

2.0 Definitions

The Definitions section is a list of the arboricultural and construction-related terms and their definitions as used in the *Manual*. They serve to outline uniform concepts and provide an understanding of events as discussed in the document.

Aeration - In soil, the process by which air from the atmosphere is brought into the soil. Usually to reverse loss of macropores resulting from compaction.

Adventitious Buds and Suckers - Lateral buds whose growth was previously suppressed by an auxin (growth hormone) produced by the dominant leader or side branch. As the suppressing chemicals become weaker, adventitious buds produce a large quantity of new sprouts or sucker growth near the point of the pruning cut or wound break.

Aging - Orderly changes of an organism over time, or its parts as it are genetically designed. In trees, the ratio between volume of wood with living cells being walled off to volume of wood with living cells being generated.

Allelopathy - Chemical inhibition of growth and development of one plant by another.

Amendment (Soil) - Any substance other than fertilizers, such as lime or sulfur. For example, gypsum and sawdust are used to alter the chemical or physical properties of soil, generally to make it more productive.

ANSI A300 - American National Standards Institute - reference source for standards for pruning trees and shrubs.

ANSI Z133.1 - American National Standards Institute - reference source for standards for arboricultural operations.

Apical Dominance - Apical Dominance, or upright growth, is one of the ways a tree attempts to regain its natural form when limbs or branches are removed through pruning, disease, or accident.

Arboriculture - The science and art of caring for trees, shrubs, and other woody plants in a landscape setting.

Branch - A secondary shoot or stem arising from the main stem or trunk.

Branch Collar - Trunk tissue (usually marked by a swelling or collar) that forms around the base of a branch between the main stem and the branch or a branch and a lateral. As a branch decreases in vigor or begins to die, the collar usually becomes more pronounced and more completely encircles the branch.

Branch Bark Ridge - A ridge of bark in a branch crotch that marks where branch and trunk tissues meet and often extends down the trunk.

Caliper - Synonym for trunk diameter used to measure the size of nursery stock.

Callus - Undifferentiated tissue initially formed by the cambium around and over a wound.

Cambium - The tree cell generator. A layer of cells between the inner bark and wood. By the cell division a **cork cambium** forms the outer tissue of the tree's bark; on the inside a **vascular cambium** divides in an outward direction producing phloem and on the inner side xylem.

Canopy - The part of the tree composed of leaves and small twigs.

Certified Arborist - Individual who obtained arborist certification from the International Society of Arboriculture based on knowledge and competence, and who receives on regular basis continuing education administered by the ISA.

City Arborist - Recreation and Parks employee who possesses current certification from the International Society of Arboriculture.

Circling roots - Roots that grow around the trunk in a circular manner, rather than laterally away from it.

Compaction - Breaking down soil particles by mechanical means, resulting in loss of soil macropores and leading to lack of oxygen and water in soils. A major cause of death of tree roots. See also Soil Compaction.

Compartmentalization - Physiological process that creates the chemical and physical boundaries that act to limit the spread of disease and decay organisms.

Compost - Organic residues or mixture of organic residues and soil, that have been piled, moistened, and allowed to undergo biological decomposition.

Conifer - Plant that bears seeds in a cone.

Crotch - The angle formed at the attachment between a branch and another branch, leader or trunk of a woody plant.

Crown - The above ground parts of the tree, including the trunk.

Crown Cleaning - Crown cleaning refers to the removal of dead, dying, diseased, crowded, weakly attached, and/or low-vigor branches from a tree crown.

Decay - Process of degradation of woody tissues by fungi and bacteria through the decomposition of cellulose and lignin.

Deciduous - Perennial plant that loses all its leaves at one time during the year.

Decurrent - Round-headed or spreading plant with no main leader to the top of the plant. Example: coast live oak.

Disturbance - Various activities from construction or development that may damage trees.

Dripline - The width of the crown, as measured by the lateral extent of the foliage.

Drop-Crotch - Reduction cut which reduces the length of a branch or stem back to a live lateral branch large enough to assume apical dominance- this is typical at least one-third the diameter of the cut stem. Branches are selectively pruned or removed at varying distances resulting in a thinning out of the tree canopy.

Epicormic Shoot - Shoots growing from mature branches or near large pruning wounds. Most of these shoots arise from latent buds and seldom firmly attached to the stem from which they arise.

Evergreen - Plant that retains its leaves for more than one growing season.

Excurrent - Tree with cone-shaped crown with a central leader that outgrows and subdues lateral branches. Example: liquidambar.

Final Cut - The last cut made on a limb. It could be the only cut, or the last cut in a series. Final cuts should be made a minimal distance from the parent stem just outside of the branch collar.

Flush Cut - Pruning technique in which both branch and stem tissue are removed; generally considered poor practice.

Grading - Altering existing terrain and elevation of land, usually performed by the use of large equipment.

Growth Ring (Annual Ring) - Width of secondary xylem (wood) produced by the stem in 1 year.

Hazard Tree (Hazardous Tree) - Any tree or tree part that poses a high risk of failure or fracture that causes damage to property or injury to people.

Heading - Cutting a currently growing or 1-year old shoot back to a bud, or cutting an older branch to a stub or a tiny twig not sufficiently large enough to assume the terminal role. This technique is rarely appropriate on established trees and should not be used to reduce the height or size of trees.

Heartwood - Nonliving xylem in the center of a trunk or branch; wood is darker in color and may be a site for storage; provides structural strength to a tree.

Included Bark - Bark that occurs in a crotch between branch and trunk or between co-dominant stems. Included bark usually:

- prevents the trunk from growing around a branch.
- occurs on defective V-shaped crotches in which the bark grows inward and on itself, causing a physical weakness where the co-dominant leaders meet.

