

A Glossary of Common Forestry Terms





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A Glossary of Common Forestry Terms

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acre

A land area of 43,560 square feet. An acre can take any shape. If square in shape, it would measure approximately 209 feet per side.

advance reproduction

Young trees that are already established in the *understory* before a *timber* harvest.

afforestation

Establishing a new forest onto land that was formerly not forested; for instance, converting row crop land into a forest *plantation*.

AGE CLASS (Cohort)

The intervals into which the range of tree ages are grouped, originating from a natural event or human-induced activity.

even-aged

A *stand* in which little difference in age class exists among the majority of the trees, normally no more than 20 percent of the final *rotation* age.

uneven-aged

A *stand* with significant differences in tree age classes, usually three or more, and can be either uniformly mixed or mixed in small groups.

two-aged

A *stand* having two distinct age classes, each having originated from separate events or disturbances.

annual growth

The yearly increase in wood volume, usually expressed in terms of *board feet* or tons per *acre*.

annual growth ring

Concentric bands that show tree growth for a one-year period, as viewed on the cross-section of a trunk, stem, branch or root that can be counted to determine age. Variations in ring width records show how a tree responded to growing conditions in different years.

artificial regeneration

Revegetating an area by planting *seedlings* or broadcasting seeds rather than allowing for *natural regeneration*.

aspect

The compass direction that a forest *slope* faces.

bareroot seedlings

Small seedlings that are nursery grown and then lifted without having the soil attached.

basal area (BA)

A measurement used to help estimate forest *stocking*. *Basal area* is the cross-sectional surface area (in square feet) of a standing tree's *bole* measured at breast height (4.5 feet above ground). The basal area of a tree 14 inches in diameter at breast height (*DBH*) is approximately 1 square foot, while an 8-inch *DBH* tree is .35 square feet, and a 19-inch *DBH* tree is 2 square feet. A sum of the basal area when used with the number of trees within a given forest can aid in determining forest stocking recommendations.

basal spray

A method of controlling woody vegetation whereby herbicide is applied directly to the lower portion of the plant and is absorbed through the bark.

best management practices (BMP)

Management practices that are designed to minimize pollutants, including soil, chemical, petroleum products, etc., from entering water bodies.

Biltmore stick

A large ruler-type instrument that is used to measure the *diameter at breast height* (DBH) and log height of *timber* in order to estimate *board foot* volume.

biodiversity

The richness and abundance of *species* and the variety of natural communities in a forest environment. Both the number of species and the number of individuals of each species affect the extent of biological diversity in an area.

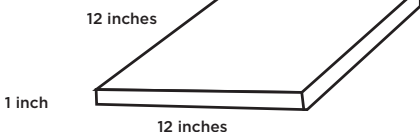
biomass

Plant components that are used as a raw material for processing into energy or fuels.

board foot

A measure of wood volume equaling 144 cubic inches, commonly used for trees, *sawlogs* or individual pieces of lumber. For example, a piece of wood measuring 1 foot by 1 inch, or a piece measuring 1 foot by 2 inches by 6 inches each contain 1 *board foot* of wood.

1 Board Foot



bole

The main tree trunk.

buffer

A strip of trees or other vegetation that is intentionally left undisturbed (or disturbed lightly) in order to mitigate the visual impacts of logging or to minimize pollutants from entering adjacent water bodies.

butt

The base of the tree. Once felled, the butt log is the one that was attached to the stump.

cambium

The layer of cells beneath the tree bark from which new wood (*xylem*) and new inner bark (*phloem*) originate.

canopy

The uppermost layer in a forest, formed collectively by tree *crowns*.

cant

The interior lumber that remains after the boards are sawn from the sides of a log.

catface

The scar that results from a healed (or partially healed) wound on a tree or log caused by abscised branches, equipment damage or wildfire.

certified forest

A forest enrolled in a voluntary system that promotes *sustainable forest management* that is assessed by an independent third party.

chain

A unit for measuring land distance. A chain is 66 feet. An *acre* contains an area equal to 10 square chains.

