


**Jeff Martin**

# Forestry terms

**L**ike any other profession, forestry has many special terms and abbreviations. Woodland owners and others who enjoy being in the woods hear many terms which may be unfamiliar at first. But as you hear and use these terms, their meanings will also become familiar.

This publication provides an overview of forestry terms commonly used in forestry and woodland issues.

## Acid soils

Common where high precipitation washes certain chemicals out of the soil. Acid soils are also associated with certain tree species, mostly conifers, because of the chemicals released from the decomposing tree parts. Acid soils have soil pH values below 7.0. Soils are considered strongly acid when the pH value is below 6.0.

## Acre

A land area of 43,560 square feet (approximately 209' by 209').

## Afforestation

Establishing a forest on an originally treeless area, such as a prairie.

## Allowable cut

The volume of wood that can be cut during a given period without exceeding the forest's net growth.

## Artificial reproduction or artificial regeneration

See reproduction.

## Aspect

The compass direction towards which a slope faces.

## Basal area

- a. Of a tree: the cross-sectional area (in square feet) of the trunk at breast height (4½ feet above the ground). For example, the basal area of a tree 14 inches in diameter at breast height is approximately 1 square foot. Basal area of a single tree =  $.005454 \times (\text{DBH}^2)$
- b. Of an acre of forest: the sum of basal areas of the individual trees on the acre. For example, a well-stocked northern hardwood stand might contain 80 to 100 square feet of basal area per acre.

## Blowdown

See windfall.

## Board foot

A unit for measuring wood volumes equaling 144 cubic inches, commonly used to measure and express the amount of wood in a tree, sawlog, veneer log or individual piece of lumber. For example, a piece of wood 1 foot x 1 foot x 1 inch or one measuring 1 foot x 3 inches x 4 inches both contain 1 board foot.

## Bole

The main tree trunk.

## Bolt

A short log or a squared timber cut from a log up to 8 feet in length.

## Breast height

See DBH.

## Canopy

The layer of tree crowns in a forest.

## Cleaning

Removing some trees in a very young stand to favor the remaining young trees.

**Clearcut**

A harvesting and regeneration technique which removes all the trees (regardless of size) on an area in one operation. Clear-cutting is most used with species like aspen which require full sunlight to reproduce and grow well. Produces an even-aged forest stand.

**Climax ecosystem**

The final stage of plant community development in which species composition remains relatively stable.

**Commercial cut**

A cut that yields a net income (product sale receipts exceed cutting cost).

**Competition**

The struggle between plants for available light, nutrients, moisture and growing space.

*Crown:* Competition above ground for light, heat, carbon dioxide and perhaps oxygen.

*Root:* Competition for soil, water nutrients, oxygen and perhaps space.

**Conifer**

A tree belonging to the order of Coniferales, usually evergreen, cone bearing and with needles, awl or scalelike leaves such as pine, spruces, firs, cedars, tamarack; often called "softwoods."

**Conservation**

The protection, improvement and wise use of natural resources to assure the attainment of their highest economic and social values in perpetuity.

**Cord**

A stack of round or split wood containing 128 cubic feet. A standard cord measures 4 feet x 4 feet x 8 feet. In Wisconsin, pulpwood cords are 4 feet x 4 feet x 100 inches to allow for loss of wood at ends of bolts during tumble debarking. A face or short cord is 4 feet x 8 feet of any length wood less than 4 feet.

**Crop tree**

A tree identified to be grown to maturity and for final harvest cut. Usually selected on the basis of its location to other trees and its quality.

**Crown**

The branches and foliage of a tree.

**Cruise**

A survey of forest land to locate timber and estimate its quantity by species, products, size, quality or other characteristics; the estimate obtained in such a survey.

**Cubic foot**

A wood volume measurement containing 1,728 cubic inches, such as a piece of wood measuring 1 foot on a side. A cubic foot of wood contains approximately 6 to 10 usable board feet of lumber rather than 12 board feet because of wood lost as sawdust and shavings during processing.

**Cull**

A tree or log of merchantable size rendered useless for all but firewood because of shape, disease, insect infestation or injury.

**Cutting cycle**

The planned time interval between major harvesting operations in the same stand, usually in uneven-aged stands. For example, a cutting cycle of 10 years in a northern hardwood stand means a harvest every 10 years.

**DBH**

The tree diameter at breast height (4½ feet above the ground).

**Deciduous tree**

A tree which loses all its leaves at some time during the year (in Wisconsin, during the winter).

**Deck, log**

A pile of logs ready for loading onto truck or train.

**Defect**

That portion of a tree or log unusable for the intended product and, therefore, not measured. Defects include such things as rot, crookedness, cavities, excessive limbiness, or other undesirable traits.

