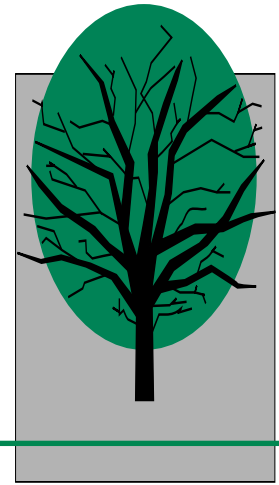


Forest Resource Management Terminology

MICHIGAN STATE
UNIVERSITY
EXTENSION



Pivate nonindustrial forest landowners and others interested in forest resources and their management should be familiar with forest resource management terminology. Effective communication involves the use of technical terms and concepts, abbreviations and references to agencies unfamiliar to many.

Failure to accurately use and understand this vocabulary can lead to confusion and frustration, and could result in incomplete or incorrect implementation of a management recommendation.

This bulletin is intended as a reference manual of forest and management terminology. It is divided into three parts:

Agencies Involved in Forestry

Identifies the major federal and state agencies that have programs in forestry and briefly describes their responsibilities (page 1).

Types of Foresters

Identifies the common types of professional foresters, their employers and their major responsibilities (page 3).

Commonly Used Terms

Defines the concepts and terms often used in forest management (page 4).

Involved Agencies

Farm Service Agency (FSA). An agency of the U.S. Department of Agriculture (USDA), the FSA is responsible for administering various landowner cost-sharing programs, including the Conservation Reserve Program (CRP) and Conservation Reserve Enhancement Program (CREP). This includes partial payment (reimbursement) for the completion of certain approved forestry practices such as tree planting and thinning, and other noncommercial woodlot improvement

practices. Specific information is available from the local FSA office located in county seats through the United States.

Michigan State University Extension (MSUE). Often referred to as the educational arm of the USDA, this organization provides educational materials and programming to groups and individuals on a wide range of topics including forestry. Group meetings, demonstrations, tours and publications are typical Extension educational activities. Extension is represented by a director and other staff members who are housed in the Extension office in each county seat. The office has information on scheduled forestry meetings or tours, publications, technical advice or referrals to specific technical forestry assistance. Extension administrative offices and Extension faculty members are located on the campus of the land-grant university in each state.



Department of Natural Resources (DNR). One of several state departments that are responsible for specific natural resources or programs, this department or its counterpart usually contains a number of divisions. The Forest, Mineral and Fire Management Division has several responsibilities, including the administration and management of state forestlands in most states, the operation of state tree nurseries, assistance to private owners of forestland and coordination of fire protection for state-owned forests. Field-level DNR foresters provide limited technical assistance to private landowners. (See “service forester” under “Types of Foresters.”)

Assistance might include tree planting recommendations, marketing advice and developing a total management plan for a forest property. The nearest DNR Service forester may be located by inquiring at a county Extension office, county Conservation District office or county FSA office.

Natural Resources Conservation Service (NRCS). The NRCS is an agency of the U.S. Department of Agriculture. It coordinates natural resource conservation education and assistance programs and administers some landowner cost-share programs. The cost share programs especially relevant to forest landowners are the Environmental Quality Incentive Program (EQUIP)

and the Wildlife Habitat Incentives Program (WHIP). The programs include partial payment (reimbursement) for the completion of certain approved forestry practices such as tree planting and thinning, and other noncommercial woodlot improvement practices. Specific information is available from local Farm Service Agency (FSA) offices which are located in county seats throughout the United States. The NRCS also coordinates the natural resource conservation programs of the 3,000 Conservation Districts in the United States. The NRCS has no public land management responsibilities. Each local district has a district conservationist, whose primary responsibility is developing farm land-use plans for soil and water conservation. Advice and planning are also provided for forested lands. Within each region, professionally trained foresters in certain districts are available to provide forest management advice and assistance to local landowners. Coordination with the local DNR forester is sought in recommending and carrying out specific forest practices.

Resource Conservation and Development (RC&D). Technically, RC&Ds are not public agencies but projects sponsored by the NRCS and other agencies. Projects are organized to carry out regional (multicounty) programs aimed at improving local economic,

social or environmental conditions. Use of local resources, including forest resources, is a major goal.

Conservation Districts (CD). Conservation Districts are local units of government whose major objective is the conservation of soil and water resources. In many areas, CDs promote good forestland management through educational programs and assistance. CD geographic boundaries often coincide with county boundaries.

An important service provided by the NRCS through the local CD is making available low-cost, nursery-produced forest planting stock to local cooperators and landowners.

Forest Service (FS). The principal agency in the U.S. Department of Agriculture concerned with forestry, the Forest Service conducts activities in three main areas: the publicly owned national forest system, a national forest research program, and financial and program assistance through each state forestry agency to private forest landowners. The programs most important for forest landowners are the Forest Stewardship Program (FSP) and Forest Land Enhancement Program (FLEP). Employees of the Forest Service normally do not work directly with private individuals but rather through other state or local forestry agencies.



Types of Foresters

Certified Forester®

Certified foresters are professionals who have met the forestry “profession’s educational requirements, have at least five years of professional forestry experience, adhere to standards of professional practice, pass a rigorous competency exam, and participate in continuing education” (Society of American Foresters, 2005). This certification is administered by the Society of American Foresters, which maintains a listing of certified foresters.

Cooperative Forest Management (CFM) Forester.

This is a professional forester employed by the DNR Forest, Mineral and Fire Management Division who is responsible for providing forest management assistance to landowners within a multicounty area. In some states, foresters may have other responsibilities as well, including the management of local state forestlands. (Also called “service forester.”)

Consulting Forester. This is a professional forester who is self-employed or who works for a private consulting company. Consulting foresters provide forest resource management recommendations and assistance for a fee. Some consultants provide assistance in a wide variety of forestry activities, while others may specialize in some particular aspect such as tree planting or timber

marketing. The local Extension office and DNR Forest, Mineral and Fire Management Division office maintain a directory of consulting foresters active in an area.

