



*Mississippi  
Trees*



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## ***Authors***

**John D. Hodges**

**Professor Emeritus  
Mississippi State University  
Department of Forestry**

**David L. Evans**

**Professor of Forestry  
Mississippi State University  
Department of Forestry**

**Linda W. Garnett  
Compilation, Format,  
and Cover Design**

**Extension Associate, Forestry  
Mississippi State University  
Extension Service**

**Contributing Technical Editor**

**Alexis Londo  
Research Associate  
Mississippi State University  
Department of Forestry**

**Technical Review**

**Lisa McReynolds  
Administrative Assistant  
Mississippi State university  
Extension Service**



**Mississippi State  
University  
Extension  
SERV**



**Mississippi State University  
College of Forest Resources**



## Acknowledgements

**The authors wish to thank those who have helped in the compilation of the information included in this publication through their contribution to its photographic content. Most of the imagery was amassed from electronic media.**

1. Forestry Images; a joint project of the Bugwood Network and USDA Forest Service, The University of Georgia - Warnell School of Forestry and Natural Resources and College of Agricultural and Environmental Sciences - Dept. of Entomology [www.forestryimages.org](http://www.forestryimages.org)
2. Bioimages; Vanderbilt University, photos by Steve Baskauf; [www.cas.vanderbilt.edu/bioimages](http://www.cas.vanderbilt.edu/bioimages)
3. Louisiana State University School of Renewable Natural Resources, website at <http://rnstreamer.lsu.edu/ecosystems/webtour/enter.htm>
4. Drs. John R. Seiler and John A. Peterson, Department of Forestry, Virginia Tech University
5. Dr. Shirley Denton, Biological Research Associates - a division of ENTRIX
6. Hans-Cees Speel, Dutch Treeguide at [www.Bomengids.nl](http://www.Bomengids.nl)
7. Oregon State University, photos by Patrick Breen
8. The Resource Center, Cornell University, Ithaca, NY
9. University of Florida, Institute of Food and Agricultural Sciences (UF/IFAS), EDIS website
10. Paul Wray, Iowa State University
11. Texas A&M Research and Extension Center, website at [www.uvalde.tamu.edu](http://www.uvalde.tamu.edu)
12. Chris Ingram, Gulf south Research Corporation (GSRC), Baton Rouge, LA
13. Bay Science Foundation, Inc., website at [www.zipcodezoo.com/plants](http://www.zipcodezoo.com/plants)
14. Texas A&M University, Horticulture Department, Texas Native Trees, website at [www.aggie-horticulture.tamu.edu](http://www.aggie-horticulture.tamu.edu)
15. University of Illinois Urbana-Champaign, UI Plants Woody Ornamentals, photos by Gary J. Kling and Mark E. Zampardo, website at [www.nres.uiuc.edu/plant](http://www.nres.uiuc.edu/plant)
16. Auburn University, Landscape Horticulture Department, website at [www.ag.auburn.edu/hort/landscape](http://www.ag.auburn.edu/hort/landscape)
17. Thomas W. Kimmerer, Tree Web
18. University of Texas at Austin, Native Plants Database, Central Texas Native Plant Archive, website at [www.bio.utexas.edu/](http://www.bio.utexas.edu/)
19. Bloomsburg University of Pennsylvania, Hiker's Guide to the Trees, Shrubs, and Woody Vines of Ricketts Glen State Park, Third Edition - Internet Version
20. IFAS University of Florida, Coastal Hammock Plants of NE Florida, photographs by Maia McGuire

21. Global Invasive Species Database, website at [www.issg.org/database](http://www.issg.org/database)
22. Wildflowers of the Southeastern United States, photos by Daniel Reed, website at [www.2bnthewild.com](http://www.2bnthewild.com)
23. University of Texas at Austin, Lady Bird Johnson Wildflower Center, website at [www.wildflower.org](http://www.wildflower.org)
24. National Park Service, Plant Conservation Alliance, Alien Plant Working Group, photos by Olivia Kwong, Plant Conservation Alliance, Washington, D.C., website at [www.nps.gov/plants/alien/fact/](http://www.nps.gov/plants/alien/fact/)
25. Ohio State University, Plant Facts, website at [www.plantfacts.osu.edu/](http://www.plantfacts.osu.edu/)
26. Trees, Shrubs, and Woody Vines of North Carolina, Wake County, electronic media, photos by Will Cook
27. University of Connecticut Database of Trees, Shrubs, and Vines, electronic media, photos by Mark H. Brand
28. Floridata, Tallahassee, FL, electronic media - website at [Floridata.com](http://Floridata.com)
29. Henderson State University, Arkadelphia, AR, Non-Native Plants of Arkansas, website at [www.hsu.edu/](http://www.hsu.edu/)
30. University of Texas, Biology Dept, Intro to Flora of Central Texas, website at [www.bio.utexas.edu/courses/bio406d/](http://www.bio.utexas.edu/courses/bio406d/)
31. DePauw University, electronic media, website at [www.depauw.edu/univ/naturepark/natural\\_resources/rees/](http://www.depauw.edu/univ/naturepark/natural_resources/rees/)
32. North Carolina State University, electronic media, website at [www.ces.ncsu.edu/depts/hort/fact-sheets/trees-new/index.html](http://www.ces.ncsu.edu/depts/hort/fact-sheets/trees-new/index.html)

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## Introduction

This handbook was prepared for the Mississippi Forestry Commission by the Department of Forestry at Mississippi State University. Publication of the handbook was made possible through a grant from the U.S. Forest Service to the Mississippi Forestry Commission.

Trees (forests) represent a huge economic benefit to the state of Mississippi. Forests occupy about 65% of the land area of Mississippi and timber is second only to poultry production in terms of agricultural income in Mississippi. Tree identification is an obvious necessity for those who work in forestry and related fields. For those who simply enjoy the woods for recreational or aesthetic reasons, being able to identify the trees can make the experience even more enjoyable. It is our desire that this book will be beneficial to both the professional and the recreational user.

### Tree Names

All known plants, including trees, have a scientific name and usually one or more common names. For example, the scientific name for cherrybark oak is *Quercus pagoda* Raf., but cherrybark oak, spanish oak, swamp red oak, are all common names for the same species. For that reason the scientific name is less confusing and far more descriptive. The term pagoda in the scientific name for cherrybark oak denotes the pagoda shape of the outline of the leaves.

The scientific name e.g., *Quercus pagoda* Raf., is composed of three parts. The first part is the genus or generic name, the second part is the species or specific epithet, and the third part is the authority or name, often given as an abbreviation, of the person who classified the species and gave it a scientific name.

### Use of the Book

This book is not intended as a text book on dendrology or tree identification. Nor is it intended to be a complete account of the woody flora of Mississippi. Rather, it has been prepared for the citizens of Mississippi as an aid to identification of the common trees occurring in Mississippi, and to give useful and interesting information about each tree species that is not normally included in technical books on tree identification. For that reason, use of technical descriptive terms has been limited as much as possible, and method of description has been standardized to make it easier to use. For example, the description of leaves, bark, fruit, etc. is covered in the same way and in the same sequence for all species.

In the book, trees are divided into groups (ashes, conifers, elms, maples, oaks, other species). Within groups the tree species are listed alphabetically by specific name (scientific name). We have also included a brief section on the more common shrubs occurring in forest communities as well as a few non-native tree species. There is an index of common names at the end of the book in which the species within groups are listed by both common and scientific name. A series of leaf shapes is presented to clarify terms used in the book to describe leaf shape and leaf parts. In describing species and their habitat and ecology, the authors had to depend heavily on the published literature. This is especially true for characteristics such as distribution (range), life span, and to some degree tolerances. Thus, the data given for these characteristics are not to be taken as absolutes, but as representative of the species. For example, the NRCS Plants Database may list a species as occurring in only 2 or 3 counties simply because it has only been reported for those counties even though it may also occur elsewhere.

## White Ash

### Biltmore ash, cane ash

*Fraxinus americana* L.

#### Leaves:

**Type:** odd-pinnately compound, opposite, deciduous  
**Size:** 8.0" - 13.0" long; leaflets (5-9), 3.0" - 5.0" long, 1.5" - 3.0" wide  
**Margin:** toothed or entire  
**Apex:** acuminate  
**Base:** rounded or wedge shaped  
**Shape:** oblong-lanceolate  
**Color:** dark green above; paler green below  
**Surface:** glabrous above; slightly pubescent below  
**Venation:** pinnate

#### Twigs:

**Size:** moderately stout to stout  
**Color:** dark green to gray-brown  
**Surface:** flattened at node; large pale lenticels; narrow concave leaf scars partly surrounding bud; numerous bundle scars

#### Buds:

**Size:** large; laterals much smaller  
**Shape:** rounded or blunt  
**Color:** dark brown to brownish black  
**Surface:** 4-8 scales

#### Fruit and Flowers:

**Samara:** single, in clusters  
**Size:** 1.0" - 2.0" long; 0.25" wide  
**Shape:** oblong to spatulate  
**Color:** pale brown  
**Flower:** dioecious; apetalous; in dense panicles; staminate, green, purplish anthers, 0.25" long; pistillate, 2 spreading, dark purple stigmatic lobes

**Bark:** gray to gray-brown; interlacing ridges forming a diamond pattern; thick; rough

#### Physical Attributes:

**Form:** single stem  
**Size:** 90.0', mature  
**Growth Rate:** moderate; 40.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** low  
**Fire:** medium  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** rich, moist, well-drained soils in uplands and bottom lands near streams  
**Soil Texture:** fine - coarse  
**Soil pH:** 5.0 - 7.5  
**Range:** Nova Scotia; south to northern Florida; west to eastern Texas; north to eastern Minnesota; in Mississippi, throughout except the Mississippi River Delta counties

**Wildlife Value and Uses:** seeds are eaten by wood duck, bob white, purple finch, pine grosbeak and fox squirrel; medium palatability as browse; rabbit, beaver, and porcupine occasionally eat the bark; often used as a cavity tree by nesting birds

**Timber Value and Uses:** high value as fuelwood, lumber, and nursery stock; wood is strong, tough, and highly shock resistant; used for handles, oars, baseball bats, antique car parts, cabinets, and railroad cars and ties

**Landscaping Info:** suitable for a yard or street tree; fall color is not showy, but the tree form is nice for landscaping; will tolerate a variety of soil textures; sensitive to air pollution, particularly ozone and sulfur dioxide

**Other Facts:** juice from leaves used for topical relief of mosquito bite swelling and itching; early use as snake bite prevention (leaves carried in a person's boots or pockets to provide protection - believed to be offensive to rattlesnakes)





Leaf



Bark



Flower



Fruit



Twig

## Carolina Ash

water ash, pop ash, swamp ash

*Fraxinus caroliniana* P. Mill.

### Leaves:

**Type:** odd-pinnately compound, opposite, deciduous

**Size:** 7.0" - 12.0" long; leaflets (5-7), 3.0" - 6.0" long, 2.0" - 3.0" wide

**Margin:** coarsely-serrate, toothed

**Apex:** blunt or rounded

**Base:** wedge-shaped

**Shape:** oblong-ovate

**Color:** dark green above; paler green below

**Surface:** glabrous above; glabrous, or pubescent below on the ribs and veins

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** greenish gray and pubescent when young; brown or gray mature

**Surface:** scattered lenticels; flattened at nodes; leaf scars half-round

### Buds:

**Size:** 0.13" long

**Shape:** ovate-acute

**Color:** chestnut brown

**Surface:** puberulous scales, outer layer thickened at base

### Fruit and Flowers:

**Samara:** broad; flattened; often 3-winged;

**Size:** 3.0" long; 0.75" wide

**Shape:** elliptical to diamond shaped

**Color:** black (wing sometimes violet)

**Flower:** dioecious; in panicles; apetalous; 0.25" long; staminate with minute calyx; pistillate, small calyx, elongated style with forked tip

**Bark:** gray; thin; irregularly scaly ridges mature

### Physical Attributes:

**Form:** single stem

**Size:** 39.0', mature

**Growth Rate:** moderate, 39.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: tolerant

Drought: low

Fire: none

Anaerobic: high

**Propagation:** seed (no cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** deep river swamps inundated several months of the year, usually as an understory species

**Soil Texture:** medium - coarse

**Soil pH:** 3.5 - 6.0

**Range:** Washington D.C.; south to Florida; west along the Gulf Coastal Plain to Texas; in Mississippi, reported by the NRCS Plants Database in Hinds, Winston, Wayne, Jackson, Pearl River, Lamar, and Forrest Counties

**Wildlife Value and Uses:** (no data)

**Timber Value and Uses:** wood light, weak, soft, close-grained; of no commercial value

**Landscaping Info:** good ornamental; small; fairly rapid growth; will tolerate wet soils, but will grow on drier sites; unusual and interesting fruiting habit

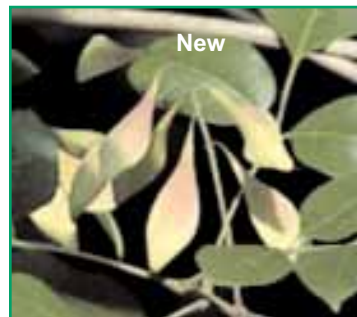
**Other Facts:** flowers appear prior to leaves



Leaf



Bark



New



Flower



Mature

Fruit



Twig

**Green Ash**  
**red ash, swamp ash, water ash**  
*Fraxinus pennsylvanica* Marsh.

**Leaves:**

**Type:** pinnately compound, opposite, deciduous

**Size:** 10.0" - 12.0" long; leaflets (5-9), 2.0" - 4.0" long, 1.0" - 1.5" wide; leaflet stalks 0.13" - 0.5" long

**Margin:** entire or slightly toothed

**Apex:** narrow slender pointed

**Base:** unequally cuneate

**Shape:** ovate to elliptical

**Color:** dark green above; paler green below

**Surface:** lustrous above; pubescent along veins below

**Venation:** pinnate

**Twigs:**

**Size:** moderately stout; often flattened at node

**Color:** grayish green

**Surface:** glabrous; leaf scars half-round, and flat instead of notched, buds on top of scars

**Buds:**

**Size:** 0.13" long

**Shape:** nearly globular

**Color:** rusty brown

**Surface:** 4 scales

**Fruit and Flowers:**

**Samara:** large clusters

**Size:** 1.0" - 2.0" long

**Shape:** paddle-shaped; wing encloses approximately 50% of seed

**Color:** brown

**Flower:** similar to white ash (dioecious, apetalous; staminate purplish red, 0.25" long in compound clusters; pistillate, 2 dark purple stigmatic lobes)

**Bark:** gray and tight; furrows forming diamond shaped pattern

**Physical Attributes:**

**Form:** single stem

**Size:** 70.0', mature

**Growth Rate:** rapid; 35.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

**Shade:** tolerant

**Drought:** medium

**Fire:** medium

**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** most frequently along streams and alluvial floodplains where frequent inundation occurs in winter and spring; can also be found on dry and severe upland sites

**Soil Texture:** fine - coarse

**Soil pH:** 5.0 - 8.0

**Range:** central Montana and northeastern Wyoming; south to southeastern Texas; east to northwestern Florida; north to Nova Scotia; in Mississippi, throughout

**Wildlife Value and Uses:** seeds eaten by a number of game and nongame animals and birds; especially important for wildlife communities in the northern Great Plains; medium palatability as browse; protein potential is low; attracts birds, rabbit, deer, squirrel, and sharptail grouse

**Timber Value and Uses:** wood is coarse-grained, heavy, hard, and strong; sapwood is white; used to make tool handles, furniture, and interior furnishings; widely used in revegetation of spoil banks created from strip mining; high value as fuelwood

**Landscaping Info:** popular as a shade tree in residential areas because of its good form, adaptability to a wide range of sites, and relative freedom from insects and diseases

**Other Facts:** utilized by the Native Americans of the Great Plains to make bows, arrows, drums, tent poles, tepee pegs, and meat-drying racks; believed to have beneficial natural powers and was often used to carry and/or display ceremonial or symbolic objects; Cheyenne Contrary Warriors reportedly wore whistles made of green ash around their necks

Mississippi: Sharkey County is home to the Green Ash Research Natural Area. The vegetation of this area is dominated by Nuttall oak (Texas red oak), green ash, and American elm. There are old-growth green ash trees between 200 and 250 years old in the area.



Leaf



Bark



Flower



Fruit



Twig

## Pumpkin Ash

### red ash

#### *Fraxinus profunda* Bush

##### Leaves:

**Type:** odd-pinnately compound, opposite, deciduous

**Size:** 9.0" - 18.0" long; leaflets (7-9), 5.0" - 10.0" long, 1.5" - 5.0" wide

**Margin:** entire or slightly serrate

**Apex:** acuminate or abruptly long-pointed

**Base:** rounded, cuneate, often unsymmetric

**Shape:** lanceolate or elliptic

**Color:** dark yellow-green above; paler below

**Surface:** hairy young; glabrous mature; pubescent below; stout, yellow, minute hairs on midrib

**Venation:** pinnate

##### Twigs:

**Size:** stout

**Color:** gray

**Surface:** pubescent when young; leaf scars crescent-shaped, nearly surround the lateral buds; bundle scars U-shaped

##### Buds:

**Size:** terminal bud 0.31" long

**Shape:** terminal bud broad-ovate, obtuse; laterals globose

**Color:** light reddish brown - brown

**Surface:** pale pubescence; 3 pairs of scales

##### Fruit and Flowers:

**Samara:** in long drooping many-fruited clusters; winged; single-seeded; flattened

**Size:** 2.0" - 3.0" long; wings up to 0.5" wide

**Shape:** oblong

**Color:** yellow-green new; brownish gray mature

**Flower:** dioecious; in elongated, branched pubescent panicles; staminate, purplish green; pistillate, white, inconspicuous

**Bark:** diamond pattern similar to white ash; gray; thick

##### Physical Attributes:

**Form:** single stem, often buttressed base

**Size:** 80.0' - 120.0', mature

**Growth Rate:** rapid; 65.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

**Shade:** intermediate

**Drought:** low

**Fire:** high

**Anaerobic:** medium

**Propagation:** seed (cold stratification required);

bare root; container

**Other:** resprout/coppice potential

##### Habitat and Ecology:

**Site:** river bottoms subject to periodic and protracted flooding; margins of swamps and deep sloughs; very low, poorly drained flats of the major river floodplains; swamps of tidal estuaries; margins of coastal marshes; the deeper, more extensive depressions of the Coastal Plain

**Soil Texture:** fine - medium

**Soil pH:** 4.5 - 5.9

**Range:** range is discontinuous; from southern Maryland and southeastern Virginia to northern Florida, and west to Louisiana; also from southern Illinois and Indiana, south through southeastern Missouri and northeastern Arkansas; in Mississippi, reported by the NRCS Plants Database in Washington, Boliver, Sunflower, Leflore, Humphreys, Grenada, Panola, and Lowndes Counties, but likely found in other areas also

**Wildlife Value and Uses:** fruits eaten by wood ducks and many other birds; young twigs and leaves browsed by white-tailed deer

**Timber Value and Uses:** produces high quality factory lumber and dimension material; source of handle and implement stock; so scattered that it is usually only harvested as a component of other associate species

**Landscaping Info:** routinely commercially available; possibly a good selection for a low area when landscaping

**Other Facts:** name comes from the "pumpkin" shape of the buttressed base when grown on swampy sites; profunda means deep, and refers to the sites where it is found



Leaf



Fruit



Bark



Flower



Twig

## Blue Ash

water ash, pop ash, swamp ash

*Fraxinus quadrangulata* Michx.

### Leaves:

**Type:** odd-pinnately compound, opposite, deciduous

**Size:** leaf 8.0" - 12.0" long; leaflets (7-11), 2.0" - 5.0" long, 1.0" - 2.0" wide

**Margin:** serrate

**Apex:** acuminate

**Base:** wedge-shaped to rounded

**Shape:** oblong-lanceolate

**Color:** yellowish green above; green below

**Surface:** glabrous above; hairy tufts on midrib and veins

**Venation:** pinnate

### Twigs:

**Size:** stout

**Color:** red-brown when young, then gray

**Surface:** hairy when young; glabrous with scattered lenticels; unique conspicuous 4-angled internode; somewhat winged - gives the appearance of being square

### Buds:

**Size:** 0.25" dia.

**Shape:** ovoid, acute

**Color:** reddish brown

**Surface:** 3 pairs of scales; slightly to densely pubescent

### Fruit and Flowers:

**Samara:** wing rounded, encasing the flattened seed past its center

**Size:** 1.0" - 2.0" long

**Shape:** oblong

**Color:** golden tan (mature)

**Flower:** monoecious; perfect; naked; in loose panicles; stamens, 2, purplish; pistil, with short 2-lobed purplish style

**Bark:** gray; flat scaly plates of varying sizes

### Physical Attributes:

**Form:** single stem

**Size:** 70.0' - 100.0', mature

**Growth Rate:** moderate; (no data @ 20 yrs)

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** intolerant

**Drought:** moderate

**Fire:** moderate

**Anaerobic:** intolerant

**Propagation:** seed (cold stratification required)

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** rich, dry, limestone bottom lands and hills; less commonly mountain slopes

**Soil Texture:** fine - coarse

**Soil pH:** 6.8 - 7.2

**Range:** most common in the Ohio and Upper Mississippi River Valley, but can be found scattered from Ontario south through southern Michigan to Iowa, Ohio, Indiana, Kentucky, Kansas, Oklahoma, Missouri, and Arkansas; in Mississippi, reported by the NRCS Plants Database in Tishomingo, Lee, Lowndes, Oktibbeha, and Noxubee counties

**Wildlife Value and Uses:** attracts birds

**Timber Value and Uses:** of some value in the manufacture of flooring, but only in combination with other associate species since it is not widespread

**Landscaping Info:** yellow fall color; shade tree and street tree; not readily commercially available

**Other Facts:** sap from the inner bark used by early settlers to produce a blue dye for cloth; exposed to the open air the sap turns blue --- consequently the common name for the species, "blue ash"





Leaf



Fruit



Bark



Twig

**Eastern Red Cedar**  
cedar tree, juniper, savin, evergreen,  
cedar apple, Virginia red cedar  
*Juniperus virginiana* L.

**Leaves:**

**Type:** evergreen; 2 forms;  
1) juvenile opposite in pairs, or ternate;  
2) mature 4-ranked  
**Size:** juvenile 0.25" long; mature 0.06" long  
**Color:** juvenile light green; mature dark green  
with glandular dots (both turn brown end of 2nd  
winter)  
**Characteristics:** juvenile awl-shaped,  
sharp-pointed, spiny to touch; mature shalelike,  
usually appressed

**Twigs:**

**Size:** slender; terete or angled  
**Color:** dark green; then reddish  
**Surface:** covered by compact scale-like leaves

**Buds:**

**Size:** minute  
**Shape:** (no data)  
**Color:** (no data)  
**Surface:** hidden by leaves

**Cones:**

**Pollen Cones:** dioecious; minute; 0.13" long;  
10-12 yellow-brown stamens  
**Ovulate Cones:** dioecious; minute; globular;  
several purplish, fleshy scales, each with 1-2  
basal ovules  
**Mature Cones:**  
**Size:** 0.25" dia.  
**Shape:** ovoid  
**Characteristics:** greenish blue with glaucous  
bloom (mature one season); fleshy, berrylike  
**Seed:** wingless; ovoid; sharp-pointed; 0.17"  
long

**Bark:** thin; reddish brown; fibrous; long,  
narrow strips; fluted trunks; buttressed at base

**Physical Attributes:**

**Form:** single stem  
**Size:** 50.0', mature  
**Growth Rate:** slow; 25.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** high  
**Fire:** low  
**Anaerobic:** low

**Propagation:** seed (cold stratification required);  
bare root; container; cuttings  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** found on wide variety of soils; best growth  
on light, calcareous loams; most abundant,  
however, on dry, shallow, rocky soils --- many  
times where nothing else will grow  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.7 - 8.0  
**Range:** eastern United States and southern  
Ontario; in Mississippi, throughout

**Wildlife Value and Uses:** twigs and foliage  
eaten extensively by hoofed browsers; berries  
an important part of the diet of numerous birds  
and mammals, both large and small; important  
nesting cover for chipping sparrows, robins,  
song sparrows, and mockingbirds; roosting  
cover for juncos, myrtle warblers, sparrows  
of various kinds, and other birds; especially  
valuable as dense winter protective cover;  
widely used in shelterbelts and wildlife plantings

**Timber Value and Uses:** close-grained,  
aromatic, and durable wood used for furniture,  
interior paneling, novelties, and fence posts;  
fruits and young branches contain aromatic oil  
used in medicines

**Landscaping Info:** often used as  
ornamentals for their evergreen foliage;  
generally propagated by cuttings; seedlings  
ordinarily used as stock for grafting ornamental  
juniper clones; especially well adapted to dry  
areas

**Other Facts:** symbolizes the tree of life for  
numerous Native American tribes; used as  
incense in rituals and burned in sweat lodges  
and in purification rites; used teas, ointments,  
and liniments made from the leaves, berries,  
and roots and combinations of them to treat  
arthritis and rheumatism, coughing; colds,  
fevers, tonsillitis, and pneumonia; also used  
as a sedative for hyperactivity, and to speed  
delivery during childbirth; wood utilized for lance  
shafts, bows, and other items; red cedar flutes  
were highly regarded by the Cheyenne; cedar  
boughs were used for bedding; Menomini wove  
mats of cedar bark used for roofing temporary  
structures, for partitions, floor mats and  
wrappings; wood used in the construction of  
lodges, totems, and war canoes by Native  
Americans of the northwest coast



**Leaf**



**Fruit**

The young leafy twigs of the red cedar were officially listed in the U.S. Pharmacopoeia from 1820 to 1894 as a diuretic (Kindscher 1992). The distilled oil of the red cedar has been officially listed as a reagent in the U.S. Pharmacopoeia since 1916



**Bark**



**Tree**



**Twig**

**Shortleaf Pine**  
**southern yellow, oldfield, shortstraw, or**  
**Arkansas soft pine, shortleaf yellow**  
*Pinus echinata* Mill.

**Needles:**

**Type:** 2-3 per fascicle; evergreen; persistent 3-4 seasons

**Size:** 2.5" - 5.0" long; fascicle sheaths 0.13" - 0.25" long

**Color:** dark yellow-green

**Characteristics:** slender; flexible; straight

**Twigs:**

**Size:** slender

**Color:** pale green (purplish bloom); becoming reddish brown

**Surface:** scaly on older branchlets

**Buds:**

**Size:** 0.25" - 0.50" long

**Shape:** (no data)

**Color:** reddish brown

**Surface:** smooth; several red-brown scales

**Cones:**

**Pollen Cones:** greenish yellow; 0.25" - 0.5" long; compact clusters at base of terminal bud

**Ovulate Cones:** pinkish; 2-3 per cluster; at the end of elongating twig

**Mature Cones:**

**Size:** 1.50" - 2.50" long

**Shape:** ovoid

**Characteristics:** dull gray; almost stalkless; scales transversely keeled; prickles short, slightly recurved, often deciduous

**Seed:** winged, 0.25" long, brown mottled with black; wing 0.5" long, straw-colored, broadest at middle

**Bark:** dark brown, somewhat scaly young; mature bark reddish brown, flat irregular plates, numerous small conspicuous resin pockets

**Physical Attributes:**

**Form:** single stem

**Size:** 100.0', mature

**Growth Rate:** rapid; 60.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** intolerant

**Drought:** medium

**Fire:** high

**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential when young

**Habitat and Ecology:**

**Site:** variety of soils and sites; most common on dry upland soils in pure or mixed stands

**Soil Texture:** fine - coarse

**Soil pH:** 4.0 - 6.0

**Range:** southeastern New York and New Jersey; west to Pennsylvania, southern Ohio, Kentucky, southwestern Illinois, and southern Missouri; south to eastern Oklahoma and eastern Texas; and east to northern Florida; northeast through the Atlantic Coast states to Delaware; in Mississippi, throughout with the exception of the Mississippi River Delta counties

**Wildlife Value and Uses:** seeds eaten by birds and small mammals (squirrels may cut the cones and eat the seeds before the cones open naturally); canopies provide protection from the wind and cold for many animals; stands scattered through hardwood forests are especially beneficial to wildlife; older shortleaf with red heart rot are primary nesting trees for red-cockaded woodpecker

**Timber Value and Uses:** primarily used for lumber, plywood, other structural materials, and pulpwood; was commonly planted on eroded lands in Mississippi; not as much litter as loblolly pine, and therefore may be less desirable for some reclamation uses

**Landscaping Info:** sometimes planted as an evergreen ornamental and as a screen in urban areas

**Other Facts:** One of the biggest shortleaf pines grows in Mississippi. It measures 41.5" d.b.h. and 138' tall, and attests to the large size these trees may attain.



Needles



Mature Cone



Male



Bark



Female

Young Cones



Twig

## Slash Pine

*Pinus elliottii* Engelm.

### Needles:

**Type:** 2-3 per fascicle; evergreen; persistent for 2 seasons

**Size:** 7.0" - 12.0" long; fascicle sheaths 0.5" - 0.75" long

**Color:** dark green

**Characteristics:** shiny; short; stiff; straight

### Twigs:

**Size:** stout

**Color:** light orange-brown

**Characteristics:** rough; ridged by compact arrangement of needles and scales

### Buds:

**Size:** 0.5" - 0.75" long

**Shape:** elliptic - ovate

**Color:** rusty brown

**Surface:** free at tips

### Cones:

**Pollen Cones:** purplish brown; 0.5" - 2.0" long; dense clusters at base of terminal buds

**Ovulate Cones:** pinkish purple; at tip of elongating twigs; solitary or paired

#### **Mature Cones:**

**Size:** 3.0" - 7.0" long

**Shape:** ovoid to elongated, cylindrical

**Characteristics:** lustrous tan scales; scale prickles small recurved; not extremely sharp

**Seed:** 0.25" long; black ridged; triangular; wing 1.0" long, translucent, thin, encircles seed

**Bark:** dark reddish brown, furrowed, rough young; orange-brown, broad flat scaly plates mature

### Physical Attributes:

**Form:** single stem

**Size:** 100.0', mature

**Growth Rate:** rapid; 60.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

#### **Tolerances:**

**Shade:** intolerant

**Drought:** low

**Fire:** low

**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container

**Other:** no resprout/coppice potential

### Habitat and Ecology:

**Site:** low ground; swamps, hammocks, along streams; often invasive on abandoned fields

**Soil Texture:** fine - medium

**Soil pH:** 4.0 - 6.4

**Range:** grows naturally from Georgetown County, SC, south to central Florida, and west to Tangipahoa Parish, LA; native range includes the lower Coastal Plain, part of the middle Coastal Plain, and the hills of south Georgia; established (by planting) as far north as Tennessee, in north central Georgia, and Alabama; planted and direct-seeded in Louisiana and eastern Texas where it now reproduces naturally; in Mississippi, reported by the NRCS Plants Database primarily in the coastal counties

**Wildlife Value and Uses:** seeds are an excellent food source for gray and fox squirrel and wild turkey; dense foliage provides protective cover for many wildlife species during inclement weather

**Timber Value and Uses:** major source of naval stores (turpentine, and rosin); used for a variety of other purposes including poles, railroad ties, and pilings; planted to stabilize the soil on eroding slopes and strip mine spoil banks, where its rapid early growth is an advantage over slower growing species

**Landscaping Info:** adaptable to a variety of site and topographic conditions, but grows best on pond margins and in drainages where soil moisture is ample but not excessive and the soil is well aerated; a number of cultivars and improved materials are available

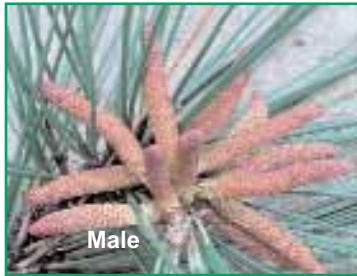
**Other Facts:** The naval stores industry is one of the oldest in the United States, and has supplied a large portion of the resin and turpentine used throughout the world since colonial times. In many early forests, gum was the primary and sometimes the only product harvested.



**Needles**



**Mature Cone**



**Male**



**Bark**



**Female**

**Young Cones**



**Seed**



**Twig**

## Spruce Pine

cedar pine, Walter pine, bottom white pine

*Pinus glabra* Walter

### Needles:

**Type:** 2 per fascicle; evergreen; persistent 2 seasons

**Size:** 2.0" - 4.0" long; fascicle sheaths 0.25" long

**Color:** dark green

**Characteristics:** slender; somewhat flattened; twisted

### Twigs:

**Size:** slender

**Color:** gray-green young; light brown mature

**Characteristics:** smooth on young branches; older branches smooth for several years

### Buds:

**Size:** (no data)

**Shape:** (no data)

**Color:** (no data)

**Characteristics:** (no data)

### Cones:

**Pollen Cones:** greenish yellow; <0.5" long; clustered at the base of terminal buds

**Ovulate Cones:** pinkish pale green; 1-3 on tips of fertile twigs

#### **Mature Cones:**

**Size:** 2.0" - 3.5" long

**Shape:** conical-elliptical

**Characteristics:** nearly stalkless; slightly keeled scales; small deciduous prickles

**Seed:** winged; nearly triangular; 0.13" long; thin, dark gray shell, mottled with black; wings 0.63" long, 0.25" wide, broadest below the middle

**Bark:** young trees smooth, thin, grayish brown; older trees dark gray-brown to nearly black, furrowed, narrow scaly ridges

### Physical Attributes:

**Form:** single stem

**Size:** 90.0', mature

**Growth Rate:** rapid; 30.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

#### **Tolerances:**

**Shade:** tolerant

**Drought:** low

**Fire:** none

**Anaerobic:** high

**Propagation:** seed (cold stratification required); bare root; container

**Other:** no resprout/coppice potential

### Habitat and Ecology:

**Site:** moist, sandy, loam soils of alluvial flood plains, stream banks or hammocks with mixed hardwoods in the lower Coastal Plain

**Soil Texture:** medium - coarse

**Soil pH:** 3.8 - 5.6

**Range:** South Carolina, Georgia, Florida, Alabama, Mississippi, and Louisiana; in Mississippi, primarily in the southern third of the State but has been recorded in Attala and Winston Counties

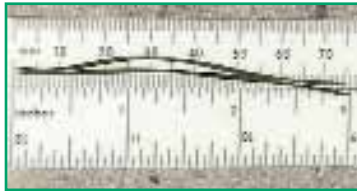
**Wildlife Value and Uses:** provides some habitat and food for wildlife as a member of mixed pine-hardwood communities

**Timber Value and Uses:** limited commercial importance; brittle and close-grained, has few resin canals, and is not durable; planted to some extent for use as a Christmas tree; can be used as it occurs naturally for pulping operations---use in large quantities for papermaking might require operational changes to meet strength requirements

**Landscaping Info:** speed of growth and thick, dark green needles are making them popular landscape trees; can be planted to make a thick evergreen border; more tolerant of moist soils than many other pines; works great as a specimen tree in the landscape; can be trimmed and used for Christmas trees

**Other Facts:** attains its largest size, and occupies areas of considerable extent in northwestern Florida





**Needles**



**Mature Cone**



**Male**



**Bark**



**Female**

**Young Cones**



**Twig**

**Longleaf Pine**  
**longstraw pine, southern yellow pine,**  
**Georgia pine**  
*Pinus palustris* Miller

**Needles:**

**Type:** 3 per fascicle; evergreen; persistent for 2 seasons

**Size:** 10.0" - 18.0" long; fascicle sheath 0.5" - 1.0" long

**Color:** dark green

**Characteristics:** coarse; flexible; drooping; densely crowded

**Twigs:**

**Size:** very stout (0.5" > dia.)

**Color:** orange-brown

**Characteristics:** rough; scaly

**Buds:**

**Size:** large, conspicuous

**Color:** silvery gray base; silvery white fringed scales

**Characteristics:** outward curled scales at base; fuzzy/hairy podlike center

**Cones:**

**Pollen Cones:** dark purple-blue; 1.0" - 1.5" long; large clusters @ base of terminal buds

**Ovulate Cones:** rose-purple; in pairs or clusters (3-4)

**Mature Cones:**

**Size:** 6.0" - 10.0" long

**Shape:** narrowly conical-cylindrical

**Characteristics:** raised scales; keeled on ends; small reflexed prickle that curves toward the base of the scale

**Seed:** winged; 0.5" long; thin pale shell, mottled with dark blotches; wing 0.5" long, striped, oblique at the ends; widest at middle

**Bark:** gray brown; scaly young; becomes broken into flat, scaly, thick reddish brown plates with age

**Physical Attributes:**

**Form:** single stem

**Size:** 120.0', mature

**Growth Rate:** rapid; 40.0' maximum @20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** intolerant

**Drought:** low

**Fire:** medium

**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container

**Other:** no resprout/coppice potential

**Habitat and Ecology:**

**Site:** occurs in a wide variety of upland and flatwood sites; common on sandy, infertile, well-drained soils, mostly below 660 feet elevation

**Soil Texture:** medium - coarse

**Soil pH:** 6.0 - 7.0

**Range:** Atlantic and Gulf Coastal Plains from southeastern Virginia to central Florida; west to eastern Texas; not found in the Mississippi River Valley; to 900' in Alabama; in Mississippi, reported in 16 counties by the NRCS Plants Database --- primarily in the southeastern quarter of the State

**Wildlife Value and Uses:** large seeds eaten by birds and small mammals; germinating seeds eaten by ants; roots of seedlings eaten by razorback hogs; excellent habitat for bobwhite quail, white-tailed deer, wild turkey, and fox squirrel; old-growth stands provide nesting habitat for the red-cockaded woodpecker

**Timber Value and Uses:** largest and most important of the southern yellow pines; wood is often clear, straight, and with few defects; a significant portion of the annual cut is used in the manufacture of kraft paper and paperboard; resins are fractionally distilled and used in the production of many diversified products such as paints, varnishes, pharmaceuticals, lubricants, and cloth-printing inks

**Landscaping Info:** no cultivars are currently recommended; seeds and seedlings commercially available from woody plant seed companies; needles are used for mulch

**Other Facts:** seedlings stemless after one growing season (grass stage) which persists from 2 to many years; during this stage, the seedling develops an extensive root system, and the root collar increases in diameter; as root collar diameter approaches 1.0" diameter, height growth begins

reported that in colonial times some of the choicest stands of longleaf pine were set aside for exclusive use by the British navy because it was ideal for the construction of masts and spars on England's sailing ships



Needles



Young Cones



Mature Cone



Seeds



Bark



Terminal Bud

## Loblolly Pine

Arkansas pine, North Carolina pine,  
oldfield pine

*Pinus taeda* L.

### Needles:

**Type:** needles; 3 per fascicle; evergreen;  
persistent for 3 seasons

**Size:** needles 6.0" - 9.0"; fascicle sheaths  
0.25" - 0.5" long

**Color:** dark green; new growth lighter  
**Characteristics:** stout; stiff; straight; lustrous  
new growth; dull older growth

### Twigs:

**Size:** moderately stout

**Color:** greenish brown; then light brown

**Surface:** rough, flaky on young branches;  
smooth on older branches

### Buds:

**Size:** 0.75" - 1.0" long

**Shape:** scales wedge-shaped

**Color:** reddish brown scales

**Surface:** scales free; commonly reflexed at tips

### Cones:

**Pollen Cones:** yellow-green; 1.0" - 1.5" long; in  
large compact clusters at base of terminal buds

**Ovulate Cones:** pale green; in pairs of 3 to 4  
per cluster; slightly stalked

#### **Mature Cones:**

**Size:** cone 3.0" - 6.0" long

**Shape:** ovoid-conical

**Characteristics:** reddish brown; sessile;  
flattened; wrinkled, armed on the back with a  
short, stout, sharp spine; scales thin, exposed  
portions of closed cone tawny

**Seed:** winged; 0.25" long; dark brown, black  
mottles; wings yellowish brown to gray-black,  
0.75" long; widest above middle

**Bark:** dark gray to nearly black on young trees;  
older trees dark reddish brown, large flat  
rectangular plates

### Physical Attributes:

**Form:** single stem

**Size:** 100.0', mature

**Growth Rate:** rapid; 50.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

#### **Tolerances:**

**Shade:** intolerant

**Drought:** low

**Fire:** high

**Anaerobic:** high

**Propagation:** seed (cold stratification required);  
bare root; container

**Other:** no resprout/coppice potential except for  
young seedlings

### Habitat and Ecology:

**Site:** widely scattered on a variety of sites in the  
coastal plains and lower Piedmont Plateau in  
pure or mixed stands; aggressive on fallow  
fields or cutover sites

**Soil Texture:** fine - coarse

**Soil pH:** 4.5 - 7.0

**Range:** southern New Jersey; south to central  
Florida; west to southeastern Texas and  
southern Oklahoma; in Mississippi throughout  
with the exception of the Mississippi River Delta  
counties

**Wildlife Value and Uses:** primary game  
species that inhabit pine and pine-hardwood  
forests include white-tailed deer, gray and fox  
squirrel, bobwhite quail, wild turkey, mourning  
dove, and rabbit; some species utilize the  
habitat through all stages of stand development;  
others attracted for a short time during a  
particular stage of development; chief habitat  
for the pine warbler, brown-headed nuthatch,  
and Bachman's warbler; old-growth stands  
important to the existence of the red-cockaded  
woodpecker; important nesting site for ospreys  
and the bald eagle

**Timber Value and Uses:** most  
commercially important forest species in the  
southern United States; makes up over one-half  
of the standing pine volume; used for lumber,  
construction timbers, pulp, and plywood;  
considered inferior in quality to longleaf or  
shortleaf but used similarly

**Landscaping Info:** often used in urban  
forestry as shade trees, and for wind and noise  
barriers throughout the South; used extensively  
for soil stabilization; provides rapid growth and  
site occupancy

**Other Facts:** biomass for energy currently  
obtained from precommercial thinnings and  
logging residue; utilization of these sources will  
undoubtedly increase, and loblolly pine energy  
plantations may become a reality



Mature Cone



Needles



Bark



Male



Female

Young Cones



Twig

## Virginia Pine

scrub pine, Jersey pine, spruce pine

*Pinus virginiana* Mill.