**Dendrology**

The study of the identification, habits and distribution of trees.

**Diameter**

Tree diameter is usually measured 4½ feet above ground level (see DBH).

**DIB (or d.i.b.)**

Diameter inside the bark. Used in log scaling.

**DOB (or d.o.b.)**

Diameter outside the bark. Used in estimating a standing tree's volume.

**Ecosystem**

An interacting system of living organisms (plants and/or animals), soil and climatic factors. Foresters consider a forest an ecosystem.

**Entomology, forest**

The science that deals with insects in their relation to forests and forest products.

**Environment**

The prevailing conditions reflecting the combined influence of climate, soil, topography and biology (other plants and animals) in an area. Environmental factors determine how well a particular species will grow in a given area.

**Even-aged forest**

A forest of even-aged timber stands. The trees in *each* stand are essentially the same age (within 10 to 20 years).

**Even-aged forest management**

Forest management with periodic harvest of all trees on part of the forest at one time or in several cuttings over a short time to produce stands containing trees all the same or nearly the same age. In Wisconsin, this type of management is commonly applied to conifers and aspen.

**Evergreen tree**

A tree which retains some or all of its leaves through the year.

**Forest**

A plant community with trees and other woody plants dominating.

**Forest management**

- a. Giving the forest proper care so that it remains healthy and vigorous and provides the products and amenities the landowner desires
- b. Technical definition: Applying technical forestry principles, practices and business techniques (accounting, benefit-cost analysis, etc.) to forest activities.

**Forest type**

A group of tree species which, because of their environmental requirements and tolerances, commonly grow together. Three examples of forest types are the beech-sugar maple type, the jack pine type, and the aspen-paper birch type.

**Forestry**

The science, art and practice of managing trees and forest and their associated resources for human benefit.

**Forty**

A square land tract of 40 acres,  $\frac{1}{4}$  mile on a side.

**Girdling**

Mechanical, insect or disease damage which completely encircles the tree trunk, severs the bark and cambium (active growing layers of cells), and usually penetrates the sapwood to kill the tree by preventing the conduction of nutrients.

**Grading**

Evaluating and sorting trees, logs or lumber, according to quality.

**Habitat**

The local environment of a plant or animal.

**Harvest**

- a. In general use, removing all or portions of the trees on an area.
- b. Technical definition: Removing trees on an area to:
  - 1) obtain income;
  - 2) develop the environment necessary to regenerate the forest; and on occasions,
  - 3) to achieve some special objectives such as the development of special wildlife habitat needs or contrast with intermediate cuttings.

**Hardwood**

A term describing broadleaf, usually deciduous, trees such as oaks, maples, ashes, elms, etc. Not necessarily the hardness of the wood.

**Harvesting methods**

See clearcut, seed-tree, selection and shelterwood.

**Height, breast**

See diameter.

**Height, merchantable**

Tree height (or length of its trunk) up to which a particular product may be obtained. For example, if the minimum usable diameter of pulpwood sticks is 4 inches, the merchantable height of a straight pine tree would be its height up to a trunk diameter of 4 inches. If 8-inch minimum diameter sawlogs were being cut from the same tree, its merchantable height for sawlogs would be its height up to a trunk diameter of 8 inches. Note, the product being cut determines merchantable height.

**Height, total**

Tree height from ground level to top.

**Herbicide**

Chemicals, including phytocides and silvicides, that kill plants.

**Increment borer**

A hollow auger-like instrument used to bore into the tree trunk to remove a cylindrical cross section of a tree's growth rings.

**Intermediate cut**

Removing immature trees from the forest sometime between establishment and major harvest to improve the quality or maintain the growth rate of the remaining forest stand. Contrast with harvest cut. An intermediate cut may generate income (commercial cutting), or may cost the forest landowner more than income realized (a non-commercial cutting).

**Liberation cutting**

See release cutting.

**Log**

- a. A piece of the woody stem (trunk or limb) of a tree.
- b. The trunk portion of a tree.
- c. In the East, a tree stem section exactly 16.3 feet in length, including trim allowance.

**Logger**

An individual whose occupation is harvesting timber.

**Log sale**

See sale, log.

**Lop**

To chop or saw branches, tops or small trees after felling, leaving the slash on the ground.

**Lump-sum sale**

See sale, lump-sum.

**Log rule**

A device, usually in tabular form, which expresses log volume content based on log diameter (inside the bark of the small end) and length. The Scribner Rule is the standard rule in Wisconsin and is most often used.

**Log yard**

See yard, log.

**Management**

See forest management.

**Mature tree**

A tree that has reached the desired size or age for its intended use. Size or age will vary considerably depending on the species and intended use.