Extension Forester. This is a professional forester with graduate training employed by a land-grant university, who works with Extension in developing and providing research-based technical information on forestry. A primary responsibility is group education, including the preparation of printed materials and regional educational activities. These professionals work through local Extension personnel and other interested agencies and organizations.

Forest Ranger. The name is most often applied to a professional forester employed by the U.S. Forest Service who is in charge of part of a national forest referred to as a district. Forest rangers – or district rangers, as they are more properly known – are responsible for supervising the management activities of their districts, including fire control, tree planting, recreational activities, and thinning and harvesting operations. The responsibilities of a district ranger do not include assisting private landowners.

Occasionally, the term “forest ranger” is inaccurately applied to anyone wearing an official-looking forester’s uniform, particularly if the person is wearing a broad-brimmed hat.

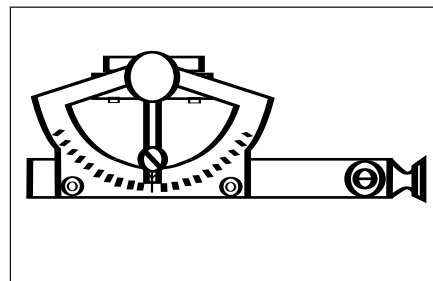
Forest Supervisor. This is an employee of the U.S. Forest Service who coordinates all activities in a particular national forest.

Industrial Forester. This is a professionally trained forester employed by a forest-based industry. These individuals may have a variety of responsibilities, including managing company-owned woodlands, assisting private landowners, and purchasing forest products for their employers.

Conservation District

Forester. A forester working in a particular CD project who promotes good forest management practices to landowners in the district. CD foresters often work jointly with Extension personnel and public agency and industrial foresters to conduct educational meetings, tours and demonstrations. They also provide individual woodland management assistance to landowners within their district.

Registered Forester. This is a professional forester whose credentials have been evaluated by a state board of examiners and who has been certified as meeting the professional standards required for



Abney Level



registration. Registered foresters usually receive unique registration numbers for their professional use. Not all states have a registration program for foresters.

Service Forester. This is a professional forester employed by the DNR Forest, Mineral and Fire Management Division who is responsible for providing forest management assistance to landowners within a multicounty area. (Also called “CFM forester.”)

Commonly Used Forestry Terms

Abney Level. An instrument used to measure tree height or percent of slope.

Acid Soils. A term applied to soils with pH values below 7.0. In practice, soils are considered strongly acid when the pH value is below 6.0. Many of the conifer species grow well in moderately acid soils; others, including many of the hardwoods, do poorly.

Acre. An area of land contains 43,560 square feet. If square, an acre of land is slightly more than 208.7 feet on a side.

Advance Reproduction. Young trees established and growing in a forest before a regeneration/harvest cut is made.

Afforestation. Establishing a forest on an area that did not previously have trees growing on it.

Age Class. All of the trees in a stand within a particular age interval. For example, all trees in a stand from 1 to 10 years old might be lumped into one age class, all trees 11 to 20 in a second age class, etc.

Allowable Cut. The volume of wood or the amount of product which can be cut under a particular management plan during a given period of time.

Annual Growth. The yearly growth of a tree or forest stand. Annual growth of a tree is commonly expressed as annual diameter increase. Annual growth of a forest stand is most commonly expressed as an annual increase in basal area, average tree diameter or volume (e.g., board feet, cubic feet or cords).

Annual Ring. Rings or bands in the cross-section or core sample of a stem, branch or root of a tree. Each ring represents one year’s growth and is visible because of differences in the size and character of wood cells that are produced during the year. A tree’s age and growth rate can be determined by examining the annual rings.

Aspect. The compass direction toward which a slope faces.

Basal Area. (a) The cross-sectional area (in square feet or square meters) of the trunk of a tree at breast height (4½ feet above the ground). For example, the basal area of a tree with a 14-inch DBH is approximately 1 square foot.

(b) The sum of basal areas of the individual trees on the acre. For example, a well-stocked stand of northern hardwoods might contain 100 trees with a DBH of 14 inches and have a basal area of 100 square feet per acre. Basal area, expressed on a per acre basis, is an important expression of density – how completely the forest is using the productivity of the site and how intensively the trees are competing with one another for environmental factors such as sunlight, moisture and nutrients.

Biltmore Stick. A stick containing a graduated scale used to estimate the trunk diameter of individual trees. A separate scale by which tree height can be estimated (called a Merritt hypsometer) is usually also present on such a scale stick.

Biological Control. The control of pests such as insects, diseases or weeds through the use of their natural enemies (predators, parasites, diseases, etc.).

Board Foot. The most common unit for expressing the amount of wood volume in a tree, sawlog, veneer log or individual piece of lumber. A board foot contains 144 cubic inches of wood. It may be any dimension (e.g., a piece of wood 1 foot by 1 foot by 1 inch and a piece of wood 1 foot by 3 inches by 4 inches both contain 1 board foot of wood).

Bole. The main trunk of a tree.



Bolt. A short log or a squared timber cut from a log.

Breast Height. The point on the trunk of a tree that is 4½ feet above ground level. A number of tree measurements, including diameter and basal area, are measured at this trunk height.

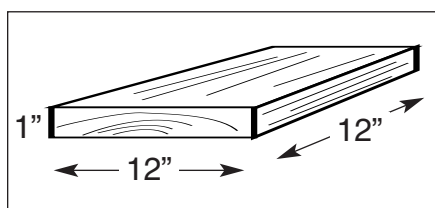
Browse. The twigs and foliage of trees and shrubs that are available as food for animals such as deer, elk and moose.

Browseline. The height to which browse has been eaten by animals. When browsing is heavy, the browseline becomes visible because woody vegetation has been substantially reduced or completely eliminated below it.

Bucking. The process of cutting the trunk of a felled tree into shorter lengths, usually 8, 10, 12, 14 or 16 feet long in the northeastern United States.

Bud Cap. A piece of paper or similar material placed over the terminal bud of a seedling to prevent browsing of the terminal shoot.

Buffer Strip. An area of land, including standing trees, adjacent to a stream, highway or other feature which acts as a filtration zone to reduce or eliminate soil erosion into the stream or



Board foot

other sensitive area, or which serves as a visual or other barrier.

