THE OAKS OF TEXAS[1]

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 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 list 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 alba	White oak
Q. arizonica	Arizona white oak
Q. boyntonii	Boynton post oak
Q. depressipes	Mexican dwarf oak
Q. drummondii	Drummond post oak
Q. fusiformis	Escarpment live oak
Q. gambelii	Gambel oak
Q. glaucoides	Lacey oak
Q. grisea	Gray oak
Q. havardii	Havard shin oak
Q. hinckleyi	Hinckley oak
Q. intricata	Coahuila scrub oak
Q. lyrata	Overcup oak
Q. macrocarpa	Bur oak
Q. margaretta	Sand post oak
Q. mohriana	Mohr oak
Q. muehlenbergii	Chinkapin oak
Q. oblongifolia	Mexican blue oak
Q. michauxii	Swamp chestnut oak
Q. pungens	Sandpaper oak
Q. pungens var. *vaseyana*	Vasey oak
Q. rugosa	Netleaf oak
Q. sinuata var. *sinuata*	Durand white oak
Q. sinuata var. *breviloba*	Bigelow oak
Q. stellata var. *stellata*	Post oak
Q. stellata var. *paludosa*	Delta post oak
Q. toumeyi	Toumey oak
Q. turbinella	Shrub live oak
Q. virginiana	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).

Quercus emoryi	Emory oak
Q. falcata	Southern red oak
Q. graciliformis	Graceful oak
Q. gravesii	Chisos red oak
Q. hemisphaerica	Coast laurel oak
Q. hypoleucoides	Silverleaf oak
Q. incana	Blue jack oak
Q. laurifolia	Laurel oak
Q. marilandica	Black jack oak
Q. nigra	Water oak
Q. nuttallii	Nutall oak
Q. phellos	Willow oak
Q. shumardii	Shumard red oak
Q. texana	Texas red oak
Q. velutina	Black oak

1. Presented at the annual conference of the International Society of Arboriculture in San Antonio in August 1986.

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
Toumey
Hinckley
Mexican dwarf
Shrub live

Small oaks (Less than 30 ft)

Arizona white
Bigelow
Black jack
Blue jack
Coast laurel
Drummond post
Graceful
Gray
Mexican blue
Netleaf
Sand post
Silverleaf

Medium oaks (Less than 50 ft)

Black
Chisos red
Emory
Escarpment live
Gambel
Lacey
Live
Sandpaper
Texas red
Vasey

Large oaks (over 50 ft)

Bur
Chinkapin
Delta post
Durand white
Laurel
Nuttall
Overcup
Post
Shumard red
Southern red
Swamp chestnut
Water
White
Willow

"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 idefinitely.

Arizona white
Coahuila scrub
Coast laurel
Emory
Escarpment live
Graceful
Gray
Hinckley
Laurel
Live
Live—juvenile form
Mexican blue
Mexican dwarf
Mohr
Netleaf
Sandpaper
Shrub live
Silverleaf
Toumey
Vasey

"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).

Bigelow
Coahuila scrub
Escarpment live
Havard shin
Live (juvenile form)
Mohr
Vasey

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 persistant-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
Shumard red
Southern red
Swamp chestnut
Texas red
White
Willow

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
Blue jack
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* (Escarpment 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 foiliage.
- *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.

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