



A Glossary of

# TREE TERMS

The Royal Forestry Society's essential reference guide



PROMOTING WISE MANAGEMENT OF TREES AND WOODS

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# Introduction

Forestry and woodland management is as rich in jargon as most other specialities. For the non-expert, the terminology involved can be just as confusing and off-putting.

For that reason, the Royal Forestry Society has compiled this new and expanded edition of our popular glossary 'Tree Terms' to put tree-speak into plain English for non-professionals. More than 300 terms are here – some ancient, others modern. The latest version embraces a number of novel terms or concepts, especially on carbon certification and sustainability. Words in bold italics cross reference to terms elsewhere in the glossary.

Commonly used abbreviations and acronyms are also listed.

'Tree Terms' is a living document that we can update on the RFS website at [www.rfs.org.uk](http://www.rfs.org.uk). If there are additional words or terms worth incorporating, please let us know.

No single glossary can ever include all terms to do with all aspects of trees and their care. For this reason we have listed some other useful sources of information below.

Biomass – [www.biomassenergycentre.org.uk](http://www.biomassenergycentre.org.uk)

CO<sub>2</sub> glossary – [www.correctcarbon.co.uk/glossary.asp](http://www.correctcarbon.co.uk/glossary.asp)

DEFRA – [www.defra.gov.uk/corporate/acronym.htm](http://www.defra.gov.uk/corporate/acronym.htm)

Glossary of FC Grants Terms – [www.forestry.gov.uk/pdf/Glossaryofterms.pdf](http://www.forestry.gov.uk/pdf/Glossaryofterms.pdf)

Natural England on [www.naturalengland.org.uk](http://www.naturalengland.org.uk) has glossaries on various topics.

TRADA – publish "*A Glossary of Wood*" with 10,000 terms relating to timber and its use, explained and classified – see [www.trada.co.uk](http://www.trada.co.uk).

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# A

**ACIDIFICATION** A process where soil or water bodies are turned increasingly acidic by precipitation of sulphur or nitrogen in weakly acidic form or decay of leaf litter.

**AFFORESTATION** The establishment of a tree crop on an area from which it has always or long been absent. Compare with *reforestation*.

**AGENDA 21** The internationally agreed proposals for implementing sustainable development on a local level which emerged from the 1992 Rio Earth Summit.

**ANGIOSPERMS** One of the two major divisions of seed-bearing, vascular plants with seeds enclosed in an ovary (fruit) e.g. nuts, fleshy fruit or wind-borne seeds – hazel, rowan and birch respectively.

**AGROFORESTRY** Land-use system based on the deliberate integration of trees and shrubs in crop and livestock production systems.

**ANCIENT OR ANCIENT SEMI-NATURAL WOODLAND (ASNW)**  
See under *Woodland*.

**ANCIENT WOODLAND INDICATOR SPECIES** Plant species typical of ancient woodland; i.e. much commoner in ancient than in other woodlands.

**ANCIENT WOODLAND INVENTORIES** Map-based records of the whereabouts of ancient woodland compiled in the 1980s and 1990s by the then Nature Conservancy Council and maintained by successor organisations; an important tool for policy makers and planners.

**ANNUAL ALLOWABLE CUT (AAC)** The amount of timber that can be cut annually from a particular area to ensure a sustainable supply of timber, which roughly averages the amount of new growth each year minus deductions for losses due to fire, insects and diseases.

**ANNUAL GROWTH RING** The sleeve of wood put on each growing season over the previous year's wood and under the bark on both stem and branches. Consists of **spring wood** and **summer wood**; the latter often darker and shows up as a ring in a cross section.

**APICAL DOMINANCE** Where the uppermost bud in a young growing plant develops a more vigorous vertical shoot than others on the same plant. Strong apical dominance leads to trees with a single straight stem and a conical crown.

**ARBORETUM** A collection of specimen trees. See also **pinetum**.

**ARBORICULTURE** The cultivation of trees to produce individual specimens of ornamental or amenity value, for shelter or any other primary purpose other than timber production.

## B

**BALL-ROOTED TREE** Tree prepared for planting out with the earth around its roots intact.

**BARE-ROOTED STOCK** Plants lifted from the nursery soil and dispatched to the planting site with their roots bare of soil.

**BARK** Protective layer on the outside of stems and branches, including living cork cells on the inside and dead ones on the outside.

**BASAL AREA** A measure used to assess the production of wood of **stands** of trees; the sum of the overbark cross sectional areas of all live trees, measured at 1.3m above ground-level expressed in square metres per hectare.

**BEAT UP** Replacement of failures in a new tree crop within a few years of planting.

**BEST FORMED TREES** Trees with the straightest stems and small diameter branches.

**BIODIVERSITY** Biological diversity, which includes the diversity of species, genes and ecosystems and the evolutionary and functional processes which link them.

**BIODIVERSITY ACTION PLAN (BAP)** The UK plan setting proposals and targets for conserving and enhancing biodiversity. **Habitat Action Plans** (HAPs) and **Species Action Plans** (SAPs) exist too.

**BOLE** The main stem or trunk of a tree before it divides into branches.

**BRASH** Small branches trimmed off during **brashing** – also called “**lop and top**”.

**BRASHING** Cutting off the lower branches, to about 2m, on young conifers emerging from the **thicket** into the **pole stage** to allow access for inspection and marking **thinnings**.

**BRASH MATS** Cut branches spread along the route where forest machinery will be driving to reduce soil damage.



**BROADLEAF** An *angiosperm* tree. A tree having broad, often laminar, leaves rather than needles. The species classification is based on botanical characteristics, mainly of flowers and seeds but may also include foliage, etc. Not all broadleaved species have broad leaves or *hard wood*. In the UK most are *deciduous*.

**BROWSE LINE** The level above which large herbivores cannot browse woodland foliage.

**BUFFERING** Additional tree planting around existing woodland to enlarge it and increase resilience. The additional tree line can buffer the impacts from outside pressures such as agricultural operations.

**BURR** Growth on the base or stem of a tree.

**BUTT** Bottom end (root end) of a tree, log or pole.

## C

**CAMBIUM** Layer of living cells just under the bark, from which new growth develops.

**CANKER** Disease-damaged area of a tree, usually caused by fungi or bacteria.

**CANOPY LAYER** That part of a woodland composed of the branches and foliage of trees usually 8 – 30m above ground. In mixed woodland, the two or more distinct layers or '*storeys*' may be apparent within the canopy, each dominated by one or more tree species.



**CANOPY COVER** A measure of the amount of tree foliage and branchwood at a particular place. It has a major effect on the amount of light reaching the ground. Dense canopy cover is often linked with poorly developed *field* and *shrub layers*. Both the density and species of trees influence canopy cover e.g. ash trees have open canopies compared to beech.

**CARBON CYCLE** The global scale exchange of carbon amongst its reservoirs – the atmosphere, oceans, vegetation, soils and geological deposits and minerals.

**CARBON FOOTPRINT** The amount of carbon dioxide an individual or organisation produces, usually measured in tonnes per year.

**CARBON OFFSET** A compensation for the impact of an individual's or organisation's emissions by avoiding or *sequestering* an equal amount of *greenhouse* gases elsewhere.

**CARBON SEQUESTRATION** The process of green plants absorbing CO<sub>2</sub> through photosynthesis and removing it from the atmosphere by storing it as carbon in biomass (tree trunks, branches, foliage & roots) and soils.

**CARBON SINKS** Carbon reservoirs and conditions that take in and store more carbon (*carbon sequestration*) than they release. Forests, peat bogs and oceans are common carbon sinks. Carbon sinks can serve to partially offset *greenhouse gas* emissions.

**CARBON TRADING** An idea presented in response to the Kyoto Protocol that involves the trading of *greenhouse gas* (GHG) emission rights between nations to combat global warming. For example, if Country A exceeds its capacity of GHG and Country B has a surplus of capacity, a monetary agreement could be made that would see A pay B for the right to use its surplus capacity.

