

CONSERVATION
LIBRARY, KENSINGTON



080074-01

JOURNAL

TECHNICAL PAPER (WESTERN
AUSTRALIA. FORESTS DEPT.)

1 (1982)

DEPARTMENT OF PARKS AND WILDLIFE

BALM LIBRARY ARCHIVE
NOT FOR LOAN

FORESTRY TERMINOLOGY IN WESTERN AUSTRALIA

F.H. MCKINELL

FISHERIES AND
WILDLIFE

22 DEC 1982



FORESTS DEPARTMENT OF WESTERN AUSTRALIA

TECHNICAL PAPER NO. 1

FORESTRY TERMINOLOGY IN WESTERN AUSTRALIA

by

F. H. McKinnell

FORESTS DEPARTMENT OF WESTERN AUSTRALIA

B. J. Beggs

Conservator of Forests

1982

COPIES OF THIS PUBLICATION MAY BE
OBTAINED FROM COMO RESEARCH BRANCH

PREFACE

This publication is intended as a glossary of technical forestry terms and replaces the previous glossary published by the Forests Department in 1921. In deciding on the content, the emphasis has been on terms currently used in forestry in Western Australia. It does not attempt to cover areas such as safety or engineering, since those fields have their own specialized terminology, nor does it include terms in common everyday usage and thus requiring no special definition. Some of the terms are included because they are commonly misused, for example, we often speak of falling a tree, when the correct expression is felling a tree.

Several sources have been consulted during the preparation of this paper, notably:

British Commonwealth Forest Terminology, Empire Forestry Association, London, 1957,

Forestry Terminology, Society of American Foresters, Washington D.C. 1958,

Terminology of Forest Science, Technology Practice and Products, F.C. Ford-Robertson (ed), Society of American Foresters Washington D.C. 1971.

Many colleagues have also contributed useful ideas and comments. It is hoped this publication will lead to more precise expression of ideas and the correction of some misunderstandings that appear to exist both inside the forestry profession and outside it.



- abiotic material. The non-living material components of the environment, such as air, rock, soil and water.
- acid soil. (1) A soil where the pH is less than 7;
(2) A soil formed from a parent rock with a low proportion of ferro-magnesian minerals and therefore usually light-coloured and coarse in texture.
- advance burn. A prescribed fire that reduces fuel through a forest area before felling operations.
- advance growth. Young trees that have established themselves in openings in the forest, or under the forest cover, before regeneration fellings are begun.
- adventitious root. A root produced from parts of the plant other than a pre-existing root, e.g. from stem or leaf.
- aestivation. The process of passing the summer, a hot season or prolonged drought in an inactive state.
- afforestation. Establishment of a forest in an area from which forest vegetation has always or long been absent.
- after-ripening. Complex biochemical or physical changes occurring in seeds, bulbs, tubers and fruits after harvesting, when ripe in the ordinary sense; often necessary for subsequent germination.
- age class. One of the intervals into which the range of age of trees in a forest is divided for classification or use; also the trees falling into such an interval.
- age class distribution, normal. A complex series of age classes in such proportions as will permit equal volumes from annual or periodic fellings under the given rotation and silvicultural system.
- age, rotation. The age at which the stand is considered ready for final harvesting under the adopted plan of management.
- aggregate, soil. A single mass or cluster of many soil particles held together such as a clod, prism, crumb or granule.
- agro-forestry. A combination of forestry and agricultural pursuits on the same land.
- air dry. Applied to timber in which the moisture content is in equilibrium with local atmospheric conditions.
- alidade. A surveying instrument consisting essentially of a straight-edged rule, with two vertical sights, the alignment of which is parallel with its edge.
- alienation. The process of transfer of ownership of land from the State to private hands.
- alignment chart. A chart for the graphical solution of equations on which the unknown quantity is read off by aligning a ruler between known points on two other scales.

amenity. Those natural or man-made qualities of the environment from which man derives pleasure, enrichment and satisfaction.

ambient. Referring to the natural conditions at a given place and time.

amelioration. To make better or more tolerable, e.g. of soils by the addition of fertilizer.

analysis, stem. Measurement of stated cross sections of a tree to determine its growth and development at different periods of its life.

annual ring. The layer of wood produced by the increment of one year, as seen in cross section.

aquifer. A zone of soil or subsoil material that allows the passage of water faster than adjoining zones.

aquifer, confined. An aquifer in which water is confined under pressure greater than atmospheric pressure by underlying and overlying strata.

aquifer, unconfined. An aquifer in which a water table and not a confining layer serves as the upper surface of the zone of saturation.

arboretum. A place where trees from various localities are propagated and grown, as individuals, or in small stands, for scientific or educational purposes.

arboriculture. The care, protection and cultivation of trees primarily for shade or landscape effects.

area, bole. The surface area of a tree bole inside the bark, equivalent to the area of stem cambium.

area, crown. The ground area covered by an individual crown. Crown area percentage is the sum of the individual areas of the crowns, including overlap, as a percentage of the ground area.

area, effective. For any aerial photograph which is one of a series in a flight strip, that central part of the photograph delineated by the bisectors of overlaps with adjacent photographs.

area, seed production. A natural or planted stand of phenotypically superior trees, set aside and managed to stimulate seed production.

asexual. Applied to vegetative parts having no sexual organs or sexual spores.

aspect. (1) The direction toward which a slope faces;
(2) the gross physical appearance of a plant type;
(3) the seasonal appearance of a plant community.

association, soil. A group of soils geographically associated in a definite pattern.

autecology. The ecology of an individual organism or taxonomic group, as opposed to synecology, which is the ecology of a community.

autotrophic plant. One that obtains nutrients exclusively from inorganic materials occurring in soil, air and water.

auxin. A collective term for naturally occurring organic substances which, in minute concentrations, influence the growth of plants.

available fuel. That part of a fuel mass sufficiently low in moisture content for ignition and burning to take place.

average, weighted. A measure of central tendency of a series calculated by dividing the sum of products of each item and its weight by the sum of weights.

backfire. The technique of lighting a fire to eliminate fuel by burning in front of an advancing wildfire.

backsawn. Timber sawn so that the growth rings meet the face at an angle less than 45° .

basal area. The area of the cross section of a stem, usually of a tree at breast height (1.3 m above ground on the high side of the tree). When applied to a crop, the sum of the basal areas of all stems or the total basal area per unit of area.

basal area prism. An optical wedge used to estimate the basal area of a forest stand.

basal area sweep. The process of measuring stand basal area with an optical prism or relascope from a plot having no fixed area, only a central point.

base flow. That part of runoff that is not storm flow. Sustained by outflow from groundwater aquifers, perched water tables and the slow drainage of unsaturated soils.

bias. In statistics, the consistent differences between the actual and measured values of observations.

bioassay. Using living organisms to measure the effect of a substance, factor or condition.

biomass. The mass of living matter (plants and/or animals) in a particular area.