Cable Logging. Logging which utilizes cables to move logs from where they are cut to the landing.

Cambium. The living, growing region of cells responsible for increases in tree diameter; located between the sapwood and the inner bark.

Canopy. The top layer or cover in a forest made up of tree crowns.

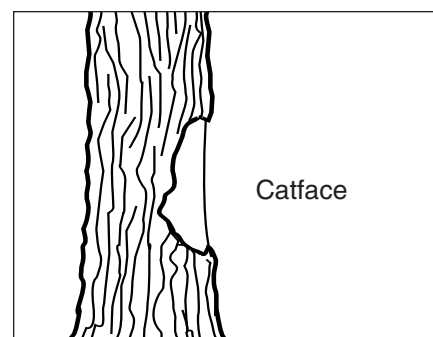
Catface. A relatively large wound on the side of a tree trunk or log that may have been caused by a physical wound and/or insect or disease activity. The catface appearance of the wound results from successive ridges of callous tissue forming as the tree attempts to close the wound opening.

Chain. An older unit of distance (linear measure) 66 feet in length. One mile (5,280 feet) contains 80 chains.

Choker. A loop of wire rope used to pull (skid) logs through the woods with a skidder, tractor, etc.

Cleaning. See “release cutting”.

Clearcut. A harvesting and regeneration technique that removes all the trees, regardless of size, on an area in one operation. Clearcutting is most often used with species such as aspen or yellow poplar which require full sunlight to reproduce and grow



well, or to create specific habitat for certain wildlife species. Clearcutting produces an even-aged forest stand.

Climax Forest. A relatively stable forest ecosystem that represents the final stage in plant succession. It will continue to occupy the area unless physically disturbed or affected by significant environmental change.

Clinometer. An instrument used to measure vertical angles. In forestry, clinometers are used to measure such things as land slope and tree height.

Co-dominant Tree. A tree in an uneven-aged forest stand whose crown is part of the general canopy. It receives full light on the top of its crown but comparatively little on the sides of its crown. (See “crown classification.”)

Cold Deck. An area, roadside or in the woods, containing a pile of logs left for later transport.

Commercial Cut. A harvest cut in a forest stand that yields a net income. Receipts from the sale of products exceeds the costs associated with the harvest.



Competition. The struggle among trees for environmental factors required for survival and growth – sunlight, moisture and nutrients.

Conifer. A tree belonging to the order coniferales – such as pine, spruces, firs and cedars – which is usually evergreen, cone-bearing and with needles or awl- or scalelike leaves. Conifers are often referred to as “softwoods.”

Conk. The relatively hard, shell- or shelf-shaped spore-bearing structure of certain fungi that sometimes grow on the trunk or major limbs of a tree. The presence of a conk indicates that the tree is infected with a fungus.

Conservation. The wise use of natural resources to assure the highest social and/or economic values now and in the future. Conservation may include management, protection, preservation, etc., as appropriate.

Controlled Burn. The intentional burning of an area under specific environmental conditions (air temperature, humidity, wind) to achieve a land management objective such as slash removal, reduc-

tion of woody brush or reduction in grass density.

Cord. A measure of volume commonly used with pulpwood and firewood. A cord is a stack of logs containing 128 cubic feet of total volume and approximately 80 cubic feet of solid wood. Commonly quoted dimensions of a standard cord of wood are 4 feet by 4 feet by 8 feet. (Note: in the Great Lake states, pulpwood cords are 4 feet by 4 feet by 100 inches to take advantage of standard truck widths.)

Cost-share Program. Any government-sponsored program that offers funding to reimburse a proportion of owners’ costs to perform various management activities.

Crook. A relatively abrupt bend in a log or tree trunk. A significant defect if the tree is being managed for timber. (See “sweep.”)

Crop Tree. A tree identified to be grown to maturity and not removed from the forest until the reproductive cut. The tree is designated for retention based on its ability to satisfy ownership objectives and is usually selected on the basis of species, quality and location with respect to other trees.

Crotch. The inside angle of a fork in a tree trunk or branch.

Crown. The leaves and branches of a tree.

Crown Class. Trees in an uneven-aged forest are often separated into classes based on the position of their crowns in the canopy. A common crown classification used in the northeastern United States divides the trees into four classes – dominant, co-dominant, intermediate, and overtopped or suppressed. (See individual crown classes for definitions.)

Crown Ratio. See “live-crown ratio.”

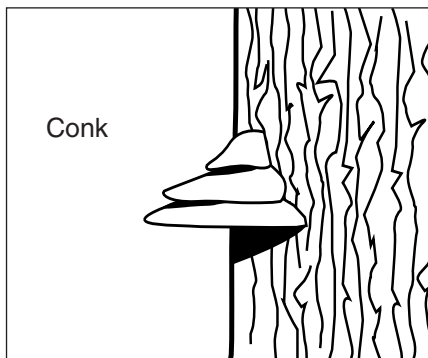
Cruise Stick. A ruler-like stick calibrated to measure several characteristics of standing trees, such as DBH, height and volume.

Cruising. The process of estimating the quality, quantity and characteristics of trees in a forest.

Cubic Foot. A wood volume measurement of any shape containing 1,728 cubic inches. A cubic foot of wood produces 5 to 8 usable board feet of wood when sawn because of the cylindrical shape of the log and sawing losses.

Cull. A tree or log of merchantable size that has no market value because of a defect. The term “cull” is also sometimes used to express the percentage of estimated wood volume in a forest that is unmerchantable. The more correct term for this latter situation is “percent defect.”

Cutting Area. An area of a forest where timber cutting is or will occur.





Cutting Cycle. The planned time interval between major harvesting operations in the same stand. The term is usually applied to uneven-aged stands. For example, a cutting cycle of 10 years in a northern hardwood stand means that every 10 years a harvest would be carried out in the stand.

DBH (diameter at breast height). The diameter of the tree trunk 4½ feet above ground level. (See “breast height.”)

Deciduous Tree. A tree which loses all of its leaves at some time during the year. In the northeast United States, deciduous trees lose their leaves during the winter months.

Deck. An area where logs are stored and loaded for transport.

