Ecoregions and Ecodistricts of Nova Scotia

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PREFACE

Since the late 1960s, governments, non-government groups, universities and industry have worked to develop a common, hierarchical ecosystem framework and terminology. The initiative gained momentum in the 1970s, especially following the creation of the Canada Committee on Ecological Land Classification. In 1991, a collaborative project was undertaken by a number of federal government agencies in cooperation with provincial and territorial governments to revise previous work and establish a common, hierarchical ecosystem framework for Canada. The underlying principle for the initiative was the commitment and need to think, plan, and act in terms of ecosystems. The principle required people to move away from an emphasis on individual elements that comprise an ecosystem to a perspective that is more comprehensive and holistic in approach. The use of such a framework of standard ecological units provides for common communication and reporting between different jurisdictions and disciplines. It enhances the capability of government and non-government organizations to assess and report on environmental quality and the sustainability of ecosystems.

The revised *National Ecological Framework for Canada*, which was released in 1996, depicted three levels of generalization — ecozones, ecoregions and ecodistricts. Subsequent to the release of the main report, a number of additional materials associated with the framework have been published, providing broader, more in-depth studies and data and covering provincial, national, and North American perspectives. These include:

- the 1998 *Ecoregions of Saskatchewan*;
- the 1998 *Terrestrial Ecozones, Ecoregions and Ecodistricts of Manitoba, An Ecological Stratification of Manitoba's Natural Landscapes*;
- the 1996 *Ecoregions of British Columbia* (revised 4th edition);
- the 1996 *A Perspective on Canada's Ecosystems* by the Canadian Council on Ecological Areas (CCEA), which provides a country-wide, in-depth description of Canada's terrestrial ecozones; and
- the 1997 *Ecological Regions of North America, Towards a Common Perspective* by the NAFTA Commission for Environmental Cooperation (CEC), which provides an integrated, continental perspective.

This report for Nova Scotia continues the trend to provide more in-depth provincial perspectives on ecosystems, following the hierarchy of the national ecological framework. It describes Nova Scotia within the context of 1 ecozone, 8 ecoregions, and 25 ecodistricts. The ecoregions and ecodistricts are presented on an accompanying map and described in terms of climate, vegetation, landform, soils, wildlife, and land use. Ecodistrict descriptions, not available in the national report, are presented for the first time.

PRÉFACE

Depuis la fin des années 60, gouvernements, groupes non gouvernementaux, universités et industrie collaborent à l'établissement d'une terminologie et d'un cadre de travail communs et hiérarchiques pour l'écosystème. Ce mouvement a pris son élan dans les années 70, particulièrement après la mise sur pied du Comité canadien de la classification écologique du territoire. En 1991, un projet concerté a été entrepris par un certain nombre d'organismes fédéraux, en collaboration avec des gouvernements provinciaux et territoriaux, afin d'examiner le travail antérieur et d'établir, pour le Canada, un cadre de travail commun et hiérarchique pour l'écosystème. Le principe sous-jacent de ce mouvement était l'engagement et la nécessité de penser, de planifier et d'agir en fonction de l'écosystème. Ce principe exigeait que les gens s'éloignent de l'importance accordée aux éléments individuels d'un écosystème, pour passer à une perspective dont l'approche est plus complète et plus holistique. L'utilisation d'un tel cadre d'unités écologiques normalisées assure une communication et une transmission de données communes entre les différents intervenants et disciplines. Elle augmente aussi la capacité des organismes gouvernementaux et non gouvernementaux d'évaluer la qualité de l'environnement et la durabilité des écosystèmes, puis d'en rendre compte.

La révision du *Cadre écologique national pour le Canada*, publiée en 1996, décrit trois niveaux de généralisation, soit les écozones, les écorégions et les écodistricts. Après la publication du rapport principal, un certain nombre de documents liés au cadre de travail ont été publiés, présentant des études et des données plus vastes et plus approfondies, et couvrant les perspectives provinciales, nationales et nord-américaines, dont:

- *Ecoregions of Saskatchewan*, en 1998;
- *Terrestrial Ecozones, Ecoregions and Ecodistricts of Manitoba, An Ecological Stratification of Manitoba's Natural Landscapes*, en 1998;
- *Ecoregions of British Columbia*, en 1996 (4e édition révisée);
- *Une perspective des écosystèmes du Canada*, en 1996, du Conseil canadien des aires écologiques (CCAE), qui donne une description approfondie et pancanadienne des écozones terrestres du pays;
- *Les régions écologiques de l'Amérique du Nord, vers une perspective commune*, en 1997, de la Commission de coopération environnementale (CCE) de l'ALENA, qui présente la perspective intégrée et continentale.

Le présent rapport sur la Nouvelle-Écosse poursuit la tendance consistant à fournir des perspectives provinciales plus poussées sur les écosystèmes, basé sur la hiérarchie du cadre de travail écologique national. Il décrit la Nouvelle-Écosse dans le contexte d'une écozone, de huit écorégions et de 25 écodistricts. Les écorégions et les écodistricts sont présentés sur une carte jointe et décrits au plan du climat, de la végétation, de la topographie, des sols, de la faune et de l'aménagement du territoire. Les descriptions des écodistricts, qui ne figurent pas dans le rapport national, sont présentées pour la première fois dans ce rapport.

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INTRODUCTION

In Nova Scotia, as in many places around the world, human activities have impacted on many ecosystems. Maintaining a healthy environment, as well as economic prosperity for the people of Nova Scotia, is an ongoing challenge. Decisions concerning the environment and management of natural resources need to be made on a broader and more inclusive basis than has been done in the past, keeping in mind that, in one way or another, everything is connected and interdependent. Connections between people and the environment must be recognized, including the short- and long-term implications of our activities, the components and functions of ecosystems, and the carrying capacity and transformations of ecosystems (Acton et al. 1998).

Promoting an ecological perspective begins with a more integrated view of ecosystems. This approach encourages us to think, plan, and act in terms of ecosystems when managing our natural resources. This report describes the ecosystems of Nova Scotia following the hierarchical framework for terrestrial ecosystems in Canada (Ecological Stratification Working Group 1996). It describes Nova Scotia within the context of 1 ecozone, 8 ecoregions, and 25 ecodistricts. The ecoregions and ecodistricts are presented on an accompanying map and described in terms of climate, vegetation, landform, soils, wildlife, and land use.

ECOSYSTEMS AND ECOLOGICAL LAND CLASSIFICATION

An ecosystem is a unit of nature containing a "community of organisms including humans, interacting with one another, plus the environment in which they live and with which they interact. Ecosystems are often embedded within other ecosystems of larger scale" (Royal Society of Canada 1995). The classical definition of ecosystem has been expanded in response to decision-making needs and concerns regarding the long-term capability of ecosystems to sustain life. The root words of ecosystem are *eco*, a derivative of the Greek term for house or home, and *system*, which addresses the relationships and connections between the biological and physical parts. First introduced by Tansley (1935), the term described a system that included the community of living organisms and the physical factors forming their environment such as water, land, and air. It now includes specific reference to human beings as an integral part of the biological community and the flexible nature of ecosystem spatial boundaries (Task Group on Ecosystem Approach and Ecosystem Science 1996).

Arising from this expanded view of an ecosystem are a number of insights that influence the process of mapping and classifying ecologically distinctive areas (Task Group on Ecosystem Approach and Ecosystem Science 1996). Everything in an ecosystem is related to everything else. In essence, the whole is more than the sum of its parts. Earth behaves like a series of interrelated ecosystems in which all components are linked, so that a change in one component brings about a change in other components. This requires us to consider spatial perspectives, from local, regional, and subcontinental to global. Since people are an important part of ecosystems, sustained life is a property of systems, not individual species. This implies the need to maintain the health and integrity of natural systems to ensure our own survival.

Ecological land classification is:

> a process of delineating and classifying ecologically distinctive areas of the Earth's surface. Each area can be viewed as a discrete system which has resulted from the mesh and interplay of the geologic, landform, soil, vegetative, climatic, wildlife, water, and human factors which may be present. The dominance of any one or a number of these factors varies with the given ecological land unit. The holistic approach to land classification can be applied incrementally on a scale-related basis from site-specific ecosystems to very broad ecosystems. (Wiken 1986)

The fundamental basis for delineation of ecological units is to capture the major ecological composition and the linkages between the various components (e.g., landforms, soils, water, and vegetation) rather than treating each component as a separate characteristic of the landscape.

Key elements in the application of ecological land classification in delineating ecological map units are as follows (Wiken and Gauthier 1996; Commission for Environmental Cooperation 1997):

- Ecological land classification incorporates all major components of ecosystems: air, water, land, and biota (including humans).
- It is holistic "the whole is greater than the sum of its parts."
- The number and relative importance of factors helpful in delineating ecological units vary from one area to another, regardless of the level of generalization.
- Ecological land classification is based on a hierarchy, with ecosystems nested within ecosystems.
- It involves integration of knowledge and is not simply an overlay process.
- It recognizes that ecosystems are interactive and that characteristics of one ecosystem blend with those of another.
- It recognizes that map lines generally depict the location of zones of transition.

Ecosystems are numerous and complex. The challenge is to make ecological map units workable and understandable to reflect this complexity. It is equally important to recognize that although ecological land classification is science-based, it is also an art, in the sense that ecological cycles, characteristics, and interactions are not always readily apparent or measured and therefore need to be interpreted from the development of vegetation, soil, and landform characteristics or other factors.

Ecosystems not only vary tremendously, but form part of a "nested hierarchy" at multiple scales, in which smaller ecosystems are encompassed within successively larger ones. A hierarchical system permits the choice of detail that suits management objectives and the proposed use. Because management and other decision-making deal at various levels, from local to regional to national and even to international, one of the requirements of ecological land classification is to portray ecosystems at a level, scale, and intensity appropriate to the need.

Although the ecosystem concept implies equality among components (soils, climate, vegetation, etc.), all components may not be equally significant throughout the hierarchy (i.e., some can be more determinant or enduring than others). The dominance or importance of any one factor may vary considerably in defining the spatial expression of an ecosystem at each level of generalization. Ideally, differentiating criteria are based on enduring components of the ecosystem and are those that do not change perceptibly over time, such as geology, surficial materials, landform, and water bodies. For any level of generalization the pattern of components may vary from one ecological unit to the next, as do their relationships and processes. For example, on lowlands in Nova

Scotia, ecosystems are controlled by a different set of factors than those in highland areas. Igneous and metamorphic bedrock, shallow stony surficial materials, and steep, hilly topography are predominant on the highlands, whereas the lowlands encompass deep loamy surficial materials on subdued, undulating topography underlain by sedimentary bedrock. These factors influence other conditions, such as wildlife habitat, vegetative growth, and productivity.

Establishing ecosystem boundaries on a map involves distinguishing those systems in which structures exhibit a consistent or significant degree of change when compared with adjacent systems. Since land classification is based on multiple factors, the key to placing boundaries on an ecological map is an understanding of genetic processes (how the ecosystem originated) and an understanding of the causes of class differences as opposed to the effects. For example, the boundary between the Cape Breton Barrens Ecodistrict and the adjacent Cape Breton Plateau Ecodistrict is due primarily to the lack of vegetation caused by exposure to extreme climatic conditions and shallow soil. Landform type and pattern, with its geological substrate and surface shape and relief are also important criteria for establishing boundaries at the meso-scale (ecoregions and ecodistricts). For example, the drumlinized till plain of the Lunenburg Drumlins Ecodistrict separates it from the more subdued topography and associated expansive wetlands of the adjacent Rossignol Ecodistrict.

Ecosystems can range from natural systems through to those heavily modified by human activity, such as urbanization. Land use and other human factors can influence the character and delineation of some types of ecosystems. In some situations, human activities have historically been pervasive, significantly influencing the ecological processes and character of a region — for example, the permanent influence of agriculture on the grasslands of the Prairie provinces in western Canada or, to a lesser degree, the Annapolis Valley in Nova Scotia. Ideally, the boundaries reflect factors that control ecosystems distribution at various scales, such that they can be recognized, compared, and applied regardless of human activities and other natural disturbances.

THE NATIONAL ECOLOGICAL FRAMEWORK AND NOVA SCOTIA

In 1991, a collaborative project was undertaken by a number of federal agencies in cooperation with provincial and territorial governments, all under the auspices of the Ecological Stratification Working Group, to revise previous work and establish a common ecological framework for Canada. The working group focused on three priority levels of stratification — namely, ecozones, ecoregions, and ecodistricts.

The underlying principles for the initiative was the commitment and need to think, plan, and act in terms of ecosystems. The principle required people to move away from an emphasis on individual elements that comprise an ecosystem to a perspective that is more comprehensive — a holistic approach. This required a national ecological framework to provide a consistent, spatial context within which ecosystems could be described, monitored, and reported on at various levels of generalization. The use of such a framework of standard ecological units would provide for common communication and reporting between different jurisdictions and disciplines. In this case, the immediate requirement was to provide a common ground to report on the state of the environment and the sustainability of ecosystems in Canada. The concepts and hierarchy for ecological classification set out by the Canada Committee on Ecological Classification in the 1970s and 1980s

(Ironside 1991; Ecological Stratification Working Group 1996) were the overall guide for the revised national framework.

The resulting national report, *A National Ecological Framework for Canada*, released by the Ecological Stratification Working Group in 1996, contains the methodology used to construct the ecological framework maps, the concepts of the hierarchical levels of generalization, narrative descriptions of each ecozone and ecoregion, their linkages to various data sources, and examples of applications of the framework.

The development of an ecological classification framework for Nova Scotia was part of the national effort. Although a set of six regional ecodistrict maps covering all of Canada was produced, no descriptions of the ecodistricts accompanied the maps (Ecological Stratification Working Group 1995). This report presents the ecodistrict descriptions as well as the other two levels of the classification for Nova Scotia. The narratives describing the ecoregions follow those of the Ecological Stratification Working Group (1996) and are written in terms that permit comparisons on a national scale.

ECOLOGICAL UNITS

Ecozones

At the top of the framework hierarchy, the ecozone defines the ecological mosaic of Canada on a subcontinental scale. It presents an area of the Earth's surface representative of large and very generalized ecological units characterized by interactive and adjusting abiotic and biotic factors. Ecozones capture the broad mosaics formed by the interaction of macro-scale climate, vegetation, physiographic, and geological features of the country. Canada is divided into 15 terrestrial ecozones. Nova Scotia, New Brunswick and Prince Edward Island are located within the Atlantic Maritime Ecozone. This ecozone also includes the Gaspé Peninsula and extends southwest through Quebec to the U.S. border south of Sherbrooke.

Ecoregions

Ecoregions are subdivisions of ecozones, characterized by distinctive, large-order landforms or assemblages of regional landforms, small-order macro- or meso-climates, vegetation, soils, water, and regional human activity patterns and/or uses. Eight ecoregions were identified in Nova Scotia as subsets of the Atlantic Maritime Ecozone. Those with distinctive highland and upland relief include: the Nova Scotia Highlands, Cape Breton Highlands, Southwest Nova Scotia Uplands, and South-central Nova Scotia Uplands ecoregions. Those with subdued relief include the Maritime Lowlands and the Annapolis-Minas Lowlands ecoregions.

The following sources were used to assist with the mapping and description of the ecoregions. These included reports written from national and regional ecological perspectives (Loucks 1961; Hirvonen 1984; Ecoregions Working Group 1989; Wiken et al. 1993) and provincial ecological reports (Simmons et al. 1984; Davis and Browne 1996). Other sources included information dealing with biophysical (Nova Scotia Department of Lands and Forests 1986a); geological (Bostock 1970; Roland 1982; Donohoe and Grantham 1989; Stea et al. 1992); and climatic features (Dzikowski et al. 1984, Dzikowski 1984); as well as provincial soil surveys and land resource areas (Patterson and Langman 1992).