**CARCASSING** *Softwood* timber used in house-building – the structural parts not normally seen like joists, purlins and rafters.

**CELL GROWN** Seedlings grown in small containers rather than open-ground nursery beds.

**CERTIFICATION** The process of evaluation or audits by independent third parties of forest practices carried out by forest owners and managers primarily engaged in wood production. The evaluation is done against set standards of sustainable forest management.

**CHIPWOOD** Low grade industrial timber in the round.

**CLEANING** A management operation in young plantations at the *pre-thicket stage* to cut out unwanted vegetation, leaving the preferred trees.

**CLEAR FELL** An area of recently harvested woodland - also called a clear-cut.

**CLEAR FELLING** System of managing *high forest* in which all trees, typically several hectares in extent but at least 0.25ha, are felled and replanted at the same time. Also known as clear-cutting. Compare with *selective felling*.

**CLIMATE CHANGE** The long-term fluctuations in temperature, precipitation, wind and all aspects of the Earth's climate. Also a popular term for current changes in the planet's climate, commonly attributed to a rise in concentrations of *greenhouse gases* in the atmosphere since the start of the industrial revolution.

**CLONE** A genetically identical group of plants originating from a single parent plant by artificial or natural propagation rather than sexual reproduction.

**CLOSED FOREST** Forest with a minimum of 80% *tree canopy* cover. See *open forest*.

**COLONISATION** *Natural regeneration* (of trees) on previously unwooded sites.

**COMMERCIAL WOODLAND MANAGEMENT** Management of woodland to produce the maximum financial benefit from timber trees and other woodland activities. Managers have to ensure that environmental and cultural values are not debased by revenue-producing activities. See *certification*.

**COMMUNITY FORESTRY** Used as an all encompassing operational term. The common denominator is the focus on the role of local communities in managing neighbouring forests and sharing the benefits from them.

**COMMUNITY WOODLANDS & FORESTS** Areas designated primarily to serve the needs of the local community.

**COMPARTMENT** A management division of woodland given an individual number and suitable as a unit for management and record keeping. Sub-compartments are often denoted with a small letter after the compartment number (e.g. 2a) and usually includes tree crops of the same age and species. A forestry “field”.

**CONIFER** A *gymnosperm* tree usually with needles or scale-like leaves rather than broadleaves and which typically bears cones; e.g. pine, fir, spruce and cypresses. In Britain, only Scots pine, juniper and yew are native; spruces, firs, cypresses and other conifers have all been introduced for commercial forestry or ornament. In the UK, all common ones are evergreen except larches. Sometimes referred to as *softwoods*.

**CONIFEROUS FOREST** Forest composed mainly of conifer species (*softwoods* or *gymnosperms*) such as pine, spruce and larch.

**CONSERVATION GLADES** *Glades* or *rides* set out in a wood for nature conservation.

**CONTAINER GROWN** Young tree or shrub grown in a container in order to confine the root system to a compact ball that will not be damaged at *planting* out.

**CONTINUOUS COVER FORESTRY (CCF)** Systems of managing *high forest* which seek to maintain a more or less continuous *canopy* cover through the removal of individual trees or very small patches of trees – these include *selection systems*.

**CONVERSION** The process of turning logs into products like sawn-timber for construction.

**COPPICE** The regrowth from stumps of felled trees, usually broadleaves.

**COPPICE CYCLE** The number of years between cutting the coppice. The coppiced area is often subdivided according to the number of years in the cycle so that a similar area is cut annually, returning to the first block harvested at the start of the next cycle.

**COPPICE SYSTEMS** A traditional system of growing *broadleaved* trees where the trees regenerate from the cut stumps called stools. The same *stool* is used through several cycles of cutting and regrowth. The multi-stemmed trees are generally cut on short *rotations*, typically 7-15 years depending on tree species and markets, to produce crops of poles. Variants include:

**Coppice with standards** has larger, single-stem trees scattered every 15-18m among the coppiced ones.

**Simple coppice** has no standard trees.

**Stored coppice** is singled coppiced stems beyond their normal maximum coppice cycle year being converted to a high forest system.

**Short rotation (SRC) or arable coppice:** modern method of management using fast growing willow or poplar trees to be cut on a 3 to 5 year coppice cycle, for producing wood chips for generating energy.

See also ***coppice cycle, rotation*** and ***underwood***.

**CORD** A notional volume of stacked wood about 1.20 x 1.20 x 2.50m long (4 x 4 x 8 feet) and weighing about 1 tonne when dry.

**CORRIDORS** Areas of wooded habitat created to provide networks across hostile land to other wooded areas to reduce the effects of ***fragmentation*** or ecological isolation. The theory now includes a softening of the landscape matrix to reduce the hostility of 'the land in between' and planting new woodlands next to existing ones to reduce isolation.

**COUPE** An area to be felled at a particular time or a total amount of felling in a year.

**CROWN** The upper part of a tree including the stem, branches and foliage.

**CULTIVARS (cv)** Named variation of a species arising in cultivation and propagated for some unusual characteristic, such as leaf colour, shape or disease resistance.

**CURRENT ANNUAL INCREMENT (CAI)** Volume increment of a ***stand*** in one year, or average over a short period of years, measured in cubic metres per hectare.

## D

**DAPPLED SHADE** Method of management designed to retain 30-50% of the upper *canopy cover* of a wood while the wood is replanted.

**DEADWOOD** Dead or decaying wood is an important element in woodlands, providing a habitat for numerous species of wildlife. Deadwood comes in varying forms from whole standing dead trees (e.g. *snags*), dead branches (e.g. *stagheaded*), rotting *heartwood* in living trees or decaying twigs, branches or trunks lying on the forest floor. The structure and composition of deadwood changes as it rots down and decomposes and so do the wildlife species it hosts.

**DECIDUOUS** Plants shedding all their foliage for the duration of the annual dormant season. Opposite of *evergreen*.

**DEDICATION SCHEME** A scheme introduced in 1946 to encourage rehabilitation for timber production of wartime fellings. Discontinued in 1974 for new entrants but a few woods still remain under this scheme.

**DEFORESTATION** Clearing an area of forest for another long-term use.

**DESTUMPING** Practice of removing stumps after *felling* to reduce the risk of spreading butt rot fungus to newly planted trees.

**DIAMETER AT BREAST HEIGHT (DBH)** The diameter of a tree trunk measured 1.3m (4ft 3in) above the ground, and used to calculate the volume of timber or a tree's age.

**DIOECIOUS** Plants in which the female and the male reproductive organs are on different individuals (as opposed to *monoecious* where they are on the same plant).

**DRAWN UP** Trees grown at very close spacing are unable to develop the width of crowns found on wider spaced trees so have small stem diameter crowns. They look taller than wider spaced trees but are not.

## E

**EARLYWOOD** Thin walled cells laid down in the first part of the growing season. In many species this shows up as a lighter colour than the latewood in both *sapwood* and *heartwood*.

**ECOLOGICAL NICHE** This concept is an expression of the requirements of a plant or animal to survive and reproduce. Potentially, there are many dimensions to a niche but they are of two main types: environmental conditions (e.g. climate) and resources (e.g. food, habitat structure). To a large extent, each species has its own characteristic niche.

**ECOSYSTEM SERVICES** The processes by which the environment produces resources utilised by humans such as clean air, water, food, shelter and materials.

**Supporting:** The services necessary to produce all other ecosystem services including soil formation, photosynthesis, primary production, nutrient cycling and water cycling.

**Provisioning:** The products obtained from ecosystems, e.g. food, fibre, fuel, genetic resources, biochemicals, natural medicines, ornamental resources and fresh water.

**Regulating:** The benefits obtained from the regulation of ecosystem processes, including air quality regulation, climate regulation, water regulation, erosion regulation, water purification, disease regulation, pest regulation, pollination, natural hazard regulation.

**Cultural:** The non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences – thereby taking account of landscape values.