chip-n-saw

A process, normally with *conifers*, where small logs are cut in such a way that the outside of the log is converted directly into chips, leaving the inside, square-edged *cant* (which can be used as a post or sawn into lumber).

cleaning or weeding

A precommercial practice of freeing *seedlings* or *saplings* from competition with shrubs, vines or other ground vegetation.

clearcut

A *regeneration* technique removing all the trees (regardless of size) on an area in one operation. Clearcutting is commonly used to reproduce *shade-intolerant species* that require full sunlight to germinate and grow well. Clearcutting produces an *even-aged stand*.

climax forest

The final stage of forest *succession*, usually composed of *shade-tolerant* species that are self-perpetuating without a disturbance.

complete cut

Any cutting scheme that removes all the trees in a *stand*.

conifer

A cone-bearing tree with needles, such as pine, hemlock, cedar, spruce and fir.

coniferous

Trees that retain most of their needles during the dormant season.

conk

A hard, spore-bearing fruiting body of a wood-destroying fungus that projects beyond the bark of a tree.

coppice

Intentionally cutting trees (normally smaller ones) for the express purpose of causing a trunk to re-sprout.

cord

A stack of wood that has a gross volume of 128 cubic feet. A cord measures 4 feet by 4 feet by 8 feet and contains approximately 80 cubic feet of solid wood, with the remainder being air space.

crook

An abrupt bend in a log, considered a *defect*.

crop tree

A tree identified to be grown to maturity for the final cut. Usually crop trees are chosen on the basis of *species*, quality, location relative to other trees and wood markets.

cross-tie

A *cant* used as a cross member supporting railroad rails.

crown

The living branches and foliage of a tree.

crown class

A relative designation of tree *crowns*, broken into distinct layers.

dominant

Trees much taller than the general level of the *canopy*, receiving direct sunlight on all sides of their *crown*.

codominant

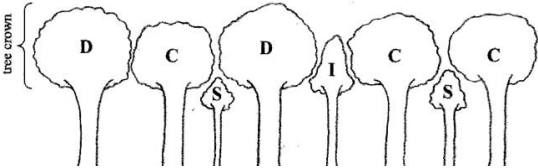
Trees that form the general level of the *canopy*, but below the dominants, receiving sunlight from above their *crown* and some from the side.

intermediate

Trees with *crowns* that fall below the general level of the *canopy*, receiving sunlight only from above at midday.

suppressed

Trees much shorter than the general level of the *canopy*, receiving only filtered sunlight.



crown closure

The point in forest development when the lateral branches from adjacent trees touch, significantly reducing *growing space* and the amount of sunlight that reaches the forest floor.

cruise

The act of inventorying a forest to arrive at an estimate of wood volume and value and/or to make *forest management* recommendations.

cubic foot

A cube of wood measuring 12 inches on each side. One cubic foot of wood in a log usually produces from 3 to 7 board feet of lumber because of the cylindrical log shape and losses to sawing.

cull

A tree or log of merchantable size, which, because of *defect*, is useless for the intended purpose of timber production. Culls can have significant wildlife or aesthetic value.

DBH (diameter at breast height)

The outside-of-the-bark diameter of a tree at breast height (4.5 feet above the ground, measured on the uphill side of the tree).

deciduous

Trees that lose all their leaves during the dormant months.

defect

That portion of a tree or log that makes it unusable for the intended product. Defects can include knots, rot, crookedness, cavities, stain, cracks, etc. Severe defects cause the log to be classified as a *cull*.

den tree

A tree that contains cavities, often caused by abscised limbs, that are used by wildlife for nesting and protection.

dendrology

The study of tree identification.

density

The quantity of trees per unit of area, usually expressed as trees per *acre*.

diameter-limit cutting (DLC)

A harvest based on cutting all trees in a *stand* over a specified *DBH*, regardless of tree vigor, *species* or spatial distribution. DLC usually results in the long-term degradation of the stand.

diameter tape

A measuring tape calibrated to determine tree diameter when stretched around the circumference of a tree *bole* or log.