biome. A living community formed by all the organisms occurring together in a given habitat, usually applied to fundamentally different communities such as grassland, tropical rainforest.

biosphere. The portion of Earth and its atmosphere that can support life.

biotic. All the natural living organisms, and their life processes, in a given area.

blank. (1) An open space in a forest;
(2) a piece of wood cut to a specified size and shape, from which the finished article is made.

blaze. A shallow excision removing a portion of the bark, with or without wood, from a tree, so as to leave a visible mark or for purposes of identification.

blight. Sudden death of shoots, foliage or blossom, usually from disease.

block. (1) A main territorial division of a forest, generally bounded by natural features and bearing a local proper name.
(2) A number of plots grouped together because they appear homogenous in respect of the variables to be studied, except for differences in experimental treatment.

block, periodic. Parts of a forest set aside to be regenerated or otherwise treated during a specified period.

blotch. A spot, usually superficial damage to part of a plant.

blow-up. Term applied to a wildfire that has become uncontrollable; also, the weather conditions under which that could occur.

blow-out. An excavation produced by wind action in areas of loose soil, usually sand.

bole. The main stem of a tree.

borer, increment. An auger-like instrument with a hollow bit, used to extract radial cores from trees for study.

bow. The deviation of a board flat-wise from a straight line drawn from end to end of the piece.

brittle heart. Wood characterized by abnormal brittleness, usually found near the pith in eucalypts and caused by compression failure in the fibres.

bud, adventitious. A bud produced irregularly on older portions of a plant and not at the tip of the stem or in a leaf axil: not connected with the pith of a tree; usually produced in response to cambium injury.

bud, dormant. A bud connected to the pith but which remains undeveloped under the bark, continuing to grow throughout the life of a stem. Dormant buds break through the bark when stimulated, e.g. by fire, or the stem above them is removed.

buffer. (1) Substances in the soil that oppose changes in soil reaction;
(2) An area of land managed in such a way as to protect another area from outside influences.

burl. A woody excrescence on a tree, more or less rounded in shape, usually resulting from the entwined growth of a cluster of adventitious buds. Also called burr.

bush. General term for all types of forest or woodland, normally applied only to indigenous forest.

butt. The base of a tree or the lower end of a log.

butt, long. Part of the lower end of a butt log cut off to remove a defect of some kind.

canker. A localized necrotic lesion, primarily of the bark and cambium.

canopy. The cover of branches and foliage formed by tree crowns.

cant. A thick piece of timber with two or more flattened surfaces.

capital, forest. The value represented by the land, timber and physical improvements which together make up a forest property.

capacity, field moisture. The amount of water, expressed as a percentage of dry weight, retained by a soil after saturation and allowing excess water to drain away.

capsule. Woody fruit, as of *Eucalyptus* spp.

catchment area. The total area draining into a given waterway or reservoir.

case hardening. A condition existing in wood where, as a result of drying, the surface becomes set in an expanded condition and is in compression, while the interior is in tension.

certified seed. Seed that is guaranteed as to source, cleanliness, purity and any other desired quality.

check. A lengthwise separation of wood, extending across the rings of annual growth, commonly resulting from the stress set up in the wood during seasoning.

chlamydospore. A thick-walled, asexual resting spore of a fungus.

chlorosis. An abnormal yellowing of foliage, caused by a chlorophyll deficiency under normal light conditions.

choker. A noose of wire rope by which a log is attached to a hauling machine or haul cable.

cleaning. A tending operation in a young stand in which the poorer components of the stand, as well as weed species, are removed. Term often applied to non-commercial thinning.

clear felling system of cutting. See felling, clear.

clearing. (1) An area from which the forest growth has been removed, more or less permanently;
(2) An open space in a forest.

climax community. The culminating stage in plant succession for a given site.

cline. A character gradient in a plant population.

clone. A group of plants derived by asexual reproduction from a single parent.

cloud cover. The amount of sky covered or obscured by cloud, expressed in eighths. Eight eighths is complete cloud cover.

collapse. A wrinkled or corrugated appearance of the surface of a piece of wood caused by irregular drawing together of the cell walls as free moisture leaves the cavities.

compartment. The basic administrative unit of a forest.

competition. The struggle for existence which exists when the supply of necessary energy or materials is insufficient for the normal development of all individuals.

compression wood. Wood of modified structure, usually characterized by a darker colour, found in conifers on the underside of branches or leaning trees. Also referred to as reaction wood.

conservation. The management of human use of the biosphere so as to yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. Conservation thus embraces preservation, maintenance, sustainable utilization, restoration and enhancement of the natural environment (from: World Conservation Strategy).

control. (1) (yield) The regulation of annual or periodic fellings.
(2) (experimental) That part of an experimental series providing a standard of comparison for determining the effect of the treatment(s);
(3) (biological) A check on the increase in the population of an insect, animal or plant imposed by a single factor or a combination of factors.

control, basal area. Limitation of annual or periodic yield by the basal area of the trees retained after felling.

coppice. A shoot (or shoots) arising from adventitious buds at the base of a woody plant that has been cut near the ground or burnt back.

corduroy. To build a road by cross-laying it with saplings or small poles to provide traction or flotation in soft conditions.

cotyledon. A leaf-forming part of the embryo in a seed. Some angiosperms have only one seed leaf (monocotyledons) and others have two (dicotyledons).

coupe. A discrete felling area.

crop, final. The portion of a stand which is intended to remain to the end of a rotation. (Syn. main crop, select stems).

crown class. A class into which the trees in a stand are divided on the basis of the position of the crown in the forest canopy and the crowns of adjacent trees. The commonly used crown classes are:
(1) dominant - trees with large crowns extending above the general level of the canopy. Generally the larger trees in a stand, with their crowns in full light;
(2) co-dominant - trees with crowns forming the general level of the canopy, receiving full light from above but not from the sides. Usually medium sized crowns;
(3) sub-dominant - trees shorter than those in the two preceding classes, with crowns still healthy but small and receiving little direct light from above;
(4) suppressed - trees with poor, unhealthy crowns entirely below the general level of the canopy.

crown cut. An extra cross cut put into the top end of a log to remove a section of the log affected by double heart or some other defect.

crown ratio. The ratio of the mean diameter of the crown of a tree to its diameter at breast height.

cull. (1) An inferior plant rejected from nursery stock;
(2) Trees of crop or merchantable size but rendered unmerchantable by defects.

cultural operation. Operations undertaken to assist an established stand, to promote the development of a young stand by clearing, pruning or controlling weeds.

culturing. Artificial propagation of organisms on nutrient media.

cup. A curve in a board that occurs across the width of the piece as a result of differential drying on the face and back.

cut. The output of timber (round or sawn) from a forest area for a given period; also the actual area felled.

cut, allowable. The amount of forest produce that may be cut in a given period, usually annually, under some plan of management.

cut, final. In an even-aged forest, the last harvest in a rotation period.

cut over. An area that has been logged, by whatever method.