Defect. That portion of a tree or log which is unusable for the intended product and therefore not measured when the tree or log is scaled. Defects include rot, crookedness, cavities and excessive limbiness. A large amount of defect can cause a tree or log to be declared a cull.

Den Tree. A tree containing a hollow or cavity in which certain wildlife species may find shelter.

Dendrology. The study of the identification of trees and where they grow (site requirements and geographic distribution).

Diameter. See “DBH.”

Diameter Inside Bark (DIB). The diameter of a log or tree measured inside the bark. For example, the diameter of a log is usually measured inside the bark at the small end of the log.

Diameter Limit. A diameter size specification above or below which all of the trees in a stand are classified together for some purpose (e.g., cutting, pruning).

Diameter Limit Cutting. The cutting of all of the trees in a stand above a specified diameter, generally without regard to tree species, quality or individual tree location. The diameter limit may vary by species. In most instances, diameter limit cutting over time will degrade a forest for most ownership objectives.

Diameter Tape. A graduated tape used to determine tree diameter by measuring the circumference of the tree.

Dibble or Dibble Bar. A steel tool resembling a large chisel on the end of a long handle and used to make the hole in which tree seedlings or transplants are planted. Also referred to as a planting bar.

Dip. An engineering structure to reduce soil erosion. Specifically, a dip is a depression built into the elevation of a downsloped road. It reduces the velocity of water flowing down the road and deflects the water off the road surface. Long, gradual dips that do not substantially slow vehicular traffic are often referred to as “rolling dips.”

Direct Seeding. The use of tree seed, either broadcast or individually planted, to regenerate a forest.

Dominant Trees. Trees in an uneven-aged forest stand whose crowns extend above the general canopy and receive full light from above and partial light from the sides. (See “crown class.”)

Dormancy. The physiological state of a plant or plant part in which biological processes are slowed so that growth and/or development are reduced or virtually stopped. Often a particular environmental stimulus is required to break dormancy. Many tree seeds, for example, are in a state of dormancy when released from the tree and require certain environmental conditions before they will germinate.

Duff. The loose, unconsolidated organic material on the soil surface in a forest.

Ecology. The science that studies the interrelationships of plants and animals and their environments, or the study of the structure and function of ecosystems.

Ecosystem. An interacting system of living organisms (plants and/or animals) and their environment (e.g., soil and climatic factors).

Ecotone. The transition zone between two plant communities, such as the edge of a forest and an adjacent field. A particularly important concept in wildlife management because ecotones provide



unique habitats, different from either adjacent plant community.

Entomology. The science that studies insects.

Environment. The prevailing conditions in an area that reflect the combined influence of climate, soil, topography and biology (other plants and animals). Environmental factors are extremely important in determining how well a particular species of tree will grow in a given area. They determine or define what foresters refer to as the “site” or “site quality” of an area.

Epicormic Shoots or Epicormic Branching. Shoots developing on the trunk or branches of a tree from dormant or adventitious buds. Shoots often appear when a previously shaded area of tree trunk is exposed to direct sunlight, as in a heavy thinning.

Epidemic. A widespread insect or disease problem beyond normal proportions.

Even-aged Forest. A forest stand in which the trees have a relatively narrow range of ages (commonly within 10 to 20 years or 20 percent of rotation length).

Even-aged Management. The management of the forest using harvest/regeneration techniques that remove all of the trees on designated areas at one time or over relatively short time intervals, resulting in a forest containing even-aged stands.

Evergreen Tree. A tree that retains some of its leaves throughout the entire year. Examples of evergreen trees include pines, spruces, firs and holly. Also see “deciduous tree.”

Exotic. An organism that does not occur naturally in a geographic area. Scotch pine, a tree species planted widely in the northeastern United States as a Christmas tree, is an exotic in the United States. It grows naturally in Europe and eastern Asia.

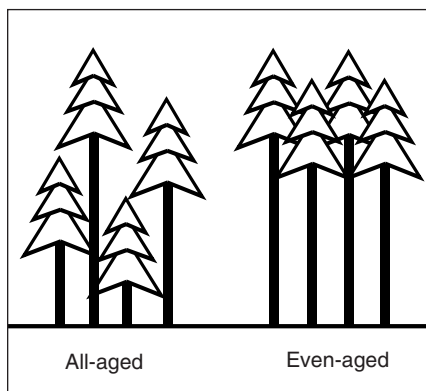
Face Cord. A stack of variable length wood which is 4 feet high and 8 feet long.

Felling. The act or process of cutting a standing tree.

Firebreak. A natural or constructed barrier, such as a stream, roadway or plowed path, that slows or prevents the spread of a forest fire.

Fire Scar. A wound or healed wound on a tree trunk or log that was caused or accentuated by fire.

Forest. A plant community or ecosystem in which the dominant vegetation is trees and other woody plants.



Forest Inventory. When referring to the timber resource, a forest inventory is the process of measuring and evaluating the composition, quality and quantity of trees in the forest (See “cruising.”) When referring to the forest as a whole, forest inventory is the process of measuring and evaluating the type, quality and quantity of all of the resources present or those that are of interest to the owner/manager.

Forest Land Enhancement Program (FLEP). A federal cost-sharing program, administered by the Forest Service, that partially reimburses a landowner for the completion of certain forest management practices such as tree planting and thinning. Interested forest landowners should contact their local service forester concerning cost sharing. Application and a forest stewardship plan are required to qualify for this assistance.

Forest Management. The application of various forest sciences, including biology, physiology, ecology, economics, sociology and biometry to meet the landowner’s, users’ or society’s goals for sustained production of forest uses and values. This includes aesthetics, fish and wildlife, recreation, timber, wilderness, watershed protection, and urban uses and values.

Forest Practices Act. State legislation designed to protect the environment from undesirable activities on



forestland such as improper or poor harvesting or poor road building. The primary objective is to regulate activities on public and private forestland. Not all states have this legislation.

Forest Stand Improvement

Cut. An intermediate cutting in which the quality of the residual stand is improved by removing trees of less desirable species (poorer quality, lower vigor and/or improper spacing), vines and, occasionally, large shrubs to achieve the stocking of trees which best satisfies ownership objectives.