Ecodistricts

Ecodistricts are subdivisions of ecoregions and are characterized by distinctive assemblages of landform, relief, surficial geological material, soil, water bodies, vegetation, and land uses. Twenty-five ecodistricts were identified, ranging from 300 to 5800 km^2 in area. Most are in the 1000- to 3500-km^2 range, the smallest of which reflect

strongly contrasting features (e.g., Cape Breton Barrens and North Mountain ecodistricts).

Principal sources used to guide the delineation of ecodistricts in Nova Scotia were the site districts of Loucks' (1961) forest classification; the first approximation of ecodistricts produced by Environment Canada (1985); theme regions within the *Natural History of Nova Scotia* (Simmons et al. 1984); and Agriculture and Agri-Food Canada's soil landscapes of Nova Scotia (Canada Soil Inventory 1989). The latest edition of the Natural History of Nova Scotia compiled by Davis and Browne (1996), was a significant source of information used for the descriptions.

Although not part of the ecological classification framework, the Soil Landscapes of Canada map units and their associated data stored in the Canadian Soil Information System (e.g., National Soil Data Base) are directly linked to the ecodistricts.

Other information sources used to describe the ecodistricts are listed in Table 1. The sources are listed according to the same five general categories used to describe the ecodistricts — namely, climate, landform, vegetation, soils, and land use.

Table 1. Information sources used to describe the ecodistricts

Category	Variables	Sources
Climate	General comments and description	Gates 1975; Dzikowski 1984; Dzikowski et al. 1984
	Monthly climatic normals, 1961–1990	Bootsma and Ballard 1997
	Potential evapotranspiration	Bootsma and Ballard 1997
	Growing season length and annual growing degree-days above 5°C	Bootsma and Ballard 1997
Landform	Bedrock geology	Roland 1982; Donohoe and Grantham 1989; Davis and Browne 1996
	Surficial geology	Eastern Ecological Research Ltd. 1978; Roland 1982; Grant 1988; Canada Soil Inventory 1989; Stea et al. 1992; Davis and Browne 1996; Nova Scotia Soil Survey reports
	Physiography	Roland 1982; Nova Scotia Department of Lands and Forests 1986a; Canada Soil Inventory 1989; Davis and Browne 1996
Vegetation	Forest type and characteristic tree species	Loucks 1961, elaborated by Davis and Browne 1996; Eastern Ecological Research Ltd. 1978
	General forest cover	Nova Scotia Department of Lands and Forests 1986b
Soils	Soil names, taxonomy, and characteristics	Nova Scotia Soil Survey reports; Eastern Ecological Research Ltd. 1978; Soil Classification Working Group 1998
Land use	Processing plants, electrical power plants, mining	Nova Scotia Department of Lands and Forests 1986c; Nova Scotia Department of Mines and Energy 1986a; 1986b; Nova Scotia Power Corporation 1986; Davis and Browne 1996

ECOLOGICAL UNIT DESCRIPTIONS

ATLANTIC MARITIME ECOZONE

The Atlantic Maritime Ecozone covers 210 507 km^2 and includes all of New Brunswick, Nova Scotia, and Prince Edward Island. It also covers Iles-de-la-Madeleine and the part of Quebec extending southwesterly from the Gaspé Peninsula through the Appalachian complex of eastern Quebec to the U.S. border south of Sherbrooke.

Climate. Proximity of the ecozone to the Atlantic Ocean creates a cool, moist maritime climate and moderates temperatures. Mean annual temperatures range from 3.5°C in the Gaspé Peninsula to 6.5°C in southwestern Nova Scotia. Mean summer temperatures range between 13 and 15.5°C. Mean winter temperatures range from –8°C in the Gaspé Peninsula to –2°C in Nova Scotia. Mean annual precipitation varies from 900 mm inland to over 1500 mm near the coast. Coastal areas are several degrees warmer in winter and slightly cooler in summer.

Vegetation. Forests are generally composed of mixed stands of conifer and deciduous species, characterized by red spruce, balsam fir, yellow birch, and sugar maple, whereas red and white pine and eastern hemlock occur to a lesser but significant degree. Some boreal species are present, including black and white spruce, balsam poplar and white birch. Jack pine is prominent on sandy soils and in areas of regrowth after fires. Common shrubs species include pin cherry, willow, speckled alder, steeple-bush, and blueberry. Forest growth is fairly productive here, except where the bedrock is exposed. Most of the native forest has been harvested or burned at least once in the past two centuries.

Landform and Soils. The ecozone is dominated by the interior Appalachian Upland and the Northumberland Coastal Plain physiographic units. The uplands are composed of granite, gneiss, and other hard, crystalline rocks. This upland terrain is covered by glacial till. Humo-Ferric Podzols are the dominant soils. In the coastal lowland areas, Luvisolic and Podzolic soils have formed on surficial materials derived from the underlying sedimentary bedrock (e.g., sandstone, shale, and limestone). These lowland soils accommodate the greatest proportion of the population and support most of the agricultural activities in this ecozone.

Wildlife. Characteristic mammals include white-tailed deer, moose, black bear, raccoon, striped skunk, bobcat, and eastern chipmunk. Representative birds include whip-poor-will, blue jay, eastern bluebird, and rose-breasted grosbeak. Breeding colonies of marine birds are also found here, including great and double-crested cormorant, Atlantic puffin, common and thick-billed murre, black guillemot, and razorbill. Representative marine species include various species of seal, killer whale, and northern bottlenose whale.

Land Use. Forestry, agriculture, and mining are the major land-oriented activities. The coastal communities have traditionally utilized one of the country's most important fisheries, an economic mainstay of the ecozone. However, recent decline in the groundfish stocks, particularly cod, have led to a major cut back in fishing and fish processing industries. The deeper, less stony, and somewhat more fertile lowland soils support an agricultural industry that includes dairy, beef, hog, poultry, vegetable, and fruit production. In addition, the natural beauty of the interior and coastal environments supports an important tourist industry. The largest centres include Halifax, Saint John, Moncton, Fredericton, Dartmouth, Sydney, and Charlottetown. Most of the population of approximately 2 510 000 is found in coastal lowland areas (Ecological Stratification Working Group 1996; Wiken et al. 1996).

MARITIME LOWLANDS ECOREGION (122)

This ecoregion covers 28 752 km^2 on a large, triangular-shaped plain extending from south-central New Brunswick to the Gulf of St. Lawrence, which includes the Northumberland coastline of Nova Scotia.

Climate. The climate is marked by warm summers and mild, snowy winters and the lowest precipitation in the Maritime provinces. The mean annual temperature is approximately 5°C. The mean summer and winter temperatures are 15.5 and –5.5°C, respectively. The mean annual precipitation ranges from 1000 to 1300 mm.

Vegetation. The mixedwood and coniferous forests are composed mainly of red spruce, balsam fir, red maple, hemlock, and eastern white pine. Sugar maple and yellow birch are found on larger hills. Wetlands are extensive and support dwarf black spruce and eastern larch at their perimeters. Eastern white cedar is found mainly on the New Brunswick portion of the lowlands. A history of forest fires is attributed to the warm, dry summers and is indicated by the abundance of fire-adapted species, particularly jack pine and black spruce.

Landform and Soils. The lowlands are an undulating plain underlain by flat to gently dipping sedimentary bedrock of the Carboniferous period. Elevations rise inland from sea level to about 200 m. The ecoregion is blanketed with loamy glacial tills derived from the underlying sandstone and shale. The dominant soils are Gray Luvisols and Humo-Ferric Podzols with compact subsoils that impede internal drainage. Low relief and impervious tills retard drainage and have created significant areas of Gleysols and Organic soils. Fibrisols have developed on flat and raised bogs, and Mesisols are typically found on fens.

Wildlife. The ecoregion provides habitat for moose, black bear, white-tailed deer, red fox, snowshoe hare, porcupine, fisher, coyote, beaver, ruffed grouse, bobcat, martin, raccoon, mink, and muskrat. Shorebirds and seabirds inhabit salt marshes and coastal habitats.

Land Use. Forestry is the dominant land use. Agriculture, fishing, mining, tourism, and recreation are significant activities. The largest centres include Fredericton, Moncton, Bathurst, Pictou, and New Glasgow.

Pictou-Cumberland Lowlands Ecodistrict (504)

The Pictou-Cumberland Lowlands Ecodistrict represents the eastern extension of the Maritime Lowlands Ecoregion and covers approximately 3000 km^2 in Nova Scotia. In Nova Scotia, it extends eastward along the Northumberland shore from the New Brunswick border to Arisag in Antigonish County. It is the only one of seven ecodistricts found within the Maritime Lowlands Ecoregion that occurs in Nova Scotia.

Climate. The Pictou-Cumberland Lowlands Ecodistrict has a delayed, cool spring, a warm, dry summer, a warm fall, and a cold winter. The ecodistrict has a mean annual temperature of 5.5°C and mean summer and winter temperatures of 16.9 and –6.1°C, respectively. The proximity of the Pictou-Cumberland Lowlands Ecoregion to the Northumberland Strait, a shallow, sheltered body of water that warms quickly in summer and freezes in winter, provides less of a moderating effect than does proximity to other coastal waters. The ecodistrict is sheltered from storms from the south and east and as a result has the lowest mean annual precipitation in the province, at 1128 mm. The ecodistrict receives about 442 mm of rain from May to September. It experiences a large summer moisture deficit of about 58 mm, which is second only to the deficit sustained in the Annapolis Valley Ecodistrict. The ecodistrict accumulates 1587 annual growing degree-days (5°C basis) and has a growing season of 193 days.

Landform. The ecodistrict is characterized by an undulating plain, which is underlain by Late Carboniferous sediments, consisting predominantly of fine-grained sandstones, siltstone, shale, conglomerate, and coal. These sediments have been compressed laterally into broad folds that have been differentially eroded, creating an undulating landscape of ridges and valleys. As elevations rise from sea level to a maximum of about 180 m to the south, the landscape becomes more rolling and hilly. Karst topography is associated with small pockets of gypsum, limestone, and salt of the Windsor group in the southwestern portion of the ecodistrict. The streams on the lowlands branch irregularly to form a dendritic drainage pattern as they flow northward from their source in the Cobequid Highlands. The ecodistrict has few lakes. Surficial deposits are composed primarily of deep, compacted, reddish-brown glacial tills derived from the underlying sandstone and shale. The tills range in texture from sandy loam to clay loam. Ice-contact stratified drift and alluvium border the major rivers. Peatlands are numerous in areas of low relief and adjacent to meandering streams. Salt marshes line some of the shallower harbours and inlets along the coast.

Vegetation. Coniferous and mixedwood forests cover over 70% of the district. Black spruce, white spruce, red spruce, red maple, and jack pine are the most abundant species, although eastern hemlock and white pine are not uncommon. Sugar maple, beech, and yellow birch can be found on upper slopes in the southern portion of the ecodistrict, and red spruce, balsam fir, black spruce, and hemlock are found on upland flats as well as middle to lower slopes. Eastern larch is common with black spruce on wetland and poorly drained areas. Larch is also found with white spruce on moist abandoned fields. White birch is a common colonizer on burned sites. Coastal forest along the Northumberland Strait is influenced by strong winds and salt spray, trees are often stunted and display deformed and damaged crowns.

Soils. Imperfectly drained soils characterize the ecodistrict and are found on compact, slowly permeable, basal tills derived mainly from the underlying sandstone and shale. Reddish-brown, sandy loam Debert soils (Gleyed Eluviated Dystric Brunisols) and loam to clay loam Queens soils (Gleyed Brunisolic Gray Luvisols) cover extensive areas of undulating to rolling plain. Poorly drained, sandy loam Masstown soils (Orthic Gleysols) and loam to clay loam Kingsville soils (Luvic Gleysols) are associated with the Debert and Queens soils on level to depressional topography. Poorly drained soils are commonly associated with very poorly drained Organic soils found on bogs, fens, and forested swamps. Well-drained sandy loam Pugwash, Hansford, and Tormintine soils (Orthic Humo-Ferric Podzols) are found on upper slopes on permeable, sandy loam tills.

Land Use. Forestry is the dominant land use in the ecodistrict. A large pulp mill is located at Abercrombie Point near Pictou. Agricultural land in the Pictou-Cumberland Lowlands Ecodistrict is multi-cropped. Major farming activities include dairy, beef, and hog production. The ecodistrict ranks third in agricultural production behind the Annapolis Valley and Windsor Lowlands ecodistricts. Salt is mined and processed at Pugwash. Significant coal resources have been mined from the Pictou Coalfield. Fishing and cottages occur along stretches of coastline on the Northumberland Strait, where the warmest ocean waters in Nova Scotia occur. Major towns within the ecodistrict includes New Glasgow, Stellarton, Westville, Pictou, and Amherst.

FUNDY COAST ECOREGION (123)

The Fundy Coast Ecoregion consists of a narrow, 4424-km^2, coastal strip bordering the Bay of Fundy in New Brunswick and Nova Scotia. It includes Grand Manan, Campobello, and Deer islands in New Brunswick and Long and Brier islands in Nova Scotia.

Climate. Strongly influenced by the Atlantic Ocean, the ecoregion is exposed to high winds, high

humidity, and fog during summer and fall and is slow to warm up in spring. It is marked by cool, moist summers and mild, moist winters. The mean annual temperature is approximately 6.0°C. The mean summer and winter temperatures are 16.0 and –5.0°C, respectively. The mean annual precipitation ranges from 1200 to 1400 mm. High tides averaging 10 m occur in the Minas Basin in the Bay of Fundy. The highest tide in the world was registered here at 16.1 m.

Vegetation. The ecoregion is characterized by coniferous forest composed predominantly of red spruce and balsam fir, with red maple and scattered white spruce, white birch and yellow birch. Sugar maple and beech are found at higher elevations.

Landform and Soils. The bedrock is composed of Proterozoic, Paleozoic, and Mesozoic strata rising from sea level to as high as 215 m above sea level (asl) inland. The terrain is highly variable, ranging from rolling to steep, deeply incised highlands to undulating coastal plains. Discontinuous, stony glacial till blankets the highlands, whereas loamy tills, sandy, glaciofluvial sediments, and silty marine deposits occupy lowlands. Humo-Ferric Podzols are the dominant soil. Mesisols occur on flat bogs in lowland areas. Silty Regosols and Gleysols on diked and drained salt marshes are used for agriculture.

Wildlife. The ecoregion provides habitat for moose, black bear, white-tailed deer, red fox, snowshoe hare, porcupine, fisher, coyote, beaver, ruffed grouse, bobcat, and raccoon. Salt marshes and tidal flats provide important habitat for migratory shorebirds.

Land Use. Forestry is the dominant land use. Approximately 12% of the ecoregion is farmland. Fishing, tourism, mining, and seashore recreation are other significant activities. Main centres include Saint John, Truro, and Parrsboro.

Chignecto-Minas Shore Ecodistrict (507)

The Chignecto-Minas Shore Ecodistrict is an eastern segment of the Fundy Coast Ecoregion. It consists of a narrow coastal band at the end of the Bay of Fundy. It surrounds Cobequid Bay and Cumberland Basin and includes the connecting coastal area to Cape Chignecto. The ecodistrict covers an area of 2190 km^2, of which approximately 73% is within Nova Scotia.

Climate. The moderating effect of the Atlantic Ocean is less in this ecodistrict than that found closer to the mouth of the Bay of Fundy. The Chignecto-Minas Shore Ecodistrict has a mean annual temperature of 5.7°C. Mean summer and winter temperatures are 16.4 and –5.6°C, respectively. The ecodistrict experiences frequent fog and about 1250 mm of precipitation annually — about 481 mm between May and September. The ecodistrict accumulates 1542 annual growing degree-days (5°C basis) and has a growing season of 197 days.