Indigenous Plants - Plants occurring or living naturally in an area; not introduced; native.

Lateral - A branch or twig growing from a parent branch or stem.

Leader - A dominant upright stem, usually the main trunk. There can be several leaders in one tree.

Limb - Same as branch, but usually larger and more prominent.

Mature Trees - Trees that have reached at least 75 percent of their typical final height and spread.

Mycorrhizae treatment - Soil injection with mycorrhizae spores to increase symbiotic relationship of tree roots and beneficial fungi.

Mulching - Any material such as sawdust, woodchips, leaves, plastic film, gravel, and loose soil that is spread on the surface of the soil to protect the soil and roots from the effects of raindrops, soil crusting, freezing, and evaporation. May aid in reducing soil compaction.

Parent Branch or Stem - The tree trunk; or, the larger limb from which lateral branches grow.

Permanent Branches (Permanent Limbs) - Branches that will remain on a tree for many years, perhaps until maturity.

Phloem - The food conducting tissue of trees. Formed by the division of the outside layer of the vascular cambium. New phloem is produced yearly; older cells are crushed and compacted.

Protected Trees - Trees protected by the R&P Tree Preservation Policy.

Pruning - Systematic removal of branches of a plant, usually a woody perennial.

Root Buffer - A temporary layer of material to protect the soil texture and roots. See section 4.20.5-B for details.

Root Collar - The junction between the root of a plant and its stem, often indicated by the trunk flare.

Sapwood - Functional, conductive and youngest layer of secondary xylem positioned next to the bark tissues; transports and stores water, mineral elements, and carbohydrates.

Scaffold - In decurrent trees a large limb that is or will be part of the permanent branch structure of a tree.

Soil Compaction - Compression of soil particles that may result from the movement of heavy machinery and trucks, storage of construction materials, structures, paving, etc. within the tree dripline.

Species (Tree Species) - Group of plants that resemble each other closely and that interbreed freely.

Sucker - Vigorous upright epicormic shoot that arises from latent buds below soil level or the graft union.

Sustainability - Maintenance of ecological, social, and economic functions and benefits over time.

Taper - The thickening of a stem (trunk) or branch toward its base.

Target - People or property potentially affected by tree failure.

Temporary Branch - A branch that will remain on the tree for only a short period; not a permanent limb. Usually lower temporary branches are left on young trees to encourage taper and sturdy trunk development.

Thinning - Pruning technique in which branches are removed at their point of origin.

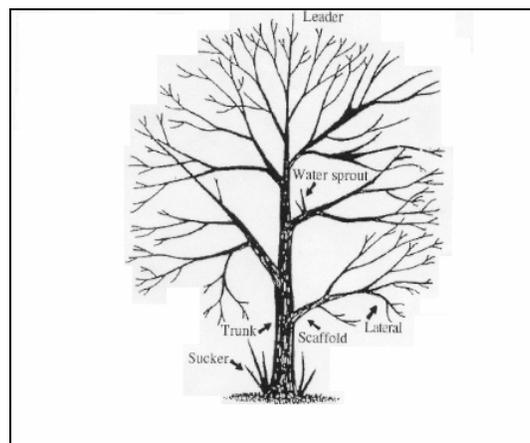
Topping - Pruning technique to reduce height by heading of large branches. Generally considered poor practice. See also heading.

Tree Protection Zone - Area identified by City Arborist in which no soil disturbance is permitted and activities are restricted. Usually the area of a temporary fenced tree enclosure.

Trenching - Any excavation to provide irrigation, install foundation, utility lines, services, pipes, drainage or other property improvements below ground.

Undercut - Cutting partway through the underside of a limb to prevent the bark from tearing. Failure to make an undercut can cause the bark of a tree to tear down.

Watersprout - Vigorous, upright, epicormic shoots that grow from latent buds in older wood. Reciprocal are suckers that arise above the soil level or graft union. Seldom firmly attached to the stem from which they arise.



Virginia State University, 2002. *A Guide to Successful Pruning*

Typical Tree Framework

Wound - An opening that is created when the tree's protective bark covering is penetrated, cut, or removed, injuring or destroying living tissue. Pruning a live branch creates a wound, even when the cut is properly made.

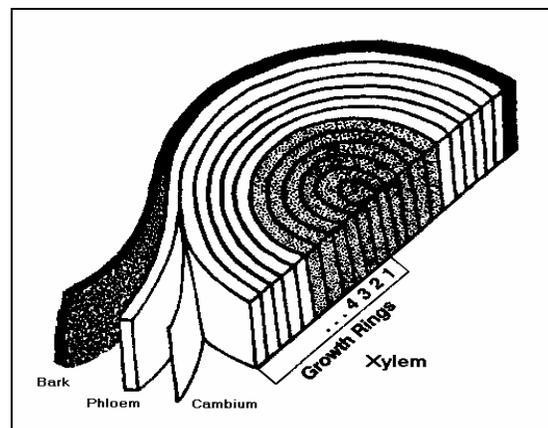
Wound Closure - The closing of a wound, necessary for the continued health of the tree. Wounds do not *heal* (return to restore to original condition or integrity) because wounding breaks or destroys the cambium; they *close*.

Woundwood - Differentiated woody tissue that forms after initial callus has formed around the margins of a wound. Wounds are closed primarily by woundwood.

Vertical Mulching - Technique designed to increase aeration of compacted soils. Holes are drilled into the ground and coarse textured or organic materials are added to replace the removed soil.

Xeriscape - Style of landscape design, construction, and maintenance focused on minimizing the need for supplemental irrigation.

Xylem - Cells formed by the division of the vascular cambium. Xylem cells function to transport and store water and mineral elements as well as provide mechanical support.



ISA, 1998. *Tree Climber's Guide*

Relative locations of the phloem, cambium and xylem