APPENDIX 5

Glossary of Technical Terms (Source: OMNR 2000)

A

abiotic factors. The non-living components of the environment, such as air, rocks, soil, water, peat and plant litter.

achene. A small, dry, non-splitting one-seeded fruit, with distinct seed attached to the ovary wall at only one point.

accipiters. Long-tailed hawks with short, rounded wings that fly with several short quick beats and a sail rather than soaring in circles high in the air.

acre. An imperial measure of land area equal to 43,560 square feet, 4046.7 m^2 or 0.4 ha.

advance growth. Young trees that have become established naturally in a forest before cutting or regeneration begin.

advanced regeneration. Trees that have become established naturally under a mature forest canopy and are capable of becoming the next crop after the mature crop is removed.

adventitious. Arising from unusual positions, as in buds on roots.

age.

- *of a tree*:
  - **breast height**: the number of annual growth rings between the bark and the pith, as counted at breast height.
  - **harvest**: the number of years required to grow from establishment to maturity.
  - **stump**: the number of annual growth rings between the bark and the pith, as counted at stump height.
  - **total**: the number of years elapsed since the germination of the seed or the budding of the sprout or root sucker.
- *of a forest, stand or forest type, the average of the trees comprising it*:
  - **harvest**: The number of years between the establishment and the final harvest of a forest crop.
  - **total**: The average total age of the trees comprising it.

age class. One of the intervals into which the range of age classes of trees in a stand are divided into for classification and use.

AGS - *acceptable growing stock*. Trees suitable for retention in the stand for at least one cutting cycle (15 to 25 years). They are trees of commercial species and of such form and quality as to be saleable for sawlog products at some future date.

all-aged. Applies to a stand that contains trees of all ages.

all-aged management. A system of growing forest trees in groups where the individual trees are not the same age (theoretically, an all-aged forest has trees scattered throughout that range in age from one year to the oldest tree, whatever its age may be).

allowable cut. The volume of wood that may be harvested, under management, for a given period.

annual ring. The growth layer of one year, as viewed on the cross section of a stem, branch, or root. One year's growth consists of a layer of lighter-coloured wood (springwood) and a layer of darker-coloured wood (summerwood).

ANSI - *areas of natural and scientific interest*. Areas of land and water containing natural landscapes or features that have been identified by the Ontario ministry of Natural Resources as having life science or earth science values related to protection, scientific study or education.

AOC - ***area of concern***. An area adjacent to an identified value that may be affected by some (or all) aspects of forest management activity.

aquatic system. Areas where water levels are greater than 2 m in depth.

artificial regeneration. Renewal of a tree crop by direct seeding or by planting seedlings or cuttings.

aspect. The direction towards which a slope faces.

asexual. Referring to any type of reproduction which does not involve the union of sex-cells (gametes).

audit. A formal examination of an organization's or individual's performance.

autecology. Autecology refers to the study of the ecology of a single species. It refers to information on the biological behaviour of a plant species essential to understanding its growth, reproduction and response to disturbance and essential to choosing appropriate silvicultural treatments. It includes information about a species: habitat requirements, modes of reproduction, phenology, and response to disturbance.

B

basal area.

- *of a tree*:

  the cross-sectional area of the bole of a tree, 1.3 m above the ground. Basal area = diameter of tree (cm) squared, times 0.00007854. (Expressed in m_2).

- *of a stand of trees*:

  the sum of all the individual tree basal areas for a given land area. Commonly expressed as m_2/ha.

berry. A pulpy, non-splitting fruit developed from a single pistil and containing one or more seeds.

biodiversity - ***biological diversity***. The variety and variability (in time and space) among living organisms and the ecological complexes in which they occur.

biomass. The dry weight of all organic matter in a given ecosystem. It also refers to plant material that can be burned as fuel.

biota. All living organisms of an area, taken collectively.

blowdown (**windthrow**). Uprooting by the wind. Also refers to a tree or trees so uprooted.

board foot (bd. ft.). A volume measure of lumber, being one foot wide, one foot long and one inch thick.

bole. The main trunk of a tree.

breast height. The standard height, 1.3 m above ground level, at which diameter of a standing tree is measured.

broadleaf. ***see*** *hardwood.*

browse. Small bushes, sprouts, herbaceous plants, small trees, etc. that wildlife feed on.

brush. Commonly refers to undesirable shrubs and other low-lying vegetation.

buck. Cutting a felled tree into specified log lengths for yarding and hauling; also, making any bucking cut on logs.

buffer. A zone or strip of land that shields one area from another. Commonly used along streams or as visual barriers

bumper tree. A poor-quality, low-value tree that grows in close proximity to higher-value trees. Skid roads should be located next to bumper trees in order to protect residual trees from damage during a logging operation.

burl. An abnormal growth on a tree stem, with wood tissue growing in an irregular pattern. Usually circular in shape, these growths are widely sought for their interesting grain pattern.

butt. The base of a tree or log.

C

caliper. An instrument used to measure diameters of trees or logs. It consists of two parallel arms at right angles to a graduated rule, with one arm that slides along the rule.

calyx. The outermost group of floral parts.

cambium. A layer of cells between the woody part of the tree and the bark. Division of these cells results in diameter growth of the tree through formation of wood cells (xylem) and inner bark (phloem).

Canadian Shield. The Precambrian-aged, continental mass of the earth's crust centred on the Hudson Bay area, and which is comprised of mostly crystalline rocks in comparison with the surrounding younger, mostly stratified rock.

canker. Dead area of a branch or stem caused by fungal or bacterial attack.

canopy. A collective term for the layer formed by the crowns of the taller trees in a forest.

canopy closure. The progressive reduction of space between crowns as they spread laterally, increasing canopy cover.

canopy gap. A hole in the forest canopy that allows light penetration to the forest floor. Can be formed by naturally falling trees, standing dead trees and logging practices.

capsule. A dry, usually many seeded fruit that splits at maturity to release its seeds.

Carolinian species. A species whose range is restricted entirely to the Carolinian zone.

Carolinian zone. Also known as the Deciduous Forest Region of Canada and recognized as one of the most significant and threatened landscapes in the country.

caryopsis. A simple, dry, one-sided, non-splitting fruit with seed firmly attached to the entire ovary wall.

catkin. A scaly spike bearing inconspicuous and usually unisexual flowers.

cavity. An unfilled space within a mass, a hollowed out space. In forestry and wildlife there are several categories of cavity trees, each with their own importance in the ecosystem:

Pileated woodpecker roost cavities: First priority for retention are living or standing dead trees with cavities used by pileated woodpeckers for roosting. These are usually large (40+ cm DBH) diameter trees that are hollow and have at least two excavated entrance holes. These holes are somewhat oval, about 7.5 to 10 cm wide and 10 to 12.5 cm high. Holes are symmetrically oval, smooth edged and deep.

Pileated woodpecker nest cavities: Second priority for retention are living trees with cavities used by pileated woodpeckers for nesting. These are usually large (40+ cm DBH) diameter trees in which pileated woodpeckers have excavated one or more nest chambers and associated entrance holes. Nest and roost trees can be distinguished by the number of entrance holes and tree condition. Roost trees may have 2 to 10+ entrance holes and entrance holes may be less than 1 m apart. Condition is probably the best clue to separate nest and roost trees. Pileated woodpeckers excavate nest cavities in trees with white spongy heart rot (not trees with existing hollows). Roost cavities are in hollow trees (look for seams, barreling, etc. to indicate hollowness).

