SOME SELECTED SILVICULTURAL DEFINITIONS

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.

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), and expressed as square feet per acre.

Burning, Prescribed
The application of fire, usually under existing stands and under specified conditions of weather and fuel moisture, in order to attain silvicultural or other management objectives.

Canopy
The foliar cover in a forest stand consisting of one or several layers.

Cleaning
A release treatment made in an age class not past the sapling stage in order to free the favored trees from less desirable individuals of the same age class which overtop them or are likely to do so.

Composition, Stand
The proportion of each tree species in a stand expressed as a percentage of the total number, basal area, or volume of all tree species in the stand.

Crop Tree
Any tree that is selected to become a component of a future commercial harvest.

Crown Class
A class of tree based upon its 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 trees 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.

**Suppressed (Overtopped)**
Trees of varying levels of vigor that have their crowns completely overtopped by the crowns of one or more neighboring trees.

**Cutting Cycle**
The planned interval between partial harvests in an uneven-aged stand.

**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 the rotation.

**Even-aged System**
A planned sequence of treatments designed to maintain and regenerate a stand with one age class. The range of tree ages is usually less than 20 percent of the rotation.

**Forest**
A collection of stands administered as an integrated unit. The managed unit for forest sustainability

**Genotype**
The genetic constitution of an organism in terms of its hereditary characteristics as distinguished from its physical appearance or phenotype.

**Improvement Cutting**
A cutting method in a stand, pole-sized or larger, primarily to improve composition and quality by removing less desirable trees of any species.

**Ingrowth**
Trees that during a specified period have grown past an arbitrary lower limit, usually of diameter or perhaps of height. Ingrowth is usually measured as basal area or volume per unit area.

**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 (see Tending, Stand Improvement).

**Liberating (Liberation Cut)**
A release treatment made in a stand not past the sapling stage in order to free the favored trees from competition of older, overtopping tree.

**Monoculture**
A stand of a single species, generally even-aged.
Mycorrhiza
The symbiotic association between certain fungi and plant roots which enhances the uptake of water and nutrients.

Natural Regeneration
An age class created from natural seeding, sprouting, suckering, or layering.

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

Phenotype
The observed expression of a trait in an individual resulting from a developmental interaction of the individual’s genotype and its operational environment.

Precommercial Thinning (PCT)
A thinning that does not yield trees of commercial value, usually designed to reduce stocking in order to concentrate growth on the more desirable trees.

Propagule
Any part of a plant that may be used to propagate it, either sexually or vegetatively.

Quadratic Stand Diameter (QSD)
Diameter of the tree of average stand basal area.

Regeneration
Seedlings or saplings existing in a stand; or the act of establishing young trees naturally or artificially.

Regeneration Methods
A method by which a new age class is created. The major methods are Clearcutting, Seed Tree, Shelterwood, Selection, and Coppice.

Coppice Methods (Vegetative)
Methods of regenerating a stand in which the majority of regeneration is from stump sprouts or root suckers.

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 (Coppice with Standards)
A coppice methods in which reserve trees are retained to attain goals other than regeneration. This method normally creates a two-aged stand.
**Even-Aged Regeneration Methods (Seedling)**
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 cutting, of all trees in the previous stand. Regeneration is from natural seedling, direct seeding, planted seedlings, and/or advance reproduction. Cutting may be done in groups or patches, or in strips. With clearcutting, the management unit or stand in which regeneration, growth, and yield are regulated consists of the individual clearcut stand. 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 micro-environments after removal of all the previous stand except a small number of trees left to proved 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 micro-environment provided by the residual trees. The sequence of treatments can include three distinct types of cutting: 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, in patches or groups, or in strips.

**Two-Aged System**
Methods designed to maintain and regenerate a stand with two age classes. In each case the resulting stand may be two-aged or tend towards 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.

**Clearcutting with Reserves**
A Clearcutting Method in which varying numbers of reserve trees are not harvested to attain goals other than regeneration.

**Seed Tree with Reserves**
A Seed Tree Method in which some or all of the seed trees are retained after regeneration has become established to attain goals other than regeneration.