DIB (diameter inside bark)

Diameter inside the bark, often measured at the small end of a log and used to estimate board foot volume in logs.

dibble bar

A flat or round metal tool used to make a hole for planting *bareroot seedlings*.

dioecious

A botanical term whereby male and female flower parts are on separate plants (e.g., persimmon).

direct seeding

The process of regenerating a forest by sowing seed (as opposed to planting *seedlings* or allowing for natural *regeneration*).

directional felling

Careful tree cutting to ensure that trees fall in a predetermined direction in order to protect the *residual* trees from logging damage and to allow for easier log skidding.

dote

The early stage of tree rot having discolored and/or often soft wood.

Doyle rule

A *log rule* commonly used with *hardwoods* in southern and eastern U.S. Its use underestimates lumber volume in small logs and overestimates volume in large logs.

dry rot

A wood decay caused by specialized fungi that has some ability to transport water. The term implies that wood will rot when dry, which is *not* true. The term is also sometimes used to refer to the (dried) residue of wood decay.

duff

Various stages of decaying *organic matter* found on the soil surface.

earlywood

Part of the annual wood *growth ring* formed early in the growing season that is differentiated from *latewood* in that the wood is often less dense and lighter in color.

endangered species

A plant or animal vulnerable to extinction in all or a significant portion of its range that has been identified by the secretary of the interior in accordance with the Endangered Species Act (1973).

ephemeral stream

A stream in which water flows in a diffuse manner over depressions in the forest floor, usually not within a well-defined channel, only in direct response to a major rainfall and only for a short period after rainfall ceases.

epicormic branch

Spontaneous branches that arise from a tree *bole*, often after exposure to increased light or stress.

Erosion

The loss of surface soil due to water, wind, gravity and/or human activities.

sheet erosion

Erosion that occurs in a very thin layer, often undetectable, caused by slight surface runoff or wind.

rill erosion

Erosion that occurs in small channels that are only a few inches deep. Rill erosion can lead to gully erosion if not managed properly.

gully erosion

Erosion that occurs in obvious channels, sometimes becoming deep and excessive.

even-aged management

Stand management that is designed to remove (harvest) all trees at one time or over a short period to produce a new stand with trees very close in age. Tree ages usually will range no more than 20 percent of the projected final *rotation* age.

exotic invasive

A *species* that becomes established outside its natural range, forms a breeding population, and becomes a pest that may threaten *biodiversity* of the local ecosystem.

FAS (firsts and seconds)

Top (best) grade of *hardwood* lumber, formerly designated as *firsts and seconds*.

fire scar

An injury or wound at the base of a tree caused or accentuated by fire.

firebreak

A barrier, either existing prior to or constructed during a fire, from which all or most of the flammable materials have been removed, designed to help firefighters in stopping or slowing fire spread.

forest health

A generally observed, somewhat subjective condition whereby the forest is evaluated according to its age, growth, diversity, existence (or absence) of injurious insects, diseases, *exotic invasive* pests, wildlife attributes, aesthetics, degree of resiliency, etc., all of which are weighed against the land management goals.

forest inventory

The process of sampling a forest or forest *stand*, used to arrive at an estimate of wood volume and value and/or to make *forest management* recommendations. Forest inventories are also known as forest *cruises*.

forest management

The application of scientific, economic and social principles to managing a forest for accomplishing specific desired outcomes.

form

A descriptive term of the relative straightness and *taper* of a tree *bole*.

form class

A measure of the *taper* of a tree *bole* derived by dividing *diameter inside the bark* (DIB) at a given height (usually 17.3 feet above the ground) by *DBH*, times 100. For instance, a common form class (FC) used with *hardwood timber* is FC 78, implying that the *DIB* of tree bole at 17.3 feet is 78 percent that of the *DBH*. Trees with an FC of 82 would *taper* less than, and an FC of 74 would taper more than, an FC 78. The FC values aid in developing *tree-volume tables*.

