

Quercus nigra: Water Oak¹

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Introduction

Water oak has a spreading, rounded, open canopy, and is most often used for a naturalized landscape. The acorns are particularly abundant on water oak and make good food for wildlife. They badly stain asphalt and concrete for several months in fall and winter. The leaves vary tremendously, from rounded and entire to three-lobed with several bristle tips but are most frequently spatulate. Water oak is deciduous in the North, semi-evergreen in the Deep South, and trees reach 60 to 80 feet in height (shorter when grown in the open) with a 60- to 70-foot spread. Some trees put on a wonderful yellow fall color show for about a week.

General Information

Scientific name: *Quercus nigra*

Pronunciation: KWERK-us NYE-gruh

Common name(s): Water oak

Family: *Fagaceae*

USDA hardiness zones: 6A through 10A

Origin: native to the southeastern United States, New Jersey, eastern Texas, and eastern Oklahoma

UF/IFAS Invasive Assessment Status: native

Uses: reclamation; shade; urban tolerant; highway median; street without sidewalk



Figure 1. Full Form—*Quercus nigra*: water oak

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Figure 2. Range

Description

Height: 50 to 60 feet

Spread: 60 to 70 feet

Crown uniformity: symmetrical

Crown shape: round, spreading

Crown density: moderate

Growth rate: fast

Texture: medium

Foliage

Leaf arrangement: alternate

Leaf type: simple

Leaf margin: entire, lobed

Leaf shape: spatulate, linear, obovate

Leaf venation: brachidodrome, pinnate

Leaf type and persistence: deciduous

Leaf blade length: 2 to 4 inches

Leaf color: green and shiny on top, paler green with light brown pubescence in the vein axils underneath

Fall color: yellow

Fall characteristic: showy

Flower

Flower color: yellow-brown

Flower characteristics: not showy; male—catkin; female—small spike that emerges from leaf axils with leaves

Flowering: spring

Fruit

Fruit shape: oval, round

Fruit length: ½ inch

Fruit covering: dry or hard acorn; flat cap with appressed scales encloses the top ⅓ of the nut

Fruit color: brown to nearly black

Fruit characteristics: attracts squirrels/mammals; not showy; fruit/leaves a litter problem

Fruiting: fall



Figure 3. Leaf arrangement (left) and single leaf (right)—*Quercus nigra*: water oak



Figure 4. Flower—*Quercus nigra*: water oak

Trunk and Branches

Trunk/branches: branches droop; not showy; typically one trunk; no thorns

Bark: brown and smooth when young, turning gray black and becoming furrowed and rough with age

Pruning requirement: needed for strong structure

Breakage: susceptible to breakage

Current year twig color: reddish, brown

Current year twig thickness: thin

Wood specific gravity: 0.63



Figure 5. Fruit—*Quercus nigra*: water oak



Figure 6. Bark—*Quercus nigra*: water oak
Credits: Gitta Hasing

Culture

Light requirement: full sun to partial shade

Soil tolerances: clay; sand; loam; acidic; alkaline; wet to well-drained

Drought tolerance: high

Aerosol salt tolerance: low

Other

Roots: not a problem

Winter interest: no

Outstanding tree: no

Ozone sensitivity: unknown

Verticillium wilt susceptibility: resistant

Pest resistance: resistant to pests/diseases

Use and Management

Easily transplanted, young trees should be trained to develop a central trunk and then will require only occasional pruning once established. Naturalized trees often develop with several upright multiple trunks which are poorly attached to the tree. Horizontal branches droop toward the ground as additional growth adds to their weight. They can split from the tree in wind storms, deforming the plant and beginning the process of decay and decline. They appear to be poor compartmentalizers of decay since many are hollow at 40 years old.

A rapid-grower, water oak has a relatively short life span of only 30 to 50 years, particularly in the east on good sites where growth is rapid. Perhaps more durable and not as weak-wooded in drier areas such as Texas and Oklahoma where growth is slower. The tree often begins to break apart just as it grows to a desirable size. For this reason, live, bur, shumard, red, white, swamp white oak, and others are much better choices. Like other oaks, care must be taken to develop a strong branch structure early in the life of the tree. This might increase the life span by eliminating the need for removing large-diameter branches. Pruning large branches from the trunk often initiates decay in the trunk.

A North American native, water oak is adapted to wet, swampy areas, such as along ponds and stream banks, but can also tolerate other well-drained sites and even heavy, compacted soils. Not adapted to highly alkaline soil but will grow well in clay.

Propagation is by seed or hardwood cuttings. Propagation of oaks by seed is the most common method, but horticulturists are developing techniques for vegetative propagation.

Pests

No pests are normally serious.

Galls cause homeowners much concern. There are many types and galls can be on the leaves or twigs. Most galls are harmless so chemical controls are not suggested.

Scales of several types can usually be controlled with sprays of horticultural oil.

Boring insects are most likely to attack weakened or stressed trees, particularly those with root damage resulting from construction activities. Newly planted young trees may also be attacked. Keep trees as healthy as possible with regular fertilization and water during dry weather.

Many caterpillars feed on oak. Large trees tolerate some feeding injury without harm. Trees repeatedly attacked, or having some other problem, may need spraying. Tent caterpillars form nests in trees then eat the foliage. The nests can be pruned out when small. Where they occur, gypsy moth caterpillars are extremely destructive on oaks. Fall cankerworm has been a problem in some years.

Twig pruner causes twigs to drop off in the summer. The larvae ride the twig to the ground. Rake up and destroy fallen twigs.

Lace bugs suck juices from leaves causing them to look dusty or whitish gray.

Leaf miners cause brown areas in leaves. To identify leaf miner injury tear the leaf in two across the injury. If the injury is due to leaf miner, upper and lower leaf surfaces are separate and black insect excrement will be seen.

Diseases

Except for oak wilt, no diseases are normally serious.

Mushroom root rot and trunk decay can be serious.

Anthrachnose may be a serious problem in wet weather. Infected leaves have dead areas following the midrib or larger veins. These light brown blotches may run together and, in severe cases, cause leaf drop. Trees of low vigor, repeatedly defoliated, may die. Trees defoliated several years in a row may need spraying, to allow the tree to recover.

Canker diseases attack the trunk and branches. Keep trees healthy by regular fertilization. Prune out diseased or dead branches.

Leaf blister symptoms are round raised areas on the upper leaf surfaces causing depressions of the same shape and size on lower leaf surfaces. Infected areas are yellowish-white to yellowish-brown. The disease is most serious in wet seasons in the spring but it does not need to be treated. Infection in the Deep South can be severe and can cause

usually significant defoliation. Repeated heavy defoliations can weaken trees and make them more sensitive to other stresses.

A large number of fungi cause leaf spots but are usually not serious. Rake up and dispose of infected leaves.

Powdery mildew coats leaves with white powdery growth.

Shoestring root rot attacks the roots and once inside moves upward, killing the cambium. The leaves on infected trees are small, pale or yellowed and fall early. There is no practical control. Healthy trees may be more resistant than trees of low vigor.

Chlorosis due to iron-deficiency occurs on very high pH soil.

Reference

Koeser, A. K., Hasing, G., Friedman, M. H., and Irving, R. B. 2015. Trees: North & Central Florida. Gainesville: University of Florida Institute of Food and Agricultural Sciences.