**MBF**

Thousand board feet.

**Mensuration**

Traditionally, that phase of forestry dealing with the measurement of present and future volume, growth and development of individual trees and stands and their timber products; also measurement of forest lands.

**Multiple use**

Land management for more than one purpose, such as wood production, water, wildlife, recreation, forage, aesthetics and climate moderation.

**Natural forest stand**

See plantation.

**Non-commercial cutting**

A cutting which does not yield a net income, usually because the trees cut are too small, poor quality or not marketable.

**Pathology, forest**

The science that deals with diseases of forest trees, stands and products.

**Phytocides**

Chemicals that kill plants (herbicides and silvicides).

**Plantation**

An artificially reforested or afforested area established by planting or direct seeding. Contrast with a forest stand established naturally.

**Pole saw**

A saw attached to a long pole for pruning without using a ladder.

**Pole stand**

A stand of trees with diameters ranging from 4 inches to approximately 10 inches.

**Preservation**

- a. As applied to wood, treating wood products with chemicals to prevent damage by insects or decay organisms.
- b. With respect to land, maintaining a natural environment undisturbed by the influence or activities of humans.

**Pruning**

Removing live or dead branches from standing trees. With forest trees, pruning is generally done along the trunk to remove the lower branches (which cause knots in the wood) to produce a higher quality (knot-free) wood.

**Pulpwood**

Wood cut primarily to be converted into wood pulp for the manufacture of paper, fiberboard or other wood fiber products.

**Reforestation**

Reestablishing a forest on an area where forest vegetation has been removed.

**Release cutting**

A cutting operation to release young trees (seedlings or saplings) from competition with other trees of the same size (a cleaning) or larger and overtopping trees (a liberation cut).

**Reproduction**

- a. Young trees which will grow to become the older trees in the future forest.
- b. The process of forest replacement or renewal. This may be done artificially by seeding or planting or naturally by sprouting or natural seeding.

**Roots**

That portion of the tree, generally underground, which absorbs nutrients, anchors the tree and stores food and waste products. General types of roots include:

*Tap root*—A strong central descending root with lateral roots branching off horizontally. Typical of black walnut, white oak and some pines.

*Heart-shaped root*—Several large roots descending at various angles into the soil with smaller roots branching from these. Produces a heart-shaped root mass broadest near the soil surface but penetrating deeper into the soil. Typical of beech and maple.

*Flat root*—Several large roots which extend out nearly horizontally with smaller roots branching from these. Produces broad, flat, shallow root systems. Typical of spruce, hemlock and trees growing in poorly drained soils or soils where the water table is close to the soil surface.

**Rotation**

The number of years required to establish and grow trees to a specified size, product or condition of maturity.

**Roundwood**

Wood products that are round such as pulpwood, posts, piling, poles, firewood and timber.

**Salvage cut**

Harvesting dead trees or those in danger of being killed (by insects, disease or the environment) to save their economic value.

**Sanitation cut**

Harvesting or killing trees infected or highly susceptible to insects or diseases to protect the rest of the forest stand.

**Sapling**

A small tree, usually between 2 and 4 inches DBH.

**Sawlog**

A log large enough to produce a sawn product—usually at least 10 to 12 inches in diameter at the small end.

**Sale, log**

A method of selling timber in which the log volume is determined after trees are cut and payment is made based upon a previously agreed price. Price depends on potential use such as sawlogs, veneer or ties.

**Sale, lump sum**

Standing designated trees, usually constituting a specified volume, are sold at a previously agreed upon total price.

**Scale stick**

A flat stick, similar to a yardstick, calibrated so log volumes can be read directly when the stick is placed on the small end of the log of known length.

**Second growth**

Forests that originate naturally after removal of a previous, usually virgin stand by cutting, fire or other cause.

**Seed-tree harvest cutting**

Removing all trees from the harvest area at one time except for a few selected trees left to provide seed to establish a new forest stand.

**Seedling**

- a. A tree, usually less than 2 inches in DBH, which has grown from a seed (in contrast to a sprout).
- b. Nursery grown trees which have not been lifted and replanted in the nursery (see transplant).

**Seed year**

A year in which a given species produces (over a considerable area) a large seed crop. Usually applied to trees of irregular or infrequent seed production.

**Selection harvest**

Harvesting individual trees or small groups of trees at periodic intervals (usually 8–15 years) based on their physical condition or degree of maturity. Produces an uneven-aged stand.

**Shelterwood harvest**

Removing trees from a harvest area in a series of two or more cuttings so new seedlings can establish and grow in the partial shade and protection of older trees. Produces an even-aged stand.