Other woodpecker nest cavities or natural nest or maternal den cavities: The third priority for retention are living trees with cavities excavated by other woodpeckers (e.g. yellow- bellied sapsucker, hairy woodpecker, northern flicker) for nesting or cavities suitable for nesting or denning (by secondary cavity users) that formed from natural decay processes.

Escape cavity: The fourth priority for retention are living trees with natural cavities that provide temporary shelter, escape from predators, food-caching sites, or resting/loafing/roosting sites. They are not ideal for nests or dens because of location, size, entrance hole size, or orientation.

Feeding cavity: The fifth priority for retention are living trees with feeding excavations created by woodpeckers in search of food. They are generally rectangular, semi-circular, or irregular. Holes do not typically enlarge into chambers suitable for nesting or escape. Edges and surfaces tend to be rough.

Potential cavity tree: Trees with potential to attract excavators or develop natural cavities. Typically they have evidence of advanced heart rot. These living trees are retained when situations arise in areas that do not have at least 6 existing cavities per hectare left after tree marking.

cleaning. Elimination or suppression of competing vegetation from stands not past the sapling stage; specifically, removal of:

- weeds, climbers, or sod-forming grasses, as in plantations; or
- trees of similar age or of less desirable species or form than the crop trees, which they are, or may soon be, overtopping.

clearcut. An area on which the entire timber stand has been harvested. ***see*** *reproduction methods.*

clear-length. Branch-free length of the bole.

climax vegetation. The final stage of natural plant succession, in which the plant composition remains relatively stable.

clone. All plants reproduced asexually from a common ancestor and having identical genotypes. (genetically identical to the parent plant) (e.g. from cuttings or suckers).

codominant trees. Trees with crowns forming the general level of the crown cover and receiving full light from above, but comparatively little from the sides; usually with medium size crowns. ***see*** *crown class.*

commercial thinning. Removing trees from a developing young stand, so that remaining trees will have more growing space; dead and dying trees will be salvaged; and the operation will make a net profit.

community. An integrated group of species inhabiting a given area and influencing one another's distribution, abundance and evolution.

Community Series I. Level 3 of the Ecological Land Classification system that describes various communities such as forests, swamps, savannahs according to their respective patterns of dominant species, substrate type, geology, microclimate, and other ecological factors.

Community Series II. Level 4 of the Ecological Land Classification system that describes communities that can normally be recognized on aerial photographs or from a combination of maps, aerial photograph interpretation, and other remote sensing techniques.

competition. The general struggle for existence within a trophic level in which the living organisms compete for a limited supply of the necessities of life.

composition. The representation of tree species in a forest stand, expressed quantitatively as per cent by volume or basal area of each species.

cone. The male or female reproductive organs of conifers.

conifer. A tree belonging to the order Coniferae, usually evergreen with cones, needle-shaped leaves and
producing wood known commercially as 'softwood.'

conk. A hard, spore-bearing structure of a wood-destroying fungus that projects beyond the bark of a tree.

conservation. In forestry, the wise use of natural renewable resources. A key idea for understanding 'conservation' is 'use' by people.

conventional ground skidding. Any combination of rubber-tired or tracked skidding equipment.

coppice. A shoot (sprout) originating from a stump.

cord. 128 cubic feet of stacked roundwood (whole or split, with or without bark) containing wood and airspace, with all the pieces of similar length and lined up on approximately the same direction. i.e. a pile of firewood 4'x 4' x 8'.

corridor. A band of vegetation, usually older forest, which serves to connect distinct patches on the landscape. Corridors provide connectivity, which permits the movement of plant and animal species between what would otherwise be isolated patches.

cover. Vegetation or other material providing protection. Plants or objects used by wild animals for nesting, rearing of young, resting, escape from predators, or protection from adverse environmental conditions.

critical wildlife habitat. Part or all of a specific place occupied by a wildlife species or a population of such
species and recognized as being essential for the maintenance of the population.
crook. A defect in logs and poles or pilings, consisting of an abrupt bend. Also refers to edgewise warp in a piece of lumber.
crop tree. A tree selected in a young stand, to be retained until final harvest.
crotch. The fork of a tree or branch.
crown. The branches and foliage of a tree.
crown class. A designation of trees in a forest with crowns of similar development and occupying similar
positions in the crown cover. Differentiation into crown classes applies to even-aged stands and within small even-aged groups in which trees in an uneven-aged stand are often arranged. Five crown classes are commonly recognized: dominant, codominant, intermediate, overtopped (suppressed), and wolf trees.
crown closure. The time at which the available crown space has become fully occupied.
crown cover. The canopy of green leaves and branches formed by the crowns of all trees in a forest. Generally expressed as a per cent of total area.
crown density. The compactness of the crown cover of the forest; depends on the distance apart and the
compactness of the individual crowns. A loose term combining the meanings of 'crown closure' and ' shade density.'
crown touching method. Each crop tree receives a full crown release by eliminating adjacent trees that touch the crop tree crown by cutting or by killing the these trees through girdling or herbicides.
cruising. Measuring standing trees to determine the volume of wood on a given tract of land. Used for harvesting, purchasing and general management.
cubic meter (m^3). A volume measure, 1 m by 1 m by 1 m.
cull. A tree or log of merchantable size rendered unmerchantable because of poor form, large limbs, rot, or other defects.
cull tree. A live tree of merchantable size but unmerchantable because of defects or decay.
cutting area. A portion of woodland on which timber is being cut or will be cut.
cutting cycle. The planned interval between major harvesting operations in the same stand. A 20-year cutting cycle indicates a harvest is done once every 20 years.

D

DBH - ***diameter at breast height***. The diameter of a tree outside of the bark at roughly breast height. Normally measured 1.3 m off the ground on the uphill side of the tree. It is easier to measure at this height and many trees have large swells in the stem below this point that could increase errors in computing tree volumes.
deciduous. Term applied to trees (commonly broad-leaved trees) that drop all their leaves sometime during the year.

decline causing defects. Mechanical or pathological defects that may cause decline or cause the tree to be of high risk. These defects will also cause the decline of the products which may be recovered from a tree or severely limit the potential of a tree to produce anything better than low-value products.

defect. Any irregularity or imperfection in a tree, log, piece, product, or lumber that reduces the volume of sound wood or lowers its durability, strength, or utility value.

defect class. A system of categorizing tree defects by severity of degradation of the tree and/or the merchantable portion of the tree over time:

- **major defect**: The tree will degrade rapidly.
- **moderate defect**: The tree will degrade slowly.
- **minor defect**: The tree will maintain quality over cutting cycle period.

defoliator. An agent that damages trees by destroying leaves or needles.

den tree. A tree having a hollow or cavity used by animals for refuge or hibernation.

dendro-ecology. The study of annual growth rings of trees to assess the conditions in which a tree has grown (an application to assess ecosystem health).

determinate growth. Also known as 'fixed' shoot growth, refers to shoot growth pattern where growth occurs through elongation of pre-formed stem parts, or 'stem units' after a rest period. In determinate tree species, shoot formation involves differentiation in the bud the first year (n) and extension of the preformed parts into a shoot during the second year (n +1). In determinate species, the growing season during bud formation largely determines the potential size of shoot and number of leaves formed the following year. Examples: white and red pine, spruces, fir, beech.

diameter class. One of the intervals into which the range of diameters of trees in a forest is divided for purposes of classification and use. Generally this is done in 2 cm, even increments (40 cm class would contain trees from 39.1 to 41.0 cm)

diameter limit. The smallest (occasionally the largest), size to which trees or logs are to be measured, cut, or used. The points to which the limit usually refer are stump, breast height, or top.

diameter-limit cutting. A system of selection harvest based on cutting all trees in the stand over a specified
diameter. This eliminates marking individual trees. This is not a recognized silvicultural system in Ontario.

dioecious. Producing male and female reproductive organs on separate plants. Each plant is either male or female.

disease. Harmful deviation from normal functioning of physiological processes, generally pathogenic or
environmental in origin.

dominant trees. Trees with crowns extending above the general level of the crown cover and receiving full
light from above and partly from the side; larger than the average trees in the stand, with crowns well developed, possibly somewhat crowded on the sides. ***see*** *crown class*.

dormancy.

