

Appendix A - Glossary

Ecological and forest management related terms found in this guide are defined below. References are given where definitions (or portions thereof) have been taken directly from other sources.

Advanced regeneration – trees of variable age found in the understory shrub layer which are in a position to grow into the canopy when overstory competition has been removed by disturbance or natural mortality.

Aeolian – see Parent material.

Alluvium – see Parent material.

Aspect – the direction of a downhill slope expressed in degrees or as a compass point.

Atlantic Coastal Plain flora (ACPF) – a group of 90 species of taxonomically unrelated wetland plants that inhabit lake and river shores, bogs, fens and estuaries and which are found primarily in southwestern Nova Scotia. The distribution of this group of plants extends down the eastern coast of the USA with isolated populations in Nova Scotia and along the Great Lakes.

Azonal – the opposite of zonal. Also see edaphic.

Bedrock – Solid rock that underlies gravel, soil, or other surficial material (AGI 1984). Also see Parent material.

Bryophytes – mosses, hornworts and liverworts.

Canopy – the uppermost continuous layer of branches and foliage in a stand of trees.



Climatic climax forest – see Zonal climax forest.

Climax community – a relatively stable and self-perpetuating community condition which maintains itself (more or less) until stand-level disturbance causes a return to an earlier successional stage.

Coarse woody debris – in this guide, dead wood larger than 7.5 cm in diameter and laying horizontally at 45 degrees or less.

Co-dominant – see Crown class.

Colluvium – see Parent material.

Covertypes – refers to the relative percentage of softwood versus hardwood species in the overstory of a stand. In this guide, covertypes classes are:

Softwood Overstory coverage of softwood species is 75% or more.

Hardwood Overstory coverage of hardwood species is 75% or more.

Mixedwood Overstory coverage of softwood and hardwood species is between 25% and 75%.

Crown class – refers to groups of trees in a forest with crowns of similar development and occupying a similar position in the canopy (Dunster and Dunster 1996). Three crown classes are defined:

Dominant: Defines trees with crowns extending above the general level of the main canopy receiving full light from above and partial light from the sides.

Co-dominant: Defines trees with crowns forming the general level of the main canopy receiving full light from above and comparatively little light from the sides.

Intermediate: Defines trees with crowns extending into the lower portion of the main canopy, but shorter in height than co-dominants. These trees receive little direct light from above and none from the sides.

Purple trillium (*Trillium erectum*)

Cyanolichen – a lichen whose photosynthetic partner is a cyanobacterium (also called blue-green alga).

Disturbance – a discreet force that causes significant change in structure and/or composition of a forest (Dunster and Dunster 1996). Also see Natural disturbance.

Dominant – see Crown class.

Drainage class – drainage class reflects the length of time it takes water to be removed from a soil in relation to supply. Six drainage classes used in this guide are (adapted from ECSS 1983):

Rapid: Water is removed from the soil rapidly in relation to supply.

Well: Water is removed from the soil readily, but not rapidly.

Moderately Well: Water is removed from the soil somewhat slowly in relation to supply.

Imperfect: Water is removed from the soil sufficiently slowly in relation to supply to keep the soil wet for a significant part of the growing season.

Poor: Water is removed so slowly in relation to supply that the soil remains wet for a comparatively large part of the time (when not frozen).

Very Poor: Water is removed from the soil so slowly that the water table remains at or near the surface for the greater part of the time (when the soil is not frozen).

Drumlin – A low, smoothly rounded, elongate hill of compact glacial till built under the margin of the ice and shaped by its flow. Its long axis is parallel to the direction of ice movement (AGI 1984).

Duff layer – see Forest floor.

Ecodistrict – a subdivision of ecoregion and the third level within the Nova Scotia ecological land classification system. It is based on distinct assemblages of relief, geology and landform.

Ecological Continuity – ecosystems (forests) for which there has been a continuity of ecological processes for long periods of time. Long and uninterrupted development in the absence of catastrophic disturbance fosters structural and species complexity, often marked by the presence of indicator lichens and fungi sensitive to disturbance and requiring specialized microhabitats.

Ecological land classification – a classification of lands from an ecological perspective based on factors such as climate, physiography and site conditions. It is a framework used to delineate ecosystems at different landscape scales and includes five levels: ecozone, ecoregion, ecodistrict, ecosection and ecosite.

