

## GLOSSARY OF ARBORICULTURAL TERMS

**Abscission.** The shedding of a leaf or other short-lived part of a woody plant, involving the formation of a corky layer across its base; in some tree species twigs can be shed in this way

**Abiotic.** Pertaining to non-living agents; e.g. environmental factors

**Absorptive roots.** Non-woody, short-lived roots, generally having a diameter of less than one millimetre, the primary function of which is uptake of water and nutrients

**Access facilitation pruning.** One off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site

**Adaptive growth.** In tree biomechanics, the process whereby the rate of wood formation in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium. This helps to maintain a uniform distribution of mechanical stress

**Adaptive roots.** The adaptive growth of existing roots; or the production of new roots in response to damage, decay or altered mechanical loading

**Adventitious shoots.** Shoots that develop other than from apical, axillary or dormant buds; see also 'epicormic'

**Anchorage.** The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree

**Arboricultural Method Statement.** Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained

**Arboriculturist.** Person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction

**Architecture.** In a tree, a term describing the pattern of branching of the crown or root system

**Axil.** The place where a bud is borne between a leaf and its parent shoot

**Bacteria.** Microscopic single-celled organisms, many species of which break down dead organic matter, and some of which cause diseases in other organisms

**Bark.** A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex and periderm; occasionally applied only to the periderm or the phellem

**Basidiomycotina (Basidiomycetes).** One of the major taxonomic groups of fungi; their spores are borne on microscopic peg-like structures (basidia), which in many types are in turn borne on or within conspicuous fruit bodies, such as brackets or toadstools. Most of the principal decay fungi in standing trees are basidiomycetes

**Bolling.** A term sometimes used to describe pollard heads

**Bottle-butt.** A broadening of the stem base and buttresses of a tree, in excess of normal and sometimes denoting a growth response to weakening in that region, especially due to decay involving selective delignification

**Bracing.** The use of rods or cables to restrain the movement between parts of a tree

**Branch:**

- **Primary.** A first order branch arising from a stem
- **Lateral.** A second order branch, subordinate to a primary branch or stem and bearing sub-lateral branches
- **Sub-lateral.** A third order branch, subordinate to a lateral or primary branch, or stem and usually bearing only twigs

**Branch bark ridge.** The raised arc of bark tissues that forms within the acute angle between a branch and its parent stem

**Branch collar.** A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes applied also to the pattern of growth of the cells of the parent stem around the branch base

**Brown-rot.** A type of wood decay in which cellulose is degraded, while lignin is only modified

**Buckling.** An irreversible deformation of a structure subjected to a bending load

**Buttress zone.** The region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper side of the junctions

**Cambium.** Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally

**Canker.** A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria

**Canopy species.** Tree species that mature to form a closed woodland canopy

**Cleaning out.** The removal of dead, crossing, weak, and damaged branches, where this will not damage or spoil the overall appearance of the tree

**Compartmentalisation.** The confinement of disease, decay or other dysfunction within an anatomically discrete region of plant tissue, due to passive and/or active defences operating at the boundaries of the affected region

**Competent person.** A person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.

**Compression fork.** An acute angled fork that is mechanically optimised for the growth pressure that two or more adjacent stems exert on each other

**Compression strength.** The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees with special drilling devices

**Compressive loading.** Mechanical loading which exerts a positive pressure; the opposite to tensile loading

**Condition.** An indication of the physiological condition of the tree. Where the term 'condition' is used in a report, it should not be taken as an indication of the stability of the tree

**Construction.** Site based operations with the potential to affect existing trees

**Construction exclusion zone.** Area based on the Root Protection Area from which access is prohibited for the duration of the project

**Crown/Canopy.** The main foliage bearing section of the tree

**Crown lifting.** The removal of limbs and small branches to a specified height above ground level

**Crown thinning.** The removal of a proportion of secondary branch growth throughout the crown to produce an even density of foliage around a well-balanced branch structure

**Crown reduction/shaping.** A specified reduction in crown size whilst preserving, as far as possible, the natural tree shape

**Crown reduction/thinning.** Reduction of the canopy volume by thinning to remove dominant branches whilst preserving, as far as possible the natural tree shape

**Deadwood.** Dead branch wood

**Decurrent.** In trees, a system of branching in which the crown is borne on a number of major widely-spreading limbs of similar size (cf. excurrent). In fungi with toadstools as fruit bodies, the description of gills which run some distance down the stem, rather than terminating abruptly