### Needles:

**Type:** 2 per fascicle; evergreen; persistent 3-4 seasons

**Size:** 1.5" - 3.0" long; fascicle sheaths 0.13" - 0.25" long

**Color:** yellowish green

**Characteristics:** stout; flexible; twisted

### Twigs:

**Size:** slender

**Color:** light green, waxy bloom; then light gray-brown

**Characteristics:** smooth

### Buds:

**Size:** 0.5" long

**Shape:** sharp-pointed

**Color:** scales red-brown

**Surface:** resinous

### Cones:

**Pollen Cones:** yellow-green, 0.25" - 0.50" long, numerous, in loose clusters

**Ovulate Cones:** clusters of 2-8, often occurring in 2-3 successive clusters in a current season

**Mature Cones:**

**Size:** 1.5" - 2.5" long

**Shape:** ovoid-conic

**Characteristics:** scales thin, armed with sharp, slender prickles, remaining on tree 3-4 yrs

**Seed:** winged; 0.25" long; oval, light brown, pebbly to the touch; wings 0.5" long, brown, broadest near middle

**Bark:** orange-brown, thin, young stems smooth; older stems slightly fissured and scaly

### Physical Attributes:

**Form:** single stem

**Size:** 70.0', mature

**Growth Rate:** rapid; 25.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: intolerant

Drought: high

Fire: high

Anaerobic: low

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential when young

### Habitat and Ecology:

**Site:** heavy clays, sandy and impoverished soils of slopes and flats; often forming pure stands on old fields; also occurring with mixed hardwoods, and other pines

**Soil Texture:** fine - coarse

**Soil pH:** 4.5 - 7.5

**Range:** southern New York; west through central Pennsylvania to southern Ohio and Indiana; south to Kentucky, middle Tennessee, and Mississippi; east to Alabama, Georgia; north to South Carolina; in Mississippi, verified by the NRCS Plants Database in only 4 counties (Tishomingo, Prentiss, Scott, and Amite)

**Wildlife Value and Uses:** wood of older trees frequently softened by fungal decay, provides nesting habitat for woodpeckers; leaving old, decayed trees near the margins of clearcuts provides nesting sites

**Timber Value and Uses:** primarily pulpwood; older, larger trees on better sites suitable for lumber and paneling; of the southern conifers, most preferred as a Christmas tree; performs well when planted on strip-mined sites; satisfactory species for the reclamation of spoil banks in the Southeast

**Landscaping Info:** could be used as a privacy hedge for the same reasons that it is cultivated as a Christmas tree --- rapid growth, dense branching, and soil adaptability

**Other Facts:** commonly a small or medium-sized tree, but a record tree has been measured at 31.8" d.b.h. and 114' tall



Needles



Male



Female

Young Cones



Mature Cone



Bark



Twig

## Pond Cypress

*Taxodium ascendens* Brongr.  
(*T. distichum* var. *nutans* (Aiton) Sweet)

### Needles:

**Type:** spiral; deciduous along with supporting twigs; appressed along ascending branches  
**Size:** 0.13" - 0.25" long  
**Color:** yellow-green  
**Characteristics:** feathery; awl-shaped, or aricular, keeled

### Twigs:

**Size:** slender  
**Color:** light greenish tan; becoming reddish brown  
**Surface:** fibrous; stringy

### Buds:

**Size:** small  
**Shape:** nearly globular  
**Color:** green, then brown to reddish brown  
**Surface:** covered with several overlapping pointed scales

### Cones:

**Pollen Cones:** monoecious; produced in elongated, drooping catkins, 3.0" - 5.0" long  
**Ovulate Cones:** monoecious; composed of several green, overlapping scales, fused at base; solitary or in clusters (2-3) near ends of previous year's twigs; 0.25" long  
**Mature Cones:**  
**Size:** 0.75" - 1.0" dia.  
**Shape:** globular  
**Characteristics:** green, then yellow-brown to reddish brown; scales peltate, leathery; maturing and opening in one year; usually disintegrating  
**Seed:** similar to *T. distichum*

**Bark:** ashy gray to reddish brown; coarse fissures; scaly plates; fibrous strips

### Physical Attributes:

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** slow; 35.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** none  
**Fire:** none  
**Anaerobic:** high

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** occupies the shallow ponds and poorly drained areas of the Coastal Plain and rarely grows in the river and stream swamps as does baldcypress; grows on more acid soils than bald cypress, and it seldom grows on sites that receive periodic subsidies of nutrients from floodwater; almost always are found on flat topography or in slight depressions  
**Soil Texture:** fine - medium  
**Soil pH:** 5.2 - 7.2  
**Range:** southeastern Virginia to southern Florida; west to southeastern Louisiana; in Mississippi, reported by the NRCS Plants Database in only 5 counties --- Hancock, Harrison, Jackson, Lafayette, and Perry

**Wildlife Value and Uses:** pond cypress sites provide the only breeding opportunity for a number of tree frogs, toads, and salamanders; provides nesting sites and habitats for herons, egrets, and many other birds; watering places for the birds, mammals, and reptiles of the surrounding pinelands; serve as recharge areas for surface aquifers

**Timber Value and Uses:** commonly cut and sold with baldcypress timber without distinguishing between them

**Landscaping Info:** occasionally planted as an ornamental because of its interesting form and cinnamon red autumn coloration

**Other Facts:** Cypress is a descendent of a species that covered much of North America some 70 million years ago. Early Native American groups in Florida used cypress wood for fibers, houses, cooking tools, toys, drums, ox bows, and coffins; Choctaw Native Americans used strips of bark to make string and rope; Cache River Basin in southern Illinois contains bald cypress trees that are more than 1,000 years old and are possibly some of the oldest living things east of the Mississippi River. A southern bald cypress outside the city of Oaxaca in Mexico named El Arbol del Tule (*Taxodium mucronatum*), is world famous. It stands about 130 feet tall and 200 feet round, and is estimated to be between 1400 to 1600 years old, making this tree young during the Aztec empire.





**Needles**



**Young**



**Mature**

**Bark**



**Mature**



**Young**

**Cones**



**Tree**

## Bald Cypress

southern-cypress, swamp-cypress, red-cypress, yellow-cypress, white-cypress, tidewater red-cypress

*Taxodium distichum* (L.) Rich.

### Needles:

**Type:** spiral, 2-ranked in one plane, deciduous along with supporting twigs

**Size:** 0.5" - 0.75" long

**Color:** yellow-green

**Characteristics:** feathery; linear; flat

### Twigs:

**Size:** slender

**Color:** light green-tan, becoming reddish brown

**Surface:** somewhat rough; fibrous

### Buds:

**Size:** small

**Shape:** globular

**Color:** reddish brown

**Surface:** several overlapping pointed scales

### Cones:

**Pollen Cones:** monoecious; produced in elongated, drooping catkins, 3.0" - 5.0" long

**Ovulate Cones:** monoecious; composed of several green, overlapping scales, fused at base; solitary or in clusters (2-3) near ends of previous year's twigs; 0.25" long

**Mature Cones:**

**Size:** 0.75" - 1.0" dia.

**Shape:** nearly globular

**Characteristics:** yellow-brown; leathery; disintegrates at maturity; scales club-shaped

**Seeds:** 3-winged; irregularly 3-angled

**Bark:** ashy gray to reddish brown; coarsely fissured; scaly plates; peels into fibrous strips

### Physical Attributes:

**Form:** single stem

**Size:** 130.0', mature

**Growth Rate:** rapid; 45.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

**Shade:** intermediate

**Drought:** low

**Fire:** low

**Anaerobic:** high

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** typically found in permanent swamps in pure stands or with water tupelo; on slightly higher sites found with bottomland hardwoods; best site is deep, moist, sandy loam --- but cannot compete with hardwoods on these "best" sites

**Soil Texture:** fine - coarse

**Soil pH:** 4.6 - 6.0

**Range:** Atlantic and Gulf Coastal Plains, lower Mississippi River Valley and bottom lands of adjacent drainages; in Mississippi, scattered throughout

**Wildlife Value and Uses:** seeds eaten by wild turkey, wood ducks, evening grosbeak, squirrels, waterfowl and wading birds; cypress domes provide unique watering places for a variety of birds and mammals and breeding sites for frogs, toads, salamanders and other reptiles; tops provide nesting sites for bald eagles, ospreys, herons and egrets; yellow-throated warblers forage in the Spanish moss often found hanging on the branches

**Timber Value and Uses:** heartwood is second only to redwood in resistance to decay; has always been in demand for construction timbers, docks, exterior siding, and any similar use where its many unique qualities are an asset; potential for rehabilitating margins of surface-mined lakes; environmentally, riverine swamps of bald cypress reduce damage from floods and act as sediment and pollutant traps

**Landscaping Info:** stately and formal year-round appearance; strongly pyramidal; rapid growth and establishment; wet-site-loving and dry-site-adaptable; ultra-fine-textured foliage (resulting in dappled shade in youth); exfoliating strips of subtly ornamental cinnamon bark; rich cinnamon-brown autumn leaf color; leaf cleanup in autumn minimal or not needed; bark and wood is processed from natural stands in the southeastern U.S. as a slow-decaying, orange-brown mulch

**Other Facts:** resin from cones used locally as an analgesic of skin lesions; knees are collected and used to create tourist appeal crafts; one of the most prized and valuable trees in the original forests of the South; many averaged over 500 yrs old, and often 6 to 8 feet dia.



**Needles**



**Female**



**Male**

**Cones**



**Mature**



**Buttressed  
Base**

**Bark**



**Twig**

## Eastern Hemlock

*Tsuga canadensis* (L.) Carr.

### Needles:

**Type:** 2-ranked, evergreen, persistent

**Size:** 0.33" - 0.66" long

**Color:** yellow-green above; 2 narrow whitish bands of stomates below

**Characteristics:** shiny; linear, flattened; often minutely toothed; slightly notched

### Twigs:

**Size:** slender

**Color:** yellow-brown; becoming reddish brown

**Surface:** pubescent; becoming smooth

### Buds:

**Size:** minute

**Shape:** ovoid

**Color:** reddish brown

**Surface:** covered with several hairy scales

### Cones:

**Pollen Cones:** greenish yellow; <0.25" long; in axils of needles of previous year's twigs

**Ovulate Cones:** light green; 0.25" - 0.5" long; solitary, terminal

**Mature Cones:** scales smooth, nearly circular on the end; short-stalked

**Size:** 0.5" - 0.75" long

**Shape:** oblong-ovoid

**Color:** dull light brown

**Seed:** winged; 0.06" long; resin cysts (2-3); wings pale brown, broad, terminal

**Bark:** cinnamon brown; thin, scaly young; broad scaly ridges, deep fissures older; (purplish and reddish brown tissue in alternating layers visible when blazed)

### Physical Attributes:

**Form:** single stem

**Size:** 105.0', mature

**Growth Rate:** slow; 22.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

Shade: tolerant

Drought: low

Fire: medium

Anaerobic: none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** no resprout/coppice potential

### Habitat and Ecology:

**Site:** adapts to a variety of soil types; best on cool moist sites; in the South most abundant along mountain slopes and streams; most commonly with hickories, yellow poplar, basswood, and oaks

**Soil Texture:** medium - coarse

**Soil pH:** 4.2 - 5.7

**Range:** New Brunswick and Nova Scotia to southern Quebec and Ontario; west in the lake states to Minnesota with outliers in southern Michigan, western Ohio, and southern Indiana; southwest through eastern Kentucky and Tennessee, to northern Georgia and Alabama; in Mississippi; northeastern corner of the State

**Wildlife Value and Uses:** considered important as shelter and cover for white-tailed deer and other wildlife species, such as turkey, ruffed grouse, and others

**Timber Value and Uses:** wood used in the past for light framing, roofing, boxes and crates, and pulping; tends to be brittle; not presently important as a timber tree; commercial stands greatly reduced by prior harvesting and lack of restocking

**Landscaping Info:** can be used as a specimen, screen, or group planting, and can be sheared over time into a formal evergreen hedge, which is densely leafy all the way to the ground, but must be repeatedly pruned to keep it in size; numerous cultivars including compact shrubs, dwarfs, form mutants (weeping, fastigate, prostrate, etc.), color mutants (variegated), and graceful trees; most serious damaging agents to the species are drought, and the hemlock woolly adelgid that can kill trees of all ages especially during the seedling stage, and most recently insect damage.

**Other Facts:** early valued for its bark, an important source of tannin for the leather industry; stripping simplified by felling trees into lakes; logs later extracted from northern lakes and milled; cambium used by Native Americans as the base for breads and soups or mixed with dried fruit and animal fat for pemmican (concentrated food); tea made from leaves (high vitamin C content) by Native Americans and white settlers

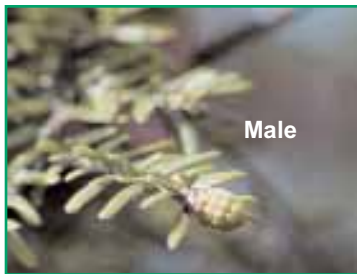
may take 250 to 300 years to reach maturity and may live for 900 years or more



Needles



Mature Cone



Male



Bark



Female

Young Cones



Twig

## Winged Elm

cork elm, wahoo

*Ulmus alata* Michaux

### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 1.5" - 3.5" long; 1.0" - 1.5" wide

**Margin:** coarsely doubly serrate

**Apex:** acute to acuminate

**Base:** unequally rounded or cordate

**Shape:** oblong-lanceolate

**Color:** dark green above; paler below

**Surface:** smooth above; pubescent below

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** current season gray-brown to red-brown

**Surface:** generally glabrous; pubescent where vigorous growth present; 2 corky wings

### Buds:

**Size:** terminal bud absent; laterals, 0.13" long

**Shape:** ovoid, acute

**Color:** dark brown scales

**Surface:** glabrous to slightly pubescent

### Fruit and Flowers:

**Samara:** single flattened seed; narrow wing; seed cavity, wing, and margin hairy; apex notched

**Size:** 0.33" long

**Shape:** oval to oblong

**Color:** orange-red

**Flower:** monoecious; perfect; apetalous; long-stalked; in clusters of 3-5; bell-shaped calyx, yellowish red; orange-red anthers; pistil, green and woolly; flower 0.13" dia.

**Bark:** pale brown-gray; shallow fissures; flat superficially scaly ridges

### Physical Attributes:

**Form:** single stem

**Size:** 65.0', mature

**Growth Rate:** moderate; 30.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

**Shade:** tolerant

**Drought:** low

**Fire:** low

**Anaerobic:** none

**Propagation:** seed (no cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** usually on dry, gravelly soils at low elevations; with less frequency near streams, on alluvial flats, and swamps

**Soil Texture:** fine-medium

**Soil pH:** 5.0 - 7.0

**Range:** southern Virginia; west to Kentucky, southern Indiana, Illinois, and central Missouri; south to central Oklahoma and southeastern Texas; east to central Florida; in Mississippi, throughout

**Wildlife Value and Uses:** mast eaten by birds and animals; twigs and leaves are important for white-tailed deer (most succulent, nutritious, and digestible during spring, and less useful as food the rest of the year because after abscission, the leaves lose most of their quality and digestibility)

**Timber Value and Uses:** lumber is mixed with other elms; used principally for furniture, hardwood dimension, flooring, boxes, and crates; excellent resistance to splitting has made it a choice wood for the manufacture of high quality hockey sticks; increased demand for elm in the manufacture of "bent" parts on chairs such as rockers and arms

**Landscaping Info:** favorite ornamental and street tree in many southern communities; relatively easy to maintain; pleasant shape; susceptible to elm necrosis

**Other Facts:** inner bark used locally as baling twine in the past



Bark



Leaf



Flower



Fruit



Twig

## American Elm

white elm, water elm, soft elm, Florida elm

*Ulmus americana* L.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 4.0" - 6.0" long; 2.0" - 3.0" wide  
**Margin:** coarsely doubly serrate  
**Apex:** acute - acuminate  
**Base:** rounded-inequilateral  
**Shape:** oblong-ovate  
**Color:** dark green above; paler below  
**Surface:** smooth above; pubescent (rarely glabrous) below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** current season red-brown to dark brown  
**Surface:** smooth to sparsely pubescent; leaf scars semi-circular, raised; 3 bundle scars

### Buds:

**Size:** terminal bud absent; laterals 0.25" long  
**Shape:** ovoid, acute  
**Color:** scales light brown with dark edges  
**Surface:** glabrous

### Fruit and Flowers:

**Samara:** winged; hairy on wing margin; flattened seed  
**Size:** 0.5" long  
**Shape:** oval to obovate; deep terminal notch  
**Color:** green, occasionally orange-red  
**Flower:** monoecious; perfect; apetalous; long-stalked, in clusters of 3-4; flower, 0.13" long; calyx, bell-shaped, reddish green; anthers, bright red; pistil, pale green, compressed

**Bark:** light to medium gray; broad flat ridges formed by deep diamond-shaped or elliptical fissures; when blazed exhibits alternating layers of buff colored and reddish brown tissue

### Physical Attributes:

**Form:** single stem  
**Size:** 120.0', mature  
**Growth Rate:** rapid; 50.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** medium  
**Fire:** low  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container; cuttings  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** flood plains, moist fertile slopes, margins of wet areas (streams, ponds and lakes), and drier uplands in association with other hardwood species  
**Soil Texture:** fine - coarse  
**Soil pH:** 5.5 - 8.0  
**Range:** Montana; south through Wyoming, Nebraska, Kansas, Oklahoma and Texas; all states east; in Mississippi, throughout

**Wildlife Value and Uses:** although not considered a "preferred" browse, deer, rabbit, and hares will occasionally browse the leaves and twigs; seeds are eaten by a number of small birds; flowerbud, flower, and fruit are eaten by mice, squirrel, opossum, ruffed grouse, northern bobwhite, and Hungarian partridge; provides thermal cover and nesting sites for a variety of primary and secondary cavity nesters

**Timber Value and Uses:** wood is moderately heavy, hard, has interlocked grain, and is difficult to split; used principally for furniture, hardwood dimension, flooring, and construction; a small quantity used for pulp and paper manufacture

**Landscaping Info:** prized for its use as a street tree; fast growing, hardy, stress tolerant, and appreciated for its characteristic vase-like crown; flowers before leafout in the spring thus giving some of the earliest spring color

**Other Facts:** Dutch elm disease and elm necrosis have reduced *Ulmus americana* from a species that once comprised a significant percentage of American forestland to one that is struggling for survival





Leaf



Bark



Flower



Fruit



Twig

## Cedar Elm

**basket elm, red elm, southern rock elm, or olmo (Spanish)**

*Ulmus crassifolia* Nutt.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 1.0" - 2.0" long; 0.5" - 1.0" wide  
**Margin:** coarsely and doubly serrate  
**Apex:** rounded or acute  
**Base:** unequally cuneate or oblique; occasionally rounded  
**Shape:** narrowly ovate to elliptical  
**Color:** dark green above; paler below  
**Surface:** lustrous above; silky hairs below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** current season light reddish brown  
**Surface:** somewhat pubescent; minute lenticels; lustrous brown corky wings; leaf scars semi-circular and elevated

### Buds:

**Size:** terminal bud absent; laterals, 0.13" long  
**Shape:** broadly ovoid and sharp-pointed  
**Color:** chestnut brown  
**Surface:** overlapping scales, slightly hairy

### Fruit and Flowers:

**Samara:** flattened seed; surrounded by broad, hairy wing; deep terminal notch  
**Size:** 0.5" long  
**Shape:** oblong  
**Color:** green  
**Flower:** monoecious; perfect; apetalous; short-stalked, in axillary clusters of 3-5; calyx, bell-shaped, green to reddish green; anthers, red to purplish red; pistil, greenish, pubescent, compressed

**Bark:** silver-gray to brown-gray, often with a purplish tint; not fissured; thin, flat, brittle scales, loose at the edges

### Physical Attributes:

**Form:** single stem  
**Size:** 90.0', mature  
**Growth Rate:** rapid; 35.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** medium  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** flood plains, alluvial flats; stream margins in association with other hardwoods  
**Soil Texture:** fine - coarse  
**Soil pH:** 5.5 - 7.5  
**Range:** extreme southwestern Tennessee, Arkansas, and eastern and southern Oklahoma; south to central and southern Texas into the adjacent northeastern Mexican states of Nuevo Leon and Tamaulipas; east to Louisiana and western Mississippi; isolated population in northern Florida; in Mississippi, reported by the NRCS Plants Database in Coahoma, Washington, Sharkey, Yazoo, Holmes, Carroll, and Leflore Counties

**Wildlife Value and Uses:** seeds provide food for many bird species; buds and seeds make up 5 to 10 percent of the wild turkey's diet in Texas; squirrel also eat the buds

**Timber Value and Uses:** strong wood; exceptional shock resistance; specific gravity and shrinkage similar to rock elm; most suitable for the manufacture of furniture and fence posts; excellent for steam bending, therefore used to make containers such as boxes, baskets, crates, and barrels; also caskets, and dairy, poultry, and apiary supplies; usually classified and harvested with other elms having similar characteristics (rock elm, winged elm, and September elm)

**Landscaping Info:** often planted as an ornamental especially in Texas where it is "common"; positives are drought resistance, urban tolerance, and adaptability to a wide range of soil textures and fertilities; negatives include susceptibility to Dutch elm disease, elm necrosis, and fall allergy irritation for those affected

**Other Facts:** smallest leaves of any native elm and is one of two that flower in the fall; leaves can be used as indicators of the severity of air pollution by the sulfate content of leaf samples which is related to overall pollution levels



Bark



Leaf



Flower



Fruit



Twig

## Slippery Elm

### red elm

*Ulmus rubra* Muhl.

#### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 5.0" - 7.0" long; 2.0" - 3.0" wide  
**Margin:** coarsely doubly serrate  
**Apex:** acuminate  
**Base:** broadly rounded, inequilateral  
**Shape:** obovate, ovate, or broadly elliptical  
**Color:** dark green above; paler below  
**Surface:** scabrous above; pubescent below  
**Venation:** pinnate

#### Twigs:

**Size:** moderately stout  
**Color:** current season, gray  
**Surface:** scabrous; raised lenticels; leaf scars, semicircular to oval, raised

#### Buds:

**Size:** terminal bud absent; lateral flower buds 0.25" long  
**Shape:** flower subglobose; leaf ovoid  
**Color:** flower scales rusty red  
**Surface:** overlapping flower scales (10-12) with woolly hairs

#### Fruit and Flowers:

**Samara:** flattened seed; broad wing with netted veins; margin smooth; apex, notched, rounded, or depressed  
**Size:** wing 0.75" long  
**Shape:** oval to orbicular  
**Color:** green  
**Flower:** monoecious; perfect; apetalous; short-stalked to nearly sessile; in 3-flower clusters; calyx bell-shaped, green, pubescent, with yellow filaments and reddish purple anthers; flower 0.13" dia.

**Bark:** dark red-brown to pale gray; flat, superficially scaly; interlacing ridges; shallow to moderate fissures; inner bark uniformly red-brown; fragrant; mucilaginous when blazed

#### Physical Attributes:

**Form:** single stem  
**Size:** 85.0', mature  
**Growth Rate:** rapid; 45.0' maximum @ 20 yrs  
**Life Span:** moderate; (>50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** medium  
**Fire:** (no data)  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** moist, rich soils of lower slopes and flood plains; may also grow on dry hillsides with limestone soils; abundant and associated with many other hardwood trees in its wide range  
**Soil Texture:** fine - coarse  
**Soil pH:** 5.5 - 7.0  
**Range:** southern Maine and southern Quebec to eastern North Dakota; south to eastern Texas; west to Florida; in Mississippi, throughout

**Wildlife Value and Uses:** nesting for birds in the thick elm foliage; seeds and buds are food for songbirds, game birds, and squirrel; twigs browsed by deer and rabbit

**Timber Value and Uses:** not an important lumber tree; hard strong wood, but considered inferior to American elm even though often mixed and sold together as soft elm; used commercially for making furniture, paneling, and containers;

**Landscaping Info:** somewhat available through native plant nurseries within its range; susceptible to elm necrosis

**Other Facts:** common name comes from a slippery inner bark; used by numerous Native American tribes for everything from roofing and siding material to rope, bags, baskets, tea, and eye wash; inner bark valued by pioneers as a thirst quencher and appetite suppressant; found today in health food stores and is used to relieve sore throats, coughs and other bronchial ailments, as well as a laxative (Note: there is some evidence that trees are being killed in parts of its range through the stripping of bark for these purposes)



Leaf



Fruit



Bark



Flower



Twig

## September Elm

### red elm

*Ulmus serotina* Sarg.

#### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 3.0" - 4.0" long; 1.0" - 2.0" wide

**Margin:** doubly serrate-crenate

**Apex:** acute to acuminate

**Base:** extremely unequal

**Shape:** obovate-oblong to oblong

**Color:** yellow-green above; paler below

**Surface:** lustrous, glabrous above; pale pubescence on principal veins and midrib below

**Venation:** pinnate

#### Twigs:

**Size:** slender

**Color:** current season, brown

**Surface:** lustrous; occasionally somewhat hairy; 2nd and 3rd seasons characterized by 2-3 corky wings

#### Buds:

**Size:** terminal bud absent; laterals, 0.25" long

**Shape:** ovoid, sharp-pointed

**Color:** dark brown

**Surface:** glabrous, overlapping scales

#### Fruit and Flowers:

**Samara:** flattened seed; narrow wing; deep terminal notch; silver-white hairs on seed hull and wings

**Size:** 0.5" long

**Shape:** elliptical to oblong

**Color:** light green

**Flower:** monoecious; perfect; apetalous; in few- to many-flowered racemes; on short jointed stalks in leaf axils; greenish white (orangish anthers); flower 0.13" long

**Bark:** light grayish brown or red-brown; shallow fissures and flat ridges

#### Physical Attributes:

**Form:** single stem

**Size:** 70.0', mature

**Growth Rate:** rapid; 30.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

#### Tolerances:

Shade: tolerant

Drought: medium

Fire: low

Anaerobic: none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** most frequently on moist clay or sandy loam soils, but also grows on dry, rocky soils of limestone origin

**Soil Texture:** fine - coarse

**Soil pH:** 5.5 - 8.0

**Range:** grows sporadically from southern Illinois across Kentucky and Tennessee to northern Georgia, northern Alabama, northern Mississippi, Arkansas, and eastern Oklahoma; most abundant in Arkansas and Tennessee; in Mississippi, only reported by the NRCS Plants Database in Rankin, Oktibbeha, and Monroe Counties - but likely occurs elsewhere in the State

**Wildlife Value and Uses:** seeds eaten by a variety of birds and small mammals, including squirrel; twigs and buds are sometimes browsed by deer, and a few game birds eat the buds

**Timber Value and Uses:** lumber is cut and sold with four other elm species and marketed as rock elm; lower portions of large trees may provide logs of veneer quality; wood is reddish brown, hard, close-grained, and very strong; can be polished to a high luster; excellent bending qualities

**Landscaping Info:** planted in landscapes, but succumbs to Dutch elm disease and elm necrosis

**Other Facts:** species may be more widely distributed and abundant than reported as a result of misrecognition as one of a number of "rock elms" with similar characteristics; one of only two elms that flowers after leafout



Leaf



Bark



Flower



Fruit



Twig

## Water Hickory

### bitter pecan

*Carya aquatica* (F. Michaux) Nutt.

#### Leaves:

**Type:** pinnately compound, alternate, deciduous

**Size:** 9.0" - 15.0" long; leaflets (9-17), 2.0" - 5.0" long, 0.5" - 1.5" wide; terminal leaflet often scythe-shaped

**Margin:** finely serrate

**Apex:** acuminate

**Base:** asymmetrical and oblique

**Shape:** ovate-lanceolate, long-pointed

**Color:** dark green above; brown below

**Surface:** glabrous above; lustrous below, or tomentose along the midrib and veins

**Venation:** pinnate

#### Twigs:

**Size:** slender

**Color:** brown, reddish brown, or black

**Surface:** tomentose; then glabrous; heart-shaped leaf scars; numerous bundle scars

#### Buds:

**Size:** terminal bud 0.25" - 0.50" long

**Shape:** oblong;

**Color:** yellowish brown

**Surface:** 4 - 6 valvate bud scales, pubescent

#### Fruit and Flowers:

**Nut:** husk 0.06" thick, yellow scales, narrow wing along sutures, split along entire length; nut, flattened; seed bitter

**Size:** 0.75" - 1.25" long

**Shape:** elliptical

**Color:** chocolate brown

**Flower:** monoecious; unisexual; staminate, 3-branched, yellow, catkins, 2.5" - 3.0" long; pistillate flower, solitary or in spikelike clusters of 2-10 flowers per cluster; flower < 0.25" long

**Bark:** light gray to brown; smooth young; scaly small plates mature

#### Physical Attributes:

**Form:** single stem

**Size:** 100.0', mature

**Growth Rate:** slow; 30.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** intermediate

**Drought:** medium

**Fire:** medium

**Anaerobic:** medium

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** best growth on moist but well-drained loamy or silty soils in the Mississippi River Valley and along some coastal plain streams

**Soil Texture:** fine - coarse

**Soil pH:** 4.0 - 7.0

**Range:** Atlantic and Gulf Coastal Plains from southeastern Virginia to southern Florida; west into eastern Texas, and the Mississippi Valley; north to southern Illinois; in Mississippi, most common in the northern half of the State

**Wildlife Value and Uses:** increasingly recognized for its ability to cleanse drainage water and provide refuge for many threatened species of plants and animals; nuts used to a limited extent by squirrel, feral hogs, and other wildlife; least preferred species by mammals; substantial quantities consumed by water fowl and wood ducks

**Timber Value and Uses:** minor economic importance because of "shake" (dimensional instability); hard, brittle wood; fuelwood is primary use

**Landscaping Info:** consider when planting for the amelioration of drainage problems; resembles pecan but smaller; makes a good shade tree

**Other Facts:** differentiated from cultivated pecan (*C. illinoensis*) by the pubescent leaflets and flattened nut of *C. aquatica*

bitter pecan (*Carya x lecontei*) is currently regarded as a hybrid between *C. illinoensis* and *C. aquatica*





Leaf



Bark



Fruit



Twig

## Southern Shagbark Hickory

### Carolina hickory

*Carya carolinae-septentrionalis* (Ashe) Engl. & Graebn.

#### Leaves:

**Type:** pinnately compound, alternate, deciduous

**Size:** 4.0" - 8.0" ; leaflets (3-5), upper leaflets 3.0" - 4.0" long, 1.0" - 1.5" wide

**Margin:** coarsely serrate

**Apex:** acuminate

**Base:** acuminate (asymmetric-symmetric)

**Shape:** lanceolate

**Color:** dark green above; yellow-green below

**Surface:** glabrous, ciliate above; lustrous below

**Venation:** pinnate

#### Twigs:

**Size:** slender

**Color:** red-brown, becoming dull gray-brown

**Surface:** leaf scars, truncate or slightly obcordate; numerous small pale lenticels

#### Buds:

**Size:** 0.25"

**Shape:** cylindrical

**Color:** red-brown, turning black when dry

**Surface:** shiny, black scales (diagnostic aid)

#### Fruit and Flowers:

**Nut:** husk 0.13" - 0.38" thick; splitting freely nearly to base; yellowish brown

**Size:** 0.75" - 1.5" wide, short-oblong (wider than long), slightly depressed at apex

**Shape:** ovoid; compressed; prominently 4-angled; acute at ends

**Color:** pale brown to white

**Flower:** monoecious; unisexual; staminate, hairy, yellow catkins, 4.0" - 5.0" long; pistillate flowers, 2- to 5-flowered rusty red woolly spikes

**Bark:** light gray; separating into thick plates (0.25" - 0.75"), up to 1.0' long

#### Physical Attributes:

**Form:** single stem

**Size:** 80.0', mature

**Growth Rate:** slow, 15.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

**Shade:** intermediate - tolerant

**Drought:** medium

**Fire:** high

**Anaerobic:** intolerant

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** dry limestone hills, river bottoms, and low flat often inundated woods, frequently in clay soil;

**Soil Texture:** medium - coarse

**Soil pH:** 4.0 - 7.0

**Range:** central North Carolina to northern Georgia; through western North Carolina to eastern Tennessee; in Cullman and Dallas Counties, Alabama, and eastern Mississippi

**Wildlife Value and Uses:** food for many wildlife species; preferred food of squirrel; 5 to 10 percent of the diet of the eastern chipmunk; black bear, gray and red fox, rabbit, and white-footed mice utilize small amounts of hickory nuts; not a preferred browse food of deer or cattle

**Timber Value and Uses:** contributes only a very small percentage of total biomass of a given forest stand; when harvested it is generally mixed with shagbark hickory (*C. ovata*)

**Landscaping Info:** best used in parks and estates; too slow-growing to be a good selection for yard landscaping

**Other Facts:** nuts historically a staple for many North American Indian tribes; mashed with water, then used as "hickory milk" to make breads and cakes; served like butter on vegetables; sugar and syrup can be made from the sap, as with sugar maple (*Acer saccharum*)



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

## Bitternut Hickory

*Carya cordiformis* (Wangenh.) K.

### Leaves:

**Type:** pinnately compound, alternate, deciduous

**Size:** 6.0" - 10.0" long; leaflets (7-11), 3.0" - 6.0" long, 1.0" - 0.125" wide

**Margin:** coarsely serrate

**Apex:** acuminate

**Base:** cuneate or subcordate

**Shape:** lanceolate to ovate-lanceolate

**Color:** bright green above; pale green below

**Surface:** glabrous above; pubescent or glabrous below

**Venation:** pinnate

### Twigs:

**Size:** slender to moderately stout

**Color:** gray-brown to greenish brown

**Surface:** hairy through early summer, then glabrous; numerous oblong pale lenticels

### Buds:

**Size:** 0.50" long

**Shape:** oblong

**Color:** sulfur yellow to tan

**Surface:** scales valvate, 4-angled, pubescent near apex

### Fruit and Flowers:

**Nut:** husk thin; yellowish surface hairs; wing narrow along sutures; split part way to base

**Size:** 1.0" - 1.25" long

**Shape:** globose, slightly flattened

**Color:** nut reddish brown

**Flower:** monoecious; unisexual; staminate catkins, green, 3-branched, 3.0" - 4.0" long; pistillate catkins solitary or paired, yellowish, woolly

**Bark:** light brown to gray; tight; shallow furrows; flattened interlacing ridges

### Physical Attributes:

**Form:** single stem

**Size:** 100.0', mature

**Growth Rate:** moderate; 30.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: intolerant

Drought: high

Fire: medium

Anaerobic: low

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** moist soils of valleys and slopes in the mountains and along streams, river bottoms and flood plains in the Piedmont and Coastal Plain

**Soil Texture:** fine - coarse

**Soil pH:** 4.0 - 7.4

**Range:** southeastern Maine to central Minnesota; south to Florida; west through Kansas and Nebraska to eastern Texas; in Mississippi, scattered throughout the northern two-thirds of the State

**Wildlife Value and Uses:** fruit generally considered unpalatable to wildlife; bark occasionally fed on by rabbit, beaver, and small rodents; nesting sites for a variety of cavity-nesting birds

**Timber Value and Uses:** tools, furniture, paneling, dowels, ladders, charcoal and fuelwood; valuable species for watershed protection and reclamation of disturbed sites because of deep lateral roots

**Landscaping Info:** desirable as an ornamental or shade tree; dense root system provides good soil stability; will handle a wide range of soil textures and pH values; routinely available commercially

**Other Facts:** oil extracted from the nuts used by early settlers for oil lamps and as a cure for rheumatism



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

**Pignut Hickory**  
sweet pignut, coast pignut hickory,  
broom hickory, smoothbark hickory  
*Carya glabra* (P.Mill.) Sweet

**Leaves:**

**Type:** pinnately compound, alternate, deciduous

**Size:** 8.0" - 12.0" long; leaflets (5-7), 4.0" - 6.0" long, 2.0" - 3.0" wide

**Margin:** finely serrate

**Apex:** acute - long-tapered

**Base:** rounded

**Shape:** lanceolate

**Color:** yellow-green above; paler below

**Surface:** glabrous above; glabrous below, occasionally pubescent along midrib

**Venation:** pinnate

**Twigs:**

**Size:** stout

**Color:** reddish brown

**Surface:** glabrous; pale lenticels; leaf scars heart-shaped; many bundle scars

**Buds:**

**Size:** 0.50" long

**Shape:** ovoid to nearly globular

**Color:** reddish brown; inner scales tawny

**Surface:** glabrous; inner scales pubescent

**Fruit and Flowers:**

**Nut:** husk pear-shaped; neck at base, <0.13" thick; splitting only part way; seed small, sweet

**Size:** 0.75" - 1.25" long

**Shape:** subglobose

**Color:** green, brown

**Flower:** monoecious; unisexual; staminate, 3-branched, yellow catkins, 2.0" - 2.5" long; pistillate flowers in few-flowered woolly spikes

**Bark:** gray; tight and nearly smooth when young; mature, shallow fissures in a close irregular diamond-shaped pattern

**Physical Attributes:**

**Form:** single stem

**Size:** 75.0', mature

**Growth Rate:** slow; 30.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: intermediate

Drought: high

Fire: medium

Anaerobic: none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** common on upland slopes and ridges; in the South occasionally found on bottomland sites

**Soil Texture:** medium - fine

**Soil pH:** 4.0 - 7.4

**Range:** Illinois; south to Missouri, Arkansas and Louisiana; east and south into central Florida; north to southern Pennsylvania, New York, to Vermont; in Mississippi, broadly scattered throughout the State

**Wildlife Value and Uses:**

nuts may comprise 10 to 25 percent of squirrel diets in some locations, and 5 - 10% of the eastern chipmunk's diet; also eaten by black bear, gray fox, raccoon, red squirrel, pocket mouse, woodrat, and rabbit; eaten by many birds including the woodduck, ring-necked pheasant, northern bobwhite, wild turkey, common crow, bluejay, white-breasted nuthatch, red-bellied woodpecker, and yellow-bellied sapsucker; browse has low palatability value

**Timber Value and Uses:** sporting goods, agricultural implements, tool handles, shuttle blocks, mallets, and mauls; wood is heavy, hard, strong, tough, and elastic

**Landscaping Info:** under utilized as a landscape tree; drought tolerant; will grow on soils from acid to somewhat alkaline; provides texture variation when mixed with evergreen oaks; good fall color (yellow); windfirm, and resistant to ice damage

**Other Facts:** historical uses include broomhandles, skis, wagon wheels and, automobile parts

Note: Swamp hickory is considered by some as a separate species (*C. leioderms*). It has very tight, smooth bark and occurs on bottomland sites and terraces. Most authorities indicate it is a form of *C. glabra*.



Leaf



Fruit



Bark



Flower



Twig

## Pecan

**sweet pecan, nogal morado (Spanish)**

*Carya illinoensis* (Wangenh.) K. Koch.

### Leaves:

**Type:** pinnately compound, alternate, deciduous

**Size:** 10.0" - 20.0" long; leaflets (9-17), 4.0" - 8.0" long, 1.0" - 2.0" wide

**Margin:** serrate or doubly serrate

**Apex:** acuminate

**Base:** unequally rounded or wedge-shaped

**Shape:** lanceolate

**Color:** dark yellowish green above; paler green below

**Surface:** glabrous above; pubescent early, then glabrous below

**Venation:** pinnate

### Twigs:

**Size:** moderately stout

**Color:** reddish brown; orange-brown lenticels

**Surface:** pubescent

### Buds:

**Size:** 0.5" long

**Shape:** acute

**Color:** yellowish brown

**Surface:** valvate scales

### Fruit and Flowers:

**Nut:** husk thin-skinned; 4-winged from base to apex

**Size:** 1.5" - 2.5" long

**Shape:** ellipsoidal; smooth or slightly 4-ridged

**Color:** reddish brown

**Flower:** monoecious; unisexual; staminate, 3-branched, green catkins, 3.0" - 5.0" long; pistillate, in few- to several-flowered spikes, yellow, hairy, slightly 4-angled

**Bark:** light brown to gray-brown; narrow fissures; flattened, interlacing, scaly ridges

### Physical Attributes:

**Form:** single stem

**Size:** 140.0', mature

**Growth Rate:** slow; 35.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

**Shade:** intolerant

**Drought:** low

**Fire:** low

**Anaerobic:** none

**Propagation:** seed (no cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** commonly on well-drained loam soils not subject to prolonged flooding; does appear on heavy textured soils, but is limited to alluvial soils of recent origin with best development on the ridges and well-drained flats

**Soil Texture:** fine - coarse

**Soil pH:** 5.0 - 7.3

**Range:** principally in the lower Mississippi Valley; southwestern Indiana to southeastern Iowa; south through western Tennessee to central Alabama; west to east and central Texas; north to southeastern Kansas; also grows locally in northeastern and central Mexico; in Mississippi, reported by the NRCS Plants Database in the counties of Desoto, Lafayette, Union, Wayne, Coahoma, Boliver, Washington, Holmes, Yazoo, Warren, Madison, Copiah, Wilkinson, and Amite; planted/naturalized throughout much of the southeastern U.S.

**Wildlife Value and Uses:** nuts eaten by a number of birds; also fox and gray squirrel, opossum, raccoon, and peccaries

**Timber Value and Uses:** furniture, cabinetry, paneling, pallets, and veneer; commercial edible nut

**Landscaping Info:** excellent multipurpose tree for the home landscape; planted throughout the South as an ornamental and for its fruit; will grow over a wide range of soil textures and pH values; subject to breakage; high maintenance (spraying) due to numerous pest and disease problems

**Other Facts:** native pecans were present over wide areas when settlers arrived in America; native pecans used as sources of new varieties and as stock for selected clones





**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

**Shellbark Hickory**  
**bigleaf shagbark, kingnut,**  
**big shellbark, bottom shellbark,**  
**thick shellbark,**  
*Carya laciniosa* Schneid.

