T10.4 PLANT COMMUNITIES IN NOVA SCOTIA

Plants grow where they do for a reason. Among the most significant factors affecting the colonization and growth of plants are

1. the availability of light
2. soil-moisture conditions
3. nearness of a seed source
4. animal activity
5. soil fertility
6. leaf-litter fall, in the case of forest understorey plants
7. site history

Each species of plant responds to varying combinations of these environmental factors. Their propagules may either establish themselves and the plant may grow and thrive, or they may not grow at all under the prevailing set of site conditions. They may germinate but find the site and its environmental conditions marginal, in which case the plant might grow, although probably not in abundance. Each species has a set of conditions under which it makes optimum growth. Generally, assuming availability of growth requirements, species with similar sets of requirements will be found growing together. These recurring groups of plants form the plant communities of the province. In most instances, one or several species will assert dominance by being more abundant or more influential than the others. Most plant communities also have characteristic species, which, although not dominant, are found most commonly, if not solely, within that community type.

A PLANT-COMMUNITY CLASSFICATION FOR NOVA SCOTIA

Even though the vegetation of Nova Scotia has been heavily disturbed by human activity, it has been possible to define broad plant assemblages, within which much of the province's vegetation can be placed. Each assemblage (or "patch") varies in its composition of species and in species' relative abundance at specific locations. The amount of variability from site to site, in both species composition and abundance within any community type, is usually great. However, despite this factor, the assemblage of plants present and the relationship between those plants show a recurring basic similarity from one example to another across the province.

Forest communities have been more extensively studied in Nova Scotia than non-forest communities. The Nova Scotia Department of Natural Resources has an ongoing inventory program of forest-stand types in the province. The Forest Inventory contains forestry-related information such as species composition, stand height and age. The Inventory forms the basis for classifying forest species' associations in Nova Scotia (of which there are approximately 160).[1] The federal government has proposed a vegetation-classification system for Canada which would provide a standard framework for systematic analysis of vegetation.[2]

Table T10.4.1 contains a list of common forest plant communities found in Nova Scotia. The forest communities correspond to the forest associations described in the Forest Habitats (H6). Table T10.4.2 lists the non-forest plant communities for the province. General descriptions of these communities and their successional status have been included in the Habitat section.

The ground-cover vegetation in forest plant communities is characterized by one of the following plant associations:

A. Bracken Fern
B. Humus-Moss (primarily Schreber's Moss, Step Moss and Broom Moss)
C. Cinnamon Fern
D. Sedge–Sphagnum *(Carex stricta* and *Sphagnum fallax*)
E. Wood Fern–wood-sorrel
F. Various Ferns–Striped Maple

General descriptions of the small plant associations found in forest plant communities accompany the habitat descriptions of this document. A great deal of research remains to be done in order to confirm the presence and completeness of these plant communities, especially for central and northern Nova Scotia.

FOREST COMMUNITIES	TYPICAL SITE CONDITIONS	SUCCESSIONAL STAGE	SITE HISTORY	PER CENT AREA OF NOVA SCOTIA*
HARDWOOD (H6.1)				
Red Maple, Oak, White Birch	Well-drained rolling hills	Early-successional	Fire	10.0
Sugar Maple, Yellow Birch, Beech	Well-/ rapidly- drained uplands/Slopes	Climax	Natural/Cutting	9.0
Sugar Maple, Elm	Well-drained floodplains	Near-climax	Natural	—
SOFTWOOD (H6.2)				
White Spruce	Imperfectly/ well-drained fields	Pioneer	Cultivation	10.0
Spruce, Fir, Pine	Imperfectly/ well-drained lowland	Mid-successional	Fire	3.0
Pine (White, Red and Jack)	Well-/ rapidly- drained sand plains/ Barrens/Fields	Pioneer to near-climax	Fire/Cultivation	2.0
Red Spruce, Fir	Poorly/imperfectly drained lowlands	Mid-successional	Natural/Cutting	11.5
Black Spruce, Larch	Poorly drained bog/swamp	Early to mid-successional (Edaphic climax)**	Natural	10.0
Red Spruce, Hemlock, Pine	Imperfectly/ well-drained lowland	Climax	Natural/Cutting	9.0
Fir	Imperfectly/ well-drained boreal plateau	Climax	Natural	14.0
MIXEDWOOD (H6.3)				
Spruce, Fir, Pine-Red Maple, White Birch	Imperfectly/ well-drained lowland	Early to mid-successional	Cutting/Fire	6.0
Black Spruce, Fir-Maple	Poorly- drained swamps	Early to mid-successional (Edaphic climax)**	Natural	12.5
White Spruce, Fir-Red Maple, White Birch	Imperfectly/ well-drained coasts	Near climax	Natural/Cutting	3.0