See also ***Forest Goods & Services***

**ECOTONE** A transition zone between two adjacent vegetation types. This transition vegetation may have its own distinctive characteristics. An example is woodland grading through scrub into grassland or heathland. Ecotones are different from edges as they represent a gradient rather than an abrupt change. See also ***ecological succession***.

**EDGE EFFECTS** When a woodland is opened up or reduced in size, changes in canopy structure alter conditions at ground level often resulting in greater light intensity, soil disturbance and changes in moisture levels. This impacts the ground flora community; interior plant species often retreat and decline and those of open spaces and edges thrive and are usually accompanied by more generalist or invasive species.

**ENRICHMENT** Addition of a few young trees by planting an area already established but not fully stocked. Differs from ***beating up*** because it is done after ***establishment*** and usually with additional species.

**ENVIRONMENTAL ASSESSMENT (EA)** Procedure to assess potential environmental impacts, often required legally in planning and development for an environmental statement.

**EPICORMICS** Twigs sprouting directly from dormant or adventitious buds on the stem or main branches when light suddenly reaches the stem. Should not be confused with ***suckers***.

**ESTABLISHMENT** An individual tree is ‘established’ when it is growing satisfactorily and is not at risk from early weed competition or early nutrient deficiency. An area is ‘established’ when there are sufficient established trees or **stocking** rate to form a closed canopy in due course. Trees may require protection from damaging animals, fire, etc, during and after establishment. Planted trees may need freeing from competing woody weed species, several years after establishment.

**ESTABLISHMENT STAGE** The early stages of forest or woodland growth when the canopy is open and before the **thicket stage**.

**EU HABITATS & SPECIES DIRECTIVE** European Union law requiring protection of habitats and species which are rare or endangered across the EU. Requires designations of Special Areas of Conservation (SAC), Special Protection Areas (SPA) and other measures.

**EVERGREEN** Tree or shrub that retains its leaves all year and for several years. Opposite of **deciduous**.

**EXOTIC SPECIES** Species from other countries not naturally found living in Britain. Also called introduced or non-native species. See **native species**.

**EXTRACTION** Removal of timber from where it was felled to a loading area or roadside.

**EXTRACTION ROUTE** Track, **rack** or ride used when extracting felled timber.



## F

**FEATHERED TREE** A young nursery-grown tree well furnished with branches to near ground level.

**FELLER** The person cutting down or felling trees manually, nearly always with a chain-saw nowadays. See *harvester*.

**FELLER SELECTION** Instead of foresters spot or blaze *marking* trees for *thinning* beforehand, skilled *fellers* work their way through *stands*, cutting down weak, suppressed or diseased trees as they go.

**FELLING** Trees are cut down in different patterns or strategies, depending on each case and management aim. Common forms include:

**Clear felling:** Cutting down of an area of woodland (if within larger area of woodland typically a felling greater than 0.25 hectares). Sometimes a scatter or clumps of trees may be left standing within the felled area.

**Group felling:** System of managing *high forest* in which small groups of trees, typically no larger than 0.5ha, are felled and replanted. Sometimes the new crop is encouraged to *regenerate* naturally.

**Selection felling:** Removal of some but not all the trees in a mature crop, or in a forest of mixed ages.

**FELLING LICENCE** Licence issued by the *Forestry Commission* to permit trees to be felled. With certain exceptions it is illegal to fell trees in Great Britain without this.

**FIELD LAYER** Layer or stratum of small non-woody herbaceous plants; e.g. herbs, grasses and ferns (usually no more than 1m above ground). See *canopy*, *shrub layer*.

**FINAL CROP SPACING** The density of trees prior to felling them for timber.

**FOREST** Historically in Britain a Forest, with a capital 'F', was a tract of land subject to special laws for hunting (as in "*Royal Forests*" and "*Chases*"). Some of these Forests contained little woodland. The modern usage of the word is far more general, relating to any extensive tract of tree-covered land. Large areas of more or less natural tree cover are always termed forest. In Britain, the word has often been applied specifically to large conifer *plantations*, such as those in the uplands. Lately, areas such as the National Forest and Community Forests are designated "forest" but include farms, settlements and industry. There multi-purpose *afforestation* is promoted.

**FOREST DECLINE** A term used to express concern that forests, especially in Europe, are deteriorating in health and productivity.

**FOREST DESIGN PLAN (FDP)** Long term outline design plan (20 years or more). The first few years of planting, felling, regeneration and environmental management plans are shown in detail.

**FOREST GOODS & SERVICES** All benefits provided by forests, whether material or tangible (such as timber or *non-timber forest products*) or non-material or non-tangible (such as shade, *biodiversity*, climate regulation or aesthetic enjoyment).

**FOREST HABITAT NETWORKS** A forest habitat network could be viewed as a series of connected nodes and links set in a matrix of other habitats. The nodes are typically woodlands or clusters of woodland, the links are *corridors* made from hedgerows, semi wooded or scrub habitats or wooded riparian systems.

**FOREST PRACTICES** Any forest management activity applied directly to forest land, including *silvicultural* and *harvesting* treatments.

**FOREST PRODUCTS** All timber and non-timber goods derived from forests.

**FOREST SECTOR** That group comprising all direct *stakeholders* in the forest resource.

**FOREST SERVICE** An agency of Northern Ireland's Department of Agriculture & Rural Development, undertaking the regulation of forestry and the management of the state woodlands there.

**FOREST VALUES** Both the marketable (cash) resource and the non-marketable benefits, such as landscape enrichment and conservation. Non-market benefits are difficult to quantify in cash terms.

**FOREST YEAR (FY)** The 12 months from 1st Oct to 30th Sept. Numbered by the second calendar year concerned e.g. trees planted in Oct 1994 are recorded as planted in FY 1995 p95 – see *planting year*.

**FORESTRY** The science and art of managing woodlands.

**FORESTRY COMMISSION (FC)** The government department responsible for regulating forestry and the management of state woodlands throughout Great Britain. The abbreviations FC(E), FC(S) & FC(W) refer to the FC's divisions for England, Scotland & Wales.

**FORMATIVE PRUNING** Removing branches and/or stems of young *broadleaved* trees to ensure that the tree grows with a single stem and light branching – practiced 3-10 years after planting often on trees emerging from *tree shelters*.

**FORWARDER** A forestry machine that can carry cut timber out of the forest to be stacked.

**FOSSIL FUELS** A general term for combustible geologic deposits of carbon in reduced organic form, and of biological origin, including coal, oil, natural gas, oil shales tar sands. When burnt, they emit carbon dioxide into the atmosphere, contributing to the **greenhouse effect**.

**FRAGMENTATION** The gradual loss of woodland over long periods of time has left remaining woodland stands isolated by an expanse of agricultural or urban land. They survive as broken apart or 'fragmented' habitat islands in the landscape. Fragmentation threatens woodland biodiversity by reducing overall woodland area and by increasing the isolation between woodlands thereby hindering the movement of species between the remaining fragments and increasing the risk of local extinction.

**FULL STOCKING** Sufficient trees growing to form **closed canopy** woodland.

## G

**GAPPING UP** Planting additional trees or shrubs within an area to boost the **stocking level** and replace dead trees or shrubs – also called **beating up**.

**GIRDLING** Removing the bark and cambium from the stem in a complete ring.

**GLADE** An open area within woodland, often grassy and maintained by grazing.



**GLOBAL WARMING** A popular term for the rise in average global temperatures in the near-surface temperature of the Earth due to the **greenhouse effect**. Global warming occurred in the distant past as a result of natural influences. The term is now used for predicted warming as a result of increased emissions of **greenhouse gases (GHG)**.

**GREENHOUSE EFFECT** The effect produced as **greenhouse gases** allow incoming solar radiation to pass through the earth's atmosphere, but prevent most of the outgoing infra-red radiation from the surface and lower atmosphere from escaping into outer space – like glass in a greenhouse.