Landform. This ecodistrict has variable terrain, ranging from undulating lowlands to steep, dissected hills. Triassic sandstones underlie undulating lowlands and form a thin band surrounding Cobequid Bay, terminating near Economy Mountain. In Hants County, loamy glacial till derived from the underlying sandstones and shales of the Early Carboniferous Horton Group cover undulating to rolling plains. In Colchester County, lowland plains are covered with loamy glacial till derived from the underlying Triassic sediments. These plains are dissected by glaciofluvial and alluvial deposits adjacent to rivers that flow to the Bay of Fundy. Silty marine sediments have accumulated at the mouths of many of these rivers in estuaries and marshes. To the west of the basaltic Economy Mountain, the terrain is rolling and hilly and strongly dissected. Till veneers, rock outcrops, and colluvium characterize the surficial materials from Parrsboro to Cape Chignecto. Adjacent to Chignecto Bay, an

undulating to rolling plain is covered with stony glacial till veneer derived from gray sandstone of the Late Carboniferous period. At the mouth of Cumberland Basin, extensive salt marsh deposits occur, many of which have been diked and drained for agricultural use.

Vegetation. Spruces, balsam fir, white birch, red maple, hemlock, and white pine form relatively stable forest on well-drained soils in the eastern part of the ecodistrict east of Five Islands. White spruce colonizes abandoned farmland. Scattered sugar maple, beech, and yellow birch occur locally on low ridges. White elm and black ash may be found on fertile floodplains. Yellow birch, white birch, and red maple are scattered and confined mainly to protected sites. Beech may occur locally at high elevations, but sugar maple is scarce. Much of the land not used for agriculture is heavily stocked with predominantly dense, coniferous forest.

Soils. The distribution of soils in the ecodistrict is complex. Imperfectly drained, gravelly loam to gravelly clay loam Hantsport soils (Gleyed Humo-Ferric Podzols) dominate the coastal plain in Hants County. From Hants County through Truro to Bass River, pockets of well-drained sandy Truro soils (Orthic Humo-Ferric Podzols) are found with well- and imperfectly drained sandy loam soils of the Woodville association that have developed on glacial till derived from Triassic sandstone. Well-drained, shaly, sandy loam Kirkhill soils (Orthic Humo-Ferric Podzols) cover the steep slopes from Five Islands to Cape Chignecto. Rapidly drained Hebert soils (Orthic Humo-Ferric Podzols) are found on gravelly and sandy glaciofluvial deposits. Well-drained, shallow, stony sandy loam Shulie soils (Orthic Humo-Ferric Podzols) cover extensive areas adjacent to Chignecto Bay. Silty soils of the Acadia association (Rego Gleysols and Gleyed Regosols) occupy the diked salt marshes.

Land Use. Forestry is the dominant land use in the ecodistrict. Agriculture is significant in the area surrounding Cobequid Bay but less common on the steep, shallow, and stony soils in the western half of the ecodistrict. Key farming activities include small fruits, vegetables, dairy, beef, and hog production. Fishing and tourism are significant activities. Salt is mined and processed at Nappan. Main population centres include Truro and Parrsboro.

North Mountain Ecodistrict (509)

This ecodistrict encompasses about 900 km^2 in a 200-km band that extends westward from Cape Blomidon on North Mountain to Digby Neck and includes Long and Brier islands. The ecodistrict is bordered by the Bay of Fundy to the north and the abrupt North Mountain escarpment and the Annapolis Valley to the south.

Climate. The climate of the North Mountain Ecodistrict is influenced by the Bay of Fundy. The ecodistrict has a mean annual temperature of 6.6°C and mean summer and winter temperatures of 16.3 and –3.4°C, respectively. The ecodistrict experiences frequent fog and gets about 1234 mm of precipitation annually. It receives about 460 mm of precipitation between May and September and accumulates about 1584 annual growing degree-days (5°C basis). The ecodistrict has a relatively long growing season of 207 days and a summer moisture deficit of about 38 mm.

Landform. The North Mountain is a steep-sided ridge that rises to more than 225 m at its eastern end and slopes to nearly sea level to the west. The ridge is composed of basaltic lava flows which dip to the northwest towards the Bay of Fundy at a shallow angle. The undulating to gently rolling surface of the ridge is dissected by frequent streams emptying into the bay. The ecodistrict is covered predominantly with a veneer of gravelly sandy loam glacial till derived from the underlying basalt. Inclusions of loam and clay loam tills derived from sedimentary sources are located in patches along the ridge. Raised beach and ice-contact stratified drift deposits of sand and gravel are found along the northern edge of the ridge adjacent to the Bay

of Fundy. Few lakes or wetlands occur in this ecodistrict.

Vegetation. A coniferous forest of red and white spruce and balsam fir characterizes the ecodistrict. Hemlock and white pine are rare or absent. In exposed areas where the winds are strong and continuous, trees are short and stunted. Sugar maple and beech are found at higher elevations in protected sites.

Soils. The ecodistrict is characterized by the shallow, well-drained, gravelly sandy loam Rossway soils (Sombric Ferro-Humic Podzols) derived from the underlying basalt. Well-drained, sandy loam Glenmount soils (Orthic Humo-Ferric Podzols), developed on till derived from basalt and Triassic sandstone, are significant inclusions. Imperfectly drained, clay loam Middleton soils (Gleyed Brunisolic Gray Luvisols) cover a considerable area in the middle of North Mountain. Rapidly drained Gulliver soils (Orthic Humo-Ferric Podzols) are found on stratified gravelly terraces and old beach deposits adjacent to the coastline.

Land Use. Forestry is the dominant land use. Agricultural land in the North Mountain Ecodistrict is multi-cropped. Major farming activities include tree fruits, vegetables (including potatoes), beef, and hog production. Fishing and tourism are minor activities.

SOUTHWEST NOVA SCOTIA UPLANDS ECOREGION (124)

The Southwest Nova Scotia Uplands Ecoregion occupies 15 420 km^2 in the southwestern portion of the Atlantic Uplands of Nova Scotia.

Climate. The climate is marked by warm summers and mild winters. It is strongly influenced by the Atlantic Ocean and is one of the most humid parts of the Maritime provinces. The mean annual temperature is approximately 6.5°C. The mean summer temperature is 16.5 ^{0}C and the mean winter temperature is –3.5°C. The mean annual precipitation ranges from 1300 to 1500 mm.

Vegetation. This mixedwood forest ecoregion is composed of tall to intermediate, closed stands of red spruce, eastern hemlock, white pine, balsam fir, and red maple, interspersed with red oak. This mix of species distinguishes the interior of western Nova Scotia from the eastern and central portions of the province and from the coastal periphery. Broad areas of bushland occur as a result of fire. In these areas, an open black spruce forest with scattered aspen, red maple, red oak, and white pine is common. Extensive bogs, fens, and swamps support stunted black spruce, larch, red maple, black ash, and alder.

Landform and Soils. The uplands, as part of the Appalachian peneplain, consist of folded Paleozoic slates and quartzites that form broad, sloping plains. The northern elevated portion of the region is underlain by an extensive granitic batholith. The ecoregion is covered by stony, discontinuous veneers and blankets of glacial till, drumlin fields, wetlands, and rockland barrens. Lakes and rivers are abundant. Loamy Humo-Ferric Podzols dominate the ecoregion. Other soils include Ortstein Podzols on deep sandy tills, peaty Gleysols, Fibrisols on raised and flat bogs, and Mesisols on fens.

Wildlife. The ecoregion provides habitat for white-tailed deer, snowshoe hare, porcupine, raccoon, fisher, red fox, coyote, and beaver. Moose are concentrated in the central part of the region.

Land Use. Forestry is the dominant land use and has an extensive history dating back to early European settlement, when masts and timbers were harvested from the spruce and pine forests for ship building. Agriculture, tourism, and recreation are significant land uses. The main centre is Bridgewater.

South Mountain Ecodistrict (510)

The South Mountain Ecodistrict encompasses about 5839 km^2 in the interior of southwestern Nova Scotia. It extends in a giant arc from Yarmouth County northward to the edge of the Annapolis Valley and eastward to Halifax County.

Climate. The South Mountain Ecodistrict has warm, early springs and warm, dry summers. The ecodistrict has a mean annual temperature of 6.5°C and mean summer and winter temperatures of 17.2 and –4.3°C, respectively. The ecodistrict receives about 1350 mm of precipitation annually. It accumulates about 480 mm of precipitation between May and September and experiences a significant summer moisture deficit of about 56 mm. The ecodistrict accumulates 1663 annual growing degree-days (5°C basis) and has a growing season of 203 days.

Landform. The South Mountain Ecodistrict is located on a rolling till plain that overlies an extensive granitic batholith. The ecodistrict has a mean elevation of about 170 m, which rises to more than 275 m asl to the north. It has rather uniform topography, with a rolling surface that steadily decreases in elevation to its southern, eastern, and western boundaries. Low rounded hills or shapeless ridges rise less than 20 m above the average level, with broad, shallow depressions that are too irregular to be valley-like. Slopes are typically between 4 and 9%. Drainage is poor, and sluggish rivers and streams weave aimlessly from one shallow lake to another or lose themselves in wetlands. In many places, there are rock outcrops that have been scoured by glaciation. The granitic till that remains is shallow, moderately coarse-textured, and very stony. Granite boulders are strewn over the landscape. Shallow lakes and associated wetlands are common.

Vegetation. White pine, red spruce, and hemlock are common species on well-drained soils that have not been burned. Beech, sugar maple, and red oak are found on exposed slopes and hilltops, particularly around lakes. Fire stands of red oak, red maple, and white birch, often mixed with white pine and black spruce, are abundant. Balsam fir and black spruce occupy the poorly drained sites. Large areas of mid-successional forest consisting of red maple and white birch have evolved from intensive harvesting of the softwood forests in the early 1900s.

Soils. The ecodistrict is dominated by the well-drained, stony sandy loam Gibraltar soils (Orthic Humo-Ferric Podzols and Ortstein Humo-Ferric Podzols) that have developed on granitic till. Imperfectly drained, stony sandy loam Bayswater soils (Gleyed Humo-Ferric Podzols and Gleyed Ortstein Humo-Ferric Podzols) and poorly drained Aspotogan soils (Orthic Gleysols) are associated with Gibraltar soils on seepage slopes and in poorly drained depressions, respectively. Bogs (Fibrisols), fens (Mesisols), and forested swamps (Mesisols and Humisols) are associated with poorly drained soils and slowly flowing streams.

Land Use. Forestry is the dominant land use in this sparsely populated ecodistrict. Agricultural activities are few owing to the scarcity of suitable soils. The ecodistrict is used for outdoor recreation such as hunting, fishing, and boating. The western half of Kejimkujik National Park is located within the ecodistrict. Some of the larger rivers are dammed for power generation.

Chester Ecodistrict (511)

The Chester Ecodistrict encompasses about 1465 km^2 in the south-central area of Nova Scotia. It extends from just west of Halifax to Sherbrooke Lake in Lunenburg County. It is bordered by Mahone and St. Margarets Bay to the south and approximately the 200-m contour to the north.

Climate. The Chester Ecodistrict has a mean annual temperature of 6.3°C and mean summer and winter temperatures of 16.7 and –4.5°C, respectively. The ecodistrict receives about

1400 mm of precipitation annually. It receives 491 mm of rain between May and September and experiences a moisture deficit of 31 mm during the summer. The ecodistrict accumulates 1603 annual growing degree-days (5°C basis) and has a growing season of 203 days. Lower elevations and closer proximity to the Atlantic Ocean account for more rain, less snow, and fewer growing degree-days than are found farther to the north in the South Mountain Ecodistrict.

Landform. The Chester Ecodistrict is located on the eastern end of the South Mountain granitic batholith at an elevation approximately below 200 m. The ecodistrict slopes in a south to southeasterly direction towards the Atlantic Ocean and has a mean elevation of 92 m. The landscape on this section of the batholith is very similar to that found in the South Mountain Ecodistrict. Low rounded hills or shapeless ridges rise less than 20 m above the average level, with broad, shallow depressions that are too irregular to be valley-like. Slopes typically range from 9 to 15%. Drainage is sluggish, as rivers and streams weave aimlessly from one shallow lake to another or lose themselves in bogs and swamps. Areas of rockland exposed by glaciation are common. The granitic till that remains is shallow, moderately coarse-textured, and stony. Granite boulders are strewn over the landscape, and lakes and associated wetlands are common. Stony, shallow till derived from the underlying granite bedrock characterizes the rugged and rolling topography surrounding St. Margarets Bay and the Aspotogan Peninsula. A band of Cambrian slate and quartzite bedrock encircles most of Mahone Bay. An area of loose, water-worked ablation till stretches north from Chester. Chester is nested in a field of drumlins, some of which form the adjacent islands. Stony loamy till derived from Cambrian slates surrounds Chester.

Vegetation. White pine, red spruce, and hemlock are common species on well-drained soils that have not been burned. Beech, sugar maple, and red oak are found on exposed slopes and hilltops, particularly around lakes. Fire stands of red oak, red maple, and white birch, often mixed with white pine and black spruce, are abundant. Balsam fir and black spruce occupy the poorly drained sites. The vegetation around St. Margarets and Mahone bays has been extensively altered by human settlement.

Soils. The ecodistrict is dominated by the well-drained, stony sandy loam Gibraltar soils (Orthic Humo-Ferric Podzols and Ortstein Humo-Ferric Podzols) that have developed on granitic till. Imperfectly drained, stony sandy loam Bayswater soils (Gleyed Humo-Ferric Podzols and Gleyed Ortstein Humo-Ferric Podzols) are associated with Gibraltar soils on seepage slopes. Well-drained, sandy loam, Farmville soils (Orthic Humo-Ferric Podzols) have developed on ablation till derived from a mix of slate, quartzite, and granite. Gravelly sandy loam Bridgewater soils (Orthic Humo-Ferric Podzols) have developed on shallow till derived from slate. Deeper, less stony phases of Farmville and Bridgewater soils are found on drumlins around Chester. Bogs (Fibrisols), fens (Mesisols), and forested swamps (Mesisols and Humisols) are associated with poorly drained soils and slowly flowing streams.

Land Use. Forestry is the dominant land use in the ecodistrict. Fishing and tourism are important activities on the coast. Agricultural activities are few owing to the lack of suitable soils. The ecodistrict is used for outdoor recreation, such as hunting, fishing, and boating. Chester is the main community and a popular tourist destination.

Lunenburg Drumlins Ecodistrict (512)

The Lunenburg Drumlins Ecodistrict encompasses about 2638 km^2 in southwestern Nova Scotia. The ecoregion occupies roughly the southwest half of Lunenburg County. Extensions of the ecodistrict branch eastward to Kejimkujik National Park and Lake Rossignol and westward to New Ross in northern Lunenburg County.

Climate. The Lunenburg Drumlins Ecodistrict has warm, early springs, a long growing season, and the warmest summers in the province. The ecodistrict has a mean annual temperature of 6.6°C and mean summer and winter temperatures of 17.4 and –4.4°C, respectively. The ecodistrict experiences about 1441 mm of precipitation annually. It receives about 492 mm of precipitation between May and September and has a significant summer moisture deficit of about 55 mm. The ecodistrict accumulates 1704 annual growing degree-days (5°C basis) and has a relatively long growing season of 204 days.

Landform. The ecodistrict is characterized by an undulating to rolling drumlinized till plain that slopes in a southeasterly direction towards the Atlantic Ocean. Elevations range from a high of about 270 m inland, where the ecodistrict overlies the granite batholith east of Sherbrooke Lake, to sea level at Mahone Bay. The ecodistrict has an average elevation of 107 m asl. Shallow, stony glacial till derived from the underlying Cambrian slates dominates the ecodistrict. The slate-derived till on the drumlins is deeper and less stony than that between drumlins. East of the LaHave River, the slate-derived till plain is overlain by drumlins derived from moderately fine-textured reddish sediments thought to have been scoured from the Bay of Fundy to the north. East of Sherbrooke Lake, the reddish, moderately fine-textured till overlies granite bedrock. Here, the till is stony, shallow, and associated with bedrock outcrops and clusters of drumlins derived from the reddish till. Lakes are common. Wetlands are often found between drumlins and adjacent to meandering streams.