**Shelterwood with Reserves**
A variant of the Shelterwood Method in which some or all of the shelter trees are retained, well beyond the normal period of retention, to attain goals other than regeneration.
Uneven Aged Regeneration 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 strips.

**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 micro-environments suitable for tolerant regeneration and the larger openings providing conditions suitable for more intolerant regeneration. With group selection, the management unit or stand in which regeneration, growth, and yield are regulated consists of a landscape containing an aggregation of groups.

**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.

**Regeneration Period**
The time between the initial regeneration cutting and the successful re-establishment of a new age class by natural means, planting, or direct seeding.

**Regular Uneven-age (Balanced) Stand**
A stand in which three or more distinct age classes occupy approximately equal areas and provide a balanced distribution of diameter classes.

**Reproduction**
The physical seedlings, not the process (regeneration)

**Rotation**
In even-aged systems, the period between regeneration establishment and final cutting.

**Salvage Cutting**
The removal of dead trees or trees being damaged or dying due to injurious agents other than competition, to recover value that would otherwise be lost.

**Sanitation Cutting**
The removal of trees to improve stand health by stopping or reducing actual or anticipated spread of insects and disease.

**Scarification**
Mechanical removal of competing vegetation and/or interfering debris, or disturbance of the soil surface, designed to enhance reforestation.
Silviculture
The art and science of controlling the establishment, growth, composition, health, and quality of forest 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 re-established. The system name is based upon the number of age classes, and/or regeneration method used.

Site Index
A measure of actual or potential productivity for a single species or group of species (ex. upland oaks) expressed in terms of the average height of a certain number of dominants and codominants in the stand at an index age.

Site Preparation
A hand or mechanized manipulation of a site designed to enhance the success of regeneration. Treatments may include bedding, burning, chemical spraying, chopping, disk, drainage, raking, and scarifying. All treatments are designed to modify the soil, litter, and vegetation and to create microclimate conditions conducive to the establishment and growth of desired species.

Site Quality
The productive capacity of a site, usually expressed as volume production of a given species.

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.

Mixed Stand
A stand in which there is a mixture of species.

Pure Stand
A stand composed of essentially a single species.

Stratified Mixture
A stand in which different species occupy different strata of the total crown canopy.

Stand Age

Chronological Age
The true age of the trees in the stand, usually expressed in years since establishment or germination.

Effective (Management) Age
The number of years since the trees in the stand have been free to grow, usually expressed as size classes rather than years, e.g., seedling, sapling, pole, sawtimber.
Stand Density
A quantitative, absolute measure of tree occupancy per unit land area in such terms as numbers of trees, basal area, or volume.

Stand Improvement
A term comprising all intermediate cuttings made to improve the composition, structure, condition, health, and growth of even- or uneven-aged stands.

Stocking
An indication of growing-space occupancy relative to a pre-established standard. Common indices of stocking are based upon percent occupancy, basal area, relative density, and crown competition factor.

Stocking Guide
Changes in development with time in an undisturbed, closed-canopy, even-aged stand.

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 in immature stands to reduce stand density of trees primarily to improve growth, enhance forest health, or to recover potential mortality.

Crown Thinning (Thinning from Above, High Thinning)
The removal of trees competing with the potential crop trees, usually from the dominant and codominant crown classes, in order to favor the best potential crop trees.

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 to control stand spacing and favor desired trees using a combination of thinning criteria without regard to crown position.

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 better formed or more appropriately spaced individuals in the lower crown classes.
Thinning Schedule (regime)
A term comprising the type, grade, products, and frequency of thinnings for a given area, generally along with their year of commencement and sometimes termination.

Tolerance, Shade
The relative capacity of a plant to become established and grow beneath overtopping vegetation.

Two-Aged Stand
A stand composed of two distinct age classes that are 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.

Uneven-Aged System (mult-age or multi-cohorts)
A planned sequence of treatments designed to maintain and regenerate a stand with three or more age classes.

WKC  1/2014