fragmentation

The breaking up of large forest areas into smaller units either by natural processes or through conversion to other land uses. Natural habitats may become separated into isolated fragments or “islands.”

frill

A cut made with a hatchet or axe through the bark and *cambium* of a tree where herbicide is applied, for deadening the tree; more shallow than a *girdle*.

frost crack

A crack in the bark of a tree extending from near the base upward, occurring in winter when temperatures fluctuate below and above freezing.

frost heave

When normal soil level is lifted upward due to freezing water, thereby causing *seedlings* to rise above, or even be pushed out of, the soil.

girdling

The severing of tree phloem and often sapwood that disrupts food and water transport, usually resulting in tree or tissue death.

grading

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

ground fuels

Combustible materials located on the forest floor, including limbs, *duff*, stumps, dead and living vegetation, etc.

group selection

An *uneven-aged* method of harvesting trees in small groups (usually 1 acre or less).

growing space

The area occupied by a tree (or trees), where the above and below ground resources are utilized. *Thinning* frees up additional growing space. *Stocking* is a relative term describing growing space.

growing stock

All the trees growing in a *stand*, generally expressed in terms of number, *basal area* or volume. Growing stock is often separated into acceptable or unacceptable based on species composition, health and form, and/or in reaching landowner goals.

growth ring

Annual expansion of tree *bole*, branches and roots in (normally) visible concentric rings. A combination of *earlywood* and *latewood* is one year's growth.

growth-removal ratio

A measurement of the amount of wood grown to the amount of wood removed on a given land area, expressed as a ratio. Wood removal occurs through harvest, mortality and land use changes. A ratio of 1:1 or greater is normally sought when practicing *sustainable forest management*. Also referred to as growth-to-drain ratio.

hardening off

The process of plants preparing for stress brought on by cold or drought.

hardpan

A dense soil condition that restricts root penetration and water movement, often created following many years of agricultural row-cropping. Prior to planting trees on sites with hardpans, the hardpans are often loosened by subsoiling.

hardwood

A term describing broadleaf trees, usually *deciduous*, such as oaks, maples, hickories, ashes, cherry, poplar, elms, etc.

heart rot

A decay in living trees, characteristically confined to the *heartwood*.

heartwood

The inner core of a woody stem, composed of nonliving cells and sometimes differentiated from the *sapwood* by darker color.

heel-in

Temporary planting of *seedlings* for storage by placing them in a dug trench and covering the roots with soil.

high-grading

A harvesting technique that removes only the best, most valuable trees to obtain high, short-term financial returns at the expense of reducing future growth and revenue potential.

humus

See *organic matter*.

hydric soil

Soils that experience prolonged periods of water saturation, resulting in low available soil oxygen and negatively impacting growth of many plants.

increment borer

A hollow, auger instrument used to bore into a tree to remove a sample of wood (core) that is used to evaluate growth rate and age.

Ingrowth

See *recruitment*.

integrated pest management

Managing forest pests by considering several methods, including cultural, chemical, biological and the use of genetically modified organisms.

intermediate treatment

Removing (or eliminating) immature trees between the stages of *stand* establishment and final stand harvest, to improve the quality of or reduce competition among the remaining trees. In contrast to a harvest cut, an intermediate cut may or may not generate income.

intermittent stream

Streams containing water within a well-defined channel and flow in response to seasonal variation in precipitation following a major rainstorm or as long as ground water is abundant.

international ¼" rule

A *log rule* that is used to estimate *board foot* lumber volume in logs and standing trees. This log rule is generally considered the most accurate *log rule* and works well across a wide range of log diameters.

intolerant species (shade)

Trees that are incapable of establishing or growing in the shade of other trees.

