

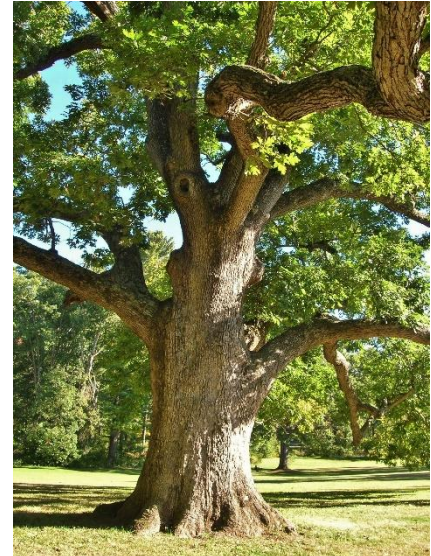


Meet the Mighty Oaks: Part 2 - The “Whites”

One of the most enduring symbols of fall is the oak leaf and acorn. *Quercus*, the Latin name for oak comes from the Celtic, *Quer*, meaning great and *cuez* meaning tree. The mighty oaks have served as symbols of great strength, protection, and spiritual wisdom throughout the ages.

The oaks are generally divided into two main groups: “[red oaks](#)” and “[white oaks](#)”. The lumping of species does not refer to color of foliage, but to leaf shape and structure. The leaves on “white” oak trees have rounded lobes and a smooth texture. Their acorns have thin, leathery coats that mature in one year and sprout soon after they fall to the ground in the fall.

In Part 1 we met the red oaks. In this lesson we will meet the important white oaks of Duke Farms - white oak, swamp white oak and bur oak.



White oaks can live to be centuries old.

***Quercus alba* - White Oak**

Like many oaks, white oaks thrive on upland slopes and well drained soils. They grow to 100 feet in maturity, with a wide spreading rounded crown and numerous horizontal branches. These trees can live to be hundreds of years old and the bark often appears like it’s been whitewashed as the trees age. The mature bark is marked with shallow furrows forming scaly ridges or plates that appear as if they have been sprayed with a whitish coating. At Duke Farms white oaks grow in the wooded areas and guard both sides of Central Way between the intersection of Oak Way and the Coach Barn.

White oak twigs are gray to reddish-green and the buds are reddish-brown, small, oval, and shiny. The leaves are 4 to 10 inches long with about 1-inch petioles. They usually have 5 to 9 smooth rounded lobes and are widest beyond middle. They have deep rounded v shaped sinuses extending a third or more to midrib, with longer “v’s” on the upper portion of the leaf.

Acorns mature in one year in contrast to the “red” oaks that take two. They grow up to 1 ¼ inch long with a light brown shingled cap. The cap encloses about a ¼ of the green to brown oblong nut. The acorns germinate in the fall after dropping to the ground. They are critically important wildlife food for turkeys, blue jays, crows, deer, bear, squirrels, chipmunks, mice, and any other animals that eats acorns.



40-year-old white oak. Note the rounded crown.





***Quercus bicolor* - Swamp White Oak**

Swamp white oak is a tree that likes wet soils and bottom lands. At Duke Farms we find them growing along the river and in the wetter woodlands off Railroad Way and the White Oak Path, but they are not very common. At maturity they reach 100 feet in height with an irregular crown. The bark is dark gray, with a scaly surface or deep furrows and flat ridges.

The twigs are smooth, slightly stout, and light brown in color. The buds are smooth, ovoid, and blunt and brown with an orange tinge. The leaves are narrow at the ends and widest in the center. They vary up to 8 inches long with many wavy lobes. The sinuses are like shallow waves around the entire perimeter. They are glossy dark green above with white velvety coating below. The leaves turn from golden to dark brown in fall.



The acorns are annual and are readily germinate if they make good contact with moist soils when they fall. They are tan to brown when mature, about one inch long, and have a bowl shaped, scaly cap that covers about 1/3 of the nut. The acorns are eaten by woodpeckers, blue jays, wild turkeys, small mammals, white-tailed deer, and black bears. Oak trees also support a wide variety of Lepidoptera. Imperial moths, duskywings, mourning cloaks and hairstreak butterflies use this tree as a host plant.

The swamp white oak is the tree that was selected for the September 11 Memorial in NY. More than 400 [swamp white oak trees](#) are planted in the [eight-acre plaza](#) to honor the victims of the terrorist attacks of Sept. 11, 2001. Despite being



Swamp white oak being planted at the 911 Memorial



native to wetlands, they are hardy trees in urban conditions, fitting symbols of strength resilience and endurance. The oaks of 911 were documented in a PBS documentary. Watch the trailer [here](#).