Forest Stewardship

Program (FSP). A program offered through the USDA Forest Service that encourages private forest owners to actively manage their forest and related resources in a sustainable manner through the development of forest stewardship plans, which provide a comprehensive understanding of the forest and suggestions for management activities.

Forest Type. One or more tree species that grow together because of their similar environmental requirements and tolerances. Two examples of forest types are the beech-sugar maple type and the jack pine type.

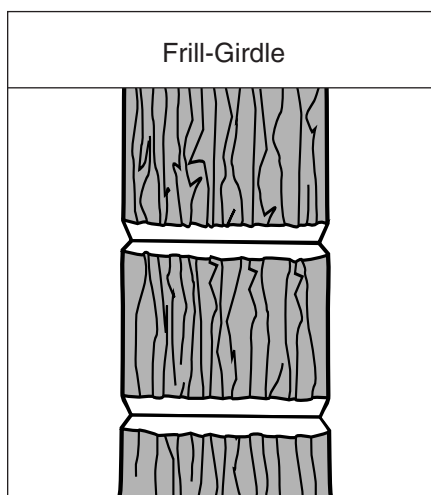
Forester. A professional who has been educated in forestry (forestland management) at a four-year university or college.

Form Class. A measure of tree taper usually obtained by dividing the diameter measured inside the bark of a tree trunk at a height of 17.5 feet by the diameter at breast height, and multiplying the result by 100. Form class is needed when using certain types of volume tables to determine the volume of a tree of a specific DBH and merchantable height. In the northeastern United States, trees commonly have form classes between 75 and 85.

Forty. A tract of land 40 acres in size.

Frill. On the trunk of a tree, a peeled-back ring of bark and cambium made by encircling the trunk with a succession of blows downward and inward with an axe or hatchet. This is one technique that can be used to apply herbicide to a tree that is to be killed but not cut down.

Frost Crack. A longitudinal split or crack in the bark or bark and wood of a tree trunk, caused by uneven warming and cooling of the trunk.



Girdling. The killing or removal of the bark and cambium (and usually the outer sapwood) completely around the trunk of a tree. As a management tool to remove undesirable trees, girdling may be done using an axe, chain saw or other tool, with or without an accompanying herbicide application. Other environmental agents, such as insects, diseases or some inadvertent human activities, can also girdle trees.

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

Habitat. The environment in which a plant or animal lives and that provides its requirements for survival.

Hardwood. A term used to describe broadleaf, usually deciduous trees such as oaks, maples, ashes and elms. The term does not necessarily refer to the relative hardness of the wood.

Harvest or Harvest Cut.

(a) In general use, the removal of some or all of the trees on an area. (b) Technical definition – a harvest cut is the removal of trees on an area to develop the environment necessary to regenerate the forest, to obtain products and/or income, and to achieve some specific ownership objectives such as the development of special wildlife habitat. Contrast with “intermediate cut.”

Harvesting Cutting

Methods. See “clearcut,” “seed tree,” “selection” and “shelterwood.”



Heart Rot. Decay of the heartwood.

Heartwood. The inner portion of a woody stem composed of nonliving cells. It is usually a darker color than the outer portion of the stem (sapwood).

Heel-in. A method for holding seedlings or transplants before planting by placing their roots in a trench and covering with soil.

Height, Breast. See “DBH.”

Height, Merchantable. The height of a tree (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 10-inch-minimum-diameter sawlogs were being cut from the same tree, the merchantable height for sawlogs would be its height up to a trunk diameter of 10 inches. Note that one must know the product being produced to estimate merchantable height.

Height, Total. The height of the tree from the ground level to the top of the crown.

Herb. A nonwoody broadleaf plant.

Herbicide. Chemicals which kill herbaceous (nonwoody) plants. In common usage, however, the term “herbicide” is often used interchangeably with the term

“phytocide” to indicate a chemical that kills plants.

High-grade. The selection and harvest of only the best trees in a forest stand, leaving low quality and nonmerchantable trees to occupy the site and make up the future forest.

Hypsometer. A graduated stick used to estimate tree height. It is usually combined with a Biltmore stick for use in timber cruising.

Improvement Cut. See (forest stand improvement cut).

Increment Borer. A hollow, auger-like instrument used to bore into the trunk of a tree to remove a cylinder of wood containing a cross-section of the tree’s growth rings.

Increment, Growth. The amount of growth put on by a tree in a given period of time (e.g., 5-year diameter growth increment, 10-year volume growth increment).

Intermediate Cutting. A cutting in a forest stand not directly associated with harvest/regeneration activities, whose purpose is to enhance the growth of the remaining trees by reducing competition, usually by removing trees of less desirable species or poorer quality. An intermediate cut may generate income (commercial cutting) or, in some cases, may cost the forest landowner (a non-commercial cutting). Contrast with “harvest cut.”

Intermediate Treatment. Any treatment in a stand not directly associated with har-

vest/regeneration activities. Examples include intermediate cuttings, pruning and fertilization.

Intermediate Tree. A tree whose crown is below the general level of the forest canopy. Such trees receive no light from the sides and little if any from above. (See “crown class.”)

Kerf. The width of cut made by a saw cutting a log or board.

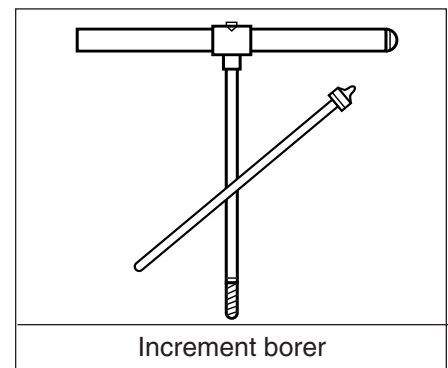
Landing. A place where logs are assembled and loaded for transport.

Leave Tree. A tree designated not to be cut during a harvest or intermediate cut.

Liberation Cutting. See “release cutting.”

Live Crown Ratio. On a standing tree, the ratio of the length of trunk containing living branches to the total tree height.

Log. (a) A section of the woody stem of a tree. (b) The trunk portion of a tree. (c) A unit of measurement representing a tree trunk exactly 16 feet in length.





