

Frequently Used Forestry and Natural Resource Terms for Landowners of Oklahoma



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One challenge faced by landowners when trying to make a management decision concerning forest land use is understanding the terminology used in forestry. Without a good working vocabulary, a landowner cannot make well-informed decisions.

Confusion over meanings is often a problem for the forestry professional as well. Misunderstandings often arise concerning what a specific management procedure entails, what is involved in setting up a sale, how timber is measured, or terminology used in prescribed burning, etc. Many of these misunderstandings could be avoided if the landowner and the professional forester used the same terminology.

On the following pages are definitions for terms frequently used in forestry and other natural resource management disciplines (words *italicized* within a definition are defined elsewhere in this glossary). These definitions should help the landowner communicate with public, private, and industrial foresters and other natural resources professionals, with the end result being more informed decision making.

acre: An area of land, 43,560 square feet in any shape; also, the equivalent of a square 209 feet on a side, a circle with a radius of 117.75 feet, approximately 1.5 football fields, 10 square *chains*, 160 square *rods*, or 4,480 square yards.

ad valorem: In property taxation, the tax that is assessed as a percent of the appraised value of the property. It is classified as a management cost when calculating expected returns on a forestry investments.

age class: An interval, commonly 10 or 20 years, into which the age range of trees is divided for classification purposes; for example, trees ranging in age from 21-40 years fall into a 30-year age class.

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

area-sensitive species: A species of animal that requires a large area of continuous, non-fragmented habitat of a similar successional stage.

aspect: The direction towards which a *slope* faces. Aspect is important in hilly or mountainous terrain and affects site quality and species composition. The southerly and westerly facing aspects are generally drier and less productive than the northern and eastern facing aspects.

backfire: Any *prescribed burn* against the wind for the purpose of reducing fuels, creating a blackline buffer, etc. See OSU Extension Circular E-927, *Using Prescribed Fire in Oklahoma*.

basal area: Cross sectional area of a tree, in square feet, measured at breast height, 4.5 feet above the ground. Used as a method of measuring the volume of timber in a given stand, or the relative density of a stand.

bedding: A raised mound on which *seedlings* are planted. A site preparation method used in the southeastern United States where surface drainage is poor. Bedding can be controversial when used in *wetlands* where section 404 of the Clean Water Act might be violated.

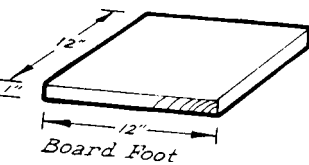
best management practices (BMPs): Techniques recommended in the management of timber harvesting and road construction that result in minimal impact on streams, soils, water quality, and wildlife. Examples are leaving *streamside management zones*, and installing *waterbars*, *broad-based dips*, etc. See OSU Forestry Extension Report #5, *Best Management Practices for Forest Road Construction and Harvesting Operations in Oklahoma*.

biodiversity: The variety of living organisms. Biodiversity is generally recognized as occurring on 3 levels: species, community, and landscape diversity. The term should not be confused with total number of species.

blue-stain: Discoloration in the sapwood of pine. Causes discoloration in the production of paper. At one time this was thought to be a serious defect in lumber; now it is used as high-quality interior finish.

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, or individual piece of lumber. For example, a piece of wood 1 foot by 1 foot by 1 inch or a piece measuring 1 foot by 2 inches by six inches both contain 1 board foot of wood.



bole: The main trunk of a tree.

bolt: A short piece of *pulpwood*, usually from 2 to 8 feet long.

broad-based dip: A surface drainage structure specifically designed to drain water from a road while vehicles maintain normal travel speed. See OSU Forestry Extension Report #5, *Best Management Practices for Forest Road Construction and Harvesting Operations in Oklahoma*.

browse: Buds, shoots, twigs, and leaves of woody growth that are fed upon by livestock and wild animals.

buck: To cut a *log* into specified lengths.



butt: The base of a tree or *log*.

cant: A *log* that is squared on two or more sides.