**Defect.** In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment

**Delamination.** The separation of wood layers along their length, visible as longitudinal splitting

**Dieback.** The death of parts of a woody plant, starting at shoot-tips or root-tips

**Disease.** A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms

**Distal.** In the direction away from the main body of a tree or subject organism (cf. proximal)

**Dominance.** In trees, the tendency for a leading shoot to grow faster or more vigorously than the lateral shoots; also the tendency of a tree to maintain a taller crown than its neighbours

**Dormant bud.** An axial bud which does not develop into a shoot until after the formation of two or more annual wood increments; many such buds persist through the life of a tree and develop only if stimulated to do so

**Dysfunction.** In woody tissues, the loss of physiological function, especially water conduction, in sapwood

**DBH (Diameter at Breast Height).** Stem diameter measured at a height of 1.5 metres (UK) or the nearest measurable point. Where measurement at a height of 1.5 metres is not possible, another height may be specified

**Deadwood.** Branch or stem wood bearing no live tissues. Retention of deadwood provides valuable habitat for a wide range of species and seldom represents a threat to the health of the tree. Removal of deadwood can result in the ingress of decay to otherwise sound tissues and climbing operations to access deadwood can cause significant damage to a tree. Removal of deadwood is generally recommended only where it represents an unacceptable level of hazard

**Endophytes.** Micro-organisms that live inside plant tissues without causing overt disease, but in some cases capable of causing disease if the tissues become physiologically stressed, for example by lack of moisture

**Engineer-designed hard surfacing.** Hard surfacing constructed within the 'Root protection area' of a tree, which will be designed by a structural or geotechnical engineer in collaboration with an arboriculturist as set out in clause 7.4 of British Standard BS5837:2012. The purpose being to minimise the effects of the construction on the health of the tree.

**Epicormic shoot.** A shoot having developed from a dormant or adventitious bud and not having developed from a first year shoot

**Excrescence.** Any abnormal outgrowth on the surface of tree or other organism

**Excurrent.** In trees, a system of branching in which there is a well-defined central main stem, bearing branches which are limited in their length, diameter and secondary branching (cf. decurrent)

**Fastigiate.** Having upright, often clustered branches

**Felling licence.** In the UK, a permit to fell trees in excess of a stipulated number of stems or volume of timber

**Field layer.** Herbs, ferns, grasses and sedges

**Flush-cut.** A pruning cut which removes part of the branch bark ridge and or branch-collar

**Girdling root.** A root which circles and constricts the stem or roots possibly causing death of phloem and/or cambial tissue

**Ground layer.** Mosses, ivy, lichens and fungi

**Guying.** A form of artificial support with cables for trees with a temporarily inadequate anchorage

**Habit.** The overall growth characteristics, shape of the tree and branch structure

**Haloing.** Removing or pruning trees from around the crown of another (usually mature or post-mature) tree to prevent it becoming suppressed

**Hazard beam.** An upwardly curved part of a tree in which strong internal stresses may occur without being reduced by adaptive growth; prone to longitudinal splitting

**Heartwood/false-heartwood.** The dead central wood that has become dysfunctional as part of the aging processes and being distinct from the sapwood

**Heave.** A term mainly applicable to a shrinkable clay soil which expands due to re-wetting after the felling of a tree which was previously extracting moisture from the deeper layers; also the lifting of pavements and other structures by root diameter expansion; also the lifting of one side of a wind-rocked root-plate

**High canopy tree species.** Tree species having potential to contribute to the closed canopy of a mature woodland or forest

**Incipient failure.** In wood tissues, a mechanical failure which results only in deformation or cracking, and not in the fall or detachment of the affected part

**Included bark (ingrown bark).** Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact

**Increment borer.** A hollow auger, which can be used for the extraction of wood cores for counting or measuring wood increments or for inspecting the condition of the wood

**Infection.** The establishment of a parasitic micro-organism in the tissues of a tree or other organism

**Internode.** The part of a stem between two nodes; not to be confused with a length of stem which bear nodes but no branches

**Lever arm.** A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch

**Lignin.** The hard, cement-like constituent of wood cells; deposition of lignin within the matrix of cellulose microfibrils in the cell wall is termed Lignification

**Lions tailing.** A term applied to a branch of a tree that has few if any side-branches except at its end, and is thus liable to snap due to end-loading