J-root

The shape that a *seedling* root takes when it is improperly planted by forcing it into a planting hole.

juvenile wood

The first 10 to 15 years of wood growth surrounding the center (pith) of a tree. This wood generally has poor properties compared with the “mature wood” formed subsequently.

kerf

The width of a cut made by a saw blade.

landing

A place at a logging site where logs are assembled and loaded onto trucks for transport to mills.

latewood

Part of the annual wood *growth ring* formed later in the growing season that is differentiated from *earlywood* in that the wood is often more dense and darker in color.

litter

The uppermost layer of the soil, composed of freshly fallen or slightly decomposed *organic matter*. See *duff*.

live crown ratio

A measure of vertical *crown* length relative to total tree height. Low live crown ratios suggest slow tree growth

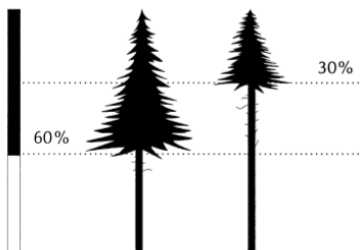


Figure 3-2. Live-crown ratio of a tree.

and may indicate that *thinning* is needed. A 100-foot-tall tree with the upper 40 feet in living branches would have a 40 percent live crown ratio.

loess

Wind-blown soil particles consisting primarily of silt that is highly erodible.

log rule

A formula that is used to estimate lumber volume (in *board feet*) based on log diameter and length.

log scale

The lumber content (in board feet) of a log as determined by using the *log rule*.

lop

The cutting up of tree tops that have been left following a *timber* harvest, generally for the purpose of improved aesthetics or for *site preparation*.

lump-sum sale

When a timber buyer and a seller (and/or forester) agree on a fixed price for designated timber that is paid in full prior to the timber being harvested. Often the timber to be harvested has been *marked* in advance of the sale.

MAI (mean annual increment)

The average *annual growth* of a tree (or the forest) over a given period, normally since inception. A 12-inch DBH tree that is 30 years old has an MAI of 0.4 inches (per year).

marking timber

The process of selecting and indicating, usually by painting, trees to be cut (or retained) in a harvest operation.

mast

Tree fruits, either hard (hickories and oaks) or soft (persimmon and cherry).

matching species to site

Prior to tree planting, the process that evaluates soil productivity and *microclimate* in order to select *species* more capable of healthy growth.

mature forest

A term generally applied in an economic sense to indicate a forest that has attained the desired harvest size or age. The rate of forest growth diminishes once forests mature.

MBF

Abbreviation for thousand board feet, a standard unit of lumber and log volume.

merchantable

Trees (or their parts) that can be manufactured into a salable product.

merchantable height

The height above the ground level to which the tree *bole* can be cut and sold for commercial products. For *hardwood sawtimber*, merchantable height is normally reached when the *DIB* reaches 10 inches.

mesic soils

Soils having ample moisture, neither too wet nor dry, desirable for tree growth.

microclimate

The climate of a small, specific area reflecting such local differences as soil surfaces, vegetation and atmospheric characteristics.

midstory

The layer of vegetation existing between the smallest (*understory*) and tallest (*overstory*) plants (normally trees) in a forest.

monoculture

A forest *stand* composed of a single *species*; for instance, a loblolly pine *plantation*.

monoecious

A botanical term for plants that have male and female flower parts on the same individual (e.g., oaks).

mottling (in soils)

Occurs when gray or black soil colors become mixed with the normal red, brown or yellow soil colors; gray colors indicate *hydric soils* and that periods of soil saturation are frequent.

multiple-use forestry

Forest land management for more than one purpose, such as wood production, water protection, wildlife habitat, recreation, cultural preservation and aesthetics.

natural regeneration

Trees that become established as a result of natural seeding or sprouting, as opposed to being planted.

noncommercial thinning

Cutting (or deadening) trees to improve growth conditions of the remaining trees. The practice does not produce income, usually because the trees cut are too small for marketability.

old-growth forest

A general term describing a forest that has reached a late stage of *successional* development, often perceived as never having been cut and with little human intervention.

organic matter

Material produced by plants and animals, such as leaves, branches, bark, wood, hair, fur and bones that is incorporated into the soil.