capital gains: Profit on the sale of an asset such as timber, land, or other property held for 1 year or longer. Capital gains taxation rate (capped at 28 percent) is advantageous over taxation at ordinary income rates, which can be as high as 39.6 (as of the date of this publication.)

catface: A wound on a tree or *log*, usually caused by sideswiping by equipment or by wildfire.

chain: A unit for measuring distance. A chain is 66 feet in length. An *acre* contains an area equal to 10 square chains. A section of land is 80 by 80 chains square or 640 acres.

chaining: A method of removing brush from a site by dragging a chain between two tractors.

chip-n-saw: 1) A process that makes small *logs* into *cants*, converting part of the outside of the log into chips. Cants are then sawed into lumber; 2) small pine logs 7 to 10 inches in *d.b.h.* to a 5-inch top.

clearcutting: A harvest and regeneration technique which removes all the trees (typically down to 4 inches in *d.b.h.*) on an area in one operation. Clearcutting is commonly used with *shade-intolerant* species like loblolly and shortleaf pine, which require full sunlight to reproduce and grow well. Clearcutting produces an *even-aged* stand. See OSU Extension Facts #5028, *Even- and Uneven-Aged Forest Management*.

clinometer: A hand instrument used in measuring the heights of trees and percent *slope*.

codominant: Describes trees with medium-sized crowns

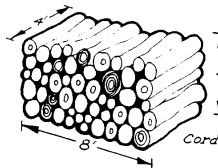
forming the general level of the canopy cover. Tree canopies receive full light from above but are crowded on the sides and thus receive comparatively little light from the sides.

competition: The struggle among adjacent trees for growth requirements such as sunlight, nutrients, water, and growing space. Competition goes on among both the roots and crowns of trees in the same stand.

controlled burning: See *prescribed burning*.

coppice: A regeneration method in which the forest stand regenerates primarily from stump and root sprouts after *clearcutting*.

cord: A stack of wood that has a gross volume of 128 cubic feet. A standard cord measures 4 feet by 4 feet by 8 feet, and should contain approximately 80 cubic feet of solid wood. Also, by weight, a cord of pine is 5200-5350 pounds; a cord of hardwoods is 5600-5800 pounds.



corridors: Travel routes that allow animals to migrate between areas of similar successional stage, for example, a *streamside management zone*. Corridors provide cover during movement, thus minimizing predation, and ensuring gene exchange between populations.

cost share: A subsidization, by different governmental agencies and some private industries, of *site preparation*, reforestation, *timber stand improvement*, wildlife and fisheries management, and water quality expenses. Some federal programs are the Forestry Incentives Program (FIP), the Conservation Reserve Program (CRP), and the Stewardship Incentive Program (SIP).



crook: An abrupt bend in a tree or *log*; a defect.

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

crui: An inventory of forestland that includes the location, volume, species, size, age and quality of timber.



cull: A tree or log that is unmerchantable because of defects; a tree or log that is picked out for rejection or relegated to another use because it does not meet certain specifications.

cutover: Land that has previously been logged.

cutting unit: An area of timber designated for harvest.

deck: A location where *logs*, *pulpwood*, or chips are loaded for transport from the woods.

defect: *Crook*, conk, decay, split, *sweep*, or other injury that decreases the amount of usable wood that can be obtained from a *log* or tree.

den tree: A tree that provides shelter and protection for wildlife. These trees often have cavities adequate for concealment or nesting.



diameter breast height (d.b.h.): The diameter of a tree at 4.5 feet above ground level on the high side of the tree.

diameter limit cut: A harvest where all *merchantable* trees above a specified *d.b.h.* or stump diameter are removed. This type of harvest often results in *high grading* where only poorly formed and *cull* trees are left in the stand.

diameter tape (D-tape): A tape measure specially graduated so the diameter may be read when the tape is placed around a tree stem or *log*. One inch on a diameter tape equals 3.14 inches on a standard tape.

dibble; planting bar: A long-handled, tapered spade used to make a narrow, relatively deep slit, suitable for planting seedlings.

direct seeding: Spreading seeds over the forest seedbed, usually from the air, to supplement or replace natural seed fall.

discount rate: The minimum annual *rate of return* that is acceptable for investment.

dominant trees: The tallest, most vigorous trees in a forest stand; larger-than-average trees with well developed crowns, which receive sun exposure on all sides.