cycle, cutting. (1) The planned interval between major felling operations in the same forest;
(2) The planned period within which all portions of a working circle are logged. (Syn. felling cycle).

cycle, hydrologic. The movement of water in nature through the whole or parts of a cycle in which, commencing as water vapour, it passes into liquid and solid form as precipitation, then into the ground or as runoff, or ground water to larger bodies of water from which by transpiration and evaporation, the water returns as vapour to the atmosphere.

cycle, salt. The movement of sodium chloride in nature from the ocean, via the atmosphere to the land and back to the ocean.

data base. Information organized for analysis or used as the basis for a decision.

decile. The frequency distribution of a population divided into ten groups of equal interval.

defoliate. To strip or become stripped of leaves.

deforestation. To remove the tree crop from a piece of land without the intention of reforesting.

dendrochronology. The science of dating and investigating historical climates through correlation of patterns of annual ring growth and climatic rhythms.

dendrology. The identification and systematic classification of trees.

dendrometer. An instrument designed to estimate the character of trees at any given height by sighting from the ground.

density, canopy. The completeness of tree canopy, often expressed as a percentage, taking a complete ground cover as 100. (Syn. crown density).

density, crop. Density of tree stocking in terms of number of stems per hectare, total basal area or volume per hectare.

- density, wood. (1) Air-dry density: oven-dry mass per unit of air dry volume;
(2) Basic density; Oven-dry mass per unit of green volume.

desertification. Deterioration of the natural environment towards a more desert-like condition.

diameter, breast height. The diameter of a tree measured at the standard reference point, nominally 1.3 m above ground on the uphill side of the tree, or at the nearest representative point. (Abbr. DBH.). DBH is usually expressed as overbark (OB) or underbark (UB).

dieback. The progressive dying, from the top downward, of twigs, branches or tree crowns.

dieback disease. In Western Australia, particularly applied to the effects of the root rot fungus Phytophthora cinnamomi (also dieback forest).

dieback disease hazard. The degree to which site factors combine to favour infection by the fungus and intensification of the disease.

dieback disease intensification. The build-up of fungal activity in a locality, leading to decline and death of susceptible species.

dieback disease risk. The likelihood of introduction of Phytophthora cinnamomi to a locality by either natural or artificial spread.

dieback disease susceptibility. The ease and rapidity with which the pathogen Phytophthora cinnamomi is able to bring about the decline and death of a species.

dieback-free forest. Forest apparently free of infection.

dieback-tolerant forest. Forest in which site factors and/or species combine so that tree deaths will not occur if dieback disease is introduced. Note that lack of tree deaths does not infer no effects, either on the tree or on the understory.

dormancy. Condition of a seed or plant in which life functions are virtually at a standstill.

duff. The mat of undecomposed or partly decomposed vegetable matter on the forest floor, the original structures still being recognizable.

drought index. A measure of the moisture content of heavy fuel such as logs and deep fuel beds. It indicates suppression difficulty and reflects the influence of long term past weather.

drying day. A day on which less than 5 mm of rain has fallen and the mean daily temperature is greater than 15° C.

earlywood. The less dense wood (larger cells, thinner cell walls) formed during the early part of the formation of the annual ring. Applied more to conifers than to hardwoods. (Syn. springwood).

ecology. The study of plants and animals in relation to their environment.

ecosystem. The interacting system of a biological community, both plant and animal, and its non-living surroundings.

ecotone. A transition area between different plant communities.

ecotype. Genetic variation within a species caused by isolation and environmental selection.

edaphic. Pertaining to the soil in its ecological relationships.

edaphic factor. Any influence that is characteristic of the soil.

edging. Perimeter burning of an area under mild conditions prior to prescribed burning of the whole area.

element, trace. One of the chemical elements which is found in soils in extremely small amounts and which is essential to plant growth. Such elements include zinc, copper, boron, manganese. (Syn. minor element).

endemic. Confined in its natural occurrence to a particular region.

enumeration. The counting of one or more species, singly or together, and their classification by species, size, etc.

environmental impact statement. A written statement containing a detailed assessment of the anticipated significant beneficial and detrimental effects which projects may have on the quality of the environment.

epicormic shoot. A shoot originally from a dormant bud, and arising on the tree trunk or an older branch.

epiphyte. A plant growing on, but not parasitic on, another plant.

epiphytotic. An epidemic of disease among plants.

equation, regression. A mathematical expression of the best fitting line or curve describing the relationship between two or more variables.

erosion, rill. Water erosion which produces numerous very small channels.

erosion, sheet. Erosion of a fairly uniform layer of material from the land surface, often barely perceptible, especially when caused by wind.

evapotranspiration. Loss of water from an area of land through transpiration of plants and evaporation from the soil.

even-aged. Applied to a stand in which relatively small age differences exist between individual trees.

exotic. A plant introduced from another locality.

farm forestry. The use of private land for forestry purposes, generally for wood production.

fell, to; felling. The act of cutting down a standing tree or trees.

felling, clear. The felling and removal of the standing crop. Subsequent crop even-aged. (Syn. Clear cutting or clean cutting, but these terms are not favoured). See also silvicultural systems.

felling cycle. see cutting cycle.

felling, final. The removal of the last seed trees or shelter trees after regeneration has been affected.

felling, improvement. The removal or destruction of less valuable growth in a crop in the interests of better growth of the more valuable trees. Usually applied to a mixed species, uneven-aged forest.

felling, salvage. The removal of trees injured or killed by fire, insects, fungi or other harmful agencies, for the purpose of utilizing merchantable timber before it becomes worthless.

felling, selection. The periodic removal of exploitable trees, individually or in small groups, in an uneven-aged forest in order to realize the yield and to achieve natural regeneration.

felling, shelter-wood. A felling made in a mature stand with the object of procuring natural regeneration under the shelter of the retained seed trees.

feral. An introduced or domestic animal now living in the wild, as in feral cat.

fibre saturation point. The stage in the drying or wetting of wood at which the cell walls are saturated with moisture and the cell cavities contain no free water. When moisture content declines below fibre saturation point the wood commences shrinkage.

fire, crown. A wildfire running in tree tops, consuming all or part of the upper branches and foliage.

fire, danger. Refers to the difficulty of control of a fire after ignition. It expresses the sum of hazard, risk and wind factors.

fire hazard. An accumulation of flammable fuels.

fire regime. The history of fire in a particular stand including the frequency, intensity and season of burning.

fire risk. The probability of a fire starting. Dependent on the presence of causative agencies and the likelihood of effective ignition.

fire, spot. Fire set by flying embers or sparks in advance of the main fire.

fire wind. An inflow of air at the fire source caused by convection and not to be confused with a prevailing wind.

forest. An ecosystem characterized by a more or less dense and extensive tree cover. An area of land proclaimed to be forest under a Forest Act. To qualify as a forest, an area must be at least 30 metres in width, at least 0.4 hectares in area and have sufficient trees to provide 10 per cent crown cover.

