

Quercus virginiana: Southern Live Oak¹

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Introduction

A large, sprawling, picturesque tree, usually graced with Spanish moss and strongly reminiscent of the Old South. Southern live oak is one of the broadest spreading of the oaks, providing large areas of deep, inviting shade. It is the state tree of Georgia. Reaching 60 to 80 feet in height with a 60 to 120 foot spread and usually possessing many sinuously curved trunks and branches, Southern live oak is an impressive sight for any large-scale landscape. An amazingly durable American native, it can measure its lifetime in centuries if properly located and cared for in the landscape. It makes an excellent street tree in the South. Unfortunately, oak wilt has devastated the tree in parts of central Texas. Give it plenty of room since the trunk can grow to more than six feet in diameter.

General Information

Scientific name: *Quercus virginiana*

Pronunciation: KWERK-us ver-jin-ee-AY-nuh

Common name(s): live oak, southern live oak

Family: *Fagaceae*

USDA hardiness zones: 7B through 10B (Figure 2)

Origin: native to the Atlantic and Gulf Coastal states of the southeastern United States, in addition to south central Texas, and northeastern Mexico

UF/IFAS Invasive Assessment Status: native

Uses: street without sidewalk; shade; specimen; reclamation; parking lot island > 200 sq ft; tree lawn > 6 ft wide; urban tolerant; highway median



Figure 1. Full Form—*Quercus virginiana*: southern live oak

Description

Height: 60 to 80 feet

Spread: 60 to 120 feet

Crown uniformity: symmetrical

Crown shape: spreading, round

Crown density: dense

Growth rate: moderate

Texture: fine

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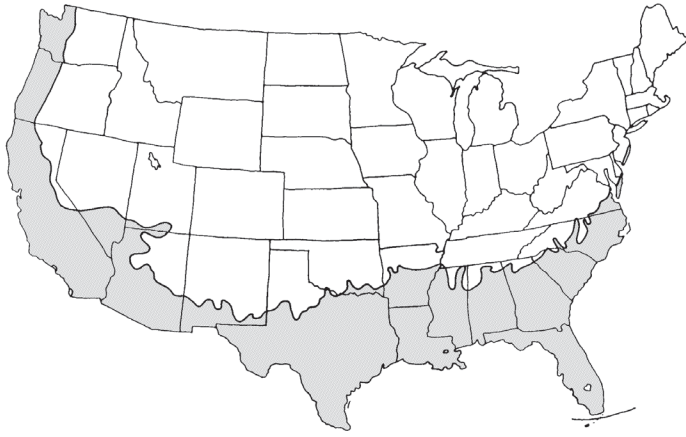


Figure 2. Range

Foliage

Leaf arrangement: alternate

Leaf type: simple

Leaf margin: entire

Leaf shape: elliptic (oval), linear

Leaf venation: pinnate

Leaf type and persistence: semi-evergreen, evergreen

Leaf blade length: 2 to 5 inches

Leaf color: dark green and glossy on top, paler green and may or may not have pubescence underneath

Fall color: no color change

Fall characteristic: not showy



Figure 3. Leaf—*Quercus virginiana*: southern live oak

Flower

Flower color: male—yellow-green catkin; female—green to reddish spike that emerges from leaf axils

Flower characteristics: not showy

Flowering: early spring



Figure 4. Canopy—*Quercus virginiana*: southern live oak



Figure 5. Flower—*Quercus virginiana*: southern live oak

Fruit

Fruit shape: elongated, oval

Fruit length: $\frac{3}{4}$ inch

Fruit covering: dry or hard acorn; cap is bowl-shaped, warty, scales and covers the top $\frac{1}{3}$ of the shiny nut

Fruit color: dark brown

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

Trunk and Branches

Trunk/branches: branches droop; showy; typically one trunk; no thorns

Bark: reddish brown and furrowed when young, turning gray to almost black, and becoming rough, deeply furrowed, and blocky with age