Doyle log rule: A *log rule* used in the Eastern and Southern United States. It underestimates the volume of small *logs* and overestimates large *logs*.

ecology: The study of plants and animals in relation to their physical and biological surroundings.

ecosystem management: An approach to *forest management* that seeks to include economic, ecologic, and social components.

edge: The boundary where two or more different types of vegetation or successional stages meet. Edges attract many different wildlife species because a variety of food, cover, and other habitat requirements are arranged close together. Edge can be detrimental to some *area-sensitive species*.



even-aged stand: A stand of trees in which there are only small differences in age, usually within 20 percent of *rotation* age. See OSU Extension Facts #5028, *Even- and Uneven-Aged Forest Management*.

feller-buncher: A timber harvesting machine that severs the tree, holds it upright in a collector arm, then lays it down in a pile with other felled trees for transport.

financial maturity: The point in time in which the growth or increase in value of a financial asset (such as a tree) falls below the *discount rate*.

financial rotation: The *rotation* length of tree crops determined solely by financial considerations in order to obtain the highest monetary return over time.

fire-adapted: A plant species or plant community that is adapted to and maintained by periodic fires. For example, shortleaf pine saplings will sprout from the root collar if injured by fire, whereas loblolly pine saplings are killed.

firebreak: Any natural or constructed barrier utilized to segregate, stop, and control the spread of fire or provide a control line from which to work.

forest fragmentation: "Islands" of forest habitat that are disconnected from other forests by agricultural lands, transmission lines, roads, developments, etc. This phenomenon is thought to be particularly detrimental to *area-sensitive species* of animals that need large expanses of uninterrupted forests for foraging, breeding, nesting, etc.

forest management: The practical application of scientific, economic, and social principles to the administration and management of a forest to accomplish specified objectives.

forest type: A class of forest defined by the vegetation growing on the site; also defined as the actual or potential capabilities of forest or forestland. Examples in Oklahoma include the oak-hickory type, cross-timbers (post oak and blackjack oak) type, and shortleaf pine type.



gallery: A passage or burrow that bark beetles have excavated in the cambium of a tree for feeding or egg-laying purposes.

girdle: To encircle a tree with an ax or saw cut to sever the bark and cambium layer and kill the tree.

grading: Evaluating and sorting trees, *logs*, or lumber according to quality and intended use.

group selection: A method of regenerating *uneven-aged* stands in which trees are removed and new *age classes* are established in small groups. The maximum width of an opening in a group selection cut can vary depending on *shade tolerance* of the species but is approximately twice the height of mature trees in the stand. See OSU Extension Facts #5028, *Even- and Uneven-Aged Forest Management*.

growing stock: All live trees in a forest or stand, including *sawtimber*, *pulpwood*, *saplings*, and *seedlings*, that continue to put on growth.

head fire: A fire spreading, or set to spread, with the wind. See OSU Extension Circular E-927, *Using Prescribed Fire in Oklahoma*.

heavy fuels: Fuels of large diameter, such as logging slash, downed logs, and large branchwood, that ignite and burn more slowly than flash (fine) fuels. See OSU Extension Circular E-927, *Using Prescribed Fire in Oklahoma*.

herbicide: Any chemical preparation used to kill or inhibit the growth of certain plants.

high grading: The practice of harvesting only the biggest and best trees from a stand and leaving only the poorest to dominate the site.

horizon: Any layer of soil that can be distinguished from adjacent layers by physical, chemical, or biological characteristics, for example, color or soil structure.

hunting lease: A legally binding agreement in which a landowner leases specific hunting rights to an individual or a group. The rights should be stated in contract form and usually give the individual(s) access to the land area during a specified time period to harvest designated game species within legal bag limits. See OSU Extension Facts #5032, *Lease Hunting Opportunities for Oklahoma Landowners*.

increment borer: A hollow, auger-like instrument used to bore into the tree trunk (at *d.b.h.*) to remove a cylindrical cross section (core sample) of wood. It is used to determine growth rates and age.

injection: The single stem killing of unwanted trees by application of specific registered *herbicides* under the bark. The removal of undesirable trees improves the site by reducing competition for light, moisture, and nutrients.



