THE OAKS OF TEXAS

by Benny J. Simpson

Abstract. Texas has 42 species and 2 varieties of oaks, approximately 10% of the oaks of the new world and 57-65% of the oaks of the United States. No other state even approaches the total number of species of oaks that are native to Texas, yet only 1 species, Quercus hinckleyi, is possibly endemic to Texas and it may also occur in Mexico. There are 29 white oak species and 15 species of black or red oak. Seven oak species are considered dwarf (15 ft.), 16 species reach heights of 30 ft., 7 reach heights of 50 ft. and 14 grow to over 50 ft. Nineteen of the Texas oaks are evergreen, or at least persistent in retention of foliage. Of particular interest are oaks of the grasslands of Texas. These are generally rhizomatous, more or less fire resistant (because of the rhizomes) and have great value for browse and erosion control.

Wherever they can be grown, oaks are a preferred tree for landscaping homes, office and institutions. Residents of Texas are fortunate since several oaks or at least one species can be grown in any location in the state. Forty-two species and 2 varieties are native within Texas (3, 6, 7, 8, 9, 10, 11, 13, 15). Oaks occur as shrubs scarcely 3 ft. tall to well over 100 ft. in height. Some species will grow in quite xeric sites in western Texas while others grow in oxygen-depleted wet sites in eastern Texas (11, 13, 15, 18).

Few insects and diseases affect Texas oaks but some diseases can be devastating (16). Especially troublesome in Texas are Phymatotrichum omnivorum (cotton root rot) and Ceratocystis fagacearum (oak wilt or Texas live oak decline) (16).

This paper lists the oaks and points out their uses in urban forestry and amenity landscaping. The scientific nomenclature of oaks is still somewhat controversial (1, 4, 5, 10, 11, 12, 13, 14, C. H. Muller, personal communication). One of the greatest difficulties is placing a species in either the white oak or red oak group. The work of Muller (11, 12, 13) will be followed in this paper.

White oaks

Acorns annual with inside-of-cup smooth. Bark white to gray, soft and scaley (sometimes black, hard and furrowed as in the "Live Oak"); leaves usually more or less rounded, perhaps sharp pointed teeth but not bristle tipped.

Quercus emoryi
Q. falcata
Q. graciiformis
Q. gravesii
Q. hemisphaerica
Q. hypoleucoides
Q. incana
Q. laurifolia
Q. marilandica
Q. nigra
Q. nuttallii
Q. phellos
Q. shumardii
Q. texana
Q. velutina

White oak
Arizona white oak
Boyon t post oak
Mexican dwarf oak
Drummond post oak
Escarpment live oak
Gambel oak
Lacey oak
Gray oak
Havard shin oak
Hinckley oak
Coahilla scrub oak
Overcup oak
Bur oak
Sand post oak
Mohr oak
Chinkapin oak
Mexican blue oak
Swamp chestnut oak
Sandpaper oak
Vasey oak
Netleaf oak
Durand white oak
Bigelow oak
Post oak
Delta post oak
Toumey oak
Shrub live oak
Live oak

Black oaks

Acorns biennial (pollinated one year and fertilized the following year), annual for Emory, Silverleaf annual or sometimes biennial; acorn cup fuzzy on inside. Bark black, hard and furrowed; leaves usually toothed and bristle tipped (aristate).
Heights
In their native environment, the Texas oaks can range in heights from less than 3 ft to well over 100. Most lot sizes (for homes) preclude the use of the larger oaks. Smaller trees are needed and can readily be chosen from the following oaks:

Dwarf oaks (less than 15 ft)
- Boynton post
- Coahuila scrub
- Havard shin
- Tourney

Small oaks (Less than 30 ft)
- Arizona white
- Bigelow
- Black jack
- Blue jack
- Coast laurel
- Drummond post

Medium oaks (Less than 50 ft)
- Black
- Chisos red
- Emory
- Escarpment live
- Gambel

Large oaks (over 50 ft)
- Bur
- Chinkapin
- Delta post
- Durand white
- Laurel
- Nuttall
- Overcup

“Live oaks” (Persistent Leaved)
There are 19 persistent-leaved species of oaks in Texas. To call them “evergreen” is not entirely correct because they usually drop all their leaves at one time. However, if temperatures permit, they do hold their leaves overwinter. One of the persistent-leaved oaks that occurs along the coast near Victoria is a rhizomatous live oak that Muller (12) considers to be a juvenile form of Q. virginiana. However, this population along with those in Calhoun County, may be Q. minima x Q. virginiana while south of Corpus Christi it might be Q. oleoide x Q. fusiformis (15). These rhizomatous oaks fruit heavily at less than 3 ft. and remain in this form indefinitely.

