

Silviculture Terminology¹

Silviculture: The art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis.

Silvicultural System: A planned process whereby a stand is tended, harvested, and reestablished. The system name is based on the number of age classes, and/or the regeneration method used (see Clearcutting, Seed Tree, Shelterwood, Selection, Coppice, Coppice with Reserves).

Stand: A contiguous group of trees sufficiently uniform in age class distribution, composition, and structure, and growing on a site of sufficiently uniform quality, to be a distinguishable unit (see Even-aged, and Uneven-aged Stands).

Intermediate Treatments (Tending): A collective term for any treatment designed to enhance growth, quality, vigor, and composition of the stand after establishment or regeneration and prior to final harvest.

Regeneration (Reproduction) Method: A cutting method by which a new age class is created. The major methods are Clearcutting, Seed Tree, Shelterwood, Selection, and Coppice. (see Harvesting Method)

Coppice: A method of regenerating a stand in which all trees in the previous stand are cut and the majority of regeneration is from sprouts or root suckers. *Coppice with Reserves:* A coppice method in which reserve trees are retained to attain goals other than regeneration. The method normally creates a two-aged stand.

Even-aged Methods: Methods to regenerate a stand with a single age class.

Clearcutting: A method of regenerating an even-aged stand in which a new age class develops in a fully exposed microclimate after removal, in a single cubing, of all trees in the previous stand. Regeneration is from natural seeding, direct seeding, planted seedlings, and/or advance reproduction. Cutting may be done in groups or patches (Group or Patch Clearcutting), or in strips (Strip Clearcutting). In the Clearcutting System, the management unit or stand in which regeneration, growth, and yield are regulated consists of the individual clearcut stand (see Group Selection). When the primary source of regeneration is advance reproduction, the preferred term is Overstory Removal.

Seed Tree: An even-aged regeneration method in which a new age class develops from seeds that germinate in fully exposed microenvironments after removal of all the previous stand except a small number of trees left to provide seed. Seed trees are removed after regeneration is established.

Shelterwood: A method of regenerating an even-aged stand in which a new age class develops beneath the moderated microenvironment provided by the residual trees. The sequence of treatments can include three distinct types of cuttings: (1) an optional preparatory cut to enhance conditions for seed production; (2) an establishment cut to prepare the seed bed and to create a new age class; and (3) a removal cut to release established regeneration from competition with the overwood. Cutting may be done uniformly throughout the stand (Uniform Shelterwood), in groups or patches (Group Shelterwood), or in strips (Strip Shelterwood).

Two-aged Methods: Methods designed to maintain and regenerate a stand with two age classes. In each case the resulting stand may be two-aged or tend toward an uneven-aged condition as a consequence of both an extended period of regeneration establishment and the retention of reserve trees that may represent one or more age classes. *Shelterwood with Reserves; Clearcutting with Reserves; Seed Tree with Reserves; Shelterwood with Reserves*

Reserve Trees (Green Tree Retention): Trees, pole-sized or larger, retained in either a dispersed or aggregated manner after the regeneration period under the Clearcutting, Seed Tree, Shelterwood, or Coppice Methods (syn. Standards).

Uneven-aged (Selection) Methods: Methods of regenerating a forest stand, and maintaining an uneven-aged structure, by removing some trees in all size classes either singly, in small groups, or in steps.

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 groups is approximately twice the height of the mature trees, with small openings providing microenvironment suitable for tolerant regeneration and the larger openings providing conditions suitable for more intolerant regeneration. In the Group Selection System, the management unit or stand in which regeneration, growth, and yield are regulated consists of a landscape containing an aggregation of groups.

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Group Selection with Reserves: A variant of the Group Selection Method in which some trees within the group are not cut to attain goals other than regeneration within the group.

Single Tree Selection: A method of creating new age classes in uneven-aged stands in which individual trees of all size classes are removed more-or-less uniformly throughout the stand to achieve desired stand structural characteristics.

Advance Regeneration (Reproduction) syn. Advance Growth: Seedlings or saplings that develop or are present in the understory.