forest, all-aged. See forest, uneven aged.

forest, closed. (1) Forest with a closed canopy;
(2) Forest in which specified acts such as burning are prohibited.

forest, coppice. Forest consisting of trees derived from coppice shoots or root suckers.

forest, dry sclerophyll. Open eucalypt forest with an understorey composed mainly of sclerophytic shrubs and herbs.

forest, even-aged. A forest where all trees are essentially of the same age.

forest, high. A stand of tall trees, normally with a closed canopy and usually of seedling origin.

forest, irregular. see forest, uneven aged.

forest, non-protectable. see non protectable forest.

forest, normal. A forest which is ideally constituted as regards growing stock, age class distribution and increment, and from which the periodic removal of produce equal to the increment can be continued indefinitely.

forest, overmature. see overmature.

forest park. An area of forest set aside primarily for recreation and kept unavailable for commercial timber production, except in the event of severe deterioration due to wind damage, fire, disease or age of trees. Limited cutting may be allowed to facilitate regeneration.

forest policy. (1) A course of action in forestry designed to achieve stated social and economic objectives;
(2) The general principles adopted for the creation or maintenance of forests and their use.

forest produce. All material yielded by the forest estate, classified as:
(1) Major forest produce - timber, pulpwood;
(2) Minor forest produce - honey, grass, fruit, wildflowers, animal products, soil, gravel, stone, minerals, essential oils.

forest, production. Forest managed primarily for wood production.

forest, protection. An area partly or wholly covered with woody growth, managed primarily for its beneficial effects on water, climate or soil, rather than for wood or other forest products or services.

forest sanctuary. An area of forest set aside for the purpose of preservation of some unique value. The value may be associated with scenery, history, geology, flora or fauna.

forest, selection. An uneven-aged stand managed under a selection system.

forest, uneven-aged. Forest with a wide variety of tree ages, theoretically from seedlings to rotation age. (Syn. all-aged or irregular forest).

forest, virgin. Forest essentially uninfluenced by human activity. Particularly applied to forest in which no logging has taken place.

forest, wet sclerophyll. Tall open eucalypt forest with an understorey composed largely of mesophytic shrubs and herbs but with a sclerophytic component.

forestry. The scientific management of forested land for the continuous production of goods and services.

free growth. Trees growing under conditions such that there is no between-tree competition.

frost, ground. Freezing confined to ground level, i.e. crystals forming on surface objects, soil or ground vegetation.

frost level. The height above ground to which frost injury is liable to extend in a given locality.

fungus. One of the lower forms of plant life that, lacking chlorophyll and being incapable of manufacturing its own food, derives its energy from dead or living plant or animal matter.

gall. A pronounced, localized swelling with greatly modified tissue structure, evoked on plants as a response to irritation by a foreign organism.

gauge, bark. An instrument for measuring bark thickness on standing trees.

gene pool. The total reservoir of genes in all individuals of a species population in an area, where all genes are potentially available because of interbreeding.

germinative capacity. The percentage of seeds in a given sample which are capable of germination.

germinative energy. The percentage of seeds germinating in a standard period, seven or fourteen days, under optimum conditions.

germination per cent. The percentage of seeds in a given sample that actually germinate.

grading, timber. Any system of classifying sawn timber based on quality. Intended to ensure that timber is used for purposes appropriate to its quality.

graft. To transfer part of a plant (the scion) to a stock, usually rooted, which is another plant or another portion of the same plant, with the object of securing a vegetative union between the two.

grain. The direction, size arrangement and appearance of the structural elements (fibres or tracheids) in wood.

green level. The height in plantations up to which all branches are dead and above which the crown is alive.

group selection system. A silvicultural system in which the crop is felled in small groups either to permit regeneration to develop or to release advance growth.

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

gum vein. Tangential patches, or complete rings, of gum-impregnated wood, found in many hardwoods, especially eucalypts.

habitat. The kind of place in which an animal or plant lives.

halophyte. A plant that grows in saline soil or within the influence of salt water.

- hardening off. (1) Preparing seedlings in a nursery for planting out by gradually reducing shade, water or shelter, resulting in a hardening of the leading shoot.
 (2) The natural process whereby plants become adapted to winter cold or summer heat.
- hardpan. An indurated or cemented soil horizon. The soil may have any texture and is compacted or cemented by iron oxide, organic material, silica, calcium carbonate or other substances.
- hardwood. Refers to a tree, or the timber of a tree, belonging to the botanical group known as angiosperms.
- heartwood. The inner layers of wood which, in the growing tree, have ceased to contain living cells. It is generally darker in colour than sapwood, due to the deposition in the cell lumens of tannins, polyphenols, resin, etc.
- heel in, to. To store young plants prior to planting by placing them in a trench and covering the roots with soil.
- herb. A green plant without woody stems.
- herbicide. A chemical used for killing plants.
- herbicide hazard. The probability that a herbicide will cause harm to a non-target organism in the circumstances of usage.
- herbicide, contact. One that kills only that part of a plant actually contacted by the chemical.
- herbicide, selective. One that kills certain plant species without harming others.
- herbicide toxicity. The ability of a herbicide to cause poisoning when administered in adequate quantity through specified routes, e.g. dermal toxicity refers to uptake through the skin.
- herbicide, translocated. One that moves within the plant from the region of application to some other part where the toxic action is exerted.
- host. A living organism on which a parasite lives and obtains its sustenance.
- host, resistant. A host plant which actively inhibits invasion by a pathogen.
- host, susceptible. A host plant that allows total invasion by a pathogen resulting in high host mortality.
- host, tolerant. A host plant that permits invasion by a pathogen but shows a low degree of mortality.
- host, variable. A host plant that permits invasion by a pathogen but can retard invasion under certain conditions, with variable mortality of the host.
- humus. The plant and animal residues of the soil that are undergoing decomposition.

hyphae. Segments or threads of the mycelium of a fungus.

illuviation. The accumulation of minerals in a soil horizon.

immunity, plant. The ability of a plant to remain free of a disease by virtue of inherent properties of the plant.

improvement, forest tree. A general term including all practices designed to produce genetically better forest trees, such as tree breeding, and selection and protection of superior seed trees.

improvement, timber stand. All cuttings, not part of a major harvest felling, made during the life of a stand for improving the stand as regards composition, condition or rate of growth.

increment. The increase in girth, diameter, basal area, height, volume, quality or value of individual trees or crops during a given period.

increment, current annual. The growth, generally of a stand, for a specific year.

increment, mean annual. The total increment produced by a stand at a specified age, divided by the age.

incipient dieback disease. Forest in which Phytophthora cinnamomi is present or suspected, but dieback symptoms are yet to appear.

infect. To establish a pathogenic relationship with a host plant.

infection. The presence of Phytophthora cinnamomi, or some other disease, in a particular locality as revealed either by positive identification of the fungus or development of characteristic disease symptoms.

indicator plant. Any plant, which by its presence or abundance indicates a quality of the site.

ingrowth. The volume or number of trees that have grown past a specified lower limit of measurement during a specified period.

inoculum. Portions of any pathogen capable of being disseminated and of initiating disease.

inoculum density. Number of propagules having a certain amount of virulence per unit of carrying substance, e.g. per gram dry weight of soil.

inoculum potential. The inoculum density as modified by environmental factors.

interlocked grain. Grain whose inclination is reversed in successive growth layers.

intermediate crop. All those members of a stand that are removed from the stand prior to the final felling of the main crop (particularly applied to even-aged stands). Also intermediate stems, other than select stems.

intolerance. The inability of a tree to develop and grow in the shade of, and in competition with, other trees.

inversion. The phenomenon of increase in temperature with height above ground.