- A biological process in which a plant ceases most growth activities and simply maintains existing tissue. Caused by periods of moisture and/or temperature stress.
- A state of reduced activity in seeds that prevents germination under favorable environmental conditions.

downed woody debris (**DWD**). Sound and rotting logs and stumps that provide habitat for plants, animals and insects and a source of nutrients for soil development.

drumlin. Elongated oval or 'whale-back' ridge of deep molded glacial till formed during ice advance and with long axis parallel to ice movement.

drupe. A fleshy, usually one-seeded fruit whose seed is completely enclosed in a hard, bony endocarp.

dry rot. A decay of the "brown rot" type, caused by specialized fungi capable of conducting moisture from an available source and extending their attack to wood previously too dry to decay. Found chiefly in buildings. The term is open to the misinterpretation that wood will rot when dry, which is not true.

duff. Forest litter and other organic debris in various stages of decomposition on top of the mineral soil; typical of coniferous forests in cool climates, where rate of decomposition is slow and where litter accumulation exceeds decay.

E

ecology. The science that deals with the interaction of plants and animals with their environment.

Ecological land Classification (**ELC**). A system devised by OMNR to describe over 80 wetland and terrestrial forest vegetation types in southern Ontario. This preliminary community classification system has six different organizational levels.

ecosite. The fifth organizational level that identifies a site based on bedrock type, soil depth, texture, and
moisture regime, hydrology, drainage, nutrient regime, and vegetation structure and species composition.

ecosystem. A functional unit consisting of all the living organisms (plants, animals and microbes) in a given area, and all the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow. An ecosystem can be of any size—a log, pond, field, forest, or the earth's biosphere—but it always functions as a whole unit. Ecosystems are commonly described according to the major type of vegetation, for example, forest ecosystem, old-growth ecosystem, or wetland ecosystem.

ecosystem management. The use of an ecological approach to achieve productive resource management by blending social, physical, economic and biological needs and values to provide healthy ecosystems.

edge. The transitional zone where one cover type ends and another begins.

endangered species. A species of native fish, wildlife, or plants found to be threatened by extinction because its habitat is threatened with destruction, drastic modification, or severe curtailment, or because of over-exploitation, disease, predation, or other factors its survival requires assistance.

endocarp. The inner wall layer of a ripened ovary.

environment. All elements living and inanimate, that affect a living organism.

ESAs -*environmentally sensitive areas*. A general term for natural areas whose significance has been assessed on the basis of a series of qualitative criteria applied on a local or regional basis by municipalities, conservation authorities or others.

epicormic sprout. A branch rising spontaneously from an adventitious or dormant bud on the stem or branch of a woody plant.

epidemic. Widespread insect or disease incidence beyond normal proportions; usually accompanied by excessive damage.

even-aged. The conditions of a forest or stand composed of trees having no, or relatively small, differences in age, although differences of as much as 30 per cent are admissible in rotations greater than 100 years of age.

even-aged management. The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. The difference in age between trees forming the main canopy level of a stand usually does not exceed 20 per cent of the age of the stand at maturity. Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Cutting methods producing even-aged stands are clearcut, shelterwood, or seed-tree.

exotic. Not native; foreign.

F

felling and bucking. The process of cutting down standing timber and then cutting it into specific lengths for yarding and hauling.

final cutting. The removal of seed or shelter trees after regeneration has been effected, or removal of the entire crop of mature trees under a clearcut silvicultural system.

fire scar. An injury or wound in the bole of a tree caused or accentuated by fire.

fish habitat. Spawning grounds and nursery, rearing food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.

fixed area plot sampling method. A controlled cruise method where small plots of a fixed size are used to

sample a portion of a forest area to obtain information (such as tree volume) that can be used to describe the whole area.

fluxing. An abnormal discharge from a crack or seam.

forb. A small herbaceous plant, unlike grass.

forest. A plant community predominantly of trees and other woody vegetation, growing more or less closely together; An area managed for the production of timber and other forest products, or maintained under woody vegetation for such indirect benefits as protection of site or for recreation.

forest management. The application of business methods and technical forest principles to the management of forest property.

forest survey. An inventory of forest land to determine size, condition, timber volume and species, for specific purposes or as a basis for forest policies and programs. Also refers to carefully measuring and marking property boundaries.

forest type. A descriptive term used to group stands of similar character in composition and development, to differentiate them from other groups of stands.

forestry. The science, art and practice of managing and using for human benefit the natural resources that occur on and in association with forest lands.

form. The shape of a log or tree.

form class. A measure of bole taper derived by dividing diameter inside bark at a given height (usually 5.2 or 10.4 meters) by DBH. These values are often required to use tree-volume tables.

forwarder. A machine used to move short log lengths from the stump to the landing, often in a carrier that keeps the logs off of the ground.

fragmentation. The process of transforming large continuous forest patches into one or more smaller patches surrounded by disturbed areas. This occurs naturally through such agents as fire, landslides, windthrow and insect attack. In southern Ontario, agriculture and development have contributed to forest fragmentation.

free-to-grow. A condition in which a forest is considered established based on a minimum stocking standard, a minimum height and freedom from competition that could impede growth.

frost crack. Longitudinal crack on the outside of a tree, caused by extreme cold. Especially common on thinbarked species.

fruiting body. ***see*** *conk.*

fuelwood. Trees used for the production of firewood logs or other wood fuel.

full-tree harvesting. A tree harvesting process that includes removing the trunk, branches and in some instances the roots from a forested site. In Canada this process is used to control root diseases.

fungus. A plant without chlorophyll that derives its nourishment from the organic matter of other plants.

G

gall. A pronounced localized swelling of greatly modified structure that occurs on plants from irritation by a
disease or insect.

gallery. A passage or burrow, excavated by an insect under bark or in wood for feeding or egg-laying purposes.

gap. A site at which a canopy tree has died and at which active recruitment of new individuals into the canopy is occurring.

gap phase replacement. Refers to the dynamic ongoing process in undisturbed tolerant hardwood stands in which canopy gaps are continually created by the death or destruction of mature trees. The gap becomes the site of increased regeneration and survival and eventually is occupied by trees reaching into the upper canopy.

gene pool. Sum of all genes among scattered populations of a given species.

genetic diversity. The diversity of genes among members of the same species or population.

genotype. The entire genetic constitution, or the sum total of genes of an organism. The genotype interacts with the environment to produce an individual whose appearance is referred to as the phenotype.

germination. The resumption of active growth in the embryo of a seed, as demonstrated by the protrusion of a radicle (embryonic root axis).

girdle. To encircle the stem of a living tree with cuts that completely sever bark and cambium and often are carried well into the outer sapwood, done to kill the tree by preventing the passage of carbohydrates to the roots. Also refers to same process caused by animals, such as mice or beavers.

glaze damage. Damage to tree caused by ice or frost.

gley. A blue-gray colour in soil due to the reduction of iron. Formed in a process characterized by low oxygen conditions due to water logging. If water logging is seasonal rather than permanent, the periodic oxidation will give rise to mottles.