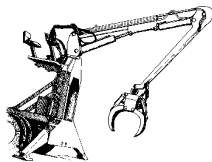
intensive forest management: Utilization of a wide variety of silvicultural practices, such as planting, *thinning*, fertilization, release, harvesting, and genetic improvement, to increase the capability of the forest to produce fiber.

intermediate trees: A class of trees in a stand with small, crowded crowns below (but extending into) the general canopy level. These trees receive a little sunlight from above and none from the sides and are often slow-growing.

International log rule: A method of estimating tree volume through a *log rule* that assumes taper and which is generally considered the most accurate log rule in the southeast.

J-Root: An improperly planted seedling that takes a J-shaped configuration in the planting hole. Such seedlings often die prematurely, grow poorly, or are susceptible to windthrow.

knuckleboom loader: A hydraulically operated machine with a loading boom that has a mechanical action imitating the human arm.



logging costs: The total costs of felling, *bucking*, *skidding*, loading, and hauling associated with harvesting forest products.

log rule: A table intended to show the amounts of lumber that can be sawed from *logs* of different sizes under various assumed conditions. See OSU Extension Facts #5021, *Measuring Woodland Timber*.

longwood: Stemwood delivered to the mill in lengths of 10 feet or longer.

lump-sum sale: The sale of specified timber on a specified area for a sum of money that is usually agreed upon and payable in advance. See OSU Extension Facts #5035, *Selling Your Timber*.

log: A merchantable stem of wood, usually cut to a length of 8, 10, 12, 14, or 16 feet with a minimum small-end diameter inside bark (*d.i.b.*) of 8 inches for hardwood, 6 inches for pine. See OSU Extension Facts #5021, *Measuring Woodland Timber*.

lop: To chop or saw branches, tops, or small trees after felling. These pieces, or debris, are usually left on the ground to decompose.

mast: (hard) The fruit of trees such as oak, beech, hickory, and also the seeds of pines which are considered as food for different kinds of wildlife such as squirrels, turkey, and deer; (soft) the berries of such plants as serviceberry, dogwood, plums, farkleberry, blackberry, raspberry, etc., also considered as wildlife foods.

mature timber (maturity): The stage at which a tree or other plant has attained full development, particularly height, and is in full seed production; the stage at which a tree crop or stand best fulfills the main purpose for which it was maintained, e.g. produces the best possible supply of specified products or will no longer earn a specified rate of return in the future.

MBF (thousand board feet): A unit of measure for tree volume or sawed lumber; log rules (*Doyle, Scribner, International 1/4*) should always be specified.

merchantable: The part of a tree that can be manufactured into a saleable product.

multiple use: Land management for more than one purpose, such as wood production, water conservation, wildlife conservation, recreation, forage production, aesthetics, or clean air.

nonindustrial private forest land (NIPF): Forestland owned by a private individual, group, or corporation not involved in wood processing.

natural regeneration: The renewal of a forest or stand either by natural seeding or vegetative reproduction (stump or root sprouts) by trees on the site.

net present value: A comparison of cost and revenues that have been discounted back to the present time, thus rendering revenue directly comparable in time to costs. All discounted costs are summed and subtracted from discounted revenues.

opportunity cost: The value of the best alternative (usually expressed as an interest rate) forgone by devoting resources to a particular project.

over mature: The stage of the life cycle of a tree or stand characterized by a decline in vigor, health, or growth rate.

peeler log: A log considered suitable in size and quality for producing *veneer* for plywood.

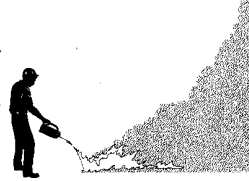
plantation: A forest established by planting. It is usually made up of a single species.

poles/pylon: Any considerable length of round timber of saw-log size with the straightness and taper suitable for supporting transmission lines or for supporting piers.