**Loading.** A mechanical term describing the force acting on a structure from a particular source; e.g. the weight of the structure itself or wind pressure

**Longitudinal.** Along the length (of a stem, root or branch)

**Lopping.** A term often used to describe the removal of large branches from a tree, but also used to describe other forms of cutting

**Mature Heights (approximate):**

- Low maturing – less than 8 metres high
- Moderately high maturing – 8 – 12 metres high
- High maturing – greater than 12 metres high

**Microdrill.** An electronic rotating steel probe, which when inserted into woody tissue provides a measure of tissue density

**Minor deadwood.** Deadwood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target beneath the tree

**Mulch.** Material laid down over the rooting area of a tree or other plant to help conserve moisture; a mulch may consist of organic matter or a sheet of plastic or other artificial material

**Mycelium.** The body of a fungus, consisting of branched filaments (hyphae)

**Occluding tissues.** A general term for the roll of wood, cambium and bark that forms around a wound on a woody plant (cf. woundwood)

**Occlusion.** The process whereby a wound is progressively closed by the formation of new wood and bark around it

**Pathogen.** A micro-organism which causes disease in another organism

**Photosynthesis.** The process whereby plants use light energy to split hydrogen from water molecules, and combine it with carbon dioxide to form the molecular building blocks for synthesizing carbohydrates and other biochemical products

**Phytotoxic.** Toxic to plants

**Pollarding.** The removal of the tree canopy, back to the stem or primary branches, usually to a point just outside that of the previous cutting. Pollarding may involve the removal of the entire canopy in one operation, or may be phased over several years. The period of safe retention of trees having been pollarded varies with species and individuals. It is usually necessary to re-pollard on a regular basis, annually in the case of some species

**Primary branch.** A major branch, generally having a basal diameter greater than 0.25 x stem diameter

**Primary root zone.** The soil volume most likely to contain roots that are critical to the health and stability of the tree and normally defined by reference BS5837 (2012) Trees in Relation to design, demolition and construction

**Priority.** Works may be prioritised, 1. = high, 5. = low

**Probability.** A statistical measure of the likelihood that a particular event might occur

**Proximal.** In the direction towards from the main body of a tree or other living organism (cf. distal)

**Pruning.** The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs

**Radial.** In the plane or direction of the radius of a circular object such as a tree stem

**Rams-horn.** In connection with wounds on trees, a roll of occluding tissues which has a spiral structure as seen in cross-section

**Rays.** Strips of radially elongated parenchyma cells within wood and bark. The functions of rays include food storage, radial translocation and contributing to the strength of wood

**Reactive Growth/Reaction Wood.** Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth)

**Removal of deadwood.** Unless otherwise specified, this refers to the removal of all accessible dead, dying and diseased branchwood and broken snags

**Removal of major deadwood.** The removal of, dead, dying and diseased branchwood above a specified size

**Respacing.** Selective removal of trees from a group or woodland to provide space and resources for the development of retained trees

**Residual wall.** The wall of non-decayed wood remaining following decay of internal stem, branch or root tissues

**Rib.** A ridge of wood that has usually developed because of locally increased mechanical loading. Often associated with internal cracking in the wood of the stem, branch or root.

**Ring-barking (girdling).** The removal of a ring of bark and phloem around the circumference of a stem or branch, normally resulting in an inability to transport photosynthetic assimilates below the area of damage. Almost inevitably results in the eventual death of the affected stem or branch above the damage

**Ripewood.** The older central wood of those tree species in which sapwood gradually ages without being converted to heartwood

**Root-collar.** The transitional area between the stem/s and roots

**Root-collar examination.** Excavation of surfacing and soils around the root-collar to assess the structural integrity of roots and/or stem

**Root protection area (RPA).** Layout design tool indicating a national minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability and where the protection of the roots and soil structure is treated as a priority

**Root zone.** Area of soils containing absorptive roots of the tree/s described. The Primary root zone is that which we consider of primary importance to the physiological well-being of the tree

**Sapwood.** Living xylem tissues

**Secondary branch.** A branch, generally having a basal diameter of less than 0.25 x stem diameter

**Selective delignification.** A kind of wood decay (white-rot) in which lignin is degraded faster than cellulose

**Service.** Any above- or below-ground structure or apparatus required for utility provision e.g. drainage, gas supplies, ground source heat pumps, CCTV and satellite communications

**Shedding.** In woody plants, the normal abscission, rotting off or sloughing of leaves, floral parts, twigs, fine roots and bark scales