GMV - *gross merchantable volume.* Volume of main stem of tree(s), not including stump and top (includes
volume associated with stain or decay).

grade.

- A system of classifying lumber or logs according to quality.
- The steepness of a forest road.

grain. A small hard seed or seed-like fruit, as for any of the cereals.

GTV - *gross total volume*. Volume of the main stem of the tree including stump and top. Volume of the stand including all trees.

group selection. Modification of the selection system in which trees are removed in small groups rather than as individuals.

GDD - *growing degree days*. Accumulated number of degrees of mean daily temperature above a base temperature of 5.5 ^{o}C. This provides an index, which is used to estimate the growth and development of plants and insects during the growing season.

growing stock. The sum, by number or volume, of all the trees in a forest or a specified part of it.

growth. The increase in diameter, basal area, height or volume of individual trees or groups of trees during a given period.

growth rate. With reference to wood, the rate at which wood has been added to the tree at any particular point, usually expressed in the number of annual rings per centimeter. May also be stated as “annual leader growth.”

guild. Species which are grouped together because of common strategies and/or use of areas for life cycle stages.

H

habitat. The environment in which the plant or animal lives.

hardwood.

- Generally, one of the botanical group of trees that have broad leaves, in contrast to the needle-bearing conifers.
- Wood produced by broad-leaved trees, regardless of texture or density.

harvest. Extraction of some type of product from the forest. Generally associated with a cutting.

heart rot. A decay characteristically confined to the heartwood. It usually originates in the living tree.

heartwood. The inner core of a woody stem, wholly composed of non-living cells and usually differentiated
from the outer enveloping layer (sapwood) by its darker colour.

hectare (ha). An area measure of 10,000 square meters. Basic unit of land area.

herb. A non-woody flowering plant.

hibernacula. Caves and mines (bats), subterranean areas below the frost line (reptiles) with openings to above ground where these animals can safely hibernate during the winter months.

high grading. The removal from the stand of only the best trees or tree species, often resulting in a poor quality residual stand.

hip. The fleshy, false fruit of the rose.

humus. The plant and animal residues of the soil (litter excluded) that have decomposed to the point where their origin is no longer recognizable.

hydric. A general term for soils that develop under conditions of poor drainage in marshes, swamps, seepage areas or flats.

I

ice damage. Breakage of tops and branches and stripping of branches and needles by an ice storm.

immature. Trees or stands that have grown past the regeneration stage, but are not yet mature.

improvement cutting. The elimination or suppression of less valuable trees in favor of more valuable trees,
typically in a mixed, uneven-aged forest.

increment. An increase in the diameter, basal area, height, volume, quality, or value of individual trees or stands over time.

- **Current Annual Increment** (**CAI**): Growth increment in a given year of the diameter, basal area, height or volume for a given tree or group of trees.
- **Mean Annual Increment** (**MAI**): The average annual increment for the total age of the diameter, basal area, height or volume for a given tree or group of trees.

increment core. That part of the cross section of a tree extracted by an increment borer. Used to determine tree age and growth.

indeterminate growth. Also known as “free” shoot growth, involves elongation of a shoot by simultaneous
initiation and elongation of new stem units. Indeterminate species exhibit continuous shoot growth as long as the environment is suitable. Examples: poplar, some maples, birch.

indicator species. Species of plants used to predict site quality and characteristics.

infection courts. Paths by which insects and disease can enter a tree, leading to defect and decay (e.g. wounds)

inflorescence. A floral axis with its appendages.

intermediate trees. Trees shorter than those in the dominant or codominant classes, but with crowns either below or extending into the crown cover formed by codominant and dominant trees; receiving a little direct light from above, but none from the sides; usually with small crowns, considerably crowded on the sides. ***see*** *crown class*.

intolerance. Trees unable to survive or grow satisfactorily under specific conditions, most commonly used with respect to their sensitivity to shade but also to conditions such as wind, drought, salt and flooding.

invasive exotic species. An invasive exotic species is a non-native plant or animal that threatens the survival of native species.

K

knot. That part of a branch that has been incorporated into the main stem.

L

landing. The area where logs are collected for loading for transport to a mill.

landscape. All the natural features, such as fields, hills, forests and water that distinguish one part of the Earth’s surface from another part; usually that portion of land or territory which the eye can comprehend in a single view, including all of its natural characteristics.

layering. The rooting of an undetached branch, lying on or partially buried in the soil or other forest floor media, that is capable of independent growth after separation from the parent plant.

leader. The growing top (terminal shoot) of a tree. The distance up the main stem of the tree between each whorl of branches generally represents one year of height growth.

leave tree. Tree left in or just outside a harvest zone (often otherwise a clearcut) to re-seed the area. This is nature’s method of reforestation; but it is often slower and it does not have the more assured results of direct seeding or planting. May also refer to trees left after a thinning.

litter. The uppermost layer of the soil, made up of freshly fallen or slightly decomposed organic materials.

littoral zone. Shallow shoreline areas of a waterbody where light penetrates to the bottom and is often accompanied by rooted aquatic plants.

live crown ratio (**LCR**). The length of the crown as a ratio of the total height of the tree, usually expressed as a per cent.

log.

- To cut and deliver logs.
- A tree segment suitable for lumber and other products.

logger. A person who is engaged in a logging operation; locally, one who moves logs to landings or skidways.

log rule. A table showing the estimated or calculated amount of lumber that can be sawn from logs of given length and diameter.

log scale. The lumber content of a log as determined by a log rule.

M

management plan. A written plan for the organized handling and operation of a forest property. It usually
includes data and prescribes measures designed to provide optimum use of forest resources according to the landowner's objectives.

marking timber. Selecting and indicating, usually by a paint mark, trees to be cut or retained in a harvesting or tending operation.

mast. The fruit and nuts of trees and woody shrubs used as a food source by wildlife.

mast trees. Trees supporting mast production, e.g. oak, beech, cherry.

maturity. For a given species or stand, the approximate age or condition beyond which the growth rate declines or decay begins to assume economic importance.

MAI - *mean annual increment*. The average annual increase in volume of individual trees or stands up to the specified point in time. The MAI changes with different growth phases in a tree's life, being highest in the middle years and then slowly decreasing with age. The point at which the MAI peaks is commonly used to identify the biological maturity of the stand and its readiness for harvesting.

mechanical site preparation. Any activity that involves the use of mechanical machinery to prepare a site for reforestation.

merchantable. That part of a tree that can be manufactured into a salable product.

merchantable height. The length of the tree stem from the top of the stump to the top of the last merchantable section. Usually expressed in meters or number of logs.

merchantable length. Length of the tree from which could be produced a merchantable product under given economic conditions.

merchantable timber. A tree or stand of trees that may be converted into salable products.

merchantable volume. The amount of wood in a single tree or forest stand that is considered salable.

mesic. Describing the sites that are neither humid (hydric) nor very dry (xeric). The average moisture conditions for a given climate.

meter (m). Measure of length equal to 100 cm.

metric chain. A 20 m measure.

microclimate. Generally the climate of small areas, especially insofar as this differs significantly from the
general climate of the region. Stands often create microclimates.

microsite. A portion of a site that is uniform in microtopography and surface soil materials. It can range in
size from less than 1 m^2 to occasionally over 5 m^2. Microsites are dynamic in that their characteristics are everchanging, imperceptibly or suddenly.

mineral soil. Soil consisting predominately of, and having its properties determined by, inorganic matter.
Usually contains less than 20 % organic matter.

monoecious. Bearing separate male and female flowers on the same tree.

mortality. Death of forest trees as a result of competition, disease, insect damage, drought, wind, fire and other factors.

mottles. Spots or blotches of different colour or shade of colour interspersed with the dominant soil colour,
usually the result of alternating aerobic and anaerobic soil conditions and indicative of poor drainage. In
surveying soils, the colour of the matrix and the principal mottles, and the pattern of mottling are noted. The latter is indicated in terms of abundance (few, common, many), size (fine, medium, coarse), and contrast with the matrix (faint, distinct, prominent). The depth of mottles in soils of different types is a diagnostic indication if moisture regime.

mycorrhiza. A rootlet of a higher plant modified through integral association with a fungus to form a constant structure that differs from either component but is attached to the root system and functions somewhat as a rootlet. It is usually considered to be beneficial to the associated plant.