- jockey. (1) Hazardous dead limb hanging in the crown of a tree;
 (2) Small log placed on top of a load on a log truck.
- joist. A piece of timber used to support the floor or ceiling of a building.
- junction zone. A zone where two fire faces meet, resulting in an increase in flame height and intensity.
- juvenile wood. A relatively thin-walled lignified xylem tissue located close to the pith, especially in conifers. It is characterized by low wood density, low strength and severe spiral grain.
- kino. A group of red to red-black solids or viscous liquids, rich in polyphenols or tannins, developed in the cambial tissues as a result of injury. Found in cavities of the wood of eucalypts or as exudates (erroneously called gum).
- lammas shoot. The part of an annual shoot which is formed after a pause in growth in summer.
- land, alienated. Land in other than public ownership.
- land, Crown. In Western Australia, land in public ownership yet not vested in any particular managing authority.
- landing. A site at which logs have been accumulated for the purpose of loading on to a hauling vehicle.
- latewood. The more dense wood formed during the latter part of the formation of the annual ring, especially in conifers. (Syn. summerwood).
- layering. To reproduce by the rooting of a branch which is still connected to the parent tree.
- leader. The terminal shoot of a tree or plant.
- lesion. A local injury caused by disease.
- lignotuber. A woody swelling at the base of a seedling stem, originating on the axils of cotyledons and first formed leaves and containing much bud-producing tissue capable of forming coppice shoots when the old shoot is destroyed.
- litter. The uppermost layer of organic debris on the forest floor, composed of freshly fallen or slightly decomposed materials.
- log. (1) To fell, haul and deliver logs (logging).
 (2) The utilizable part of a tree stem.
- logging, split-phase. Logging operation in which the felling and snigging operations are completed before hauling commences.
- mallee. A shrubby eucalypt with several main stems growing from a common woody base.
- management priority area. An area of forest managed according to its dominant use under a Land Use Management Plan, such as Conservation of Flora and Fauna, Water Production.

material, parent. The unconsolidated mass from which a soil profile develops, usually underlying rock.

mean stand height. The mean height of the co-dominant stems in a stand.

mensuration, forest. The science dealing with the measurement of volume, growth and development of individual trees or stands and the determination of various products obtainable from them.

mesophyte. A plant adapted to survive on sites with a good water supply.

microclimate. The climate of small areas which for some reasons differs significantly from the general climate of the area; more particularly the climate under a plant or other cover.

mineral. A naturally occurring substance obtained from mining operations, including bauxite, coal, ilmenite, precious stones, rutile, tantalite, tin. See Mining Act 1978-1981.

mold, mould. Fungi with conspicuous mycelium or spore masses, often saprophytes.

mopping-up. Making a fire safe after it is controlled, by extinguishing or removing burning material along or near the fireline and felling burning stags.

mor. A type of humus layer which is practically unmixed with the mineral soil and usually shows a well defined line of demarcation from it. Usually more or less matted and compacted, with high acidity, poor nutrient supply, restricted microfauna and absence of earthworms.

morganer. A tree laying on the ground (usually wind blown) which contains a merchantable log.

mulch. Organic material such as cut grass, straw foliage, sawdust, bark chips or woodchips used as a covering for the soil to conserve soil moisture and check weed growth.

mull. A type of humus layer with a loose crumb structure, mingled with the mineral soil and associated with relatively low acidity, good nutrient supply and a rich soil fauna.

multinodal. Having the capacity to produce more than one whorl of branches in a growing season (of conifers).

multiple use. The use of land, especially forest land, for several different purposes. Some types of use are compatible with each other, e.g. water production and conservation of flora and fauna, but others may not be compatible, in which case it is necessary to set a priority or even exclusive use for a particular area (see Management Priority Area).

mycelium. The vegetative portion of a fungus; an aggregate of hyphae of the fungus.

mycorrhiza. The beneficial, interdependent association between the root or rhizome of a green plant and a fungus. There are three types of mycorrhiza.

- (1) Ectotrophic, where fungal hyphae form a closely-woven envelope covering the root apex and penetrating to a limited extent between the cortical cells. Usually formed by basidiomycete fungi.
- (2) Endotrophic, where fungal hyphae are entirely within the root cortex and largely intracellular. Usually formed by phycomycete fungi.
- (3) Ectendotrophic, combining the features of both the above types.

necrosis. The death or disintegration of cells.

needle cast. Premature shedding of needles by conifers.

non-protectable forest. Forest downshope from an infection of a soil borne disease (such as Phytophthora cinnamomi), or a suspect disease infection, in which the risk of natural disease spread is high.

null hypothesis. A hypothesis that ascertained differences following certain experimental treatments are not really due to the treatments but to random variation or experimental errors.

occlusion. The process of healing over or closing the wound made by cutting or breaking off a limb in pruning.

oil, essential. Natural oils occurring in plants imparting a characteristic odour to flowers, leaves or wood. They consist of aromatic hydrocarbons, aldehydes, alcohols, ethers, acids and terpenes.

oospore. Spore formed in a fertilized female sex organ of a fungus.

operculum. Bud cap of the flower bud of *Eucalyptus*.

orchard, seed. see seed orchard.

ortet. The original plant from which a clone has been established by vegetative propagation.

oven-dry. Applied to wood or other material dried in an oven at 105°C until it ceases to lose weight.

overcut. The cutting of a stand or forest at a rate in excess of the growth in merchantable size classes.

overmature. (1) A tree or stand in which, as the result of age, growth has almost entirely ceased and is now balanced by decay and deterioration.
(2) A tree or stand that has passed the exploitable age and size.

overstocked. A condition of stand or forest where there are more trees than full stocking would require.

overwood. The upper storey of a two-storeyed high forest or of any crop in which two distinct crown layers occur, either temporarily or permanently (Syn. overstorey).

pan. A compacted or cemented soil horizon (Syn. hardpan).

parasite. An organism which draws part or the whole of its nourishment from another living organism.

parasite, facultative. An organism normally saprophytic but capable of acting as a parasite.

parasite, obligate. A parasite incapable of existence independent of its living host.

park, national. An area of national significance set aside for the conservation of the natural environment and enhancement of natural beauty and the provision of access and facilities for public recreation.

park, forest. see forest park.

pathogen. A living entity capable of causing disease.

permissible intake. The maximum volume of forest produce, usually logs, which may be supplied to a specified utilization plant in a specified time, usually annually.

pH. A measure of relatively weak acidity and alkalinity, such as is encountered in soils and biological systems. A pH of 7.0 denotes neutrality, higher values indicate alkalinity and lower values acidity.

phellem. The outermost layer of the bark.

phelloderm. The innermost layer of the bark.

phenology. The science which is concerned with the time of appearance of characteristic periodic events in the life cycle of organisms in nature, especially as those events are modified by environmental factors.

phenotype. The external appearance of an organism.