Vegetation. Coniferous forest dominates the ecodistrict. Minor inclusions of mixed and hardwood forest occur to the northwest. Areas of shade-tolerant hardwoods are found on a range of sites. Beech, sugar maple, and red oak are found, with white pine abundant on the lower slopes and valley floors. Black cherry is common, and red spruce and hemlock are found on moist sites and lower slopes. The LaHave valley is one of the few areas in the Maritimes where white pine can be found in pure stands on abandoned fields on drumlins.

Soils. The ecodistrict is characterized by well-drained, shallow, stony sandy loam Bridgewater soils (Orthic Humo-Ferric Podzols) developed on slate-derived till and the deeper, less stony Bridgewater soils found on drumlins. Moderately well-drained, shallow, stony, gravelly sandy clay loam Wolfville soils (Orthic Humo-Ferric Podzols) derived from reddish till characterize the eastern extension of the ecodistrict, which overlies the granite batholith. Wolfville soils are deeper and less stony on drumlins. Imperfectly drained, stony loam Riverport soils (Gleyed Humo-Ferric Podzols) and poorly drained, stony loam Middlewood soils (Orthic Gleysols) are associated with the Bridgewater soils and are found between drumlins, in depressions, and on level areas where slate bedrock lies just beneath the surface. Bogs (Fibrisols), fens (Mesisols), and swamps (Humisols) are associated with very poorly drained depressions between the drumlins and adjacent to slowly flowing streams.

Land Use. Forestry is the dominant land use in the ecodistrict. Regeneration of balsam fir on abandoned or cut-over land has encouraged the development of a significant Christmas tree industry. Agricultural activity is located mainly on the drumlins where the soils are more suitable. Bridgewater is the main community.

Tusket River Ecodistrict (513)

This ecodistrict encompasses about 1858 km^2 on the southwestern end of the province. It extends from Digby about 160 km south to just east of Yarmouth and extends inland about 60 km at its widest width.

Climate. Proximity to the moderating effect of the Atlantic Ocean provides the Tusket River Ecodistrict with early, mild springs, cool summers,

and mild winters. The ecodistrict has a mean annual temperature of 6.9°C and mean summer and winter temperatures of 16.0 and –2.6°C, respectively. The ecodistrict receives about 1332 mm of precipitation annually. It gets about 487 mm of precipitation between May and September and has a slight summer moisture deficit of 10 mm. The ecodistrict accumulates 1582 annual growing degree-days (5°C basis) and has the longest growing season in the province (together with the Rossignol and Clyde River ecodistricts), at 210 days.

Landform. The Tusket River Ecodistrict is located on an undulating to gently rolling drumlinized till plain that rises slowly from sea level inland to the west and northwest, where it meets the western edge of the South Mountain batholith at an elevation of about 160 m. The ecodistrict has a mean elevation of 63 m asl. The plain is underlain by Cambrian greywacke, slate, quartzite, and mica and hornblende schist bedrock. Bands of slate are found in synclines that run almost north–south, roughly paralleling St. Marys Bay. The strata are gently folded, and the drainage systems flow in shallow valleys, following the trends in the rock. Quartzite and slate tills dominate the ecodistrict and form numerous low drumlins, 2 to 20 m high. Drainage occurs through a deranged pattern of sluggish streams, wetlands, and shallow lakes. The arrangement of drumlins has created additional impoundments, resulting in surface water coverage in the southern part of the ecodistrict that is one of the highest in Nova Scotia.

Vegetation. Mixedwood forest characterizes the ecodistrict and is composed mainly of hardwood species mixed with a significant component of red spruce and eastern hemlock. Sugar maple, beech, red spruce, yellow birch, and red oak predominate on hills and drumlin crests. On lower slopes, red spruce, hemlock, balsam fir, and red maple occur with birches and aspen. Swamp stands are composed of black spruce, balsam fir, eastern larch, and, in limited areas, white cedar.

Soils. The ecodistrict is characterized throughout by the well-drained, stony sandy loam Halifax soils (Orthic Humo-Ferric Podzols) developed on quartzite-derived till and the associated imperfectly drained, stony sandy loam Danesville soils (Gleyed Humo-Ferric Podzols) and poorly drained Aspotogan soils (Orthic Gleysols). Well-drained, loam Bridgewater soils (Orthic Humo-Ferric Podzols) are found in the northern portion of the ecodistrict on slate-derived drumlinized till plain. Associated with Bridgewater soils, imperfectly drained Riverport soils (Gleyed Humo-Ferric Podzols) and poorly drained Middlewood soils (Orthic Gleysols) are found on lower seepage slopes and in depressions between drumlins, respectively. Moderately well-drained, sandy loam Yarmouth soils (Orthic Humo-Ferric Podzols) have developed on till derived from mica and hornblende schists in the southern part of the ecodistrict and are used extensively for agriculture. Bogs (Fibrisols), fens (Mesisols), and swamps (Humisols) are associated with very poorly drained depressions between the drumlins and adjacent to slowly flowing streams.

Land Use. Forestry is the principal land use in the ecodistrict. Agricultural activity includes some small, mixed farming located mainly on the drumlins.

Rossignol Ecodistrict (514)

This ecodistrict encompasses about 3108 km^2 on the southern end of the province. It extends from Lake Rossignol in the north to the Medway River in the east and to Clyde River in the west.

Climate. The Rossignol Ecodistrict has the earliest, warmest springs, the warmest summers, the highest mean annual temperature, the greatest number of growing degree-days, and the longest growing season in Nova Scotia (together with the Tusket River and Clyde River ecodistricts). Mean annual temperature and mean summer and winter

temperatures are 7.1, 17.4, and –3.3°C, respectively. The ecodistrict receives about 1470 mm of precipitation annually. It gets about 496 mm of precipitation between May and September and experiences a high summer moisture deficit of about 56 mm. The ecodistrict accumulates 1731 annual growing degree-days (5°C basis) and has a growing season of 210 days.

Landform. The ecodistrict is located on the southwestern margin of the Southern Uplands and slopes to the southeast towards the Atlantic Ocean. Elevations range from about 150 m inland to sea level on the coast, with an average of about 72 m. The ecodistrict is located predominantly on undulating, till plain that is gently ridged in a northwest–southeast direction. Drumlins and many of the lakes and peat-filled depression have axes that align with the ridges that run perpendicular to the underlying bands of Cambrian quartzite, slate, and schist. Shallow, stony, quartzite-derived till covers most of the ecodistrict. Drumlins override the till in the northern part of the district between Lake Rossignol and Molega Lake. The ecodistrict has the largest concentration of peatlands in the province. The ecodistrict contains a significant number of lakes, and many of Nova Scotia's major rivers, such as the Mersey, Jordan, and Roseway, flow through it.

Vegetation. The ecodistrict has a mix of coniferous, hardwood, and mixedwood forests. The southwest section of the ecodistrict has been extensively burned and supports mixedwood forest with pockets of white pine and red oak. Fire has reduced many of the former pine sites to shrub-covered barrens. Coniferous forests of red spruce, hemlock, white and red pine, black spruce, balsam fir, and scattered white birch and red maple characterize the central part of the ecodistrict. Black spruce is prominent in areas of restricted drainage. Peatlands are covered with ericaceous shrubs and sphagnum moss. Hardwood forest is significant in the eastern section of the ecodistrict, where tolerant hardwoods such as beech, sugar maple, and red oak are found. The absence of red spruce and hemlock characterize the southern extent of the ecodistrict, where it borders the Atlantic Coast Ecoregion.

Soils. The ecodistrict is characterized by the well-drained, stony sandy loam Halifax soils (Orthic Humo-Ferric Podzols) associated with imperfectly drained Danesville soils (Gleyed Humo-Ferric Podzols) developed on quartzite-derived till. Halifax soils characterize drumlin fields northeast of Lake Rossignol. North of Shelburne, well-drained, stony sandy loam Mersey soils (Orthic Humo-Ferric Podzols) associated with imperfectly drained, shallow Liverpool soils (Gleyed Humo-Ferric Podzols) have developed on schist and quartzite-derived till. Peatlands are a significant component of this ecodistrict. An extensive area dominated by bogs (Fibrisols), with inclusions of fens (Mesisols) and swamps (Terric Mesisols) is located south of Lake Rossignol.

Land Use. Forestry is the principal land use in the ecodistrict. It supports numerous sawmills and a major pulp and paper mill south of the ecodistrict at Liverpool. The ecodistrict is used for outdoor recreation, such as hunting, fishing, and boating. Electrical power is generated from a series of dams located on the Mersey River. Shelburne is the main centre for the ecodistrict.

Clyde River Ecodistrict (515)

This small, irregularly shaped ecodistrict is located in the most southerly part of the province, just north of Cape Sable Island. It covers about 511 km^2 and extends from Barrington in the south to the Mickchickchawagata Lakes in the north, westward to Barren Lake in Yarmouth County, and eastward to Shelburne Harbour.

Climate. The Clyde River Ecodistrict has mild, early springs, cool summers, and mild winters. The ecodistrict has the mildest winters, lowest snowfall, and the longest growing seasons in Nova Scotia (together with the Tusket River and Rossignol ecodistricts). It has a mean annual temperature of

6.7°C and mean summer and winter temperatures of 15.4 and –2.5°C, respectively. The ecodistrict receives about 1382 mm of precipitation annually. It gets about 476 mm of precipitation between May and September and has virtually no summer moisture deficit. The ecodistrict accumulates 1492 annual growing degree-days (5°C basis) and has a growing season of 210 days.

Landform. This ecodistrict is located on the Southern Uplands of Nova Scotia on a level to undulating and gently rolling glacial till plain. The plain slopes gradually to the south from a maximum elevation of 82 m in the north to sea level in the south. The ecodistrict has a mean elevation of 36 m asl and is covered with thin stony tills derived from the underlying Cambrian quartzite and schist and Devonian quartz diorite and granodiorite. The tills are frequently interrupted by bedrock outcrops. Extensive outwash and ice-contact stratified drift, in the form of kames and eskers, are found adjacent to the Clyde and Barrington rivers and are prominent features of this ecodistrict. Wetlands are common, and bogs, fens, and swamps are located adjacent to shallow lakes and sluggish rivers and in very poorly drained depressions.

Vegetation. Softwood forest and barrens characterize the Clyde River Ecodistrict. This ecodistrict has experienced repeated burning, which has suppressed tree growth and promoted shrub-covered barrens over extensive areas. Hemlock and red spruce are found on the few unburned areas. Black spruce predominates on wetter habitats and red oak can be found on ridges. Ericaceous shrubs and sphagnum moss are found on treeless bogs, sedges and grasses cover fens, and black spruce, larch, alder, sedges, and sphagnum moss occupy swamps.

Soils. The ecodistrict is characterized by the imperfectly drained, stony sandy loam Bayswater, Danesville, and Liverpool soils (Gleyed Humo-Ferric Podzols) that have developed on tills derived from granite, quartzite, and quartzite and schist, respectively. The poorly drained, shallow, stony sandy loam Aspotogan soils (Orthic Gleysols) are located in hollows and depressions and are associated with Bayswater and Danesville soils as well as wetlands. Rapidly drained, gravelly, sandy Medway soils (Orthic Humo-Ferric Podzols) have developed on outwash and ice-contact deposits adjacent to the Barrington and Clyde rivers. Organic soils are found on bogs (Fibrisols), fens (Fibric Mesisols), and swamps (Mesic Humisols).

Land Use. Forestry is the principal land use in the ecodistrict. This ecodistrict supports one of the largest moose populations in western Nova Scotia.

ATLANTIC COAST ECOREGION (125)

The Atlantic Coast Ecoregion covers 6360 km^2 in a narrow strip along the southeastern coastline of Nova Scotia from Digby to Scatarie Island off the east coast of Cape Breton.

Climate. The climate is strongly influenced by the Atlantic Ocean and is characterized by short, cool summers and relatively mild, wet winters. The ecoregion is exposed to high winds, high humidity, salt spray, and fog during summer and fall and experiences slow spring warm-up and a frost-free period that is the longest in the Maritimes provinces. The mean annual temperature is approximately 6.5°C. The mean summer temperature is about 15.5°C, and the mean winter temperature is –3.0°C. The mean annual precipitation ranges from 1400 to 1500 mm. The ecoregion has a growing season of 202 days and the lowest number of annual growing degree-days (5°C basis) in Nova Scotia, at 1472.

Vegetation. The ecoregion supports an open coniferous forest composed predominantly of white and black spruce and balsam fir. Red spruce is notably absent. Red maple and yellow birch are found locally on protected and productive sites. Along exposed headlands, stands are windswept and stunted. Coniferous stands on shallow soils are

susceptible to blow-down by high winds during fall storms. Raised and flat bogs, fens, and salt marshes are common wetlands.

Landform and Soils. The undulating to rolling coastal landscape represents the lower margin of the Atlantic Uplands of Nova Scotia and extends along the entire length of Nova Scotia. The Atlantic coast between Yarmouth and Scatarie Island has been submerging with rising sea levels over the last 10 000 years. This slow sinking has resulted in a highly irregular coastline with drowned estuaries and headlands, resulting in an indented coast fringed with islands. Along the eastern shore, fault lines have had a strong influence in shaping deep inlets. This old peneplain surface is composed predominantly of Paleozoic metamorphic and granitic bedrock mantled by a discontinuous veneer of stony glacial till. Where drumlins are numerous, tills are deeper and less stony and the topography is more rolling. The flat, low-lying Atlantic coast section on Cape Breton Island is covered with stony till derived from the underlying Precambrian volcanic and metamorphic rocks. Loamy Humo-Ferric Podzols and Ferro-Humic Podzols, frequently with peaty surface horizons, are dominant and alternate with areas of exposed bedrock, peatlands, and barrens. Ortstein Podzols are commonly found in deep sandy materials. Gleyed Podzols and Gleysols are notable inclusions.

Wildlife. The ecoregion provides habitat for shorebirds and seabirds as well as winter habitat for white-tailed deer.

Land Use. Forestry is the dominant land use. The ecoregion is a setting for the fishery, some agriculture, tourism, and seashore recreation. Louisbourg National Historic Park is located within the ecoregion. The major communities are Yarmouth, Lunenburg, Liverpool, Digby, Louisbourg, and Canso.

ANNAPOLIS-MINAS LOWLANDS ECOREGION (126)

This ecoregion covers 4372 km^2 and includes the Annapolis Valley and most of the Minas Lowlands southeast of Minas Basin in Hants, Colchester, and Halifax counties.

Climate. The Annapolis-Minas Lowlands Ecoregion is sheltered from direct coastal influences, permitting warmer summers temperatures, particularly within the Annapolis Valley. The mean annual temperature is approximately 6.5°C. The mean summer temperature is about 17.0°C, and the mean winter temperature is –4.5°C. Mean annual precipitation ranges from 1100 to 1300 mm.

Vegetation. In the Annapolis Valley, sugar maple, beech, red spruce, and hemlock are characteristic on well-drained, mid-slope sites, whereas tolerant hardwoods with scattered red oak prevail on dry, exposed locations. Red pine, white pine, and red oak are found on the sandy valley floor. East of the Annapolis Valley on the Minas Lowlands, spruce, balsam fir, white birch, red maple, eastern hemlock and white pine create a relatively stable forest on well-drained, mid-slope sites. Scattered sugar maple, beech, and yellow birch occur locally on low ridges. Land clearing and abandonment have encouraged the establishment of pure stands of white spruce. In other areas, repeated burning has encouraged the establishment of wire birch, white pine, red pine, and black spruce. Along floodplains, white elm, black ash, and, occasionally, sugar maple and beech are found. Bogs support stunted black spruce and eastern larch.