N

natural regeneration. The renewal of a forest stand by natural seeding, sprouting, suckering, or, layering seeds may be deposited by wind, birds, or, mammals.

natural thinning. Death of trees in a stand as a result of competition.

needle cast. Premature browning and dropping of needles caused by a fungus.

NMV - ***net merchantable volume***. The result of removing volume associated with stain or decay from the gross merchantable volume or trees of cut timber.

nurse tree (**crop tree**). A tree or crop of trees, shrubs, or, other plants that foster another, generally a more
important, tree or crop.

nut. A dry, non-splitting, one-seeded fruit with a woody or leathery outer surface, often encased in a husk.

nutlet. A small nut.

O

old growth. A relatively old forest that little or no evidence of human disturbance. This term is misapplied by many to describe any forest that appears to be old. Individual trees in this type of forest are usually over 200 years old and there are large standing and fallen dead trees throughout the stand.

operation. Used interchangeably for logging jobs, harvesting, cutting, milling, etc. An all-inclusive term for
harvesting and hauling out the forest products.

organic litter. The layer of decomposing leaves, bark, twigs and other organic debris that lies on the forest
floor.

organic soil. Soil containing a high proportion (greater than 20 or 30 per cent) of organic matter.

overmaturity. That period in the life cycle of trees and stands when growth or value is declining.

overstocked. A condition of the stand or forest, indicating more trees than desired, normal, or full stocking would require.

overstory. That portion of the trees in a stand forming the upper crown cover.

overtopped tree. Trees with crowns entirely below the general level of the overstory cover, receiving no direct light either from above or from the sides. Also known as suppressed. ***see*** *crown class*.

P

partial cutting. Refers generically to stand entries, under any of the several silvicultural systems, to cut selected trees and leave desirable trees for various stand objectives. Partial cutting includes harvest methods used for seed tree, shelterwood, selection and clearcutting with reserves systems.

patch cutting. A silvicultural system that creates openings less than 1 hectare in size and is designed to manage each opening as a distinct even-aged opening.

per cent grade.

- The vertical rise of land in 100 horizontal units. A 16 % grade means that in 100 m horizontal, the elevation has changed 16 m.
- Amount of forest volume found to be in a given log grade.

perfect. Having both functional male and female reproductive organs.

pest. A plant, animal, or thing that is troublesome or annoying (from a human value perspective).

phenology. Study of the relations between seasonal climatic changes and periodic biological phenomena, such as the flowering and fruiting of plants.

pH. A measure of the hydrogen ion on a scale of 0 (very acidic) to 14 (very basic). A pH value of 7 is neutral. Every change in one unit of measure indicates a 10x change in the quantity of hydrogen ions (e.g., a pH of 5.0 is 10x more acidic than a pH of 6.0 and 100x more acidic than a pH of 7.0).

phenotype. The visible characteristics of a plant. The product of the interaction of the genes of an organism (genotype) with the environment.

phloem. The tissues of the inner bark, characterized by the presence of sieve tubes and serving for the transport of elaborated foodstuffs.

photosynthesis. The conversion by green plants of light, water and air into food energy.

physiographic system. A system that comprises the inorganic portion of the environment outside of the works of man.

pioneer (**botanical**). A plant capable of invading bare sites (that is, a newly exposed soil surface) and persisting there until supplanted by successor species. A species planted to prepare a site for such successor species and therefore, a nurse crop.

plantation. An artificially reforested area established by planting or by direct seeding.

plot. A carefully measured area laid out for experimentation; may be permanent or temporary.

point sampling. A method of selecting trees for measurements and of estimating stand basal area at a sample location or point sample. Also called plotless cruising, angle count method. A 360₀ sweep is made with an angle gauge about a fixed point and the stems with breast height diameters appearing larger than the fixed angle subtended by the angle gauge are included in the sample.

pole.

- A young tree between 10 and 25 cm in DBH.
- A log cut for the manufacture of utility poles (usually trees larger than 30 cm DBH).

polewood. Trees with a DBH between 10 and 25 cm.

pome. The apple-pear type of fruit, in which the true fruits are surrounded by an enlarged fleshy calyx tube and receptacle.

population sink. A habitat insufficient in size or resources to support a viable population of a species, yet which may attract dispersing individuals.

precommercial thinning. Removal of some of the trees in a young stand to reduce competition for water,
nutrients and light and to accelerate commercial growth on remaining trees. Trees thinned from these stands have no commercial value.

pre-harvest silviculture assessment (**survey**). The survey carried out on a stand prior to logging to collect
specific information on the silvicultural conditions such as planting survival, free-growing status, stocking, etc.

pre-harvest silviculture prescription. A document that applies site-specific field data and develops forest
management prescriptions for areas in advance of logging.

preparatory cutting. The removal of trees near the end of a rotation, which permanently opens the canopy and enable the crowns of seed bearers to enlarge, to improve conditions for seed production and natural regeneration. Typically done in the shelterwood system.

prescribed burning. The knowledgeable application of fire to a specific unit of land to meet predetermined
resource management objectives.

prescription. A course of management action prescribed for a particular area after specific assessments and evaluations have been made.

primary excavator (**tree cavity**). Animals that excavate their own cavities.

prism. A wedge-shaped piece of clear or amber-coloured glass that is used to select trees for timber sampling or to estimate basal area.

pruning. The removal of live or dead branches from standing trees, usually the lower branches of young trees and the removal of multiple leaders in plantation trees, for the improvement of the tree or its timber; the cutting away of superfluous growth, including roots, from any plant to improve its development. ***see*** *self-pruning.*

pulpwood. Wood cut or prepared primarily for manufacture into wood pulp, for later manufacture into paper, fibreboard, or other products.

punky. A soft, weak, often spongy condition in wood; caused by decay.

Q

Q-value. The relationship between number of trees and diameter classes in an uneven-aged hardwood stand is a reversed J-shaped curve. The q-value is one mathematical expression of the shape of this curve. Quotients (q-value) can be calculated by dividing the number of trees in each DBH class by the number of trees in the next larger DBH class. The average of these quotients is the q-value for the stand.

quadratic mean diameter (**DBHq**). Diameter of the tree of average basal area calculated as follows:

$DBHq = (1/N) * d_{i2}$

where

N = the number of trees sampled

d_i = the diameter at breast height (DBH) of tree i

R

radial check. A basal seam created by overgrowth of a persistent dead companion sprout (may represent a grading defect).

radicle (root). The seed contains a radicle or root meristem in the embryo from which the first tap root develops.

raptor. A bird of prey.

receptacle. The end of the flower stalk on which floral parts are borne.