Ecoregion – the second level in the Nova Scotia ecological land classification system used to characterize a distinctive regional climate as expressed by vegetation. There are nine ecoregions identified in Nova Scotia.

Edaphic – refers to the influence of soil and site conditions on plant growth. In this guide, edaphic is used to express the dominance of site over climate in vegetation development.

Edaphic climax forest – results when a forest community cannot progress to the zonal climax due to local extremes in site conditions.

Edatopic grid – a two-dimensional diagram used to plot ecosystems (and subsequently ecosites) with respect to their relative moisture and nutrient regimes.

Ericaceous – plants in or related to the heath family (Ericaceae) usually found on acidic (nutrient poor) soils including *Kalmia spp.*, *Vaccinium spp.* and *Rhododendron spp.* (Dunster and Dunster 1996).

Epiphytic – refers to a plant (lichen) that grows on the outside of another plant in a non-parasitic relationship.

Even-aged – describes a forest, stand, or vegetation type in which relatively small age differences exist between individual trees.

Fluvial – a general term to describe stream or river processes which involve the transport and deposition of sediment (Dunster and Dunster 1996). When used in this guide, fluvial refers to all flowing water deposits regardless of age or time since deposition.

Forest – in this guide, sites which can (and normally do) support a minimum of 30% crown closure by trees.

Forest floor – a general term encompassing the layer of undecomposed organic matter (leaves, twigs and plant remains in various stages of decomposition) lying on top of the mineral soil (Dunster and Dunster 1996). Often referred to as the duff layer.

Frequent natural disturbance – see Natural disturbance regime.

Gap disturbance – see Natural disturbance regime.

Glacial till – see Parent material.

Glaciofluvial – see Parent material.

Gleyed – a soil condition achieved when soils are under water saturation and prolonged anaerobic conditions. It is a condition generally associated with high water tables or saturation over a relatively impermeable layer (Cauboue et al. 1996). Gleyed is an older term replaced by redoximorphic features (redox features) in more current literature.

Hardwood – See Coverttype.

Hybrid spruce – in Nova Scotia a natural cross between red spruce and black spruce displaying features of both.

Infrequent natural disturbance – see Natural disturbance regime.

Intermediate – in reference to shade tolerance, a condition between intolerant and tolerant. Also see Crown class.

Intolerant – refers to shade tolerance and defines a condition whereby trees are not capable of successfully growing beneath the shading canopy of other or similar species.

Karst – surface and subsurface features created by the dissolving of soluble rock such as limestone and gypsum which results in features such as caverns and sinkholes (Cauboue et al. 1996). In this guide, karst sites are limited to those which have gypsum or limestone bedrock exposures in addition to sinkholes and/or caverns.

Krummholz – scrubby and stunted growth form in trees, often forming a characteristic zone at the limit of tree growth in mountains (Cauboue et al. 1996) or along coastlines and high elevation plateaus.

Lacustrine – see Parent material.

Landscape – an expanse of land with landforms, land cover, habitats and natural features which are repeated in similar form and that, taken together, form a composite (Dunster and Dunster 1996).

Layering – a form of vegetative reproduction where a branch buried in the forest floor develops roots and becomes independent of the parent tree (Dunster and Dunster 1996).

Mafic – referring to igneous rock composed chiefly of dark, ferromagnesian minerals (AGI 1984) (i.e. basalt and gabbro).

Marine – see Parent material.

Matrix forest – a widespread forest community which dominates the landscape and forms the background in which other smaller scale communities occur (Thompson 2002).



Indian cucumber root

Mesic – describes sites with average moisture conditions for a given climate (Cauboue et al. 1996).

Microtopography – refers to the expression of mound and pit surface terrain within a forest stand, the main cause being the uprooting and subsequent decay of trees. In this guide, microtopography classes are:

Level: Few or no mounds, or mounds less than 0.3 m high.

Slightly: Mounds 0.3-1 m high and more than 7 m apart.

Moderately: Mounds 0.3-1 m high and 3-7 m apart.

Strongly: Mounds 0.3-1 m high and 1-3 m apart.

Severely: Mounds 0.3-1 m high and 0.3-1 m apart.

Extremely: Mounds more than 1 m high and more than 3 m apart.

Ultra: Mounds more than 1 m high and less than 3 m apart.

Mixedwood – See Coverttype.