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

pinholes. Small holes in timber or timber products caused by the larvae of various beetles, e.g. ambrosia beetles.

pile. (1) A large, round section piece of timber used as a vertical supporting member of a bridge or jetty or wharf.
(2) A tree with a long straight bole and being between 45 cm and 60 cm diameter at breast height.

pipe. A longitudinal cavity along the centre of a log or standing tree.

pith. The central core of a stem consisting mainly of parenchyma or soft tissue.

plant alliance. Climax plant communities having the same structure, related species as dominants in the overstorey and the same or related species in the understorey; a classification intermediate between a plant association and a plant formation.

plant association. Climax plant communities which have the same structure, the same species as dominants in the overstorey, and the same species in the understorey, usually growing in similar habitat situation; the fundamental unit of synecology.

plant community. An interacting population of plants in a particular area.

plant formation. A plant community of definite physical structure such as tall forest, woodland or grassland.

plant per cent. The percentage of plants established from 100 sound seeds or spores.

plot. A field experimental unit such as an area of land, a tree or part of a tree.

plot, sample. A plot chosen as representative of a larger area. It is called temporary if used only once, or permanent if measurements are repeated at intervals over a number of years.

pole. A tree with a long straight bole, being between 15 cm and 45 cm diameter at breast height.

podsol. Soils with a very thin organic-mineral layer above a grey leached layer which rests upon an illuvial dark brown horizon. Iron and aluminium oxides have been leached from the A- and deposited in the B- horizon.

point, control. (1) In aerial photography, any station in a horizontal or vertical control system that is identified on a photograph and used for correlating the data shown on that photograph.
(2) In fire control operations, a field control centre.

pollard, to. To cut the crown off a standing tree to obtain a head of shoots.

precision. The reproducibility of an estimate of any parameter.

predator. An animal or insect which preys externally upon others. A predator usually destroys several hosts: a parasite lives on, or in, one.

predicted rate of spread. The forecast spread of a fire having due consideration for fuel, topography and weather factors.

predominant height. The average height of the tallest 25 trees per hectare.

prescribed burning. The application of fire to land under such conditions of weather, soil moisture, time of day and other factors that will result in the controlled spread and intensity of heat required to accomplish specific silvicultural, environmental or fire hazard reduction objectives. (Syn. controlled burning).

profile moisture content. The moisture content of the entire leaf litter bed above the mineral soil surface, expressed as a percentage of oven-dry weight.

progeny trial. A plantation trial of the progeny of known parents to determine their inherent characteristics.

prohibited period. The period of the year when lighting of fires is strictly controlled under the Bush Fires Act.

propagule. Any vegetative or reproductive part of a plant capable of being disseminated and of propagating the species.

proteaceous. Members of the family Proteaceae, example, Banksia, Dryandra.

provenance. The geographical source or place of origin of a given lot of seeds or plants.

prune, to. To remove side branches from the main stem of the tree, to reduce the fire hazard or to improve wood quality.

quadrat. A small plot or field study unit, usually one square metre in size, established for the purpose of detailed observation.

quadrat, stocked. In regeneration surveys, one having at least one established seedling or tree.

quartersawn. Timber sawn with the wide face in the radial longitudinal plane so that the growth rings meet the wide face to an angle greater than 45° .

queen cut. Two extra cross cuts in the central portion of a log to remove a defect.

race. A population within a species distinguished by certain hereditary physiological or morphological characters.

ramet. An individual member of a clone.

rate of spread. The forward rate of progress of a fire expressed in metres per hour.

reaction wood. Wood with distinctive anatomical characters, formed typically in parts of leaning or crooked stems and in branches and tending to restore the original position of the branch or stem if this has been disturbed. In dicotyledons this is known as tension wood and in conifers as compression wood.

reafforestation. A second, or any subsequent, attempt at afforestation.

reconditioning. Exposure of timber in a steam chamber to reduce collapse or distortion.

recovery. (1) The reduction in collapse and distortion during reconditioning.
(2) The percentage of log volume obtained as sawn produce.

reel, live. A loose reel in which the hose can be played out or reeled in while water is being discharged through it under pressure.

reforestation. The natural or artificial regeneration of a previously forested area with forest trees.

regeneration. The process of forest renewal, or the plants resulting from natural regeneration process.

regeneration, natural. The renewal of a forest by self-sown seeds, advance growth or coppice. Also applied to the plants themselves.

regrowth. Natural regeneration at the sapling or pole stage of growth.

relict. A community or species that has survived some important change which has altered the general vegetation of the surrounding territory.

resistance. The inherent capacity of a plant to prevent or restrict the entry or subsequent activities of a pathogen when the plant is exposed to inoculum under environmental conditions suitable for infection.

- resting spore. A spore, usually thick-walled, that can remain alive in a dormant condition for considerable periods.
- rhizome. A stem of root-like appearance lying on or under the ground, which roots and sends up shoots.
- rhizomorph. A root-like strand of hyphae occurring in certain fungi, e.g. Armillaria.
- rhizosphere. The zone and its contents immediately surrounding the roots of a plant, which the roots influence.
- riparian. Pertaining to the banks of streams, rivers or lakes.
- rotation. The planned number of years between the establishment of a crop and its felling.
- rotation, financial. A rotation length determined by financial considerations, e.g. that yielding the highest rate of interest.
- rotation, physical. The rotation that coincides with the natural lease of life of a species on a given site.
- royalty. A prescribed fee for forest produce payable to the owner of the forest.
-
- run-off. The total stream discharge from a catchment including both surface and sub-surface flow.
- sample. A part of a population consisting of one or more units selected to be representative of the whole.
- sample, random. A sample selected in such a manner that all possible samples of the same size have equal chances of being chosen.
- sample, stratified random. A sample from a stratified population, consisting of a random selection of sampling units from each stratum. Note that the sampling fraction need not be the same for all strata.
- sample, systematic. A sample consisting of sampling units selected in conformity with some regular pattern.
- sapling. A young tree from the time it reaches 1 metre in height until the trunk reaches 15 cm in DBH.
- saprophyte. A plant that obtains its food from dead organic matter.
- saprophyte, facultative. A parasite capable of living as a saprophyte at times or when necessary.
- sapwood. The outer layers of the stem or log which in the growing tree contain living cells. The sapwood is normally lighter in colour than heartwood.
- sapwood, included. Masses or concentric zones included in the heartwood having the appearance and properties of sapwood.
- saturation deficit. The difference between actual and maximum vapour pressure at the same ambient temperature.