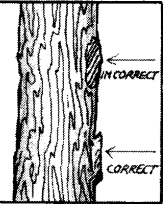
poletimber stand: A stand of trees whose diameters range from approximately 5 to 9 inches.

precommercial thinning: The elimination of trees in a submerchantable-size stand (trees too small to be sold for forest products) to increase the growth rate of residual trees.

prescribed burning: The controlled use of fire to achieve *forest management* objectives. Prescribed fire can be used to prepare seed beds for natural pine regeneration, reduce hazardous fuel levels, control unwanted vegetation, improve visibility, and improve wildlife habitat. See OSU Extension Circular E-927, *Using Prescribed Fire in Oklahoma*.



pruning: Removing live or dead branches from standing trees to improve wood quality.



pulpwood: Wood to be converted into pulp for the manufacture of paper, fiberboard, or other wood-fiber products. Pulpwood-size trees are usually 4 to 9 inches in *d.b.h.* or are too poorly formed to make lumber.

regeneration cutting: A harvesting technique that provides for tree/forest reproduction, such as *clearcutting*, *seed-tree*, *shelterwood*, and *selection cutting* methods.

rate of return (ROR): The compound rate that invested funds increase in value.

residual stand: The part of a stand of growing stock retained after an intermediate cutting, such as *thinning*, or a partial cutting.

rod: A linear measure of 5.5 yards or 16.5 feet.

rotation: The planned number of years between the regeneration of a stand and its final cutting at a specified stage of maturity. The length of a rotation varies by species, environmental conditions, and market forces. See OSU Extension Facts #5028, *Even- and Uneven-Aged Forest Management*.

sanitation/salvage cut: A cultural procedure where dead, damaged, or susceptible trees are removed to prevent the spread of pests or pathogens and to promote forest health.

sapling: A small tree, usually 0.6 - 3.5 inches in *d.b.h.*

sawtimber: Those trees fit to yield saw logs, which are of suitable size and quality for producing lumber cut by a saw to any dimension; usually 10 inches in *d.b.h.* or larger for pine, 12 inches for hardwood. See OSU Extension Facts #5021, *Measuring Woodland Timber*.

scarify: To disturb the forest floor and topsoil in preparation for *natural regeneration*, *direct seeding*, or planting.

Scribner log rule: A method of estimating tree volume that makes liberal allowances for slabs and disregards taper.

seed-tree harvest: Removing nearly all trees from the harvest area at one time, but leaving a few scattered trees to provide seed for a new forest stand. Usually, 6 to 12 trees per acre that are 14 inches or greater in *d.b.h.* are retained. These are removed later, after sufficient regeneration is established. See OSU Extension Facts #5028, *Even- and Uneven-Aged Forest Management*.

shade intolerant: A tree relatively incapable of developing and growing normally in the shade of, and in competition with, other trees.

shade tolerant: A tree's capacity to develop and grow in the shade of, and in competition with, other trees. Examples of highly shade tolerant species are flowering dogwood and American beech.

shelterbelt: A strip of living trees and/or shrubs maintained mainly to provide shelter from wind, sun, and snow.

shelterwood cut: *Regeneration cutting* method carried out over 2 or more operations, designed to establish a new crop of seedlings under the protection of the old trees (generally, 30 to 50 mature, seed-bearing trees per acre are left after the first cut). Harvests are usually 5 to 10 years apart, resulting in an *even-aged* stand. See OSU Extension Facts #5028, *Even- and Uneven-Aged Forest Management*.