Log Rule. A device, usually presented in tabular form, which expresses the volume of a log based on log diameter (inside the bark on the small end) and length.

Log Scale. The lumber content (board feet) of a log as determined with a log rule.

Logger. An individual whose profession is cutting timber.

Logging Costs. The total cost of harvesting a particular forest stand, including the costs of felling, limbing, bucking, skidding, loading and hauling. In some operations, it is appropriate to separate loading and hauling costs from the other logging costs.

Log. To chop or saw slash after a timber cut to reduce its visual impact and/or place it closer to the ground where it will decompose more rapidly.

Lump-Sum Sale. A technique of selling timber in which a single payment buys all of the timber that is for sale. Contrast with "Sale by unit."

Management. See "forest management."

Management Plan. A written document which forms the basis for the management of a forest. Ideally, at minimum a forest management plan contains a statement of the forest landowner's objectives, inventory information and recommended practices to satisfy ownership objectives.

Marking Timber. The selecting and marking of trees to be cut during a timber harvest. Trees are usually marked in some manner with weather-resistant paint. Note that occasionally trees to be retained are marked, rather than trees to be cut.

Mast. Fruits or seeds of trees, often called "hard mast" or "soft mast," which provide food for many wildlife species. Hard mast trees include species such as beech, hickory and oak; soft mast trees are species such as black cherry, serviceberry and hawthorn.

Mature Tree. (a) A tree that, on the basis of ownership objectives, has reached the desired size, age or condition at which it should be cut. (b) A tree that has attained the age or size at which it possesses the qualities characteristic of the species.

MBF. An abbreviation for 1,000 board feet.

Mensuration. That aspect of forestry which deals with the measurement of individual tree or forest stand characteristics.

Merchantable. The term means salable and usually refers to that part of a tree stem from which usable products such as lumber or veneer can be produced.

Mortality. The death of trees in the forest as a result of competition, disease, insects or other factors, including animal damage, drought or fire.

Multiple Use. The management of forestland (or any other land) for more than one purpose or objective.

Natural Forest Stand. A forest stand which originated from natural seeding or sprouting. Contrast with "plantation."

Noncommercial Harvest. A cutting which does not yield a net income, usually because the trees harvested are too small, of poor quality or an unmarketable species.

Overstocked. A forest stand containing too many trees for its desired management objective. For example, an overstocked forest might result in a reduced rate of economic growth.

Overstory. The branches and foliage of trees which form the canopy or upper crown cover.

Overtopped Trees. Synonymous with "suppressed tree."

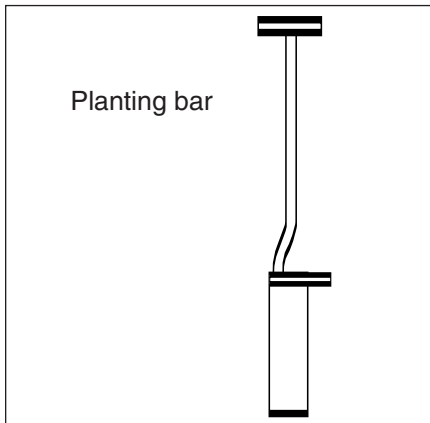
Partial Cut. Any timber cutting which does not remove all of the trees in the forest stand.

Pathology. The science that studies diseases.

Plantation. A reforested area established by planting or application of seed (direct seeding). Contrast with "natural forest stand."

Planting Bar. See "dibble."

Planting Stock. Seedling trees used for planting.



Pole Stand. A stand of trees the majority of whose diameters range from 5 to 9 inches.

Prescribed Burning. The deliberate use of controlled fire in a forest to accomplish a specific objective, such as to prepare a seedbed, remove accumulated slash or control undesirable vegetation.

Preservation. (a) As applied to wood, the chemical treatment of wood products to prevent damage by insects or decay organisms. (b) With respect to natural resources, the practice of attempting to maintain a natural environment undisturbed by the influence of man.

Prism, Wedge. A device used to estimate basal area in a forest stand.

Pruning. The removal of live or dead branches from standing trees. Pruning of forest trees is most commonly done to remove the lower branches to produce higher quality wood (knot-free). Other reasons to prune include to improve a stand's appearance, to reduce fire hazard, to facilitate movement in the stand and to improve growth form.

Pulpwood. Trees cut for the purpose of producing wood pulp for the manufacture of paper, fiberboard or other wood fiber products.

Punky. A soft, weak, often spongy condition of wood caused by decay.

Reforestation.

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

Regeneration. Synonymous with "reproduction."

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

Reproduction. (a) Young trees which will grow and develop into older trees in the future forest. (b) The process by which the forest is replaced or renewed. Reproduction may occur naturally, by natural seeding or sprouting, or may be done artificially, by seeding or planting seedlings.

Residual Stand. Trees that remain in a forest stand after a cutting.

Riparian Zone. The land area adjacent to and along streams and rivers. Riparian zones are valuable both because they represent unique ecosystems and because they play important roles in maintaining water quality of streams and rivers.

Rolling Dip. See "dip."

Root Collar. On a tree, the transition zone between the stem and roots. The root collar is usually recognizable on seedlings by the presence of a slight swelling and changes in bark color and texture between the stem and roots.

Rot. The decay of wood.

Rotation. In even-aged forest management, the number of years required to establish and grow trees to a specified size, product or condition of maturity. The term "rotation" has no meaning in uneven-aged forest management.

Roundwood. Wood products which are round, such as posts, poles and pilings.

Sale By Unit. The process of selling timber or other forest products in which the price per unit of product is agreed upon prior to the harvest. The product is harvested and scaled, and payment is made according to the actual quantity harvested. Compare with "lump-sum sale."

Salvage Cut. The harvesting of trees that have been damaged or killed by fire, insects, disease or other environmental factors. The main intent of the harvest is to salvage the value of any forest products present.

Sanitation Cut. The harvesting or destruction of trees infected or highly susceptible to an insect or disease to protect the rest of the forest stand.

Sapling. A small tree, usually defined as being between 2 and 4 inches DBH.