Moisture regime – represents average moisture in the soil available for plant growth. It is assessed by integrating moisture supply (as related to climate) with soil drainage and moisture holding capacities.

Mottles – spots or blotches of different colours or shades of colours interspersed with the dominant background colour, usually the result of alternating aerobic and anaerobic soil conditions and indicative of restricted drainage (Cauboue et al. 1996). Mottle is an older term replaced by redoximorphic features (redox features) or redoximorphic concentrations (redox concentrations) in more current literature.

Mycorrhizal – the symbiotic relationship between the mycelium of a fungus and the roots of a host plant in which energy, water and nutrients flow between the two organisms.

Natural disturbance – a natural force that causes significant change in forest stand structure and/or composition such as fire, wind, flood, insect damage, or disease.

Natural disturbance regime – the frequency and type of natural disturbances that influence the arrangement of forested ecosystems and their biodiversity on a given landscape. Three disturbance regimes recognized in Nova Scotia are:

Frequent: Disturbances which result in the rapid mortality of an existing stand and the establishment of a new stand of relatively even-age. The time interval between stand initiating events typically occurs more frequently than the longevity of the climax species that would occupy the site - therefore, evidence of gap dynamics and understory recruitment is usually absent. This regime results in the establishment and perpetuation of early to mid successional vegetation types.

Infrequent: Stand initiating disturbances which result in the rapid mortality of an existing stand and the establishment of a new stand of relatively even-age but the time interval between disturbance events is normally longer than the average longevity of the dominant species – thereby allowing gap dynamics and understory recruitment to evolve and become evident (eventually creating uneven-aged stands). This regime generally leads to the establishment and/or perpetuation of mid to late successional vegetation types.

Gap replacement: Stand initiating disturbances are rare. Instead, disturbances are characterized by gap and small patch mortality, followed by understory recruitment, resulting in stands with multiple age classes. This regime generally leads to the establishment and/or perpetuation of late successional vegetation types.

Nutrient regime – represents the relative availability of nutrients in the soil for plant growth. Determination of nutrient regime requires consideration and integration of several environmental features including forest floor humus form, soil type, seepage class and ground water characteristics.

Old growth – climax forests in the late stage of natural succession, the shifting mosaic phase, marked by mature canopy processes of gap formation and recruitment from a developed understory. Typical characteristics include a multi-layered canopy of climax species containing large old trees, decadent wolf trees and abundant snags and coarse woody debris. In Nova Scotia stands older than 125 years are classed as old growth.

Open woodland – in this guide, upland sites which (due to natural disturbances and/or site conditions) are generally limited to less than 30% crown closure by trees.

Organic – A substance derived from living organisms or their products (Dunster and Dunster 1996). Also see Parent material.

Organic/Bedrock – see Parent material.

Overstory – refers to trees which occupy dominant, co-dominant and intermediate canopy positions.

Parent material – the unconsolidated and more or less chemically unweathered material from which a soil develops by soil formation (pedogenic) processes (Cauboue et al. 1996). Parent material types found in Nova Scotia include (adapted from ECSS 1983):

Aeolian: Material deposited by wind action. Aeolian deposits are usually high in silt and/or fine sand and may show internal structures such as cross-bedding.



fire scar on red pine

Alluvium: Sediments deposited by streams and rivers (floodplains, deltas, etc.). These deposits are younger than glacial deposits and may or may not contain rock (gravel/cobbles).

Colluvium: Deposits of sand, silt, clay, organic matter and/or rock which have reached their position by gravity-induced movement.

Glacial Till: Unstratified deposits of sand, silt, clay and rock which have been released from glacier ice. Some glacial deposits also have recognizable landform features such as drumlins.

Glaciofluvial: Deposits which were partly or wholly stratified by glacial meltwater. Glaciofluvial deposits are often high in sand and/or gravel.

Lacustrine: Sediments deposited in quiet waters (lakes and ponds) which may or may not have been directly associated with glaciers. These deposits tend to be high in silt and clay and generally do not contain rock.

Marine: Sediments deposited in salt or brackish water or through shoreline processes. Marine deposits are generally stratified, of variable texture, and may contain shells and gravel.

Organic: Built up plant debris which does not easily decompose because of high moisture and low soil temperatures.

Organic/Bedrock: Combination of upland organic over weathered, near-surface bedrock.

Till/Bedrock: Combination of thin glacial till over weathered, near-surface bedrock.

