



Quercus macrocarpa Bur Oak¹

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INTRODUCTION

Bur Oak is a huge tree reaching a height and spread of 70 to 90 feet and has an impressive crown, massive trunk, and stout branches (Fig. 1). There is a specimen in Philadelphia which is about seven feet in diameter and over 90 feet wide. Bark is an unusual light brown to grey depending on the specimen, and is deeply furrowed on older trees. Young stems have corky ridges making them appear stout. Acorns are almost completely covered with a furry, bur-like cap and are large, creating a sizeable clean-up job in a maintained landscape. Young trees have an attractive, symmetrical, dense crown and they are well-suited for street tree planting. Architects like the tree due to its uniformity in crown shape.

GENERAL INFORMATION

Scientific name: *Quercus macrocarpa*

Pronunciation: KWERK-us mack-roe-KAR-puh

Common name(s): Bur Oak

Family: *Fagaceae*

USDA hardiness zones: 3 through 8 (Fig. 2)

Origin: native to North America

Uses: large parking lot islands (> 200 square feet in size); wide tree lawns (>6 feet wide); recommended for buffer strips around parking lots or for median strip plantings in the highway; shade tree; specimen; residential street tree; tree has been successfully grown in urban areas where air pollution, poor drainage, compacted soil, and/or drought are common

Availability: generally available in many areas within its hardiness range

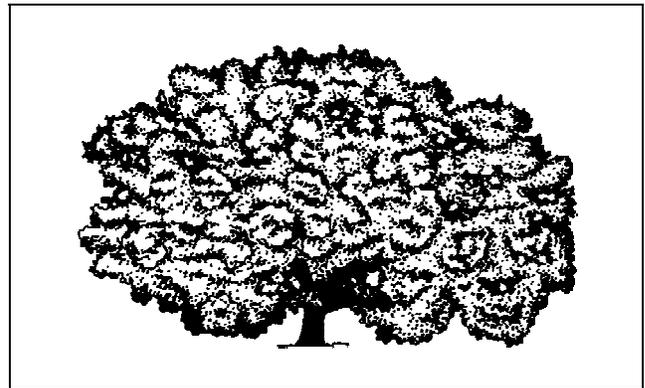


Figure 1. Mature Bur Oak.

DESCRIPTION

Height: 70 to 90 feet

Spread: 60 to 80 feet

Crown uniformity: symmetrical canopy with a regular (or smooth) outline, and individuals have more or less identical crown forms

Crown shape: round; spreading

Crown density: dense

Growth rate: medium

Texture: coarse

Foliage

Leaf arrangement: alternate (Fig. 3)

Leaf type: simple

Leaf margin: lobed; undulate

Leaf shape: oblong; obovate

Leaf venation: pinnate

Leaf type and persistence: deciduous

Leaf blade length: 8 to 12 inches; 4 to 8 inches

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Figure 2. Shaded area represents potential planting range.

Leaf color: green

Fall color: copper; yellow

Fall characteristic: showy

Flower

Flower color: brown

Flower characteristics: inconspicuous and not showy

Fruit

Fruit shape: oval

Fruit length: 1 to 3 inches; .5 to 1 inch

Fruit covering: dry or hard

Fruit color: brown

Fruit characteristics: attracts squirrels and other mammals; fruit, twigs, or foliage cause significant litter; showy

Trunk and Branches

Trunk/bark/branches: droop as the tree grows, and will require pruning for vehicular or pedestrian clearance beneath the canopy; showy trunk; should be grown with a single leader; no thorns

Pruning requirement: needs little pruning to develop a strong structure

Breakage: susceptible to breakage either at the crotch due to poor collar formation, or the wood itself is weak and tends to break

Current year twig color: brown

Current year twig thickness: thick

Wood specific gravity: 0.64

Culture

Light requirement: tree grows in full sun

Soil tolerances: clay; loam; sand; acidic; alkaline; extended flooding; well-drained

