

## Meet the Mighty Oaks: Part 1 - The “Reds”

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. They grow to great height (the tallest being about 150 feet), live to great age (the oldest known oak lived to 900 years in Switzerland) and provide innumerable resources to wildlife and humans all over the earth. For thousands of years, oak trees have fed countless mammals, birds and humans with their prolific crops of seeds. No wonder the acorn is a symbol of abundance and good fortune.

There are about 600 species of oaks in the world and close to 60 in North America. 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. Red oaks have leaves with sharply pointed lobes tipped with tiny bristles. Their seeds are acorns that are hard and woody and take two years to mature. Red oak acorns take a long time to germinate, sometimes not until years after they drop to the ground. The most common types of the reds that we have at Duke Farms are red oaks, black oaks, and pin oaks.



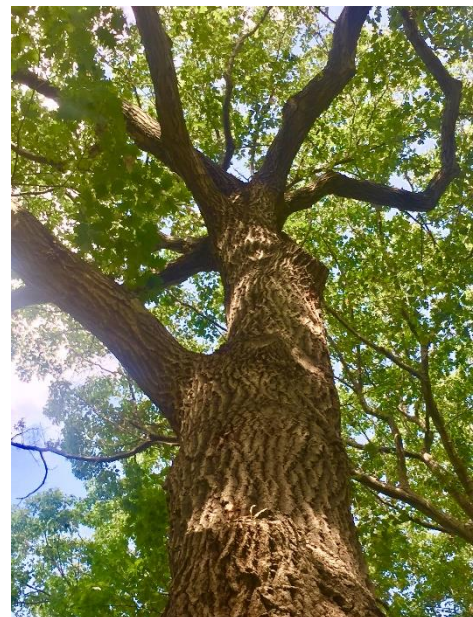
*Duke Farms is the steward of the second largest Red Oak in New Jersey. It is 105 ft. high, has a 67 ft. circumference, and a 118 ft. canopy. This old soul is over 200 years old!*

### ***Quercus rubra* – Northern Red Oak**

[Northern red oaks](#) are majestic trees that grow to 100 feet tall when mature. They have rounded crowns with thick branches. The bark is dark gray/brown with shallow furrows separating wide scaly ridges. They are often described as ski trails running up and down the trunk. The “red” has to do with the color of the wood.

The twigs are smooth, and the buds are ovoid with pointed tips that are covered with chestnut-brown scales. The leaves are 5 to 9 inches long with 7 to 11 lobes, each with bristle-tipped teeth. The sinuses (indentations between lobes) are widely u shaped. The leaves are attached by smooth one to two inch greenish/red petioles.

The acorns are ¾ to an inch long and are held by flat, beret shaped caps. It takes two years for acorns to mature before they drop in early fall. A tree may be 20 years old before it produces acorns and peak production occurs at 40 to 50. Mature trees can drop as many as 10,000 acorns in a year!



Caterpillars and insects feed on the leaves and wood. Migratory birds rely on the caterpillars in spring and other insects all year round. Birds like turkeys and blue jays and mammals like deer, chipmunks, and squirrels eat acorns year-round.



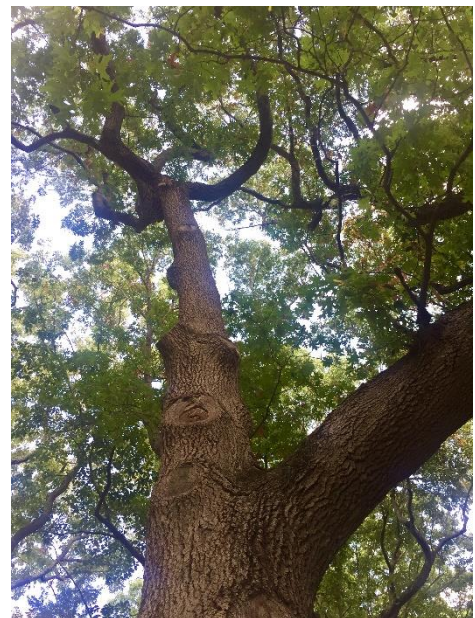
### ***Quercus velutina* – Black Oak**

[Black oaks](#) are very similar to red oaks in appearance and both grow in upland habitats. They are large trees growing to over 100 feet in height with wide spreading crowns. The bark is thick dark brown/ black in color with deep furrows, rough ridges, and flaky, polygonal shaped plates.