savannah. Tropical or sub-tropical grassland containing scattered trees or shrubs.

savannah woodland. Open forest having an undergrowth mainly of grasses.

sawlog. A log large enough to produce sawn products.

scalping. The removal of turf or other vegetation in the small area where a tree is to be planted.

scantling. Sawn timber of any length but in those cross sectional sizes normally used for house construction, e.g. 70 mm x 45 mm.

scarf. (1) The bevelled surface of a log or stump resulting from the undercutting process in felling.
(2) The v-shaped undercut on the side towards which a tree is to fall.

scarify. (1) To break up the forest floor and topsoil preparatory to natural regeneration or direct seeding.
(2) To wear down by abrasion or acid treatment on outer seed coat to facilitate or hasten germination.

sclerophyte. A plant with a thick leaf cuticle and rigid leaves for resisting desiccation.

scorch. Injury to bark, flowers, foliage or fruit by fire, excessive sun, dry, cold, salt-laden, fume-laden, or unduly strong winds, or unbalanced nutrition.

scrub. Inferior growth consisting of stunted trees and shrubs.

seed tree. A tree used for, or capable of providing, a supply of seed, especially one reserved for this purpose during regeneration felling.

seed orchard. A plantation raised or treated expressly for the production of seed, usually of superior quality.

seed year. A year in which a given species of plant bears an adequate amount of seed.

selection system of cutting. A silvicultural system in which trees are removed individually over the whole area (usually in the course of a felling cycle), to maintain the stand in an uneven-aged condition.

seedling. A plant grown from seed. Usually referring to plants up to the age of one year, up to a height of 30 cm.

self, to. Fertilization of the female gametes by the male gametes of the same individual, whether in nature or artificially.

semi-parasite. A green plant having its own root system but partly dependent for its nutrition on a functional connection with the roots of other plants.

sere. A vegetation succession comprising the development of a plant community from the pioneer stage through successional stages to a stable, mature condition.

serotinous cones. Conifer cones which remain on the tree unopened for one or more years.

- sett. A large cutting, such as that commonly used in the propagation of willows.
- set, spring. A saw is spring set when the teeth are sprung alternately to the right and left along the saw.
- set, swage. Swage set saws have the ends of the teeth spread to a width greater than the thickness of the saw.
- shade bearer. A species capable of persisting and developing under shade.
- shelterbelt. A belt of trees and/or shrubs maintained for the purpose of shelter from wind or sun. (Syn. Windbreak).
- shelterwood system. A system of forest regeneration where the old crop is partially felled and regrowth becomes established under the partial cover of old crop. The parent crop is then removed and the new crop is more or less even aged. (Syn: uniform system).
- shake. A lengthwise separation of wood, usually occurring between and parallel to the growth layers.
- shrub. A woody perennial plant differing from a perennial herb in its persistent and woody stem, and from a tree by its low stature and habit of branching from near the base.
- sib. Offspring of the same plants. Half sib is where one only parent is known, full sib is where both parents are known (from controlled pollination).
- silvics. The study of the growth habits of forest trees and stands in relation to environmental factors.
- silviculture. The art and science of establishment and tending of forest.
- site. The combination of biotic, climatic and soil conditions of a given area.
- slash. The unusable residue after logging or any other waste deposited on the forest floor by a tending operation such as pruning.
- snig, to. To haul a log from the tree stump to a landing or loading point.
- softwood. A conventional term used to denote the timber of trees, and the trees themselves, belonging to the botanical group Gymnosperms. Commercial timber trees of this group are practically confined to the class Coniferae or Conifers.
- spacing. The distance between trees in a plantation. (Syn. espacement).
- spore. A single to many-celled reproductive body in the fungi and lower plants which can develop a new plant.
- sporangium. A plant organ, usually with a spherical wall, capable of producing asexual spores.
- sporulation. The process of production of spores in fungi and lower plants.
- spring. The longitudinal bending that can take place in both portions of a log or flitch as they are separated by a sawcut.

stag. A standing dead tree.

stag-headed. A tree dead at the top as a result of injury, disease or drought.

stand. An aggregation of trees or other growth sufficiently uniform in composition, age, arrangement and condition as to be distinguished from adjacent forest or growth.

stand critical point. That point in development of a stand at which main crop trees commence to lose increment and current annual increment equals mean annual increment.

stand suppression point. That point in development of a stand when production reaches a steady state condition and net current annual increment is zero.

stand suppression zone. The condition in a natural stand when the stand critical point has been passed and growth balances losses.

stand threshold point. That point in stand development when current annual increment reaches a maximum value.

stand table. A table giving the frequency distribution of the various diameter classes in a stand.

standard. A tree selected to remain standing over a younger, or new crop for some special purpose, e.g. shelter, production of high quality timber, or seed.

standard deviation. The standard deviation shows the variability of the individuals of a population about the mean.

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

stock, normal growing. The total volume of trees of a fully stocked forest with an ideal distribution of age classes.

stocking. The number of trees per hectare.

stocking, full. That zone in stand development between the threshold point and critical point.

stocking index. The relationship, expressed as a percentage, of actual stocking of a stand to that stocking that it would have at suppression point.

stool. A stump with one or more coppice shoots.

storey. A horizontal stratum or layer in a plant community, in forests appearing as two or more canopies, e.g. overstorey, understorey.

stormflow. That portion of a rainfall event in excess of soil infiltration capacity which leaves the drainage area on or near the surface in a comparatively short time.

stratification. (1) The operation of storing seeds under certain conditions of moisture and temperature in order to promote even and rapid germination.

(2) Subdivision of a population into strata blocks of sampling units as a preliminary to sampling. Each stratum should be more homogenous in respect of the variable being measured than the population as a whole.

stresses, growth. Natural internal tension and compression forces developed in the standing tree as the result of growth and enlargement of tissues, or other causes.

strip, isolation. An area maintained around an experimental site or an area under special management to ensure the latter is not being affected by any influence from the surrounding area. (Syn. surround, buffer).

stumpage. A charge made for a forest product by the grower which is related to the cost of production.

succession. The gradual replacement of one community by another in the development of vegetation toward a climax.

sucker. A shoot developing from the lower portion of a stem or from a root.

sunscauld. Localized injury to bark and cambium caused by exposure of a stem to excessive sunlight and high temperatures.

susceptibility, plant. Capacity of a plant to become infected by a pathogen or to be affected by a disease.

sustained yield. (1) The material a forest can yield periodically in perpetuity.