Recovery Plan. A plan developed specifically for a species at risk with the primary goals being to ensure the species does not become extirpated in Canada and that population numbers increase sufficiently to allow for its recovery.

recruitment. Process of maintaining, restoring, or increasing the seedling and sapling component of a stand.

reforestation. The natural or artificial restocking of an area with forest trees.

regeneration. The renewal of a tree crop whether by natural or artificial means. Also the young crop itself which commonly is referred to as reproduction.

release. Freeing a tree or group of trees from competition by cutting or otherwise eliminating growth that is

overtopping or closely surrounding them.

removal cut. One or more cuts in the shelterwood system that releases established seedlings. The last removal cut is called the final removal cut.

reproduction.

- The process by which a forest is renewed:
  - **artificial**: Renewal by direct sowing or planting.
  - **natural**: Renewal by self-sown seeds, sprouts, rhizomes, etc.
- Seedlings or saplings of any origin.

reproduction methods.

- **clearcutting**: Removal of the entire forest in one cut. This method perpetuates even-aged stands.
- **seed-tree**: Removal of the mature timber in one cut, except for a small number of seed trees; called a group cutting when the seed trees are left in groups, a reserve cutting when specifically selected seed trees are left for growth, as well as to furnish seed.
- **selection**: Removal of mature timber, usually the oldest or largest trees, either as single scattered trees or in small groups at relatively short intervals, commonly 15 to 25 years, repeated indefinitely. This encourages a continuous establishment of natural reproduction and an uneven-aged stand is maintained.
- **shelterwood**: Removal of the mature timber in a series of cuttings, which extend over a period of years. Usually equal to not more than one-quarter (often not more than one-tenth) of the time required to grow the crop. The establishment of natural reproduction under the partial shelter of seed trees is encouraged, but sometimes these areas must be artificially regenerated.
- **coppice**: Forest regeneration by sprouting (vegetative reproduction) from stumps or roots.

reserve. An area of forest land that, by law or policy, is not available for harvesting. Areas of land and water set aside for ecosystem protection, outdoor and tourism values, preservation of rare species, gene pool, wildlife protection etc.

residual basal area. The basal area per hectare of acceptable trees left standing after harvest.

residual stand. Trees, often of sawlog size, left in a stand after thinning to grow until the next harvest. Also
called leave trees.

residuals (**residual trees**). Trees left standing after harvesting.

resource values. Products or commodities associated with forest lands and largely dependent on ecological processes. These include, but are not limited to, water quality and quantity, forage, fish, wildlife, timber, recreation, energy, minerals and cultural and heritage resources.

rhizome. A horizontal stem that bears roots and leafy shoots.

riparian zone. That area adjacent to rivers and streams identified by vegetation, wildlife and other qualities
unique to these locations.

roots. The below-ground tree or plant parts that provide physical support, absorb water and nutrients from the soil and store food produced by photosynthesis.

root graft. A functional union of two roots after their formation, commonly between roots of the same individual, or, roots of neighboring trees, of the same species.

rotation. The period of years required to establish and grow a timber crop to a specified condition of maturity, when it may be harvested and a new tree crop started.

rotation age. The age at which a stand is considered ready for harvesting under an adopted plan of management.

rot. Wood in a state of decay.

S

salvage. To harvest trees that are dead or are in poor condition but can still yield a forest product.

samara. A dry, non-splitting, winged fruit, one- or two-seeded.

sample. A small collection from some larger population.

sample tree. A representative or average-size tree, chosen for detailed measurement of condition, size, growth, or quality.

sanitation cut. The removal of dead, damaged, or susceptible trees done primarily to prevent the spread of pests or pathogens and so promote forest hygiene.

sapling. A young tree of small diameter, typically 1 to 9 cm DBH.

sapwood. The light-coloured wood that appears on the outer portion of a cross section of a tree. Contains living cells; serves to conduct water and minerals to the crown.

savannah. A treed community with 11 to 35 % cover of coniferous or deciduous trees.

sawlog. A log large enough to be sawn into lumber.

sawtimber. Trees that yield logs suitable in size and quality for the production of lumber.

scale. The estimated sound volume of a log or group of logs in terms of a given log rule or formula; used to estimate the sound volume of a log or group of logs.

scarify. To disturb the forest floor and top soil in preparation for natural regeneration or direct seeding or
planting.

scavenger rot. A sap rot or heart rot most prevalent on declining or dying trees.

second growth. A second forest that develops after harvest of the original, natural forest.

secondary cavity-user. Wildlife that use decay cavities or ones abandoned by primary excavators.

seedbank. The store of dormant seeds buried in the soil.

seedbed. The soil, forest floor or other media on which seed falls.

seed cutting. Removal of trees in a mature stand to effect permanent openings in the canopy (if not done in a preparatory cutting) and thereby provide conditions for securing regeneration from the seed of trees retained for this purpose. Also the first of the shelterwood cuttings.

seed tree.

- A tree that produces seed.
- Trees reserved in a harvest operation to supply seed.

seed year. A year in which a given species produces a seed crop greatly in excess of the normal. Applied usually to trees of irregular or infrequent seed production.

seed zone. Areas of similar climatic and elevation conditions, used to specify where tree seed was collected and where trees from such seed are most likely to be successfully grown.

seedbed. In natural plant reproduction, the soil or forest floor on which seed falls; in nursery practice, a prepared area in which seed is sown.

seeding. A reforestation method by sowing seeds, aerially or by hand. Often done immediately after harvest so that a new forest is started the next growing season.

seedling. A small tree grown from seed. Usually the term is restricted to trees equal to or less than 1 cm DBH.

seep. A spot where water contained in the ground oozes slowly to the surface and often forms a pool. A small spring.

selection silvicultural system. A periodic partial-cutting, controlled by basal area, using vigor and risk characteristics to determine individual tree selection. An uneven-aged silvicultural system.

selective cutting. The cutting of individual selected trees. There are generally few if any control measures. Also known as high-grading. Not to be confused with the selection silvicultural system.

self-pruning. The natural death and fall of branches from live trees due to causes such as light and food

deficiencies, decay, insect attack, snow and ice; also called natural pruning.

senescence. The process of turnover of green biomass into yellow (or dead) biomass Senescence mainly

depends on origin and development of a plant, but it is also influenced by dryness and/or nutrient stress and pest diseases.

serotiny. Refers to cones that remain closed on the tree for one or more years and may open by exposure to temperature < 50₀C.

shade tolerance. The capacity of a tree or plant species to develop and grow in the shade of and in competition with other trees or plants.

shake.

- A lengthwise separation of wood (usually caused by wind) that usually occurs between and parallel to the growth layers.
- A thin section split from a bolt of wood and used for roofing or siding.

shelterwood. The cutting method that describes the silvicultural system in which, in order to provide a source of seed and/or protection for regeneration, the old crop (the shelterwood) is removed in two or more successive shelterwood cuttings. The first cutting is ordinarily the seed cutting, though it may be preceded by a preparatory cutting and the last is the final cutting. Any intervening cutting is termed removal cutting. An even-aged stand results.

shelterwood silvicultural system. An even-aged silvicultural system where in order to provide a source of seed and/or protection for regeneration, the old crop is removed in two or more successive cuttings:

- **Group Shelterwood System**: Patches of advanced regeneration arising from thinnings or natural disturbances, commonly developed in even-aged stands. Where this condition is prominent, shelterwood cuttings can be made specifically in relation to the requirements of group of advanced regeneration. These clumps of regeneration are enlarged by the removal of or most of the trees above them and initiating preparatory or seeding cuttings around them. holes created in the canopy are gradually enlarged to keep pace with the establishment of reproduction.

from

each

all

The

 Irregular Shelterwood System: Harvest cutting in which opening of canopy is irregular and gradual; generally in groups, with the final cutting often is strips; regeneration natural; regeneration interval long, often up to half the rotation and the resultant crop considerably uneven-aged and irregular.