Swamp white oak grove at the 911 Memorial



Autumn



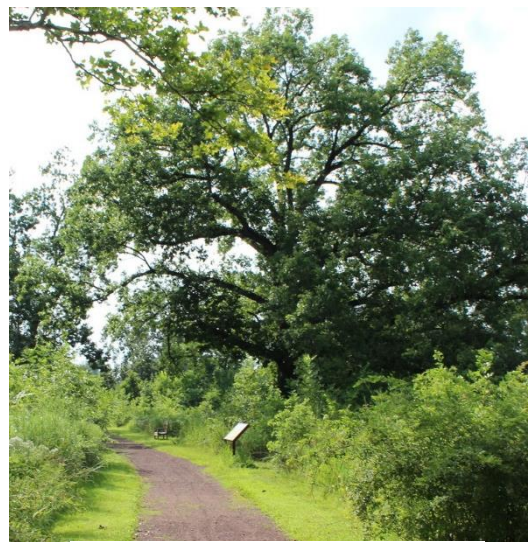
Summer



***Quercus macrocarpa* – Bur Oak**

This is a slow grower with a massive trunk, broad crown, and large branches. At maturity they reach 100 feet in height. The bark is light gray with deep furrows and thick scaly ridges.

The twigs are light brown with unique corky wings or ridges. The buds are short, smooth, light brown to gray in color with pointed tips. The leaves have many rounded lobes and sinuses, but the leaf shape can vary widely in size and shape from one tree to another or even on a single tree. Sometimes the two middle sinuses nearly reach the midrib dividing the leaf nearly in half. The lobes near the tip form the shape of a crown. They are smooth and dark green above and fuzzy and paler on the underside.

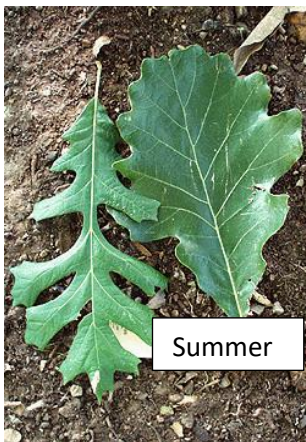


Majestic bur oak at Duke Farms is listed on the NJ Official Big Tree Registry



The acorns mature annually. The nut is large, 1 to 2 inches long, and encased in deep, fringed cup shaped caps. The cap is covered with bumpy scales which morph into along, curved fringe around the nut. The cap encloses $\frac{1}{2}$ to $\frac{3}{4}$ of nut. The nuts are light brown when ripe and coveted by many species of wildlife because of their large size and high protein content.

Bur oak is native to the Midwest U.S. and is one of the most cold-tolerant of the North American oak species. Its range extends farther north into Canada than most oaks. The bur oak is not native to New Jersey and where they occur, they were planted. At Duke Farms, there is a magnificent specimen bur oak that was planted by J.B. Duke in the early 1900's. The tree is located on the path parallel to Central Way, between the Hay Barn and the Orchid Range.





Activity: Identify “White” Oaks in Winter

One of the easiest ways to identify the different kinds of oaks in winter is to examine their branches and terminal buds. These are the buds at the ends of branches that will leaf out in the spring. Buds are often likened to fingerprints of the tree as they are unique in shape, size, color, scales and coatings.

Take a nature walk and look for oak trees with branches low enough to view safely from the ground.

Compare the buds on the ends of branches (that you can safely reach) to these images below. Look for acorns and leaves on the ground under the tree to help identify the oak tree. Get more info at Virginia Tech Dendrology [white](#), [swamp white](#) and [bur](#) oak fact sheets. Their online [tool for tree ID](#) is very helpful too.





Additional Resources

- [Virginia Tech Dendrology App for tree Identification](#)
- [Arbor Day Tree Identification Tool Online](#)
- [Leafsnap Plant identifier](#)
- [Virginia Tech Dendrology: Interactive tree identification](#)
- [Fun Facts About Oak Trees](#)
- [Field Guide to the Oaks of Eastern US](#)
- [Film about the Swamp White Oaks of the 911 Memorial](#)
- [Bur Oak - Signature Tree in NJ](#)

Photos

Old white oak tree at intro; Google free images

White oak acorns, leaves, buds; Virginia tech Dendrology

White oak bark; courtesy of Mrs. Bird

Swamp white oak trees; Google Free images

Swamp white oaks at 911 Memorial; Ohio State University, Tree of the Week

Bur oak leaves, buds, bark; Virginia Tech dendrology

Bur oak acorns, corky stems; Google free images

Swamp white oak buds and acorns; Native Plant Trust

Bur Oak winter tree; Ohio department of Natural Resources

40 year old white oak, Duke Farms Bur Oak, winter white oak acorns, winter dual white oaks, courtesy of Mrs. Bird