**Leaves:**

**Type:** pinnately compound, alternate, deciduous  
**Size:** 12.0" - 24.0" long; leaflets (5-9), usually 7, 5.0" - 9.0" long, 3.0" - 5.0" wide  
**Margin:** finely serrate  
**Apex:** acute to long-tapered  
**Base:** wedge-shaped or unequally rounded  
**Shape:** obovate  
**Color:** dark green above; yellow-green below  
**Surface:** lustrous above; velvet pubescence below  
**Venation:** pinnate

**Twigs:**

**Size:** stout  
**Color:** dark brown  
**Surface:** pubescent, pale elongated lenticels; leaf scars triangular to half-round

**Buds:**

**Size:** 0.75" long  
**Shape:** broadly ovoid  
**Color:** tan  
**Surface:** 3 - 4 dark brown overlapping, hairy scales

**Fruit and Flowers:**

**Nut:** husk; orange-brown, unwinged, dehiscent, 0.25" - 0.50" thick; nut ribbed (4-6); seed, sweet  
**Size:** 1.0" - 2.0" long  
**Shape:** globular to ellipsoidal  
**Color:** light reddish brown to yellowish brown  
**Flower:** monoecious; unisexual; staminate, 3-branched, hairy, yellow catkins, 5.0" - 8.0" long; pistillate flower, in 2- to 5-flowered spikes

**Bark:** light gray; fissured; separating into thick, broad plates; shaggy

**Physical Attributes:**

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** moderate; 35.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** medium  
**Anaerobic:** medium

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** deep, rich, moist, alluvial soils; on upland slopes and flats in the northern limit of its range  
**Soil Texture:** medium only  
**Soil pH:** 6.4 - 7.4  
**Range:** widely distributed but nowhere common; Maine; south to northwestern Florida; west through the northern portions of the Gulf coastal states to Texas; north through northeastern Oklahoma and eastern Nebraska to southeastern Minnesota; in Mississippi, reported by the NRCS Plants Database in Desoto, Pontotoc, Tishomingo, Bolivar, Oktibbeha, Lowndes, Noxubee, and Jasper Counties; likely in other areas as well

**Wildlife Value and Uses:** nuts are eaten by ducks, quail, wild turkey, squirrel, chipmunks, deer, fox, raccoon, and white-footed mice

**Timber Value and Uses:** furniture, tool handles, sporting goods, veneer, fuelwood, and charcoal; a few plantations established for commercial nut production

**Landscaping Info:** routinely commercially available; resistant to snow and ice damage; susceptible to frost damage; largest and tastiest nuts of the North American hickories; sometimes crossed with pecan to produce Hicans; very good long-lived landscape tree

**Other Facts:** used by Cherokee Indians as an analgesic, gastrointestinal aid, and general disease remedy (D.E. Moerman 1986)

Note: often confused with shagbark hickory, but usually has 7 leaflets, bark plates are longer, and it is more common on bottomland sites in the South; largest nut of all the hickories - often the size of a walnut; tree in some places called "gollywhopper" because of nut size



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

## Nutmeg Hickory

swamp hickory, bitter water hickory  
*Carya myristiciformis* (F. Michaux) Nuttall

### Leaves:

**Type:** pinnately compound, alternate, deciduous  
**Size:** 7.0" - 14.0" long; leaflets (7-9), 4.0" - 5.0" long, 1.0" - 1.5" wide  
**Margin:** coarsely serrate  
**Apex:** acuminate  
**Base:** cuneate or rounded (equal-unequal)  
**Shape:** ovate-lanceolate to broadly obovate  
**Color:** dark green above; silvery white below  
**Surface:** glabrous above; slightly pubescent, lustrous below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** brown to bronze  
**Surface:** densely scaly

### Buds:

**Size:** 0.16" - 0.24" long  
**Shape:** ovoid  
**Color:** bronze  
**Surface:** densely scaly; scales valvate

### Fruit and Flowers:

**Nut:** husk 4-ridged to the base; ridges broad and thick; 1.5" long; yellow-brown; scurfy pubescence; thin (0.03")  
**Size:** 1.0" long; 0.75" wide  
**Shape:** ellipsoidal or slightly obovoid  
**Color:** dark reddish brown; variegated with gray at the ends  
**Flower:** monoecious; unisexual; staminate, catkin, dark brown scurfy pubescence, yellow anthers, 3.0" - 4.0" long; pistillate, oblong, narrowed ends; slightly 4-angled, thick, brown, scurfy pubescence

**Bark:** dark brown tinged with red; irregularly broken into small thin appressed scales

### Physical Attributes:

**Form:** single stem  
**Size:** 95.0', mature  
**Growth Rate:** slow; 30.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** low  
**Fire:** high  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** banks of rivers and swamps in rich moist soil, or rarely on higher ground  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.5 - 6.5  
**Range:** scattered in a few areas in eastern South Carolina, central Alabama and Mississippi, northern Louisiana, southern Arkansas, eastern Texas, and northern Mexico; abundant only near Selma, AL, and in southern Arkansas; in Mississippi, reported by the NRCS Plants Database in the counties of Oktibbeha, Noxubee, and Jasper - likely in other counties especially in the Blackland Prairie

**Wildlife Value and Uses:** nuts relished by squirrel - begin cutting them while they are still green; also eaten by other rodents and wildlife

**Timber Value and Uses:** too scattered and rare to be of significant economic value; not distinguished from other hickories when harvesting

**Landscaping Info:** attractive bark; handles a wide range of soil textures; available commercially; negative is slow growth; should be preserved in landscape when found and identified for protection, as it is a rare tree

**Other Facts:** rarest species in the genus



**Bark**



**Leaf**



**Twig**



**Fruit**

## Red Hickory

### sweet pignut

*Carya ovalis* Sarg. (*C. glabra* var. *odorata*)

#### Leaves:

**Type:** pinnately compound, alternate, deciduous

**Size:** 6.0" - 10.0" long; leaflets (5-7), 6.0" - 7.0" long, 1.0" - 2.0" wide

**Margin:** finely or obscurely serrate

**Apex:** acuminate, rarely rounded

**Base:** unequally rounded

**Shape:** lanceolate

**Color:** dark yellow-green above; paler below

**Surface:** glabrous above; axillary pubescence below (leaf axis often reddish purple at base)

**Venation:** pinnate

#### Twigs:

**Size:** slender

**Color:** reddish brown

**Surface:** slightly pubescent to glabrous; numerous pale slitlike lenticels; leaf scars heart-shaped; several bundle scars

#### Buds:

**Size:** 0.50" long

**Shape:** ovoid, blunt or sharp-pointed

**Color:** reddish brown; inner scales pale

**Surface:** lustrous; inner scales woolly

#### Fruit and Flowers:

**Nut:** husk; ellipsoidal, 4-valved, slightly raised at suture lines, splits freely to base; seed sweet

**Size:** 1.0" long

**Shape:** oblong; 4-angled above the middle

**Color:** green, brown

**Flower:** monoecious; unisexual; staminate, in 3-branched, green, hairy catkins, 4 yellow stamens; pistillate, in 1- to 2-flowered spikes, yellowish hairy stigmas

**Bark:** gray; scaly; broken transversely into short loose plates with age; weakly shaggy, not as pronounced as *C. ovata*

#### Physical Attributes:

**Form:** single stem

**Size:** 75.0', mature

**Growth Rate:** slow; 30.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: intermediate

Drought: high

Fire: medium

Anaerobic: none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** upland mixed forests; wide variety of soils and sites; best development on cool, moist slopes

**Soil Texture:** medium - coarse

**Soil pH:** 4.0 - 7.4

**Range:** central Iowa; south to northeastern Arkansas and northern Mississippi, east to northern Alabama and northern Georgia; north up the east coast to central New York; in Mississippi, reported by the NRCS Plants Database in the counties of Tishomingo, Lafayette, Lee, Noxubee, Scott, Simpson, Wilkinson, Pike, Oktibbeha, and Jackson - likely in most other counties with the exception of the Mississippi River Delta

**Wildlife Value and Uses:** similar to *C. glabra*, and *C. ovata*

**Timber Value and Uses:** quality not as high as other similar hickories, but utilized commercially for the same purposes

**Landscaping Info:** same as *C. glabra*

**Other Facts:** considered by some authorities to be a separate species as given here; considered by some as a variety of *C. glabra*; considered by some not to merit status even as a variety and include it in *C. glabra*



Bark



Leaf



Flower



Fruit



Twig

## Shagbark Hickory

*Carya ovata* (Mill.) K. Koch.

### Leaves:

**Type:** pinnately compound, alternate, deciduous

**Size:** 8.0" - 14.0" long; leaflets (5-7), mostly 5, 5.0" - 7.0" long, 2.0" - 3.0" wide

**Margin:** serrate; 3 pubescent teeth (tufts)

**Apex:** acuminate

**Base:** wedge-shaped

**Shape:** obovate

**Color:** dark yellow-green above; paler below

**Surface:** glabrous above; pubescent below

**Venation:** pinnate

### Twigs:

**Size:** stout

**Color:** orange-brown

**Surface:** glabrous; large orange lenticels; leaf scars heart-shaped; scattered bundle scars

### Buds:

**Size:** 1.0" long

**Shape:** broadly oval, blunt

**Color:** dark brown

**Surface:** 6 - 8 overlapping, loose, flat scales

—

### Fruit and Flowers:

**Nut:** husk 0.50" thick, dehiscent, depressed at apex, depressed or rounded at base, nearly black; nut, 4-ribbed, thin-shelled

**Size:** 1.0" - 1.5" dia.,

**Shape:** oblong

**Color:** light brown to whitish brown

**Flower:** monoecious; unisexual; staminate, yellow-green, hairy catkin, 4.0" - 5.0" long; pistillate flowers in 2 - 5-flowered, rusty red, woolly spikes

**Bark:** bluish to slate gray; smooth young; becoming shaggy with large vertical plates that curve away from trunk at both ends

### Physical Attributes:

**Form:** single stem

**Size:** 80.0', mature

**Growth Rate:** slow; 15.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

**Shade:** intermediate to tolerant

**Drought:** medium

**Fire:** high

**Anaerobic:** intolerant

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** best growth on moist, alluvial, river-valley soils; can be found on neighboring slopes and ridges; will form nearly pure, open, parklike groves in bottom lands

**Soil Texture:** medium - coarse

**Soil pH:** 4.0 - 7.0

**Range:** most of the Eastern United States from southeastern Nebraska and southeastern Minnesota; north and east through southern Ontario and southern Quebec to southern Maine; south to Georgia; west to Alabama, Mississippi, Louisiana, and eastern Texas; disjunctly in the mountains of northeastern Mexico; in Mississippi, throughout the northern two-thirds of the State with the exception of the Mississippi River Delta

### Wildlife Value and Uses:

nuts eaten by black bear, red fox, gray fox, the white-footed mouse, eastern chipmunk, rabbit, wild turkey, ring-necked pheasant, common crow, bluejay, white-breasted nuthatch, red-bellied woodpecker, and yellow-bellied sapsucker

**Timber Value and Uses:** furniture, flooring, tool handles, ladder rungs, sporting goods, fuelwood, charcoal, meat-smoking

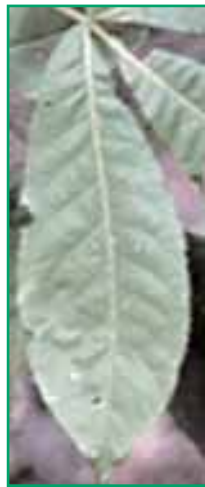
**Landscaping Info:** not generally planted as a landscape tree because of its slow growth rate; has been used in reclamation of disturbed sites; readily available commercially

**Other Facts:** no commercial species of wood is equal to it in combined strength, toughness, hardness, and stiffness; formerly used to make wheels and spokes for wagons, carriages, carts, and early automobiles

Note: In contrast, southern shagbark has:

- \* smaller, less hairy leaves
- \* smaller fruits with thinner husks and less pronounced ridges
- \* slender twigs
- \* cylindrical buds with shiny black scales





Leaf



Bark



Flower



Fruit



Twig

## Sand Hickory

*Carya pallida* Engl. & Graebn.

### Leaves:

**Type:** pinnately compound, alternate, deciduous

**Size:** 7.0" - 15.0" long; leaflets (7-9), mostly 7, terminal 4.0" - 6.0" long, 1.0" - 2.0" wide,

**Margin:** finely serrate

**Apex:** acuminate and long-pointed

**Base:** cuneate or rounded, asymmetrical

**Shape:** lanceolate or oblanceolate

**Color:** light green above; paler green below

**Surface:** lustrous above; pubescent, silver flecks below

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** red-brown

**Surface:** glabrous or pubescent

### Buds:

**Size:** terminal 0.25" long; laterals smaller

**Shape:** acute or obtuse

**Color:** reddish brown

**Surface:** minutely pubescent with silvery scales

—

### Fruit and Flowers:

**Nut:** husk; 0.13" - 0.17" thick, pubescent, covered with yellow scales, splitting tardily to the base by 2-3 sutures; seed small, sweet

**Size:** 1.0" - 1.5" long,

**Shape:** nut; rounded at the ends or obcordate, compressed, prominently ridged nearly to base

**Color:** white

**Flower:** monoecious, unisexual; staminate catkin, densely hairy with silver scales, 2.5" - 5.0" long; pistillate, solitary, oblong, covered with yellow scales

**Bark:** differs depending on site quality; on good soil, pale and slightly ridged; on dry ridges dark gray, rough, deeply furrowed

### Physical Attributes:

**Form:** single stem

**Size:** 30.0' - 40.0' (occasionally 90.0' - 110.0')

**Growth Rate:** slow; 20.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

Shade: intermediate

Drought: high

Fire: moderate

Anaerobic: none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** characteristically dry sandy soils, but best on moist soils

**Soil Texture:** medium - coarse

**Soil pH:** 4.0 - 7.4

**Range:** Cape May, New Jersey, upper Coastal Plain and Piedmont Plateau; south to Florida; west through the Gulf states; reported in Tennessee; in Mississippi, scattered through the upper two-thirds of the State

**Wildlife Value and Uses:** similar to other hickories

**Timber Value and Uses:** not of any significant economic value except as fuelwood

**Landscaping Info:** difficult to transplant because of deep taproot; slow growth rate; grows best on moist soils in full sun

**Other Facts:** reason for the species name (*pallida*) is the silver flecks on the under side of the leaf; inner bark is astringent, and has been used to clean cuts, and orally as a wash for sore mouths; based on several attributes could be characterized as a "miniature" mockernut hickory

**On Federal or State lists:**  
endangered in Illinois, threatened in Arkansas and Indiana



**Leaf**



**Fruit**



**Bark**



**Twig**

**Mockernut hickory**  
**white hickory, whiteheart hickory,**  
**bullnut, hognut**  
*Carya tomentosa* Nutt.

**Leaves:**

**Type:** pinnately compound, alternate, deciduous  
**Size:** 8.0" - 12.0" long; leaflets (7-9), 5.0" - 8.0" long  
**Margin:** fine to coarsely serrate  
**Apex:** acute to long-tapered  
**Base:** unequally rounded or broadly wedge-shaped  
**Shape:** ovate to elliptic or obovate  
**Color:** dark yellow-green above; paler below  
**Surface:** glabrous above; yellow-green to orange-brown, heavy pubescence below  
**Venation:** pinnate

**Twigs:**

**Size:** stout  
**Color:** reddish brown  
**Surface:** hirsute, scaly; pale slitlike lenticels

**Buds:**

**Size:** 0.5" - 0.75" long  
**Shape:** broadly ovoid  
**Color:** tan after dropping outer scales  
**Surface:** silky, after dropping outer scales

**Fruit and Flowers:**

**Nut:** husk reddish brown; deeply 4-channeled; 0.13" - 0.25" thick  
**Size:** 1.0" - 1.5" long  
**Shape:** obovoid-ellipsoidal, 4-ribbed  
**Color:** light reddish brown  
**Flower:** monoecious; unisexual; staminate, yellow, 3-branched catkins, 4 bright red, hairy stamens; pistillate, 2- to 5-flowered spikes, dark red stigmas

**Bark:** blue-gray; rounded; interlacing ridges; shallow furrows; tight

**Physical Attributes:**

**Form:** single stem  
**Size:** 70.0', mature  
**Growth Rate:** slow; 18.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** medium  
**Fire:** medium  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** in the North on dry upland slopes in association with other hickories and many oak species; in Alabama and Mississippi on sandy soils with shortleaf pine (*Pinus echinata*) and loblolly pine (*P. taeda*); species grows and develops best on deep, fertile soils  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.1 - 7.4  
**Range:** southern Maine through southern Michigan and northern Illinois to eastern Nebraska; south to eastern Texas; west to northern Florida; in Mississippi, throughout with the exception of the Mississippi River Delta

**Wildlife Value and Uses:** preferred mast for wildlife, especially squirrel; minor source of food for ducks, quail, and turkey; nuts fed on by black bear, fox, beaver, and white-footed mice; foliage, twigs and nuts browsed by white-tailed deer; provides cavity-nesting sites for a variety of birds

**Timber Value and Uses:** tool handles (80% of harvested mockernut); agricultural implements, dowels, gymnasium equipment, poles, furniture, lumber, pulpwood, charcoal, and fuelwood

**Landscaping Info:** excellent shade tree, edible sweet nut; tolerant of a wide range of soil and moisture conditions; deep taproot; primary drawback as a landscaping plant is slow growth rate

**Other Facts:** seedling establishment is difficult due to seed predation; eliminated by clearcutting (except for stump sprouting) when no advance regeneration is present; limbs are crooked, often almost "L" shaped



**Bark**



**Flower**

**Leaf**



**Fruit**



**Twig**

## Bitter Pecan

*Carya x lecontei* L.

### Leaves:

**Type:** pinnately compound, alternate, deciduous

**Size:** 10.0" - 12.0" long (intermediate to *Carya illinoensis* and *Carya aquatica*)

**Margin:** serrate or doubly serrate

**Apex:** acuminate

**Base:** unequally rounded or wedge-shaped

**Shape:** lanceolate

**Color:** green above; paler below

**Surface:** glabrous above; glabrous below

**Venation:** pinnate

### Twigs:

**Size:** moderately stout

**Color:** reddish brown; orange-brown lenticels

**Surface:** pubescent

### Buds:

**Size:** <0.5" long

**Shape:** compressed

**Color:** yellowish brown

**Surface:** valvate scales

### Fruit and Flowers:

**Nut:** flattened; bitter meat

**Size:** >1.5" long (longer than water hickory *Carya aquatica*; flatter than pecan *Carya illinoensis*)

**Shape:** oblong, no pronounced ridges as in *C. aquata*

**Color:** reddish brown

**Flower:** monoecious, green, inconspicuous, staminate and pistillate catkins

**Bark:** light brown to gray-brown; narrow fissures; flattened interlacing scaly ridges

### Physical Attributes:

**Form:** single stem

**Size:** 80.0' - 100.0', mature

**Growth Rate:** slow; 35.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

**Shade:** intolerant - moderate

**Drought:** low

**Fire:** low

**Anaerobic:** intermediate

**Propagation:** seed (no cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** almost always occurs (>99%) in wetlands in the southeastern U.S.

**Soil Texture:** fine - coarse

**Soil pH:** 4.8 - 7.5

**Range:** Mississippi River valley, where the ranges of *Carya illinoensis* and *Carya aquatica* overlap; NRCS Plants Database shows this hybrid in Mississippi, but does not have a county listing for the State; most likely to occur in greatest abundance in the Mississippi River floodplain, but can occur elsewhere

**Wildlife Value and Uses:** nuts eaten by woodduck, squirrel, raccoon, black bear

**Timber Value and Uses:** brashness of wood makes it less useful than pecan

**Landscaping Info:** (no data)

**Other Facts:** *Carya aquatica* in some literature is also referred to by the common name bitter pecan, as is *Carya texana*



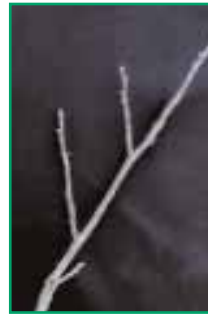
Leaf



Bark



Fruit



Twig

**Florida Maple**  
**southern sugar maple, hammock**  
**maple, sugar maple**  
*Acer barbatum* Michx.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 1.5" - 3.5" long  
**Margin:** lobed (3-5), entire  
**Apex:** acuminate  
**Base:** truncate to somewhat cordate  
**Shape:** orbicular  
**Color:** green above; paler below  
**Surface:** lustrous above; slightly pubescent below  
**Venation:** palmate

**Twigs:**

**Size:** slender  
**Color:** reddish brown  
**Surface:** shiny

**Buds:**

**Size:** 0.13" long  
**Shape:** sharp-pointed  
**Color:** brown  
**Surface:** pubescent

**Fruit and Flowers:**

**Samara:** double, winged  
**Size:** 0.75" long  
**Shape:** U-shaped  
**Color:** red to reddish brown  
**Flower:** dioecious or polygamous, in dense, many-flowered corymbs; the staminate and pistillate flowers on the same or on different trees; apetalous; single flowers on long, hairy, drooping stalks; yellow-green

**Bark:** pale gray; irregular thick curling ridges; becoming plated

**Physical Attributes:**

**Form:** single stem  
**Size:** 60.0', mature  
**Growth Rate:** moderate, 30.0' maximum@ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** none  
**Anaerobic:** none

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** no resprout/coppice potential

**Habitat and Ecology:**

**Site:** fertile, moist but well-drained soils on stream terraces, in coves, and on adjacent bluffs and ridgetops; best on soils underlain by calcareous material such as limestone or marl  
**Soil Texture:** medium - coarse  
**Soil pH:** 5.5 - 6.5  
**Range:** discontinuous in the Piedmont and Coastal Plain from southeastern Virginia southwest across North and South Carolina and Georgia, into the Florida Panhandle; continues west across Alabama, Mississippi, Louisiana, into eastern Texas; north to Arkansas into eastern Oklahoma; also found in isolated spots halfway down the Gulf Coast of the Florida peninsula and at one location in central Oklahoma; in Mississippi, scattered throughout

**Wildlife Value and Uses:** low palatability as browse

**Timber Value and Uses:** not managed as a commercial species; used with associated commercial species for pulpwood, sawtimber, and veneer stock; better trees may be used for furniture, flooring, paneling; limited source of maple syrup

**Landscaping Info:** frequently used in urban forestry as an ornamental or shade tree

**Other Facts:** distinction between (northern) sugar maple and Florida maple based on the latter's smaller leaves with short, acute lobes, smaller samaras, and a more whitish bark





**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

**Boxelder**  
**ashleaf maple**  
*Acer negundo* L.

**Leaves:**

**Type:** pinnately compound, opposite, deciduous  
**Size:** 6.0" - 15.0" long; leaflets (3-7), 2.0" - 4.0" long, 1.5" - 2.5" wide  
**Margin:** coarsely serrate  
**Apex:** long-tapered, lanceolate  
**Base:** rounded or wedge-shaped  
**Shape:** ovate-lanceolate or oval  
**Color:** light green above; paler below  
**Surface:** remotely pubescent above; pubescent veins below  
**Venation:** pinnate

**Twigs:**

**Size:** stout  
**Color:** green - purplish green, darker with age  
**Surface:** smooth, lustrous or with a conspicuous bloom

**Buds:**

**Size:** 0.13" long  
**Shape:** ovoid  
**Color:** bluish white  
**Surface:** tomentose; leaf scars V-shaped, elevated; 3-5 bundle scars

**Fruit and Flowers:**

**Samara:** double  
**Size:** 1.0" - 1.5" long  
**Shape:** V-shaped, slightly convergent wings  
**Color:** reddish brown  
**Flower:** dioecious; on slender glabrous pedicels; apetalous; yellow-green; 0.25" long; staminate fascicled; pistillate in narrow drooping racemes

**Bark:** gray-brown; thin; shallow fissures; narrow rounded reticulate ridges

**Physical Attributes:**

**Form:** single stem  
**Size:** 60.0', mature  
**Growth Rate:** rapid; 35.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** high  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container; cuttings  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** along streams, floodplains, edges of swamps and other moist sites; proliferates in open disturbed areas  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.4 - 7.9  
**Range:** Vermont south to Florida; west to eastern Texas; north to Michigan and southern Ontario; in Mississippi, common in the Mississippi River Delta, ubiquitous throughout most of the State

**Wildlife Value and Uses:** important habitat for many wildlife species in riparian communities; protects livestock from seasonal temperature extremes; seed food source for birds and squirrel; secondary browse source for white-tailed deer in the fall  
**\*May be poisonous to livestock**

**Timber Value and Uses:** not a desired timber species because its wood is light, soft, close-grained, and low in strength; used locally for boxes and rough construction, occasionally for cheap furniture and woodenware; once used for posts, fencing, and fuel but the soft, spongy wood generally makes poor firewood

**Landscaping Info:** positives: rapid growth, high tolerance of variations in soil, shade, and site conditions; minuses: limbs are brittle and break easily, trunk is susceptible to rot and infestation with boxelder bugs, short-lived, extended leaf and seed fall

**Other Facts:** sap used to produce syrup sometimes called "mountain molasses"; cambium used by Native Americans for food; also boiled down the sap for syrup and candy; tea made from the inner bark used to induce vomiting; branches used to make charcoal for ceremonial painting



Leaf



Fruit



Bark



Flower



Twig

**Red Maple**  
scarlet maple, swamp maple, soft maple, Carolina red maple, water maple  
*Acer rubrum* L.

**Leaves:**

**Type:** simple, opposite, deciduous  
**Size:** 2.0" - 6.0" dia.  
**Margin:** coarsely and irregularly serrate  
**Apex:** long-tapering  
**Base:** flat to somewhat heart-shaped  
**Shape:** circular; palmately lobed (3-5); acute sinuses  
**Color:** light green above; paler below;  
**Surface:** glabrous above; glabrous - sometimes glaucous below  
**Venation:** palmate

**Twigs:**

**Size:** slender  
**Color:** red with pale lenticels  
**Surface:** shiny

**Buds:**

**Size:** terminal 0.13" long; laterals smaller, flower buds similar to - collateral with leaf buds  
**Shape:** obtuse  
**Color:** red  
**Surface:** 4-6 pairs of overlapping scales; leaf scars V-shaped; 3 bundle scars

**Fruit and Flowers:**

**Samara:** double, in clusters, on long slender stalks  
**Size:** 0.50" - 0.75" long  
**Shape:** V-shaped  
**Color:** red  
**Flower:** polygamo-dioecious; in dense, stalked axillary clusters; 0.04" long; bell-shaped calyx; petals 5, red, as long as calyx; staminate, fascicled; pistillate, in drooping racemes

**Bark:** thin, smooth, gray young; long, narrow, scaly plates, shallow fissures with age

**Physical Attributes:**

**Form:** single stem  
**Size:** 90.0', mature  
**Growth Rate:** rapid; 35.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** low  
**Anaerobic:** medium

**Propagation:** bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** most common on moist bottom lands or in swamps; also found on drier soils on higher ground; almost exclusively a swamp species in the extreme South  
**Soil Texture:** fine - coarse  
**Soil pH:** 5.4 - 7.1  
**Range:** native to all regions of the United States east of the 95th meridian, with three exceptions: Prairie Peninsula proper of the Midwest, the coastal prairie of southern Louisiana and southeastern Texas, and the swamp prairie of the Florida Everglades; in Mississippi, throughout

**Wildlife Value and Uses:** buds and flowers eaten by various wildlife species; seeds stored by squirrels and chipmunks, and eaten by other small mammals and birds; rabbits find the stump sprouts especially palatable in fall and winter; browsed by white-tailed deer, moose, elk, and the snowshoe hare; cavity nesting for screech owl, pileated woodpecker, and common flicker; river floodplain communities well suited for cavity nesters such as the wood duck; early-produced pollen may be important to the biology of bees and other pollen-dependent insects

**\*browse is toxic to cattle and horses, particularly during the summer and late fall**

**Timber Value and Uses:** of some commercial value for use in the manufacture of inexpensive furniture; veneer products; medium value as fuelwood

**Landscaping Info:** most prized as an ornamental; rapid growth; tolerant of almost all site conditions; showy flowers; spectacular fall coloration; routinely commercially available; numerous cultivars and varieties; flowers before leafout giving early spring color

**Other Facts:** bark used by Native Americans as an analgesic, wash for inflamed eyes and cataracts, and as a remedy for hives and muscular aches; tea brewed from the inner bark used for treating coughs and diarrhea; a bark extract used by pioneers to make cinnamon brown and black dyes; iron sulfate added to the tannin from bark to make ink; can be used to make maple syrup; first cultivated in 1656



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

## Drummond's Red Maple

*Acer rubrum* L. var. *drummondii* (Hook. & Arn. ex Nutt.) Sarg.

### Leaves:

**Type:** simple, opposite, deciduous  
**Size:** 3.0" - 6.0" long; 3.0" - 6.0" wide  
**Margin:** coarsely and irregularly serrate  
**Apex:** long-tapering  
**Base:** cordate or truncate  
**Shape:** circular; palmately lobed (usually 5); acute sinuses  
**Color:** light green above; white below  
**Surface:** scattered hairs above; thick tomentum below (differentiation characteristic)  
**Venation:** palmate

### Twigs:

**Size:** slender  
**Color:** matted pale hairs 1st year; then reddish brown  
**Surface:** glabrous 2nd year

### Buds:

**Size:** 0.13" long  
**Shape:** terminal blunt; lateral flower buds globose  
**Color:** reddish  
**Surface:** ciliate on the margins

### Fruit and Flowers:

**Samara:** double  
**Size:** 1.25" - 2.5" long; 0.5" - 0.75" wide  
**Shape:** convergent wings  
**Color:** bright scarlet  
**Flower:** polygamo-dioecious; in dense, stalked axillary clusters; 0.04" long; bell-shaped calyx; petals 5, red, as long as calyx; staminate, fascicled; pistillate, in drooping racemes

**Bark:** light to dark gray; smooth when young; developing long scaly plates with age

### Physical Attributes:

**Form:** single stem  
**Size:** 69.0' - 90.0' mature  
**Growth Rate:** rapid; 35.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** low  
**Anaerobic:** moderate

**Propagation:** bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** cypress-tupelo swamps; very wet sites; obligate wetland (OBL); almost always occurs (>99%) in wetlands in the southeastern U.S.  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.0 - 7.4  
**Range:** southeastern U.S.; in Mississippi, scattered throughout on wetland sites

**Wildlife Value and Uses:** good deer browse; seeds eaten by song and game birds; bark, browse and buds used by small mammals; an important squirrel food

**Timber Value and Uses:** considered a soft maple; moderate quality hardwood with good size; pulp for paper

**Landscaping Info:** not commercially available

**Other Facts:** Drummond's red maple (*A. rubrum* var. *drummondii* Sarg.) is typically found in deep swampy areas of the Mississippi Valley drainage basin. Its differentiating characteristics include:

- \* 5-lobed leaves
- \* leaves broader than long
- \* leaves woolly or hairy below
- \* petioles very hairy



Old Tree

Bark



Leaf



Flower



Fruit



Twig

## Silver Maple

soft maple, river maple, silverleaf maple, swamp maple, water maple, white maple

*Acer saccharinum* L.

### Leaves:

**Type:** simple, opposite, deciduous

**Size:** 6.0" - 8.0" dia.

**Margin:** coarsely serrate

**Apex:** long-tapered

**Base:** heart-shaped or flattened

**Shape:** circular; 5-lobed with secondary lobes; sinuses acute or rounded

**Color:** pale green above; silvery below

**Surface:** glabrous above; axillary pubescence below

**Venation:** palmate

### Twigs:

**Size:** slender (pungent odor when bruised)

**Color:** reddish brown

**Surface:** lustrous; conspicuous lenticels; leaf scars V-shaped; 3 bundle scars

### Buds:

**Size:** 0.20" long; laterals smaller; flower buds large, collateral with leaf buds

**Shape:** ovate, blunt; flower buds globose

**Color:** red

**Surface:** 2 - 4 overlapping scales

### Fruit and Flowers:

**Samara:** double; divergent wings; wrinkled

**Size:** 1.0" - 2.0" long

**Shape:** V-shaped

**Color:** reddish brown

**Flower:** polygamo-dioecious; in dense sessile axillary clusters; apetalous; calyx urn or tube-shaped, pubescent; yellow-green; red anthers

**Bark:** young, smooth, silvery, thin; mature, long scaly plates detached at the ends

### Physical Attributes:

**Form:** single stem

**Size:** 80.0', mature

**Growth Rate:** rapid; 45.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

**Shade:** low

**Drought:** low

**Fire:** low

**Anaerobic:** high

**Propagation:** seed (no cold stratification required); bare root; container; cuttings

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** stream banks, river levees, floodplains; primarily restricted to rich, moist bottomland sites, capable of development on dry soils when planted as an ornamental

**Soil Texture:** fine - coarse

**Soil pH:** 4.0 - 7.5

**Range:** northeastern Canada; south to Florida; west to Oklahoma and Arkansas; north to South Dakota; in Mississippi, throughout

**Wildlife Value and Uses:** seeds eaten by small mammals (especially squirrel and chipmunk); evening grosbeaks, finches, wild turkey and other game birds; most important food in the diet of breeding wood ducks in southeastern Missouri; early buds an important food for squirrels when cached food is depleted; foliage browsed by white-tailed deer and rabbit

**Timber Value and Uses:** furniture, boxes, crates, food containers, paneling, and core stock; moderately hard, brittle, and close-grained wood; suitable for bottom land reforestation in the lower Mississippi River Valley

**Landscaping Info:** rapid growth, wide range of soil pH and texture; routinely available commercially; decline in ornamental use due to susceptibility to twig shedding, prolific sprouting, ice, snow, and wind damage, and a tendency to rot

**Other Facts:** sap used to make maple syrup; bark of young stems very similar to green ash





Leaf



Bark



Flower



Fruit



Twig

**Sugar Maple**  
**hard maple, rock maple**  
*Acer saccharum* Marsh.

**Leaves:**

**Type:** simple, opposite, deciduous  
**Size:** 3.0" - 5.0" dia.  
**Margin:** entire, or irregularly toothed  
**Apex:** long-tapered  
**Base:** heart-shaped or flattened  
**Shape:** circular; lobed (3 - 5)  
**Color:** green above; paler below  
**Surface:** glabrous above; glabrous below  
**Venation:** palmate

**Twigs:**

**Size:** slender  
**Color:** reddish brown  
**Surface:** shiny; numerous pale lenticels; leaf scars V-shaped; 3 conspicuous bundle scars

**Buds:**

**Size:** terminal 0.25" long; laterals smaller  
**Shape:** narrow conical  
**Color:** reddish brown  
**Surface:** 6 - 9 pairs of overlapping scales; lateral accessory flower buds lacking

**Fruit and Flowers:**

**Samara:** double; in clusters on slender stalks  
**Size:** 1.0" long  
**Shape:** winged (broad, parallel or slightly divergent, thin)  
**Color:** reddish brown  
**Flower:** polygamous; in dense, many-flowered corymbs; apetalous; calyx bell-shaped; single flowers yellowish green, on long, hairy, drooping filamentous stalks

**Bark:** variable among individual trees; light gray and smooth when young; darker, long longitudinal furrows and scaly ridges with age

**Physical Attributes:**

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** slow; 20.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** medium  
**Fire:** medium  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container; cuttings  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** moist rich, well-drained soils of slopes and ridges; also on poorer soils, and common on limestone soils  
**Soil Texture:** medium - coarse  
**Soil pH:** 3.7 - 7.9  
**Range:** Newfoundland west through Manitoba to the Dakotas and Iowa; south to Texas and Louisiana in the West, and through Virginia to Alabama in the East; in Mississippi, reported by the NRCS Plants Database in the northern counties of Benton, Tishomingo, Panola, Lafayette, and Pontotoc, and the southeastern counties of Jefferson and Simpson - likely present in other counties as well

**Wildlife Value and Uses:** commonly browsed by white-tailed deer, moose, and snowshoe hare; seeds, buds, twigs, and leaves eaten by red squirrel, gray squirrel, and flying squirrel; bark fed on by porcupine; nesting sites for numerous species of songbirds and cavity nesters such as the black-capped chickadee, common flicker, pileated woodpecker, and screech owl

**Timber Value and Uses:** wood is tough, durable, hard, heavy, and strong; commonly used to make furniture, paneling, flooring, and veneer; also used for gunstocks, tool handles, plywood dies, cutting blocks, woodenware, novelty products, sporting goods, bowling pins, and musical instruments; maple syrup production not as dominant as in the past but still an important industry in New England

**Landscaping Info:** beautiful landscaping tree, wide tolerance of soil pH, brilliant red, orange, and yellow fall color; negatives, subject to weather damage and sensitive to air pollution

**Other Facts:** used along with beech and birch in the hardwood distillation industry as a source of wood alcohol, acetate of lime, and charcoal



Leaf



Fruit



Bark



Flower



Twig

## White Oak

eastern white oak, stave oak,  
forked-leaf white oak

*Quercus alba* L.

### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 5.0" - 9.0" long; 2.0" - 4.0" wide

**Margin:** deeply lobed (7-9); oblique, rounded sinuses nearly to midrib

**Apex:** rounded; usually 3-lobed

**Base:** cuneate

**Shape:** obovate/oblong

**Color:** bright green above; light green to whitish below

**Surface:** smooth above and below

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** red-brown to somewhat gray

**Surface:** initially pubescent; then glabrous

### Buds:

**Size:** 0.12" - 0.19" long

**Shape:** ovoid, apex obtuse

**Color:** dark reddish brown

**Surface:** glabrous

### Fruit and Flowers:

**Nut:** acorn, annual; cup bowl-shaped, thick warty scales, covers 25% of nut

**Size:** 0.5" - 1.0" long

**Shape:** oval

**Color:** shiny brown

**Flower:** monoecious; unisexual; staminate, loose, pendulous, yellow, catkins, 3.0" long; pistillate flowers, bright red, short-stalked, solitary

**Bark:** whitish or ashy gray; varies from scaly to irregularly platy or blocky; smooth patches on older trees not uncommon

### Physical Attributes:

**Form:** single stem

**Size:** 60.0' - 100.0', mature

**Growth Rate:** slow; 20.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

Shade: intermediate

Drought: moderate

Fire: medium

Anaerobic: none

**Propagation:** seed (cold stratification not required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** found on many soil types, best on coarse, deep, moist, well-drained soils, with medium fertility, and slightly acid soil

**Soil Texture:** medium - coarse

**Soil pH:** 4.5 - 6.8

**Range:** Maine to Minnesota; south to Florida; west to Texas; in Mississippi, throughout the State, the primary exception being the Mississippi River Delta counties, and a band across the north-central part of the State associated with Blackland Prairie soils

**Wildlife Value and Uses:** acorns eaten by squirrel, blue jays, crows, red-headed woodpeckers, deer, turkey, quail, mice, chipmunks, ducks and raccoon; browse palatability medium

**Timber Value and Uses:** the most important timber oak; commercially important throughout much of the South and East; strong and durable wood for furniture, veneer, paneling, and flooring, staves for barrels, lumber, and interior woodwork; also used for specialty items such as wine and whiskey barrels; fuelwood product value is high

**Landscaping Info:** excellent tree because of its broad round crown, dense foliage, and purplish red to violet-purple fall color; difficult to transplant; growth slow; existing trees very sensitive to disturbances in root zones caused by grading, soil compaction, or changes in drainage patterns - if severe can lead to mortality

**Other Facts:** used medicinally by Native Americans



Leaf



Bark



Twig



Fruit



Sprouts

## Arkansas Oak

### Arkansas water oak, water oak

*Quercus arkansana* Sargent

#### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 3.0" - 5.0" long; 2.0" - 4.0" wide

**Margin:** entire

**Apex:** slightly 3-lobed

**Base:** wedge-shaped

**Shape:** broadly obovate

**Color:** yellow-green above; paler green below

**Surface:** glabrous above; axillary tufts of pubescence below

#### Twigs:

**Size:** slender

**Color:** grayish brown

**Surface:** gray pubescence until late in season; becoming darker and glabrous; lenticels, prominent yellowish brown; leaf scars, half-round

#### Buds:

**Size:** (no data)

**Shape:** ovoid to acute

**Color:** chestnut brown; scales light brown

**Surface:** slightly ciliate scale margins

#### Fruit and Flowers:

**Nut:** acorn, annual; cup, saucer-shaped, covers <25% of nut

**Size:** 0.5" long pubescent; nut 0.63" long

**Shape:** acorn subglobose

**Color:** mature nut, brown to black with faint lighter stripes

**Flower:** monoecious; unisexual; staminate, hairy catkins, 2.0" - 2.5" long; pistillate, solitary or few-flowered on stout spikes

**Bark:** black with deep furrows; long, narrow ridges covered with thick, closely appressed scales; orange inner bark

#### Physical Attributes:

**Form:** single stem

**Size:** 40.0' - 95.0', mature

**Growth Rate:** moderate; (site/location specific)

**Life Span:** moderate (>50 yrs)

#### Tolerances:

**Shade:** tolerant

**Drought:** high

**Fire:** low

**Anaerobic:** none

**Propagation:** seed

**Other:** resprout/coppice (no data)

#### Habitat and Ecology:

**Site:** sporadically on well-drained, sandy soils in hardwood stands

**Soil Texture:** coarse - fine (if well-drained)

**Soil pH:** acid - alkaline (no specific data)

**Range:** southwest Georgia and northwest Florida; west to Louisiana and southwest Arkansas; in Mississippi, has only been found in Covington County where the largest known specimen is located

**Wildlife Value and Uses:** good choice for wildlife food because it produces acorns even in the driest years; may not be available

**Timber Value and Uses:** considered rare in Arkansas, endangered in Florida, and vulnerable in Alabama, Georgia and Louisiana

**Landscaping Info:** not available for landscaping purposes

**Other Facts:** thought to be an ancient species of formerly wider distribution in the Coastal Plain; first discovered in Arkansas, hence the common name and Latin species name given in 1911



**Bark**



**Leaf**



**Twig**



**Fruit**



**Form**

## Bluff Oak

### bastard white oak

*Quercus austrina* Small

#### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 2.0" - 4.0" long; 2.0" wide

**Margin:** entire, rounded lobes (3-9), shallow sinuses

**Apex:** rounded

**Base:** cuneate or attenuate

**Shape:** narrowly obovate

**Color:** dark green above; gray-green below

**Surface:** shiny, smooth above; slight axillary pubescence below

**Venation:** pinnate

#### Twigs:

**Size:** slender

**Color:** dark brown

**Surface:** corky white lenticels; numerous bundle scars

#### Buds:

**Size:** 0.13" - 0.25" long

**Shape:** ovoid

**Color:** chestnut brown

**Surface:** pubescent scales

#### Fruit and Flowers:

**Nut:** acorn, annual 1-2 acorns on a stout peduncle; cup, saucer-shaped, covers 33 - 50% of the nut, gray scales

**Size:** 0.5" - 1.0" long

**Shape:** round - oval

**Color:** brown

**Flower:** monoecious; unisexual; staminate flowers in drooping catkins; pistillate, spikes in leaf axis

**Bark:** pale gray; developing broad ridges at maturity

#### Physical Attributes:

**Form:** single stem

**Size:** 40.0' - 60.0', mature

**Growth Rate:** moderate (no data @ 20 yrs)

**Life Span:** long (>100 yrs)

**Tolerance:**

Shade: intermediate

Drought: high

Fire: low

Anaerobic: none

**Propagation:** seed; bare root; container

**Other:** resprout/coppice (no data)

#### Habitat and Ecology:

**Site:** well-drained, rich bottomland soils along streams and next to river bluffs

**Soil Texture:** fine - coarse

**Soil pH:** 4.6 - 6.8

**Range:** Mississippi; east to North Carolina; in Mississippi; primarily in counties along the eastern State boundary with Alabama, but also reported in Hinds and Adams Counties - may be present elsewhere, but unreported

**Wildlife Value and Uses:** hard mast for wildlife

**Timber Value and Uses:** white oak lumber; historical uses - pins in cotton gins, spools, baskets, wagon hubs

**Landscaping Info:** well suited for planting along streets and boulevards where there is plenty of space for crown development; medium textured leaves make this oak stand apart from other oaks, easy to prune due to its upright to horizontal branching habit; commercial availability may be limited

**Other Facts:** *Quercus* is Latin for "oak tree", *austrina* means "south"





**Bark**



**Leaf**



**Form**

## Swamp White Oak

### white oak

*Quercus bicolor* Willdenow

#### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 5.0" - 6.0" long; 2.0" - 4.0" wide  
**Margin:** lobed (10-20); shallow sinuses  
**Apex:** rounded  
**Base:** cuneate to acute  
**Shape:** narrowly elliptical to obovate  
**Color:** dark green above; light green to whitish below  
**Surface:** glossy above; velvety pubescence below  
**Venation:** pinnate

#### Twigs:

**Size:** stout  
**Color:** at first reddish orange; then dull purple; then light brown  
**Surface:** exfoliating; then smooth

#### Buds:

**Size:** 0.08" - 0.12" long  
**Shape:** globose  
**Color:** brown  
**Surface:** smooth

#### Fruit and Flowers:

**Nut:** acorn, annual; cup grayish green, densely pubescent scales, bristles on the cup rim, covers 25-50% of nut  
**Size:** 0.5" - 1.0" long  
**Shape:** round to oval  
**Color:** brown  
**Flower:** monoecious; unisexual; staminate, hairy, yellow, catkins, 3.0" - 4.0" long; pistillate, several-flowered, hairy spikes, on elongated stalks

**Bark:** dark gray or brown; upper limbs peeling off in ragged, papery scales; stem deeply furrowed into flat scaly ridges

#### Physical Attributes:

**Form:** single stem  
**Size:** 50.0' - 70.0', mature  
**Growth Rate:** rapid; 30.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** low  
**Fire:** medium  
**Anaerobic:** medium (seasonal)

**Propagation:** seed; (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** moist, fertile soils along streams or in swamps and bottomland sites  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.3 - 6.5 (severe chlorosis on alkaline soils)  
**Range:** Maine; west to Minnesota; south through Nebraska, Kansas, Oklahoma, and Arkansas; east to Kentucky and North Carolina; inland over the Appalachians to Georgia; in Mississippi, nowhere common -- most probable locale in northernmost counties

**Wildlife Value and Uses:** provides cover for birds and mammals; acorns important as food source for wildlife such as squirrel, mice, white-tailed deer, beaver, black bear, and a variety of birds, including ducks and turkey

**Timber Value and Uses:** wood is light brown, close-grained, heavy, and hard; knottier and less valuable than white oak (*Q. alba*), but usually is cut and sold as white oak; used for furniture, cabinets, veneers, interior finishing, and flooring, boxes, crates, fence posts, railroad ties, and beams and boards for general construction; provides tight cooperage and was once widely used in making barrels, baskets, and kegs.