overmature

A *stand* of trees that is older than normal *rotation* age for that type of tree or for the intended objective. Often net growth is negligible.

overrun

The excess lumber sawn from logs that exceeds the estimate of the *log scale*.

overstocked

A stand or forest condition indicating more trees than are desired for the intended objective.

overstory

That portion of the trees in a *stand* forming the upper *crown* cover.

partial cutting

Any cutting scheme that does not remove all the trees in the *stand* (i.e., a *clearcut*). Examples of partial cutting are *selection and group selection*, *shelterwood* and *diameter limit*.

pay-as-cut sale

When a timber buyer agrees to pay, and a landowner (and/or forester) agrees to receive, a price for designated *timber* that is paid on a per unit basis as the timber is being harvested. This is opposed to a *lump-sum* sale, where the timber is paid for in full prior to being harvested.

perennial stream

Streams containing surface water within a well-defined channel. These streams flow essentially all year under normal weather conditions and usually provide permanent habitat for aquatic plants and animal life.

phloem

The new or inner bark of a tree with living cells that carries and stores food (sugar) produced by the leaves.

photosynthesis

The process in trees and other plants of creating sugar using water, air and the sun's energy.

pioneers

Shade-intolerant species that are the first trees to invade a freshly disturbed or abandoned site.

plantation

A *stand* established by planting trees.

plot

An area where data are collected to provide information about the forest. Several *plots* constitute a *cruise*.

prescribed burn

A fire intentionally set under appropriate weather, soil moisture, wind and supervision, in order to accomplish specific *silvicultural*, wildlife or fire-hazard-reduction goals.

prism wedge

A small glass wedge through which light refracts that is used in a *timber cruise*. A prism wedge helps determine which trees are to be included in a *plot* when estimating *basal area* and timber volumes.

pulpwood

Wood that is cut primarily for the manufacture of paper, fiberboard or other wood fiber products. Pulpwood is normally small in diameter.

punky

A soft, weak, often spongy condition in wood that is caused by decay fungi.

recruitment

The process of smaller trees growing into larger *size classes*.

reforestation

Re-establishing a forest on an area where forest vegetation has been removed.

regeneration

The process of forest replacement or renewal. Trees become established from seeds, sprouts, planting and/or *advance reproduction*.

regeneration cutting

A harvest technique that provides for *stand regeneration*, such as *clearcutting* or forest openings.

release cutting

Improving the composition in young *stands* by cutting inferior trees, thereby releasing the desired trees from competition.

reproduction

Young trees, seedlings and saplings in a forest setting.

residual

Trees remaining in a *stand* after cutting.

riparian

Pertaining to the area along the banks of a river, stream or lake, normally offering some protection from forestry activities via the use of *buffers*.

root collar

On a *seedling*, the transition between the stem and the root, usually recognizable by a slight swelling.

rotation

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

roundwood

Wood products that are round, such as *pulpwood*, posts, pilings, utility poles and fencing material.

salvage cut

Harvesting damaged trees (i.e., from tornado or fire) to gain their economic value, often benefitting the *residual stand*.

sanitation cutting

A harvest done as a precautionary mechanism to remove potentially highly susceptible trees from oncoming insects or disease before trees become infected by the pest organism.

sapwood

The light-colored section of the tree between the *heartwood* and the bark also known as *xylem*. Contains some living cells and conducts water to the *crown* for *photosynthesis*.

sawlog

A log large enough to produce a sawn product—usually at least 10 inches in diameter and at least 16 feet in length (although 8-foot half-logs are sometimes included).

scaling

Estimating the usable wood volume in a log or standing tree that follows fundamental rules.

scarify

Scratching or cutting a surface, for instance, to disturb the forest floor for *regeneration* or to break down a seed's protective coat for germination.

second-growth forest

A generalized term describing a forest that originates on a *site* of a previous *stand* that was removed by cutting, fire or other cause.

seed source

The location from which seeds are collected or are dispersed. An individual tree can also be a seed source.

