Photo courtesy: Darren Morris

FORESTRY 101 Oaks of Kentucky

by Laurie Taylor Thomas

The oak group is one of the most important groups of trees on the North American continent, possibly even the entire northern hemisphere. The oak genus (*Quercus*) is comprised of 200 to 300 different species worldwide with 60 to 70 species native to the United States. There are 20 oak species believed to be native to Kentucky. There are many species of oaks, and they are numerous across the eastern United States. In fact, Kentucky's forests are classified as Oak-Hickory type because approximately 75% of our forests are composed of oaks and hickories. In addition to their diversity and dominance in our forests, they are economically important and are often a foundational species of many ecosystems.

Why Are Oaks Important?

Many of our oak species are some of the most harvested and valuable trees in Kentucky. Oak wood is typically heavy and strong and one of the most popular hardwoods used in the United States. It is widely used for flooring, cabinetry, furniture, bourbon barrels, lumber, and other wood products. Nine oak species were among the top 20 tree species harvested in Kentucky (Brandeis 2017). These oaks play a significant role in Kentucky's forest industry economic contribution to the state.

In 2020, oak trees continued to supply over half of the wood exported from the state with more than $165 million in exports of barrels and lumber.

> *"The oak is often called the king of trees, and it is a legendary symbol of strength, grandeur and venerable age."*
>
> **-- Mary Wharton**

Oaks are not only important economically they are also critically important to many wildlife and pollinator species found in our forests. According to the National Wildlife Federation oak is one of the top 10 trees for wildlife. It is estimated that oaks host more than 530 species of caterpillars that provide critical nutrition for breeding bird success. The acorns provide food for more than 100 U.S. vertebrate species, including blue jays, quail, wild turkey, wood duck, squirrels, rabbits, raccoons, and deer, and are considered one of the most valuable food resources available for wildlife. Additionally, large oak trees provide critical habitat for warblers—including the threatened cerulean warbler—cavity nesting birds, black bear dens, and roosting sites for forest-dwelling bats.

Oak trees provide other important benefits as well. Many can live up to several hundred years, which helps stabilize a forest community and helps sequester carbon. Their roots help hold the soil in place, which can protect water quality, and their leaf litter can help improve the soil's fertility.

White Oaks vs. Red Oaks

Oaks are generally grouped into the white oak group or the red oak group based on similarities in botanical features as well as wood anatomy. White oaks have leaves without bristle-tipped lobes; the acorns mature in one growing season and are typically sweet; and the summerwood vessels are angled, small and thin-walled, and contain tyloses. Red oaks mostly have leaves with bristle-tipped lobes; the acorns mature in two growing seasons; they are usually bitter; and the summerwood vessels are rounded, large and thick-walled, and do not contain tyloses. The presence of tyloses in the vessels of the white-oak wood makes it desirable for "tight" cooperage or barrels used to store and or transport liquids, such as bourbon. Because the wood is liquid "tight," it will not leak.

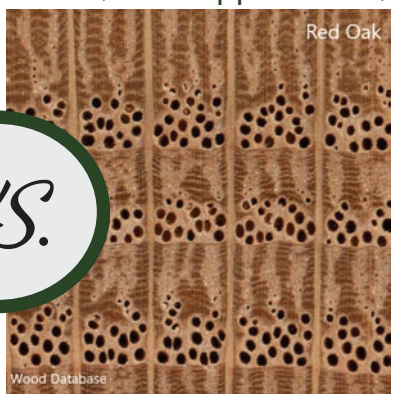
Leaf photos courtesy: Laurie Thomas

White Oak Group
(rounded lobes)

(tyloses in vessels)

VS.

Red Oak Group
(bristletipped lobes)



(without tyloses in vessels)

Wood photos courtesy: Wood Database.com

Due to the ecological and economic importance of the oaks, a series of publications called Landowners for Oaks has been created as part of the White Oak Initiative. This series includes the main upland oak species found in this region: white oak (*Quercus alba*), chinkapin oak (*Quercus muhlenbergii*), chestnut oak (*Quercus montana*), post oak (*Quercus stellata*), northern red oak (*Quercus rubra*), black oak (*Quercus velutina*), scarlet oak (*Quercus coccinea*), and southern red oak (*Quercus falcata*). The series provides landowners information on the botanical and useful identification characteristics including, leaves, buds, and fruit; information on growth, size, and regeneration; and light and moisture requirements of each species.

Sources:

- **Wharton, Mary & Roger Barbour. 1973. Trees and Shrubs of Kentucky**
- **Brandeis, Thomas. 2017. Partial Harvesting of Sawtimber in Kentucky and Tennessee, 2002-2014 https://www.srs.fs.usda.gov/pubs/55470**
- **Harlow, Wm., E. Harrar and F. White. 1979. Textbook of Dendrology**

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