**GREENHOUSE GASES (GHG)** Gases which accumulate in the earth's atmosphere and trap heat. Greenhouse gases include water vapour, carbon dioxide, methane, nitrous oxide, halogenated fluorocarbons, ozone, perfluorinated carbons and hydrofluorocarbons. Some are naturally occurring gases, like carbon dioxide. Others, such as halocarbons, are made by humans, contributing to the greenhouse effect and the thinning of the ozone layer.

**GROUND LAYER** That part of the woodland structure, up to about 10cm above ground, containing mosses, herbs and the seedlings of plants from the higher **layers**. See **canopy**, **field layer** and **shrub layer**.

**GROUP SELECTION** Where small groups of trees are felled and regenerated, often to make a wood more uneven aged or to utilize valuable individual stems.

**GROWING STOCK** All live trees of commercial species.

**GROWTH RING** A sleeve of wood put on in each growing season over the previous year's wood on both stem and branches; it consists of **spring wood** and **summer wood**.

**GYMNOSPERMS** One of the two major divisions of seed-bearing, vascular plants. The seeds are not enclosed in an ovary but typically borne in cones – e.g. the *conifers*. Opposite are *angiosperms*.

## H

**HABITAT** Place or type of site where an organism naturally lives.

**HARDWOOD** A *broadleaved* or *angiosperm* tree species, or its timber whether actually hard or not.

**HARVESTER** A self-propelled machine, often costly and sophisticated, which fells trees, strips the side branches and then cuts the trunks into sections or lengths.

**HARVESTING PATTERN** The spatial distribution of felled and reserve (not felled) areas across the forest landscape.

**HEARTWOOD** The inner wood of trees consisting of dead cell, providing strength. The properties of this wood make it more highly prized for furniture manufacture and other uses than *sapwood*.

**HECTARE (ha)** An area of 100 by 100 metres – roughly the size of a football pitch.

**HEIGHT** In forestry, the “height” of trees can be expressed in various ways. The commonest are:

**Timber height** – the height to the top of the saleable timber; for *softwoods*, to 7cm diameter.

**Top height** – the average total height of the 100 trees with the greatest *diameter at breast height (DBH)* per *hectare*.

**Total height** – the distance from the base of the tree to its highest point or tip.

**HIGH FOREST** *Coniferous* or *broadleaved* woodland of any age in which trees are grown in a single-stemmed form, unlike *coppice*. They are usually grown on relatively long *rotations* to produce crops of timber. Methods of high forest management include *clear-felling, group-felling, selection, two-storey systems* and *shelterwood*.

**HOPPUS MEASURE** A traditional measurement in which a theoretical allowance was automatically made for wastage in *conversion* from round timber into a squared log. There are 27.8 hoppus feet to a cubic metre. A hoppus foot is roughly 20% less than a cubic foot. See *quarter-girth*.

## I

**INCREMENT** The amount of measurable new wood put on by a tree or a stand in a year or in the period between *thinnings*. Measured either in cubic metres or in cubic metres/hectare.

**INDICATIVE FORESTRY STRATEGY (IFS)** Local Planning Authority strategy showing the strategic impacts of afforestation according to sensitivity of different areas.

**INDUSTRIAL ROUNDWOOD** All unprocessed wood fit for commercial use other than fuelwood.

## K

**KYOTO PROTOCOL** An international agreement struck in Kyoto, Japan in 1997 between 159 countries setting out potentially legally binding reduction targets for six *greenhouse gases*.

# L

**LANDSCAPE** A definable area of land. Landscape is not just a geographical concept, but incorporates human, cultural and traditional values associated with the land.

**LANDSCAPE SCALE APPROACH** An approach that requires conservation planning to look beyond protected areas and discrete wildlife sites, to wider natural processes functioning across landscapes in order to secure long term environmental sustainability.

**LATERAL ROOTS** Roots that run out from a tree horizontally just below the surface.

**LAYERING** Fixing a living side shoot of a tree or shrub into the ground to enable roots to develop at or near the fixed point to grow another tree or shrub. Used to create new ***coppice*** plants. May occur naturally.

**LEADER** The main vertical shoot in the crown of a tree.

**LIGHT DEMANDER** A tree that requires plenty of light – a ‘pioneer’ species which normally colonise large gaps or open areas. Intolerant of shade – see ***shade-bearer***.

**LOGGING** Felling and extraction of wood, especially as ***sawlogs***.

**LOP AND TOP** Branches and other off-cuts or arisings cut from felled trees and left on site.

**LOPPING** Cutting branches off a tree.



**LOWER IMPACT SILVICULTURAL SYSTEMS** Silvicultural systems including group selection, shelterwood or underplanting, small coupe felling, coppice or coppice with standards, minimum intervention and single tree selection systems which are suitable for windfirm conifer woodlands and most broadleaved woodlands.

## M

**MAIDEN** A young seedling tree grown from seed, not *coppice* origin.

**MANAGEMENT TABLES** Tables used for commercially grown species and based on yield class. Prepared for controlling *thinning* and *felling* cuts and forecasting yields.

**MARKING** During *silvicultural* operations, trees requiring special attention – to be felled, retained or pruned – are marked usually with a spot of paint (*spot marked*) or *blazed* by slicing off a piece of bark.

**MAST** The fruit of oak and beech. These species do not bear heavy crops each year. Years when crops are heavy are known as *mast years*.

**MEAN ANNUAL INCREMENT (MAI)** The average rate of volume increment of a stand from the time of planting to date, measured in cubic metres per hectare.

**MENSURATION** The measurement of individual trees or *stands*.

**MINIMUM INTERVENTION** Management with only the basic inputs required to protect the woodland from external forces or to ensure succession of key habitats and species.

**MIXED FOREST** *Stands* containing both coniferous and deciduous trees.

**MIXTURE** Two or more species grown together.

**MODIFIED FOREST** Non-primary, ecologically-altered forest.

**MONOCULTURE** Cultivation of a single species or variety of tree or other plant.

**MONOECIOUS** Plants in which the female and the male reproductive organs are found on the same plant. See *dioecious*.

## N

**NATIONAL VEGETATION CLASSIFICATION (NVC)** A comprehensive classification of vegetation in the UK which may be used to describe and assist in habitat evaluation.

**NATIVE SPECIES** Species which have arrived and inhabited an area naturally, without deliberate assistance by man. For trees and shrubs in the UK, usually taken to mean those present after post-glacial recolonisation and before historic times. Some species are only native to particular regions.

**NATIVE WOODLANDS** Woodland with at least 80% of the *canopy* made up of trees suited to that site and within their natural range. Native woodlands include both ancient and recent ones as well as those of planted or semi-natural origin including ASNW, OSNW, RPNW & restored PAWS.

**NATURAL FOREST** A forest composed of indigenous or locally native tree species.

**NATURAL REGENERATION** Trees & shrubs grown from the seed from adjacent plants.

**NATURALIZED** A species long introduced to an area and capable of completing its life-cycle there without human intervention.

**NET DISCOUNTED REVENUE (NDR)** A method of assessing costs and revenues over the whole *rotation* as if they had all been incurred at the beginning of it. Used to compare the profitability of various management options.

**NEW NATIVE WOODLAND** New woodland especially designed and managed to develop a natural character by using planting or natural regeneration of locally native trees and shrubs.

**NEW PLANTING** Establishing woodland on ground not wooded in the recent past.

**NON-TIMBER FOREST PRODUCTS (NTFP)** Fruits, medicinal plants, resins, mushrooms, wildlife and other non-wood goods obtained from forests.

**NURSE CROP** Where a *mixture* of trees is grown in a *stand*, one fast-growing species, usually a *conifer*, may be grown as a nurse crop to protect the other from wind, frost or strong sunlight and draw the slower growing species up faster and straighter with less knot-forming side branches. The nurse should be removed at an early stage once the other trees are well established. The purpose can be twofold – to improve growth and to provide a staggered financial return.