selection harvesting

Harvesting individual trees or small groups (*group selection*) of trees at intervals based primarily on their vigor and age. Trees are removed across all *age classes*. Selection harvesting perpetuates an *uneven-aged stand*, often composed of *shade-tolerant species*.

shade tolerance

A tree's capacity to develop and grow in the shade of, and in competition with, other trees. Examples of shade-tolerant *species* in the eastern U.S. include American beech, sugar maple and dogwood.

shelterwood harvest

Harvesting trees in a series of two or more operations. Following the first harvest, new *seedlings* grow and become established in the partial shade protection of older trees. Once established, the *overstory* trees are then harvested, yielding an *even-aged stand*.

silvics

A study of trees, their environment and the development of forests that becomes the basis for practicing *silviculture*.

silviculture

Applying knowledge of *silvics* to culture the forest. Silviculture is practiced in four stages: establishment, intermediate operations, harvesting and stand/forest protection.

site

An area evaluated for its capacity to grow trees. Evaluation is based on combined biological, climatic and soil factors.

site index

An expression of forest *site quality* based on the average height of the *dominant* and *codominant* trees of a specific species in the *stand* at a specified base age, usually 50 years. For instance, when upland red oak trees are 85 feet tall at 50 years, the site index for that group of trees is 85.

site preparation

Process of preparing an area of land for forest establishment. Methods may include mechanical clearing, chemical vegetation control, soil manipulation, mowing, burning, regulating wildlife, etc.

site quality

The collective factors that determine the productivity potential of a forest area, normally expressed as volume production.

Size class

A relative designation of trees based on their DBH size.

seedling

A tree, usually less than an inch in diameter, and no more than 3 feet in height, that has grown from seed (in contrast to a *sprout*).

sapling

A small tree, usually between 1 and 3 inches *DBH* and 15 to 30 feet in height.

poles

A tree generally 3 to 12 inches *DBH*.

sawtimber

A tree greater than 12 inches *DBH* that can be sawn for lumber.

skid road

A road or trail over which logs are dragged or transported from the stump to the *landing*.

slash

Nonmerchantable residue left on the ground after logging, *thinning* or other forest operations. Includes tree tops, broken branches, uprooted stumps, defective logs and bark. Slash can have certain ecological benefits, such as adding nutrients to the soil or providing wildlife habitat.

slope

The incline of the terrain, usually expressed as the change in elevation (in feet) over a hundred feet of horizontal distance.

SMZ (streamside management zone)

A *buffer* strip of trees or other vegetation that is intentionally left (or disturbed lightly) around rivers, streams, lakes or other bodies of water in order to protect water quality.

snag

A standing dead tree, generally considered nonmerchantable, without leaves and finer limbs, that is retained in a forest for wildlife and/or aesthetic values.

softwood

A term describing trees with needles or scales—the *conifers*, such as pine, cedar, spruce, fir, etc.

soil horizons

Distinct layers of the soil during soil formation that differ one from another and vary in physical, chemical and biological properties.

soil texture

The proportion of sand, silt and clay in soil. High amount of sand is considered coarse soil while high amount of clay is fine soil.

Southern yellow pine

A group of pines native to the southeastern U.S., including loblolly, shortleaf and Virginia pines, and others.

species

A group of organisms (plants or animals) that are very similar in appearance and can interbreed freely with each other but not with other groups.

species composition

All species across genres that collectively make up the diversity of trees existing in a forest (e.g., the *species composition* of a given area may consist of mixed oak, hickory, poplar and sweetgum).

sprout

A stem arising from a stump or roots.

stand

A recognizable area of a forest that is relatively similar in *species* composition or physical characteristics and can be managed as a single unit. Stands are the basic management units of a forest.

stand density

A component of stand *stocking*, or the number of trees in a given area.

stand structure

The distribution, both vertical and horizontal, of all living and dead vegetative components in the forest, including trees, *crown* layers, shrubs, *snags*, downed debris, etc.