(2) As applied to forest policy, a method or plan of management (sustained yield management) that implies continuous production with the aim of achieving, at the earliest practicable time and at the highest possible level, an approximate balance between net growth and yield.

symbiosis. A close relationship between two or more kinds of organism, particularly when the relationship appears to be mutually beneficial.

swamp, to. To clear the ground of a slash or other obstruction.

sweep. A gradual bend in a tree stem.

synecology. Is the ecology of a whole plant community.

synergism. The mutually reinforcing action of separate substances or organisms that together produce an effect greater than the sum of the effects of the components taken separately.

system, silvicultural. A method of silvicultural procedure by which crops constituting forests are tended, harvested and replaced by new crops. There are two basic types of silvicultural system, high forest and coppice forest. These two types can be further sub-divided as follows:

(1) high forest

(a) system with regeneration concentrated in time and space; clear felling (may be in patches or in wedges to minimize wind damage);

clear felling with seed trees;

shelterwood.

(b) systems with regeneration diffuse in time and space;
single tree selection;
group selection.

(2) coppice forest
simple coppice forest;
coppice selection;
coppice with standards.

table, stand. see stand table.

table, water. The upper limit of that part of the soil or underlying material wholly saturated with water.

table, yield. A table showing, for a given species on given sites, the progressive development of the stand at periodic intervals covering the greater part of its useful life.

tending. Any cultural operation carried out for the benefit of a forest crop at any stage of its life. Covers operations on the crop itself and on competing vegetation, e.g. cleaning, thinning, pruning, weeding.

tension wood. see reaction wood.

thinning. A felling made in an immature stand for the purpose of improving the growth of trees that remain without permanently breaking the canopy.

thinning, line. A thinning in which complete rows of trees, e.g. every fifth row, in a plantation are removed. (Syn. row thinning).

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

tolerance. (1) The capacity of a tree to develop and grow in the shade of, and in competition with, other trees.
(2) The capacity to withstand other factors, e.g. frost tolerance, disease tolerance, drought tolerance.

top disposal. A tending operation after a felling in a stand where the slash is cut away from the base of retained stems to avoid damage in any subsequent fire, whether prescribed or otherwise.

top height. The mean of the heights of the tallest 75 trees per hectare.

transpiration. The process by which water vapour leaves the foliage or other parts of a living plant and is released to the atmosphere.

transplant. A seedling after it has been moved one or more times in the nursery, in contrast to a seedling planted out direct from the seedbed.

transect. A line, strip or profile, e.g. of vegetation, chosen for study.

tree. A large woody perennial plant having a single well-defined stem (bole or trunk) and a more or less definite crown, attaining a height of at least 3 m.

tree classification. A separation of trees into groups having specified characteristics in common. The usual characteristic is size: plants 30 cm or less in height are seedlings; advance growth to 1 m; saplings 1 m to 10 m; pole 15 cm to 45 cm DBH; pile 45 cm to 60 cm DBH.

tree marking. Marking a tree by blaze, paint or hammer mark to indicate that it has been selected either for felling or for retention.

tree, plus. A phenotypically superior tree used in a tree improvement programme.

tree, wolf. A vigorous tree of poor form, occupying more space in a stand than its future value warrants and disadvantaging potentially better neighbours.

turbidity. Discolouration of water due to suspended silt or organic matter.

understorey. The lower stratum of a multi-storeyed high forest.

uniform system of cutting. Felling system in which all marketable trees are removed but no cull felling is carried out and any existing regeneration is retained.

uninodal. A conifer that produces only one whorl of branches on the main stem each growing season.

utilization. That branch of forestry concerned with the operations of harvesting and the subsequent processing of the forest crop.

variable. Any character which, though common to the individuals of a population, varies in extent or degree (e.g. tree height, volume per hectare).

variance. A measure of variability, being the square of the standard deviation.

variation, coefficient of. A relative measure of dispersion of values of a variable, obtained by dividing the standard deviation by the mean and multiplying by 100.

variety. (1) taxonomic. A morphologically separable group of individuals within a species, given a Latin name preceded by the abbreviation "var" (varietas).
 (2) horticultural or garden. A group of cultivated plants which, on the basis of morphological and physiological characters, can be differentiated from another group. The name is usually selected by the propagator and is appended to either a generic or specific name and should be denoted by different typeface or included within quotation marks.

vegetation complex. A combination of distinct site vegetation types, usually associated with a particular geomorphological situation.

veteran. An old tree, usually used to refer to a tree remaining from a former stand.

vernalization. Treatment of seed by exposure to low temperatures (usually 2-5°C) in order to accelerate germination, subsequent growth and flowering.

venation. The arrangement of the veins on a tree leaf.

viability. The potential capacity of seed to germinate.

volume, merchantable. The amount of wood considered to be saleable in a crop.

volume, total. The total standing utilizable volume without allowance for defect of any kind.

volume table, log. A table showing, for a given species, the average content of logs to certain specifications, for one or more given dimensions.

volume table, stand. A table showing the volume of a stand or parts thereof using one or more stand parameters as the independent variables.

volume table, tree. A table showing the volume of the bole of a tree or a part of the tree using one or more tree parameters as independent variables.

wane. The lack of wood on the edge of a piece of square-edged timber, showing the bark or surface of the sapwood.

want. The absence of wood on the corner or edge of a square-edged piece of timber due to breakage.

watershed. The dividing line between catchment areas. (Syn. divide).

warp. Any variation of a board from a true surface. It includes spring, bow and cup or any combination of them.

wetting agent. A chemical which, when added to water, reduces its surface tension and so improves contact with any object treated.

whip. An abnormally slender tree, usually with a poor, suppressed crown.

wilding. A naturally grown seedling used in forest planting.

windbreak. (1) A shelterbelt or other obstacle designed to reduce the force of the wind.
(2) wind breakage.

windfall. A tree uprooted by the wind.

windfirm. Able to withstand strong winds without being thrown or broken.

windrow. A long line of piled slash or debris resulting from forest clearing.

witches' broom. An abnormal bushy growth on the branch system of trees or shrubs, markedly different from that of the normal plant and characterized by shortening of the internodes and excessive proliferation; generally pathogenic in origin.

woodland. A plant community in which the trees form only an open canopy, the intervening area being occupied by lower vegetation, usually grass or scrub.

woodlot. A restricted area devoted to growing trees as a crop, usually on a farm.

working circle. An area of forest managed as a unit under a management plan.

working plan. A written scheme of management aiming at continuity of policy and action and controlling the treatment of a forest.

wrench. To cut the finer roots of nursery plants without removing them from the soil.

wilderness area. An area of land preserved from any exploitation by man and maintained essentially in its wild state.

xerophyte. A plant able to tolerate arid environments, usually possessing characteristic adaptations which regulate the size and activity of the transpiring surface.

xylem. The tissues of the stem and root of a woody plant lying between the pith and cambium, serving for water conduction, mechanical strength and food storage. Characterized by the presence of tracheids or vessels.

yield. The quantity of forest produce available from any operation or combination of operations.

zoospore. A motile asexual spore of some algae and fungi (e.g. Phytophthora cinnamomi).