## O

**OLD-GROWTH** This term is widely accepted in North America to denote mature *primary* stands largely undisturbed by man. Their main attributes are:

- a) an abundance of *deadwood*, as standing dead trees, dead limbs on living trees, and as fallen trunks and branches;
- b) some individual trees grow to an extremely large size;
- c) the *stands* will be patchy as a result of natural disturbances such as storm damage.

See also *natural woodland* or *primaeval forest*.

**OPEN FOREST** Forest with between 10 and 30% tree *canopy cover*. Includes many savannah, tundra and dry forests.

**OVERSTOREY** Trees which make up the upper *canopy* of a woodland.

## P

**pH** A measure of acidity and alkalinity on a scale from 0 to 14.0; pH 7 is neutral, less than 7 is acid and more than 7 is alkaline. In soils a pH of 4.5 and below is regarded as extremely acid, 6.6 - 7.3 as neutral and over 9 as very strongly alkaline.

**p YEAR or PLANTING YEAR** The spring or summer in which the tree first grew after planting (e.g. trees planted autumn 1995 are p.96 not p.95). See *forest year*.

**PALLET WOOD** Small *saw logs*, 14/20cm *top diameter*, often destined for pallet making.

**PANEL** A coppice *compartment* i.e. a patch of *coppiced* woodland where the trees are at the same age of growth. Other names include hagg, cant, sale and fell.

**PARK** An enclosed area of grazed land, usually with scattered trees, where historically the primary purpose was to keep deer for meat – an extreme form of *wood-pasture*.

**PINETUM** A botanical collection of *conifers*, not just pines.

**PIONEERS** The first plants and trees to colonise bare ground; they are *light demanders*.

**PLANTATION** A planted woodland.

**PLANTATIONS ON ANCIENT WOODLAND SITES (PAWS)** See under *Woodland*.

**PLANTING** There are various ways of planting trees, depending on the species numbers and situation. The commonest are:

**Mound or turf:** Planting a tree with its roots in a mound of earth thrown up to ensure good aeration, free drainage and less competition. This technique is often used on wet ground by turning over turfs into which a tree is notch planted or more usually by spreading out dollops of soil/peat with a back-hoe or excavator.

**Notch:** Planting in a conical hole made by a dibber or in a slit in the ground in a 'T', 'H' or 'L' shape made with a spade. Unsuitable for large trees or in wet soil.

**Pit:** Planting in a pit of prepared or cultivated soil; essential for trees over 90cm tall.

**Ridge:** Planting in a notch on a ridge created by ploughing.

**Screef:** Planting in a notch made after the turf is removed to expose the soil and reduce weed competition.

**POLE STAGE** A stage in the growth of **stands** of young trees when the **canopy** has closed and at which the live **crowns** are above head height but the timber taken out in thinnings, etc, is below the size of saw timber. In the UK, usually trees from first thinning age to 40 (**conifer**) and 50 (**broadleaf**) years old.

**POLICIES** or **POLICY WOODS** Woodland around mansions in Scotland.

**POLLARD** Trees cut off above the browsing height of large animals (at least 2m above ground level) and allowed to re-grow with a multiple stemmed crown. Re-cutting takes place on similar cycle to **coppicing**. Also to reduce the size of urban trees and create formal landscapes.

**POLYGAMOUS** Bearing male, female or hermaphrodite flowers on the same plant.

**POPULATION** A group of individuals of the same species living within a defined area.

**PRE-THICKET STAGE** The stage between **establishment** and **thicket**.

**PRIMAEVAL FOREST** This term means much the same as **old-growth**, though it is more commonly applied in Europe than in North America. Primaeval (= virgin) forest has never been interfered with by man, either directly through management, or indirectly through external influences such as drainage of surrounding land or atmospheric pollution. Such situations are now so rare in temperate forests that the terms **old-growth** or **natural** are preferred.

**PRIMARY WOODLAND** or **FOREST** See **Woodland**

**PROVENANCE and ORIGIN** These terms have a range of meanings in everyday parlance. The definitions that follow *apply specifically to seed and plant supply for forest trees and shrubs* and are consistent with current forestry legislation:

**Provenance of seed** – The geographic location of the trees from which the seed was gathered. So, say there was a stand of oak trees growing in the New Forest but raised from acorns imported from France, the **origin** of acorns now collected from these oaks in the New Forest is French but the **provenance** is English New Forest.

**Origin of seed and plants** – The geographic locality within the natural range of a species, from which seed or plants were originally introduced.

**PRUNING** The removal of live branches from the **stem** so that subsequent growth produces a cylinder of knot-free timber around a knotty stem core (**high pruning**) or a better shaped tree (**formative**). Pruning is usually confined to the main crop trees to produce quality timber.

**PULP** Finely divided wood particles, resulting from chemical and/or mechanical action on debarked roundwood or wood chips. During paper manufacture, pulp is mixed with copious amounts of water, forming a dilute suspension of particles.

**PULPWOOD** A timber which is destined to be used for the production of wood pulp for paper or board manufacture. Generally small diameter **roundwood** in 2 or 3m lengths.



## Q

**QUARTER GIRTH** A traditional scale used when measuring logs and standing trees, currently restricted to measuring **hardwoods**. For logs, girth overbark is measured in inches at mid-length and the measurement divided by four. Log volume is found from tables using log length in feet and log girth in 'quarter girth inches'. See **Hoppus measure**.

**QUARTER SAWN** A method of sawing a log radially in order to show attractive grain by exposing the medullary rays and reduce shrinking of the boards and planks.

## R

**RACK** A line of trees, or several lines, cut out at the first **thinning** to allow access for inspection or extraction, or a route used during **extraction** which originally contained trees.

**RECENT WOODLAND** See under **Woodland**

**REDUCING** Cutting the top off a tree or some branches to reduce its overall size.

**REFORESTATION** The re-establishment of forests on land which was previously forested – also termed re-afforestation. Compare with **afforestation**.

**REGENERATION** Management carried out in a wood to replace mature, old or moribund trees by **planting** or **natural regeneration**. See **restocking**.

**REPLANTING** Planting in an area cleared of trees and shrubs.

**RESPACE** Cutting out some young trees before reaching the *thinning* stage, to allow better growth of the remaining ones. Can be applied to close *planting* or *natural regeneration*.

**RESTOCKING** The process of promoting the next crop of trees after the felling of the preceding one. Restocking may be achieved by *planting*, by regrowth from cut stumps as in *coppice*, or through *natural regeneration*.

**RETENTION** A *stand* in a commercially productive wood which has been allowed to grow on beyond the optimum commercial felling age for landscape or conservation reasons.

**REWILDING** A movement supporting the preservation of large areas of land that can be self sustaining and are subject to non human management intervention and a return to natural processes. Incorporates the idea of *forest habitat networks* to link areas of wild land and sometimes advocates the reintroduction of large herbivores and carnivores.

**RIDE** Permanent unsurfaced and unplanted route within woodlands used for access, demarcation, extraction, shooting and to encourage light-loving species conservation.

**RING BARKING** Removal of bark and cambium from a tree's stem in a complete ring, destroying the cells carrying the tree's food and often resulting in the tree's eventual death. See *girdling*.

**ROTATION** Planned number of years between planting or *establishment* of a forest and final *felling* age. Rotations include various types:

**Commercial:** the number of years from planting to felling age for timber production.

**Natural:** the number of years from planting or natural regeneration to biological death.

**Economic:** the number of years calculated to give the maximum *net discounted revenue*.

**Rotation of maximum mean annual increment:** the number of years required to achieve maximum mean production of timber for the site. This may be 5-15 years longer than the economic one.

**ROUNDWOOD** Small diameter timber, in rough or natural state, which is usually too small to be sawn and is used for poles, stakes, pulp or chipwood. Includes both industrial roundwood and fuelwood.

## S

**SAPROXYLIC** Organisms that depend on the dead or decaying wood of living or dead trees for some part of their life cycle. See also *Deadwood*.