Landform and Soils. This undulating to rolling lowland is underlain by Mesozoic sandstone in the Annapolis Valley and by Paleozoic shale, sandstone, gypsum, and limestone in the Minas Lowlands. The ecoregion is mantled by deep, loamy glacial till, alluvium, and glaciofluvial sediments, particularly in the Annapolis Valley,

whereas flat and raised bogs and stream and horizontal fens are significant on the Minas Lowlands. Humo-Ferric Podzols formed on sandy glaciofluvial sediments are characteristic of the Annapolis Valley. Loamy Gray Luvisols, Gleysols, stony Humo-Ferric Podzols, and Gleyed Regosols are typical of the Minas Lowlands. Fibrisols are found on bogs, and Mesisols on fens.

Wildlife. The ecoregion provides habitat for white-tailed deer, snowshoe hare, porcupine, raccoon, red fox, coyote, beaver, and bobcat.

Land Use. Forestry is the dominant land use in the eastern half of the ecoregion. Farmlands occupy about 28% of the ecoregion. Agriculture, including dairy, fruit, vegetables, and livestock production, is the principal land use in the Annapolis Valley. The main communities include Kentville, Wolfville, and Windsor.

Windsor Lowlands Ecodistrict (517)

The ecodistrict is located on the Minas Lowlands in central Nova Scotia and covers about 3090 km^2. It extends from the Minas Basin to the Musquodoboit Valley in Halifax County and includes the northern half of Hants County and most of southern Colchester County. To the south, the Musquodoboit Valley is flanked by Cambrian slates and quartzites of the Southern Uplands.

Climate. The Windsor Lowlands Ecodistrict has a mean annual temperature of 6.1°C and mean summer and winter temperatures of 17.0 and –5.0°C, respectively. The ecodistrict experiences about 1265 mm of precipitation annually. It receives about 460 mm of precipitation between May and September and experiences a summer moisture deficit of 54 mm. The ecodistrict accumulates 1621 annual growing degree-days (5°C basis) and has a growing season of 198 days.

Landform. The ecodistrict is located on an undulating to rolling glacial till plain with a mean elevation of 62 m asl. It is penetrated from the south and east by slate ridges. From the south, the Rawdon Hills extend northward, separating the Avon River and Shubenacadie River watersheds. Wittenburg Mountain enters from the east, almost severing the Musquodoboit Valley from the rest of the lowlands. Hummocky karst topography is found overlying gypsum in the southwestern corner of the ecodistrict. Deep, compacted, reddish-brown loam to clay loam till is the dominant material blanketing the Windsor Lowlands Ecodistrict. Sandy loam till is significant in the central part of the ecodistrict. The tills are derived from the underlying shale, sandstone, limestone, and gypsum of the Carboniferous period. The till becomes thinner and stony in the northeastern corner of the ecodistrict as elevations rise over resistant Horton sediments. Ice-contact stratified drift and alluvial floodplains border the major rivers. Significant peatland is found in the northwestern corner of the ecodistrict over impermeable clay loam till on level terrain. The ecodistrict has few lakes.

Vegetation. Softwood forest characterizes the western corner of the ecodistrict. The Shubenacadie, Stewiacke, and Musquodoboit valleys are covered with mixedwood forest. Red spruce, black spruce, balsam fir, red maple, hemlock, and white pine comprise a distinctive forest on the gentle relief of the lowlands. Scattered sugar maple, beech, and yellow birch occur locally on the low ridges, but spruces, fir, white birch, red maple, hemlock, and white pine form a relatively stable forest on freely drained mid-slopes. Abandoned farmland usually regenerates to white spruce. White elm, black ash, and, occasionally, sugar maple and beech can be found along river systems. Black spruce forest associated with red pine, sphagnum bogs, sedge-covered fens, and forested swamps cover extensive level terrain in the northwestern corner of the ecodistrict.

Soils. The ecodistrict is characterized by imperfectly drained, loam to clay loam Queens soils (Gleyed Brunisolic Gray Luvisols) and associated poorly drained, loam to clay loam Kingsville soils (Orthic Luvic Gleysols) that have

developed on glacial till derived from shale and sandstone. In the northern part of the ecodistrict, imperfectly drained, gravelly loam to gravelly clay loam Hantsport and Woodbourne soils (Gleyed Humo-Ferric Podzols) have developed on tills derived from Early Carboniferous sediments of the Horton Group. Well-drained, gravelly sandy loam Hansford soils (Orthic Humo-Ferric Podzols) are concentrated in the centre of the ecodistrict. Imperfectly and poorly drained, silty clay loam Stewiacke soils (Gleyed Regosols and Rego Gleysols) are found on floodplains in the Stewiacke River valley. Well-drained sandy loam Cumberland soils (Orthic Regosols) characterize floodplains in Hants County and the Musquodoboit Valley. Kingsville soils and peatlands dominate the level northwestern corner of the ecodistrict. Organic soils are found on bogs (Fibrisols), fens (Mesisols), and swamps (Humisols) and are associated with very poorly drained depressions, level terrain, and slowly flowing rivers and streams.

Land Use. Forestry is the dominant land use and supports numerous lumber mills within the ecodistrict. Agricultural land in the Windsor Lowlands Ecodistrict is multi-cropped. Major farming activities include corn, cereals, hay, alfalfa, dairy, beef, and hog production. The ecodistrict represents the largest dairy area in the province and ranks second in total agricultural production behind the Annapolis Valley Ecodistrict. Gypsum, limestone, brick clay, and barite are mined in the ecodistrict.

Annapolis Valley Ecodistrict (518)

The ecodistrict is located on the Annapolis Valley in Annapolis and Kings counties and covers about 1282 km^2. It extends from Annapolis Basin to Minas Basin and is flanked by North and South Mountain.

Climate. The Annapolis Valley Ecodistrict has early springs and warm, dry summers. The ecodistrict has the warmest and driest summers and the largest moisture deficit in Nova Scotia. It has a mean annual temperature of 6.6°C and mean summer and winter temperatures of 17.4 and –4.4°C, respectively. The ecodistrict experiences about 1183 mm of precipitation annually. It receives about 435 mm of precipitation between May and September and experiences a significant summer moisture deficit of 84 mm. The ecodistrict accumulates 1702 annual growing degree-days (5°C basis) and has a relatively long growing season of 205 days.

Landform. This ecodistrict includes the gently undulating valley floor and steeper sides of the Annapolis Valley. The floor and lower slopes are underlain by Triassic sandstone, siltstone, and shale. The northern side of the valley abuts sharply with the massive basaltic escarpment of North Mountain. The southern slopes of the valley are underlain by Cambrian slate and Devonian granite. The central and eastern segments of the valley floor are covered with glacial till, glaciofluvial outwash, and alluvium. At the western end of the valley, lacustrine and marine sediments and peatlands are significant inclusions. Ice-contact deposits of sand and gravel are found in bands along the lower southern slopes, whereas stony till veneers cap the upper slopes. On the northern slopes, medium-textured tills derived from Triassic siltstone and shale lie above moderately coarse-textured till derived from sandstone.

Vegetation. Much of the forest vegetation in this ecodistrict has been removed for agriculture. Sugar maple, beech, red spruce, and hemlock are characteristic on well-drained mid-slope sites, whereas tolerant hardwoods with scattered red oak prevail on dry, exposed locations. Red pine, white pine, and red oak are found on the sandy valley bottom. Imperfectly drained valley bottom sites support elm, willow, red maple, white ash, and black ash.

Soils. The ecodistrict is characterized by the rapidly to well-drained, sandy Nictaux, Cornwallis, Somerset, and Canning soils (Orthic Humo-Ferric Podzols, Ortstein Humo-Ferric Podzols) that have

developed on outwash and ice-contact deposits on the valley floor. The well-drained sandy loam Woodville and Berwick soils (Orthic Humo-Ferric Podzols) have developed on sandstone-derived tills located on the valley floor, whereas the well-drained silt loam Pelton soils (Orthic Humo-Ferric Podzols) and imperfectly drained clay loam Middleton soils (Gleyed Brunisolic Gray Luvisols) have developed on siltstone and shale-derived tills found at the foot of North Mountain. On the western end of the valley floor, imperfectly drained silty clay loam Fash soils (Gleyed Brunisolic Gray Luvisols) and poorly drained Lawrencetown soils (Orthic Luvic Gleysols) have developed on lacustrine sediments. On the lower, southern slopes of the Annapolis Valley, rapidly drained, gravelly sand Torbrook soils (Orthic Humo-Ferric Podzols) have developed on kame terraces below shallow, well-drained, stony sandy loam Morristown soils (Orthic Humo-Ferric Podzols). Well-drained, stony sandy loam Bridgetown soils (Orthic Humo-Ferric Podzols) have developed on till of mixed origin and are found at the western end of the southern slopes. Imperfectly and poorly drained, silty clay loam Acadia soils (Gleyed Regosols, Rego Gleysols) are found on diked salt marsh at both ends of the valley.

Land Use. Agriculture is the dominant land use in the ecodistrict. Agricultural land is multi-cropped. The Annapolis Valley Ecodistrict is the largest producer of vegetables, potatoes, tree fruits, grain corn, winter and spring cereals, and hogs in the province. Major farming activities also include hay, alfalfa, dairy, and beef production. The ecodistrict has the most farms, cropland, and agricultural production of any ecodistrict in the province. The main centres include Kentville, Wolfville, New Minas, Kingston, Greenwood, Middleton, and Annapolis Royal.

SOUTH-CENTRAL NOVA SCOTIA UPLANDS ECOREGION (127)

This ecoregion is located in the south-central section of Nova Scotia and covers 6217 km^2. It is bordered to the south by the coastal strip representing the Atlantic Coast Ecoregion and extends from Halifax to Guysborough. The western half of its northern border is convoluted and follows the northern edge of the Rawdon Hills, the perimeter of the Musquodoboit Valley, and Wittenburg Mountain. The eastern half of the northern boundary follows the St. Marys River.

Climate. Strongly influenced by the Atlantic Ocean, the South-Central Nova Scotia Uplands Ecoregion is one of the most humid parts of the Maritime provinces. The ecoregion is characterized by warm summers and cool winters. The mean annual temperature is approximately 6.0°C. The mean summer temperature is 16.5°C, and the mean winter temperature is –5.0°C. The mean annual precipitation ranges from 1400 to 1500 mm.

Vegetation. This mixedwood forest region is composed of intermediate to tall, closed stands of red and white spruce, balsam fir, yellow birch, and eastern hemlock. Yellow birch, beech, and red and sugar maple can be found at higher elevations. Eastern white pine is found on sandy areas. The ecoregion has extensive wetlands and rock barrens, which support stunted black spruce, eastern larch, and heath.

Landform and Soil. This ecoregion is located on the Atlantic Uplands of Nova Scotia, which represents the lower southern slope of the southeastwardly tilted Cretaceous peneplain. Rolling till plain, drumlin fields, extensive rockland, and wetlands are underlain by folded Paleozoic slates and quartzites intruded with granites. The plain rises from 30 m asl near the Atlantic Ocean to 220 m asl at its northern limit and is mantled with stony, discontinuous veneers and blankets of glacial till. Loamy Humo-Ferric Podzols are the dominant soils in the ecoregion.

Peaty Gleysols, Fibrisols on raised bogs, and Mesisols on horizontal fens are also components of the landscape.

Wildlife. The ecoregion provides habitat for white-tailed deer, snowshoe hare, porcupine, raccoon, fisher, red fox, coyote, and beaver.

Land Use. Forestry is the dominant land use and supports many sawmills. Residential development is a significant land use in the major communities of Halifax and Dartmouth.

Sheet Harbour Ecodistrict (519)

The Sheet Harbour Ecodistrict encompasses about 4927 km^2 in the centre of Nova Scotia. It extends from Halifax to the town of Guysborough on Chedabucto Bay. It adjoins the eastern end of the Minas Lowlands to the north and parallels the Atlantic coast to the south.

Climate. The Sheet Harbour Ecodistrict is characterized by moist summers with no moisture deficit. It has a mean annual temperature of 5.8°C, and mean summer and winter temperatures are 16.3 and –5.0°C, respectively. The ecodistrict receives about 1440 mm of precipitation annually, including about 535 mm of rain between May and September. The ecodistrict accumulates 1522 annual growing degree-days (5°C basis) and has a growing season of 196 days.

Landform. The Sheet Harbour Ecodistrict is predominantly located on a rolling to hummocky till plain. Much of the topography is controlled by the underlying quartzite and granite bedrock and is covered with stony till. The dominant till is derived from quartzite, is found on rolling topography, and is excessively stony. Till veneers and bedrock outcrops are common. Moderately fine-textured, reddish-brown till, derived from Carboniferous shale, has been deposited to a notable extent as till plain around the Moser River area and as drumlins south and east of the Musquodoboit Valley. A gravelly medium-textured till veneer caps Wittenburg Mountain, a high narrow slate ridge located along the northern boundary of the ecodistrict. Peatland is associated with very poorly drained depressions, shallow lakes, and sluggish rivers and streams.

Vegetation. The northern elevated edge of the ecodistrict is a hilly area that is far enough inland to be immune to the cold summer temperatures common to the Atlantic coast. This elevated area supports tolerant hardwoods, such as sugar maple, yellow birch, and beech. Red spruce, white spruce, balsam fir, and hemlock cover the upland flats, lower slopes, and valleys. Between the hilly, northern edge and the coastal zone to the south, red spruce, balsam fir, yellow birch, eastern hemlock, and white spruce are common species on well-drained sites. Beech, yellow birch, red maple, and sugar maple are found on the higher hills. Exposed bedrock cliffs commonly support white pine and black spruce.

Soils. The ecodistrict is dominated by the well- to rapidly drained, stony sandy loam Halifax and Gibraltar soils (Orthic Humo-Ferric Podzols and Ortstein Humo-Ferric Podzols) that have developed on quartzite and granite-derived tills, respectively. Imperfectly drained, stony sandy loam Danesville soils (Gleyed Humo-Ferric Podzols) and Bayswater soils (Gleyed Ortstein Humo-Ferric Podzols) and poorly drained Aspotogan soils (Gleysols) are associated with Halifax and Gibraltar soils on seepage slopes and in depressions. Moderately well-drained loam Wolfville soils (Orthic Humo-Ferric Podzols) have developed on till derived from Carboniferous shale. Well- and imperfectly drained gravelly loam soils of the Rawdon association (Orthic and Gleyed Humo-Ferric Podzols) cover Wittenburg Mountain ridge. Bogs (Fibrisols), fens (Mesisols), and forested swamps (Humisols) are associated with poorly drained soils and slowly flowing streams.

Land Use. Forestry is the dominant land use. Residential development is concentrated in the Halifax–Dartmouth area.

Beaverbank Ecodistrict (520)

The Beaverbank Ecodistrict encompasses about 1290 km^2 in the central area of Nova Scotia centred around Shubenacadie Grand Lake. The Rawdon Hills demarcate the northern boundary of the ecodistrict. Its southern limit extends from just east of Windsor eastward to Meaghers Grant on the Musquodoboit River.

Climate. The Beaverbank Ecodistrict has a mean annual temperature of 5.9°C and mean summer and winter temperatures of 16.8 and –5.2°C, respectively. The ecodistrict receives about 1465 mm of precipitation annually. It gets about 502 mm of rain between May and September and experiences a minor summer moisture deficit of about 25 mm. The ecodistrict accumulates 1591 annual growing degree-days (5°C basis) and has a growing season of 196 days.

Landform. The Beaverbank Ecodistrict is located on a rolling to hummocky till plain. Much of the topography is controlled by the underlying, parallel-banded Cambrian slate and quartzite bedrock, which runs in a northeast–southwest direction. The bedrock forms a low ridge and shallow valley topography. The ecodistrict is covered predominantly with gravelly, moderately fine-textured, reddish-brown till derived from shales of the Carboniferous period. East of Shubenacadie Grand Lake the reddish-brown till blankets a drumlinized plain. Resistant ridges of quartzite are covered with stony till veneers penetrated by bedrock. Slate ridges, like the Rawdon Hills, are covered with gravelly, medium-textured till veneer.