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

single-tree selection: An *uneven-aged* reproduction cutting method in which the trees are selected from all *d.b.h.* classes for harvest or retention based on individual tree merits. See OSU Extension Facts #5028, *Even- and Uneven-Aged Forest Management*.

site index: A relative measure of productivity of a given site to grow a particular species. Site Index is based on the height of the dominant trees of a particular species at either 25 or 50 years of age.

site preparation: Any process that reduces competing vegetation or logging debris to make it easier to plant or to improve conditions favorable for seedling growth and survival. The major kinds of site preparations include: mechanical, chemical (*herbicides*), and burning to kill competing vegetation.

skidding: The transportation of trees or parts of trees by trailing or dragging from stump to landing by log skidder or horses.

slope: A measure of steepness, or the degree of deviation of a surface from the horizontal, measured as a numerical ratio, percent, or in degrees.

snag: Any dead, dying, or *den trees* suitable as a nest or roost site for a cavity nesting animal. Most birds prefer snags that are at least 10 inches in *d.b.h.*, and the larger, the better.



soil series: The basic unit of soil classification, consisting of soils that are alike in all major profile characteristics except texture of the surface layer.

species evenness: An index of the number of individuals of a species in a given area.

species richness: An index of the total number of species in an area.

stocking: A subjective estimation of the number of trees occupying the site as compared to the desired number (i.e., overstocked or understocked).

streamside management zone (SMZ): A strip of land of varying size and shape maintained for protecting a sensitive area such as a stream. See OSU Extension Facts #5034, *Riparian Forest Buffers*.



stumpage: The monetary value of a tree or group of trees as they stand in the woods uncut (on the stump). Often, this value is paid by a mill to a landowner or logger as a delivered log price less logging and transportation costs. See OSU Extension Facts #5035, *Selling Your Timber*.

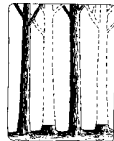
succession: The change in species composition and structural arrangement over time. For example, an abandoned farm in a temperate climate, if left undisturbed by fire, man, or catastrophic weather events, would gradually go through different stages of vegetative cover and become a mature forest over time.

suppressed trees: One of the 4 major crown classes; specifically, trees with crowns entirely below the general level of the crown cover receiving no direct light either from above or from the sides; also known as overtopped.

sweep: Curve in a stem or *log* as distinct from an abrupt bend as defined by a *crook*. It is generally a response to environmental conditions (strong winds) rather than genetics.



thinning: Generally, a partial harvest in an immature stand to reduce the number of trees per *acre* and encourage the remaining trees to grow faster and produce higher quality wood.



timber marking: The selection and identification, usually with paint, of those trees to be harvested or retained.

timber stand improvement (TSI): Applying cultural practices, such as *precommercial thinning* or *prescribed fire*, that improve the quality of a forest stand and achieve the desired stocking and species composition.

tree length: The entire tree, excluding the unmerchantable top and limbs. Highly mechanized logging crews often *skid*, load, and transport to mill in tree length form.

uneven-aged stand: A stand composed of 3 or more age classes. See OSU Extension Facts #5028, *Even- and Uneven-Aged Forest Management*.

veneer log: A *log* of high quality and desirable species suitable for conversion to veneer. Logs must be large, straight, of minimum taper, and free from defects.

volume table: A table showing, for one or more species, the volume contents of trees or logs based on *d.b.h.* and *merchantable height*.

water bar: A diversion ditch or hump in a trail or road for the purpose of diverting surface water runoff into roadside vegetation, duff, ditch, or dispersion area to minimize soil movement and erosion. See OSU Forestry Extension Report #5, *Best Management Practices for Forest Road Construction and Harvesting Operations in Oklahoma*.

watershed: The total land area draining into a given stream, river, lake, or reservoir; also known as a catchment area.

wetlands: Areas that are flooded or saturated by surface or ground water at a frequency and duration sufficient to support vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. See OSU Extension Facts #5034, *Riparian Forest Buffers*.

wildlife habitat: An area where animals live, naturally or otherwise, with relation to all the environmental influences affecting it. There are five major components: food, water, cover, space, and arrangements.

windbreak: A small-scale *shelterbelt* or other barrier, natural or artificial, maintained to deflect the wind.

windfall: A tree or trees blown down by the wind; also known as windthrow.

wolf tree: A tree of poor growth form (often a single tree growing in the middle of a field). It may have wildlife and aesthetic value.



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