**Landscaping Info:** planted on highway rights-of-way; frequently used as a shade tree for large lawns, golf courses, parks, and naturalized areas; attractive features are crown shape and bi-colored leaves (dark above, lighter beneath); fall color yellow, and occasionally red-purple; can grow well in areas that are dry, poorly drained and wet, or even occasionally flooded; tolerant of significant soil compaction

**Other Facts:** Native Americans and pioneers ate the acorns raw or cooked; also ground into a powder and used as a thickening in stews, or mixed with cereal grains for making bread; roasted acorns ground and used as a coffee substitute; tannin bitterness removed by leaching in running water



**Leaf**



**Bark**



**Fruit**



**Twig**

## Scarlet Oak

black oak, red oak, Spanish oak  
*Quercus coccinea* Muenchausen

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 4.0" - 8.0" long; 2.0"- 4.0" wide  
**Margin:** lobed (5-9), parted, C-shaped sinuses  
**Apex:** acute  
**Base:** truncate  
**Shape:** elliptic to obovate  
**Color:** light green above and below  
**Surface:** glossy above; axillary tufts of dense short hairs below; raised secondary veins on both surfaces  
**Venation:** pinnate, reticulate

### Twigs:

**Size:** slender  
**Color:** reddish brown  
**Surface:** pubescent young; smooth with age; leaf scars half-round; bundle scars numerous

### Buds:

**Size:** terminal buds 0.13" - 0.25" long; laterals similar but smaller  
**Shape:** terminal buds ovoid  
**Color:** reddish brown; bud scales brown-gray  
**Surface:** scales pubescent, whitish hairs at tips

### Fruit and Flowers:

**Nut:** acorn, biennial, apex of acorn often has distinct concentric markings; cup, glossy, dark reddish brown outer surface, light brown, smooth inner surface, covers 30-50% of nut  
**Size:** 0.5" - 1.0" long & wide  
**Shape:** bluntly oblong  
**Color:** brown  
**Flower:** monoecious; unisexual; staminate, slender, glabrous, catkins (initially bright red), 3.0" - 4.0" long; pistillate, in few-flowered, short-stalked spikes

**Bark:** dark brown-black; shallow fissures; irregular ridges; sometimes scaly

### Physical Attributes:

**Form:** single stem  
**Size:** 90.0', mature  
**Growth Rate:** rapid; 30.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** medium  
**Fire:** intolerant  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** variety of habitats including poor soils in mixed forests, especially on upland ridges; probably a climax tree on dry soils  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.5 - 6.9  
**Range:** Maine; west to Michigan; south to Missouri and Mississippi; east to South Carolina, and up the eastern coastline; in Mississippi, sporadic throughout the State with the exceptions of the Mississippi River Delta and the southernmost counties

**Wildlife Value and Uses:** acorns provide food for squirrel, chipmunks, mice, deer, wild turkey, bluejays and redheaded woodpeckers

**Timber Value and Uses:** construction lumber, flooring, beams, railroad ties, furniture, planking, etc; wood is light to reddish brown, heavy, hard, coarse-grained and strong, with darker colored sapwood.

**Landscaping Info:** does well as a street tree given plenty of soil space to develop --- 30'- 40' centers to form an overhead canopy in residential neighborhoods; not appropriate for restricted downtown planting pits; difficult to transplant, only use nursery stock for this purpose; most striking characteristic as an ornamental is its brilliant fall color

**Other Facts:** prevailing oak beyond 2500 feet to the summits of the Blue Ridge mountains in the Carolinas; largest recorded scarlet oak located in Powell County, Kentucky



Leaf



Bark



Flower



Fruit



Twig

## Durand Oak

### Durand white oak

*Quercus durandii* Buckley

alternate: *Quercus sinuata* var. *breviloba*  
Walter

#### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 5.0" - 7.0" long; 3.0" - 3.5" wide (lower branches) - 2.5" - 3.0" long; 0.5" - 1.5" wide (upper branches)

**Margin:** entire, 3-lobed

**Apex:** rounded

**Base:** acute to attenuate-rounded

**Shape:** oblong

**Color:** dark green above; grayish green - white below

**Surface:** dull to shiny above; pubescent or woolly below

**Venation:** pinnate

#### Twigs:

**Size:** slender

**Color:** light gray to chestnut brown

**Surface:** may have warty surface

#### Buds:

**Size:** 0.25" - 0.33" long

**Shape:** ovoid

**Color:** chestnut brown

**Surface:** ciliated margins

#### Fruit and Flowers:

**Nut:** acorn, annual; cup thin, shallow, saucer-shaped, pale tomentose inner surface, small appressed tomentose scales on the back

**Size:** 0.5" - 0.75" long

**Shape:** ovoid to obovoid

**Color:** light chestnut brown

**Flower:** monoecious; unisexual; staminate, hairy, yellow catkins, 3.0" - 4.0" long; pistillate, on a short woolly stalk

**Bark:** thin; gray to light brown; shallow to deep furrows; scaly

#### Physical Attributes:

**Form:** single stem

**Size:** 60.0' - 90.0', mature

**Growth Rate:** rapid (no data @ 20 yrs)

**Life Span:** long (>100 yrs)

**Tolerances:**

**Shade:** intolerant

**Drought:** moderate

**Fire:** none

**Anaerobic:** none

**Propagation:** seed; bare root

**Other:** resprout/coppice (no data)

#### Habitat and Ecology:

**Site:** rich alluvial and limestone soils in woodlands and prairies.

**Soil Texture:** fine - coarse

**Soil pH:** 6.0 - 8.0

**Range:** restricted to the deep south; found from Richmond County Georgia; west to southern Arkansas and eastern Texas; in Mississippi, reported by the NRCS Plants Database in Scott, Newton, Smith, Jasper, Oktibbeha, and Noxubee Counties

**Wildlife Value and Uses:** palatable wildlife hard mast source

**Timber Value and Uses:** white oak lumber; historical uses - pins in cotton gins, spools, baskets, wagon hubs.

**Landscaping Info:** beautiful landscaping tree with unusual bronze fall leaf color; rapid growth; takes transplanting well; considered to be an excellent tree as yet undiscovered by landscape architects

**Other Facts:** debate over the correct name for this species exists; some authors classify it as *Q. sinuata*, var. *sinuata*, and a smaller version in west Texas as *Q. sinuata*, var. *breviloba*; diagnostic - white oak bark and red oak leaves



Bark



Leaf



Twig

**Southern Red Oak**  
**Spanish oak, swamp red oak, water oak, turkey-foot oak**  
*Quercus falcata* Michaux

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 5.0" - 9.0" long; 4.0" - 5.0" wide  
**Margin:** lobed (3-7, deeply divided); 1 to 3 bristle-tipped teeth per lobe  
**Apex:** acuminate  
**Base:** U-shaped  
**Shape:** elliptical to ovate  
**Color:** dark green above; rusty below  
**Surface:** lustrous above; pubescent below; raised secondary veins on both surfaces  
**Venation:** pinnate

**Twigs:**

**Size:** stout  
**Color:** gray young; reddish brown with age  
**Surface:** rust-colored hairs when young; glabrous with age

**Buds:**

**Size:** terminal bud 0.25" long  
**Shape:** ovoid  
**Color:** reddish brown  
**Surface:** scales hairy; leaf scars half-round; numerous bundle scars

**Fruit and Flowers:**

**Nut:** acorn; biennial; cup reddish brown, pubescent both surfaces, covers 30% of nut  
**Size:** 0.5" long  
**Shape:** subglobose  
**Color:** brown; striated, pubescent at tip  
**Flower:** monoecious; unisexual; staminate, hairy yellow catkins, 3.0" - 4.0" long; pistillate, solitary or few-flowered spikes on short, stout, hairy stalks

**Bark:** dark brown to black; thick; deep fissures; ridged with rough plates near base

**Physical Attributes:**

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** slow; 35.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** high  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification not required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** dry upland sites of sand or clay loam throughout the southeastern United States; rare in bottoms; common invader of pine sites  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.2 - 6.0  
**Range:** New Jersey; south to Florida; west to Texas; north to Oklahoma; in Mississippi, on uplands throughout the State

**Wildlife Value and Uses:** hard mast for many wildlife species; attracts: squirrel, raccoon, deer, turkey, woodpeckers, nuthatch, and grackles; ranked second in preference to the fox squirrel among 12 southeastern oak species; not a preferred browse for cattle.

**Timber Value and Uses:** used for construction lumber, furniture, interior finish, veneers, railroad ties, fuelwood, and chemical extracts.

**Landscaping Info:** often grown as a shade tree because of its drought tolerance; very susceptible to insects and disease when wounded, old, or growing on poor sites

**Other Facts:** young leaf sprouts shaped in a way that resembles a turkey's foot, accounting for one of its common names; also often called Spanish oak because of the association with early Spanish settlement





Leaf



Fruit



Bark



Twig



Form

## Sand Live Oak

*Quercus germinata* Small

### Leaves:

**Type:** simple, alternate, persistent  
**Size:** 1.38" - 2.38" long; 0.38" - 1.13" wide  
**Margin:** entire, revolute  
**Apex:** acute, sometimes obtuse  
**Base:** cuneate  
**Shape:** narrowly elliptic  
**Color:** light to dark green above; whitish green below  
**Surface:** shiny above, impressed secondary veins; dense glaucous bloom below (rubs off)  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** yellowish tan to light gray  
**Surface:** pubescent; glabrate in 2nd year

### Buds:

**Size:** 0.04" - 0.10" long  
**Shape:** ovoid  
**Color:** dark brown  
**Surface:** scale margins may be pubescent

### Fruit and Flowers:

**Nut:** acorn, annual; cup whitish or gray scales, smooth or pubescent, covers 33% of nut  
**Size:** 0.62" -1.0" long  
**Shape:** ovoid or barrel-shaped  
**Color:** dark brown  
**Flower:** monoecious; unisexual; similar to other oaks

**Bark:** dark brown or black; scaly plates

### Physical Attributes:

**Form:** single stem or shrub (sometimes rhizomatous)  
**Size:** 3.0' - 50.0', mature, depending on form  
**Growth Rate:** rapid (no data @ 20 yrs)  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** intermediate  
**Anaerobic:** none

**Propagation:** seed; bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** deep, sandy soils in mixed pine or hardwood stands  
**Soil Texture:** fine - coarse  
**Soil pH:** adaptable (no specific data available)  
**Range:** Louisiana to North Carolina on the Coastal Plain; in Mississippi, the counties of Pearl River, Stone, George, Hancock, Harrison, and Jackson

**Wildlife Value and Uses:** good mast for wildlife; acorn sweet; acorn crop production is good

**Timber Value and Uses:** some lumber when size is good; primarily landscape plantings

**Landscaping Info:** excellent evergreen hedge for dry sites, salt tolerant and suited for oceanfront landscaping, recommended as a container plant, sculptured appearance as it gets older

**Other Facts:** Some authors prefer to classify sand live oak as a variety of *Q. virginiana*.



**Leaf**



**Fruit**



**Bark**



**Flower**



**Twig**

## Laurel Oak

### Darlington oak

*Quercus hemisphaerica* Bartram ex Willdenow

#### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 2.0" - 4.0" long; 0.5" - 1.0" wide  
**Margin:** entire with shallow lobes  
**Apex:** acute or acuminate  
**Base:** wedge-shaped  
**Shape:** oblong-obovate  
**Color:** green above; lighter green below  
**Surface:** smooth above; usually smooth below, occasionally with minute axillary tufts  
**Venation:** pinnate

#### Twigs:

**Size:** slender  
**Color:** deep red - brown - dark brown  
**Surface:** smooth

#### Buds:

**Size:** 0.10" - 0.20" long  
**Shape:** ovoid, acute  
**Color:** reddish to purplish brown  
**Surface:** scales smooth or ciliated

#### Fruit and Flowers:

**Nut:** acorn, biennial; sessile; cup scales and inner surface pubescent, covers 30% of nut  
**Size:** 0.5" long  
**Shape:** ovoid to hemispherical  
**Color:** dark brown to black  
**Flower:** monoecious; unisexual; staminate, hairy, red-stemmed catkins, 2.0" - 3.0" long; pistillate, usually solitary, on short, stout, glabrous stalks

**Bark:** dark brown; deep furrows and flat ridges

#### Physical Attributes:

**Form:** single stem  
**Size:** 50.0' - 60.0', mature, (occasionally 100.0')  
**Growth Rate:** rapid (no data @ 20 yrs)  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** intermediate to intolerant  
**Drought:** moderate  
**Fire:** none  
**Anaerobic:** moderate (seedlings tolerant)

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** resprout/coppice (no data)

#### Habitat and Ecology:

**Site:** moderately dry, sandy soils  
**Soil Texture:** medium - coarse  
**Soil pH:** 3.6 - 5.6  
**Range:** North Carolina; to central Florida; west to Louisiana; in Mississippi, reported by the NRCS Plants Database in the counties of Claiborne, Adams, Franklin, Amite, Lauderdale, Newton, Smith, Benton, Lawrence, Clarke, Wayne, Greene, George, Stone, Perry, Forrest, and Lamar; most often occurs as a single tree or a few trees

**Wildlife Value and Uses:** nesting and cover for wildlife; consistent and abundant acorn crops; important food source for white-tailed deer, raccoon, squirrel, wild turkey, ducks, quail, smaller birds, and rodents; ranked second in quantity and frequency of acorns consumed by wild turkey in Florida; deer browse on seedlings

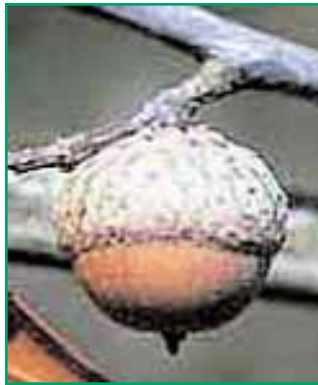
**Timber Value and Uses:** pulpwood and firewood

**Landscaping Info:** urban shade tree; commonly used as an ornamental; easily maintained in most environments; moderately drought tolerant; low salt spray tolerance

**Other Facts:** two similar species currently recognized, *Quercus laurifolia* (diamond leaf oak), and *Q. hemisphaerica*, based on anatomical differences and vast differences in site preferences - *Q. laurifolia* is found on very wet sites often in combination with overcup and nuttall oaks, and sometimes in large clumps or stands



Leaf



Fruit



Bark



Twig

**Bluejack Oak**  
sandjack oak, upland willow oak,  
cinnamon oak, shin oak, turkey oak  
*Quercus incana* Bartram

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 1.1" - 4.0" long; 0.5" - 1.4" wide  
**Margin:** entire  
**Apex:** acute, bristle tipped  
**Base:** acute to rounded  
**Shape:** narrowly ovate to elliptical  
**Color:** bluish green above; bluish green below  
**Surface:** leathery; shiny, sparsely pubescent along midrib, raised veins above; pubescent with axillary tufts below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** reddish brown young; darker with age  
**Surface:** pubescent; leaf scars half-round; bundle scars numerous

**Buds:**

**Size:** terminal bud 0.25" long  
**Shape:** pointed  
**Color:** reddish brown  
**Surface:** hairy scales

**Fruit and Flowers:**

**Nut:** acorn, biennial; cup, bowl-shaped, pale reddish brown, pubescent, inner surface also pubescent, covers 50% of the nut  
**Size:** 0.5" long  
**Shape:** oval  
**Color:** brown with faint stripes  
**Flower:** monoecious; unisexual; staminate, in hairy/woolly catkins, 2.0" - 3.0" long, yellow; pistillate, on short, woolly stalks

**Bark:** thick; gray to black; wide furrows forming square rough plates

**Physical Attributes:**

**Form:** single stem  
**Size:** 30.0' - 40.0', mature  
**Growth Rate:** rapid (in early years)  
**Life Span:** short (< 50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** very tolerant (may be fire dependent in its ability to be competitive)  
**Anaerobic:** none

**Propagation:** seed; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** restricted to well-drained, sandy, upland soils; flatwoods, and river terraces; increases in dominance downslope of ridge tops; typically occurs in longleaf pine (*Pinus palustris*) communities

**Soil Texture:** fine - coarse

**Soil pH:** 4.6 - 7.0

**Range:** Atlantic and Gulf Coastal Plains from southeastern Virginia, south to central Florida; west to Louisiana and eastern and central Texas; north to southeastern Oklahoma and southwestern Arkansas; in Mississippi, counties east of a line from Lowndes and Oktibbeha Counties in the north, due south/southwest to the coast - also reported in Tishomingo County in the extreme northeastern corner of the State

**Wildlife Value and Uses:** acorns are consumed by fox squirrel, white-tailed deer, wild turkey, and quail (major food source for black bear, white-tailed deer, northern bobwhite, and wild turkey in Florida); browsed by white-tailed deer only where succulent sprouts are available and deer numbers are high; birds benefit from sparse ground cover under the oaks

**Timber Value and Uses:** wood is close-grained, hard, and strong; the tree is usually too small to be of much value except for fuel or posts

**Landscaping Info:** very tolerant of drought and should make a great addition to urban landscapes; especially suited for planting in parking lot islands, along streets and in other areas with restricted soil space; tends to have a dominant leader and showy bark; virtually undiscovered by urban inhabitants; somewhat available commercially

**Other Facts:** *Incana* refers to the finely-hairy grayish green lower surface of the leaves.



**Leaf**



**Bark**



**Twig**



**Fruit**



**Form**

## Turkey Oak

Catesby oak, Coastal Plain scrub oak, scrub oak, turkey-foot oak

*Quercus laevis* Walter

### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 3.0" - 12.0" long; 1.0" - 8.0" wide

**Margin:** lobed (3-7), 1 to 3 bristle-tipped teeth per lobe; sinuses deep

**Apex:** acute to acuminate

**Base:** attenuate to acute

**Shape:** broadly ovate or triangular

**Color:** light green above; paler green below

**Surface:** smooth above; axillary tufts of reddish hair below; raised veins on both surfaces

**Venation:** pinnate

### Twigs:

**Size:** stout

**Color:** red-brown, grayish cast

**Surface:** sparsely pubescent to nearly glabrous

### Buds:

**Size:** 0.22" - 0.47" long

**Shape:** conic or narrowly ovoid-ellipsoid

**Color:** light brown to red-brown

**Surface:** pubescent

### Fruit and Flowers:

**Nut:** acorn, biennial; cup, goblet-shaped, scales pubescent with red margins, inner surface pubescent, covers 30% of nut

**Size:** 0.75" - 1.13" long

**Shape:** broadly elliptical

**Color:** light brown, faint stripes

**Flower:** monoecious; unisexual; staminate, slender, hairy, yellow, catkins, 4.0" - 5.0" long; pistillate, on short, stout, hairy, stalks

**Bark:** gray to dark gray; deep furrows; irregular ridges; reddish inner bark

### Physical Attributes:

**Form:** single stem

**Size:** 40.0', mature

**Growth Rate:** rapid; 30.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

**Shade:** intolerant

**Drought:** high

**Fire:** medium

**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** dry, sandy, well-drained soils on ridges in the southeastern coastal plain

**Soil Texture:** fine - medium

**Soil pH:** 4.0 - 5.8

**Range:** Louisiana; east to Florida; north to Virginia; in Mississippi, reported by the NRCS Plants Database in Clarke, Jasper, Wayne, Lamar, Forrest, Perry, Greene, Stone, George, Hancock, Harrison, and Jackson Counties

**Wildlife Value and Uses:** acorns major food source for mammals and birds, including black bear, white-tailed deer, fox squirrel, scrub jay, northern bobwhite, and wild turkey because of their palatability, digestibility, and seasonal abundance; cover and shelter for wildlife

**Timber Value and Uses:** no commercial value; high suitability as fuelwood

**Landscaping Info:** highly recommended for planting in areas that are too dry for most other desirable landscape tree species; deep taproot makes it extremely drought tolerant; leaves are glossy and turn vertically which gives it a unique appearance; fall color is excellent --- deep red and glossy; rapid growth rate

**Other Facts:** leaf shape similar to southern red oak (*Q. falcata*); distinguishing features:

- 1) southern red oak U-shaped leaf base and pubescence on entire lower surface,
- 2) turkey oak tapered leaf base and axillary tufts





Leaf



Fruit



Bark



Twig

**Swamp Laurel Oak**  
laurel oak, Darlington oak,  
diamond-leaf oak, laurel-leaf oak,  
water oak, obtuse oak  
*Quercus laurifolia* Michaux

**Leaves:**

**Type:** simple, alternate, tardily deciduous  
**Size:** 2.0" - 4.0" long; 0.5" - 1.0" wide  
**Margin:** mostly entire  
**Apex:** acute, or blunt (usually no bristle tip)  
**Base:** cuneate  
**Shape:** broadly elliptical or diamond-shaped  
(shape varies even on the same tree)  
**Color:** dark green above; pale green below  
**Surface:** shiny above; smooth with yellow  
midrib on both surfaces  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** reddish brown; grayish with age  
**Surface:** smooth; leaf scars half-round; bundle  
scars numerous

**Buds:**

**Size:** 0.06" - 0.13" long  
**Shape:** ovoid, pointed  
**Color:** chestnut brown  
**Surface:** shiny scales

**Fruit and Flowers:**

**Nut:** acorn; biennial; cup saucer-shaped with  
pubescence on scales and inner surface,  
covers 25% of nut  
**Size:** 0.63" long  
**Shape:** nut nearly round  
**Color:** brown  
**Flower:** monoecious; unisexual; staminate,  
hairy, red-stemmed, yellow, catkins, 2.0" - 3.0"  
long; pistillate commonly solitary, on glabrous,  
stout, short, stalks

**Bark:** gray-black and furrowed; often showing  
white ridges on smaller stems

**Physical Attributes:**

**Form:** single stem  
**Size:** 70.0', mature  
**Growth Rate:** rapid; 28.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
Shade: tolerant  
Drought: low  
Fire: medium  
Anaerobic: medium

**Propagation:** seed (cold stratification not  
required); bare root; container  
**Other:** repropagation/coppice potential

**Habitat and Ecology:**

**Site:** floodplain forests, river and stream  
banks, swamp margins of the Coastal Plain;  
occasionally stream bottoms in the Piedmont  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.2 - 6.0  
**Range:** Texas; east to Florida; north to Virginia;  
in Mississippi, mostly from the central counties  
south to the Gulf Coast

**Wildlife Value and Uses:** consistent and  
abundant acorn crops are an important food  
source for many animals, including white-tailed  
deer, raccoon, squirrel, wild turkey, ducks, quail,  
smaller birds, and rodents; acorns of the black  
oak group do not germinate until spring,  
unlike those of the white oak group, and are an  
important winter food source; palatable for  
browse animals

**Timber Value and Uses:** hard, heavy, and  
strong wood, but does not produce good quality  
lumber; marketed for pulpwood, and also used  
for crossties and firewood

**Landscaping Info:** noted for its dense, oval  
canopy; used as an ornamental and shade tree  
in the South; good for reclamation, parking lot  
islands, and highway medians, prone to  
epicormic branching

**Other Facts:** A swamp laurel oak was planted  
at the White House in Washington, D.C. by  
President Lyndon B. Johnson.



Leaf



Fruit



Bark



Flower



Twig

## Overcup Oak

*Quercus lyrata* Walt.

### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 4.0" - 6.5" long; 2.0" - 4.0" wide

**Margin:** deeply lobed, 1 to 3 teeth per lobe; sinuses >50% to midrib

**Apex:** broadly rounded to ovate

**Base:** cuneate to acute

**Shape:** narrowly oblong

**Color:** dark green above; grayish green below

**Surface:** matte to shiny above; pubescent below with whitish bloom that rubs off

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** grayish or reddish

**Surface:** villous (long silky hairs), becoming glabrate; leaf scars half-round; bundle scars numerous

### Buds:

**Size:** 0.13" long

**Shape:** ovoid

**Color:** light brown scales

**Surface:** pubescent

### Fruit and Flowers:

**Nut:** acorn, annual, slightly pubescent; cup spheroid, gray pubescent scales, covers most of nut

**Size:** 1.0" - 2.0" long

**Shape:** ovoid to oblong

**Color:** light brown

**Flower:** monoecious; unisexual; staminate, slender, hairy, yellow catkins, 3.0" - 4.0" long; pistillate, mostly solitary, sessile, woolly

**Bark:** gray; deep furrows; scaly ridges or plates

### Physical Attributes:

**Form:** single stem

**Size:** 80.0', mature

**Growth Rate:** moderate; 30.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

**Shade:** intermediate

**Drought:** none

**Fire:** low

**Anaerobic:** high

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** poorly drained clay soils of bottom lands, sloughs, and river floodplains, most common in the Coastal Plain

**Soil Texture:** medium - fine

**Soil pH:** 4.5 - 6.0

**Range:** Delaware and New Jersey; south to Florida; west to Texas; north through the Mississippi drainage basin to Iowa, Illinois and Indiana; in Mississippi, scattered throughout on wet floodplains; most common in Delta counties

**Wildlife Value and Uses:** wildlife mast; planted for wildlife habitat improvement and for bottomland restoration; ducks, wild turkey, hogs, white-tailed deer, squirrel, and smaller rodents eat the acorns; toxicity none

**Timber Value and Uses:** wood brownish, hard, heavy, and strong; marketed as white oak primarily for lumber and cooperage; not consistently valued for quality products because of fire damage, defects from wood borers, and heartwood decay following fire injuries; characteristic of "checking" during drying and seasoning is also a quality problem; dominance at many cut-over sites due to low quality

**Landscaping Info:** qualities as an ornamental - can withstand significant flooding and poorly drained soils, tolerant to drought and cold; natural occurrence where periodic flooding is typical but grows best on sites with better drainage and soil texture

**Other Facts:** in flooded areas acorns remain dormant over winter and germinate in the spring after the surface waters recede



Leaf



Fruit



Bark



Flower



Twig

**Bur Oak**  
**mossycup oak**  
*Quercus macrocarpa* Michx.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 2.8" - 6.0" long; 2.0" - 5.0" wide  
**Margin:** lobed (5-7); sinuses deep (almost to midrib)  
**Apex:** rounded  
**Base:** wedge-shaped  
**Shape:** oblong-obovate  
**Color:** dark green above; grayish green below  
**Surface:** lustrous above; finely dense pubescence below  
**Venation:** pinnate

**Twigs:**

**Size:** stout  
**Color:** light brown; becoming dark brown  
**Surface:** pubescent, corky wings or ridges; leaf scars and pith similar to other white oaks

**Buds:**

**Size:** 0.25" long  
**Shape:** ovoid, obtuse  
**Color:** reddish brown  
**Surface:** pubescent

**Fruit and Flowers:**

**Nut:** acorn, annual; cup, deep, scales grayish, pubescent - scales near cup rim form a fringe, cup encloses 50 - 90% of nut  
**Size:** 1.0" - 2.0" long  
**Shape:** ovoid  
**Color:** light brown  
**Flower:** monoecious; unisexual; staminate in slender, hairy, stalked, catkins, 4.0" - 6.0" long; pistillate, sessile or subsessile, solitary or in several-flowered spikes

**Bark:** light gray; thick (up to 2.0"); deep furrows; scaly ridges

**Physical Attributes:**

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** slow; 25.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** high  
**Fire:** high  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** low, rich, moist, soils of bottom lands; usually found on limestone or calcareous clay in uplands  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.5 - 7.5 (optimum neutral)  
**Range:** Saskatchewan; east to New Brunswick; southwest to Texas; north to Montana; in Mississippi, reported by the NRCS Plants Database in Lafayette, Pontotoc, Chickasaw, Clay, Oktibbeha, Lowndes, and Hinds Counties

**Wildlife Value and Uses:** acorns eaten by a variety of wildlife species; attracts squirrel, mice, cottontails, wood ducks, and deer; foliage browsed by deer

**Timber Value and Uses:** cut for lumber where merchantable size is attained; uses similar to white oak - construction, flooring, and cooperage.

**Landscaping Info:** attractive as a landscape tree because of its tolerance of such a wide range of soils and conditions; well suited for street, park and parking lot planting as long as enough soil space is available to accommodate growth (at least 10'); can be obtained through common local retail nursery or seed outlets, specialized commercial or wholesale outlets, or harvested from local wild stock

**Other Facts:** one bur oak designated as a National Historic Landmark in Kansas; used as medicine for heart problems and other medical conditions by many Native Americans; largest acorn of the oaks occurring in Mississippi



Leaf



Bark



Fruit



Twig

**Sand Post Oak**  
**dwarf post oak, runner oak,**  
**scrubby post oak, post oak**  
*Quercus margaretta* Ashe

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 1.5" - 3.0" long; 0.75" - 1.5" wide  
**Margin:** lobed (5); moderate to deep  
**Apex:** broadly rounded  
**Base:** cuneate to rounded  
**Shape:** cruciform  
**Color:** dark green above; light green below  
**Surface:** shiny above; densely pubescent below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** green or reddish, becoming gray  
**Surface:** glabrous; leaf scars half-round; bundle scars numerous

**Buds:**

**Size:** 0.08" - 0.12" long  
**Shape:** ovoid  
**Color:** reddish brown  
**Surface:** sparsely pubescent to glabrate

**Fruit and Flowers:**

**Nut:** acorn, annual; cup, globe-shaped, gray pubescent, covers 75% of nut  
**Size:** 0.63" - 1.0" long  
**Shape:** ovoid, rounded apex  
**Color:** light brown  
**Flower:** monoecious; unisexual; staminate, hairy, yellow, catkin, 3.0" - 4.0" long; pistillate, flowers tiny, red, on short stalks

**Bark:** light gray; shallow fissures; scaly ridges

**Physical Attributes:**

**Form:** shrub; small tree; occasionally rhizomatous  
**Size:** 32.0', mature (occasionally to 87.0')  
**Growth Rate:** slow (no data @ 20 yrs)  
**Life Span:** (no data)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** moderate  
**Anaerobic:** none

**Propagation:** seed; bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** understory or open-grown species on deep sandy and gravelly soils in southern oak-pine forest types  
**Soil Texture:** fine - coarse  
**Soil pH:** adaptable; best in acid soil (<7.0)  
**Range:** Texas, Oklahoma and Missouri; east to Florida; north to Virginia; in Mississippi, mostly on drier sites in southern half of the State

**Wildlife Value and Uses:** provides valuable resources to numerous wildlife species; good nesting and denning sites for cavity-nesting birds and various mammals; foliage often used in nest building by birds, rodents, and small mammals; shelter, nesting, and perching sites for many songbirds and birds of prey; acorns high-energy food source for white-tailed deer, wild turkey, three species of squirrel (gray, fox, and flying), and various rodents; **tannins in the acorns, leaves, and buds are toxic to some domestic livestock, such as goats, cattle, and sheep; can be fatal to these animals.**

**Timber Value and Uses:** not considered a good timber tree; most sand post oak is harvested for mining timbers, railroad ties, flooring, and siding; resistance to decay in contact with soil

**Landscaping Info:** well-rounded shape; under utilized in dry landscape situations; commercially available; excellent landscaping mulch from bark as tannins provide insect resistance

**Other Facts:** recognized by Sargent as *Q. stellata* var. *margaretta*

sometimes difficult to distinguish from post oak; sand post oak has glabrous twigs, smaller and more rounded leaves, and is usually found in xeric, sandy soils with other scrub oaks and longleaf pine, whereas post oak would be the exception in this habitat





Leaf



Fruit



Bark



Twig

## Blackjack Oak

barren oak, black oak, jack oak  
*Quercus marilandica* Muenchhausen

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 6.0" - 7.0" long; 2.0" - 3.0" wide  
**Margin:** entire  
**Apex:** 3-lobed, entire, or dentate, bristle-tipped  
**Base:** tapering  
**Shape:** obovate or triangular  
**Color:** dark yellow-green above; orange-brown below  
**Surface:** glossy above; dense pubescence below; secondary veins raised on both surfaces; entire leaf leathery in texture  
**Venation:** pinnate

### Twigs:

**Size:** stout  
**Color:** ashy gray; becoming gray-brown  
**Surface:** slightly pubescent; becoming glabrous; leaf scars half-round; numerous bundle scars

### Buds:

**Size:** terminal 0.50" long; laterals, smaller  
**Shape:** narrowly conical  
**Color:** reddish brown  
**Surface:** buds angular; scales pubescent

### Fruit and Flowers:

**Nut:** acorn, biennial; cup, top-shaped, scales and inner surface pubescent, covers 30-60% of nut  
**Size:** 0.5" - 0.75" long  
**Shape:** elliptical, ends in a stout point at tip  
**Color:** brown, often faintly striped  
**Flower:** monoecious; unisexual; staminate, interrupted, hairy catkins, 2.0" - 4.0" long; pistillate, solitary or in pairs, short-stalked

**Bark:** rough; nearly black; deep furrows; mature bark forms irregular or rectangular plates; inner bark is orange

### Physical Attributes:

**Form:** single stem  
**Size:** 15.0' - 45.0', mature (occasionally 95.0')  
**Growth Rate:** slow; 20.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** usually on dry, sandy, sterile soils; sometimes in pure park-like stands; common associates are eastern redcedar, and southern red, black, and post oaks  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.6 - 5.6  
**Range:** southern New York and New Jersey; west through Pennsylvania, Ohio, Michigan, Illinois and Iowa; south through Oklahoma to Texas; then east to Florida; in Mississippi, scattered throughout

**Wildlife Value and Uses:** provides cover and habitat; acorns are an important food source for mammals and birds; blackjack oak acorns ranked fourth in preference as a food source for the fox squirrel (out of 12 southeastern oak species); browse is unpalatable

**Timber Value and Uses:** not a preferred timber species; wood is hard, heavy, and strong; wide, light sapwood; used mainly for fence posts, railroad ties, and fuel

**Landscaping Info:** not commercially available

**Other Facts:** considered a pioneer species; one of the few species of red oaks that shares the white oak group characteristic of vessels blocked by tyloses; Choctaw people used it as a medicinal aid in childbirth



Leaf



Fruit



Bark



Twig

## Swamp Chestnut Oak

cow oak, basket oak

*Quercus michauxii* Nutt.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 2.75" - 11.0" long; 2.0" - 7.0" wide  
**Margin:** wavy, rounded teeth (9-14 pairs)  
**Apex:** broadly rounded with abruptly pointed tip  
**Base:** acuminate  
**Shape:** obovate  
**Color:** dark green above; gray-green below  
**Surface:** shiny above; densely pubescent below  
**Venation:** pinnate

### Twigs:

**Size:** stout.  
**Color:** green (new); 1st year brown; then gray  
**Surface:** glabrous

### Buds:

**Size:** 0.25" dia.  
**Shape:** ovoid  
**Color:** reddish brown  
**Surface:** glabrous or minutely puberulent (slightly pubescent)

### Fruit and Flowers:

**Nut:** acorn, annual; cup bowl-shaped, brown pubescent scales, encloses 50% of nut  
**Size:** 1.0" - 1.38" long  
**Shape:** ovoid  
**Color:** light to dark brown  
**Flower:** monoecious; unisexual; staminate, slender, hairy, yellow, catkins, 2.0" - 3.0" long; pistillate, short-stalked, few-flowered spikes

**Bark:** light gray; rough; flaky ridges

### Physical Attributes:

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** moderate; 35.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intolerant - moderately tolerant  
**Drought:** low  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification not required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** occurs on a variety of moist soils and well-drained alluvial floodplains in the central and southern forest regions  
**Soil Texture:** medium only  
**Soil pH:** 4.5 - 6.5  
**Range:** New Jersey; south to Florida; west to Texas; north to Indiana and Illinois; in Mississippi, throughout on well-drained bottomland soils and occasionally on uplands

**Wildlife Value and Uses:** acorns eaten by white-tailed deer, wild hogs, wild turkey, black bear, squirrel, chipmunks, red fox, northern bobwhite, and waterfowl; also eaten by cows, chickens and humans, and in the latter case are considered sweet enough to be eaten raw; **tannins in the acorns can poison livestock at high concentrations and/or in large quantities**

**Timber Value and Uses:** heavy hardwood; machines well but is subject to checking and warping if not dried properly; used in many kinds of construction, for agricultural implements, wheels, veneer, boards, fence posts, tight cooperage, baskets and fuel

**Landscaping Info:** native; larval plant for Juvenal's duskywing butterfly; shallow root system

**Other Facts:** allelopathic (exudes plant growth inhibitors); retards the growth of understory vegetation



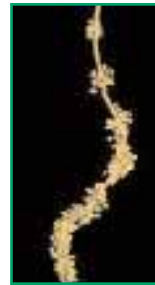
Leaf



Fruit



Bark



Flower



Twig

## Dwarf Live Oak

### minimal oak

*Quercus minima* (Sargent) Small

#### Leaves:

**Type:** simple, alternate, tardily deciduous

**Size:** 1.5" - 4.75" long; 0.75" - 2.0" wide

**Margin:** flat or slightly wavy

**Apex:** acute to rounded

**Base:** cuneate

**Shape:** obovate or oblanceolate

**Color:** light to dark green above; light green below

**Surface:** glossy above; whitish bloom below

**Venation:** pinnate

#### Twigs:

**Size:** slender

**Color:** light gray

**Surface:** smooth in 2nd year

#### Buds:

**Size:** 0.02" - 0.04" long

**Shape:** globular

**Color:** dark brown to grayish brown

**Surface:** scales glabrous or slightly pubescent

#### Fruit and Flowers:

**Nut:** acorn, annual; cup, long, goblet-shaped, grayish scales, sometimes minute pubescence, encloses up to 50% of nut

**Size:** 0.63" - 1.0" long

**Shape:** narrowly oval

**Color:** dark brown

**Flower:** similar to other oaks

**Bark:** brown to light gray and smooth

#### Physical Attributes:

**Form:** single stem; rhizomatous shrub

**Size:** 3.0', mature

**Growth Rate:** rapid (no data @ 20 yrs)

**Life Span:** short (<50 yrs)

#### Tolerances:

**Shade:** intermediate

**Drought:** high

**Fire:** none

**Anaerobic:** medium

**Propagation:** seed (no data on cold stratification); bare root; container

**Other:** resprout/coppice potential; prolific sprouter; flowers and fruits as early as 3 years from seed

#### Habitat and Ecology:

**Site:** pine and scrub forests on deep, sandy soils

**Soil Texture:** medium - coarse

**Soil pH:** 4.5 - 6.5

**Range:** Louisiana; east to Florida; north to North Carolina; in Mississippi, reported by the NRCS Plants Database only in Jackson and Stone Counties

**Wildlife Value and Uses:** provides food and shelter for wildlife in longleaf and slash pine areas where fire is used as a management tool to reduce competing vegetation

**Timber Value and Uses:** too small to be of any commercial value

**Landscaping Info:** difficult to locate

**Other Facts:** hybridizes with *Q. chapmanii* along the eastern side of Florida and exhibits leaves somewhat intermediate between the two parents



**Leaf**

**Habitat**



**Fruit**

**Twig**

**Chestnut Oak**  
**rock chestnut oak, mountain chestnut oak, rock oak, tanbark oak**  
*Quercus montana* Willdenow

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 4.75" - 8.0" long, 2.37" - 4.0" wide  
**Margin:** crenate, 10 - 14 rounded teeth  
**Apex:** broadly acuminate  
**Base:** subacute  
**Shape:** obovate  
**Color:** dark yellow-green above, light green below  
**Surface:** shiny above; slightly pubescent along veins below  
**Venation:** pinnate

**Twigs:**

**Size:** stout  
**Color:** dark green to reddish brown  
**Surface:** smooth

**Buds:**

**Size:** 0.5" long  
**Shape:** ovoid, pointed apex  
**Color:** light brown to reddish brown  
**Surface:** scales slightly pubescent

**Fruit and Flowers:**

**Nut:** acorn, annual; cup has gray scales with red tips, inner surface pubescent, encloses 30 - 50% of nut  
**Size:** 1.0" - 1.5" long  
**Shape:** rounded or pointed at tip;  
**Color:** chestnut brown  
**Flower:** monoecious; unisexual; staminate, hairy, yellow catkins; 3.0" - 4.0" long; pistillate, in 2- or 3-flowered stalks

**Bark:** dark reddish brown to dark gray; deep V-shaped furrows and broad ridges in mature bark

**Physical Attributes:**

**Form:** single stem  
**Size:** 80.0' - 145.0', mature  
**Growth Rate:** slow; 25.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** medium  
**Fire:** medium  
**Anaerobic:** none

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** shallow soils, dry sandy soils, and rocky upland forests  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.5 - 7.0  
**Range:** southern Ontario; south to Louisiana; east to Georgia; north to Maine; in Mississippi, reported by the NRCS Plants Database in Tishomingo, Itawamba, Lafayette, and Calhoun Counties

**Wildlife Value and Uses:** high wildlife value; acorns and twigs provide food for turkey, rough grouse, songbirds, deer, and small mammals

**Timber Value and Uses:** lumber; fencing and railway ties - because of its durability even when in direct contact with the soil; wood is close-grained, heavy, hard, and strong; bark is tannin rich and was used for many years in the leather tanning process

**Landscaping Info:** fall color yellow-orange to rusty brown; may be hard to find as nursery stock; slow growth rate but does make a good ornamental shade tree

**Other Facts:** largest known chestnut oak grows in the Great Smoky Mountains National Park, TN





Leaf



Fruit



Bark



Twig

**Chinkapin Oak**  
**chestnut oak, yellow chestnut oak,**  
**yellow oak, rock chestnut oak**  
*Quercus muehlenbergii* Engleman

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 2.0" - 6.0" long; 1.5" - 3.1" wide  
**Margin:** regularly undulate  
**Apex:** acuminate - acute  
**Base:** truncate, cuneate  
**Shape:** obovate, oblanceolate  
**Color:** dark green above; light green below  
**Surface:** shiny above; minute pubescence below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** brown, turning gray in second year  
**Surface:** smooth

**Buds:**

**Size:** 0.13" - 0.25" long  
**Shape:** broadly ovate, blunt apex  
**Color:** chestnut brown  
**Surface:** sparsely pubescent

**Fruit and Flowers:**

**Nut:** acorn, annual; cup, thin, cup-shaped, small obtuse scales, thickened and rounded on the back toward the base of the cup, pubescent inner surface, hoary-tomentose outer surface, minute fringe border to the tip, covers 50% of nut  
**Size:** 0.5" - 1.0" long  
**Shape:** oblong to ovoid  
**Color:** light brown  
**Flower:** monoecious; unisexual; staminate, hairy, yellow catkins, 3.0" - 4.0" long; pistillate, in short, white, woolly spikes

**Bark:** light gray; thin; scaly

**Physical Attributes:**

**Form:** single stem  
**Size:** 80.0' - 110.0', mature  
**Growth Rate:** moderate; 30.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** limestone and calcareous soils in mixed deciduous and pine forests  
**Soil Texture:** medium  
**Soil pH:** 6.5 - 8.0  
**Range:** Vermont; west to Ontario and Minnesota; southwest to New Mexico and northeastern Mexico; east to Florida; north to Massachusetts; in Mississippi, scattered throughout; reported by the NRCS Plants Database in Desoto, Pontotoc, Webster, Clay, Noxubee, Kemper, Newton, Scott, Hinds, Wayne, and Wilkinson Counties

**Wildlife Value and Uses:** trees scattered but acorns are palatable mast as a portion of other available food resources; denning, nesting tree for wildlife

**Timber Value and Uses:** seldom grows in size or abundance enough to be commercially important, but the heavy wood makes excellent fuel

**Landscaping Info:** probable difficulty in finding nursery stock; suggested uses include street tree (where there are no sidewalks), shade, highway median, parking lot island >200 sq. ft., and lawns >6' wide

**Other Facts:** named after the botanist Henry Muehlenberg; largest known chinkapin oak is in Clark County, KY



Leaf



Fruit



Bark



Flower



Twig

## Myrtle Oak

### scrub oak

*Quercus myrtifolia* Willdenow

#### Leaves:

**Type:** simple, alternate, evergreen  
**Size:** 0.63" - 2.0" long; 0.38" - 1.0" wide  
**Margin:** entire, revolute  
**Apex:** rounded, or with a bristle-tipped tooth  
**Base:** rounded  
**Shape:** narrow to broadly obovate  
**Color:** dark green above; light green below  
**Surface:** shiny, leathery above; axillary tomentum below, some with scurfy yellowish bloom  
**Venation:** pinnate

#### Twigs:

**Size:** slender  
**Color:** reddish brown  
**Surface:** weakly pubescent

#### Buds:

**Size:** 0.79" - 0.22" long  
**Shape:** ovoid narrowing to a point  
**Color:** reddish brown scales  
**Surface:** pubescent tan tufts at apex

#### Fruit and Flowers:

**Nut:** acorn, biennial; cup goblet-shaped, pubescent, covers 25 - 35% of nut  
**Size:** 0.25" - 0.5" long  
**Shape:** nearly round  
**Color:** dark brown  
**Flower:** monoecious; unisexual; staminate, catkins with dense gray-white pubescence, 1.0" - 1.5" long; pistillate, solitary or in pairs, sessile (without stalks) or nearly sessile, in hairy bracts tinged with red

**Bark:** gray; smooth young; furrowed with age

#### Physical Attributes:

**Form:** single stem to multi-trunked  
**Size:** 8.0' - 36.0', mature  
**Growth Rate:** slow (no data @ 20 yrs)  
**Life Span:** (no data)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** moderate; resprouts rapidly after a fire  
**Anaerobic:** none

**Propagation:** seed; bare root; container  
**Other:** resprout/coppice potential; often forms impenetrable thickets

#### Habitat and Ecology:

**Site:** frequent along coastal dunes and sandy ridges of the lower Coastal Plain, and inland on upper sandy terraces of rivers; usually the most abundant species in scrub oak forests  
**Soil Texture:** medium - coarse  
**Soil pH:** adaptable (no specific data)  
**Range:** South Carolina; south to Florida; west to Mississippi; in Mississippi, reported in Jackson and Harrison Counties only

**Wildlife Value and Uses:** acorns ready early in the season and provide an important source of food for many wildlife species; high carbohydrate, high fat nuts eaten by wild turkey, quail, squirrel, raccoon, black bear, deer, and numerous rodents; dense thickets provide excellent nesting and cover sites for birds

**Timber Value and Uses:** no commercial value

**Landscaping Info:** suitable for xeriscaping; from seed - direct sow as soon as possible after last frost, seed does not store well; makes a good privacy screen, or works well as a container plant for the deck, patio, or in the landscape

**Other Facts:** some folk legends attribute magical powers to the plants - believed to bestow love, passion, and fertility upon the users



**Leaf**



**Bark**



**Fruit**



**Twig**

## Water Oak

possum oak, spotted oak, pin oak,  
red oak

*Quercus nigra* L.