Vegetation. This hilly ecodistrict is far enough inland to be buffered from the cold summer temperatures of the Atlantic coast and is elevated enough to produce a local climate that encourages tolerant hardwoods, such as sugar maple, yellow birch, and beech, to grow on the ridges. Red spruce forests are significant in the Rawdon Hills and Mount Uniacke areas. The more poorly drained locations support red maple, black spruce, and eastern larch.

Soils. The ecodistrict is dominated by the moderately well-drained, gravelly loam Wolfville soils (Orthic Humo-Ferric Podzols). Well- to rapidly drained, gravelly sandy loam Halifax soils (Orthic Humo-Ferric Podzols) have developed on quartzitic till-covered ridges and flats and are associated with bedrock outcrops and imperfectly drained, gravelly sandy loam Danesville soils (Gleyed Humo-Ferric Podzols). In the Rawdon Hills, well- and imperfectly drained, gravelly loam soils of the Rawdon association (Orthic and Gleyed Humo-Ferric Podzols) have developed on till veneers derived from the underlying slates.

Land Use. Forestry is the dominant land use in this ecodistrict. Agriculture is practised on a small scale.

NOVA SCOTIA HIGHLANDS ECOREGION (128)

This ecoregion is a complex band of plateaus separated by lower-elevation uplands and lowlands that extend across northern Nova Scotia from Chignecto Bay to Cape Breton Island, covering 14 811 km^2.

Climate. The climate is marked by warm, rainy summers and mild to cold, snowy winters. The mean annual temperature is approximately 5.5°C. The mean summer temperature is 16.5°C, and the mean winter temperature is –5°C. The mean annual precipitation ranges from 1100 to 1600 mm.

Vegetation. The mixedwood forest is composed of sugar and red maple, yellow birch, red and white spruce, and balsam fir. This ecoregion is distinguished from others by the abundance of yellow birch at higher elevations. Hardwood forests are susceptible to damage by snow and ice, which reduces their growth at the higher elevations. Other species, such as eastern white pine, eastern

hemlock, balsam fir, beech, and red and black spruce, also occur. The prominence of beech has been greatly reduced by beech canker, which was introduced in the early 1900s.

Landform and Soils. The ecoregion includes the Cobequid Mountains to the west, the dissected Antigonish Highlands in the centre, and the dissected Cape Breton Hills to the northeast. These highland plateaus are remnants of the Cretaceous peneplain surface, composed of Paleozoic metamorphics and Proterozoic intrusives and volcanics, and range in maximum elevations from 300 to 350 m asl. Undulating to rolling stony glacial till blankets, underlain by Paleozoic shale, sandstone, and conglomerate, characterize the uplands and lowlands. Loamy Humo-Ferric Podzols predominate, but Ferro-Humic Podzols are common under hardwood stands at higher elevations. Inclusions of Gleysols, Gray Luvisols, Fibrisols on bogs, and Mesisols on fens are significant.

Wildlife. The ecoregion provides habitat for white-tailed deer, moose, black bear, snowshoe hare, fisher, coyote, and porcupine.

Land Use. Forestry is the dominant land use. Farming on the lowlands (7% of the ecoregion) and localized blueberry and maple syrup production are significant land uses. Coal mining has been a major activity in the ecoregion. The major communities include Sydney, Glace Bay, New Waterford, Port Hawkesbury, Antigonish, and Springhill.

Cape Breton Escarpment Ecodistrict (521)

The Cape Breton Escarpment Ecodistrict encompasses about 1619 km^2 surrounding the Cape Breton Highlands on Cape Breton Island in northern Nova Scotia.

Climate. The Cape Breton Escarpment Ecodistrict has late, cold springs, moist summers, and snowy winters and is exposed to strong winds from the Gulf of St. Lawrence and the Atlantic Ocean. It has a mean annual temperature of 6.0°C and mean summer and winter temperatures of 16.7 and –4.1°C, respectively. The ecodistrict receives about 1549 mm of precipitation annually. It gets about 496 mm of rain between May and September and experiences a summer moisture deficit of 37 mm. The ecodistrict receives and average snowfall of 358 cm, which is one of the heaviest in Nova Scotia. The ecodistrict accumulates 1560 annual growing degree-days (5°C basis) and has a growing season of 195 days.

Landform. This ecodistrict includes the steep, dissected slopes and valleys of the Cape Breton Escarpment. Erosional processes characterize the unstable slopes, which are mantled in rubble, talus, colluvium and soliflucted glacial till. Rolling to rugged rock areas are common. Till veneers cover the lower slopes and valley basins. Glaciofluvial outwash, ice-contact stratified drift, and alluvium border the mouths and adjacent coast line of the brooks and rivers draining the highlands.

Vegetation. This ecodistrict is characterized by hardwood on the steep slopes. Sugar maple, beech, yellow birch, and red maple occupy the upper slopes and high ridges; balsam fir, white spruce, hemlock, and, periodically, red spruce can be found on ravine slopes. White birch, white spruce, and balsam fir are common on unstable and colluvial slopes and valley bottoms. White and yellow birch, white spruce, and pin cherry on steep slopes facing the western coast of the Gulf of St. Lawrence are often stunted by salt-laden winds.

Soils. The ecodistrict is characterized by rapidly to well-drained, cobbly sandy loam soils (Orthic and Eluviated Sombric Brunisols and Orthic Humo-Ferric Podzols) on steep valley and canyon colluvial and soliflucted till deposits. Rapidly drained cobbly soils (Orthic Regosols) are found on rubble fans and talus below rock outcrops on steep slopes. Well-drained, gravelly sandy loam Gibraltar, Thom, and Shulie soils (Orthic Humo-Ferric Podzols) have developed on till veneers on

gently to strongly rolling lower till slopes. Rapidly drained, gravelly sand Hebert soils (Orthic Humo-Ferric Podzols) have developed on outwash and kame terraces, whereas well-drained, sandy loam Cumberland soils (Orthic Regosols) are found on alluvial floodplains.

Land Use. Forestry is the dominant land use in this ecodistrict, where hardwood is utilized for furniture, flooring, timber, and veneer. Tourism is an important land use, as segments of the Cabot Trail and Cape Breton Highlands National Park are located within the ecodistrict.

Ainslie Uplands Ecodistrict (522)

The Ainslie Uplands Ecodistrict covers about 1545 km^2 on the western side of Cape Breton Island from St. Georges Bay to Cheticamp.

Climate. The Ainslie Uplands Ecodistrict is affected by strong, cold winds from the Gulf of St. Lawrence and characterized by having the latest, coldest springs and shortest growing season in Nova Scotia. The ecodistrict has a mean annual temperature of 6.0°C and mean summer and winter temperatures of 16.7 and –4.4°C, respectively. The ecodistrict receives about 1410 mm of precipitation annually, including about 503 mm of rain between May and September. The ecodistrict accumulates 1544 annual growing degree-days (5°C basis) and has a growing season of 191 days.

Landform. This ecodistrict is composed of a series of hills and uplands separated by narrow valleys. The Mabou Hills and Masons Mountain abut Northumberland Strait, shielding Lake Ainslie to the east. The Creignish Hills form the eastern border of the ecodistrict, separating the district from the Bras d'Or Lowlands. These hills and uplands reach elevations of 240 to 340 m and are underlain predominantly by folded, resistant sediments of the Early Carboniferous Horton Group and Precambrian igneous and metamorphic rocks. The hills and uplands are covered with thin, discontinuous, stony till, residuum, and colluvium. Sandstone, siltstone, limestone, and gypsum of the Caboniferous period underlie the narrow valleys and are covered by moderately fine-textured till which extends up the coast to Cheticamp. Alluvial floodplains border the rivers draining the valley bottoms.

Vegetation. Hardwood and mixedwood forests are found predominantly on the uplands, whereas coniferous forests are typically located in the valleys. Sugar maple, yellow birch, beech, and red maple occupy the upper slopes and ridges; balsam fir, white spruce, and hemlock are found on upland flats and valley slopes. Black spruce and larch are found on wet slopes and valley bottoms on the moderately fine-textured tills throughout the ecodistrict. White and yellow birch, white spruce, and pin cherry on steep slopes facing the western coast of the Gulf of St. Lawrence are often stunted by salt-laden winds. Old abandoned fields tend to be colonized by white spruce.

Soils. The ecodistrict is characterized by rapidly to well-drained, gravelly sandy loam Thom and Shulie soils (Orthic Humo-Ferric Podzols) on the uplands. Imperfectly drained, loam to clay loam Queens and gravelly clay loam Diligence soils (Gleyed Brunisolic Gray Luvisols) are found in the valleys. Moderately well-drained, gravelly loam to gravelly clay loam Woodbourne and well-drained, gravelly sandy loam Westbrook soils (Orthic Humo-Ferric Podzols) are found on the lower hills and upper valley slopes with imperfectly drained, gravelly loam to gravelly clay loam Millbrook soils (Gleyed Humo-Ferric Podzols). Sandy loam to loam Cumberland soils (Regosols) are found on alluvial floodplains in valley bottoms.

Land Use. Forestry is the dominant land use in the ecodistrict. Farming, fishing, and tourism are significant activities. Small, mixed farming activities include hay, dairy, beef, and hog production. Main centres include Inverness and Cheticamp.

Bras d'Or Lowlands Ecodistrict (523)

The Bras d'Or Lowlands Ecodistrict covers about 2585 km^2 of land in the central part of Cape Breton Island. The ecodistrict extends from the Strait of Canso to Glace Bay and includes Bras d'Or Lake, which occupies about 1069 km^2.

Climate. The Bras d'Or Lowlands Ecodistrict has late, cold, wet springs, because of its proximity to the Gulf of St. Lawrence. It has a mean annual temperature of 5.8°C and mean summer and winter temperatures of 16.4 and –4.5°C, respectively. The ecodistrict receives about 1502 mm of precipitation annually, including about 503 mm of rain between May and September. The ecodistrict accumulates 1512 annual growing degree-days (5°C basis) and has a relatively short growing season of 193 days. Like the Cape Breton Escarpment and Ainslie Uplands ecodistricts, it is affected by strong coastal winds.

Landform. This ecodistrict occupies a rolling to undulating lowland plain separated into eastern and western halves by Bras d'Or Lake. The lowlands are underlain by Carboniferous sediments. The western half is covered with moderately fine-textured glacial till derived from the underlying shale, sandstone, limestone, and gypsum of the Windsor, Canso, and Riversdale groups. Areas of karst topography are found between Little Narrows and Iona near Bras d'Or Lake. The eastern half is covered predominantly with shallow, stony, moderately coarse-textured glacial till derived primarily from the underlying sandstones of the Pictou and Morien groups. The lowlands encircle a series of hills that rise from the shores of Bras d'Or Lake. Alluvial floodplains border the rivers draining the valley bottoms. Ice-contact stratified drift is associated with the major rivers. Extensive peatland is found in the northeast section of the ecodistrict.

Vegetation. This ecodistrict is characterized by a predominantly balsam fir, white spruce, black spruce, and white pine on the slopes and valley bottoms. Poor-quality shade-tolerant hardwoods — beech, sugar maple, and scattered yellow birch — are found on the better-drained higher ground. Old fields and former pastures have regenerated to pure stands of white spruce. Red spruce is rare but can be found on steep slopes and along watercourses. Black spruce and larch grow in the wetter sites.

Soils. The western half of the ecodistrict is characterized by imperfectly drained, loam to clay loam Queens soils (Gleyed Brunisolic Gray Luvisols) and gravelly loam to gravelly clay loam Millbrook and Diligence soils (Gleyed Humo-Ferric Podzols) that have developed on the moderately fine-textured tills. In the eastern half of the ecodistrict, well-drained Shulie soils (Orthic Humo-Ferric Podzols), imperfectly drained Springhill soils (Gleyed Humo-Ferric Podzols), and poorly drained Economy soils (Orthic Gleysols) have developed on shallow, stony, gravelly sandy loam glacial till derived predominantly from sandstone. Rapidly drained Hebert and Torbrook soils (Orthic Humo-Ferric Podzols) have developed on ice-contact stratified sands and gravels. Very poorly drained Organic soils (Fibrisols) have developed on the bogs.

Land Use. Forestry is the dominant land use in the ecodistrict, supporting a pulp and paper mill at Port Hawkesbury. Farming, fishing, and tourism are significant activities. Small, mixed farming activities include hay, dairy, beef, and hog production. Coal mining and steel production have had a long history in the ecodistrict. Electrical power is generated for local and mainland markets near Sydney and Point Tupper. Gypsum and limestone are mined in the ecodistrict. Main centres include Sydney, Glace Bay, New Waterford, and Port Hawkesbury.

Bras d'Or Uplands Ecodistrict (524, 526)

The Bras d'Or Uplands Ecodistrict includes two elevated blocks adjacent to Bras d'Or Lake that are surrounded by the Bras d'Or Lowlands. North Mountain (map unit 526), the smallest of the two blocks, lies north of West Bay and covers 115 km^2. The larger block (map unit 524) covers 740 km^2 surrounding East Bay on the eastern shore of Bras d'Or Lake and consists of a continuous band of uplands that include the East Bay, Boisdale, and Coxheath hills. The ecodistrict covers a total of 855 km^2.

Climate. The Bras d'Or Uplands Ecodistrict is characterized by cold, wet springs, moist summers, and snowy winters. The ecodistrict is influenced by the cold, strong winds from the Gulf of St. Lawrence. It has a mean annual temperature of 6.0°C and mean summer and winter temperatures of 16.6 and –4.5°C, respectively. The ecodistrict receives about 1533 mm of precipitation annually and gets about 519 mm of rain between May and September. The ecodistrict accumulates 1530 annual growing degree-days (5°C basis) and has a relatively short growing season of 194 days.

Landform. The ecodistrict is composed of a series of elongated northeast–southwest-oriented fault blocks that rise to about 220 m on the East Bay and Boisdale Hills and to 250 m asl on North Mountain. The uplands have steep-sided, incised margins and rolling tops covered with stony, moderately coarse-textured glacial till veneer derived from the underlying igneous and metamorphic Precambrian bedrock. Some peatland is found in depressions on the flatter portions of the uplands on the Boisdale and East hills.

Vegetation. This ecodistrict is characterized by sugar maple, yellow birch, beech, and shade-intolerant hardwoods on the upper slopes and ridges. Balsam fir, white spruce, hemlock, and, occasionally, red spruce cover the upland flats and ravine slopes. Black spruce and eastern larch grow in the wetter sites.

Soils. The ecodistrict is characterized by well-drained, gravelly sandy loam Thom soils (Orthic Humo-Ferric Podzols) that have developed on shallow, stony, moderately coarse-textured glacial till veneers. Imperfectly drained Mira soils (Gleyed Humo-Ferric Podzols) and poorly drained Arichat soils (Orthic Gleysols) are minor inclusions associated with Thom soils. Very poorly drained Organic soils (Fibrisols) have developed on the bogs.

Land Use. Forestry is the principal land use in the ecodistrict. The soils are poorly suited for agriculture.

Antigonish Lowlands Ecodistrict (525)

The Antigonish Lowlands Ecodistrict is located in Antigonish County adjacent to St. Georges Bay. It extends inland to Lochaber Lake and covers 869 km^2. On the coast, the ecodistrict extends from Malignant Cove to the Strait of Canso.

Climate. The Antigonish Lowlands Ecodistrict is characterized by a cold spring and moist summer with no moisture deficit. It has a mean annual temperature of 5.8°C and mean summer and winter temperatures of 16.7 and –4.9°C, respectively. The ecodistrict experiences about 1377 mm of precipitation annually, receiving about 515 mm of rain between May and September. The ecodistrict accumulates 1555 annual growing degree-days (5°C basis) and has a growing season of 194 days.