**Silviculture.** The practice of controlling the establishment, growth, composition, health, and quality of forests to meet diverse needs and values

**Silvicultural thinning.** Removal of selected trees to favour the development of retained specimens to achieve a management objective

**Single-up.** Removal of stems from a multi-stemmed tree with the aim of developing a tree with a single stem.

**Simultaneous white-rot.** A kind of wood decay in which lignin and cellulose are degraded at about the same rate

**Snag.** In woody plants, a portion of a cut or broken stem, branch or root which extends beyond any growing-point or dormant bud; a snag usually tends to die back to the nearest growing point

**Soft-rot.** A kind of wood decay in which a fungus degrades cellulose within the cell walls, without any general degradation of the wall as a whole

**Spores.** Propagules of fungi and many other life-forms; most spores are microscopic and dispersed in air or water

**Shrub species.** Woody perennial species forming the lowest level of woody plants in a woodland and not normally considered to be trees

**Sporophore.** The spore bearing structure of fungi

**Sprouts.** Adventitious shoot growth erupting from beneath the bark

**Stem/s.** Principle above-ground structural component(s) of a tree that supports its branches

**Stress.** In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature

**Stress.** In mechanics, the application of a force to an object

**Stringy white-rot.** The kind of wood decay produced by selective delignification

**Storm.** A layer of tissue which supports the fruit bodies of some types of fungi, mainly ascomycetes

**Structural roots.** Roots, generally having a diameter greater than ten millimetres, and contributing significantly to the structural support and stability of the tree

**Structure.** Manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork

**Subsidence.** In relation to soil or structures resting in or on soil, a sinking due to shrinkage when certain types of clay soil dry out, sometimes due to extraction of moisture by tree roots

**Subsidence.** In relation to branches of trees, a term that can be used to describe a progressive downward bending due to increasing weight

**Taper.** In stems and branches, the degree of change in girth along a given length

**Target canker.** A kind of perennial canker, containing concentric rings of dead occluding tissues

**Targets.** In tree risk assessment (with slight misuse of normal meaning) persons or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it

**Topping.** In arboriculture, the removal of the crown of a tree, or of a major proportion of it

**Torsional stress.** Mechanical stress applied by a twisting force

**Translocation.** In plant physiology, the movement of water and dissolved materials through the body of the plant

**Transpiration.** The evaporation of moisture from the surface of a plant, especially via the stomata of leaves; it exerts a suction which draws water up from the roots and through the intervening xylem cells

**Tree Protection Plan.** Scale drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures

**Tree Risk Assessment.** An assessment and description of the risks and where appropriate the values associated with a tree or trees. The primary risk being considered is that from falling trees. Other risks, such as damage to infrastructure, interruption of service and building subsidence may also be considered

- **Walkover** – A general view of the tree population considered in the context of the adjacent land-use to identify trees that present significantly elevated risks
- **Drive-by** – A general view of the tree population from a moving vehicle and considered in the context of the adjacent land-use to identify trees that present significantly elevated risks
- **Individual** – the assessment of risks from a single tree considered in the context of the adjacent land-use to identify trees that present significantly elevated risks

**Understorey.** This layer consists of younger individuals of the dominant trees, together with smaller trees and shrubs which are adapted to grow under lower light conditions

**Understorey tree species.** Tree species not having potential to attain a size at which they can contribute to the closed high canopy of a woodland

**Vascular wilt.** A type of plant disease in which water-conducting cells become dysfunctional

**Vessels.** Water-conducting cells in plants, usually wide and long for hydraulic efficiency; generally not present in coniferous trees

**Veteran tree.** Tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. These characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem

**Vigour.** The expression of carbohydrate expenditure to growth (in trees)

**Vitality.** A measure of physiological condition. N = within normal range for species and age, R = reduced from the normal range for the species and age, P = poor,

**Volunteer trees.** Trees arising from natural colonisation rather than having been planted

**White-rot.** A range of kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded

**Wind exposure.** The degree to which a tree or other object is exposed to wind, both in terms of duration and velocity

**Wind pressure.** The force exerted by a wind on a particular object

**Windthrow.** The blowing over of a tree at its roots

**Wound dressing.** A general term for sealants and other materials used to cover wounds in the hope of protecting them against desiccation and infection; only of proven value against fresh wound parasites

**Woundwood.** Wood with atypical anatomical features, formed in the vicinity of a wound