Sapwood. The outer portion of a woody stem, composed of both living and nonliving cells, and usually a lighter color than the inner portion of the stem (heartwood).

Sawlog. A log large enough to be accepted for sawing in a sawmill. Usually sawlogs are at least 10 to 12 inches in diameter.

Sawtimber. Trees usually 10 to 12 inches in diameter or larger.

Scale Stick. A flat stick similar to a yardstick, calibrated so that log volumes (in board feet) can be read directly when the stick is placed on the small end of a log of known length.

Scale or Scaling. The process of estimating the volume of wood product in a log or board or stack of logs or boards.

Scalp. A method of preparing a tree planting site which involves exposing the mineral soil by removing the sod or surface layer of debris in a small area (perhaps a 3-foot-diameter circle) where each tree is to be planted.

Scarify. (a) To disturb the soil surface cover and expose

mineral soil in preparation for natural or artificial seeding. (b) To weaken a seed coat by abrasion or acid treatment to facilitate germination.

Seed Tree. A tree left after a seed-tree harvest to provide seed for regeneration.

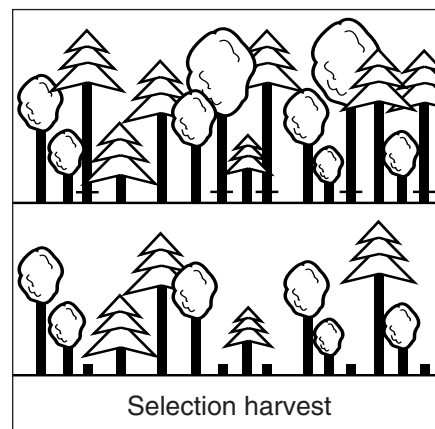
Seed Tree Harvest Cut.

Removal of all the trees from a harvest area at one time, except for a few scattered trees that are left to provide seed to establish a new forest stand.

Seedling. (a) A tree, usually less than 2 inches DBH, which has grown from a seed (in contrast to a sprout). (b) When referring to planting stock, a nursery-grown young tree not transplanted to a second nursery bed to provide it with more growing space. Contrast with “transplant.”

Selection Harvest. A harvesting method in which individual trees or small groups of trees (group selection) are harvested at periodic intervals (usually 8 to 15 years) on the basis of several factors, including physical condition and degree of maturity. A selection harvest cut produces and maintains an uneven-aged stand.

Shade-intolerant. The term applied to tree species that do not establish and grow well in the shade of other trees. Examples of relatively shade-intolerant species include yellow poplar, aspens, black cherry, and jack and Virginia pine. See “tolerance” and “shade-tolerant.”



Shade-tolerant. The term applied to tree species that establish and grow well in the shade of other trees.

Examples of relatively shade-tolerant species include sugar maple, red maple, American beech, basswood and eastern hemlock. See “tolerance” and “shade-intolerant.”

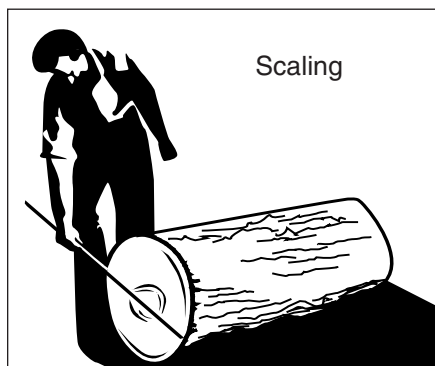
Shelterwood Harvest Cut.

A harvesting method in which trees on the harvest area are removed in a series of two or more cuttings to allow the establishment and early growth of new seedlings under the partial shade and protection of the older trees. Cuttings are usually 5 to 20 years apart, resulting in an even-aged forest stand.

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

Silvicide. A chemical which kills woody plants.

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.





Silviculture involves the correct application of tree cutting, tree planting, chemicals such as fertilizer and pesticides, and controlled burning to achieve ownership objectives.

Site. (a) Reference to a specific location. (b) An area evaluated for its capacity to produce a particular forest or other vegetation on the basis of the combination of biological, climatic and soil factors present.

Site Index. An expression of forest site quality based on the height of the dominant trees and superior co-dominant trees at a specified age (usually 50 years in the eastern United States but sometimes less).

Site Preparation. Preparing an area of land for forest establishment. Methods may include scalping, clearing, chemical vegetation control, burning, fertilization, mounding, etc.

Skidding. The process of moving trees or logs from where they are cut to a landing. Most commonly, skidding involves dragging the cut tree or log behind a skidder tractor or team of horses. In hilly or mountainous terrain, logs may be skidded – or more properly, yarded – using cables.

Skid Trail. A road or trail over which trees or logs are moved to a landing.

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

Snag. A standing dead tree or tree trunk considered of value to wildlife for denning, nesting or feeding.

Softwoods. Term commonly used to refer to conifers.

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

Species Composition. The mixture of tree species which make up a stand. Species composition is often expressed as the percentage composition of each species (e.g., 50 percent chestnut oak, 30 percent scarlet oak, 15 percent black oak, 5 percent other).

Sprout. A tree that has grown from the base, stump or root of another tree.

Stand Density. A quantitative expression of stand stocking, commonly expressed in number of trees, volume of wood product or basal area per acre.

Stand Table. A table showing the number of trees per acre by species and diameter class for a specific forest area.

Stocking. An expression of the number of trees, basal area or volume per acre in a specific forest area compared to the optimal level to best achieve management objectives. Stocking may be expressed as a percentage or in relative terms as understocked, acceptable and overstocked.

Stock Table. A table showing the volume of wood product per acre by species and diam-

eter class for a specific forest area.

Stumpage. The monetary value of a tree or group of trees as they stand in the woods uncut (on the stump).

Succession. The changes in the vegetation (and animals) in an area over time, progressing toward a stable plant (and animal) community (the climax community) that will perpetuate itself on the area if not disturbed.

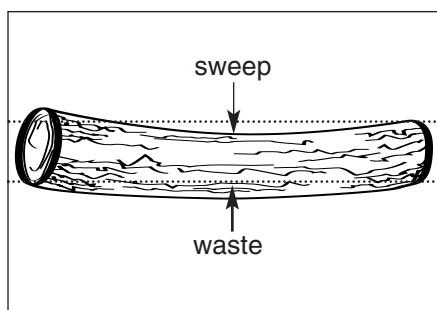
Sucker. Synonymous with sprout.