Patch forest – a discrete forest community nested within a matrix forest. Both large and small patches are associated with ecological processes or environmental conditions, but small patches usually have several processes and conditions come together in a very precise way (Thompson 2002).

Percent cover – is the vertical projection of tree crown or plant shoot area as a percentage of stand area (Dunster and Dunster, 1996).

Riparian – refers to terrain, vegetation, or simply position adjacent to or associated with a stream, floodplain, or standing waterbody (Cauboue et al. 1996).

Seepage – in this guide, all lateral subsurface water flow (includes precipitation and spring sources).

Senescence – generally, the process of aging in mature individuals (trees), typical toward the end of an organism's life (Dunster and Dunster 1996).

Sinkhole – a funnel-shaped depression common in karst topography caused by the dissolving of underlying limestone or gypsum bedrock.

Slope Gradient – describes the percentage of vertical rise relative to horizontal distance. Zero percent slope describes a level site and 100% slope equates to a 45 degree angle. In this guide, slope classes are:

Level 0-3% Gentle 4-15% Moderate 16-30%
Steep 31-60% Extreme >60%.

Slope Position – describes the relative slope position of a site within the landscape. Position classes are (adapted from ECSS 1983):

Crest: The generally convex upper most portion of a hill, it is usually convex in all directions with no distinct aspect.

Upper: The upper portion of a hill immediately below the crest - it has a convex surface profile with a specific aspect.

Middle: The area of a hill between the upper slope and lower slope with a specific aspect.

Lower: The area toward the base of a hill with a specific aspect.

Toe: The area below the lower slope usually demarcated by an abrupt leveling of the slope.

Depression: An area that is concave in all directions, generally at the foot of a hill or in a level area.

Level: Any level area not immediately adjacent to a hill. The surface profile is generally horizontal with no aspect. Level areas can be lower or upper elevations.

Snags – in this guide, dead trees larger than 7.5 cm in diameter at breast height (1.3 m) and standing at 45 degrees or more.

Softwood – See Covertyp.

Spring ephemerals – any of various species of wildflowers that bloom in the early spring for only a few weeks and then quickly die-back.

Stand – in the case of forests, a group of trees in a specific area which are sufficiently uniform in composition, age, arrangement and condition to be distinguishable from adjacent forest areas (Dunster and Dunster 1996).

Succession – an orderly process of community development that involves changes in species structure and community processes with time; it is reasonably directional and, therefore, predictable (Odum 1971).

Successional development – plant community development which proceeds through a number of distinct successional stages (e.g. early, middle, late) that replace one another in a predictable sequence.

Super canopy – a canopy position above the normal overstory/canopy layer.



Barred owl

Talus – a form of colluvium deposit, characterized by excessive surface stoniness, usually found at the base of steep slopes or cliffs (Dunster and Dunster 1996).

Talus slopes – a slope of about 35 degrees (the natural angle of rest for non-cohesive rock fragments) and underlain by talus (Dunster and Dunster 1996).

Temperate – having a climate intermediate between tropical and polar; moderate or mild in temperature; having four seasons.

Till/Bedrock – see Parent material.

Tolerant – refers to shade tolerance and defines a condition whereby trees are capable of successful growth and reproduction beneath the shading canopy of other or similar species.

Understory – refers to vegetation growing below the overstory grouped into three categories:

Shrub layer: Woody stemmed species and regenerating trees usually less than 2 m in height, but occasionally taller.

Herb layer: Dwarf woody plants plus ferns, club mosses and other herbaceous plants.

Bryophytes and Lichens: Mosses, hornworts, liverworts and lichens.

Uneven-aged – describes a forest, stand, or vegetation type in which intermingling trees differ markedly in age.

Vernal Pools – a seasonal body of standing water that typically forms in the spring from melting snow and other runoff, dries out in the hotter months of summer, and often refills in the autumn.

Wave forest – a wave-like pattern of dead and living trees found on highly exposed sites and created by wind damage and subsequent mortality.

Windthrow – a disturbance where a tree (or trees) has been uprooted by wind. Over time, windthrow leads to the development of mound and pit microtopography. Windthrow is synonymous with blowdown.

Zonal climax forest – results when a forest community reflects regional climate norms and is not unduly affected by local extremes in site conditions.

Zonal site – in this guide, a site with conditions that could potentially support establishment of a zonal climax forest.



False morel (Gyromitra spp.)