Drought tolerance: high

Aerosol salt tolerance: high

Soil salt tolerance: good

Other

Roots: surface roots are usually not a problem

Winter interest: no special winter interest

Outstanding tree: tree has outstanding ornamental features and could be planted more

Invasive potential: little, if any, potential at this time

Ozone sensitivity: tolerant

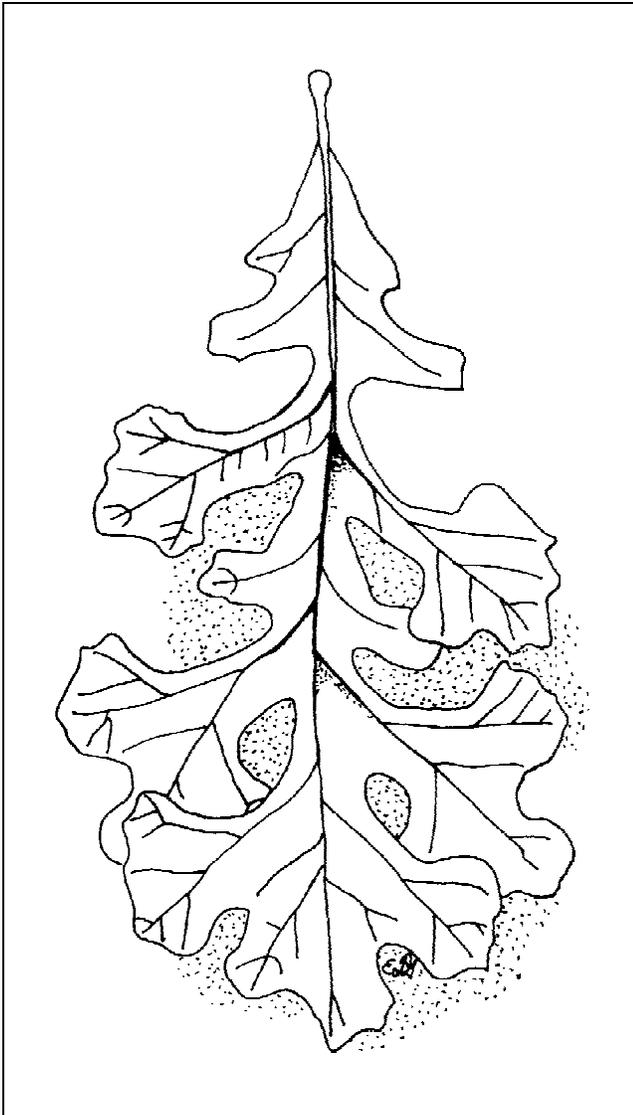


Figure 3. Foliage of Bur Oak.

Verticillium wilt susceptibility: not known to be susceptible

Pest resistance: long-term health usually not affected by pests

USE AND MANAGEMENT

Trees are well-suited for street, park and parking lot planting but enough soil space should be available to accommodate growth. This large Oak should not be planted in tree lawn strips less than 10 feet wide. However, if soil is not compacted, roots usually stay below the soil surface and do not lift sidewalks or curbs.

This Oak will adapt to various soils where other Oaks sometimes fail but is difficult to transplant from well-drained soil due to the tap root. As with most

trees grown in urban areas, the tap root becomes much less prominent as the tree grows older, giving way to a more shallow, horizontal root system. It is well-adapted to alkaline soils, poor drainage, high clay content, and is very drought-tolerant.

Propagation of Oaks by seed is the most common.

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.

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.

Many caterpillars (including gypsy moth) 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.

Twig pruner causes twigs to drop off in the summer. The larvae ride the twig to the ground. Rake up and destroy fallen twigs. Fall cankerworm has been a problem in some years.

Spider mite infested leaves first look dusty then yellowed.

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

No diseases are normally serious. Bur Oak is more or less resistant to oak wilt.

Anthraxnose 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.

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.