 Strip Shelterwood System: A shelterwood system in which regeneration cuttings are carried out on fairly wide strips, generally against the prevailing winds and progress rapidly; regeneration is mainly natural, regeneration interval short and resultant crop fairly even-aged and regular.

 Uniform Shelterwood System: A shelterwood system in which the canopy is opened fairly evenly throughout the regeneration area; regeneration is mainly natural, though it may be supplemented artificially; regeneration interval fairly short and resultant crop more or less even-aged and regular.

shrub. A woody perennial plant (lives more than one year) that differs from a perennial herb by its woody, persistent stems and from a tree by its low stature and branches that start from the base.

significant wildlife habitat. Wildlife habitats that are ecologically important in terms of features, functions, representation or amount, and their contribution to the quality and diversity of an area.

silvics. A knowledge of the nature of forests and forest trees, how they grow, reproduce and respond to changes in their environment.

silvicultural system. A process whereby forests are tended, harvested and replaced, resulting in a forest of distinctive form. Systems are classified according to the method of carrying out the fellings that remove the mature crop with a view to regeneration and according to the type of forest thereby produced.

silviculture. The art and science of producing and tending a forest; the theory and practice of controlling forest establishment, composition, growth and quality of forests to achieve the objectives of management.

silviculture prescription. A site-specific operational plan that describes the forest management objectives for an area. It prescribes the methods for harvesting the existing forest stand and a series of silviculture treatments that will be carried out to establish a free growing stand in a manner that accommodates other resource values as identified.

single-tree selection. The cutting method that describes the silvicultural system in which trees are removed individually, here and there, each year over an entire forest or stand. The resultant stand usually regenerates naturally and becomes all-aged. ***see*** *selection silvicultural system.*

site. An area of land, especially with reference to its capacity to produce vegetation as a function of environmental factors (climate, soil, biology, etc.).

site class. A grouping of similar site indexes that indicates relative productivity. The common system in Ontario is Site Class X, 1, 2, 3, 4 (PFR).

Site District. A subdivision of a Site Region that is based on a characteristic pattern of physiographic features that distinguish fairly large areas from each other (Hills 1959).

site form. A numerical expression of forest site quality based on the height in meters (m), at a specified diameter (DBH) of dominant and codominant trees in a stand. Used for uneven-aged stands.

site index. A numerical expression of forest site quality based on the height in meters (m), at a specified age (usually age 50 years), of dominant and codominant trees in a stand. Used for even-aged stands.

site preparation. Any treatment of a forest site to prepare it for establishment of a plantation or for natural
regeneration.

Site Region. Hills (1959) divided Ontario into Site Regions that are considered to be areas of similar potential biological production, based on climate as modified by physiographic landform and proximity to the Great Lakes.

skid road (**skid trail**). A pathway over which logs are dragged (skidded) from the stump to the landing. Logs are dragged by a machine called a skidder or by horses.

skidder. A wheeled or tracked vehicle used for sliding and dragging logs from the stump to a landing.

skidding. The process of dragging logs from the woods to a landing.

slash.

- Tree tops, branches, bark and other debris, left after a forest operation; or
- The process of cutting down undesirable vegetation.

snag. A standing, dead tree or a standing section of the stem of a tree broken off at the height of six meters or more. If less than six meters, it is properly termed a stub.

softwood. One of the botanical group of trees that generally have needle or scale-like leaves-the conifers. Also the wood produced by such trees, regardless of texture or density.

soil. Unconsolidated mineral material or organic material that is greater than 15 cm thick that occurs at the
earth's surface, has undergone soil formation processes, usually exhibits a distinct soil profile and is capable of supporting plant growth.

soil horizon. A layer of soil with distinct characteristics that separate it from other soil layers.

soil moisture. The relative amount of water in the soil; usually applied to upper levels of soil, occasionally to humus layer.

soil profile. A vertical section of soil showing the nature and thickness of the various horizons, often used in soil classification.

soil series. Grouping of soils with similar profile characteristics.

soil texture. The relative proportion of various particle sizes such as sand, silt, clay and coarser materials in a mineral soil sample. The Canadian System of Soil Classification describes the basic textural classes (clay, silty clay, sandy loam, *etc.*)

spacing.

- The distance between trees in a plantation, a thinned stand, or a natural stand.

- The removal of undesirable trees within a young stand to control stocking, to maintain or improve growth, to increase wood quality and value, or to achieve other resource management objectives.

species of conservation concern. Includes endangered, threatened, vulnerable (or rare) plant or animal species as well as plant or animal species currently experiencing significant population declines in the province, or plant or animal species of particular importance to the Province or to a local region for any number of reasons.

species (**of trees**). Trees having very similar genetic makeup, so that they freely interbreed and have common characteristics. In common language, a 'kind' or 'variety.' Each species is identified by a scientific name that consists of a genus portion and then a species portion (*Pinus strobus*, white pine).

species composition. The percentage of each recognized tree species comprising the forest type based upon the gross volume, the relative number of stems per hectare or basal area.

spikelet. An elongated inflorescence, consisting of one or more flowers.

spike top. A tree with a dead top, usually a mark of declining vigor.

sporangium. An organ in which spores are produced.

spore. A one-celled asexual reproductive organ. Almost exclusively associate with non-flowering plants (e.g. mosses, fungi).

sprout.

- Any shoot arising from a plant; or
- A young tree developed directly from the base, stump, or root of another tree. Relatively common among hardwoods.

stand. An aggregation of trees occupying a specific area and uniform enough in composition (species), age and arrangement to be distinguishable from the forest on adjoining areas.

stand density. The number of trees usually expressed on a per hectare basis.

stand structure. The distribution and representation of age and/or size classes and of crown and other tree
classes within a stand.

stand table. A summary table showing the number of trees per unit area by species and diameter classes, for a stand or type. The data may also be presented in the form of a frequency distribution of diameter classes.

stem. The trunk of a tree.

stick nest. A platform of sticks (twigs up to small branches) constructed by some bird species for nesting.

stocking.

- A qualitative expression of the adequacy of tree cover on an area, in relation to a pre-established norm, expressed in terms of crown closure, number of trees, basal area, or volume.
  - **fully stocked**: Productive forest land stocked with trees of a merchantable species. These trees, by number and distribution or by average DBH, basal area, or volume, are such that at rotation age they will produce a timber stand that occupies the potentially productive ground. The stocking, number of trees, and, distribution

required to achieve this will usually be determined from yield curves. Sometimes called *normally stocked*.

- **over stocked**: Productive forest land stocked with more trees of merchantable species than normal or full stocking would require. Growth is in some respect retarded and the full number of trees will not reach rotation age according to an appropriate yield and stock tables for the particular site and species.

stock table. A summary table showing the volume of trees per unit area by species and diameter classes, for a stand or type.

stolon. An elongate stem developing along the surface of the ground that takes root and forms new plants at the nodes or apex.

stone. A part of a drupe; consisting of a seed enclosed in a hard bony endocarp.

stratification. A pre-germinative treatment to break dormancy in seeds accomplished by exposing imbibed
seeds to cold (2 to 5$_{o}$C) or warm conditions.

stream. A permanent or intermittent water course.

stub. A standing, dead tree or a standing section of the stem of a tree broken off at the height of six meters or less. If more than six meters, it is properly termed a snag.

stumpage. The value of timber as it stands uncut in the woods; in a general sense, the standing timber itself. Can also denote price paid for this timber.

succession. The replacement of one plant community by another in progressive development towards climax vegetation.

