frequent:** Disturbances which result in the rapid mortality of an existing stand and the establishment of a new stand of relatively even age. The time interval between stand-initiating events typically occurs more frequently than the longevity of the climax species that would occupy the site – therefore, evidence of gap dynamics and understory recruitment is usually absent. This regime results in the establishment and perpetuation of early to mid-successional vegetation types. **Infrequent:** Stand-initiating disturbances which result in the rapid mortality of an existing stand and the establishment of a new stand of relatively even-age, but the time interval between disturbance events is normally longer than the average longevity of the dominant species – allowing gap dynamics and understory recruitment to evolve and become evident (eventually creating uneven-aged stands). This regime generally leads to the establishment and/or perpetuation of mid to late successional vegetation types. **Gap replacement:** Stand-initiating disturbances are rare. Instead, disturbances are characterized by gap and small patch mortality, followed by understory recruitment, resulting in stands with multiple age classes. This regime generally leads to the establishment and/or perpetuation of late successional vegetation types.
Old growth	Climax forests in the late stage of natural succession, the shifting mosaic phase, marked by mature canopy processes of gap formation and recruitment from a developed understory. Typical characteristics include a multi-layered canopy of climax species containing large old trees, decadent wolf trees, and abundant snags and coarse woody debris. In Nova Scotia, stands older than 125 years are classed as old growth.
Patch	A discrete community or element nested within a surrounding landscape, which is often a matrix forest. (Patch is a fundamental feature of the “matrix, patch, corridor” concept of landscape structure.)
Pre-commercial thinning	A silviculture treatment to reduce the number of trees in young stands before the stems are large enough to be removed as a forest product. Provides increased growing space and species selection opportunities to improve future crop tree growth.

Reserve	An area of forest land that, by law or policy, is usually not available for resource extraction. Areas of land and water set aside for ecosystem protection, outdoor and tourism values, preservation of rare species, gene pool and wildlife protection (e.g. wilderness areas, parks).
Riparian	Refers to area adjacent to or associated with a stream, floodplain, or standing water body.
Road deactivation	Measures taken to stabilize roads and logging trails during periods of inactivity, including the control of drainage, the removal of sidecast where necessary, and the re-establishment of vegetation for permanent deactivation.
Seral stage	Any stage of succession of an ecosystem from a disturbed, unvegetated state to a climax plant community. Seral stage describes the tree species composition of a forest within the context of successional development.
Species	A group of closely related organisms which are capable of interbreeding, and which are reproductively isolated from other groups of organisms; the basic unit of biological classification.
Species at risk	Legally recognized designation for species at federal and/or provincial levels that reflects varying levels of threats to wildlife populations. The four categories of risk are extirpated, endangered, threatened, and species of special concern.
Succession	An orderly process of vegetation community development that over time involves changes in species structure and processes.
Threatened species	A species that is likely to become endangered if the factors affecting its vulnerability are not reversed. A species declared as threatened under the federal or Nova Scotia species at risk legislation (NS Endangered Species Act or federal SARA).
Tolerance	The ability of an organism or biological process to subsist under a given set of environmental conditions. The range of these conditions, representing its limits of tolerance, is termed its ecological amplitude. For trees, the tolerance of most practical importance is their ability to grow satisfactorily in the shade of, and in competition with, other trees.
Vernal pool	A seasonal body of standing water that typically forms in the spring from melting snow and other runoff, dries out in the hotter months of summer, and often refills in the autumn.

Vulnerable species	A species of special concern due to characteristics that make it particularly sensitive to human activities or natural activities or natural events. May also be referred to as “species of special concern.” A species declared vulnerable under the federal or Nova Scotia endangered species legislation (NS Endangered Species Act or federal SARA).
Wilderness area	A part of the provincial landbase designated under the Wilderness Areas Protection Act (e.g. Canso Barrens).

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