Pruning requirement: needed for strong structure

Breakage: resistant

Current year twig color: gray

Current year twig thickness: thin

Wood specific gravity: 0.88



Figure 6. Bark—*Quercus virginiana*: southern live oak

Credits: Gitta Hasing

Culture

Light requirement: full sun to partial shade

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

Drought tolerance: high

Aerosol salt tolerance: high

Other

Roots: can form large surface roots

Winter interest: no

Outstanding tree: yes

Ozone sensitivity: unknown

Verticillium wilt susceptibility: resistant

Pest resistance: resistant to pests/diseases

Use and Management

Once established, live oak will thrive in almost any location and has very good wind resistance. Southern live oak is a tough, enduring tree that will respond with vigorous growth to plentiful moisture on well-drained soil. Like other oaks, care must be taken to develop a strong branch structure early in the life of the tree. Be sure to eliminate multiple trunks and branches which form a narrow angle

with the trunk as these are likely to split from the tree as it grows older.

Be sure that adequate soil space is given to live oak.

Although roots will grow under curbs and sidewalks when planted in confined soil spaces allowing the tree to thrive in urban sites, in time, they lift sidewalks, curbs, and driveways. This may be a small price to pay for the bountiful shade cast by a row of healthy trees.

One of the biggest problems with live oak in our cities is the lack of pruning. Therefore, it is not a plant-and-forget tree. Because this tree can live for such a long time, it is very important to develop proper trunk and branch structure early in the life of the tree. Following planting in the nursery, prune the tree each year for the first three years, then every five years to age 30. This program will help ensure that the tree develops into a strong, long-lived fixture in the community, and will help develop the 14 to 15 foot tall vehicle clearance needed for planting along city streets.

Best growth is made in moist, acid soil, sand, loam, or clay, but the tree is amazingly adapted to drought. It also tolerates alkaline soil well. Young trees grow three feet each year and the trunk adds about one-inch in diameter under nursery conditions. Construction-impacted trees take a long time to die, giving live oak a reputation for being a tough tree. It is usually the last tree to die around a newly constructed building.

Sand live oak, *Quercus virginiana* var. *geminata* (*Q. geminata*), grows on sandy soil, is more upright and open-crowned in habit, has thick revolute leaves and acorns produced in pairs. It may be more suited for street tree planting due to the smaller size. Leaves emerge about four weeks after live oak and sand live oak suckers more than live oak. The fast-growing variety 'Heritage' is recommended for desert areas, and is more common in the southwestern United States. *Quercus fusiformis* is native to central and southern Texas, is susceptible to oak wilt but resistant to root rot. Perhaps more adapted to Texas than *Quercus virginiana* but nursery operators do not normally differentiate among the live oaks.

Pests

It is usually pest-free. Occasionally mites infest the foliage, but they are of little concern in the landscape.

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.

Aphids cause distorted growth and deposits of honeydew on lower leaves. On large trees, naturally-occurring predatory insects will often bring the aphid population under control.

Boring insects are most likely to attack weakened or stressed trees. Newly planted young trees may also be attacked. Keep trees as healthy as possible with regular fertilization and water during dry weather.

Diseases

It is usually disease-free except for oak wilt in parts of Texas and perhaps some other isolated areas. Oak wilt is a fatal disease beginning with a slight crinkling and paling of the leaves. This is followed by leaf wilting and browning of leaf margins then working inward. The symptoms move down branches toward the center of the tree. Cut down and destroy infected trees. The disease may be spread by insects, pruning tools or transporting infected wood to uninfected areas. The disease appears to infect red, black, and live oaks particularly. Common practice in Texas where oak wilt is most prevalent is to immediately paint pruning cuts on live oak with pruning paint to help prevent the insect vector from coming to the tree. Avoid pruning in midspring to early summer in areas where oak wilt is present. Dormant or summer pruning is best.

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

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 fugal growth resembling white powder.

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. Recently, *Quercus virginiana* has been found to be susceptible to *Diplodia* spp.

References

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