- *types of succession*:
  - **primary**: Plant succession on newly formed soils or surfaces, exposed for the first time, that have never borne vegetation.
  - **secondary**: Plant succession following the destruction of a part or all of the original vegetation.

sucker.

- A sprout from the lower portion of a stem, especially from the root.
- A shoot or tree originating from adventitious buds on roots.

sunscald. Death of cambial tissue on one side of a tree, caused by exposure to direct sunlight.

supercanopy tree. A living tree that sticks up well above the main canopy of a forest stand.

suppressed tree. *see overtopped*.

sustainability. The concept of producing a biological resource under management practices that ensure
replacement of the part harvested, by re-growth or reproduction, before another harvest occurs.

sustainable forest management. Management regimes applied to forest land which maintain the productive and renewal capacities as well as the genetic, species and ecological diversity of forest ecosystems.

sustained yield. A policy, method, or plan of forest management that calls for continuous production, to achieve, at the earliest practicable time, an approximate balance between net growth and amount harvested.

swamp. A mineral-rich wetland characterized by a cover of deciduous or coniferous trees.

sweep. A gradual, but pronounced, bend in a log, pole, or piling; considered a defect.

T

tally. The count of trees, logs, or other products; to count trees, logs, or other products; to record products,
distances, etc. as measured.

talus. Refers to fragmented rock, which has broken away from bedrock surfaces and fallen to the base of the bedrock feature where it accumulates to form a sloping broken rock surface.

taper. The gradual reduction of diameter in a stem of a tree or a log from the base to the top.

tending. Generally, any operation carried out for the benefit of a forest crop at any stage of its life, e.g., cleaning, thinning, pruning.

terrestrial system. Upland areas, where the water table is normally below the soil surface.

thinning. Cutting in an immature stand to increase the growth rate of the leave trees. The goal is to foster quality growth, improve composition, promote sanitation and recover and use material that would otherwise be lost to mortality. Thinning does not generally increase per-hectare volume growth, but it can increase lumber yield.

thinning from above. A thinning that favors the most promising (not necessarily the dominant) stems, with due regard to even distribution over the stand, by removing those trees that interfere with them. Also known as *crown thinning*.

thinning from below. A thinning that favors the dominants or selected dominants more or less evenly distributed over the stand by removing a varying proportion of the other trees. Also known as *low thinning*.

- *types of thinning*:
  - **low thinning**: The removal of trees from the lower crown classes in a stand. Also known as *thinning from below*.
  - **crown thinning**: The removal of trees from the middle and upper crown classes in a stand, to favor the most promising trees of these classes. Also known as *thinning from above*.
  - **selection thinning**: Removal of dominant trees to benefit trees in lower crown classes.
  - **free thinning**: Removal of trees to benefit best trees, regardless of crown class.
  - **mechanical thinning**: Removal of trees based totally on their spacing or arrangement. Also known as *row thinning*.

till. Glacial deposits laid down directly by the ice with little or no transportation or sorting by water.

timber. A term loosely applied to forest stands or their products; often applied to wood in forms suitable for
heavy construction.

tolerance. The capacity of a tree or plant to develop and grow in the shade of (and in competition with) other trees or plants; a general term for the relative ability of a species to survive a deficiency of an essential growth requirement (light, moisture, nutrient supply).

top height. The mean height of 100 trees per hectare of largest diameter at breast height.

tree. A woody plant having one well-defined stem and a more or less definitely formed crown, usually attaining a height of at least three meters.

tree age. The number of years since the germination of the seed, or the budding of the sprout or root sucker.

tree length. Entire length of tree, or with the top lopped off at small diameter, as in skidding tree length to a
landing for bucking into logs.

tree marking. Selecting and marking trees to be harvested and trees to be left to grow. Selected trees are usually identified with coloured paint on the tree trunk at DBH and at the stump. Normal colours used in Ontario are: orange/yellow for stem removal and blue for residual stems.

U

UGS - ***unacceptable growing stock***. These trees have a high risk of dying and are expected to decline over the next cutting cycle. They include trees that are of poor form and/or low quality.

underbrush. The brush growing in a forest.

undergrowth. Small trees and shrubs and other plants growing under a forest canopy.

understory. That portion of the trees or other vegetation in a forest stand below the canopy.

uneven-aged. Applied to a stand in which there are considerable differences in the age of the trees and in which three or more age classes are represented.

uneven-aged management. The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species and the orderly growth and development of trees through a range of diameter or age classes. Cutting methods that develop and maintain uneven-aged stands are single tree selection and group selection.

unmerchantable. A tree or stand that has not attained sufficient size, quality and/or volume to make it suitable for harvesting.

V

value-limiting defect. Such features are considered to be either:

- **Scaleable Defect**: such as rot or shake, that reduce sound useable volume or durability; or
- **Grade Defect**: such as knots or stain, that reduce strength or utility.

vegetation type. The sixth and finest level of resolution in the Ecological Land Classification system. It
represents recurring vegetation patterns observed on the landscape, based only on plant species composition. Normally, “Vegetation Types” include the names of dominant plant species of the community, based on relative abundance.

vegetative reproduction. Reproduction by a root, stem, leaf, or some other primary vegetative part of a plant body.

volume. The amount of wood in a tree, stand, or, other specified area according to some unit of measurement or some standard of use (e.g. m^3 or m^3/ha)

- **Gross Total Volume** (**GTV**): Volume of the main stem, including stump and top, as well as, defective and decayed wood of individual trees or stands.
- **Gross Merchantable Volume** (**GMV**): Volume of the main stem, excluding a specified stump and top, but, including defective and decayed wood of individual trees or stands.
- **Net Merchantable Volume** (**NMV**): Volume of the main stem, excluding stump and top, as well as, decayed wood of individual trees or stands.

volume table. A table showing gross volume of trees, based on given tree measurements (usually DBH and height).

W

water table. The upper surface of the water saturation zone.

wetland. Land that is seasonally or permanently covered by shallow water, or land where the water table is close to or at the surface. In either case, the presence of abundant water has caused the formation of hydric soils and has favored the dominance of either hydrophytic or water-tolerant plants.

wetland system. Areas where water levels fluctuate and are under two meters in depth.

wildlife. All wild mammals, birds, reptiles, amphibians, fishes, invertebrates, plants, fungi, algae, bacteria and other wild organisms.

windfall. A tree uprooted or broken off by wind; an area on which the trees have been thrown by wind. ***see***
windthrow.

windfirm. Descriptive of trees and plantations that, because of species, soil or relative exposure, are unlikely to suffer windthrow.

windthrow. Uprooting or breakage of trees caused by strong winds.

witches'-broom. An abnormal tufted growth of small branches on a tree or shrub caused by fungi or viruses.

wood. The lignified water-conducting, supporting and storage tissue of branches, stems and roots.

X

xylem. A complex tissue in the vascular system of higher plants that consists of vessels, tracheids, or both
together with wood fibers and parenchyma cells, functions chiefly in conduction but also in support and storage and typically constitutes the woody element.

xeric. Describes a dry site.

Y

yield. Growth or increment accumulated by trees at specified ages expressed by volume or weight to defined merchantability standards.

yield curve. A graphical or mathematical representation of the yield of a given species, on a given site, at a given time.

yield table. A summary table for stands (usually even-aged stands) of one or more species on different site qualities, showing characteristics at different ages. The stand characteristics usually include average diameter and height and total basal area, number of trees and volume per hectare.

- **Empirical**: Prepared for actual average stand conditions.
- **Normal**: Prepared for normally stocked stands.
- **Variable Density**: Prepared for stands of varying density expressed as numbers of trees per hectare.

young growth. Any forest of relatively young age and condition.