Sunscald. Localized bark and cambium injury caused by a sudden increased exposure to the sun's rays. Thin-barked species are particularly susceptible. Sunscald injury often results in dead areas on the trunk that reduce the quality of the tree for wood production and create entrance points for insect and/or disease problems.

Suppressed Tree. A tree in a forest stand whose crown does not extend into the forest canopy and therefore receives no direct sunlight from above or the sides.

Sustained Yield. Management of forestland to produce a relatively constant amount of a resource (e.g., a particular wildlife species or timber product revenue).

Sweep. Curvature in a tree trunk or log. Sweep constitutes an important defect if quality timber production is an ownership objective.



Taper. The gradual diameter reduction of a tree trunk or log from its base to its top.

Thinning. An intermediate cutting in an immature stand to reduce tree density and concentrate the productivity of the site on fewer high quality trees, resulting in increased growth and larger trees. Types of thinning:

Commercial: A thinning that produces enough salable trees to produce a net income.

Crown: A thinning that removes primarily dominant and co-dominant trees.

Low: A thinning that removes predominantly the smaller, weaker trees, primarily in the intermediate and over-topped crown classes.

Natural: The natural process of density reduction that occurs as a stand matures because of competition among trees.

Noncommercial: A thinning that does not produce enough trees to produce a net income.

Precommercial: A thinning in a stand that is not yet old enough to produce salable products.

Row: A thinning in a plantation that removes designated rows (e.g., every third row).

Selection: A thinning that removes individual large trees before they become "wolf trees."

Tolerance. The capacity of a tree to develop and grow in the shade of and in competition with other trees. See "shade-intolerant" and "shade-tolerant."

Transplant. A nursery-produced tree grown one or more years in a seedling bed and then transferred to a second nursery bed, where it is replanted at wider spacing to produce a larger tree with a better developed root system.

Tree. A woody plant with a well-defined stem, formed crown and a height of at least 10 feet at maturity.

Tree Farm. (a) A privately owned forest (woodland) managed with the production of wood products as an important ownership objective. (b) A certified tree farm is a forest (woodland) recognized by the American Forest Council and the state tree farm committee as receiving good forest management.

Tree Injectors. Tool used to inject chemicals, usually phytocides, into a tree trunk.

Trim Allowance. Excess log length required to allow for losses during the manufacturing process. A mill, for example, might require all delivered logs less than 16 feet in length to be at least 6 inches

longer than their scaled length.

Understocked Stand.

A stand in which the stocking is below the recommended level. See "stocking."

Understory. Small trees, brush, shrubs and other vegetation that form the lower level in a forest stand; the vegetation distinctly below the overstory canopy.

Uneven-aged Forest.

A stand composed of many ages of trees (technically, more than two age classes) with considerable differences in the ages of the trees present.

Uneven-aged Forest Management.

Management of a forest involving the periodic removal of individual or small groups of trees from the stand. Management of a forest in this manner results in the presence of trees of several age (size) classes.

Veneer. A thin sheet of wood that may be used to make plywood or glued to the surface of other wood (solid or laminated) to give the appearance of the veneered wood.

Veneer Log. A large diameter, high quality log from which veneer can be made.

Volume. The amount of merchantable wood product in a tree, log, forest stand or stack. Volume is most commonly expressed in terms of board feet, thousands of board feet (MBF), tons or cords.



Volume Table. A table used to estimate the volume of wood contained in a standing tree. Most commonly, volume tables estimate volume on the basis of tree DBH and merchantable height.

Water Bar. A diagonal hump or ditch in a trail or road that diverts surface runoff to reduce soil erosion.

Watershed. An area of land that receives water (precipitation) and discharges it into a single stream or other outlet.

Widowmaker. A limb, leaning tree or other material in the forest canopy that is in danger of falling to the ground and injuring someone.

Wildling. A naturally produced seedling that is used as planting stock.

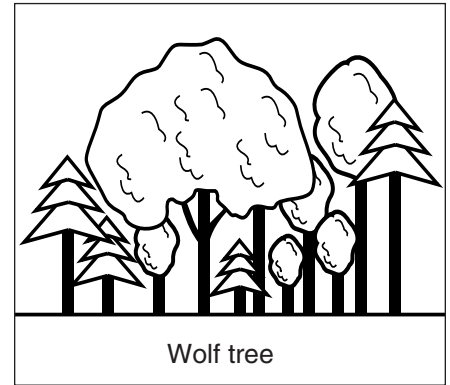
Windthrow. A tree uprooted by wind, snow or ice.

Wolf Tree. A tree that occupies more space in the forest than its ability to satisfy ownership objectives justifies, usually a tree that is older, larger or more branchy than other trees in the stand.

Wood Pulp. Mechanically ground or chemically digested wood (composed primarily of wood fiber) used in the manufacture of paper, fiberboard, etc.

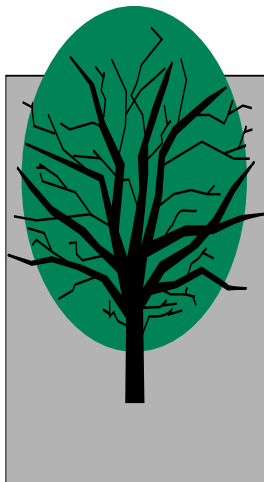
Woodland Management. See "forest management."

Woodlot. A term often used to indicate a relatively small forest, or a forested area associated with agricultural land.



Yarding. Moving logs by a cable system from the stump to a landing.

Yield Table. A table that predicts forest characteristics for stands at specific ages and on sites of designated quality. Characteristics commonly predicted include diameter, height, basal area and volume.



M.R. Koelling
Department of Forestry
Michigan State University

Randall B. Heiligmann
Department of
Forest Resources
Ohio State University

Georgia Peterson
Michigan State University Extension and
Michigan Department of Natural Resources

Karen Potter-Witter
Department of Forestry
Michigan State University

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