Table T10.4.1: Major forest plant communities in Nova Scotia. This table indicates the relationship between the forest community (association) conditions, seral or successional stage and site history. * Data derived from Permanent Sample Plot data summaries, Dept. of Natural Resources (Lands and Forests) c. 1980. DNR has 1600 Forest Inventory Permanent Sample Plots in Nova Scotia. ** This seral stage is maintained in relation to steady site conditions. Note: Where Red Spruce is named, this may include Black Spruce or a Red-Black hybrid.

Associated Topics
T9 Soils, T10 Plants

Associated Habitats
H2 Coastal, H4 Freshwater Wetlands, H5 Terrestrial Unforested, H6 Forests

References
1 Bailey, R.E., and F.R. Wellings (no date) *Forest Species Associations in Nova Scotia*. Program Planning Branch, Nova Scotia Department of Lands and Forests.
2 Environment Canada (1990) The Canadian Vegetation Classification System. Ottawa. (*Ecological Land Classification Series* No. 25).

PLANT COMMUNITY	TYPICAL SITE CHARACTERISTICS	ORIGIN
Sphagnum Moss - Cranberry	Peatlands (including bogs and fens)	Natural
Cattail	Shallow lakes and ponds, marshes	Natural
Bluejoint Grass - Spiraea - Sweet Gale	Streambank (Sedge ferns)/ Peatland edges	Natural
Leather Leaf - Rhodora	Streambank (Sedge ferns)/ Peatlands and peatland edges mainland N.S.	Natural/Fire
Water Lily - Pond Lily	Streams/Shallow lakes and peatland ponds	Natural
Speckled Alder	Stream banks/Oldfield	Natural/Cultivated
Crowberry	Coastal headlands and bogs	Natural/Salt Spray/Exposure
Broom Crowberry	Barrens	Severe repeated fire
Reindeer Moss - Blueberry	Barrens/Cape Breton Highlands	Fire
Huckleberry - Lambkill	Fire barrens/Mainland N.S.	Fire
Marram Grass	Sand dunes	Natural
Rush - Goldenrod	Gravelly lake shore (S.W. Nova Scotia)	Natural
Royal Fern - Sweet Gale	Peaty lake shore (S.W. Nova Scotia)	Natural
Bent Grass - Poverty Grass	Abandoned fields	Cultivation
Cord Grass *(Spartina alterniflora)*	Lower tidal marsh	Natural
Marsh Hay *(Spartina patens)*	Upper tidal marsh	Natural
Seaweeds	Rocky shores	Natural
Eelgrass	Subtidal/Soft substrate	Natural
Corallina - Lithothamnium	Subtidal/Hard substrate	Natural

Table T10.4.2: Some major non-forest plant communities of Nova Scotia.

Additional Reading

- Davis, D.S., and A. Wilson (1979) Notes on the Flora and Fauna of Six Lakes in Cape Breton Highlands National Park. Nova Scotia Museum. (*Curatorial Report* No. 37).
- Loucks, O.L. (1962) "A Forest Classification for the Maritime Provinces." *Proc. N.S. Inst. Sci.* 25 (2).
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- Roland, A.E., and A.R. Olson (1993) *Spring Wildflowers*. The Nova Scotia Museum Field Guide Series. Nimbus Publishing and the Nova Scotia Museum, Halifax.
- Stanley, J.M., P.L. Comeau and D.G. Dodds (1973) *The Vegetation of Kejimkujik National Park*. Parks Canada.
- Wallace, E.S., and B. Freedman (1986) "Forest floor dynamics in a chronosequence of hardwood stands in central Nova Scotia." *Can. J. For. Res.* 16.