**SAPWOOD** Living wood making up the outer annual rings of tree trunks through which water from soil is conducted up the tree.

**SAWLOGS** Timber of a size and quality suitable for *conversion* in a saw mill, e.g. a large straight log, bole or branch, usually of at least 14cm *top diameter*.

**SAWNWOOD** Timber or lumber.

**SCARIFYING** Scratching or disturbing the soil surface to create suitable places for tree planting or a seed bed for *natural regeneration*.

**SCRUB** In ecology, an area dominated by *shrubs*, possibly as a stage in *succession* to *high forest*. In forestry, an area of unproductive woodland of small, distorted trees and shrubs.

**SECONDARY WOODLAND or FOREST** See *Woodland*

**SEED ORCHARD** Orchards where selected trees are specially grown for seed production rather than timber.

**SEED STANDS** Good seed is vital to grow superior trees. **Registered Seed Stands** are groups or **stands** of trees chosen as disease-free with better than average quality, vigour and form. Potential Seed Stands are inspected and registered by the **Forestry Commission**.

**SEED TREES** Trees grown or left to produce seed for the production of tree seedlings either in situ or at a nursery.

**SEED YEAR** A year when abundant seed is produced by one particular or several species over a wide area, usually following a good summer. See **mast**.

**SELECTION SYSTEM** System of managing **high forest** in which trees are removed to avoid creating large gaps in the canopy. As a result, the appearance of the wood is more constant than in most other high forest management systems. See **continuous cover** and **group selection**.

**SELECTIVE FELLING OR LOGGING** Logging method that removes only some trees from a forest stand, e.g., commercially important species or certain age classes. Compare with **clearcutting**.

**SEMI-NATURAL WOODLAND** See under *Woodland*

**SETS** Whole woody shoots (usually over 1m), normally poplar or willow, that will root easily when inserted into the soil.

**SHADE-BEARER** A tree species able to become established and grow in the shade of a partial or full **canopy**. See **light demander**.

**SHAKE** Cracking of timber, normally due to stresses when growing.

**SHELTER BELT** Strip of trees planted to provide shelter, generally from wind.

**SHELTERWOOD** System of managing **high forest** in which the new crop is regenerated entirely from selected **seed trees** left standing for several years – usually after heavy **thinning** – until the new growth has established.

**SHRUB** A woody plant whose normal habitat is to grow multiple stems rather than just a single main stem. Compare with **tree**.

**SHRUB LAYER** The stratum of woody shrubs growing between the **field** and the **canopy layers** of forests. Typically this layer occupies the zone between 1 and 6m above ground.

**SILVICULTURE** The science and practice of cultivating forest crops.

**SINGLED** Reduced to a single stem. Usually applied to **coppice stools** where several stems may be cut off to leave just the best one to grow on.

**SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)** Area officially designated as a site of special interest, because of its flora, fauna, geology or physiography.

**SKIDDER** A tractor used to extract timber from the stump to the ride or roadside by dragging (skidding) all or part of the load along the ground.

**SNAG** North American word for a standing dead tree or in the UK for a peg of branchwood left on a trunk after poor *snedding*.

**SNEDDING** Trimming branches from a felled tree.

**SOFTWOOD** Timber derived from, or alternative name for, *coniferous* trees, irrespective of actual hardness.

**SPACING** Pre-selected distance between newly planted trees – see also *respacing*.

**SPECIES RICHNESS** The total number of species inhabiting a defined area or habitat.

**SPOT WEEDING** Weeding round individual trees rather than complete rows or strips.

**SPRINGWOOD** or **EARLYWOOD** Thin walled cells laid down in stems and branches in the early part of the growing season. It is lighter colour than *summer wood* in most species.

**STAGHEAD** Dead crown of a *veteran* tree.

**STAKEHOLDER** Individuals and organisations with a legitimate interest in all or any of the goods and services forests provide.

**STAND** A discrete group of trees or area of woodland, often all of the same in tree species, age, composition and structure.

**STANDARDS** Widely spaced single stemmed individual trees left to grow on to maturity, often with *coppice* growing under and between them.

**STANDING SALES** Sale of timber standing, as compared with sales at **stump** (felled and left) or **roadside** (extracted and stacked).

**STEM** A live, standing, larger tree whose trunk is visible.

**STEM DENSITY** The number of larger trees in an area expressed in stems/hectare.

**STEWARDSHIP** Care and management of forests or other rural land based activity with due regard for the long-term and external effects of activities adopting principles of good husbandry.

**STOCKING or STOCKING LEVEL** The density of trees in a stand, measured in **stems/ha**.

**STOOL** The stump or cut base of a shrub or tree from which new shoots grow.

**STOREY** A structural component of a forest **canopy** when two or more layers can be distinguished e.g. upper and lower storey.

**STRATIFICATION** The practice of placing seeds between layers of moist sand or peat and exposing them to low temperature. This treatment is necessary for seeds that need a period of chilling before germination can begin. Chilling moistened seed in a refrigerator some weeks before sowing achieves the same objectives.

**STRESS GRADING** Process where pieces of timber are tested for strength, to assess their potential for use in construction work. Grading may be by machine or visual. The latter takes note of the visual quality of each piece and number, placing and size of knots.

**STRUCTURE** Woodlands have both a horizontal and a vertical structure. So the edge of a woodland offers different living conditions to the centre or to a guide; and the environmental parameters such as light, moisture and wind on or below the woodland floor are very different from those up in the canopy. **Ancient woodlands** normally have a greater structural diversity than more uniform **plantations** so provide a greater range of habitats and host a greater **biodiversity**.

**STRUCTURAL DIVERSITY** Degree of variation in the spatial distribution of trees in a woodland both horizontally and vertically.

**STUMPAGE** The stumpage value is the difference between the market value of the timber and the operating and transportation costs necessary to get it to a designated market.

**SUCCESSION** This fundamental concept in ecology refers to more-or-less predictable and orderly changes in the composition or structure of an ecological community. Succession may be initiated by formation of a new, unoccupied habitat (e.g. a lava flow or a landslide) or disturbance of an existing plant community (e.g. fire, severe **windthrow** or **clearfelling**). Ecological succession was once seen as having a stable end-stage called a climax, determined primarily by local climate. In the UK, this would be **woodland**.

**SUCKER** Woody shoots arising from an underground stem or root, or shoots arising from the stock of a worked (grafted or budded) plant.

**SUMMER** or **LATEWOOD** Thick walled cells laid down in the middle of the growing season in stems and branches. Usually darker in colour than the adjoining **spring wood**, it shows up as a ring in cross-section.

**SUN SCORCH** Damage caused to bark by unaccustomed exposure to the sun, e.g. after the sudden removal of side shade.

**SUSTAINABLE DEVELOPMENT** Development which meets the needs of the present without compromising the ability of future generations to meet their own needs.

**SUSTAINABLE FOREST MANAGEMENT (SFM)** The concept of SFM implies the stewardship and use of forests to provide a range of benefits over time. International agreements and national policies require foresters to demonstrate that their forestry practices meet independent criteria of sustainability. In Britain, the increasing emphasis upon sustainability has led to the promotion of 'multi-use' management which generally means developing varied forests containing stands of different species, ages and structures.

**SUSTAINED YIELD** The yield that a forest can produce continuously at a given intensity of management for a specific set of objectives, as in 'sustained yield management'. Normally used in the context of timber production.

## T

**TAPER** The reduction of girth from the base to the tip of the stem. This is greater in open grown trees than in closed *plantations*.

**TARIFF SYSTEM** A method of predicting the volume yield from a thinning marked in a stand. It involves measuring the *diameter at breast height* of a 10% sample of the marked standing trees and the tree volume of a 1% sample.

**TENDING** Cleaning, respacing, pruning and thinning operations to improve the tree crop.

**THICKET STAGE** The stage of forest growth after canopy-closure when lower branches of the trees meet and interlace to form a dense, often impenetrable growth. Especially applied to conifer forests of some 10 to 20 years of age. The period just before canopy-closure is termed *pre-thicket*.