Age Class (Cohort): A distinct aggregation of trees originating from a single natural event or regeneration activity, or a grouping of trees, e.g., 10-year age class, as used in inventory or management. *Two-aged Stand:* A stand composed of two distinct age classes separated in age by more than 20 percent of rotation. *Uneven-aged Stand:* A stand of trees of three or more distinct age classes, either intimately mixed or in small groups. *Even-aged Stand:* A stand of trees containing a single age class in which the range of tree ages is usually less than 20 percent of rotation. *Multiaged:* A stand of trees consisting of 2 or more distinct age classes (syn. Two-aged).

Artificial Regeneration (Reproduction): An age class created by direct seeding or by planting seedlings or cuttings.

Basal Area: The area of the cross section of a tree stem, including the bark, generally at breast height (4.5 feet above the ground).

Crown Class: A class of tree based on crown position relative to the crowns of adjacent trees. *Emergent:* Trees with crowns completely above the general level of the main canopy receiving full light from above and from all sides. *Dominant:* Trees with crowns extending above the general level of the main canopy of even-aged stands or, in uneven-aged stands, above the crowns of the tree's immediate neighbors, and receiving full light from above and partly from the sides. *Codominant:* Trees with crowns forming the general level of the main canopy in even-aged stands or, in uneven-aged stands, the main canopy of the tree's immediate neighbors, receiving full light from above and comparatively little from the sides.

Intermediate: Trees with crowns extending into the lower portion of the main canopy of even-aged stands or, in uneven-aged stands, into the lower portion of the canopy formed by the tree's immediate neighbors, but shorter in height than the codominants. They receive little direct light from above and none from the sides. *Overtopped (Suppressed):* Trees of varying levels of vigor that have their crowns completely covered by the crowns of one or more neighboring trees.

Harvesting Method: A cutting by which a stand is logged. Emphasis is on meeting logging requirements

while concurrently attaining silvicultural objectives. (see Regeneration Methods)

Overstory Removal: The cutting of trees comprising an upper canopy layer in order to release trees or other vegetation in an understory. (see Clearcutting)

Regeneration: Seedlings or saplings existing in a stand; or the act of establishing young trees naturally or artificially (syn. Reforestation).

Stand Density: A quantitative, absolute measure of tree occupancy per unit of land area in such terms as numbers of trees, basal area, or volume. *Stocking:* An indication of growing-space occupancy relative to a preestablished standard. Common indices of stocking are based on percent occupancy, basal area, relative density, and crown competition factor.

Structure: The horizontal and vertical distribution of components of a forest stand including the height, diameter, crown layers and stems of trees, shrubs, herbaceous understory, snags, and down woody debris.

Thinning: A cultural treatment made to reduce stand density of trees primarily to improve growth, enhance forest health, or to recover potential mortality. Thinning is an intermediate treatment. *Crown Thinning (Thinning from Above, High Thinning):* The removal of trees from the dominant and codominant crown classes in order to favor the best trees of those same crown classes. *Free Thinning:* The removal of trees to control stand spacing and favor desired trees using a combination of thinning criteria without regard to crown position. *Low Thinning (Thinning from Below):* The removal of trees from the lower crown classes to favor those in the upper crown classes. *Mechanical Thinning (Geometric Thinning):* The thinning of trees in either even- or uneven-aged stands involving removal of trees in rows, strips, or by using fixed spacing intervals. *Selection Thinning (Dominant Thinning):* The removal of trees in the dominant crown class in order to favor the lower crown classes. *Variable Density Thinning:* Removal of trees in a non-uniform spatial pattern that results in untreated areas and areas of small gaps (definition not on website).

Forest Health: A forest condition that has overall structure, function, and characteristics that enable it to be resilient to disturbance and to maintain normal rates of change commensurate with its stage of development.

Old Growth: Forest ecosystems distinguished by old trees and related structural features characteristic of later stages of stand and successional development. Some have large trees, snags, large down woody material, multiple tree canopy layers.

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