### Leaves:

**Type:** simple, alternate, deciduous or tardily deciduous

**Size:** 2.0" - 4.0" long; 1.0" - 2.0" wide

**Margin:** entire; lobed (2-3) or; variously lobed (usually applicable only to sprouts and juvenile plants)

**Apex:** acute to broadly obtuse

**Base:** wedge-shaped

**Shape:** spatulate, to obovate or oblong

**Color:** dull green above; pale green below

**Surface:** glabrous above; pubescent tufts below

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** dark red-brown to brown

**Surface:** smooth, glabrous

### Buds:

**Size:** 0.12" - 0.26" long

**Shape:** ovoid, pointed apex

**Color:** chestnut brown

**Surface:** pubescent scales

### Fruit and Flowers:

**Nut:** acorn, biennial; cup shallow, pubescent both surfaces; covers up to 25% of nut

**Size:** 0.38" - 0.63" long

**Shape:** nearly round

**Color:** nearly black; faint stripes

**Flower:** monoecious; unisexual; staminate, stalked, hairy, yellow, catkins, 2.0" - 3.0" long; pistillate, mostly solitary, on short, hairy stalks

**Bark:** light brown to black; furrows; scaly ridges

### Physical Attributes:

**Form:** single stem

**Size:** 90.0', mature

**Growth Rate:** rapid; 30.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** intolerant

**Drought:** low

**Fire:** low

**Anaerobic:** medium

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** wet lowland to moist upland soils; can occur on most upland sites, and on deep sand deposits in bottom lands

**Soil Texture:** fine - medium

**Soil pH:** 4.8 - 5.8

**Range:** New Jersey; south to Florida; west to Texas; north to Missouri; east to Virginia; in Mississippi, ubiquitous

**Wildlife Value and Uses:** cover, food, and habitat for wildlife; acorns eaten by squirrel, chipmunks, waterfowl, blue jays, wild turkey, and northern bobwhite; cached by blue jays and squirrels in the fall; home for cavity nesters; deer browse but palatability is low

**Timber Value and Uses:** rough construction lumber; moderate quality lumber on good sites but prone to excessive splitting; veneer used as plywood for fruit and vegetable containers; on poor sites prone to knots, mineral stains, and insect damage

**Landscaping Info:** rapid growth; dense foliage, fairly thick leaves and long leaf retention; fairly broad site adaptability; good shade tree choice in the South

**Other Facts:** one of the largest known specimens is located in Jones County, Mississippi



Leaf



Fruit



Bark



Twig

## Oglethorpe Oak

*Quercus oglethorpensis* Duncan

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 2.0" - 5.0" long; 0.5" - 2.0" wide  
**Margin:** entire or slightly undulating at apex  
**Apex:** rounded, obtuse or broadly acute  
**Base:** cuneate to cordate  
**Shape:** elliptical to obovate  
**Color:** dark green above; yellow-green below  
**Surface:** dull above; velvety pubescence below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** purplish brown  
**Surface:** sparsely pubescent, glabrate with age; conspicuous lenticels

### Buds:

**Size:** 0.08" - 0.10" long  
**Shape:** rounded  
**Color:** reddish brown - dark gray scales  
**Surface:** pubescent

### Fruit and Flowers:

**Nut:** acorn, annual; cup short, gray scales, tan pubescence, covers 30% of nut  
**Size:** 0.4" - 0.7" long  
**Shape:** ovoid  
**Color:** dark grayish brown, short fine hairs  
**Flower:** monoecious; unisexual; staminate, slender, yellow, hairy catkins, 3.0" - 4.0" long; pistillate, on short, pubescent stalks

**Bark:** light gray or whitish; scaly ridges

### Physical Attributes:

**Form:** single stem  
**Size:** 55.0' - 75.0', mature  
**Growth Rate:** rapid (no data @ 20 yrs)  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** low  
**Fire:** none  
**Anaerobic:** none

**Propagation:** seed; bare root; container  
**Other:** must be transplanted when young;

### Habitat and Ecology:

**Site:** moist soils and well-drained terraces along streams, and in loblolly pine-hardwood stands  
**Soil Texture:** fine - coarse  
**Soil pH:** adaptable (no specific data available)  
**Range:** localized populations in South Carolina, Georgia, Mississippi and Louisiana; in Mississippi, reported only in Scott, Smith, Jasper, and Adams Counties

**Wildlife Value and Uses:** small, round acorns are a favorite of songbirds

**Timber Value and Uses:** does not have a lumber or horticultural market value; poorer value as a timber product than other oak species due to cankers which occur on many of the trees

**Landscaping Info:** deep, rusty red fall leaf color, white flaky bark, and fast rate of growth make this oak an interesting ornamental; could be difficult to obtain commercially because of its rarity

**Other Facts:** named in 1940 for Oglethorpe County, Georgia, where it is most abundant; indirectly honors James Edward Oglethorpe (1695-1785), English general and founder of the colony of Georgia

Species is considered critically imperiled in Louisiana, imperiled in Mississippi and Georgia, and vulnerable in South Carolina





**Leaf**



**Bark**



**Twig**

## Cherrybark Oak

*Quercus pagoda Rafinesque*

### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 3.5" - 12.0" long, 2.5" - 6.3" wide

**Margin:** lobed (5-11); 1-3 bristle tipped teeth; middle lobes usually at right angles to midrib

**Apex:** acute

**Base:** cuneate to rounded

**Shape:** ovate or obovate

**Color:** dark green above; grayish green below

**Surface:** shiny above; pale gray pubescence below; secondary veins raised on both surfaces

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** light brown

**Surface:** pubescent

### Buds:

**Size:** 0.25" long

**Shape:** ovoid; 5-angled cross section

**Color:** light chestnut brown

**Surface:** pubescent scales, sometimes ciliate at the apex

—

### Fruit and Flowers:

**Nut:** acorn, biennial; cup, chestnut brown, scales and inner surface pubescent, covers 30 - 50% of nut

**Size:** 0.63" long

**Shape:** rounded

**Color:** brown, faint stripes, fine pubescence

**Flower:** monoecious; unisexual; staminate, yellow, hairy, catkin, 3.0" - 5.0"; pistillate, solitary or few-flowered spikes, on short, stout, stalks

**Bark:** light gray; scaly ridges; shallow furrows

### Physical Attributes:

**Form:** single stem

**Size:** 110.0' - 130.0', mature

**Growth Rate:** moderate; 60.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: intermediate

Drought: low

Fire: low

Anaerobic: none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential in young trees

### Habitat and Ecology:

**Site:** well-drained lowland soils in the bottomland hardwood types, rich upland sites, and loess hills along the Mississippi River

**Soil Texture:** medium

**Soil pH:** 4.5 - 6.0

**Range:** Maryland; south to Florida; west to eastern Texas; north to southern Illinois; in Mississippi; throughout the State, but most abundant, largest, and most valuable timber trees in the river swamps of the Yazoo basin

### Wildlife Value and Uses:

provides cover and nesting sites for birds and mammals; acorns important food source for wildlife including waterfowl, wild turkey, blue jay, red-headed and red-bellied woodpeckers, white-breasted nuthatch, common grackle, raccoon, white-tailed deer, and squirrel; acorns provide a substantial part (10 percent or more) of the overall wildlife diet in the southeastern United States; heaviest eaters are the gray squirrel, wild turkey, and blue jay; not a preferred browse for cattle

**Timber Value and Uses:** exceptional quality; strong and heavy wood used for furniture, flooring, interior finish, veneers, factory lumber, and railroad ties; highest timber value among southern red oaks (and other So. hardwoods); fast growing, relatively free of defects;

**Landscaping Info:** often planted as a shade tree; routinely commercially available

**Other Facts:** used in the restoration of bottomland hardwood forests on abandoned agricultural fields, and harvested pine plantations



Leaf



Bark



Fruit



Twig

## Pin Oak

swamp oak, Spanish oak, swamp

Spanish oak, water oak

*Quercus palustris* Muench.

### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 2.0" - 6.25" long; 2.0" - 4.75" wide

**Margin:** lobed (5-7); 1 to 3 bristle-tipped teeth per lobe; deep sinuses nearly to midrib; basal lobes somewhat recurved

**Apex:** acute

**Base:** truncate

**Shape:** elliptical to oblong

**Color:** dark green above; light green below

**Surface:** glossy above; axillary tufts or

tomentum next to raised veins below

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** chestnut brown

**Surface:** shiny

### Buds:

**Size:** 0.12" - 0.20" long

**Shape:** ovoid, pointed apex

**Color:** chestnut brown

**Surface:** glabrous; few fine hairs at apex

### Fruit and Flowers:

**Nut:** acorn, biennial; cup thin, saucer-shaped, glabrous or puberulent outer surface, glabrous inner surface, covers 25% of nut

**Size:** 0.63" long

**Shape:** rounded

**Color:** light brown, often striped

**Flower:** monoecious; unisexual; staminate, hairy, yellow catkins, 3.0" long; pistillate, single to pairs or threes, on short, hairy stalks

**Bark:** gray-brown; smooth juvenile; developing broad scaly ridges with maturity; pink inner bark

### Physical Attributes:

**Form:** single stem

**Size:** 100.0', mature

**Growth Rate:** rapid; 40.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

### Tolerances:

**Shade:** intolerant

**Drought:** low

**Fire:** medium

**Anaerobic:** medium

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** poorly-drained soils; usually tolerates intermittent flooding during the dormant season but not during the growing season

**Soil Texture:** medium - fine

**Soil pH:** 4.5 - 6.5

**Range:** Vermont and Ontario; south to North Carolina; west to Oklahoma; north to Wisconsin; in Mississippi, reported by the NRCS Plants Database in the counties of Benton, Panola, Lafayette, Issaquena, and Hinds

**Wildlife Value and Uses:** acorns an important food for mallards and wood ducks during fall migration; one of the primary tree species in bottomland duck-hunting areas (greentree reservoirs) that are artificially flooded during the fall and winter to attract migrating waterfowl; also an important food for deer, squirrel, turkey, woodpeckers, and blue jays

**Timber Value and Uses:** does not self-prune, so the wood has many small knots which reduce its quality and utility; hard, heavy wood used locally for construction timbers, mine props, and fuel

**Landscaping Info:** extensively planted as an ornamental in North America; shallow root system that allows for easy transplanting; routinely commercially available

**Other Facts:** bark used medicinally by Native Americans



Leaf



Bark



Fruit



Twig

## Willow Oak

pin oak, peach oak, swamp willow oak, black oak

*Quercus phellos* L.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 2.0" - 5.0" long; 0.5" - 1.0" wide  
**Margin:** entire  
**Apex:** acute; bristle-tipped  
**Base:** acute  
**Shape:** narrowly oblong or lanceolate  
**Color:** light green above; paler green below  
**Surface:** slightly shiny above; glabrous or pubescent below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** reddish brown  
**Surface:** glabrous

### Buds:

**Size:** terminal bud, 0.13" long; laterals smaller  
**Shape:** ovoid; apex acute  
**Color:** chestnut brown  
**Surface:** glabrous

### Fruit and Flowers:

**Nut:** acorn, biennial; cup, shallow, saucer-shaped, scales and inner surface pubescent, covers up to 33% of nut  
**Size:** 0.38" - 0.50" long  
**Shape:** nearly oval  
**Color:** brown; faint stripes  
**Flower:** monoecious; unisexual; staminate, hairy, yellow, catkins, 2.0" - 3.0" long, on slender stalks; pistillate flowers, solitary or in pairs, on short stalks

**Bark:** dark gray; smooth; darker with age; deep furrows; rough ridges; pink inner bark

### Physical Attributes:

**Form:** single stem  
**Size:** 80.0' - 130.0', mature  
**Growth Rate:** rapid; 60.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** none  
**Fire:** medium  
**Anaerobic:** medium

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

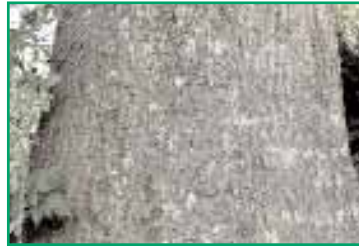
**Site:** moist, alluvial soils along streams and rivers; commonly found in transitional communities between swamps and upland mesic forests  
**Soil Texture:** fine - medium  
**Soil pH:** 4.5 - 5.5  
**Range:** New York; west to Missouri; south to Texas; east to Florida; north to Delaware; in Mississippi, throughout

**Wildlife Value and Uses:** important food source for waterfowl, wild turkey, blue jays, red-headed and red-bellied woodpeckers, flickers, grackles, white-tailed deer, fox, gray squirrel, and other small rodents; good browse for white-tailed deer

**Timber Value and Uses:** important source of lumber and pulp; good pulp characteristics and can be harvested when quite young; restoration of the wetter sites of bottomland hardwood forests and for rehabilitation of disturbed areas

**Landscaping Info:** widely used as a shade tree and ornamental; transplants easily; routinely commercially available

**Other Facts:** susceptible to acid rain --- show yellow or brown necrotic zones when exposed to simulated rain less than 3.2 pH



**Bark**



**Leaf**



**Twig**



**Fruit**

**Dwarf Chinkapin Oak**  
**scrub chestnut oak**  
*Quercus prinoides* Willdenow

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 1.5" - 5.5" long; 0.75" - 2.5" wide  
**Margin:** undulate or toothed (3-8 pairs), rounded teeth  
**Apex:** rounded  
**Base:** cuneate  
**Shape:** obovate  
**Color:** dark green above; light green below  
**Surface:** shiny above; slightly pubescent below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** brownish; graying 2nd year  
**Surface:** fine, sparse pubescence; glabrate 2nd year

**Buds:**

**Size:** 0.04" - 0.12" long  
**Shape:** broadly rounded; blunt apex  
**Color:** chestnut brown  
**Surface:** scales have some pubescence

**Fruit and Flowers:**

**Nut:** acorn, annual; cup thin with short gray pubescent scales, covers up to 35% of the nut  
**Size:** 0.75" long  
**Shape:** oblong to oval  
**Color:** light brown  
**Flower:** monoecious, unisexual, similar to other oaks

**Bark:** thin; gray; scaly ridges and furrows

**Physical Attributes:**

**Form:** single stem  
**Size:** 25.0', mature  
**Growth Rate:** (no data @ 20 yrs)  
**Life Span:** (no data)  
**Tolerances:**  
**Shade:** moderate  
**Drought:** moderate  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** may be found as rhizomatous shrub or a small tree

**Habitat and Ecology:**

**Site:** dry rocky soils such as sandstone or shale outcrops associated with oak-pine types  
**Soil Texture:** fine - coarse  
**Soil pH:** adaptable (no specific data)  
**Range:** New Hampshire; south to Florida; west to Iowa and Oklahoma; in Mississippi, reported by the NRCS Plants Database in the counties of Tate, Tishomingo, Lee, Chickasaw, Pontotoc, and Forrest

**Wildlife Value and Uses:** acorns are sweet; favorites of deer and turkey

**Timber Value and Uses:** generally too small to be of any commercial value

**Landscaping Info:** excellent small landscaping tree; fall color reddish orange to burgundy; can be grown in large pots as a multi-trunked structure

**Other Facts:** century long debate among taxonomists about whether *Q. prinoides* is distinct from *Q. muhlenbergii*

roasted seeds can be used as a coffee substitute; dried seeds can be ground into a powder and used as a thickening for stews, sauces, etc.





**Leaf**



**Bark**



**Fruit**



**Tree**

## Runner Oak

### running oak

*Quercus pumila* Walter

#### Leaves:

**Type:** simple, alternate, evergreen  
**Size:** 1.0" - 4.0" long; 0.38" - 2.25" wide  
**Margin:** entire, revolute edges  
**Apex:** acute to rounded with bristle  
**Base:** acute to rounded  
**Shape:** oblong to narrowly oblong  
**Color:** green above; grayish brown below  
**Surface:** impressed veins above; slightly concave, pubescent below  
**Venation:** pinnate

#### Twigs:

**Size:** slender  
**Color:** reddish brown to gray-brown  
**Surface:** sparsely to uniformly pubescent

#### Buds:

**Size:** 0.10" - 0.18" long  
**Shape:** ovoid  
**Color:** brown to red-brown  
**Surface:** glabrous or with ciliate scale margins

#### Fruit and Flowers:

**Nut:** acorn, annual; cup deep saucer-shaped, scales and inner surface pubescent, covers up to 66% of nut  
**Size:** 0.63" long  
**Shape:** broadly oval  
**Color:** brown  
**Flower:** monoecious; unisexual; similar to other oaks

**Bark:** gray to dark brown

#### Physical Attributes:

**Form:** single stem  
**Size:** 3.0', mature  
**Growth Rate:** slow; 1.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** low  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** dry, sandy soils on the coastal plain  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.6 - 6.0  
**Range:** North Carolina; south to Florida; west to Mississippi; in Mississippi, reported by the NRCS Plants Database in George, and Jackson Counties

**Wildlife Value and Uses:** high palatability for browse animals; low palatability for domestic grazing stock; small acorns favorite of quail and turkey

**Timber Value and Uses:** no commercial value -- even as fuel wood

**Landscaping Info:** available as a container plant from nurseries

**Other Facts:** responds with sprouting and increased acorn production when fire is used as a management tool for longleaf pine



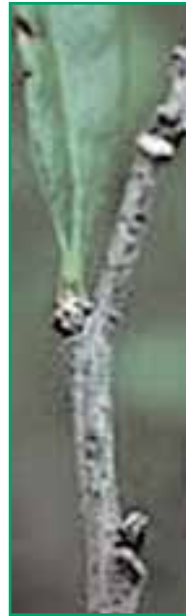
Leaf



Fruit



Bark



Twig

## Northern Red Oak

*Quercus rubra* L.

### Leaves:

**Type:** simple, alternate, tardily deciduous  
**Size:** 4.75" - 8.0" long; 2.38" - 4.75" wide  
**Margin:** lobed (7-9); 1 to 3 bristle-tipped teeth per lobe; sinuses <50% distance to midrib  
**Apex:** acute  
**Base:** wedge-shaped  
**Shape:** oblong  
**Color:** dark green above; gray to light yellow-green below  
**Surface:** dull to lustrous above; short axillary tufts of brown tomentum below  
**Venation:** pinnate

### Twigs:

**Size:** stout  
**Color:** reddish brown  
**Surface:** smooth; leaf scars half-round; bundle scars numerous

### Buds:

**Size:** 0.25" long  
**Shape:** ovoid, pointed, round in cross section  
**Color:** chestnut brown  
**Surface:** shiny, sometimes slightly hairy on tips

### Fruit and Flowers:

**Nut:** acorn, biennial; cup shallow, saucer-shaped, edge slightly rolled inward, encloses the base only  
**Size:** 0.6" - 1.25" long  
**Shape:** oblong to ovoid  
**Color:** brown with gray stripes  
**Flower:** monoecious; unisexual; staminate, yellow pubescent catkins, 4.0" - 5.0" long; pistillate solitary or in pairs on short stalks

**Bark:** dark gray to black; shallow furrows; wide scaly ridges; upper trunk has flat, shiny plate-like ridges; inner bark pink

### Physical Attributes:

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** moderate; 36.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** medium  
**Fire:** high  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** variety of moist soils with a loam texture  
**Soil Texture:** fine - medium  
**Soil pH:** 4.3 - 6.5  
**Range:** Quebec and Nova Scotia; south to South Carolina and Georgia; west to Oklahoma, and north to Ontario; in Mississippi, reported by the NRCS Plants Database in the northern counties of Desoto, Tate, Lafayette, Benton, Tishomingo; the east central counties of Webster, Clay, Choctaw, Oktibbeha, and Winston; the south central counties of Leake, Rankin, Smith, Clarke and Lauderdale; and the western counties of Washington and Amite; likely in other areas also

**Wildlife Value and Uses:** acorns consumed by a variety of wildlife; rabbit and deer browse on stems and foliage; attracts squirrel, deer, turkey, mice, voles, water fowl and many other birds; no known toxicity to livestock

**Timber Value and Uses:** valuable hardwood species; used for flooring, furniture, cabinets, paneling, timbers, agricultural implements, handles, caskets, boats, pallets, slack cooperage, millwork, fuel and pulpwood

**Landscaping Info:** often used as an ornamental tree because of its symmetrical growth form, moderate growth rate and autumn coloration; handles transplantation well; in Europe widely cultivated as a landscape specimen

**Other Facts:** utilized as medicine for numerous ailments by Native Americans; largest known specimen is located in Monroe County, New York



Leaf



Bark



Fruit



Twig

**Shumard Oak**  
**spotted oak, swamp oak**  
*Quercus shumardii* Buckley

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 4.0" - 8.0" long; 2.4" - 6.0" wide  
**Margin:** lobed (5-9); 2 to 5 bristle-tipped teeth per lobe; deep sinuses, >50% to midrib  
**Apex:** acute  
**Base:** truncate  
**Shape:** broadly elliptical  
**Color:** dark green above; lighter green below  
**Surface:** shiny above; slight luster or dull below, with axillary tufts of tomentum; veins raised on both surfaces  
**Venation:** pinnate

**Twigs:**

**Size:** moderately stout  
**Color:** gray  
**Surface:** smooth

**Buds:**

**Size:** 0.16" - 0.31" long  
**Shape:** ovoid to broadly ellipsoid; 5-angled in cross section  
**Color:** gray to grayish brown  
**Surface:** glabrous

**Fruit and Flowers:**

**Nut:** acorn, biennial; cup, saucer-shaped, thick, blunt scales, inner surface pubescent around scar, covers up to 33% of nut  
**Size:** 0.50" - 1.3" long  
**Shape:** ovoid to broadly oblong  
**Color:** brown  
**Flower:** monoecious; unisexual, staminate, glabrous yellow catkins, 6.0" - 7.0" long; pistillate, solitary or in pairs on pubescent stalks

**Bark:** dark gray furrows; lighter gray ridges; pink inner bark

**Physical Attributes:**

**Form:** single stem  
**Size:** 110.0', mature  
**Growth Rate:** moderate; 35.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** low  
**Anaerobic:** intolerant

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** no resprout/coppice potential in larger trees

**Habitat and Ecology:**

**Site:** well-drained soils along streams and rivers; on deep upland soils, especially the loessel hills  
**Soil Texture:** medium - coarse  
**Soil pH:** 5.8 - 7.6  
**Range:** Pennsylvania; south to Florida; west to Texas; north to Nebraska; northeast to Michigan and Ontario; in Mississippi, primarily in the northern half of the State - common on better soils of the Blackland Prairie, and in the loessel hills

**Wildlife Value and Uses:** abundant acorn production; eaten by numerous species of songbirds, wild turkey, waterfowl, white-tailed deer, squirrel, and other mammals

**Timber Value and Uses:** excellent wood quality and color; close-grained, hard, strong, and heavy; generally marketed with other red oak lumber for flooring, furniture, interior trim and veneer, cabinetry, and lumber; valuable contributor to rehabilitation and reforestation of bottomland and upland sites, including minespoils

**Landscaping Info:** excellent shade or specimen tree - to be used in lawns, parks, along streets, and in buffer strips and median plantings; deep orange-red fall leaf color; strong, long-lived, relatively rapid growth; drawbacks ---highly susceptible to oak wilt

**Other Facts:** named after Benjamin F. Shumard, State Geologist of Texas in the mid-1800s



Leaf



Bark



Fruit



Twig

**Swamp Post Oak**  
**delta post oak, bottomland post oak,**  
**Mississippi Valley oak, yellow oak**  
*Quercus similis* Ash

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 3.0" - 6.0" long; 2.0" - 2.50" wide  
**Margin:** shallowly lobed (2-3), flat; lobes simple, oblong, or rounded  
**Apex:** rounded  
**Base:** rounded alternate  
**Shape:** obovate  
**Color:** dark green above; gray-green below  
**Surface:** glossy, sparsely stellate above; sparsely glandular below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** yellowish gray  
**Surface:** tomentose

**Buds:**

**Size:** 0.08" - 0.12" long  
**Shape:** ovoid  
**Color:** brown  
**Surface:** pubescent

**Fruit and Flowers:**

**Nut:** acorn, annual; cup, gray, rounded, cup-shaped, pubescent scales, covers up to 50% of nut  
**Size:** 0.63" - 0.75" long  
**Shape:** barrel-shaped  
**Color:** light brown to chestnut  
**Flower:** similar to other oaks

**Bark:** brown to gray; scaly ridges and shallow furrows

**Physical Attributes:**

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** slow (no data @ 20 yrs)  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** moderate  
**Anaerobic:** low

**Propagation:** seed, bare root, container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** rich, moist bottom lands, usually on the highest first bottom ridges and terraces  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.8 - 7.0  
**Range:** South Carolina; west to Texas; in Mississippi, reported by the NRCS Plants Database in Coahoma, Boliver, Washington, Sharkey, Sunflower, Leflore Grenada, Holmes, Scott, and Smith Counties; likely also occurs in other areas

**Wildlife Value and Uses:** cover and habitat for birds and mammals; cavities used as nest and den sites, and leaves used for nest construction; acorns eaten by white-tailed deer, wild turkey, squirrel, and other rodents  
**(tannin in leaves, buds, and acorns is toxic to sheep, cattle, and goats)**

**Timber Value and Uses:** better quality wood than that of the typical variety of post oak; distinct yellow-tan cast which requires separate handling as veneer

**Landscaping Info:** slow growth may inhibit its use as a landscape species; not readily available commercially

**Other Facts:** Many authors treat *Q. similis*, and *Q. margaretta* as varieties of *Q. stellata* Wangenh; swamp post oak as distinguished from the other post oaks is found in wet bottom lands rather than xeric sites.





**Leaf**



**Form**



**Bark**



**Twig**

**Post Oak**  
**iron oak**  
*Quercus stellata* Wangenheim

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 1.5" - 6.0" long; 0.75" - 4.0" wide  
**Margin:** lobed (5-7) shallow to deep, middle lobes are opposite resembling a Maltese Cross  
**Apex:** rounded  
**Base:** attenuate-rounded  
**Shape:** obovate  
**Color:** dark green above; yellowish to gray-green below  
**Surface:** leathery, rough textured above; pubescent below, hairs star-shaped  
**Venation:** pinnate

**Twigs:**

**Size:** moderately stout  
**Color:** yellowish or grayish  
**Surface:** pubescent

**Buds:**

**Size:** 0.16" long  
**Shape:** ovoid, pointed apex  
**Color:** chestnut brown  
**Surface:** pubescent scales

**Fruit and Flowers:**

**Nut:** acorn, annual; cup saucer or top-shaped, thin, gray pubescent scales, encloses 25 - 67% of nut  
**Size:** 0.38" - 0.75" long  
**Shape:** rounded  
**Color:** light brown, faint stripes  
**Flower:** monoecious; unisexual; staminate, yellow, pendent, spikes, 2.0" - 4.0" long; pistillate flowers, sessile or short-stalked

**Bark:** gray; shallow fissures; scaly ridges

**Physical Attributes:**

**Form:** single stem  
**Size:** 80.0', mature  
**Growth Rate:** slow; 25.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
Shade: intolerant  
Drought: high  
Fire: medium  
Anaerobic: low

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** poor, upland clay and sandy soils  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.8 - 7.0  
**Range:** Massachusetts; south to Florida; west to Texas; north to Iowa; east to Pennsylvania; in Mississippi, throughout the State with the exception of the Mississippi River Delta

**Wildlife Value and Uses:** provides cover and habitat for birds and mammals; cavities provide nest and den sites; leaves used for nest construction; acorns important food source for white-tailed deer, wild turkey, squirrel, and other rodents; tannin in leaves, buds, and acorns moderately toxic to sheep, cattle, and goats

**Timber Value and Uses:** not a preferred timber species; used for railroad ties, mine timbers, flooring, siding, lathing, planks, construction timbers, and fence posts

**Landscaping Info:** reclamation, highway median, shade tree; old trees growing on good sites have winter landscape interest, no fall interest as leaves rarely turn color prior to dropping

**Other Facts:** common name derived from its use as fence posts; used for medicinal purposes by Native Americans; Jackson County, Georgia and Surry County, Virginia are home to the largest known post oaks



**Leaf**



**Fruit**



**Bark**



**Twig**

## Nuttall Oak

Texas red oak, red oak, Red River oak, pin oak, striped oak

*Quercus texana* Buckley - or alternately as *Quercus nuttallii* Palmer

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 3.0" - 8.0" long; 2.25" - 5.25" wide  
**Margin:** lobed (5-11), 1 to 3 bristle-tipped teeth per lobe; lobes at midleaf usually opposite; deep sinuses  
**Apex:** acute (bristle at end)  
**Base:** nearly truncate  
**Shape:** ovate to obovate  
**Color:** dark green above; pale green below  
**Surface:** smooth above; axillary tufts of tomentum below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** gray to chestnut brown  
**Surface:** glabrous

### Buds:

**Size:** 0.12" - 0.28" long  
**Shape:** ovoid  
**Color:** gray-brown  
**Surface:** glabrous, or ciliated scales at bud apex

### Fruit and Flowers:

**Nut:** acorn, biennial; cup goblet-shaped, thin, pubescent inner and outer surfaces, covers 30 - 50% of nut  
**Size:** 0.63" - 1.0" long  
**Shape:** broadly ovoid to broadly ellipsoid  
**Color:** chestnut brown  
**Flower:** monoecious; unisexual; staminate, hairy, slender, yellow catkins, 3.0" - 4.0" long; pistillate, on short, densely pubescent stalks

**Bark:** gray-brown to dark brown; flat ridges; shallow fissures

### Physical Attributes:

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** rapid; 40.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** none  
**Fire:** none  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** no resprout/coppice potential (mature stems)

### Habitat and Ecology:

**Site:** wet clay soils along streams  
**Soil Texture:** fine  
**Soil pH:** 4.5 - 5.5  
**Range:** lower Mississippi Valley from Alabama west to Texas and Oklahoma; northeast to Illinois and Kentucky; in Mississippi, reported by the NRCS Plants Database in Jefferson, Sharkey, Leflore, Holmes, Kemper, Clarke, Jasper, Jackson, and Scott Counties --- likely scattered throughout on bottom lands in the State

**Wildlife Value and Uses:** important mast producer for ducks in greentree reservoirs; acorns contain 13 percent crude fat and 46 percent carbohydrates, and acorn crop failure is rare; good food supply for squirrels during flooding because many acorns remain on the tree into January; acorns also favored by deer and eaten by turkey; medium palatability as browse

**Timber Value and Uses:** high value as a fuelwood product; also suitable as lumber, and veneer

**Landscaping Info:** rapid growth, very tolerant of poorly-drained wet sites; leaves and fruit a litter problem in some settings; commercially available

**Other Facts:** not distinguished as a species until 1927, when it was named for Thomas Nuttall (1786-1859), British-American botanist and ornithologist; foliage resembles pin oak - ranges overlap in Arkansas and Tennessee, but pin oak has smaller rounded acorns with a shallow cup



Leaf



Fruit



Bark



Twig

## Black Oak

yellow oak, quercitron oak,  
yellow-bark oak, smooth-bark oak  
*Quercus velutina* Lamarck

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 5.0" - 7.0" long; 3.0" - 5.0" wide  
**Margin:** lobed (5-9), 1-4 bristle-tipped teeth  
**Apex:** acute - long-tapered  
**Base:** flat or wedge-shaped  
**Shape:** obovate or ovate  
**Color:** dark green above; copper-green below  
**Surface:** glossy above; scurfy pubescence and axillary tomentum below;  
**Venation:** pinnate

### Twigs:

**Size:** stout  
**Color:** reddish brown; becoming dark brown  
**Surface:** smooth to pubescent; leaf scars half- round; numerous bundle scars; pith star shaped

### Buds:

**Size:** terminal 0.25" - 0.50" long  
**Shape:** ovoid  
**Color:** tan  
**Surface:** pubescent; 5-angled in cross sections

### Fruit and Flowers:

**Nut:** acorn; biennial; cup, top-shaped, thick, fringed edge, pubescent inner surface, covers up to 50% of nut  
**Size:** 0.75" long  
**Shape:** nut elliptical  
**Color:** light reddish brown, concentric rings at apex  
**Flower:** monoecious, unisexual; staminate, interrupted, hairy, catkins, 4.0" - 6.0" long; pistillate, in pairs or 3's on short, hairy stalks

**Bark:** dark brown to black; deep furrows; rough ridges; thick (1.0" - 1.5"); inner bark yellow to orange

### Physical Attributes:

**Form:** single stem  
**Size:** 90.0', mature  
**Growth Rate:** moderate; 25.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** low  
**Fire:** medium  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential only in young trees

### Habitat and Ecology:

**Site:** dry uplands, best on lower slopes in rich, well-drained soils  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.5 - 6.0  
**Range:** Maine; west through Ontario to Minnesota; south to Texas and Florida; in Mississippi, throughout with the exception of the Mississippi River Delta counties

**Wildlife Value and Uses:** mast source for turkey, ruffed grouse, songbirds, deer, squirrel, and other small mammals \*(acorns are said to be poisonous to some animals); high cavity value for wildlife

**Timber Value and Uses:** light brown wood with a nearly white sapwood; sold as "red oak"; used for furniture, flooring, interior finishing, barrels, and railroad ties; bark contains enough tannin to make commercial extraction worthwhile

**Landscaping Info:** shade tree for large areas; existing natives are often saved during construction; routinely available commercially; liabilities include difficulty in transplanting and establishing, and vulnerability to numerous diseases and insect pests (damage usually not significant)

**Other Facts:** yellow dye, suitable for coloring natural fibers produced by boiling the inner bark



Leaf



Fruit



Bark



Flower



Twig

## Live Oak

### Spanish oak

*Quercus virginiana* P. Mill.

#### Leaves:

**Type:** simple, alternate, persistent  
**Size:** 1.38" - 4.0" long; 0.75" - 2.0" wide  
**Margin:** entire  
**Apex:** rounded; may have bristle tip  
**Base:** cuneate to rounded  
**Shape:** oblong  
**Color:** light to dark green above; grayish green below  
**Surface:** shiny above; densely pubescent below  
**Venation:** pinnate

#### Twigs:

**Size:** slender, rigid  
**Color:** gray  
**Surface:** juvenile pubescent; older smooth; leaf scars half-round; numerous bundle scars

#### Buds:

**Size:** < 0.13" long  
**Shape:** ovate, nearly globular  
**Color:** reddish brown  
**Surface:** several light brown scales with pale margins

#### Fruit and Flowers:

**Nut:** acorn, annual; cup goblet-shaped, light gray scales with reddish tips, often pubescent, encloses 25 - 50% of nut  
**Size:** 0.63" - 1.0" long  
**Shape:** narrowly oblong  
**Color:** dark brown to black  
**Flower:** monoecious; unisexual; staminate, yellow, hairy catkins, 3.0" long; pistillate, in few-flowered spikes, 1.0" - 3.0" long

**Bark:** dark reddish brown to nearly black; furrowed; separating into small appressed scales

#### Physical Attributes:

**Form:** single stem  
**Size:** 50.0' - 80.0', mature  
**Growth Rate:** rapid; 25.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** medium  
**Fire:** low  
**Anaerobic:** medium

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** common in dry, sandy woods; occasionally occurs in moist deciduous forests, roadsides, and borders of salt marshes  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.5 - 6.5  
**Range:** Virginia; south to Florida; west to Texas; in Mississippi, reported by the NRCS Plants Database in the counties of Washington, Hinds, Copiah, Adams, Amite, Wilkinson, Hancock, Harrison, and Jackson

**Wildlife Value and Uses:** acorns important food source for northern bobwhite, mallard, sapsuckers, wild turkey, black bear, squirrel, and white-tailed deer; provides cover for birds and mammals; rounded clumps of ball moss found in live oak used for nest construction

**Timber Value and Uses:** heavy, strong wood; of little use commercially although suitable for construction; excellent species for reforestation to prevent soil erosion; originally cleared for agriculture; potential for revegetating coal mine spoils.

**Landscaping Info:** used for shade and as an ornamental; fast growing if well watered and soil conditions are good; 4 feet in the first year; extremely hard to kill because it sprouts vigorously from the root collar; susceptible to freezing temperatures and acid rain

**Other Facts:** first publicly owned forestland at the end of the eighteenth century was for the purpose of preserving the supply of southern live oak for the Navy's shipbuilding needs; considered "one of the noblest trees in the world and virtually an emblem of the "Old South"; protected today for public enjoyment





**Leaf**



**Bark**



**Fruit**



**Form**

## Pawpaw

false banana, custard apple

*Asimina triloba* (L.) Dunal

### Leaves:

**Type:** simple, alternate, deciduous; aromatic, smell reminiscent of bell pepper

**Size:** 10.0" - 12.0" long; 4.0" - 6.0" wide

**Margin:** entire

**Apex:** acute

**Base:** wedge-shaped

**Shape:** ovate-oblong

**Color:** light green above; paler below

**Surface:** sparsely pubescent above; glabrous below with age (dense reddish hairs young)

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** light brown

**Surface:** pubescent

### Buds:

**Size:** naked, 0.5" long; laterals 0.13" long

**Shape:** leaf oblong; flower globose

**Color:** rusty

**Surface:** pubescent

—

### Fruit and Flowers:

**Berry:** rounded or pointed at the extremities; thin skin; contains a yellow custard-like pulp said to taste like papaya

**Size:** 3.0" - 5.0" long

**Shape:** oblong to cylindrical

**Color:** green with dark gray spots (summer); dark brown to black (mature)

**Flower:** monoecious; perfect; solitary; purple; 2.0" dia.; 6 petals, 3 inner 1/2 length of outer

**Bark:** dark brown with gray blotches; smooth with raised warty areas; vertical gray superficial fissures

### Physical Attributes:

**Form:** single or multiple stems

**Size:** 35.0', mature

**Growth Rate:** slow; 30.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

**Shade:** tolerant

**Drought:** low

**Fire:** medium

**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** deep, rich, moist soils along streams and bottom lands; usually in the understory; forms dense thickets in some localities, particularly in the lower Mississippi River Valley

**Soil Texture:** medium - coarse

**Soil pH:** 5.2 - 7.2

**Range:** New Jersey; south to northern Florida; west to eastern Texas; north to southern Michigan; in Mississippi, scattered throughout

**Wildlife Value and Uses:** fruits eaten by opossum, raccoon, fox, and squirrel; larvae of the zebra swallowtail butterfly (*Eurytides marcellus*) feed exclusively on the leaves

**Timber Value and Uses:** none

**Landscaping Info:** gives a tropical flavor to temperate gardens and provides edible landscaping; can serve as a screen or can be grown in a container as a specimen tree; conical pyramid-like shape when grown in sun, and a more open structure if grown in shade; fruit best in sun, however, needs a shading structure to allow filtered sun first few years

**Other Facts:** cultivated by some Native American tribes for the fruit, and this cultivation is responsible for its widespread range today; used by many tribes for food - the Cherokee among them; mashed fruit used by the Iroquois to make small cakes that were dried and stored, then later soaked in water and cooked to make a sauce or relish that was served with corn bread; some stored dried fruits also taken for food on hunts; inner bark used to make cordage (string and strong ropes) by the Cherokee

largest edible fruit native to America; high in amino acids; some varieties contain a whitish green pulp that is less flavorful than those with yellow pulp

twigs and leaves contain extracts that have insecticidal properties; leaves contain anti-carcinogens.



Leaf



Bark



Flower



Fruit



Twig

## Black Birch

sweet birch, cherry birch, mahogany

*Betula lenta* L.

### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 2.5" - 5.0" long; 1.5" - 2.0" wide

**Margin:** doubly serrate (sharply, singly, or remotely)

**Apex:** acute - acuminate

**Base:** cordate - rounded

**Shape:** elliptical

**Color:** dark green above; pale green below

**Surface:** dull above; small tufts of white hair in the axils of the veins below

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** reddish brown

**Surface:** glabrous to sparsely pubescent; lenticels conspicuous; 3 bundle scars; spur twigs on older growth; zigzag branching

### Buds:

**Size:** terminal bud absent; laterals 0.25" long

**Shape:** ovoid

**Color:** light chestnut brown

**Surface:** several loosely imbricate scales

### Fruit and Flowers:

**Nutlet:** small; winged; in upright cone-like cluster (strobile); tardily deciduous

**Size:** strobile 1.0" - 1.5" long

**Shape:** nutlets obovoid

**Color:** brown

**Flower:** monoecious; unisexual; staminate catkins, 1.0" - 2.5" long, reddish brown; pistillate catkins, 0.75" - 1.5" long, light pink-tinged green, erect

**Bark:** mature, light grayish brown to nearly black; furrowed; shallow scales with age

### Physical Attributes:

**Form:** single stem

**Size:** 60.0', mature

**Growth Rate:** moderate; 15.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** intolerant

**Drought:** medium

**Fire:** low

**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** most abundant on deep, rich, moist but well-drained soils; also occurring on rocky ledges and dry, rocky soils; best developed in Kentucky and Tennessee

**Soil Texture:** medium - coarse

**Soil pH:** 3.6 - 6.8

**Range:** eastern U.S.; Maine west to Ohio; south through Kentucky, Tennessee, and Mississippi; east to the Atlantic coast (excluding Florida); in Mississippi, extreme northeast corner of the State (rare)

**Wildlife Value and Uses:** buds, seeds and catkins used by grouse and a variety of birds and small mammals; browsed by deer and rabbit; attracts deer, porcupines, rabbit, and many species of birds

**Timber Value and Uses:** formerly the chief commercial source of wintergreen oil (methyl salicylate), which is distilled from its wood; uses similar to yellow birch, and commercially is usually not recognized separately (furniture, flooring, fuelwood, cabinets, boxes, woodenware, handles, and millwork, such as interior finish and flush doors); paper pulp made from sweet birch used with other pulps to produce boxboards, book and newsprint paper, paper toweling, and corrugated paper

**Landscaping Info:** available through field collection only

**Other Facts:** Native Americans used *Betula lenta* medicinally to treat dysentery, colds, diarrhea, fevers, soreness, milky urine, and as a spring tonic

**Note:** twigs and leaves have the taste and odor of wintergreen when crushed



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

## River Birch

*Betula nigra* L.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 1.5" - 3.0" long; 1.0" - 2.0" wide  
**Margin:** deeply doubly serrate  
**Apex:** acute  
**Base:** wedge-shaped  
**Shape:** rhombic-ovate  
**Color:** bright green above; paler green below  
**Surface:** glabrous above; pubescent on veins below (mature), densely pubescent (young)  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** red-brown or orange-brown  
**Surface:** zigzag branching; usually short stiff reddish brown hairs; horizontally elongated lenticels; leaf scars nearly oval; 3 bundle scars

### Buds:

**Size:** terminal bud absent; laterals 0.25" long  
**Shape:** ovoid, acute  
**Color:** chestnut brown to reddish brown  
**Surface:** scales lustrous

—

### Fruit and Flowers:

**Nutlet:** winged; in upright conelike clusters (strobiles) of pubescent bracts  
**Size:** nutlets 0.25" - 0.50" long; clusters 1.0" - 1.5" long;  
**Shape:** clusters oblong  
**Color:** brown  
**Flower:** monoecious; imperfect; staminate catkins, reddish brown, 1.0" long; pistillate catkins, green, hairy, 0.33" long

**Bark:** reddish brown young; then pinkish white and papery; then gray to gray-brown and coarsely scaly

### Physical Attributes:

**Form:** single or multiple stem  
**Size:** 70.0', mature  
**Growth Rate:** rapid; 35.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
Shade: intolerant  
Drought: low  
Fire: high  
Anaerobic: low

**Propagation:** seed (no cold stratification required); bare root; container; cuttings  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** most common along streams and in wet bottoms in association American elm, sycamore, red and silver maples, hackberry, boxelder, willows, poplars, and yellow poplar  
**Soil Texture:** fine - medium  
**Soil pH:** 3.0 - 6.0  
**Range:** southern New England; west to Kansas and Minnesota; south to Texas and Florida; in Mississippi, throughout

**Wildlife Value and Uses:** seed eaten by many species of birds, including wild turkey and grouse; leaves are browsed by white-tailed deer

**Timber Value and Uses:** wood used to manufacture inexpensive furniture, woodenware, wooden shoes, basket materials, toys, staves, and fuel; used for strip mine reclamation and erosion control (Grelen 1990); used in forested riparian buffers to help reduce stream bank erosion, protect water quality, and enhance aquatic environments

**Landscaping Info:** attractive ornamental tree; desirable specimen for estates, golf courses, parks, and public grounds

**Other Facts:** sap can be fermented to make birch beer or vinegar; medicinally, leaves either chewed, or as an infusion used in the treatment of dysentery; infusion of the bark used to treat stomach problems and difficult urination (Moerman 1998)



Leaf



Bark



Flower



Fruit



Twig

**American Hornbeam**  
**blue beech, musclewood, ironwood**  
*Carpinus caroliniana* Walt.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 2.0" - 4.0" long; 1.0" - 2.0" wide  
**Margin:** sharply doubly serrate  
**Apex:** long-tapered  
**Base:** rounded, heart-shaped  
**Shape:** ovate  
**Color:** dull blue-green above; pale yellow-green below  
**Surface:** glabrous above; axillary tufts of white hair at principal veins below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** deep red to purple-red (first winter), then gray tinged with red  
**Surface:** lustrous; zigzag branching

**Buds:**

**Size:** terminal bud absent; laterals 0.13" long  
**Shape:** ovoid, sharp-pointed  
**Color:** brown, commonly greenish toward base  
**Surface:** scales overlapping, angled, with silky edge to each scale

**Fruit and Flowers:**

**Nut:** wingless; subtended by a 3-lobed, leafy bract  
**Size:** nut, 0.33" long; bract 1.0" - 1.5" long  
**Shape:** ovoid  
**Color:** brown  
**Flower:** monoecious; unisexual; staminate catkin, 1.0" long, scales red above middle, green below; pistillate catkin, 0.5" long, scales green, hairy

**Bark:** blue-gray to gray-brown; smooth, thin and tight; sometimes with broad dark brown horizontal bands

**Physical Attributes:**

**Form:** multiple stem  
**Size:** 30.0', mature  
**Growth Rate:** slow; 18.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** low  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** deep, rich, moist loams along streams, in swamps and wet bottom lands  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.0 - 7.4  
**Range:** central Maine; west to southwestern Quebec, southeastern Ontario, northern Michigan, and northern Minnesota; south to central Iowa and eastern Texas; east to central Florida; absent from the lowermost Gulf Coastal Plain and the Mississippi embayment south of Missouri; in Mississippi, throughout

**Wildlife Value and Uses:** of secondary importance to wildlife; seeds, buds, and catkins eaten in small quantities by ruffed grouse, ring-necked pheasant, and northern bobwhite; seeds eaten by ducks when acorn production is limited; seeds, bark, and wood are eaten by rabbit, beaver, fox squirrel, and eastern gray squirrel; twigs and foliage browsed by white-tailed deer

**Timber Value and Uses:** minor economic species; used locally for fence posts, mallet heads, and tool handles; not subject to cracking and splitting

**Landscaping Info:** planted in landscapes and naturalized areas; chief liabilities in cultivation are a relatively slow growth rate and difficulty in transplantation; grows best in shade, but can tolerate full sun

**Other Facts:** used by American pioneers for bowls and dishes; common name, beam, is an Old English word for tree; horn suggests an analogy of the hard, close-grained wood to the tough material of horns





Leaf



Fruit



Bark



Flower



Twig

## American Chestnut

*Castanea dentata* (Marsh.) Borkh.

### Leaves:

**Type:** alternate, simple, deciduous

**Size:** 7.0" - 8.0" long; 2.0" wide

**Margin:** coarsely serrate

**Apex:** long-tapered

**Base:** wedge-shaped

**Shape:** oblong-lanceolate

**Color:** yellow-green above; paler below

**Surface:** glabrous above; pale yellow midrib and primary veins

**Venation:** pinnate

### Twigs:

**Size:** slender to moderately stout, angular

**Color:** reddish brown

**Surface:** glabrous; leaf scars alternate, half-round, elevated

### Buds:

**Size:** 0.25" long; terminal bud present or absent

**Shape:** ovoid, acute

**Color:** dark chestnut brown scales

**Surface:** scales scariosus on the margins

### Fruit and Flowers:

**Nut:** smooth; slightly compressed; enclosed in a 2- to 4-valved, leathery, spiny involucre; nut sweet, edible

**Size:** nut, 0.5" - 1.0" wide; involucre 2.0" - 2.5" dia.

**Shape:** obovate

**Color:** light brown

**Flower:** monoecious; unisexual; apetalous; staminate, in upright catkins, 6.0" - 8.0" long, green below the middle - red above; pistillate, in clusters of 2-3 enclosed in a cluster of bracts (involucre) of green, hairy scales

**Bark:** dark brown; smooth when young; becoming ridged on mature stems

### Physical Attributes:

**Form:** single stem

**Size:** 115.0', mature

**Growth Rate:** rapid; 35.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

**Shade:** intolerant

**Drought:** medium

**Fire:** none

**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** rich, well-drained soils from lowlands to elevations of over 4,000 feet, in association with other hardwoods

**Soil Texture:** medium

**Soil pH:** 5.5 - 6.5

**Range:** Michigan; through Iowa, Missouri, and Louisiana (skirting Arkansas), and all states east within the U.S.; in Mississippi, reported by the NRCS Plants Database in 14 counties in the eastern half of the State north to south from Tishomingo to Forrest Counties respectively

### Wildlife Value and Uses: (no data)

**Timber Value and Uses:** prior to 1930 by far the best lumber-producing chestnut in the world; formed up to 35% of the forests of the eastern United States; often occurring in almost pure stands; cut for mine props and tipple construction in the coal-mining sections of Pennsylvania, West Virginia and other states; furnished most of the telephone and telegraph poles used in the East; almost indispensable for dwellings, out-buildings, rail fences, posts, shingles, and incidental purposes; lumber marketed at good prices for framing, base for veneer, and many other purposes, even sound "wormy" wood; blight-killed trees are still being thus marketed in many places

**Landscaping Info:** available through field collection only

**Other Facts:** Native Americans used various parts of the plants of *Castanea dentata* medicinally as a cough syrup and to treat whopping cough, for heart trouble, and as a powder for chafed skin (D. E. Moerman 1986).

Sweet and edible nuts were a favorite confection in the eastern U.S.

blight resistant varieties have been developed



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

## Allegheny Chinkapin

### American chinquapin

*Castanea pumila* (L.) Mill.

#### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 3.0" - 5.0" long; 1.5" - 2.0" wide

**Margin:** coarsely serrate with rigid teeth

**Apex:** acute

**Base:** unequal

**Shape:** oblong to elliptical

**Color:** yellow-green above; paler below

**Surface:** tomentose when young, then glabrous above; pubescent below

**Venation:** pinnate

#### Twigs:

**Size:** slender

**Color:** orange-brown

**Surface:** pubescent initially; then glabrous

#### Buds:

**Size:** 0.13" long

**Shape:** ovoid to oval

**Color:** red

**Surface:** pubescent

#### Fruit and Flowers:

**Nut:** enclosed in 2- to 3-valved involucre covered with sharp branched spines

**Size:** nut, 0.75" long; involucre 1.0" - 1.5" dia.

**Shape:** nut ovoid

**Color:** nut dark chestnut brown

**Flower:** monoecious; unisexual; staminate, upright catkins, 4.0" - 6.0" long, yellow; pistillate flowers, basal, rounder, 1.2" dia.; bisexual catkins 3.0" - 4.0", silvery, tomentose

**Bark:** light brown to reddish brown; thick, furrowed; loose platelike scales

#### Physical Attributes:

**Form:** small tree, shrub

**Size:** 14.0' - 30.0', mature

**Growth Rate:** moderate; 14.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

Shade: tolerant

Drought: high

Fire: high

Anaerobic: none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential (resprouts vigorously following top-kill by fire)

#### Habitat and Ecology:

**Site:** rich hillsides, dry sandy ridges, and swamp margins

**Soil Texture:** medium - coarse

**Soil pH:** 4.5 - 7.5

**Range:** New Jersey and West Virginia; west to Missouri and Oklahoma; south to Texas and Florida; planted in Wisconsin and Michigan and is now a forest tree; in Mississippi, reported in 27 counties by the NRCS Plants Database, primarily in the south half of the State

**Wildlife Value and Uses:** nuts consumed by squirrel, chipmunks, opossum, white-tailed deer, blue jays, woodpeckers and other birds; foliage browsed by white-tailed deer

**Timber Value and Uses:** light, hard, close-grained, and strong wood; used for fence posts and fuel; no commercial timber harvest

**Landscaping Info:** sometimes used for landscaping as a small ornamental tree or shrub; flowers attractive but have an unpleasant odor

**Other Facts:** roots used as a decoction for stomachaches by the Koasati Indians; dried leaves used as washes to alleviate headaches, fevers, chills, cold sweats, and fever blisters by the Cherokee Indians; nuts are palatable to humans as well as wildlife

**NOTE:** threatened in Kentucky, endangered in New Jersey, and extirpated from most of Alabama by chestnut blight



Leaf



Fruit



Bark



Flower



Twig

**Southern Catalpa**  
**indianbean, caterpillar tree**  
*Catalpa bignonioides* Walt.

**Leaves:**

**Type:** simple, opposite or whorled, deciduous

**Size:** 5.0" - 6.0" long; 4.0" - 5.0" wide

**Margin:** entire to somewhat undulate

**Apex:** pointed to nearly rounded

**Base:** heart-shaped

**Shape:** broadly ovate

**Color:** light green above; paler below

**Surface:** glabrous above; pubescent below, conspicuous midrib

**Venation:** pinnate

**Twigs:**

**Size:** stout

**Color:** greenish purple; then gray-brown

**Surface:** conspicuous pale lenticels; oval leaf scars

**Buds:**

**Size:** terminal bud absent; laterals 0.06" long

**Shape:** globose

**Color:** red-brown

**Surface:** 6 pointed, overlapping scales

—

**Fruit and Flowers:**

**Capsule:** woody; 2-valved

**Size:** capsule, 6.0" - 20.0" long; 0.25" wide; seeds, 1.0" long

**Shape:** capsule, linear or elongate; seed with pointed wings

**Color:** capsule, dark brown to gray-brown; seed, gray

**Flower:** monoecious; perfect; on slender stalks; in terminal many-flowered panicles, 8.0" - 10.0" long; flower tubular, 2.0" long, 2.0" wide, wavy petal edges, purple spotted throat with 2 bands of yellow (stronger color than *C. speciosa*)

**Bark:** reddish brown to gray; thin, breaking into long, thin, irregular scales

**Physical Attributes:**

**Form:** single crown

**Size:** 66.0', mature

**Growth Rate:** rapid; 66.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** intermediate

**Drought:** medium

**Fire:** none

**Anaerobic:** none

**Propagation:** seed (no cold stratification required); bare root; container

**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** moist soils of riverbanks, and open areas at the margins of swamps, streams, fields and roadsides

**Soil Texture:** medium - coarse

**Soil pH:** 5.5 - 7.5

**Range:** indigenous to the banks of the rivers in central Alabama and Mississippi, southwestern Georgia, and western Florida; now naturalized through the south Atlantic states and in Kentucky and Tennessee; in Mississippi, scattered throughout

**Wildlife Value and Uses:** none found in species information search

**Timber Value and Uses:** no commercial value in the timber industry; medium quality as a post product and fuelwood product; primarily used today as an ornamental shade tree; widely planted in urban areas as a street and lawn tree; planted in windbreaks as a conservation measure; also often planted to attract catalpa worms, which are harvested and used as fish bait

**Landscaping Info:** biggest management problems used as an ornamental --- litter and smell --- heavy load of flowers in the spring, plentiful supply of leaves in the fall, many large seedpods in the winter; and finally disagreeable odor from green leaves when crushed

**Other Facts:** first cultivated in 1726; tea made from the seeds used for many medicinal purposes by Native Americans



**Leaf**



**Bark**



**Flower**



**Fruit**



**Twig**

**Northern Catalpa**  
**hardy catalpa, western catalpa**  
*Catalpa speciosa* Engem.

**Leaves:**

**Type:** simple, opposite or whorled, deciduous  
**Size:** 10.0" - 12.0" long; 7.0" - 9.0" wide

**Margin:** entire

**Apex:** long pointed

**Base:** cordate

**Shape:** ovate to ovate-oblong

**Color:** dark yellow-green above; paler green below

**Surface:** glabrous above; soft pubescence below

**Venation:** pinnate

**Twigs:**

**Size:** stout

**Color:** green; then reddish or yellowish brown

**Surface:** smooth; numerous light-colored lenticels; sunken leaf scars which resemble suction cups, whorled arrangement of 3 scars per node

**Buds:**

**Size:** terminal absent; laterals 0.06" - 0.13" long

**Shape:** ovate

**Color:** chestnut brown

**Surface:** overlapping scales

**Fruit and Flowers:**

**Capsule:** beanlike, very stiff; numerous flattened seeds with 2 papery, fringed wings

**Size:** 10.0" - 18.0" long

**Shape:** linear or elongate

**Color:** green; eventually dark blackish brown

**Flower:** monoecious; perfect; on slender stalks; in terminal few-flowered panicles, 5.0" - 6.0" long; flower tubular, 2.0" long, 2.5" wide, wavy petal edges, purple spotted throat with 2 bands of yellow

**Bark:** brown tinged with red; broken on the surface into thick scales

**Physical Attributes:**

**Form:** single stem

**Size:** 60.0', mature

**Growth Rate:** rapid; 20.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: intolerant

Drought: medium

Fire: none

Anaerobic: none

**Propagation:** seed (no cold stratification required); bare root; container

**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** rich, moist soils on flats and slopes

**Soil Texture:** medium - coarse

**Soil pH:** 5.5 - 7.0

**Range:** southern Indiana, southern Illinois, western Kentucky, and Tennessee to southeastern Missouri and eastern Arkansas; in Mississippi, reported by the NRCS Plants Database in only 4 counties (Lafayette, Montgomery, Washington, and Hinds), but is probably more widely present and is simply not differentiated from *Catalpa bignonioides*

**Wildlife Value and Uses:** very low wildlife value; attracts humming birds; the catalpa worm is highly valued by fishermen as bait

**Timber Value and Uses:** planted in mined-land reclamation projects and shelterbelts; wood is lightweight, and the heartwood is resistant to deterioration when placed in the ground

**Landscaping Info:** primarily used today as a large ornamental shade tree; widely planted in urban areas as a street and lawn tree; abundant showy blossoms; biggest management problem with catalpa used as an ornamental is leaf litter

**Other Facts:** past uses: railroad track ties and fuelwood (plantations grown for these uses), packing materials, interior trim in houses, furniture, and telephone or powerline poles; medicinal products from leaves, bark, roots, and seeds made and used by pioneers and Native Americans; modern pharmaceutical research has shown catalpa trees are diuretic; insect larvae of leaf feeder used as fish bait





Leaf



Bark



Flower



Fruit



Twig

## Sugarberry

Texas sugarberry, southern hackberry  
*Celtis laevigata* Willd.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 2.5" - 5.0" long; 1.0" - 2.5" wide  
**Margin:** entire - irregularly serrate  
**Apex:** tapered to long narrow point  
**Base:** obliquely wedge-shaped or asymmetrically rounded  
**Shape:** oblong-lanceolate  
**Color:** light green above; paler below  
**Surface:** smooth to occasionally rough above; smooth below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** current season brown to red-brown  
**Surface:** smooth; many pale lenticels; oval or crescent-shaped leaf scars; zigzag branching

### Buds:

**Size:** terminal bud absent; laterals 0.06" - 1.13" long  
**Shape:** ovoid; sharp-pointed  
**Color:** chestnut brown  
**Surface:** overlapping scales

### Fruit and Flowers:

**Drupe:** thick skin; thin flesh with wrinkled, bony pit; on stalks, 0.25" - 0.5" long  
**Size:** 0.25" dia.  
**Shape:** nearly spherical  
**Color:** yellow-orange to reddish brown  
**Flower:** monoecious; perfect and imperfect; apetalous; greenish; long-stalked; staminate in few-flowered clusters in axils of lower leaves; perfect and pistillate flowers in pairs or solitary in axils towards the tip of twig

**Bark:** light gray to brownish gray; corky warts, primarily on the lower bole

### Physical Attributes:

**Form:** single stem  
**Size:** 80.0', mature  
**Growth Rate:** rapid; 35.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** sandy loam or rocky soils along streams, in bottom lands, and in woodlands; most often found on clay soils of broad flats or shallow sloughs within the flood plains of major southern rivers  
**Soil Texture:** fine - medium  
**Soil pH:** 4.8 - 6.8  
**Range:** southeastern Virginia to southern Florida; west to central Texas and northeastern Mexico; north to western Oklahoma, southern Kansas, Missouri, southern Illinois, southern Indiana, and western Kentucky; overlaps the southern part of the range of hackberry (*C. occidentalis*); in Mississippi, throughout

**Wildlife Value and Uses:** dry sweet fruit eaten by at least 10 species of birds, as well as other game and nongame animals

**Timber Value and Uses:** mixed with *C. occidentalis* supplies the lumber known as hackberry; small amounts used for dimension stock, veneer, and containers; main use is for furniture; wood can be given a light- to medium-brown finish that in other woods must be achieved by bleaching; value as a timber tree is increasing

**Landscaping Info:** often used for street planting in the lower South; used as an ornamental in residential areas; leachates (identified in the soil as ferulic acid, caffeic acid, and p-coumaric acid) from the leaves reduce germination and growth of a number of grasses under the trees; bark is thin and easily injured by fire; mechanical damage often leads to decay

**Other Facts:** Comanche would beat the fruits of sugarberry to a pulp, mix with animal fat, roll into balls, and roast in the fire for food; Navajo boiled the leaves and branches to make dark brown and red dye for wool



Leaf



Bark



Flower



Fruit



Twig

## Hackberry

### beaverwood

*Celtis occidentalis* L.

#### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 2.5" - 4.0" long; 1.5" - 2.0" wide

**Margin:** sharply serrate

**Apex:** long-tapered

**Base:** asymmetrically heart-shaped

**Shape:** ovate to ovate-lanceolate

**Color:** light green above; paler below

**Surface:** smooth or with short, stiff hairs above; hairy along principal veins below

**Venation:** pinnate

#### Twigs:

**Size:** slender

**Color:** current season brown to red-brown

**Surface:** smooth; numerous pale lenticels; oval or crescent-shaped leaf scars; zigzag branching

#### Buds:

**Size:** terminal bud absent; lateral 0.25" long

**Shape:** ovoid; sharp-pointed

**Color:** chestnut brown

**Surface:** overlapping scales

#### Fruit and Flowers:

**Drupe:** large, reticulate, bony pit; thick skin and thin layer of sweetish flesh; on stalks, 0.5" - 1.0" long

**Size:** 0.33" dia.

**Shape:** globular

**Color:** purple (mature)

**Flower:** monoecious; perfect and imperfect; apetalous; greenish; long-stalked; staminate in few-flowered clusters in axils of lower leaves; perfect and pistillate flowers in pairs or solitary in axils towards the tip of twig

**Bark:** light gray to brownish gray; corky warts, primarily on the lower bole

#### Physical Attributes:

**Form:** single stem

**Size:** 70.0', mature

**Growth Rate:** moderate; 26.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: intermediate

Drought: medium

Fire: high

Anaerobic: medium

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** found on a variety of sites and soil types; best in moist soils near stream banks and on flood plains; will grow on dry, less fertile soils

**Soil Texture:** fine - coarse

**Soil pH:** 6.0 - 7.8

**Range:** Maine and Quebec; west to North Dakota, Wyoming and Colorado; south to Texas and Georgia; in Mississippi, only isolated occurrence

**Wildlife Value and Uses:** wild turkey, ring-necked pheasant, quail, grouse, lesser prairie chicken, cedar waxwing, robins, and other bird species along with small mammals consume common hackberry fruit, which persist throughout the winter; deer browse leaves in the absence of preferred browse species; provides good cover for mule deer, white-tailed deer, upland game birds, small non-game birds, and small mammals

**Timber Value and Uses:** used to produce inexpensive furniture; has increasing value as a timber tree; wood quality is comparable to that of elm and white ash; most commonly used as firewood; also, included in windbreak plantings to control wind erosion; deep root system makes common hackberry useful for preventing soil erosion on disturbed sites

**Landscaping Info:** will accept a wide variety of soil, sun, and water conditions; wood is brittle and subject to ice breakage and any other mechanical damage (often results in decay); cultivars have been developed for plant shape, straighter trunks, drought resistance, salt tolerance, and adaptation to compacted soils

**Other Facts:** valued for medicinal, food, and ceremonial purposes by Native Americans; bark was decocted (boiled down) to serve as a gynecological aid that could induce labor, regulate menstrual cycles, and treat venereal diseases

**Note:** listed as threatened in New Hampshire



Leaf



Bark



Flower



Fruit



Twig

## Common Buttonbush

button willow, button ball

*Cephalanthus occidentalis* L.

### Leaves:

**Type:** simple, opposite or whorled, deciduous

**Size:** 4.0" - 7.0" long; 2.0" - 3.5" wide

**Margin:** entire

**Apex:** short to long-tapered

**Base:** rounded to wedge-shaped

**Shape:** ovate, elliptical or lance-shaped

**Color:** dark green above; pale green below

**Surface:** glabrous above; frequently hairy along principal veins below

**Venation:** pinnate

### Twigs:

**Size:** slender to moderately stout

**Color:** dark reddish brown

**Surface:** glossy, or sometimes covered with a bloom during 1st winter

### Buds:

**Size:** terminal bud absent; laterals embedded in the epidermal tissue of the twig

**Shape:** conical (paired or solitary)

**Color:** reddish brown

**Surface:** laterals indistinctly scaly

### Fruit and Flowers:

**Achene:** spheroid clusters

**Size:** 0.75" dia.

**Shape:** spheroid

**Color:** dark reddish brown

**Flower:** monoecious; perfect; on slender stalks, 1.0" - 2.0" long, in dense globose heads, 1.0" - 1.5" dia.; flower, trumpet-shaped, white

**Bark:** gray-brown; young stems smooth; older stems brown to purplish brown; fissured with flattened scaly ridges

### Physical Attributes:

**Form:** shrub to small tree

**Size:** 20.0', mature

**Growth Rate:** moderate; 20.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

**Shade:** tolerant

**Drought:** medium

**Fire:** medium

**Anaerobic:** high

**Propagation:** seed (no cold stratification required); bare root; container; cuttings

**Other:** resprout/ coppice potential

### Habitat and Ecology:

**Site:** wetland shrub common in swamps, floodplains, marshes, bogs, ditches that are under water for part of the year, and alluvial plains with intermittent flooding; present in riparian and wetland communities

**Soil Texture:** fine - coarse

**Soil pH:** 5.3 - 8.5

**Range:** southeastern Canada; eastern U. S. from the coastal plains to the midwestern plains states; varieties in California, Mexico, Florida, and Cuba; in Mississippi, throughout

**Wildlife Value and Uses:** seeds consumed by waterfowl and shorebirds; foliage browsed by white-tailed deer in the northeastern United States; wood duck brooding nest protection; nectar attractant for butterflies, bees, and hummingbirds

**Timber Value and Uses:** no commercial value as a wood product; used for erosion control along shorelines; forms dense stands; swollen plant base stabilizes the plant

**Landscaping Info:** showy flowers and fruit; popular choice for use in native plant gardens, shrub borders, and along pond shores and water gardens; persistent fruits provide some winter interest

**Other Facts:** used by Native Americans medicinally; decoctions (minute amounts in a liquid) of the bark used as washes for sore eyes, antidiarrheal agents, anti-inflammation and rheumatism medications, skin astringents, headache and fever relievers, and venereal disease remedies; bark also chewed to relieve toothaches; roots used for muscle inflammation and as blood medicines

**WARNING: Common buttonbush contains the poison CEPHALATHIN. Cephalathin will induce vomiting, paralysis, and convulsions if ingested.**



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

## Eastern Redbud

### Judastree

*Cercis canadensis* L.

#### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 3.0" - 5.0" dia.

**Margin:** entire

**Apex:** abruptly acute

**Base:** heart-shaped to flattened

**Shape:** kidney-shaped

**Color:** bright green above; paler below

**Surface:** glabrous above; axillary tufts below, otherwise glabrous

**Venation:** palmate

#### Twigs:

**Size:** slender

**Color:** light brown with numerous small lenticels first winter; then gray-brown

**Surface:** glabrous

#### Buds:

**Size:** terminal bud absent; laterals 0.13" long often superposed

**Shape:** ovoid

**Color:** red

**Surface:** glabrous

#### Fruit and Flowers:

**legume:** short-stalked; compressed; in lateral clusters

**Size:** pod 2.0" - 3.5" long; seeds 0.25" long

**Shape:** pod linear-oblong; seed ovate

**Color:** pod dark brown; seeds brown

**Flower:** monoecious; perfect; irregular; in clusters of 4 to 8, on stalks 0.5" long; flower, 5 petals, purplish pink, 0.5" long

**Bark:** thin; brown; smooth (young); darker, furrowed, long narrow plates with age

#### Physical Attributes:

**Form:** single stem

**Size:** 16.0', mature

**Growth Rate:** slow; 16.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

Shade: tolerant

Drought: high

Fire: low

Anaerobic: none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** no resprout/coppice potential

#### Habitat and Ecology:

**Site:** rich, moist soil near streams, fertile bottoms, slopes, open woods; frequently forms thickets

**Soil Texture:** medium - coarse

**Soil pH:** 4.5 - 7.5

**Range:** New Jersey; west through Pennsylvania and New York to Minnesota; south to Florida; west to eastern Texas; in Mississippi throughout

**Wildlife Value and Uses:** seeds eaten

by many birds, including bobwhite quail; browse for white-tailed deer and other mammals including livestock; blossoms attract honeybees

**Timber Value and Uses:** no commercial value as a timber species

**Landscaping Info:** widely cultivated as an ornamental for its showy flowers, and heart-shaped leaves; does well in soils of moderate to low fertility; very drought resistant; widely available from nurseries; best to select younger, smaller plants

**Other Facts:** used for various purposes by the Alabama, Cherokee, Delaware, Kiowa, and Oklahoma Native American tribes; blossoming branches were brought into the homes to "drive winter out"; tea from the bark used to treat whopping cough





Leaf



Bark



Fruit



Flower



Spring Bloom



Twig

**Grancy Grey Beard**  
**fringetree, old-man's-beard**  
*Chionanthus virginicus L.*

**Leaves:**

**Type:** simple, opposite, deciduous  
**Size:** 4.0" - 8.0" long; 1.0" - 4.0" wide  
**Margin:** entire; sometimes wavy  
**Apex:** acuminate  
**Base:** wedge-shaped  
**Shape:** ovate-oblong  
**Color:** dark green above; paler below  
**Surface:** glabrous above; pubescence on veins below  
**Venation:** pinnate

**Twigs:**

**Size:** stout  
**Color:** pale gray  
**Surface:** pubescent; subnodal thickenings; scattered large lenticels; leaf scars elevated; bundle scars numerous, U-shaped; slightly 4-angled

**Buds:**

**Size:** terminal 0.33" long; laterals shorter  
**Shape:** terminal ovoid, pointed; laterals often superposed  
**Color:** brown  
**Surface:** terminal 6-8 scales; scales keeled

**Fruit and Flowers:**

**Drupe:** occasionally with a whitish bloom  
**Size:** drupe 1.0" long; seed 0.33" long  
**Shape:** drupe oval; seed ovoid  
**Color:** dark blue-black  
**Flower:** dioecious or polygamous; perfect flowers occasionally present; in loose pendent, hairy, 3-flowered clusters, 4.0" - 6.0" long; flower, white, 0.75" - 1.0" long, fragrant

**Bark:** gray; thin; tight; thin, brown, appressed, superficial scales

**Physical Attributes:**

**Form:** single stem  
**Size:** 35.0', mature  
**Growth Rate:** moderate; 20.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** low  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** no resprout/coppice potential

**Habitat and Ecology:**

**Site:** rich, moist soil near streams; on rare occasions found at altitudes as high as 4,000'  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.5 - 6.5  
**Range:** Pennsylvania; south to Florida; west to Arkansas, Oklahoma, and Texas; in Mississippi, primarily in the southeastern one-third of the State, along with Tishomingo, Lafayette, and Union Counties in the northeastern portion of the State as reported by the NRCS Plants Database - likely in other areas as well

**Wildlife Value and Uses:** drupes are food source for birds and other wildlife

**Timber Value and Uses:** no commercial value in the timber industry

**Landscaping Info:** easily grown in average, medium-wet, well-drained soil in full sun to part shade; seldom needs pruning; intolerant of air pollution and prolonged dry conditions; spectacular in full bloom; yellow fall color; propagation difficult, so plant is expensive and/or hard to locate in commerce

**Other Facts:** diuretic and fever reductant tonic made from bark



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

## Buckwheat Tree

### black titi

*Cliftonia monophylla* Britt.

#### Leaves:

**Type:** simple, alternate, persistent, glandular

**Size:** 1.0" - 2.0" long; 0.5" - 0.75" wide

**Margin:** entire

**Apex:** rounded or minutely notched

**Base:** wedge-shaped

**Shape:** oblong to lance-shaped

**Color:** dark green above; whitish below

**Surface:** shiny, leathery above; glabrous, glandular dotted below; nearly sessile

**Venation:** pinnate

#### Twigs:

**Size:** slender

**Color:** reddish brown; sometimes with a grayish bloom

**Surface:** occasionally obscurely 3-angled; shield-shaped leaf scars; single bundle scar

#### Buds:

**Size:** terminal bud 0.5" long; laterals smaller, appressed

**Shape:** ovoid

**Color:** reddish brown

**Surface:** 2 (rarely 3) outer scales

#### Fruit and Flowers:

**Drupe:** nutlike; winged; shiny; showy clusters (1.5" - 2.5" long)

**Size:** 0.25" long

**Shape:** elliptical

**Color:** yellow

**Flower:** monoecious; perfect; in erect terminal racemes; petals, 5-8, white - light pink; 0.25" dia.; glandular, fragrant

**Bark:** dark reddish brown; thin; weakly fissured; small, persistent, slightly elongated scales

#### Physical Attributes:

**Form:** small tree or shrub

**Size:** 30.0' - 40.0', mature (tree)

**Growth Rate:** (no data @ 20 yrs)

**Life Span:** (no data)

#### Tolerances:

**Shade:** intolerant

**Drought:** intolerant

**Fire:** (no data)

**Anaerobic:** medium

**Propagation:** (no data)

**Other:** (no data)

#### Habitat and Ecology:

**Site:** often forming impenetrable thickets along the margins of swamps and poeicins, and in rich river bottoms; in the Gulf states, found on exposed, sandy ridges

**Soil Texture:** medium - coarse

**Soil pH:** 4.5 - 5.5 (strongly acidic)

**Range:** mostly found on the outer Gulf Coastal Plain from Georgia to northern Florida, and to extreme southeast Louisiana; very common in the Florida Panhandle and southern Alabama; in Mississippi, seven (7) southernmost counties

**Wildlife Value and Uses:** (no data)

**Timber Value and Uses:** no commercial value in forest industry; wood - heavy, close-grained, moderately hard, brittle, not strong; valued as a fuel

**Landscaping Info:** foliage is beautiful and the fragrant flowers a fine asset; highly unusual but worthy landscape plant, especially in native situations; heat tolerant; resistant to disease; resistant to insects

**Other Facts:** favored honey plant - in the Florida Panhandle beekeepers often move their hives into the natural stands in March.



Leaf



Bark



Flower



Fruit



Twig

## Alternate-leaf Dogwood

*Cornus alternifolia* L.

### Leaves:

**Type:** simple, alternate (rarely subopposite or opposite), deciduous

**Size:** 3.0" - 5.0" long; 2.5" - 3.5" wide

**Margin:** entire

**Apex:** tapered

**Base:** wedge-shaped or rounded

**Shape:** oval to ovate

**Color:** yellow-green above; lighter below

**Surface:** glabrous above; pubescent below

**Venation:** arcuate

### Twigs:

**Size:** slender; (acrid when broken)

**Color:** green to greenish brown

**Surface:** glabrous; numerous small lenticels; leaf scars half-moon-shaped; 3 bundle scars

### Buds:

**Size:** terminal 0.33" long; laterals smaller

**Shape:** oval to acute

**Color:** green tips; turning red

**Surface:** 2 to 3 visible scales, green, brown or purplish (0.25" long); laterals often nearly covered by persistent petiole bases

### Fruit and Flowers:

**Drupe:** in loose cymes; 1-2 seeded, lunate; many longitudinal, compound grooves

**Size:** 0.33" dia.; seeds 0.25" long

**Shape:** subglobose; pit obovoid

**Color:** blue-black to black; red stems

**Flower:** monoecious; perfect; on slender, jointed stalks, in flat-topped, many-flowered cymes; flowers, white, 4 oblong petals, 0.25" long

**Bark:** dark reddish brown; smooth in youth; lightly furrowed and somewhat scaly with age

### Physical Attributes:

**Form:** single or multiple stem

**Size:** 25.0', mature

**Growth Rate:** moderate; 25.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** tolerant

**Drought:** low

**Fire:** low

**Anaerobic:** none

**Propagation:** seed (cold stratification required);

bare root; container; cuttings

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** moist, rich soils along the margins of forests, or near streams; mixed with other hardwoods as an understory tree

**Soil Texture:** medium

**Soil pH:** 5.8 - 7.5

**Range:** Nova Scotia; west to Minnesota; south to northern Alabama and Georgia; in Mississippi, reported by the NRCS Plants Database only in the counties of Wayne, Perry, Forrest, Pearl River, and Marion, but likely found in other areas as well

**Wildlife Value and Uses:** extremely valuable for wildlife --- many mammals and birds utilize the fruit and the foliage for food

**Timber Value and Uses:** no commercial value in the timber industry; wood once highly prized for making the shuttles of looms, for tool handles, and other small items that required a very hard and strong wood --- currently plastics are used for many of these purposes

**Landscaping Info:** popular with architects because of the horizontal branching habit; works well as a small tree in the landscape; attractive winter habit, showy spring flowers

**Other Facts:** name comes from the word dagwood, from the use of the slender stems of very hard wood for making 'dags' (daggers, skewers)



Leaf



Bark



Flower



Fruit



Twig

## Roughleaf Dogwood

*Cornus drummondii* C. A. Meyer

### Leaves:

**Type:** simple, opposite, deciduous

**Size:** 2.5" - 5.0" long

**Margin:** entire

**Apex:** tapered or pointed

**Base:** wedge-shaped or rounded

**Shape:** ovate to elliptical

**Color:** dark green above, lighter below

**Surface:** rough, stiff hairs above; pubescent below

**Venation:** arcuate

### Twigs:

**Size:** slender

**Color:** light green; then reddish brown to gray

**Surface:** current year's growth very pubescent

### Buds:

**Size:** terminal <0.25" long; laterals smaller

**Shape:** pointed

**Color:** brown

**Surface:** covered in rusty hair

### Fruit and Flowers:

**Drupe:** berrylike; in flat-topped clusters

**Size:** 0.25" dia.

**Shape:** globose

**Color:** white

**Flower:** monoecious; perfect; in flat-topped, showy clusters, 2.0" - 4.0" wide; flowers, 4 petals, white; 0.25" dia.

**Bark:** young bark smooth and gray-brown; then flaky and broken; eventually blocky

### Physical Attributes:

**Form:** single stem

**Size:** 48.0', mature

**Growth Rate:** rapid; 48.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

Shade: intermediate

Drought: low

Fire: low

Anaerobic: high

**Propagation:** seed (cold stratification required);

bare root; container; cuttings

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** wide range of sites from moist stream banks to wooded bluffs, and limestone outcrops

**Soil Texture:** fine - medium

**Soil pH:** 5.9 - 7.5

**Range:** from Ontario in a fanwise fashion extending to Texas in the Southwest and Florida in the East; in Mississippi, counties along the Mississippi River, counties across the central part of the State, and Itawamba, Lee, Chickasaw and Clay counties in northeast Mississippi as reported to the NRCS Plants Database; probably in other areas of the State as well

**Wildlife Value and Uses:** provides

excellent ground cover for wildlife; fruit is eaten by numerous species of birds, browsed by white-tailed deer

**Timber Value and Uses:** no commercial value in the timber industry

**Landscaping Info:** could be a desirable choice where a thick hedge or border is needed





Leaf



Bark



Fruit



Flower



Twig

## Flowering Dogwood

*Cornus florida* L.

### Leaves:

**Type:** simple, opposite, deciduous  
**Size:** 3.0" - 6.0" long; 1.5" - 2.0" wide  
**Margin:** entire, or slightly scalloped  
**Apex:** pointed  
**Base:** wedge-shaped  
**Shape:** oval, acute or slender  
**Color:** light green above; paler whitish green below  
**Surface:** somewhat hairy above; pubescent below  
**Venation:** arcuate

### Twigs:

**Size:** slender  
**Color:** red or yellow-green to purple first winter; then gray-brown to brown  
**Surface:** pubescent first winter; then glabrous

### Buds:

**Size:** 2 terminal leaf bud scales 0.25" long  
**Shape:** terminal leaf bud acute; terminal flower buds globular (4 scales)  
**Color:** reddish brown to yellow-brown  
**Surface:** pubescent

### Fruit and Flowers:

**Drupe:** clusters of 2 to several; persistent calyx and style; pit, 2-celled, somewhat grooved  
**Size:** 0.5" long; 0.25" dia.  
**Shape:** ovoid; pit ovate; seeds oblong  
**Color:** bright red  
**Flower:** monoecious; perfect, in dense heads, surrounded by 4 large, white, petal-like bracts, 1.5" - 2.0" long, resembling a flower; flower, 4 petals, yellowish green, 0.25" dia.

**Bark:** thick; dark brown to nearly black; small rectangular plates on young stems; square, scaly blocks on mature stems

### Physical Attributes:

**Form:** single stem  
**Size:** 40.0', mature  
**Growth Rate:** moderate; 30.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
Shade: tolerant  
Drought: medium  
Fire: low  
Anaerobic: none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** no resprout/coppice potential

### Habitat and Ecology:

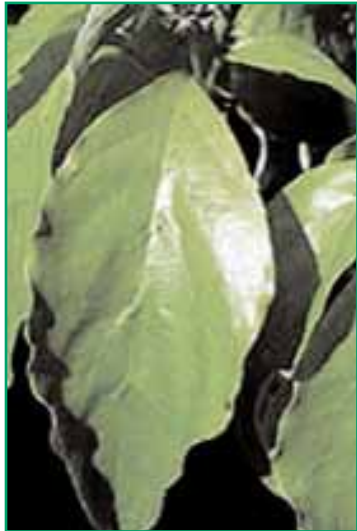
**Site:** moist, rich, deep soils near stream banks and on slopes; usually found as an understory species with other hardwoods  
**Soil Texture:** medium  
**Soil pH:** 5.0 - 7.0  
**Range:** all of the eastern U.S.; west through Kansas, Oklahoma, and Texas; in Mississippi, throughout, with the exception of some Mississippi River Delta counties

**Wildlife Value and Uses:** extremely valuable for wildlife; seed, fruit, flowers, twigs, bark, and leaves utilized as food by various animals; most distinguishing quality is its high calcium and fat content; fruits have been recorded as eaten by at least 36 species of birds, including ruffed grouse, bob-white quail, and wild turkey; fruit also eaten by mammals such as chipmunk, fox, skunk, rabbit, deer, beaver, black bear, and squirrel; foliage and twigs browsed heavily by deer and rabbits; quality of browse may be improved by controlled burns in the spring (increases the protein and phosphoric acid content); provides shelter and habitat for many wildlife species

**Timber Value and Uses:** has been planted on abandoned strip mines and used for urban forestry projects

**Landscaping Info:** valuable ornamental species; commonly used in landscape and street plantings; used for shade around patios, as a shrub border or backdrop species, or as single specimens in the lawn; best suited for plantings receiving less than full-day sun.