**THIN or THINNING** The periodic removal of a proportion of the crop trees, so the remainder benefit from the additional growing space provided. There are two main classes of thinning:

**Mechanical** – where trees are selected by their physical position rather than individual quality. Mechanical thinning (synonyms: *line thinning*, *systematic thinning*) usually involves removing all trees in pre-determined spacings, e.g. every 4th line or row. First thinnings are often line thinnings, made to create access to plantations for *harvesting* and *extraction* equipment.

**Silvicultural or selective** – where trees are selected on an individual basis. In most silvicultural thinnings, misshapen, damaged and diseased trees are selected for removal.

Subsequent selection may be made on:

- 1) stem size: e.g. **low thinnings** will select mostly the smallest diameter trees;
- 2) crown development: e.g. **crown thinnings** related to the size of tree **crowns** in the **canopy** to ensure the best formed and most vigorous trees can increase the size of their crowns;
- 3) a combination of these: e.g. **intermediate thinning**;
- 4) a maintenance of the variation of the original stand: e.g. **eclectic thinning**.

The proportion of trees removed is expressed in terms of **thinning grade** or **intensity** (light to heavy). If too many trees are removed, a stand may be unable to maintain its growth rate. The **marginal thinning intensity** is the maximum thinning intensity that can be maintained without loss of cumulative volume production.

**Thinning to waste** is done for silvicultural purposes to improve the tree crop but cut material is not **extracted** but left in situ because it is not economic to do so and/or to provide additional **deadwood**.

**THINNING CYCLE** The interval in years between successive thinnings.

**THINNING YIELD** The actual yield or marketable timber removed in any one thinning.

**THRESHOLD BASAL AREA** The basal area of a **stand** that is fully stocked, neither under thinned nor over thinned. Used as criterion to decide when **thinning** is needed.

**TIMBER UTILISATION** The dimensions and quality of wood that are actually cut and removed from an area. Low utilisation generally implies high wastage, and vice versa.

**TOP DIAMETER** The diameter of the top (thin) end of logs, important in log specification.

**TOP HEIGHT** See *Height*.



**TRANSPLANT** Bare rooted young trees produced by growing seedlings in a seedbed in the nursery for 1-2 years before being lifted and transplanted to grow on for another 1-2 years before planting out in the wood. This process encourages a strong bushy root system. A tree which has spent 1 year in a seedbed, has been lifted and spent another year in a transplant line, is described as a 1+1 plant in a nursery catalogue. See **Undercut**.

**TREE** A woody plant growing to 6m (20ft) or more on a single stem. Compare with **shrub**.

**TREE PRESERVATION ORDER (TPO)** An order made under legislation regulating care and removal of trees, especially in urban situations.

**TREE SHELTER** Degradable plastic tube in which a young tree is grown. Providing shelter from herbivores, chemical sprays and inclement weather, it may enhance growth rates.

**TRUNK** The living **stem** of a tree.

**TWO-STOREY SYSTEMS** Systems dependent on a lower storey being able to become established and thrive under the shade of a higher canopy. The lower storey may be regenerated naturally or may be planted. The upper storey may be thinned to encourage development of the understorey. See **canopy layer** and **woodland structure**.

## U

**UNDERCUT** Technique used in tree nurseries to cut seedling tap roots whilst still in the ground to encourage good root growth without **transplanting**.

**UNDERPLANTING** Planting a new crop under an existing one with the intention that it will eventually succeed the older one. See also *two-storey systems*.

**UNDERSTOREY** The layer of small trees below the dominant tree species in the canopy but above the field or ground layer.

**UNDERWOOD** The lower storey in a *high forest*, often *coppice* being grown under *standards* or cut wood of coppice origin, young suckers or occasionally *pollard* poles.

## V

**VEGETATIVE PROPAGATION** Producing new plants other than from seeds – e.g. cuttings, *layering*.

**VENEER LOG** High quality timber that is to be sliced or peeled for veneer production. Usually this means that the log must be of large diameter and branch and knot free.

**VETERAN TREE** A tree that is of special interest biologically, culturally or aesthetically due to its age, size or condition.

## W

**WAYLEAVE** Strip of land either side of power lines in which tall trees are not permitted.

**WHIP** A transplanted young tree with a single slender stem, usually 2-4 years old; a term used to describe a type of tree nursery stock.



**WHOLE TREE HARVESTING** The removal from the harvesting site of every part of the tree above ground or above and below ground.

**WILDING** A naturally occurring seedling, also called a “*volunteer*”.

**WILDWOOD** The original *primaeval forest* which developed about 7,000 – 8,000 years ago to cover much of Britain as the glaciers retreated at the end of the last Ice Age.

**WINDBLOW/WINDTHROW** Trees uprooted either partially or wholly in a strong wind. Areas of storm-damaged woodland with a substantial number of uprooted trees.

**WINDTHROW RISK** is a technical assessment of risk based on local climate, topography, site conditions and tree height.

**WINDFIRM** Trees that are unlikely to blow over when exposed to strong winds.

**WIND SNAP** A tree which has had its trunk or stem snapped in a strong wind.

**WITHY** One or two-year old *coppiced* willow or osier shoots cut for basket work.

**WOLF TREE** A large, quick-growing coarse & poorly formed tree of low timber potential.

**WOODBANK** A man-made boundary bank, often ancient, surrounding a wood or subdividing it internally. Frequently marking a very old parish boundary.

**WOOD-BASED PANELS** Includes veneer panels, plywood, particle board and fibreboard.

**WOODCHIPS** Low quality and/or small logs chipped before use as the prime raw material for industrial processes, such as paper or chipboard manufacture, or as bio-fuel.

**WOODFUEL** Fuelwood or charcoal.

**WOODLAND** An area covered mainly by trees. In UK land cover statistics, woodland is defined as land with trees where the mature trees would cover more than 20% by area. Predominantly tree covered land whether in large tracts (or forests) or smaller blocks (e.g. **coverts**, woods, **shelterbelts**, **copses**, **carrs**). Various types or classes are recognised:-

**Ancient** – any site that has always been wooded since at least 1600AD (in England and Wales) when the first maps appeared.

**Ancient semi-natural (ASNW)** – semi-natural stands on **ancient woodland** sites, made up mainly of tree species native to that site, usually derived from **coppice** or **natural regeneration**. Past and present management may have modified the original species composition.

**Plantations** – woodlands derived mainly from human intervention (planting, sowing, management) and often lacking the characteristics and typical species of **semi-natural woodlands**.

**Plantations on Ancient Woodland Sites (PAWS)** – Sites where ancient woodland was converted to a **plantation** dominated by species of exotic broadleaved or conifers.

**Primary** – land that has always been **native** woodland or forest since the last Ice Age, although it may have been harvested regularly.

**Secondary** – woodland on sites formerly under agriculture, moorland or some other non-woodland cover, normally since 1600AD in England & Wales.

**Recent** – sometimes used for woods that are not *ancient*. Two broad categories of recent woodland are recognised:-

(1) **Other Semi-Natural Woodland (OSNW)**

Woodland established since AD1600 that has regenerated naturally rather than been planted and comprised mainly of native species.

(2) **Recent Planted Native Woodland (RPNW)**

Woodland of native trees and shrubs planted on open ground.

**New native woodland** is that established within about the last decade, much of it on farmland or **Farm Woodlands**.

**Semi-natural** – woodlands comprising mainly local native trees and shrubs with some structural characteristics of natural woodland. Few if any woods in the UK are wildwoods. Semi-natural stands here are composed of native trees and shrubs not thought to have been planted but which have arisen from natural regeneration or coppice re-growth. Such stands may have been felled at various times.

**WOODLAND TYPE** Either:

a) the description of the overall appearance of a wood (i.e. ***coppice with standards***); or

b) a description based on the constituent parts of the wood (i.e. ash, oak acid woodland).