The twigs are smooth with ovoid shaped buds and pointed tips. The buds are larger than red and are covered with a gray wooly coating (pubescence). The leaves are 4 to 12 inches long with 5 to 9 lobes, each with bristles on the tips of the lobe. The sinuses between the lobes are deeper u/v shaped than those of red oak. The leaves are attached with yellow/green one-to-three-inch petioles.

The acorns look like ½ to ¾ inch buttons set in a bowl shaped, thick fringed cap. The cap covers up to half of the actual nut. While red oak acorn caps look like flat berets, the caps of black oak look a lot like shaggy wool hats pulled down over the forehead of the acorn. The hat analogy is a great way to identify the trees by the “caps” the acorns are wearing.

Seed production begins when the tree is about 20 years old, with maximum production occurring between ages 40 and 75. Black oak is a consistent seed producer, with good crops of thousands of acorns every 2 to 3 years. Acorns are heavier than many tree seeds and usually fall to the ground close to the parent tree. Acorns rarely sprout or germinate when close to the parent tree due to lack of light through the tree’s canopy. It’s up to squirrels and other rodents to





scatter and plant acorns. Those acorns left uneaten have the chance to sprout and grow into an oak tree. Only about one in 10,000 acorns grows into a tree!

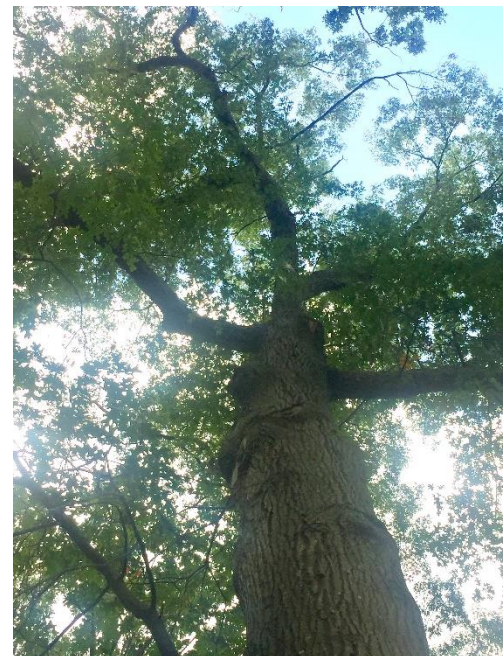
Like the red oak, black oak is an important tree for all kinds of wildlife. It is the host plant for several butterflies including several species of hairstreaks and duskywings. The acorns are eaten by woodpeckers, blue jays, and turkeys. Mammals such as deer, black bears, squirrels, chipmunks, and mice feast on them as well.



### ***Quercus palustris* – Northern Pin Oak**

[Pin oaks](#) are medium to large trees that grow up to 130 feet tall. Unlike the red and black oaks, pin oaks like their “feet wet” and are usually found growing on wet soils in flood plains or seeps on hillsides. They have a somewhat conical crown with horizontal inner branches and lower branches angled downward like arms pointing to the ground. The bark is gray brown that is quite smooth in young trees but forms long scaly ridges as it ages.

The twigs are a shiny chestnut-brown and the buds are small. They are ovoid in shape with blunt tips and covered with chestnut-brown scales. The leaves are 2 to 5 inches long with 5 - 7 lobes. The lobes are tipped with 1 - 3 bristle-tipped teeth and the sinuses are deeply cut nearly to the midvein. The petioles are smooth and measure 3/4 – 2 inches long. Pin oaks may hold onto their dried brown leaves, sometimes all the way to spring.



The acorns are small. They consist of a thin brownish cup with smooth scales, enclosing about a third of the green or light brown nut. The nuts are rounded and measure about half an inch. The pin oak is a fast growing “red” oak and usually takes about 20 years to start producing acorns.

Pin oak acorns are an important food for wildlife including white-tailed deer, squirrels, chipmunks, mice, wild turkeys, woodpeckers, blue jays, and waterfowl. Acorns are an especially important food source for wood ducks and mallards during fall migration.





### Activity: Identifying the Common “Red” 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.



*Pin oak Buds*



*Red oak buds*



*Black oak buds*



*Pin oak acorns*



*Red oak acorns*



*Black oak acorns*



*Pin oak in winter*



*Red oak in winter*



*Black oak in winter*

### 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](#)

### Photos

Red Oak, Black Oak, and Pin Oak tree and bark photos taken by Mrs. Bird at the Harvard University, Arnold Arboretum in Boston MA.

Acorns, summer leaves, and winter bud photos courtesy of Virginia Tech Dendrology [red](#) , [black](#), and [pin](#) oak fact sheets.

Winter and autumn leaf photos courtesy of Mrs. Bird, taken at Duke Farms.