T10.3 VEGETATION AND THE ENVIRONMENT

The present landscape of Nova Scotia represents the accumulation of systematic and interactive responses between geology, landform, climatic influence, vegetation development over thousands of years and human involvement in the last 500 years.

VEGETATION AND CLIMATE

From the most general approach, the vegetation of the province as it reflects climate may be subdivided into three broad landscape regions (see T4.2). All of mainland Nova Scotia and the lowlands of Cape Breton Island are characterized by a similar climatic region. Here the Acadian Forest, typical of much of northeastern North America, flourishes with its giant melting pot of Boreal, Canadian and Alleghenian tree species. Variety abounds. Where elevations increase above 330 m on the highlands of Cape Breton (Region 100, District 210), climatic conditions become more severe: winters are much longer, snowfall is greater, persistent winds are stronger, and mean annual temperatures are lower. These boreal conditions cause the formation of a much less diverse forested landscape, characterized by windstunted pure stands of old-growth Balsam Fir over much of the land. At even higher elevations—over 450 m—the boreal landscape in Cape Breton gives way to a Boreal-Tundra transition of the Plateau-Taiga (Region 100). This is characterized by a gnarled, windswept dwarf vegetation composed of Black Spruce, Balsam Fir and Larch, interspersed on poorly drained lands with extensive blankets of peatlands developed from sedges and *Sphagnum* spp. and with dry ericaceous and lichen-covered barrens.

The Acadian Forest, along its more exposed ocean flanks, is so influenced by seawinds and salt spray that the identification of a separate coastal vegetation landscape region is justified (Region 800).

VEGETATION AND LAND FORM

Within the broad climatic and geologically controlled landscape regions of the province, vegetation responds locally to physiographic and landform variation (e.g., hills and swales; outwash plains and till moraines; broad expanses of rolling terrain; rivers; floodplains; steep ravine walls; eskers and drumlins; barrens and bogs; and coastal beaches). Recurring

	SL-M	SF-M	SFP-MB	P	MOB-PS	TOTAL
Rapid					65	100
Well			20	10	29	100
Moderate	17	20	34			100
Imperfect	64	17				100
Poor	64	17				100
Very Poor	91					100

Table T10.3.1: Percentage of soil-drainage class occupied by forest types, Kejimkujik National Park*

* Forest types occupying ten per cent or more of specified soil drainage class.
N.B.— Kejimkujik National Park occupies part of Units 412a, 433 and 451a.

SL-M ... Red or Black Spruce, Larch-Maple
SF-M ... Red or Black Spruce, Fir-Maple
SFP-MB ... Red or Black Spruce, Fir, Pine-Maple, Birch
P ... Pine
MOB-PS ... Maple, Oak, Birch-Pine, Red or Black Spruce.

patterns of these elements form relatively homogeneous districts, which characterize the Nova Scotia landscape. Although the relationships between vegetation types and landforms are imperfectly understood, the primary causal factors are thought to be soil moisture and stand history.

Table T10.3.1, taken from the Biophysical Survey of Kejimkujik National Park[1], provides evidence for a clear relationship between soil moisture and forest stand occurrence.

VEGETATION AND SOIL

The soils of the province have evolved over 10000 years at the interface between mineral substrate and vegetation. Endless variations in soil horizons, chemistry, fertility and texture occur. As the products of vegetative growth die and decompose, the flushing action of rainwater seeping through the mineral substrate carries the decomposed organic matter down through the soil profile. The products from decomposition of coniferous-tree detritus tend to be more acidic and provide less fertility to a soil horizon than deciduous-tree litter. As succession occurs, and coniferous and deciduous forest types exchange dominance on a site, the influences upon soil-forming process vary greatly from this factor alone. The nature of these processes is not sufficiently understood to provide full knowledge of the longer-term changes and relationships that exist between vegetation and soil.

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Associated Topics

T3 Landscape Development, T4.1 Post-glacial Climatic Change, T4.2 Post-glacial Colonization by Plants, T5 Climate, T9 Soils

References

1 Gimbarzevsky, P. (1975) Biophysical Survey of Kejimkujik National Park. Environment Canada. (*Forest Management Institute Information Report* FMR-X-81).

Additional Reading

- Eastern Ecological Research Limited (1978) *Ecological Land Classification, Cape Breton Highlands National Park*. Parks Canada.
- Greenidge, K.N.H. (1987) "Compositional-structural relations in old-growth forests, Cape Breton Island." *Rhodora*, 89 (859).