“Grassland oaks”
With the exception of the eastern Piney Woods and the basin and range of the Trans-Pecos, Texas is a prairie state. Most of the Trans-Pecos, while not true prairie, is still grassland and the oak-hickory and pineland of eastern Texas contain openings of grassland.

The East and West Cross Timbers are post-climax oak savanna of post and black jack oak (2). A narrow belt of tallgrass prairie extends from the Red River to the Gulf Coast and contain scattered stands of bur oak. Bur oak in the midwest is post-climax (18) in much the same manner as the post oak-black jack oak in the East and West Cross Timbers and the Post Oak Savanna.

Of greater interest are those oaks of the Gulf Coast, the Edwards Plateau and the oaks along and to the west of the 100th meridian, that are white oaks, more or less dwarf and rhizomatous. They occupy grasslands and appear to have evolved with the fires of the prairies (15).

Oaks for fall foliage color
Most oaks, except for the persistent-leaved species, exhibit some color in the fall. An exception is Mexican Blue Oak, a live or persistent-leaved oak that still gives color in the fall. The oaks listed below exhibit fall foliage color in most years.
- Black
- Black jack
- Blue jack
- Chisos red
- Gambel
- Lacey
- Mexican blue
- Nuttall

Oaks for different soils
Limestone
- Bigelow
- Bur
- Chinkapin
- Coahuila scrub
- Escarpment live
- Hinckley
- Lacey
- Mohr
- Sandpaper
- Shumard red
- Texas red
- Vasey
- Willow

Deep sand
- Black jack
- Bur
- Drummond post
- Sand post
- Havard shin
- Oxygen depleted/wet
- Delta post
- Durand white
- Overcup
- Swamp chestnut
- Water
- Nuttall
Fifteen Texas oaks of unusual landscape merit

- *Quercus alba* (White oak) - Large tree of acid soils, excellent fall foliage.
- *Q. emoryi* (Emory oak) - Medium tree of igneous soils in the mountains and valleys of the west, good persistent foliage.
- *Q. fusiformis* (Escarpe live oak) - Motte forming medium oak of alkaline soils, persistent foliage.
- *Q. glaucoides* (Lacey oak) - Medium oak, alkaline soils, blue-green leaves.
- *Q. laurifolia* (Laurel oak) - Large oak, acid soils, persistent foliage.
- *Q. macrocarpa* (Bur oak) - Massive oak of the prairies, will grow in almost any soil.
- *Q. mohriana* (Mohr oak) - Small oak of the hard limestone soils of western Texas, persistent foliage.
- *Q. muehlenbergii* (Chinkapin oak) - Large oak of alkaline soils usually in river bottoms.
- *Q. oblongifolia* (Mexican blue oak) - Small oak, persistent foliage, blue-green to mauve leaves in winter.
- *Q. pungens* var. *vaseyana* (Vasey oak) - Small oak, with persistent, glossy foliage, usually in alkaline soils.
- *Q. shumardii* (Shumard red oak) - Large oak of bottomlands, excellent fall foliage.
- *Q. sinuata* var. *breviloba* (Bigelow oak) - Small oak with multiple stems on hard limestone, excellent flaking bark.
- *Q. texana* (Texas red oak) - Medium oak of dry limestone soils, magnificent fall foliage.
- *Q. turbinella* (Shrub live oak) - Dwarf oak of the Franklin Mountains, persistent silvery-gray foliage.
- *Q. virginiana* (Coast live oak) - The "Live oak", large tree of coastal areas east of Brazos River, persistent foliage.

Literature Cited