**WOOD PASTURE** An ancient system of land-use in which domestic animals were grazed within woodland or under widely scattered trees. The trees were often ***pollarded***.

**WOOD PRODUCTS** All wood-based material used by humankind, including paper, fuelwood and industrial wood.

**WOODLAND STRUCTURE** Woodland vegetation has a physical architecture, with two components:

a) **vertical** structure is the distribution of the foliage into **layers** between the ground and the top of the **canopy**.

b) **horizontal** structure is the spatial patchiness of the woodland in terms of the amount of permanently open space and the extent to which the woodland is **fragmented** into patches at different stages of growth.

## XYZ

**YIELD CLASS (YC)** This measure describes the growth potential of a species on a site. It applies to species in uniform aged plantations. Yield classes are defined in terms of maximum **Mean Annual Increment** (MAI) in units of cubic metres per hectare per annum. A crop's YC and MAI is estimated from the height of the largest trees in the crop (**top height**) and its age. A YC 12 site has the potential to produce a maximum of 12 cu.m. of timber per annum if allowed to grow to the age of maximum MAI. Yields will be less if felled prematurely, or if allowed to grow beyond the age of MAI.

**YOUNG-GROWTH** Young stages of woodland development up to, but not beyond, **canopy**-closure.



# ACRONYMS

<b>ADAS</b>	Agricultural Development & Advisory Service
<b>ASNW</b>	Ancient Semi-Natural Woodland
<b>BAP</b>	Biodiversity Action Plan
<b>BDS</b>	British Deer Society
<b>BIHIP</b>	British & Irish Hardwood Improvement Programme
<b>BTCV</b>	British Trust for Conservation Volunteers
<b>CAP</b>	Common Agricultural Policy
<b>CBD</b>	Convention on Biological Diversity
<b>CCW</b>	Countryside Council for Wales
<b>CLA</b>	Country Land & Business Association
<b>CONFOR</b>	Confederation of Forest Industries (UK) Ltd.
<b>CPRE</b>	Council for the Protection of Rural England
<b>CRC</b>	Commission for Rural Communities
<b>CROW</b>	Countryside & Rights of Way Act
<b>CSS</b>	Countryside Stewardship Scheme
<b>DEFRA</b>	Dept of the Environment, Food and Rural Affairs
<b>EA</b>	Environment Agency
<b>EC</b>	European Commission
<b>EMS</b>	Environment Management System
<b>ESA</b>	Environmentally Sensitive Area
<b>EU</b>	European Union
<b>FAO</b>	Food & Agriculture Organisation (UN)
<b>FC</b>	Forestry Commission
<b>FCA</b>	Forestry Contracting Association
<b>FEI</b>	Forest Education Initiative
<b>FMU</b>	Forest Management Unit
<b>FOE</b>	Friends of the Earth
<b>FRCC</b>	Forestry Research Co-ordination Committee
<b>FSC</b>	Forest Stewardship Council
<b>FWAG</b>	Farming and Wildlife Advisory Group
<b>FWPS</b>	Farm Woodland Premium Scheme
<b>GIS</b>	Geographic Information System
<b>HAP</b>	Habitat Action Plan
<b>HSE</b>	Health and Safety Executive
<b>ICF</b>	Institute of Chartered Foresters
<b>ISO</b>	International Organisation for Standardisation
<b>ITE</b>	Institute of Terrestrial Ecology
<b>ITTA</b>	International Tropical Trade Agreement

<b>ITTO</b>	International Tropical Timber Organisation
<b>IUFRO</b>	International Union of Forestry Research Organizations
<b>JNCC</b>	Joint Nature Conservation Committee
<b>LANTRA</b>	Sector Skills Council for the Environmental and Land-based sector
<b>MAB</b>	Man and the Biosphere Programme (of UNESCO)
<b>NE</b>	Natural England
<b>NERC</b>	Natural Environment Research Council
<b>NFCo</b>	National Forest Company
<b>NFU</b>	National Farmers' Union
<b>NGO</b>	Non-Governmental Organisation
<b>NIFS</b>	Northern Ireland Forestry Service
<b>NNR</b>	National Nature Reserve
<b>NVC</b>	National Vegetation Classification
<b>PAWS</b>	Plantations on Ancient Woodland Sites
<b>PEFC</b>	Programme for Endorsement of Forest Certification
<b>RAC</b>	Regional Advisory Committee (FC)
<b>RDA</b>	Rural Development Agency
<b>RFS</b>	Royal Forestry Society
<b>RICS</b>	Royal Institution of Chartered Surveyors
<b>RSFS</b>	Royal Scottish Forestry Society
<b>RSPB</b>	Royal Society for the Protection of Birds
<b>SAC</b>	Special Area of Conservation
<b>SAP</b>	Species Action Plan
<b>SD</b>	Sustainable Development
<b>SFM</b>	Sustainable Forest Management
<b>SGS</b>	Societe General de Surveillance
<b>SPA</b>	Special Protection Area
<b>SRC</b>	Short Rotation Coppice
<b>SSSI</b>	Site of Special Scientific Interest
<b>SWA</b>	Small Woodlands Association
<b>TPO</b>	Tree Preservation Order
<b>TRADA</b>	Timber Research and Development Association
<b>TROBI</b>	Tree Register of the British Isles
<b>UKWAS</b>	UK Woodland Assurance Scheme
<b>WGS</b>	Woodland Grant Scheme
<b>WWF</b>	World Wide Fund for Nature

## WHAT IS THE RFS?

The Royal Forestry Society is a national educational charity serving all of England, Wales and Northern Ireland. Our 21 local Divisions promote the sharing of knowledge and good practice in woodland management.

Founded in 1882 with 182 members, today we have 4,000 – people from all walks of life including woodland owners, arboriculturists, foresters, ecologists, students, and keen amateurs, all with a common interest in trees and their welfare, and a desire to share and widen their knowledge.

RFS arboricultural qualifications are recognised the world over. We offer the Level 2 Certificate in Arboriculture and the Level 6 Professional Diploma in Arboriculture jointly with ABC at colleges and universities nationwide.

Hundreds of thousands log on to our web-based RFS Knowledge Centre at [www.rfs.org.uk](http://www.rfs.org.uk).

Our bursaries offer young foresters the chance to attend workshops and travel abroad.

We own and manage three woodlands as models of good practice – Hockeridge and Pancake Woods in the Chilterns; Battram, a new working wood in the National Forest; and Leighton, near Welshpool in mid-Wales.

We support Tree Aid, re-planting much-needed woodland in Africa – [www.treeaid.org.uk](http://www.treeaid.org.uk)

# Benefits of membership

As an RFS member, you can:

- Network with other members and share knowledge by joining any of our 100 plus outdoor meetings – often to woodlands and estates not open to the public.
- Attend our annual conference and participate in workshops.
- Take part in our national and international study tours.
- Receive our *Quarterly Journal of Forestry* with articles on all aspects of woodland.
- Access our library with its 2,000 books and publications on trees and forestry.
- Visit the RFS model woods.
- Receive fortnightly e-news with the very latest developments in forestry and the countryside.
- Enjoy *Tree News* free of charge; and
- Support the RFS wider educational brief.

## How to join

To discover more about trees and woodlands, for an RFS information pack or to join online, log on to [www.rfs.org.uk](http://www.rfs.org.uk) or contact us at 102 High Street, Tring, Herts HP23 4AF

Tel: 01442 822028; Fax: 01442 890395; Email: [rfsHQ@rfs.org.uk](mailto:rfsHQ@rfs.org.uk).

Please use these pages for your own notes and comments





## The Royal Forestry Society

The Royal Forestry Society is a unique educational charity, dedicated to the wise management of trees and woodlands.

Since it was founded in 1882, it has acquired a wealth of practical knowledge to help people understand, enjoy and look after the trees and woodlands which are among the most cherished features of Britain's landscape.

To find out more or to join visit [www.rfs.org.uk](http://www.rfs.org.uk) or call 01442 822028.

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