Landform. This ecodistrict represents a large lowland basin of undulating to rolling till plain, which rises inland to the south and southwest from the coast to about 180 m asl. The till is derived from the underlying Carboniferous sediments of the Horton, Canso, and Windsor groups. Adjacent to the coast, deep, moderately coarse-textured and

moderately fine-textured tills on gently rolling topography overlay shale and sandstone of the Canso Group. Resistant Devonian conglomerate and sandstone dominate the northern extent of the district at Cape George. This steep-sided, incised, and elevated extension of the lowlands is covered with a stony, moderately coarse-textured till veneer derived from the underlying bedrock. Farther inland, the plain is covered predominantly by moderately fine-textured till, which is moderately stony and gravelly. The West, South, Black, Pomquet, and North Tracadie rivers flow northward across the ecodistrict to St. Georges Bay. Deposits of alluvium and ice-contact stratified sand and gravel are found adjacent to these major rivers.

Vegetation. This ecodistrict is characterized by sugar maple and beech, but white pine, white spruce, and balsam fir are widely distributed. Coniferous forest is found primarily on steep slopes in narrow valleys, on wide valley floors, and on outwash plains. Intolerant stands of red maple, wire birch, and aspen are also common. Black spruce is found on poorly drained depressions and flats. White spruce typically colonizes old abandoned fields.

Soils. The southern half of the ecodistrict is characterized by the moderately well- and imperfectly drained Woodbourne soils (Orthic and Gleyed Humo-Ferric Podzols) and the imperfectly drained Millbrook soils (Gleyed Humo-Ferric Podzols), which have developed on gravelly loam and gravelly clay loam till. At lower elevations near the coast, well-drained, sandy loam Merigomish soils (Orthic Humo-Ferric Podzols) and imperfectly drained, loam to clay loam Queens soils (Gleyed Brunisolic Gray Luvisols) are found. Well-drained, gravelly sandy loam Westbrook, Hansford, and Thom soils (Orthic Humo-Ferric Podzols) are found in the Malignant Cove–Cape George area. Moderately well-drained, silty clay loam Stewiacke soils (Orthic Regosols) are found on the alluvial floodplains adjacent to the major rivers. Rapidly drained Hebert soils (Orthic Humo-Ferric Podzols) have developed on deposits of ice-contact sands and gravels.

Land Use. Forestry is the dominant land use. Farming and the fishery are significant contributors to the economic base within the ecodistrict. Small, mixed farming activities include hay, dairy, beef, and hog production. Limestone is mined in the ecodistrict.

Pictou-Antigonish Highlands Ecodistrict (527)

The Pictou-Antigonish Highlands Ecodistrict straddles the boundary between Antigonish and Pictou counties and covers 1227 km^2. The ecodistrict extends from just east of the East River valley in Pictou County to just north of Antigonish. Its southern limit is marked by the East River of Pictou. Lochaber Lake is located in the southeast corner of the ecodistrict. The northern boundary of the ecodistrict follows the Hollow Fault from just east of New Glasgow to Malignant Cove in Antigonish County.

Climate. High elevations influence the climate of the Pictou-Antigonish Highlands Ecodistrict, which is characterized by late, cool springs, cold winters, and the lowest mean annual temperature in Nova Scotia (5.4°C), which it shares with the St. Marys Block Ecodistrict. It has mean summer and winter temperatures of 16.6 and –5.9°C, respectively. The ecodistrict experiences about 1409 mm of precipitation annually and receives about 505 mm of rain between May and September. The ecodistrict accumulates 1521 annual growing degree-days (5°C basis) and has a relatively short growing season of 192 days.

Landform. The ecodistrict is a wedge-shaped elevated block of resistant bedrock. It has a level plateau surface, with an average elevation of about 173 m rising to a maximum of 304 m asl. The margins of the plateau fall abruptly, with little dissection by streams or valleys. This ecodistrict is

predominantly a rolling till plain. The underlying bedrock consists of Precambrian and Silurian volcanics and metamorphics, which have been extensively faulted and intruded by pockets of granite. Stony, moderately coarse-textured glacial till blankets and veneers, perforated by rock outcrops, dominate the rugged landscape. Significant inclusions of gravelly, medium-textured till derived from Silurian shale form a band around the western edge of the ecodistrict. Minor inclusions of reddish-brown, moderately fine-textured till are scattered throughout the ecodistrict. Ice-contact stratified drift is found in the hollow between French River and Barneys River Station. In the northeastern corner of the ecodistrict, colluvial deposits blanket the slopes of steeply incised river valleys which emanate from Eigg Mountain.

Vegetation. This ecodistrict is characterized by shade-tolerant hardwoods, with yellow birch, sugar maple, and beech being the most common. Red spruce, white spruce, eastern hemlock, and balsam fir are scattered on the flat upland surfaces and form coniferous stands on lower slopes and valley bottoms.

Soils. The ecodistrict is characterized by the well-drained, stony sandy loam Cobequid, (Orthic and Sombric Ferro-Humic Podzols), Kirkmount, Thom, and Wyvern soils (Orthic Humo-Ferric Podzols), which have developed on tills derived from igneous and metamorphic rocks. The well-drained, gravelly loam Barney soils (Orthic Humo-Ferric Podzols) have developed on till originating from Silurian shales. Imperfectly drained Millbrook soils (Gleyed Humo-Ferric Podzols) have developed on reddish-brown, gravelly loam to gravelly clay loam till. Rapidly drained Hebert soils (Orthic Humo-Ferric Podzols) have developed on the ice-contact sands and gravels.

Land Use. Forestry is the dominant land use in the ecodistrict. The ecodistrict is popular with hunters because of its excellent moose range.

Cumberland Hills Ecodistrict (528)

The Cumberland Hills Ecodistrict is located west and north of the Cobequid Highlands in the southern part of Cumberland County. It covers a 1573-km^2 area, extending from Chignecto Bay to the eastern border with Colchester County.

Climate. The Cumberland Hills Ecodistrict has cold winters and receives comparatively low levels of annual precipitation. It has a mean annual temperature of 5.5°C and mean summer and winter temperatures of 16.4 and –6.0°C, respectively. The ecodistrict experiences about 1193 mm of precipitation annually. It receives about 467 mm of precipitation between May and September and experiences a summer moisture deficit of 37 mm. The ecodistrict accumulates 1534 annual growing degree-days (5°C basis) and has a growing season of 195 days.

Landform. The ecodistrict constitutes a tilted plain underlain by gray sandstone, siltstone, shale, and conglomerate of the Late Carboniferous period. The plain slopes westward towards Chignecto Bay and northward to the Pictou-Cumberland Lowlands from an elevation of about 250 m, where it connects with the Cobequid Highlands. At these higher elevations, a band of hilly and dissected terrain covered with stony, moderately coarse-textured glacial till derived from conglomerate, marks the southern edge of the ecodistrict. Farther to the west and north, the topography becomes gently rolling and undulating. Undulating plain characterizes a 15-km-wide band, which runs parallel to Chignecto Bay from Apple River to north of Springhill. Here, stony, moderately coarse-textured glacial till veneers derived from gray sandstone are dotted with peatland and rock outcrops. Alluvium and ice-contact sand and gravel deposits are found adjacent to the major rivers flowing northward to the Northumberland Strait and Cumberland Basin.

Vegetation. This ecodistrict is characterized by shade-tolerant hardwoods, with yellow birch, sugar

maple, and beech being the most common on the upper slopes. Red spruce, balsam fir, black spruce, and hemlock are found on the upland flats as well as middle and lower slopes. Jack pine, aspen, spruce, and wire birch are abundant after fire on lowland flats. Much of the ecodistrict has been either cleared or burned.

Soils. The ecodistrict is characterized by the well-drained, stony sandy loam Westbrook, Shulie, and Rodney soils (Orthic Humo-Ferric Podzols) that have developed on till derived from conglomerate, sandstone, and sandstone with amounts of conglomerate and crystalline rocks, respectively. Significant areas of imperfectly drained, stony sandy loam Springhill soils (Gleyed Humo-Ferric Podzols) and poorly drained, stony sandy loam Economy soils (Orthic Gleysols) are associated with Shulie soils on undulating terrain adjacent to Chignecto Bay. Pockets of very poorly drained Organic soils (Fibrisols and Mesisols) are primarily associated with Economy soils. Rapidly drained Hebert soils (Orthic Humo-Ferric Podzols) have developed on ice-contact deposits of sand and gravel. Well-drained sandy loam Cumberland soils (Regosols) are found on alluvium.

Land Use. Forestry is the dominant land use in the ecodistrict. Small, mixed farming activities and significant blueberry production characterize agricultural activities. The ecodistrict has a history of coal mining that was centred at Springhill.

Mulgrave Plateau Ecodistrict (529)

The Mulgrave Plateau Ecodistrict is a 1072-km^2 block located south of the Strait of Canso, west of Chedabucto Bay, and is bound to the south, in part, by the Chedabucto Fault in Guysborough County. Its western end is located at Lochaber Lake.

Climate. Proximity to the Atlantic Ocean gives the Mulgrave Plateau Ecodistrict a humid climate, with wet springs and summers. It has a mean annual temperature of 6.0°C and mean summer and winter temperatures of 16.7 and –4.5°C, respectively. The ecodistrict receives considerable annual precipitation and the highest amount of May through September rainfall in Nova Scotia, at 1528 and 541 mm, respectively. It experiences no summer moisture deficit. The ecodistrict accumulates 1582 annual growing degree-days (5°C basis) and has a growing season of 197 days.

Landform. The Mulgrave Plateau Ecodistrict covers most of the Guysborough Highlands and consists of a block of gently rolling to hilly and dissected till plain that ranges in elevation from sea level to 210 m. The ecodistrict has a mean elevation of 120 m asl. The underlying strata are principally resistant Late and Middle Devonian conglomerate, sandstone, siltstone, and slate and includes some volcanic intrusions. Stony, moderately coarse-textured glacial till blankets and veneers dominate the landscape. Pockets of moderately fine-textured drumlinized till plain are dispersed through the ecodistrict. Wetlands and lakes are common.

Vegetation. On the deeper soils west of Mulgrave, mixedwood forests are characterized by balsam fir, black spruce, hemlock, sugar maple, and beech. White spruce, yellow birch, and aspen are found on well-drained sites while black spruce, balsam fir, and larch occur on the wetter sites. Balsam fir, black spruce, white spruce, larch, red maple, birch, and aspen are common on shallow soils.

Soils. The eastern third of the ecodistrict is characterized by the imperfectly drained, shallow, gravelly loam Riverport soils (Gleyed Humo-Ferric Podzols). The western two-thirds of the district are characterized by the well-drained, gravelly sand loam Kirkhill soils (Orthic Humo-Ferric Podzols) that have developed on till derived from shale and slate and the gravelly sandy loam Thom soils (Orthic Humo-Ferric Podzols) that have developed on till derived from igneous and metamorphic rocks. The imperfectly drained, gravelly loam to gravelly clay loam Millbrook soils (Gleyed Humo-

Ferric Podzols) are scattered across the ecodistrict on drumlinized till.

Land Use. Forestry, including Christmas tree production, serves as the economic base for this sparsely populated ecodistrict. Guysborough and Mulgrave are the principal communities.

Cobequid Highlands Ecodistrict (530)

The Cobequid Highlands Ecodistrict is a 1558-km^2, elevated, cigar-shaped block located north of Cobequid Bay and Minas Basin in Cumberland, Colchester, and Pictou counties. It is 115 km long and extends from Parrsboro to Scotsburn.

Climate. The Cobequid Highlands Ecodistrict has average spring and summer temperatures, but colder than average winters. It has a relatively low mean annual temperature of 5.5°C and mean summer and winter temperatures of 16.5 and −5.8°C, respectively. The ecodistrict receives relatively low levels of annual precipitation and May through September rainfall amounts of 1182 and 453 mm, respectively. It experiences a summer moisture deficit of about 45 mm. The ecodistrict accumulates 1524 annual growing degree-days (5°C basis) and has a growing season of 195 days.

Landform. The ecodistrict is a steep-sided plateau with an average elevation of 220 m, rising to a maximum elevation of 360 m asl. The plateau surface is a rolling, dissected till plain. The tills are derived from the underlying Precambrian to Devonian metamorphic, volcanic, and granitic bedrock. Stony, moderately coarse-textured glacial till veneers dominate the landscape. Bedrock outcrops are common. The eastern end of the ecodistrict is characterized by hilly, heavily dissected terrain. In this area, large ravines and steep valley slopes are covered with colluvium, and large deposits of ice-contact stratified drift cover the valley bottoms around Earltown. There are few wetlands or lakes.

Vegetation. The plateau surface supports sugar maple, yellow birch, and beech on the deeper, well-drained soils. Shallow soils support balsam fir with red and black spruce. Poorly drained depressions and flats support balsam fir and black spruce. Hemlock is found in ravines, while white spruce, red spruce, and balsam fir, form mixed stands with sugar maple, yellow birch, and red maple on the slopes. Hardwoods are stunted at the higher elevations as a result of ice and snow damage.

Soils. Well-drained, stony sandy loam Cobequid soils (Orthic and Sombric Ferro-Humic Podzols) developed on till derived from igneous and metamorphic rocks and well- to rapidly drained Wyvern soils (Orthic Humo-Ferric Podzols) developed on granitic till are found on upper to mid-slopes and ridges. Their associated imperfectly drained soils (Gleyed Ferro-Humic Podzols and Gleyed Humo-Ferric Podzols) are found on lower slopes and seepage sites. Associated poorly drained soils (Orthic Gleysols and Orthic Humic Gleysols) are found on shallow flats and in depressions. Well-drained, gravelly sandy loam Westbrook soils (Orthic Humo-Ferric Podzols) are found on shallow tills and colluvial deposits (Orthic Dystric Brunisols) derived from conglomerate. Rapidly drained, gravelly sand Hebert soils (Orthic Humo-Ferric Podzols) have developed on ice-contact stratified sands and gravels.

Land Use. Forestry is the dominant land use in this sparsely populated ecodistrict. Hardwood from this ecodistrict had supplied a once-thriving furniture industry and now is utilized for flooring. Some sugar maple stands are managed for maple syrup production. Blueberry production is the main agricultural activity.

St. Marys Block Ecodistrict (531)

The St. Marys Block Ecodistrict is a 1909-km^2 band of upland located both south of, and between, the Cobequid and Pictou-Antigonish Highlands. It is approximately 150 km long and extends from

north of Bass River in Colchester County eastward to Cross Roads Country Harbour in Guysborough County.

Climate. The St. Marys Block Ecodistrict has average spring and summer temperatures but colder than average winters. The ecodistrict shares the lowest mean annual temperature in Nova Scotia of 5.4°C with the Pictou-Antigonish Highlands Ecodistrict. Mean summer and winter temperatures are 16.5 and –5.9°C, respectively. The ecodistrict receives average amounts of annual precipitation and May through September rainfall amounts of 1373 and 498 mm, respectively. The ecodistrict accumulates 1506 annual growing degree-days (5°C basis) and has a growing season of 193 days.