**Shrub**

A low-growing perennial plant with a woody stem and low branching habit.

**Silviculture**

The art, science and practice of establishing, tending and reproducing forest stands of desired characteristics based on knowledge of species characteristics and environmental requirements.

**Site**

- a. A tract of land with reasonably uniform soil and climatic factors.
- b. An area evaluated as to its capacity to produce a particular forest or other vegetation based on a combination of biological, climatic and soil factors.

**Site index**

An expression of forest site quality based on the height of the dominant trees at a specified age (usually 50 years in the eastern United States).

**Site preparation**

Preparing an area of land for forest establishment, including clearing, chemical vegetation control or burning.



**Skidding**

Pulling logs from the stump to the skidway, landing or mill.

**Slash**

Residue left on the ground after logging, pruning, or other forest operations. Includes tree tops, branches or bark.

**Softwoods**

See conifer.

**Soil texture**

The feel or composition of a soil based on the proportion of sand, silt and clay in the soil.

**Sprout**

A tree growing from the base, stump or root of another tree.

**Stand**

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

**Stand, timber (types of)**

- a. *Fully stocked.* A forest stand with all growing space effectively occupied but having ample room for developing crop trees.
- b. *Mixed.* A stand having less than 80 percent of the trees in the main crown canopy of a single species.
- c. *Old field.* A stand on land once used for agricultural crops or for pasture.
- d. *Overstocked.* Overcrowding in a stand leading to retarded growth.
- e. *Pole-timber.* A stand with most trees from 4 to 10 inches in diameter.
- f. *Pure.* A stand with at least 80 percent of the trees in the main crown canopy of a single species.
- g. *Residual.* The stand remaining after any type of cutting.

- h. *Sawtimber.* A stand with most trees large enough in diameter (usually 10 to 12 inches DBH or larger) to be sawn into lumber.
- i. *Understocked.* A stand with the growing space not effectively occupied by trees intended for harvest.

**Stocking**

The number of trees in a forest stand. Often, stocking level is compared to the desirable number of trees for best growth and management, such as partially stocked, well-stocked or over stocked.

**Stumpage**

Trees as they stand in the woods uncut (on-the-stump).

**Succession**

The replacement of one plant community by another until ecological stability is achieved.

**Sucker**

Synonymous with sprout.

**Sustained yield**

Management of forest land to produce a relatively constant amount of timber and/or revenue on a long-term basis.

**TSI (timber stand improvement)**

Improving the growth and/or species makeup by removing the less desirable trees, vines and, occasionally, large shrubs.

**Thinning**

Generally a cutting in an immature forest stand to reduce the tree density and concentrate the growth potential on fewer, higher quality trees resulting in larger trees that maintain a good growth rate.

- a. *Commercial.* A thinning that pays for itself and then provides a profit for the owner.

- b. *Natural.* A natural process whereby a tree's branches or the trees themselves die as a result of root and/or crown competition.
- c. *Row.* A plantation thinning with specified rows removed regardless of size.
- d. *Selection.* A thinning with individual trees selected for removal.

**Tolerance**

A tree's capacity to develop and grow in the shade of, and in competition with, other trees.

**Transplant**

A seedling lifted from the seedbed and replanted at wider spacing in the nursery to stimulate the development of a more vigorous root system.

**Tree**

A woody plant having a well-defined stem, more or less definitely formed crown and usually at least 10 feet high.

**Tree injectors**

Equipment specially designed to inject chemicals, usually phytocides, into a tree trunk.

**Uneven-aged forest**

A forest with trees of many ages (technically, more than two age classes) and considerable differences in the ages. Contrast with an "even-aged" forest.

**Uneven-aged forest management**

Managing a forest by periodically removing some trees from an uneven-aged stand while preserving its natural appearance. In Wisconsin, this type of management is common in Northern hardwood forests. See selection harvest.

**Volume table**

A table estimating volume of wood in a standing tree based on measurements of the tree, most commonly DBH and merchantable height.

**Windfall, windthrow (blowdown)**

An area or group of trees blown over by high wind.

**Wolf tree**

A tree occupying more space in the forest than its economic value justifies. Usually older, larger or more branched out than other trees in the stand.

**Wood pulp**

Mechanically ground or chemically digested wood (composed primarily of wood fiber) used to manufacture paper or fiberboard.

**Woodland management**

See forest management.

**Yard**

A wintering ground used by animals during deep snow, where trampled paths afford access to browse food.

**Yarding**

See skidding.

**Yard, log**

A place where logs are assembled just prior to processing operations at a sawmill.

**Yield table**

A tabulation of volume, basal area, number of trees, etc., per acre found in full stands on specified sites at specified ages.



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