stem exclusion

A stage in *succession* that follows *crown closure* in which, through competition for limited resources (light and water), a forest is *thinned* by natural mortality.

stocking

A relative term indicating the amount of growing space being occupied by trees and the amount of growing space that is available or unoccupied. Although stocking cannot be directly measured, collective factors contributing to stocking guides include basal area per acre, number of trees per acre and average tree diameter. Relative terms, such as *overstocked*, *fully stocked* or *understocked*, are descriptive terms to describe stocking. For best stand growth, stocking should be maintained in the fully stocked range.

overstocked

A *stand* that is overcrowded, beyond 100 percent stocking, thus reducing tree growth and vigor.

fully stocked

A *stand* where trees effectively occupy most of the *growing space*, yet space remains for further crown expansion and growth of developing *crop trees*. For example, a stand fully stocked at 70 percent can grow suitably until reaching 100 percent stocking.

understocked

A *stand* in which *crop trees* do not fully occupy the *growing space* and their *form* or *grade* may be diminished. A stand of trees that remains following a *diameter limit cutting* might be understocked.

stumpage value

The monetary value of a tree or group of trees while in the woods uncut (standing on the stump).

succession

The process of one plant community modifying the environment in such a way that favors the establishment and eventual domination of another plant community. One overtakes another, which is then overtaken by another, etc.

sustainable forest management

Use of the forest in such a way that it does not affect the ability to meet future as well as present human needs.

sustained yield

Management of forests to produce a relatively continuous flow of *timber* or revenue.

taper

The gradual reduction in diameter of a tree *bole* progressing from the base upward.

thinning

Tree removal in an immature forest *stand* that reduces tree *density* and between-tree competition. Proper thinning encourages increased growth of fewer but higher quality trees.

timber

A term that is loosely applied to a standing tree, felled logs, wood, wood products or to entire *stands* of trees.

tree farm

A privately owned woodland in which producing *timber* is a major management goal. May be recognized as a certified forest by the American Tree Farm System.

tree scale

A scale derived to estimate the lumber content (in board feet) of a standing tree (as opposed to felled logs).

TSI (timber stand improvement)

Applying cultural practices to a forest to improve the composition, *stocking* and growth of trees in order to better achieve landownership goals. May be precommercial or commercial.

underplanting

The act of planting *seedlings* under an existing *stand* of trees, often with the intent of later releasing the seedlings by removing/ harvesting the *overstory*. Also referred to as enrichment planting.

understory

That portion of the trees or other vegetation existing below the *midstory* and *canopy* in a forest.

uneven-aged management

Managing a forest by periodically harvesting trees of all ages to maintain a broad age (or size) class distribution. A greater number of trees are maintained in the smaller *age class* than in each of the next older *age classes*. Typically leads to a forest composed of *shade-tolerant species*.

virgin forest

An imprecise term suggesting a forest largely uninfluenced by human activity, including harvesting.

volume table

A table estimating the volume of wood in a standing tree based on diameter and *merchantable* height.

water bar

A diagonal ditch or hump in a trail or road that diverts surface water runoff to minimize soil movement and *erosion*.

watershed

An area of land that collects and discharges water into a single stream or other outlet.

wetlands

Marshes, swamps and other water-saturated soils. These areas offer important habitat for wildlife, significant support of nutrient cycling in ecosystems, and protection against severe storms and floods.

whole tree harvesting

Processing an entire tree on-site, normally by chipping, for pulp or *biomass* products.

widowmaker

A limb, top, leaning tree or other material in the forest that is in danger of falling to the ground without warning, thus creating a safety hazard.

windthrow

Trees blown over or knocked down by high wind, snow or ice.

wolf tree

A living tree occupying more space in the forest than its economic value justifies. Usually older, larger or with more branches than other trees in the *stand*.

xeric soil

Soils that experience prolonged periods of dry conditions, resulting in low moisture availability, negatively impacting the growth of many plants.

xylem

The wood of a tree through which water is conducted from the soil.

yard

See landing.

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