

In the natural struggle for existence the weaker dominants decline to codominants, these in turn become intermediates, the intermediates become suppressed, and the suppressed trees die. If the stand is undisturbed the understory trees never gain a place in the upper crown canopy. This unregulated competition often retards the growth of the entire stand.

The Thinning Process

The first thinning usually becomes necessary at an age of 30 to 40 years. First consideration should be given to removal of dead, diseased, broken, or poorly formed trees. When competition has not been too prolonged, thinning from above, or in the dominant stand, will greatly improve the vigor of the understory trees. If large material is needed and the dominants have attained suitable size, this method of cutting often coincides with practical necessity. Care should be taken in felling not to injure the smaller trees to be retained. If smaller material can be used and larger timber is desired later, the thinning should be made from below, removing enough of the weaker suppressed and intermediate, and perhaps some codominant trees to improve spacing and relieve the dominants from competition.

As a precaution against destruction of the entire stand by uncontrolled fires, slash from the cutting should be made into fuel or piled and burned in such a way as not to injure the remaining trees. This may also prevent development in the slash of insects, which under certain conditions emerge from the limbs and tops and attack standing trees. Care should be taken not to permit the fire to spread through the stand and destroy the litter and leaf mold. The feeding roots of trees are usually very near the surface and removal of the litter permits drying of the soil to a sufficient depth to kill the rootlets and retard growth.

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WOOD of Native Trees Compared Regarding Resistance to Decay

Wood kept constantly dry or continuously submerged in water does not decay, regardless of sapwood or species. A large proportion of the wood in use is kept so dry at all times that it lasts indefinitely. Moisture and temperature are the principal factors that affect the rate of decay; they vary greatly with the local conditions surrounding the wood in service. When exposed to conditions that favor decay, wood decays more rapidly in warm, humid areas of the United States than in cool or dry areas. High altitudes are as a rule less favorable to decay than low because the average temperatures are lower and the growing seasons for fungi are shorter.

The natural decay resistance of all common native species of wood is in the heartwood. When untreated, the sapwood of practically all species has low decay resistance and generally has short life under decay-producing conditions. The decay resistance or durability of heartwood in service is greatly influenced by differences in the character of the wood, the attacking fungus, and the conditions of exposure. Therefore great differences in length of life may be obtained from pieces of wood that are cut from the same species or even the same tree and used under apparently similar conditions.

Comparisons of Decay Resistance

General comparisons of the relative decay resistance of different species must at best be estimates. They can not be exact and they may be very misleading if considered as mathematically accurate and applicable to all cases. They may be very useful, however, if considered as approximate averages only, from which specific cases may vary considerably, and as having application only where the wood is used under conditions that favor decay. The following classification of common native species is subject to the limitations just mentioned.

On the basis of service records, supplemented by general experience, the heartwood of the following species may be classed as durable even when used under conditions that favor decay: The catalpas, practically all of the cedars, chestnut, southern cypress, the junipers, black locust, red mulberry, Osage orange, redwood, black walnut, and Pacific yew. On the other hand the heartwood of aspen, basswood, cottonwood, the true firs (not Douglas fir), and the willows when used under conditions that favor decay may be classed as low in decay resistance. The heartwood of Douglas fir, red gum, western larch, chestnut oak, southern yellow pine, and tamarack may be classed as intermediate. The heartwood of dense Douglas fir, honey locust, white oak, and dense southern yellow pine may also be classed as intermediate but nearly as durable as some of the species named in the high durability group. The heartwood of the ashes, beech, the birches, the hemlocks, sugar maple, the red oaks, and the spruces may be considered on the border line between the intermediate and non-durable groups and can not with assurance be placed wholly in either group.

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WOOD-SELECTION Rules The following rules for the selection of wood should be used only as rough guides and not as substitutes for specific information, such as may be obtained from the Forest Products Laboratory, Madison, Wis. Exceptions to most of them can be found, and if a large amount of material is involved or if the wood is to be used for some important purpose, dependence on these rules alone is inadvisable; additional information should be obtained.

Common Terms Used in Describing Wood

Sapwood is the outer portion and heartwood the center portion of a cross section of a log. The sapwood is usually lighter in color than the heartwood.

Springwood is the thin-walled, relatively weak, and usually light-colored portion and summerwood the thick-walled, heavy, and relatively strong portion of the ring that grows annually in the tree.

The term "softwoods" is applied to the group of trees that bear cones, examples of which are pine and spruce; "hardwoods" is applied to broad-leaved trees, such as oak and maple. Actually some softwoods are harder than some woods of the hardwood group.

Dense wood is heavy and hard; hickory is an example.