Landform. The eastern half of the ecodistrict is the St. Marys graben, a downfaulted block of Early Carboniferous strata of the Horton Group, between the Chedabucto fault and the Pictou-Antigonish Highlands to the north and the St. Marys River and Southern Uplands to the south. The block slopes eastward from about 300 m at the Pictou–Colchester county border to about 100 m in Guysborough County. The ecodistrict includes the Pictou Basin, a lowland sloping northward and bounded by the Cobequid Highlands to the west, the Pictou-Antigonish Highlands to the east, and the elevated western end of the graben to the south. The basin bottom is underlain by soft Early Carboniferous shale, sandstone, and limestone of the Windsor Group. West of Pictou Basin, the ecodistrict is confined between the Triassic lowlands north of Cobequid Bay and the Cobequid Highlands, forming a thin wedge underlain by Carboniferous strata of the Canso, Pictou, and Riversdale groups. Stony, moderately coarse-textured tills dominate the ecodistrict. Moderately fine-textured glacial tills characterize Pictou Basin and are found in many smaller areas throughout the ecodistrict. Significant amounts of ice-contact stratified sands and gravels are found in the central part of the ecodistrict. Wetlands are associated with level and drumlinized terrain in the eastern part of the ecodistrict.

Vegetation. The eastern half of the ecodistrict has a relatively flat to gently undulating surface, which drains slowly. This subdued topography favours softwood forests of balsam fir, white pine, red spruce, and eastern hemlock on the well-drained sites. White pine, red maple, and black spruce, are scattered on extensive barrens originating from repeated burning. Mixedwood forest characterizes Pictou Basin, where beech and sugar maple predominate, but white pine, white spruce, and balsam fir are widely distributed. Black spruce is common on poorly drained terrain. Much of the land that was once cleared has regenerated to white spruce. Softwood forest characterizes the western portion of the ecodistrict south of the Cobequid Highlands, where abandoned farmlands supports stands of white spruce and balsam fir in many areas. Scattered sugar maple, beech, and yellow birch occur locally on low ridges, but spruces, balsam fir, white birch, red maple, eastern hemlock, and white pine are common on well-drained, mid-slopes sites.

Soils. On the graben part of the ecodistrict, well-drained, stony sandy loam Perch Lake soils (Orthic Humo-Ferric Podzols) have developed on till derived from Horton sandstone, and shallow, gravelly sandy loam Kirkhill soils (Orthic Humo-Ferric Podzols) have developed on till veneers derived from Horton shales. In Pictou Basin, well-drained, gravelly sandy loam Thom soils (Orthic Humo-Ferric Podzols) have developed on till derived from metamorphic and sedimentary rock and are associated with imperfectly drained, gravelly loam to gravelly clay loam Millbrook soils (Gleyed Humo-Ferric Podzols). Moderately well- and imperfectly drained, gravelly loam to gravelly clay loam Woodbourne soils (Orthic and Gleyed Humo-Ferric Podzols) characterize the basin bottom. West of the basin, well-drained, gravelly sandy loam Folly soils (Orthic Humo-Ferric Podzols) and imperfectly drained, gravelly clay loam Diligence soils (Gleyed Brunisolic Gray Luvisols) are found south of the Cobequid Highlands. Rapidly drained Hebert soils (Orthic Humo-Ferric Podzols) have developed on stratified sands and gravels. Very poorly drained Organic

soils have developed on bogs (Fibrisols), fens (Mesisols), and swamps (Mesisols).

Land Use. Forestry is the dominant land use in the ecodistrict. Small, mixed farming is concentrated in the Pictou Basin. Blueberry production is an important agricultural activity in the ecodistrict.

CAPE BRETON HIGHLANDS ECOREGION (129)

The Cape Breton Highlands Ecoregion occupies 2291 km^2 on the northern tip of Cape Breton Island.

Climate. The ecoregion is marked by cool, wet summers and long winters. Fog is common. The mean annual temperature is 6°C. The mean summer temperature is about 16.5°C, and the mean winter temperature is –4°C. The mean annual precipitation ranges from 1400 to 1600 mm.

Vegetation. The ecoregion is strongly influenced by severe winds on exposed upper slopes, where sparse, low-growing spruce, balsam fir, and kalmia heath predominate. The sheltered lower slopes are characterized by intermediate to tall balsam fir, white spruce, and white birch. Associated with peatlands and seepage sites are open stands of black spruce and eastern larch, with an understory of sphagnum.

Landform and Soils. The ecoregion covers the highest part of the Nova Scotia Highlands physiographic division, a remnant of the old Appalachian peneplain composed of Proterozoic metamorphics and volcanic rocks. The peneplain is deeply incised around its margins and has a remarkably flat interior and an average elevation of about 450 m asl. Ridged to hummocky, stony glacial tills are predominant; bedrock exposures, residuum, colluvium on the very steep slopes, and peatlands on the plateau are also present. Shallow, loamy Ferro-Humic Podzols are the dominant soils and are commonly associated with Humo-Ferric Podzols and Dystric Brunisols on steep slopes, Fibrisols on domed and sloping bogs, and Mesisols on fens.

Wildlife. The region provides habitat for moose, snowshoe hare, black bear, and lynx.

Land Use. Forestry is the dominant land use. Tourism and recreation are important activities in the Cape Breton Highlands National Park located within the ecoregion. There are no major communities located within the ecoregion.

Cape Breton Plateau Ecodistrict (532)

The Cape Breton Plateau Ecodistrict occupies 1991 km^2 on the northern tip of Cape Breton Island.

Climate. The ecodistrict has cold, late springs, average summer temperatures, and snowy winters. It has a mean annual temperature of 6.0°C and mean summer and winter temperatures of 16.7 and –4.2°C, respectively. The ecodistrict receives average amounts of annual precipitation and May through September rainfall amounts of 1493 and 480 mm, respectively. Heavy snowfalls of about 347 cm are typical. The ecodistrict accumulates 1564 annual growing degree-days (5°C basis) and has a growing season of 196 days. The ecodistrict is subjected to some of the highest winds in the province. Fog and low-level cloud shroud the ecodistrict for many days of the year.

Landform. The ecodistrict occupies a high plateau with an average elevation of 460 m rising to a maximum of 525 m asl. The plateau surface is a hilly, dissected till plain. The tills are derived from the underlying Silurian to Precambrian metamorphic, volcanic, and granitic bedrock. Stony, moderately coarse-textured glacial till veneers, residual rubble, and rockland dominate the landscape. Cobbly colluvium covers the ravines

and steep river valleys. Peatlands are common on flat areas.

Vegetation. The ecodistrict supports a characteristic boreal forest of balsam fir, white birch, and white spruce. On shallow granitic soils, balsam fir, black spruce, jack pine, and white pine form young stands. On ridges and exposed slopes, high winds and winter ice blasting create krummholz forests of stunted and deformed trees. The perimeter of the plateau is distinguished by the presence of tolerant hardwoods where it joins the Cape Breton Escarpment Ecodistrict. Poorly drained depressions and shallow flats support balsam fir and black spruce.

Soils. The ecodistrict is characterized by well-drained, stony sandy loam soils (Orthic Ferro-Humic Podzols) developed on till and residual rubble derived from igneous and metamorphic rocks. Imperfectly drained, stony sandy loam soils (Gleyed Ferro-Humic Podzols) are found on lower slopes and seepage sites. Poorly drained, stony sandy loam soils (Orthic Gleysols and Orthic Humic Gleysols) occupy shallow tableland and depressions. Well- to rapidly drained, cobbly sandy loam soils (Orthic Sombric Brunisols and Orthic Dystric Brunisols) are found on steep valley and canyon colluvial and soliflucted till deposits. Rapidly drained cobbly soils (Regosols) are found on rubble fans and talus below rocky outcrops on steep slopes. Organic soils are found on raised plateau and domed bogs (Fibrisols) on flat and depressional terrain. Sloping bogs and fens (Fibrisols) occupy gently sloping terrain.

Land Use. Forestry is the main land use within this sparsely populated ecodistrict. Tourism and recreation are concentrated within the Cape Breton Highlands National Park. Several dams regulate water flow for electrical power generation.

Cape Breton Barrens Ecodistrict (533)

The Cape Breton Barrens Ecodistrict occupies a 300-km^2 area within the northern end of the Cape Breton Plateau Ecodistrict. It is located at the highest elevation in Nova Scotia and has an average elevation of 460 m asl.

Climate. The ecodistrict has cold, late springs, average summer temperatures, and harsh, snowy winters. It has a mean annual temperature of 6.0°C and mean summer and winter temperatures of 16.7 and –4.2°C, respectively. The ecodistrict receives abundant annual precipitation and average May through September rainfall amounts of 1503 and 479 mm, respectively. It experiences a summer moisture deficit of about 45 mm. Winter snowfalls of 397 cm are the heaviest in the Nova Scotia. The ecodistrict accumulates 1535 annual growing degree-days (5°C basis) and has a growing season of 194 days. The ecodistrict is subjected to abnormally strong winds during much of the year making winter conditions severe where winds blow across the large barren expanses characteristic of this ecodistrict. Fog and low-level cloud shroud the ecodistrict, maintaining high relative humidity for many days of the year.

Landform. The ecodistrict encompasses the elevated tableland of the Cape Breton plateau, which has an average elevation of 460 m but rises to the highest elevations in the province at 525 m asl. The plateau surface is undulating, with low hills and shallow valleys. It is exposed and barren, with large areas of bare rock. Till veneers are derived from the underlying schist, gneiss, and granitic bedrock of Silurian and Ordovician age. Stony, moderately coarse-textured glacial till veneers and rockland dominate the landscape. Peatlands and small, shallow lakes are common. Peatland complexes are found on flat to gently rolling seepage slopes and depressional areas, and often their surface form takes the shape of the underlying mineral topography. Sloping bogs and fens spread over undulating terrain. Raised plateau

and domed bogs are found on relatively flat terrain. Bog ponds are a common feature within the ecodistrict. Peat depths can range from less than 1 m to over 3 m. Peat areas are surrounded by barrens, that are underlain by till, bedrock, or rubble.

Vegetation. Harsh winters, high precipitation, and poorly drained terrain favour conifers, bog, and barren vegetation. The stable association on the few deep, well-drained soils is stunted black spruce, white spruce, balsam fir, and white birch. Exposure to wind and ice blasting creates a krummholz forest of stunted and deformed black spruce and balsam fir alternating with peat bogs. Shallow soils on low ridges support ericaceous heath shrubs, while sedge and sphagnum moss blanket peatlands found on seepage slopes and in depressions. Stunted black spruce, ericaceous shrubs, lichens, and sphagnum form dense covers over exposed barrens.

Soils. The ecodistrict is characterized by shallow, well- to imperfectly drained, stony sandy loam barren soils (Ortstein Ferro-Humic Podzols, Placic Ferro-Humic Podzols, Gleyed Ortstein Ferro-Humic Podzols) developed on till veneer or rubbly metamorphic and igneous bedrock. Poorly drained, shallow, stony sandy loam barren soils (Orthic Humic Gleysols, Placic-Humic Podzols) are found on toe slopes or in depressions associated with Organic soils. Barren soils with restricted drainage commonly have thick organic surface layers. Fibrisols are found on raised plateau and domed bogs and sloping bogs and fens.

Land Use. The ecodistrict is best known as a conservation area, since it is part of the Cape Breton Highlands National Park. Very little of the ecodistrict is capable of economic wood production. The barrens provide summer habitat for moose.

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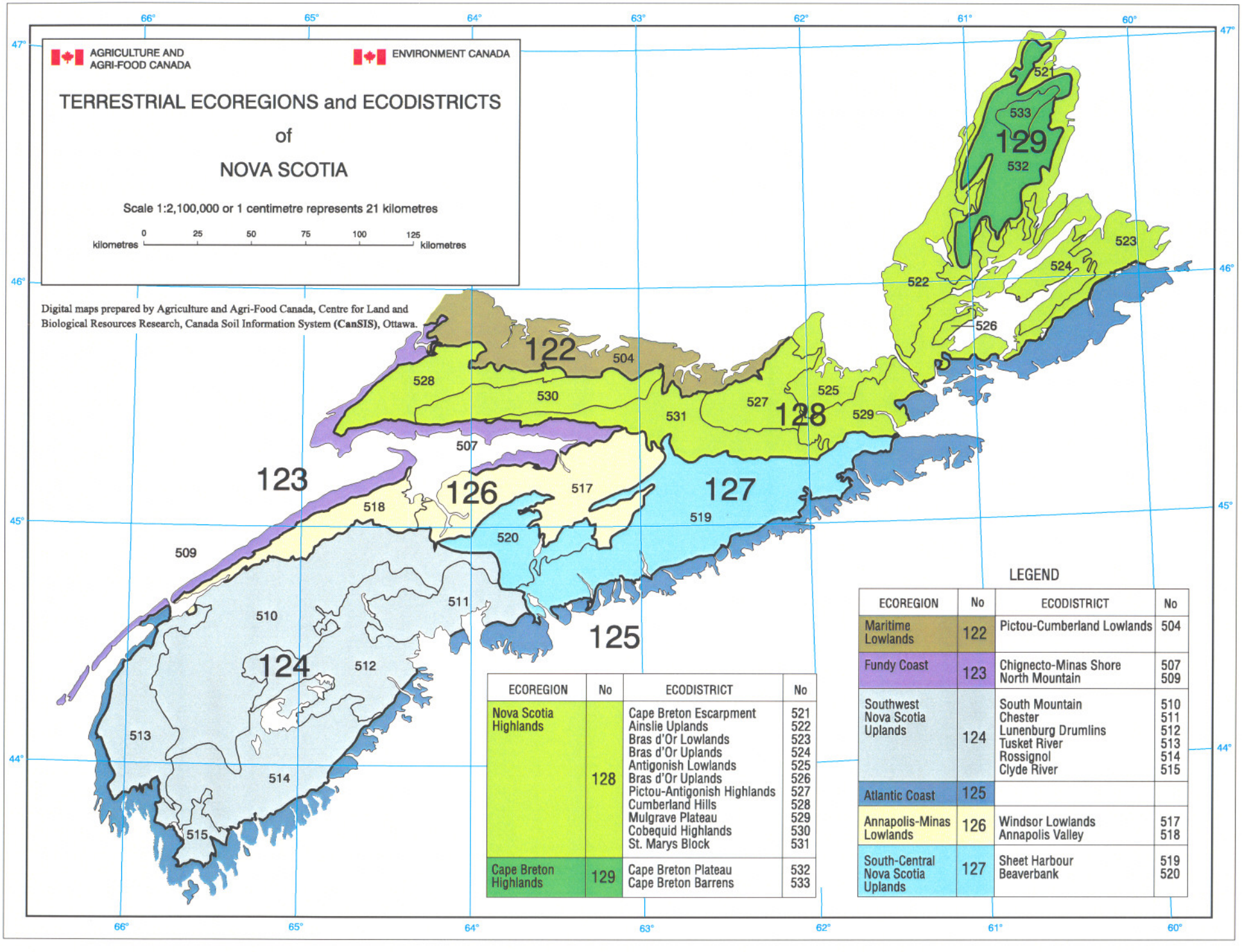
APPENDIX:

Map of the Terrestrial Ecoregions and Ecodistricts of Nova Scotia



ECOREGION	No	ECODISTRICT	No
Nova Scotia Highlands	128	Cape Breton Escarpment	521
		Ainslie Uplands	522
		Bras d'Or Lowlands	523
		Bras d'Or Uplands	524
		Antigonish Lowlands	525
		Bras d'Or Uplands	526
		Pictou-Antigonish Highlands	527
		Cumberland Hills	528
		Mulgrave Plateau	529
		Cobequid Highlands	530
		St. Marys Block	531
Cape Breton Highlands	129	Cape Breton Plateau	532
		Cape Breton Barrens	533

LEGEND

ECOREGION	No	ECODISTRICT	No
Maritime Lowlands	122	Pictou-Cumberland Lowlands	504
Fundy Coast	123	Chignecto-Minas Shore	507
		North Mountain	509
Southwest Nova Scotia Uplands	124	South Mountain	510
		Chester	511
		Lunenburg Drumlins	512
		Tusket River	513
		Rossignol	514
		Clyde River	515
Atlantic Coast	125		
Annapolis-Minas Lowlands	126	Windsor Lowlands	517
		Annapolis Valley	518
South-Central Nova Scotia Uplands	127	Sheet Harbour	519
		Beaverbank	520