**Other Facts:** root bark used by Native Americans as a fever reducer, skin astringent, antidiarrheal agent, and as a pain reliever for headaches, sores, muscle inflammations; also used to counteract the effects of many poisons and as a general tonic for unspecified ailments; bark used for headache and backache relief, as a throat aid for hoarseness, and as an infusion for childhood diseases like worms and measles



Leaf



Bark



Fruit



Flower



Twig

**WARNING: The fruit of flowering dogwood is poisonous to humans.**

## American Hazelnut

### American filbert

*Corylus americana* Walter

#### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 2.5" - 5.0" long; 4.5" - 4.7" wide  
**Margin:** doubly serrate  
**Apex:** acuminate  
**Base:** heart-shaped or rounded  
**Shape:** broadly oval  
**Color:** dark green above; paler below  
**Surface:** glabrous above; pubescent below  
**Venation:** pinnate

#### Twigs:

**Size:** slender  
**Color:** light brown  
**Surface:** numerous, stiff, red-glandular hairs; zigzag branching

#### Buds:

**Size:** terminal bud absent; laterals 0.16" long  
**Shape:** blunt  
**Color:** two-toned light grayish brown; scales near base darker brown  
**Surface:** few scales

#### Fruit and Flowers:

**Nut:** edible; enclosed in two large downy, toothed bracts  
**Size:** 0.5" dia.  
**Shape:** globose  
**Color:** brown  
**Flower:** monoecious; staminate, catkins, light brown; pistillate, flowers, white, inconspicuous

**Bark:** light gray to brownish gray; smooth when young; mild criss-cross netted pattern with age

#### Physical Attributes:

**Form:** shrub  
**Size:** 10.0' mature  
**Growth Rate:** moderate; 10.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** medium  
**Fire:** medium  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** no resprout/coppice potential

#### Habitat and Ecology:

**Site:** moist, cool, upland sites

**Soil Texture:** fine - medium

**Soil pH:** 5.0 - 7.0

**Range:** most of the eastern half of the U.S. with the exception of Florida; Maine to North Dakota; south to Oklahoma, Arkansas and Louisiana; east to the Atlantic; in Mississippi, the northern counties

#### Wildlife Value and Uses:

nuts have a higher nutritional value than acorns and beechnuts; eaten by squirrel, fox, northern bobwhite, ruffed grouse, turkey, woodpeckers, pheasants, and deer; leaves, twigs, and catkins browsed by rabbits, deer, and moose; male catkins are a winter food for turkey and ruffed grouse; dense, low growth habit provides cover and nesting sites for many wildlife species.

**Timber Value and Uses:** no value as a timber product

**Landscaping Info:** valued as an ornamental and for planting in naturalized settings; useful for borders because of its colonial tendency; red or purple fall color; available from various commercial growers - no cultivars apart from the wild type

**Other Facts:** extractives of American hazelnut and their physically modified derivatives and distillates are used to produce emollients, tinctures, essential oils, terpenes, and botanicals; "hazel" is from the Old English name for filbert



Leaf



Bark



Flower



Fruit



Twig

## Persimmon

eastern persimmon, possumwood,  
American ebony, white ebony,  
bara-bara, boa-wood, butterwood  
*Diospyros virginiana* L.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 4.0" - 6.0" long; 2.0" - 3.0" broad  
**Margin:** entire  
**Apex:** acuminate  
**Base:** wedge-shaped or rounded  
**Shape:** ovate-oblong  
**Color:** dark green above; paler below  
**Surface:** leathery, glabrous above; glabrous below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** red-brown  
**Surface:** conspicuous orange lenticels; half-moon-shaped, raised leaf scars; single prominent bundle scar; somewhat zigzag branching

### Buds:

**Size:** terminal bud absent; laterals 0.13" long  
**Shape:** laterals ovoid, acute  
**Color:** dark brownish black  
**Surface:** 2 lustrous outer scales

### Fruit and Flowers:

**Berry:** pulpy; persistent woody calyx  
**Size:** 1.5" dia.  
**Shape:** subglobose  
**Color:** orange to purplish brown  
**Flower:** dioecious; unisexual; staminate, in 2- to several-flowered, hairy-stalked cymes; pistillate, solitary, in leaf axils; corolla greenish yellow or creamy white, 0.5" dia.

**Bark:** dark brown to nearly black; distinctive block-like plates; deeply furrowed

### Physical Attributes:

**Form:** single stem  
**Size:** 50.0', mature  
**Growth Rate:** moderate; 25.0' maximum @20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** none  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** deep, rich bottom lands or on higher sandy, well-drained soils; usually as an occasional tree in association with other broad leaved trees  
**Soil Texture:** fine - medium  
**Soil pH:** 5.0 - 7.0  
**Range:** southern Connecticut and Long Island; to southern Florida; west through central Pennsylvania and southeastern Iowa; south to eastern Texas; in Mississippi scattered throughout

**Wildlife Value and Uses:** leaves and twigs eaten in fall and winter by white-tailed deer; fruit eaten by squirrel, fox, skunk, deer, bear, coyote, raccoon, opossum, and various birds (quail, wild turkey, cedar waxwing, and catbird); flowers produce nectar significant for bees in honey production

**Timber Value and Uses:** usually considered undesirable by growers of closely managed timber stands; wood is hard, smooth, even textured, and shock resistant; ideal for textile shuttles and heads for driver golf clubs; heartwood is used for veneer, flooring, and specialty items, but most commercially used persimmon is reported to consist of sapwood

**Landscaping Info:** sometimes used as an ornamental for its hardiness, adaptability to a wide range of soils and climates, and immunity from disease and insects; moist, well-drained soils provide best conditions; will tolerate hot, dry, poor soils, including various city conditions; rarely sold commercially; leaves are glossy, leathery, and yellow or reddish purple in the fall

**Other Facts:** unripe fruit and inner bark used in the treatment of fever, diarrhea, and hemorrhage; fruits used in puddings, cookies, cakes, custard, and sherbet; dried, roasted, ground seeds used as a substitute for coffee



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

## American Beech

beech, Carolina beech, gray beech, red beech, ridge beech, stone beech, white beech, winter beech  
*Fagus grandifolia* Ehrh.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 2.5" - 5.0" long; 1.0" - 2.5" wide  
**Margin:** bluntly serrate  
**Apex:** gradually tapering to a point  
**Base:** wedge-shaped  
**Shape:** oblong-ovate  
**Color:** dark green above; yellow-green below  
**Surface:** glabrous above; lustrous and glabrous below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** pale green; then yellow-brown  
**Surface:** downy; then smooth; leaf scars half-round; 3 bundle scars; stipule scars, minute, nearly surrounding the twig; zig-zag branching (usually)

### Buds:

**Size:** 1.0" long  
**Shape:** terminal buds sharp-pointed; lance-shaped; laterals similar  
**Color:** tan to brown  
**Surface:** lustrous

### Fruit and Flowers:

**Nut:** 3-angled, inclosed in spiny bur  
**Size:** < 1.0" long  
**Shape:** unevenly triangular  
**Color:** yellowish brown  
**Flower:** monoecious; staminate, on slender hairy stalks, in rounded heads, 1.0" dia., green; pistillate, in 2- or 4-flowered spikes, pale yellow

**Bark:** bluish gray; thin; sometimes mottled; smooth; very little change with age or bole size

### Physical Attributes:

**Form:** single stem  
**Size:** 95.0', mature  
**Growth Rate:** slow; 30.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** high  
**Fire:** high  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** common on rich mesic hardwood slopes, bottom lands, and swamp margins  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.1 - 7.2  
**Range:** northern Florida; west to eastern Texas; north to Wisconsin and southeastern Canada; in Mississippi, throughout

**Wildlife Value and Uses:** mast eaten by a variety of birds and mammals, including mice, squirrel, chipmunk, black bear, deer, fox, ruffed grouse, ducks, and bluejays; poor rating for deer browse; provides cover for the Carolina chickadee (*Parus carolinensis*) and the black-capped chickadee (*Parus atricapillus*)

**Timber Value and Uses:** flooring, furniture, veneer, plywood, and railroad ties; especially favored as fuel wood for high density and good burning qualities; used with birch and maple in the hardwood distillation industry for production of charcoal, wood alcohol and acetate of lime; limited use in the "soda process" of pulp manufacture

**Landscaping Info:** beautiful native tree; attributes as an ornamental include horizontal limbs, persistent coppery bronze leaves in the fall and early winter, and whitish gray very smooth bark; greatest drawback as a landscape tree is slow growth

**Other Facts:** edible uses reported by the Plants For A Future (PFAF) Database include: roasted seed as a coffee substitute; dried inner bark as a ground powder for thickening in soups etc.; seed (raw or cooked) is sold locally in Canada and parts of America --- they are nutritious (22% protein), and sweet





Leaf



Bark



Flower



Fruit



Twig

## Water Locust

*Gleditsia aquatica* Marsh.

### Leaves:

**Type:** pinnately or bipinnately compound, alternate, deciduous

**Size:** 6.0" - 8.0" long; leaflets (14-20), 0.75" - 1.0" long

**Margin:** entire

**Apex:** rounded; rarely emarginate

**Base:** unequally cuneate

**Shape:** leaflets ovate-oblong

**Color:** dull yellow-green above; dark green below

**Surface:** lustrous above; glabrous below

**Venation:** pinnate

### Twigs:

**Size:** slender to moderate

**Color:** gray to red-brown

**Surface:** conspicuous thorns; zigzag branching

### Buds:

**Size:** terminal bud absent; laterals sunken

**Shape:** laterals covered by leaf scar

**Color:** (see size)

**Surface:** same as leaf scar

—

### Fruit and Flowers:

**Legume:** flat; 1-3 seeds

**Size:** 1.0" - 2.0" long; seeds 0.5" dia.

**Shape:** almost round/oval

**Color:** brown

**Flower:** monoecious; perfect; in slender racemes, 3.0" - 4.0" long; calyx-tube covered by orange-brown pubescence; petals, green, erect, rounded at apex; anthers, large, green

**Bark:** gray-brown; often mottled; smooth; small platelike scales on older trees

### Physical Attributes:

**Form:** single stem

**Size:** 50.0' - 60.0' mature

**Growth:** rapid; 50.0' - 60.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** intolerant

**Drought:** high

**Fire:** none

**Anaerobic:** moderate

**Propagation:** seed (no cold stratification required); container; cuttings;

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** rich lands of river valleys that are subject to inundation, often for a considerable part of the year

**Soil Texture:** fine - coarse

**Soil pH:** 6.5 - 7.0 (best)

**Range:** South Carolina; south to central Florida; west to eastern Texas, and north to southern Illinois and extreme southwestern Indiana; in Mississippi, reported by the NRCS Plants Database in Boliver, Washington, Sharkey, Leflore, Warren, Jefferson and Wilkinson Counties, but likely occurs in other areas of the State as well

**Wildlife Value and Uses:** seed, pods, and foliage provide food rated as "Good" by the Texas Plant Information Database (TPID) for large and small mammals and upland game birds, and "Fair" for waterfowl; rated "Fair" as cover for the same categories of wildlife

**Timber Value and Uses:** planted for stabilization of wet banks and marshes; heavy wood, very hard, strong; durable in contact with the soil; used primarily for making fence posts

**Landscaping Info:** easily found in nurseries, garden stores and other plant dealers and distributors

**Other Facts:** classified as an Obligate Wetland (OBL) species, meaning it occurs almost always (estimated probability 99%) under natural conditions in wetlands; endangered in Indiana and "of special concern" in Kentucky, but considered globally secure

Note: similar habit to honey locust (*G. triacanthos*), but distinguished from it by:

- \* smaller leaves
- \* fewer leaflets
- \* more slender thorns
- \* flattened, 1- to 3-seeded, non-pulpy pods



**Leaf**



**Bark**



**Flower**



**Fruit**



**Twig**

**Honey Locust**  
**honey-shucks locust**  
*Gleditsia triacanthos L.*

**Leaves:**

**Type:** pinnately and bipinnately compound; alternate; deciduous  
**Size:** 6.0" - 8.0" long; pinnate leaves (15-30), subopposite or alternate leaflets, 1.0" - 2.0" long, 0.5" - 1.0" wide  
**Margin:** entire to remotely serrate  
**Apex:** acute or rounded  
**Base:** broadly unequally wedge-shaped  
**Shape:** leaflets ovate to elliptical  
**Color:** dark green above; yellow-green below  
**Surface:** lustrous above; glabrous below  
**Venation:** pinnate

**Twigs:**

**Size:** moderately stout  
**Color:** shiny brown; eventually gray-brown  
**Surface:** thickened nodes; zigzag branching pattern; simple or 3-branched thorns; leaf scar U-shaped; 3 bundle scars

**Buds:**

**Size:** terminal bud absent; laterals minute  
**Shape:** laterals sunken, covered by leaf scar (several at each node)  
**Color:** (see size)  
**Surface:** same as leaf scar

**Fruit and Flowers:**

**Legume:** flattened, thick-edged, twisted; seeds compressed 0.33" long  
**Size:** 0.5' - 1.5' long; 0.5" wide  
**Shape:** elongate  
**Color:** brown; seeds dark brown  
**Flower:** monoecious; perfect or imperfect; in axillary racemes, 2.0" - 3.0" long; staminate clustered, pubescent; many-flowered; pistillate solitary, few-flowered; petals white, 0.25" long

**Bark:** gray to black; smooth young; mature fissured, scaly plates; branched thorns on bole

**Physical Attributes:**

**Form:** single stem  
**Size:** 75.0', mature  
**Growth Rate:** rapid; 35.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** none  
**Anaerobic:** none

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** rich bottom lands, mountain slopes, stream banks, limestone prairie soils  
**Soil Texture:** medium  
**Soil pH:** 6.0 - 8.0  
**Range:** Pennsylvania; west through Michigan, southern Minnesota and southeastern South Dakota; south through eastern Nebraska, Iowa, Kansas, Oklahoma and eastern Texas; east to northern Alabama; in Mississippi, scattered throughout

**Wildlife Value and Uses:** pods eaten by cattle, goats, deer, opossum, squirrel, rabbit, quail, crows, and starlings; soft bark of young trees eaten by white-tailed deer and rabbit in winter; young vegetative growth eaten by livestock and deer; planted around wildlife plots and in pastures and hayfields to provide high protein mast

**Timber Value and Uses:** too scarce to be of economic importance; used locally for pallets, crates, general construction, furniture, interior finish, turnery, firewood, railroad ties, and posts; wood is dense, hard, coarse-grained, strong, stiff, shock-resistant, and takes a high polish; durable in contact with soil

**Landscaping Info:** widely planted as a hardy and fast-growing ornamental; small leaflets and open crown, the trees cast a light shade that permits shade-tolerant turfgrass and partial-shade perennials to grow underneath; cultivars now developed for crown shape, branch angles, and leaf color, and most are both thornless and fruitless; planting currently discouraged in cities because of over-use and thus decreased biodiversity

**Other Facts:** ground, dried pulp from the legume used by Native Americans as a sweetener and thickener; roasted seeds used as a coffee substitute



Leaf



Bark



Flower



Fruit



Twig

## Witchhazel

*Hamamelis virginiana* L.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 4.0" - 6.0" long; 2.0" - 3.0" wide  
**Margin:** often coarsely shallowly lobed above the middle  
**Apex:** acuminate  
**Base:** unequal  
**Shape:** obovate  
**Color:** dark green above; paler below  
**Surface:** glabrous above; hair on midrib and principal veins  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** orangish brown to reddish brown  
**Surface:** scurfy, becoming smooth; zigzag branching

### Buds:

**Size:** terminal bud, naked, 0.25" - 0.5" long; laterals smaller  
**Shape:** curved; stalked  
**Color:** tawny  
**Surface:** hairy

### Fruit and Flowers:

**Capsule:** woody; 2-beaked; splitting along 2 sutures  
**Size:** 0.5" long; seed 0.25" long  
**Shape:** elliptical; seeds oblong, unwinged  
**Color:** brown; seeds black  
**Flower:** monoecious; perfect; usually in 3-flowered terminal clusters; petals, 4, straplike, yellow, 1.0" long

**Bark:** light brown; smooth to slightly scaly; thin; inner bark purplish

### Physical Attributes:

**Form:** single or multiple stem  
**Size:** 20.0', mature  
**Growth Rate:** slow; 15.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** low  
**Fire:** low  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** stream banks; margins of lakes, ponds, and swamps; moist, upland forest soils as an understory tree  
**Soil Texture:** fine - medium  
**Soil pH:** 4.5 - 6.2  
**Range:** New Brunswick, Canada; west through southern Ontario to Minnesota and northeastern Iowa; south to Georgia in the east, and Arkansas in the West; in Mississippi, throughout the State with the exception of the Mississippi River Delta and the mid-northern and northwestern counties

**Wildlife Value and Uses:** seeds and buds used by grouse; twigs browsed by deer and rabbit

**Timber Value and Uses:** no commercial value in the timber industry

**Landscaping Info:** used occasionally in naturalized areas for shrub borders in partial shade on moist sites; unique, fragrant flowers are most "showy" after leaf fall (October-December); disease and insect resistant

**Other Facts:** Hamamelis is from Greek words meaning "at the same time" and "apple", possibly because flowers and fruits are present simultaneously; virginiana refers to the Virginia colony; widely used by Native Americans as a medicinal plant; nutty seeds savored by tribes of the South; bark used to treat ulcers; twigs used in sweat lodges; leaves used in strong medicinal teas

first "commercial" marketing as an herbal product in 1848 by Theron T. Pond and an Oneida medicine man, first under the trade name "Golden Treasure" and later as "Pond's Extract"; one of few American medicinal plants still approved by the FDA as an ingredient in non-prescription drugs (over the counter astringent, external analgesic, skin protectant)

most famous/infamous use as a "witching stick" by "water diviners" to locate underground water with a forked branch from witch hazel --- the location of many early water wells may have been determined by this method



Leaf



Fruit



Bark



Flower



Twig

**Dahoon**  
**myrtle leaf holly, dahoon holly**  
*Ilex cassine* L.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 0.5" - 3.0" long; 0.5" - 1.0" wide  
**Margin:** entire, or toothed above the middle  
**Apex:** blunt or acute  
**Base:** wedge-shaped  
**Shape:** oblong-lanceolate  
**Color:** dark green above; paler below  
**Surface:** glabrous above; pubescent along midrib below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** gray; brown after 3rd season  
**Surface:** pubescent until after 3rd season, then glabrous; numerous inconspicuous lenticels;

**Buds:**

**Size:** minute, <0.13" long  
**Shape:** pointed  
**Color:** grayish brown  
**Surface:** minutely hairy

**Fruit and Flowers:**

**Drupe:**  
**Size:** 0.25" dia.  
**Shape:** globose  
**Color:** red/orange/yellow  
**Flower:** dioecious; regular; on hairy pedicels, in axillary stalked clusters; staminate in clusters of 3-9; pistillate, solitary or clusters of 3-4 in leaf axils, 1.0" long

**Bark:** thin; gray; numerous lenticels

**Physical Attributes:**

**Form:** single stem  
**Size:** 26.0', mature  
**Growth Rate:** moderate; 26.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** high  
**Anaerobic:** high

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** non-alluvial swamps, cypress ponds, and streambanks of the lower Coastal Plain  
**Soil Texture:** fine - coarse  
**Soil pH:** 3.5 - 6.5  
**Range:** North Carolina; south to Florida; west to Texas; in Mississippi, reported by the NRCS Plants Database in only the southernmost coastal counties

**Wildlife Value and Uses:** fruit eaten by small mammals and birds

**Timber Value and Uses:** no commercial value

**Landscaping Info:** becoming increasingly available as more nurseries respond to the ever increasing interest in gardening with native species; tolerates brackish water and low-light conditions; good for woodland plantings or in wet areas at the edge of lakes and streams

**Other Facts:** listed as a commercially exploited species by the Florida Department of Agriculture; protected --- wild populations should not be disturbed





**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

**Deciduous Holly**  
**possumhaw, winterberry**  
*Ilex decidua* Walt.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 2.0" - 3.0" long; 0.5" - 1.0" wide  
**Margin:** finely serrate - crenate  
**Apex:** obtuse to tapered  
**Base:** wedge-shaped  
**Shape:** ovate-lanceolate  
**Color:** light green above; paler below  
**Surface:** glabrous above; hairy on midrib below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** light gray  
**Surface:** glabrous; crescent-shaped leaf scars;  
single bundle scar

**Buds:**

**Size:** terminal bud minute; laterals smaller  
**Shape:** obtuse  
**Color:** light gray  
**Surface:** glabrous; 2-3 visible scales

**Fruit and Flowers:**

**Drupe:** berrylike; solitary or in clusters of 2 or 3;  
nutlets, ribbed only on the back  
**Size:** 0.25" dia.  
**Shape:** spheroidal  
**Color:** red-orange  
**Flower:** dioecious; cymose clusters on short  
stalks; staminate, clusters of 3-9; pistillate  
solitary or clusters of 2-3; petals 4-6; single  
flower 0.25" dia.; greenish-white

**Bark:** brown to gray, or variation of the two;  
thin, smooth

**Physical Attributes:**

**Form:** multiple stem  
**Size:** 33.0', mature  
**Growth Rate:** rapid; 33.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** high  
**Anaerobic:** medium

**Propagation:** seed (no cold stratification  
required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** lowlands, swamps, near streams, or in  
moist, rich, upland soils as an understory tree  
**Soil Texture:** fine - coarse  
**Soil pH:** 3.5 - 6.5  
**Range:** western Florida; north to Virginia; west  
to southern Illinois and Missouri to Oklahoma;  
south to Texas; in Mississippi, throughout

**Wildlife Value and Uses:** holly fruits are  
consumed by small mammals, songbirds and  
game birds, including eastern bluebirds, wild  
turkey, and quail; also eaten by white-tailed  
deer; white-tailed deer and cattle browse both  
leaves and twigs; good choice in plantings for  
wildlife; individual plant fruit production is  
consistent from year to year; greater than 70  
percent of individuals bear fruit (only female  
plants bear fruit)

**Timber Value and Uses:** no economic  
value in the timber industry

**Landscaping Info:** could be more widely  
used as an ornamental; only female trees bear  
fruit and when planning use as a landscape  
plant this fact should be kept in mind

**Other Facts:** national champion (1981),  
located in South Carolina, is 3.0' in  
circumference and 42.0' in height



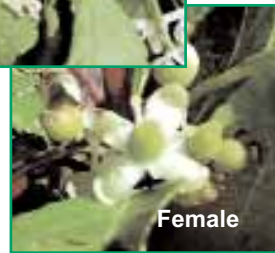
Bark



Leaf



Male



Female

Flower



Fruit



Twig

## American Holly

*Ilex opaca* Aiton

### Leaves:

**Type:** simple, alternate, persistent  
**Size:** 2.0" - 4.0" long; 1.0" - 2.0" wide  
**Margin:** wavy; sharp-pointed, stout, stiff spines  
**Apex:** acute, sharp-pointed  
**Base:** wedge-shaped or rounded  
**Shape:** oblong-ovate  
**Color:** dark green above; paler greenish yellow below  
**Surface:** leathery, glabrous above; glabrous below  
**Venation:** pinnate

### Twigs:

**Size:** stout  
**Color:** gray (rust colored hairs when young)  
**Surface:** glabrous mature; leaf scar, crescent-shaped; single bundle scar

### Buds:

**Size:** terminal 0.13" - 0.25" long; laterals smaller  
**Shape:** terminal bud acute; laterals obtuse  
**Color:** green, tinged with rusty red  
**Surface:** 2-4 acuminate, ciliate scales, downy

### Fruit and Flowers:

**Drupe:** berrylike; several prominently ribbed 1-seeded stones  
**Size:** 0.25" dia.  
**Shape:** spherical  
**Color:** red  
**Flower:** dioecious; cymose clusters on short stalks; staminate, clusters of 3-9; pistillate solitary or clusters of 2-3; petals 4-6; single flower 0.25" dia.; greenish-white

**Bark:** thin; gray; sometimes roughened or warty

### Physical Attributes:

**Form:** single stem  
**Size:** 60.0', mature  
**Growth Rate:** slow; 20.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** medium  
**Fire:** low  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container; cuttings  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** rich, moist bottom lands; borders of wetlands; dry protected slopes; frequently on sandy soils near the coast  
**Soil Texture:** fine - medium  
**Soil pH:** 4.0 - 7.5  
**Range:** Massachusetts to Florida; west to Texas and Missouri; in Mississippi, throughout except the north-central and Mississippi River Delta counties

**Wildlife Value and Uses:** fruits are consumed by white-tailed deer and 18 species of birds; dense foliage provides cover and nesting habitat for various songbirds

**Timber Value and Uses:** little demand; some high value architectural use; very white wood

**Landscaping Info:** attractive ornamental with evergreen foliage and bright colored fruit; requires vigilant pruning to maintain desirable shape; dead leaves decompose extremely slowly (if ever); allergies possible from leaf pricks; plants are dioecious (male and female plants), only female plants have fruit

**Other Facts:** one of the most sought after greens for Christmas decoration



Leaf



Bark



Female



Male

Flower



Fruit



Twig

**Yaupon**  
**evergreen holly, indian blackdrink,**  
**Christmas berry**  
*Illex vomitoria* Ait.

**Leaves:**

**Type:** simple, alternate, evergreen  
**Size:** 0.5" - 1.5" long; 0.25" - 0.5" wide  
**Margin:** crenate  
**Apex:** obtuse  
**Base:** inequalateral  
**Shape:** elliptic to elliptic-oblong  
**Color:** dark green above; paler below  
**Surface:** shiny above; opaque below  
**Venation:** pinnate

**Twigs:**

**Size:** slender, stiff,  
**Color:** initially purplish brown; turning light gray  
**Surface:** velvety, becoming glabrous

**Buds:**

**Size:** minute  
**Shape:** obtuse  
**Color:** dark brown to nearly black (scales)  
**Surface:** glabrous

**Fruit and Flowers:**

**Drupe:** berrylike; stone few-ribbed  
**Size:** 0.25" dia.  
**Shape:** spheroidal  
**Color:** bright red  
**Flower:** dioecious; on slender club-shaped glabrous pedicels, in short glabrous cymes; staminate, many-flowered, short-stemmed; pistillate, sessile, either solitary or in pairs; 4 petals, white

**Bark:** reddish brown, thin

**Physical Attributes:**

**Form:** multiple stem  
**Size:** 25.0', mature  
**Growth Rate:** slow; 20.0' maximum @ 20 yrs  
**Life Span:** long; (>100 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** high  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** coastal dunes and forests; occasionally in sand hills; can be found on the upper edges of brackish and salt marshes, sandy hammocks coastal sand dunes, inner-dune depressions, maritime forests, nontidal forested wetlands, well-drained forests and pine flatwoods  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.5 - 7.0  
**Range:** Virginia south to Florida; west to Texas; north to Oklahoma; west through Arkansas and the Gulf coastal states; in Mississippi, reported by the NRCS Plants Database only in the southern half of the State

**Wildlife Value and Uses:** red fruit of yaupon attracts wildlife; important food for many songbirds, gamebirds and waterfowl (bluebirds, catbirds, mockingbirds, robins, yellow-shafted flickers, red-naped sapsuckers, yellow-bellied sapsuckers, white-throated sparrows, cedar waxwings, Florida ducks, black ducks, mourning doves, ruffed grouse, bobwhite quail and wild turkey); fruit also eaten by armadillo, black bear, gray fox, western fox, raccoon and skunks; foliage and twigs browsed by white-tailed deer; evergreen foliage provides wildlife cover during the winter months.

**Timber Value and Uses:** no commercial value in the timber industry

**Landscaping Info:** one of the most durable and adaptable of the small-leaved evergreen hollies for use in southern landscapes; grows well throughout its range in sidewalk cutouts and other sites with limited exposed soil; protected by Florida statute

**Other Facts:** used by Native American tribes in the Southeastern United States for medicinal and multiple other purposes; leaves and shoots used to make a decoction called "black drink", utilized medicinally and ceremonially, and also served as a social drink; some evidence that the southeastern tribes traded Yaupon with nearby neighbors and that they transplanted and cared for the trees.

Yaupon is the only native plant in North America that contains caffeine.



Leaf



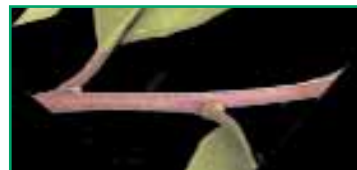
Bark



Flower



Fruit



Twig

**(Caution: Poisonous plant-fruit can cause nausea, vomiting, and diarrhea)**

## Black Walnut

*Juglans nigra* L.

### Leaves:

**Type:** odd-pinnately compound, alternate, deciduous

**Size:** 1.0' - 2.0' long; leaflets (15-23), 3.0" - 4.0" long, 1.0" wide

**Margin:** finely toothed margins

**Apex:** acute

**Base:** unequally rounded

**Shape:** ovate-lanceolate

**Color:** bright yellow-green above; paler below

**Surface:** glabrous, lustrous above; pubescent below

**Venation:** pinnate

### Twigs:

**Size:** stout;

**Color:** brown or orangish brown

**Surface:** raised orange lenticels; notched leaf scars; pith chambered

### Buds:

**Size:** terminal 0.33" long; laterals smaller

**Shape:** ovoid

**Color:** terminal brown to orange-brown; laterals grayish brown

**Surface:** terminal, pale silky pubescence; laterals woolly gray hairs

### Fruit and Flowers:

**Nut:** corrugated; enclosed in a thick, succulent husk; sweet, oily, edible nut

**Size:** 1.5" - 2.25" dia.

**Shape:** ovoid to globular

**Color:** nut blackish brown; husk yellow-green

**Flower:** monoecious; unisexual; staminate, in stout catkins, 3.0" - 5.0" long; pistillate, in 2- to 5-flowered spikes, 0.25" long, 2 yellow-green feathery stigmas, bright red plumose pistils

**Bark:** gray-brown to brown-black; fissured; deep furrows and broad rounded ridges

### Physical Attributes:

**Form:** single stem

**Size:** 100.0', mature

**Growth Rate:** rapid; 35.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: intolerant

Drought: low

Fire: high

Anaerobic: none

**Propagation:** seed (no cold stratification required); bare root; container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** moist, deep, fertile soils of bottom lands and gentle slopes; occurs as an "occasional" tree in association with other hardwoods

**Soil Texture:** medium

**Soil pH:** 5.5 - 8.0

**Range:** Massachusetts; through southern Ontario, to Central Nebraska; south to Texas and east to Georgia; in Mississippi, northern two thirds of the State --- not common in the Mississippi River Delta

**Wildlife Value and Uses:** nuts eaten by squirrel; low palatability as browse

**Timber Value and Uses:** most valuable and popular North American tree for fabrication of solid and veneered furniture; cut to near extinction in some areas; used by master craftsmen of fine furniture and cabinetry during the Queen Anne, William and Mary, and Colonial periods; used as gunstock material beginning during the Civil War, and both as gunstocks and airplane propellers in World Wars I and II

**Landscaping Info:** routinely available commercially; **note:** produces a toxin known as "juglone" which inhibits the growth of other plants around it as a means of reducing competition --- should be a consideration in placement of the species in landscaping

**Other Facts:** used by many Native American groups: Cherokee ate the fruit, chewed the bark for toothache, and made laxative tea from the bark; Chippewa and the Cherokee made brown and black dyes from the bark; Comanche treated ringworm with a paste from the leaves and fruit husks; used by the Appalachian, Cherokee, Comanche, Iroquois, and Rappahannock to treat athlete's foot, hemorrhoids, and as an insecticide

**Caution:** Bark is poisonous





Leaf



Bark



Flower



Fruit



Twig

**Sweetgum**  
**red gum, alligator-tree**  
*Liquidambar styraciflua* L.

**Leaves:**

**Type:** simple, alternate, deciduous; 5-7 deeply palmate lobes; aromatic when bruised

**Size:** 6.0" - 7.0" dia.

**Margin:** finely serrate

**Apex:** long-tapered

**Base:** flattened or slightly heart-shaped

**Shape:** star-shaped

**Color:** bright green above; paler below

**Surface:** lustrous above; axillary tufts of hair below

**Venation:** palmate lobes

**Twigs:**

**Size:** slender to moderately stout

**Color:** yellowish to reddish brown

**Surface:** few scattered lenticels; corky outgrowths - some winglike with age; leaf scars half-round; 3 circular bundle scars

**Buds:**

**Size:** terminal winter bud 0.25" long; laterals similar but smaller

**Shape:** acute

**Color:** orange-brown scales

**Surface:** scales overlapping - inner row red-tipped, accrescent, 1.0" at maturity

**Fruit and Flowers:**

**Spiny ball:** aggregate of many tiny capsules

**Size:** 1.0" - 1.5" dia.; 2 seeds/capsule, 0.25" long

**Shape:** ball globular; seeds terminally winged

**Color:** ball green, then brown; seeds black

**Flower:** monoecious; unisexual; in headlike clusters; staminate, greenish yellow, in terminal, hairy racemes, 2.0" - 3.0" long, flowers naked; pistillate heads pale green, globose, solitary, axillary, on long slender stalks

**Bark:** gray to gray-tan; furrowed; rounded, narrow, scaly ridges

**Physical Attributes:**

**Form:** single stem

**Size:** 100.0', mature

**Growth Rate:** rapid; 45.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

**Shade:** intolerant

**Drought:** low

**Fire:** low

**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** adaptable, but most abundant on moist, rich, alluvial soils in association with many other species; will frequently form dense even-aged thickets on abandoned fields

**Soil Texture:** fine - coarse

**Soil pH:** 4.5 - 7.0

**Range:** Connecticut; west through southeastern New York, southern Ohio, and southern Missouri to eastern Oklahoma; south to central Florida; then west to eastern coastal Texas; in Mississippi, ubiquitous throughout

**Wildlife Value and Uses:** seeds eaten by goldfinches, purplefinches, mallard ducks, bobwhite quail, Carolina chickadees, yellow-bellied sapsuckers, white-throated sparrows, towhees, Carolina wrens, squirrel, and chipmunks; wood is utilized by beaver in dam construction

**Timber Value and Uses:** one of the most valuable commercial hardwoods in the Southeast with regard to the "volume" of timber produced; provides pulp, veneer and lumber; used in cabinetry, home interiors, boxes and utensils

**Landscaping Info:** rapid growth, site adaptability, excellent fall color; requires adequate space due to extensive root development and root sprouts from lateral roots; heavy crops of persistent fruit heads (gum balls)

**Other Facts:** all parts of the sweetgum utilized by Native American tribes for multiple purposes; dried sap used as chewing gum and to treat distemper by placing rolled up pieces in a dog's nose; sap also used to make a "drawing plaster", and to reduce fever; roots bark, and leaves used to make teas; aromatic sap (styrax) currently used as an ingredient in both medicine and perfume



Leaf



Fruit



Bark



Flower



Twig

**Yellow-Opplar**  
tulip magnolia, tulip tree, whitewood,  
canoe tree

*Liriodendron tulipifera* L.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 4.0" - 6.0" long and broad  
**Margin:** usually 4-lobed; margin of the lobes entire  
**Apex:** flattened or notched  
**Base:** flattened or somewhat rounded  
**Shape:** tuliplike  
**Color:** dark green above; paler below  
**Surface:** lustrous, smooth above; glabrous below  
**Venation:** pinnate

**Twigs:**

**Size:** slender to moderately stout  
**Color:** reddish brown; sometimes with a purplish bloom  
**Surface:** glabrous; leaf scars nearly circular; stipule scars encircling the twig causes jointed appearance; numerous small lenticels

**Buds:**

**Size:** terminal bud 0.5" long; laterals smaller  
**Shape:** long, flattened; 2 outer valvate scales, "duck bill" appearance  
**Color:** mixed; green, purplish, brownish red  
**Surface:** dark, covered by a glaucous bloom

**Fruit and Flowers:**

**Aggregate:** conelike cluster of numerous, dry, terminally winged samaras  
**Size:** samaras 1.50" long  
**Shape:** narrow, upright  
**Color:** light brown  
**Flower:** monoecious; perfect; tulip-shaped, 1.5" - 2.0" dia., light green, bright orange scallop at base; 6 petals in 2 rows

**Bark:** young trees, smooth, light gray, with small white patches; older bark, gray, thick, deeply furrowed

**Physical Attributes:**

**Form:** single stem  
**Size:** 120.0', mature  
**Growth Rate:** rapid; 50.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** medium  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** moist, well-drained sites; along streams, bottoms, lower upland slopes, and rich coves; often forming small pure thickets during juvenile period, but only as an occasional stem in old stands  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.5 - 6.5  
**Range:** southern New England; west to Michigan, south to Florida, and west to Louisiana; in Mississippi, throughout

**Wildlife Value and Uses:** some wildlife value; fruits provide food for squirrel in the late fall and winter months, and white-tailed deer often browse on the twigs; flower nectar is an important food source for bees in the spring; host plant for tiger and spicebush swallowtail butterflies

**Timber Value and Uses:** one of the most important southern hardwoods; large volumes harvested for veneer, manufacture of furniture, and pulpwood; planted for reforestation purposes because of its rapid growth and the commercial importance of its wood

**Landscaping Info:** desirable street, shade, or ornamental tree; mature size makes it unsuited for many sites; pluses include rapid growth, pyramidal form, resistance to insect and disease damage, unusual leaves and attractive flowers, and yellow autumnal color; minuses --- prone to wind and ice damage in exposed situations.

**Other Facts:** wood produces bitter alkaloid chemical called tulipferene which is a heart stimulant; root of the tuliptree can be used as a lemon-like flavoring agent in spruce beer; historically, tea made from the bark used externally as a wash and a poultice on wounds and boils, and also brewed to produce an aromatic stimulant tonic for the treatment of rheumatism, chronic gastric and intestinal diseases, dysentery, coughs, and hysteria; root bark and seeds used to expel worms from the body; Native Americans and early pioneers frequently hollowed out a single log to make a long dugout canoe, giving it the common name "canoe tree" in some regions; purported that Daniel Boone made a 60 foot long canoe from a single tulip tree



Leaf



Fruit



Bark



Flower



Twig

**Cucumber Magnolia**  
**yellow-flower magnolia, mountain**  
**magnolia, yellow cucumbertree**  
*Magnolia acuminata* L.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 6.0" - 12.0" long; 3.0" - 6.0" wide  
**Margin:** entire  
**Apex:** acute  
**Base:** wedge-shaped to rounded  
**Shape:** elliptical, oval, or ovate  
**Color:** yellow-green above; paler below  
**Surface:** glabrous above; somewhat pubescent below  
**Venation:** pinnate

**Twigs:**

**Size:** moderately stout  
**Color:** reddish brown  
**Surface:** many small lenticels; leaf scars horseshoe-shaped; 5-9 bundle scars; stipule scars encircling the twig

**Buds:**

**Size:** 0.75" long  
**Shape:** oblong-ovoid, acuminate  
**Color:** silvery white  
**Surface:** silky hairs

**Fruit and Flowers:**

**Aggregate of follicles:** cylindrical; seeds, suspended from the ovary wall  
**Size:** 2.0" - 3.0" long; seeds 0.5" long  
**Shape:** oblong to ovoid (cucumber-shaped)  
**Color:** dark red; seeds red  
**Flower:** monoecious; perfect; bell-shaped; 2.0" - 3.0" wide; on stout stalks (0.5" - 1.0" long); 6 petals, 2.0" - 4.0" long, greenish yellow, tongue-shaped

**Bark:** dark brown; narrow fissures; longitudinal scaly ridges

**Physical Attributes:**

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** rapid; 40.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** none  
**Fire:** none  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** moist, deep, rich, soils on low gentle slopes and stream banks  
**Soil Texture:** medium - coarse  
**Soil pH:** 5.2 - 7.0  
**Range:** western New York and southern Ontario; southwest to Pennsylvania, Ohio, southern Indiana, Illinois, Missouri, and southeastern Oklahoma; south to Louisiana; east to northwest Florida and central Georgia; in Mississippi, scattered throughout the State in groups of 3-7 counties, absent from the Mississippi River Delta counties (NRCS Plants Database)

**Wildlife Value and Uses:** seeds are eaten by birds and rodents; grackles and blackbirds eat the young fruit; twigs, leaves, and buds; browsed by deer (although classed as nonpalatable by some investigators)

**Timber Value and Uses:** durable, straight-grained wood is similar to yellow poplar (*Liriodendron tulipifera*); often marketed together; used for pallets, crates, furniture, plywood, and special products (fixtures, venetian blinds, siding, interior trim, sashes, doors); usually sold as yellow-poplar - has not been sold as cucumbertree lumber since 1928

**Landscaping Info:** desirable for ornamental planting because of the showy flowers, fruits, and attractive foliage and bark; hardiest of the native tree-size magnolias; sprouts readily and often is used as grafting root stock for named varieties and ornamental species; use of cuttings is unsuccessful; no important disease agents; however, very sensitive to ground fires and frost

**Other Facts:** magnolia genus is one of the most ancient among flowering trees; only American species of subgenus *Yulania*



Bark

Flower

Twig

Leaf

Fruit

**Southern Magnolia**  
**evergreen magnolia, bull-bay,**  
**big-laurel**  
*Magnolia grandiflora* L.

**Leaves:**

**Type:** simple; alternate, persistent  
**Size:** 5.0" - 8.0" long; 2.0" - 3.0" wide  
**Margin:** entire  
**Apex:** bluntly pointed; rarely sharp pointed  
**Base:** wedge-shaped  
**Shape:** oval, ovate, oblong  
**Color:** dark green above; rusty red below  
**Surface:** shiny above; pubescent (woolly hairs) below  
**Venation:** pinnate

**Twigs:**

**Size:** moderately stout  
**Color:** rusty red  
**Surface:** tomentose (woolly hairs); leaf scars shield-shaped; bundle scars in a marginal row; stipule scars encircle twig above leaf scar

**Buds:**

**Size:** terminal 1.0" - 1.5" long; laterals smaller  
**Shape:** ovoid  
**Color:** pale or rusty  
**Surface:** pubescent (woolly)

**Fruit and Flowers:**

**Aggregate of follicles:** hairy; seed, suspended from open pods by slender elastic thread  
**Size:** 3.0" - 4.0" long, 1.5" - 2.0" dia.; seed 0.5" long  
**Shape:** ovoid to cylindrical; seed slightly flattened,  
**Color:** orange-red; seed, red  
**Flower:** monoecious; perfect; on stout, hairy stalks, 6.0" - 8.0" dia.; petals (6, 9, or 12), white, 3.0" - 4.0" long; showy; very fragrant

**Bark:** light brown or gray-brown; smooth, then lightly furrowed; scaly flat plates

**Physical Attributes:**

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** moderate; 40.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
Shade: tolerant  
Drought: low  
Fire: none  
Anaerobic: none

**Propagation:** seed (cold stratification required); bare root; container (air-layering, stem cuttings, and grafts have all been used to propagate the species for ornamental plantings)

**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** rich bottom lands or gentle protected slopes  
**Soil Texture:** fine - medium  
**Soil pH:** 4.5 - 6.5  
**Range:** eastern North Carolina; south to central Florida; then west through roughly the southern half of the Gulf coastal states into southeast Texas; most prevalent in Louisiana, Mississippi, and Texas; in Mississippi, throughout the southern half of the State, along with Marshall and Lafayette counties in the northcentral part of the State, and Washington country in the Mississippi River Delta

**Wildlife Value and Uses:** seeds are eaten by squirrel, opossum, quail, and turkey

**Timber Value and Uses:** cut in limited quantities for timber; furniture, paneling, veneer, cabinet work

**Landscaping Info:** one of the South's finest semi-evergreens; valuable and extensively planted ornamental; good in urban areas --- resistant to damage by sulfur dioxide

**Other Facts:** leaves, fruits, bark and wood yield a variety of extracts with potential applications as pharmaceuticals





Bark



Leaf



Flower



Fruit



Twig

## Big Leaf Magnolia

*Magnolia macrophylla* Michx.

### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 20.0" - 30.0" long; 9.0" - 10.0" wide

**Margin:** entire

**Apex:** acute or rounded

**Base:** narrowed and cordate

**Shape:** oblong or obovate

**Color:** bright green above; silvery gray below

**Surface:** glabrous above; pubescent below

**Venation:** pinnate

### Twigs:

**Size:** stout

**Color:** yellow-green first year

**Surface:** conspicuous, irregularly shaped leaf scars; numerous fibro-vascular bundle scars

### Buds:

**Size:** terminal; 1.75" - 2.0" long; 0.5" - 0.75" thick; laterals 0.13" - 1.25" long

**Shape:** terminal bluntly pointed; laterals flattened

**Color:** terminal white; laterals brownish

**Surface:** terminal tomentose; laterals pubescent

### Fruit and Flowers:

**Aggregate of follicles:** conelike; seeds compressed

**Size:** 2.5" - 3.0" long; seeds 0.66" long

**Shape:** ovoid - nearly globose

**Color:** rose colored

**Flower:** monoecious; perfect; on stout, tomentose pedicels, 1.0" - 1.5" long; 6 ovate concave petals, creamy white with rose-colored blotch at base, 10.0" - 12.0" dia.; fragrant

**Bark:** thin; gray; smooth; small platy patches with age

### Physical Attributes:

**Form:** single stem

**Size:** 50.0', mature

**Growth Rate:** moderate; 30.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

**Shade:** moderate

**Drought:** moderate

**Fire:** intolerant

**Anaerobic:** none

**Propagation:** seed; softwood cuttings

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** rich, mesic woods; usually in understory; in scattered isolated populations

**Soil Texture:** medium - coarse

**Soil pH:** 5.5 - 7.5

**Range:** central North Carolina and western Tennessee; southwest into eastern Alabama; west to eastern Louisiana, (probably most abundant in south central Mississippi); limited pockets in Georgia, South Carolina, and northwestern Florida; in Mississippi, reported by the NRCS Plants Database, primarily in the southern half of the State in coastal and river boundary counties; confined to Monroe, Webster, Winston and Kemper Counties in the northern half of the State

**Wildlife Value and Uses:** (no data)

**Timber Value and Uses:** no commercial value in the timber industry

**Landscaping Info:** must be 12-15 years old before first bloom; not suitable in most landscapes except as a specimen tree; flowers and fruit are attractive, but leaves may create a litter problem because of their size and their slow decomposition

**Other Facts:** an indicator of rich mesic sites; discovered in Charlotte, N.C. in 1795 by French naturalist Andre Michaux; champion tree in Tight Hollow, Ky (108' tall, 42' spread)



Leaf



Fruit



Bark



Flower



Twig

**Umbrella Magnolia**  
**umbrella tree, elkwood**  
*Magnolia tripetala* L.

**Leaves:**

**Type:** simple, alternate, deciduous; clustered terminally on the twig

**Size:** 18.0" - 30" long; 8.0" - 10.0" wide

**Margin:** entire

**Apex:** acute to bluntly pointed

**Base:** wedge-shaped

**Shape:** obovate-lanceolate

**Color:** green above; pale below

**Surface:** glabrous above; pubescent below

**Venation:** pinnate

**Twigs:**

**Size:** stout

**Color:** reddish 1st year; brown-gray with age

**Surface:** lustrous

**Buds:**

**Size:** terminal bud 1.0" long

**Shape:** terminal bluntly pointed; laterals globose

**Color:** terminal bud purple; laterals brownish gray

**Surface:** glabrous with glaucous bloom

**Fruit and Flowers:**

**Aggregate of follicles:** conelike, glabrous

**Size:** 2.0" - 3.0" long; seeds 0.5" long

**Shape:** conical-cylindrical; seeds obovoid

**Color:** rose red

**Flower:** monoecious; perfect; on slender, glabrous pedicels; cup-shaped, white; 10.0" - 12.0" dia.; petals (6 or 9), 6"-10" long; filaments bright purple; disagreeable odor

**Bark:** gray; thin; smooth; shallowly furrowed with age

**Physical Attributes:**

**Form:** single stem

**Size:** 30.0', mature

**Growth Rate:** moderate; 30.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

Shade: tolerant

Drought: low

Fire: low

Anaerobic: none

**Propagation:** seed (no cold stratification required); bare root; container

**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** moist, rich bottom lands or near streams along the Coastal Plain and Piedmont Plateau

**Soil Texture:** fine - medium

**Soil pH:** 5.0 - 7.5

**Range:** New York and Massachusetts, south to Florida; west through Mississippi, Arkansas, Oklahoma, and Missouri; northeast to Indiana; in Mississippi, reported by the NRCS Plants Database in the counties of Lafayette, Hinds, and Jackson, but known to occur in other counties

**Wildlife Value and Uses:** only medium palatability for both browse and graze animals;

**Timber Value and Uses:** no economic value as a timber product

**Landscaping Info:** not readily available commercially; flowers are malodorous --- a characteristic specifically associated with this species

**Other Facts:** endangered in Florida and Indiana; rare in Pennsylvania; first described in the Natural History of Carolina published in 1743 by English naturalist Mark Catesby; introduced into the landscape outside its natural range in 1752; national champion umbrella magnolia located in Bucks County, Pennsylvania



Leaf



Bark



Flower



Fruit



Twig

**Sweetbay Magnolia**  
**swamp-bay, white-bay, sweet magnolia**  
*Magnolia virginiana* L.

**Leaves:**

**Type:** simple, alternate, persistent  
**Size:** 4.0" - 6.0" long; 1.0" - 3.0" wide  
**Margin:** entire to somewhat wavy  
**Apex:** bluntly pointed or rounded  
**Base:** wedge-shaped  
**Shape:** oblong to elliptical  
**Color:** dull green above; silvery below  
**Surface:** lustrous above; pubescent below, aromatic spicy odor  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** bright green 1st winter; reddish brown  
**Surface:** hairy, then smooth after 1st winter; crescent-shaped leaf scars; stipule scars encircle twig; pith diaphragmed

**Buds:**

**Size:** terminal bud 0.75" long; laterals smaller  
**Shape:** ovoid  
**Color:** whitish  
**Surface:** fine silky hairs (0.25" long)

**Fruit and Flowers:**

**Aggregate of follicles:** seed, suspended from open pods by slender elastic thread  
**Size:** 2.0" long, 1.0" dia.; seeds 0.25" long,  
**Shape:** ovoid to ellipsoidal; seeds oval, flattened  
**Color:** red; seeds red  
**Flower:** monoecious; perfect; on short, slender, smooth stalks; white; 2.0" - 3.0" dia.; petals, 9 or 12, obovate; fragrant

**Bark:** thin; gray; smooth or irregularly furrowed; superficially scaly; aromatic when crushed

**Physical Attributes:**

**Form:** single stem  
**Size:** 60.0', mature  
**Growth Rate:** moderate; 40.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** none  
**Fire:** none  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container; cuttings  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** low, wet, sandy woodlands, river floodplains, and shrub swamps, occasionally in thickets  
**Soil Texture:** fine - coarse  
**Soil pH:** 5.0 - 6.9  
**Range:** Atlantic and Gulf Coastal Plains from Long Island south through New Jersey and southeastern Pennsylvania to southern Florida; west to eastern Texas, and north into southern Arkansas and southwest Tennessee; also isolated portions of eastern Massachusetts from older ornamental plantings; most abundant in Alabama, Georgia, Florida, and South Carolina; in Mississippi, primarily in the southeastern half of the State and the southern coastal counties; also reported in Tippah, Tishomingo, Lee, Itawamba, Monroe, and Lafayette counties in the northeastern corner of the State

**Wildlife Value and Uses:** favorite food of deer and cattle; leaves and twigs browsed by deer year-round; contains as much as 10 percent crude protein; seeds are a favorite food of the gray squirrel; also eaten by white-footed mice, wild turkey, quail, and songbirds

**Timber Value and Uses:** little economic importance for timber product; when large enough it is harvested and utilized for the same purposes as other magnolias

**Landscaping Info:** used as a landscape accent for its open form and fragrant flowers; generally commercially available

**Other Facts:** in Florida, a form with narrow leaves and woolly twigs and fruit has been observed, and designated *M. virginiana* var. *australis* Sarg.



Leaf



Bark



Flower



Fruit



Twig

**Osage Orange**  
**hedge-apple, bodark, bois-d'arc,**  
**bowwood naranjo chino**  
*Maclura pomifera* (Raf.) Schneid

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 3.0" - 6.0" long; 3.0" wide  
**Margin:** entire  
**Apex:** long, tapering  
**Base:** rounded, flattened, or broadly obtuse  
**Shape:** ovate  
**Color:** dark green above; paler below  
**Surface:** lustrous above; glabrous below  
**Venation:** pinnate

**Twigs:**

**Size:** slender to moderately stout  
**Color:** green to orange-brown  
**Surface:** smooth; short, stout axillary thorns;  
triangular to kidney-shaped leaf scars

**Buds:**

**Size:** terminal bud absent; laterals sunken  
**Shape:** laterals globose  
**Color:** laterals light brown  
**Surface:** 4-5 overlapping ovate scales

**Fruit and Flowers:**

**Drupe:** clusters; drupelets exude milky sap when bruised  
**Size:** 3.0" - 5.0" dia.  
**Shape:** cluster globose; drupelets oblong  
**Color:** bright green or yellow-green  
**Flower:** dioecious; unisexual; staminate, in long-stalked racemes 1.0" -1.5" long; pistillate, short-stalked heads 1.0" dia.; green

**Bark:** orange-brown; deep furrows; broad, rounded, fibrous ridges

**Physical Attributes:**

**Form:** single stem  
**Size:** 35.0', mature  
**Growth Rate:** moderate; 20.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** medium  
**Fire:** medium  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** natural range is moist bottom lands with high water retention  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.5 - 7.5  
**Range:** native in northeastern Texas, southern Arkansas, and southern Oklahoma; planted as a hedge in all the 48 conterminous states in the U.S., and in southeastern Canada as well; in Mississippi, scattered throughout

**Wildlife Value and Uses:** valuable cover and nesting sites for quail, pheasant, and other birds and animals; bitter-tasting fruit is little eaten by wildlife; reports that fruit is poisonous to livestock have been proven wrong by feeding experiments in several states

**Timber Value and Uses:** no commercial value in the timber industry

**Landscaping Info:** used in landscape design; picturesque rather than beautiful; possessing strong form, texture, and character

**Other Facts:** produces no sawtimber, pulpwood, or utility poles, but it has been planted in greater numbers than almost any other tree species in North America; made agricultural settlement of the prairies possible (though not profitable); led directly to the invention of barbed wire; provided most of the posts for the wire that fenced the West; heartwood, bark, and roots contain many extractives of actual and potential value in food processing, pesticide manufacturing, and dyemaking

osage-orange heartwood is the most decay-resistant of all North American timbers and is immune to termites; used as bow wood by Native Americans; colorful orange-toned heartwood used in wood carving, especially for novelty items





Leaf



Bark



Flower



Fruit



Twig

## Red Mulberry

*Morus rubra* L.

### Leaves:

**Type:** simple, alternate, deciduous; 3 shapes - unlobed, mitten, lobed (3-5)

**Size:** 3.0" - 6.0" dia.

**Margin:** coarsely serrate

**Apex:** acute - abruptly tapered

**Base:** flattened or heart-shaped

**Shape:** oblong-ovate or semiorbicular

**Color:** dark blue-green above; paler below

**Surface:** glabrous above; pubescent below

**Venation:** palmate

### Twigs:

**Size:** slender

**Color:** gray-brown

**Surface:** smooth; scattered gray lenticels; leaf scars concave, oval to half-round; zigzag branching

### Buds:

**Size:** terminal bud absent; laterals 0.25" long

**Shape:** ovoid

**Color:** olive-brown

**Surface:** scales shiny

—

### Fruit and Flowers:

**Drupe:** in clusters of "drupelets", edible, sweet

**Size:** 1.0" - 1.25" long; seeds minute

**Shape:** elongate; seeds ovoid-acute

**Color:** drupes red at first then dark purple; seeds light brown

**Flower:** monoecious or dioecious; unisexual; apetalous; in lax, green, hairy spikes; staminate 2.0" - 3.0" long, deeply 4-lobed calyx; pistillate 1.0" long, 4 sepals encasing the ovary

**Bark:** light gray, smooth on young stems; becoming moderately fissured into thin, long, narrow scales

### Physical Attributes:

**Form:** single stem

**Size:** 70.0', mature

**Growth Rate:** moderate; 45.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** tolerant

**Drought:** medium

**Fire:** low

**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container; cuttings

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** floodplains, river valleys, and moist hillsides; prefers deep well-drained soil that is high in organic matter;

**Soil Texture:** fine - coarse

**Soil pH:** 5.0 - 7.0

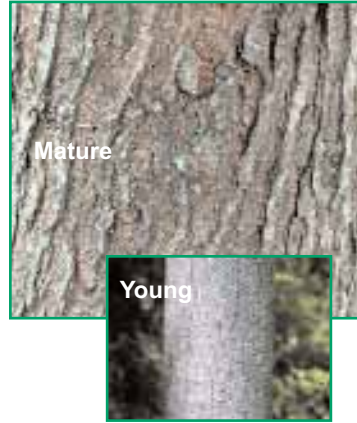
**Range:** Massachusetts and southern Vermont; west through the southern half of New York to extreme southern Ontario, southern Michigan, central Wisconsin and southeastern Minnesota; south to Iowa, southeastern Nebraska, central Kansas, western Oklahoma and central Texas; east to southern Florida; also found in Bermuda; in Mississippi, throughout

**Wildlife Value and Uses:** favored food of most birds and a number of small mammals including opossum, raccoon, fox squirrel, and gray squirrel; valued for fattening hogs and as poultry food in the past

**Timber Value and Uses:** wood is of little commercial importance; used locally for fenceposts because the heartwood is relatively durable; other uses include farm implements, cooperage, furniture, interior finish, and caskets

**Landscaping Info:** limited ornamental use; fruits have been, and can be used in jellies, jams, pies, and drinks

**Other Facts:** used by several Native American tribes to treat a variety of ailments; sap to treat ringworm (Foster and Duke 2000); tea from the leaves as a treatment for dysentery, weakness, and difficulty urinating (Hamel and Chiltoskey 1975); fruit a food source for the Comanche (Carlson and Jones 1940, Moerman 1998)



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

**Water Tupelo**  
**tupelogum, sourwood**  
*Nyssa aquatica* L.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 5.0" - 10.0" long; 2.0" - 4.0" wide  
**Margin:** entire; sometimes scalloped-toothed  
**Apex:** acute or tapering  
**Base:** wedge-shaped; occasionally rounded  
**Shape:** oblong-obovate  
**Color:** dark green above; paler below  
**Surface:** lustrous above; somewhat pubescent below  
**Venation:** pinnate

**Twigs:**

**Size:** moderately stout  
**Color:** reddish brown  
**Surface:** nearly glabrous; small scattered lenticels; leaf scars rounded to heart-shaped; 3 conspicuous bundle scars

**Buds:**

**Size:** terminal bud 0.13" long; laterals minute  
**Shape:** globose  
**Color:** yellowish  
**Surface:** glabrous

**Fruit and Flowers:**

**Drupe:** thick skin; thin bitter flesh  
**Size:** 1.0" long  
**Shape:** oblong  
**Color:** dark blue to purple mature  
**Flower:** monoecious; perfect and imperfect; staminate in dense clusters on long, slender, hairy stalks; pistillate, solitary on short stalks; flowers, staminate and pistillate similar, petals 5, greenish white, thick, 0.25" long

**Bark:** grayish brown to brown; narrow longitudinal scaly ridges; moderately furrowed

**Physical Attributes:**

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** moderate; 30.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** none  
**Fire:** low  
**Anaerobic:** high

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** deep swamps; often in standing water; less often found on deep, moist soils in association with sycamore, elm, red maple, and green ash  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.3 - 5.7  
**Range:** southern Virginia; south to central Florida; west to Texas; north through Arkansas, western Tennessee and Kentucky to southern Illinois; in Mississippi, bottom lands of major streams and rivers throughout the State

**Wildlife Value and Uses:** important wildlife species; fruit is consumed by wood ducks, several other kinds of birds, squirrel, raccoon, and deer; foliage, twigs, and stump sprouts browsed by deer; favored honey tree

**Timber Value and Uses:** good mature trees will produce commercial timber used for furniture; dried properly, the lumber is used for boxes, pallets, crates, and baskets; wood has fine, uniform texture and interlocked grain

**Landscaping Info:** generally commercially available; yellow to purple fall color; straight bole above butt swell; fragrant flowers; attracts many pollinators; must have a moist site

**Other Facts:** large intercellular air spaces in root wood and buttresses (termed "spongy"), and is the basis for some local use as fishing floats and corks

Tupelo honey is a prized commodity in many localities.



Leaf



Bark



Flower



Fruit



Twig

## Black Gum

black tupelo, sour gum, pepperidge  
*Nyssa sylvatica* Marsh.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 2.0" - 5.0" long; 1.0" - 3.0" wide  
**Margin:** entire or occasionally scattered coarse teeth  
**Apex:** acute  
**Base:** wedge-shaped; occasionally rounded  
**Shape:** obovate or oval  
**Color:** dark green above; paler green below  
**Surface:** lustrous above; silky hairs below  
**Venation:** pinnate

### Twigs:

**Size:** slender to moderately stout  
**Color:** reddish brown to grayish brown  
**Surface:** numerous pale lenticels; leaf scars half-round; 3 bundle scars

### Buds:

**Size:** terminal 0.25" long; laterals 0.13" long  
**Shape:** terminal acute; laterals sharp-pointed  
**Color:** scales reddish brown  
**Surface:** glabrous

### Fruit and Flowers:

**Drupe:** indistinctly ribbed stone  
**Size:** 0.25" - 0.5" long  
**Shape:** ovoid  
**Color:** dark blue to blue-black  
**Flower:** dioecious; perfect and imperfect; axillary; staminate, many flowered heads at the ends of long pendulous hairy stalks; pistillate flower in clusters of 3-5; both male and female (<0.25" long), green

**Bark:** gray to light brown; blocky; often with "alligator hide" appearance

### Physical Attributes:

**Form:** single stem  
**Size:** 95.0', mature  
**Growth Rate:** moderate; 30.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** medium  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container; cuttings  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** moist, rich soils near swamps, in mixed upland hardwood forests and on lower mountain slopes  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.5 - 6.0  
**Range:** Maine; west to New York, extreme southern Ontario, central Michigan, Illinois, central Missouri; south to central Florida; in Mississippi, throughout

**Wildlife Value and Uses:** fruit eaten by black bear, fox, wood duck, wild turkey, robins, woodpeckers, mockingbirds, brown thrashers, thrushes, flickers, and starlings; foliage, and young sprouts browsed by white-tailed deer; twigs browsed by beaver; cavity and nesting sites for a variety of birds and mammals; good honey tree

**Timber Value and Uses:** wood used for light, non-splitting woodwork such as in docks and wharves; also used in the manufacture of veneer, containers, crossties, and pallets

**Landscaping Info:** excellent ornamental plant; straight bole, dense foliage, bright red autumn color

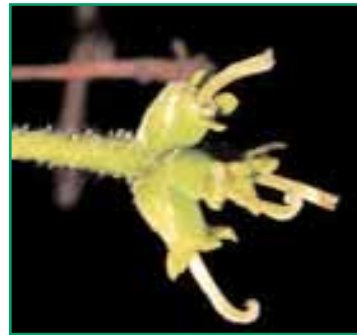
**Other Facts:** a prized "bee tree"; wood possesses interlocked grain and cannot be split even with wedges or other devices; frayed twigs have been used as toothbrushes



Leaf



Bark



Flower



Fruit



Twig

## Swamp Tupelo

swamp blackgum, blackgum  
*Nyssa sylvatica* var. *biflora* (Walt.) Sarg.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 2.0" - 4.0" long; 1.0" - 2.5" wide  
**Margin:** smooth or irregularly toothed  
**Apex:** acute  
**Base:** rounded or wedge-shaped  
**Shape:** oblanceolate  
**Color:** dark green above; paler below  
**Surface:** lustrous above; glabrous below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** grayish brown  
**Surface:** half-round leaf scars; 3 bundle scars; numerous pale lenticels

### Buds:

**Size:** terminal bud 0.25" long; laterals smaller, often conspicuously divergent  
**Shape:** ovoid  
**Color:** reddish brown  
**Surface:** overlapping scales;  
—

### Fruit and Flowers:

**Drupe:** flesh thin; bitter; stone (pit) prominently ribbed  
**Size:** 0.33" - 0.5" long  
**Shape:** ovoid  
**Color:** dark blue  
**Flower:** dioecious; unisexual; greenish yellow; <0.25" long, inconspicuous; staminate on slender hairy stalks in many-flowered clusters; pistillate, in pairs on stouter stalks

**Bark:** gray to light brown; blocky (alligator skin appearance); "pronounced" buttress swell

### Physical Attributes:

**Form:** single stem  
**Size:** 115.0', mature  
**Growth Rate:** moderate; 36.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** none  
**Fire:** low  
**Anaerobic:** high

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** wet sites in non-alluvial swamps (not river swamps)  
**Soil Texture:** fine - medium  
**Soil pH:** 4.5 - 5.7  
**Range:** primarily limited to Coastal Plain swamps and estuaries from Maryland and southeastern Virginia; south to southern Florida; in Mississippi, mostly in the southern part of the State

**Wildlife Value and Uses:** seeds eaten by wildlife (bear, raccoon, woodduck, quail, turkey, songbirds); deer browse young trees and sprouts; provides cavity and nesting sites for a wide variety of birds and mammals

**Timber Value and Uses:** used mainly for lumber, veneer, paper pulp, and to some extent railroad ties; also used for flooring, rollers in glass factories, blocks, gunstocks, and pistol grips

**Landscaping Info:** excellent ornamental plant; straight bole, shapely crown and attractive autumn foliage

**Other Facts:** seeds are extracted from ripe fruits picked from the ground - either from standing trees or trees that have been felled





**Bark**

**Leaf**



**Flower**



**Fruit**



**Twig**

**Eastern Hophornbeam**  
**ironwood, American hophornbeam**  
*Ostrya virginiana* (P. Mill.) K. Koch.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 3.0" - 5.0" long; 1.5" - 2.5" wide  
**Margin:** sharply serrate  
**Apex:** acute to long-tapered  
**Base:** rounded or heart-shaped  
**Shape:** oblong-lanceolate  
**Color:** dull yellow-green above; paler below  
**Surface:** glabrous above, tough, thin; axillary hairy tufts below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** yellow-brown to orange-brown  
**Surface:** commonly hairy through first winter; slitlike, unequal length stipule scars; crescent-shaped to semielliptical leaf scars; 3 bundle scars; zigzag branching

**Buds:**

**Size:** terminal bud absent; laterals 0.25" long  
**Shape:** lateral buds ovoid, oblique  
**Color:** chestnut brown  
**Surface:** several overlapping scales

**Fruit and Flowers:**

**Nut:** enclosed in papery sac; in conelike clusters  
**Size:** nut 0.25" long; clusters 1.5" - 2.0" long  
**Shape:** conical sac  
**Color:** brown  
**Flower:** monoecious; unisexual; staminate catkins, 0.5" long, reddish brown; pistillate catkins, on hairy stalks, 0.25" long, light green, tinged with red above the middle

**Bark:** reddish brown tight, and smooth on young stems; mature, narrow, oblong platelike scales, unattached at both ends

**Physical Attributes:**

**Form:** single stem  
**Size:** 45.0', mature  
**Growth Rate:** slow; 20.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** medium  
**Fire:** medium  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** slopes and ridges; occasionally in bottoms; usually an understory species in association with other hardwoods  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.2 - 7.6  
**Range:** Southeastern Canada and all of the eastern United States; west as far as the eastern Dakotas; south through eastern Texas; in Mississippi, throughout

**Wildlife Value and Uses:** browsed by white-tailed deer only incidentally --- usually browse more desirable species when available; important winter food for ruffed grouse, and the nuts are a secondary food in the fall; nuts also a preferred food for sharp-tailed grouse and wild turkey --- eaten to a lesser extent by northern bobwhite, red and gray squirrel, cottontails, ring-necked pheasant, purple finch, rosebreasted grosbeak, and downy woodpecker

**Timber Value and Uses:** considered a weed species throughout most of its range; usually discriminated against in stands managed for timber; high value as a fuelwood product; some use in rehabilitation of disturbed sites

**Landscaping Info:** routinely commercially available; biggest plus as an ornamental is adaptability to a wide range of soil textures, and shade tolerance

**Other Facts:** Lakota Native Americans used the blossoms for face painting, and the wood for bow making. The Iroquois used a decoction of the bark as a tuberculosis (consumption) remedy.



Leaf



Bark



Male



Dispersed

Mature



Female

Flower



Nut

Fruit



Twig

**Sourwood**  
**sorrel-tree or lily-of-the-valley tree**  
*Oxydendrum arboreum* DC.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 5.0" - 7.0" long; 1.0" - 3.0" wide  
**Margin:** finely toothed  
**Apex:** acute to long-tapered  
**Base:** narrowly to broadly wedge-shaped  
**Shape:** elliptical  
**Color:** yellowish green above; paler below  
**Surface:** lustrous above; smooth below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** green/orange brown/red  
**Surface:** dotted with conspicuous lenticels;  
single C-shaped bundle scar; zigzag branching

**Buds:**

**Size:** terminal bud absent; laterals 0.13" dia.  
**Shape:** globular  
**Color:** reddish brown  
**Surface:** scaly

**Fruit and Flowers:**

**Capsule:** 5-celled; many seeded  
**Size:** 0.5" long; seeds minute  
**Shape:** pyramidal  
**Color:** tan/light brown mature  
**Flower:** monoecious; perfect, in long terminal  
or axillary racemes, 5.0" - 10.0" long; flowers  
bell-shaped, white, 5-lobed corolla and calyx,  
0.33"- 0.5" long

**Bark:** silver-gray to brown; lustrous; deeply  
furrowed on older trees; interlacing ridges that  
often divide giving a blocky appearance

**Physical Attributes:**

**Form:** single stem  
**Size:** 35.0', mature  
**Growth Rate:** slow; 20.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** high  
**Fire:** moderate  
**Anaerobic:** none

**Propagation:** seed (no cold stratification  
required), bare root, container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** moist soils on hillsides, ridges, and gentle  
mountain slopes as an occasional tree in mixed  
stands  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.0 - 6.5  
**Range:** southwestern Pennsylvania; west  
through Ohio to southern Indiana; south to  
Kentucky, Tennessee, and the Gulf Coast; in  
Mississippi, primarily southern half and eastern  
border counties --- no reports in the Delta  
counties by the NRCS Plants Database

**Wildlife Value and Uses:** flowers are a  
preferred source of nectar for honeybees; the  
honey is widely marketed

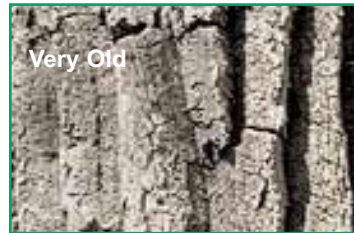
**Timber Value and Uses:** of little value as a  
timber species

**Landscaping Info:** striking ornamental  
potential; generally underutilized by  
landscapers; brilliant red autumn foliage  
contrasts with the showy dangling fruit clusters;  
generally pest free; can be grown in sun or  
partial shade

**Other Facts:** leaves have a pleasant  
aciduous taste; reported to be tonic, diuretic,  
and useful in treating fevers



Leaf



Bark



Flower



Twig



Fruit

Fall  
Color



## Sycamore

planetree, buttonball tree, button tree  
*Platanus occidentalis* L.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 4.0" - 7.0" dia.  
**Margin:** wavy; short- to long-tapering teeth; 3-5 lobed; broad, shallow sinuses  
**Apex:** long-tapered  
**Base:** flat - heart-shaped  
**Shape:** broadly ovate  
**Color:** light green above; paler below  
**Surface:** glabrous above; pubescent along veins below  
**Venation:** palmately lobed

### Twigs:

**Size:** slender  
**Color:** orange-brown 1st year, then gray  
**Surface:** large distinct bundle scars (5-9); leaf scars, horseshoe-shaped, surround bud; stipule scars surround twig; zigzag branching

### Buds:

**Size:** terminal absent; laterals 0.25" - 0.38" long  
**Shape:** conic, slightly curved, divergent  
**Color:** brown  
**Surface:** single resinous scale

### Fruit and Flowers:

**Ball:** multiple of achene  
**Size:** 1.0" dia.;  
**Shape:** globose; achene elongated, obovoid, blunt apex; seed oval  
**Color:** ball brown; seed yellow-brown  
**Flower:** monoecious; unisexual; minute, in dense, stalked heads; staminate heads yellow-green, axillary, 3-6 long-pointed petals; pistillate heads rusty to dark red, on long terminal stalks, 3-6 large petals

**Bark:** red-brown; older trees light greenish gray to nearly white on upper bole; exfoliated outer layers; overall mottled appearance

### Physical Attributes:

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** rapid; 65.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
Shade: intermediate  
Drought: low  
Fire: medium  
Anaerobic: medium

**Propagation:** seed (no cold stratification required); bare root; container; cuttings  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** moist, rich soil; margins of streams and lakes; rich bottoms  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.9 - 6.5  
**Range:** Maine; west through New York to Ontario, Michigan, central Iowa, and eastern Nebraska; south to Texas; east to northern Florida; in Mississippi, throughout

**Wildlife Value and Uses:** the Texas Plant Information Database (TIPID) gives American sycamore an overall wildlife index value of only 3.3 out of a possible 10.0; rated as "Good" in only two categories: nongame bird cover, and small mammal cover; rated only "Fair" in all food categories

**Timber Value and Uses:** grown in short-rotation plantations primarily for pulp; also used for rough lumber; has been used for butcher's blocks, furniture, veneer, interior trim, boxes, crates, flooring, particleboard, and fiberboard; recommended for planting on all types of strip-mined land, and useful in rehabilitation of various sites with saturated soils

**Landscaping Info:** widely used as a street tree; rapid growth; tolerant of short-term inundation; fairly disease free; somewhat brittle limbs; subject to wind and ice damage

**Other Facts:** used by Native Americans for a variety of medicinal purposes (cold and cough remedies, and dietary, dermatological, respiratory, gynecological, and gastrointestinal aids)



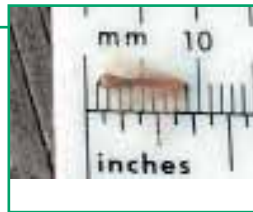
Leaf



Bark



Flower



Fruit



Twig

**Eastern Cottonwood**  
southern cottonwood, Carolina poplar,  
eastern poplar, necklace poplar  
*Populus deltoides* Bartr. ex Marsh.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 3.0" - 5.0" long; 3.0" - 5.0" wide  
**Margin:** coarsely crenate-serrate  
**Apex:** acute  
**Base:** heart-shaped  
**Shape:** triangular  
**Color:** light green above; paler green below  
**Surface:** lustrous above; glabrous below  
**Venation:** pinnate

**Twigs:**

**Size:** stout  
**Color:** yellowish brown  
**Surface:** prominent lenticels, conspicuously enlarged at nodes

**Buds:**

**Size:** 0.75" long (6-7 scales)  
**Shape:** ovoid, acute  
**Color:** lustrous brown  
**Surface:** resinous

**Fruit and Flowers:**

**Capsule:** on few-fruited, pendent stalks, 8.0" - 12.0" long  
**Size:** 0.25" long  
**Shape:** conical  
**Color:** green  
**Flower:** dioecious; unisexual; both sexes in catkins, rusty reddish green, 2.0" - 4.0" long; apetalous; no sepals; staminate, red anthers

**Bark:** yellow-green, smooth, and thin when young; becoming thick and gray with broad flattened ridges and deep furrows with age

**Physical Attributes:**

**Form:** single stem  
**Size:** 190.0', mature  
**Growth Rate:** rapid; 80.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** medium  
**Fire:** none  
**Anaerobic:** high

**Propagation:** seed (no cold stratification required); bare root; container; cuttings,  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** moist alluvial soils; near streams and lakes; floodplain forests where periodic inundation occurs; also grows well on good upland sites  
**Soil Texture:** fine - coarse  
**Soil pH:** 5.2 - 7.3  
**Range:** western boundary not well defined because eastern cottonwood intergrades with *var. occidentalis*, plains cottonwood, and altitude is the determining factor; southern Quebec; westward into North Dakota and southwestern Manitoba; south to central Texas; east to northwestern Florida and Georgia; in Mississippi, throughout

**Wildlife Value and Uses:** seedlings and young trees browsed by rabbit, deer, and cattle; sapling and pole-size trees cut by beaver for food and for dam construction --- resulting inundation can cause mortality

**Timber Value and Uses:** lightweight, rather soft wood used primarily for core stock in manufacturing furniture, and for pulpwood; one of the few hardwood species that is planted and grown specifically for these purposes; also used in the manufacture of caskets and blinds

**Landscaping Info:** advantages are rapid growth, tolerance of a variety of soil textures, tolerance of wet sites, handsome leaf shape and yellow fall color; unattractive characteristics include brittle branches, extensive root system that may cause plumbing and drainage problems; seed from female trees can be messy

**Other Facts:** rootwood once used as friction wood for fire building by Native Americans

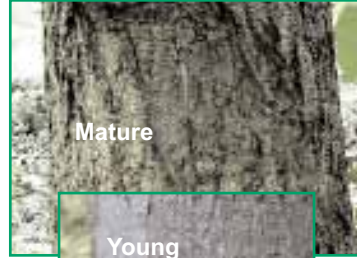




Leaf



Fruit



Bark



Flower



Twig

## Swamp Cottonwood

### black cottonwood

*Populus heterophylla* L.

#### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 4.0" - 8.0" long; 3.0" - 5.0" wide  
**Margin:** irregularly serrate, glandular teeth  
**Apex:** gradually narrowed, pointed, or rounded  
**Base:** rounded or heart-shaped  
**Shape:** ovate  
**Color:** dark green above, pale green below  
**Surface:** glabrous above; smooth below  
**Venation:** pinnate

#### Twigs:

**Size:** slender or stout  
**Color:** brownish gray  
**Surface:** glabrous; leaf scars broadly triangular; 3 bundle scars; prominent lenticels

#### Buds:

**Size:** 0.63" long; laterals smaller  
**Shape:** broadly ovoid  
**Color:** bright reddish brown  
**Surface:** slightly resinous; exposed scales (usually 3)

#### Fruit and Flowers:

**Capsule:** 2- or 3-valved  
**Size:** 0.5" long; seeds minute  
**Shape:** ovoid, acute; seeds obovoid  
**Color:** brown; seeds dark red or brown, tufts of white hair  
**Flower:** dioecious; unisexual; both sexes in catkins, greenish white - cream colored, 1.0" - 3.0" long; staminate, large dark red anthers; pistillate, greatly enlarged stigmas

**Bark:** reddish brown; deep fissures; narrow, flattened, superficially scaly ridges

#### Physical Attributes:

**Form:** single stem  
**Size:** 100.0', mature  
**Growth Rate:** rapid; 50.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** low  
**Fire:** none  
**Anaerobic:** high

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** lowland forests of the southern coastal plains; common constituent of swamps; usually mixed with other species  
**Soil Texture:** fine - medium  
**Soil pH:** 4.6 - 5.9  
**Range:** southern Connecticut to northern Florida; through the Gulf states to western Louisiana; north in the Mississippi drainage basin to southern Illinois, Indiana, and Ohio; in Mississippi, reported by the NRCS Plants Database in only 7 counties (Quitman, Leflore, Jefferson, Wilkinson, Covington, Perry, and Pearl River)

**Wildlife Value and Uses:** does not produce important wildlife food

**Timber Value and Uses:** no commercial value to forest industry; large trees often are crooked and short boled; important to flood or erosion control only in very small, localized areas; a closely related species, eastern cottonwood, is chosen for planting because it outperforms swamp cottonwood on all except the wettest sites; occasionally used for inexpensive lumber

**Landscaping Info:** rarely cultivated for ornament

**Other Facts:** An extract of the shoots can be used as a rooting hormone for all types of cuttings; extracted by soaking the chopped up shoots in cold water for a day



**Leaf**



**Bark**



**Flower**



**Twig**

## Chickasaw Plum

*Prunus angustifolia* Marshall

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 3.0" long; 1.0" wide  
**Margin:** finely serrate  
**Apex:** apiculate  
**Base:** cuneate  
**Shape:** lanceolate to oblong-lanceolate  
**Color:** bright green above; paler below  
**Surface:** lustrous above; dull below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** red when young; dull with age  
**Surface:** glossy

### Buds:

**Size:** false terminal bud; 0.06" long  
**Shape:** acuminate  
**Color:** chestnut brown scales  
**Surface:** glabrous

### Fruit and Flowers:

**Drupe:** edible; large stone  
**Size:** 0.5" - 0.75" dia.  
**Shape:** globose or subglobose  
**Color:** yellow or red  
**Flower:** monoecious; perfect; in 4- to 5-flowered umbels; white; 5 petals; 0.33" - 0.5" dia.

**Bark:** dark reddish brown; slightly furrowed; scaly

### Physical Attributes:

**Form:** single or multiple stem  
**Size:** 12.0' - 25.0', mature  
**Growth Rate:** rapid (no data @ 20 yrs)  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** none  
**Fire:** medium  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** sandy soil; usually common on disturbed sites such as roadsides, fence rows, and old fields  
**Soil Texture:** medium - coarse  
**Soil pH:** 5.0 - 7.5  
**Range:** Oklahoma and Texas; north to New Jersey; south to Florida; west to Louisiana; in Mississippi, scattered throughout

**Wildlife Value and Uses:** fruit eaten by deer, bear, raccoon, squirrel and birds

**Timber Value and Uses:** none; has been utilized for erosion control due to its thick forming habit

**Landscaping Info:** easily grown from seed or transplant; grown occasionally with a single leader and used as a street tree; usually seen with a multiple trunk planted as a specimen, or in a median strip, or planted on 15 to 25-foot-centers along the entrance road to a commercial property; tends to sprout from the base of the trunk, forming multistemmed thickets --- form most commonly seen in its native habitat on old fields and on other disturbed sites; makes a nice addition to the shrub border in the back yard; well suited for planting around the patio or deck although it does not form a neat crown and looks somewhat unkempt during the winter

**Other Facts:** fruits can be eaten raw or cooked; often prepared as jelly or preserves; sun dried by Native Americans for winter consumption; believed brought from the Southwest to the southeastern states by the Chickasaw Indians prior to the arrival of the colonists, and cultivated for its fruit



Leaf



Fruit



Bark



Flower



Twig

**Carolina Laurelcherry**  
**wild orange, mock orange**  
*Prunus caroliniana* (Ait.) Mill.

**Leaves:**

**Type:** simple, alternate, persistent  
**Size:** 2.0" - 5.0" long; 0.75" - 1.5" wide  
**Margin:** entire or remotely serrate - somewhat wavy  
**Apex:** acuminate, short distinct point  
**Base:** wedge-shaped  
**Shape:** oblong-lanceolate  
**Color:** dark green above; paler below  
**Surface:** lustrous above; glabrous below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** red to grayish brown  
**Surface:** glabrous; scattered pale lenticels

**Buds:**

**Size:** 0.13" long  
**Shape:** acuminate  
**Color:** scales chestnut brown, narrow, pointed  
**Surface:** glabrous

**Fruit and Flowers:**

**Drupe:** lustrous; dry  
**Size:** 0.5" dia.  
**Shape:** oblong; stone ovoid, acute, rounded base  
**Color:** black to blue-black  
**Flower:** monoecious; perfect; in racemes on short axillary stalks; petals, 5; white - orangish center; conspicuous

**Bark:** gray; thin; smooth; rough with age

**Physical Attributes:**

**Form:** single or multiple stem  
**Size:** 30.0' - 40.0', mature  
**Growth Rate:** moderate (no data @ 20 yrs)  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** moderate  
**Drought:** tolerant  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** rich, moist soils  
**Soil Texture:** medium - coarse  
**Soil pH:** 5.0 - 7.5  
**Range:** Gulf and Atlantic Coastal Plains; North Carolina; south to Florida; west to Louisiana and Texas; in Mississippi, reported by the NRCS Plants Database primarily in the southern half of the State (13 counties)

**Wildlife Value and Uses:** fruit used by many species of wildlife; overall wildlife rating by the Texas Plant Information Database (TPID) of 8.2 on a scale of 1 to 10 where (10 = Highest); "Excellent" food and cover for upland game and non-game birds and small mammals; "Good" food and cover for large mammals; and "Fair" food and cover for water fowl

**Timber Value and Uses:** no commercial value in the timber industry

**Landscaping Info:** handsome and hardy ornamental; dwarfed cultivars used in low plantings; generally available commercially

**Other Facts:** **Caution** injured and wilted leaves contain hydrocyanic acid which can be fatal when ingested by humans and most mammals; young leaves are browsed by deer with no problems



Leaf



Mature



New

Fruit



Bark



Detail



Flower



Twig

**Black Cherry**  
wild black cherry, rum cherry,  
mountain black cherry  
*Prunus serotina* Ehrh.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 2.0" - 6.0" long; 1.0" - 1.5" wide  
**Margin:** finely serrate  
**Apex:** abruptly sharp-pointed to long-tapered  
**Base:** acute to wedge-shaped  
**Shape:** variable; oval, oblong, lance-shaped  
**Color:** dark green above; paler below  
**Surface:** shiny, glabrous above; dense reddish hairs on the midrib below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** new growth coated with a bloom; becoming reddish brown  
**Surface:** glabrous; rigid; semicircular leaf scars; 3 bundle scars

**Buds:**

**Size:** 0.25" long  
**Shape:** obtuse  
**Color:** dark brown  
**Surface:** several broad, overlapping scales;

**Fruit and Flowers:**

**Drupe:** edible; juicy  
**Size:** 0.33" long; 0.5" dia.  
**Shape:** globular  
**Color:** dark purple to black  
**Flower:** monoecious; perfect; in many-flowered racemes, 4.0" - 6.0" long; petals, 5; white; conspicuous; outer floral envelope (calyx) 5-lobed, persistent

**Bark:** reddish brown, smooth; thin; conspicuous horizontal lenticels when young; becoming dark reddish black and fissured with thin scaly plates

**Physical Attributes:**

**Form:** single stem  
**Size:** 80.0', mature  
**Growth Rate:** rapid; 40.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** medium  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** wide array of sites; most commonly on deep, rich, moist, soils in mixed stands with oaks, ashes, hickories and yellow poplar; less commonly on sandy soils; with conifers in the Adirondacks  
**Soil Texture:** medium - coarse  
**Soil pH:** 5.0 - 7.5  
**Range:** widespread in eastern North America, including Canada, Mexico, and Guatemala; in the U.S., Minnesota and North Dakota; southward to Florida; west to east Texas, with outlying populations in central Texas, west Texas, New Mexico, and Arizona; in Mississippi, throughout the State except generally absent in the Mississippi River Delta

**Wildlife Value and Uses:** fruits are important food for numerous species of passerine birds, game birds, and mammals, including the red fox, black bear, raccoon, opossum, squirrel, and rabbit

**Timber Value and Uses:** one of the most valued cabinet and furniture woods in North America; also used for paneling, interior trim, veneers, handles, crafts, toys, and scientific instruments; wood is a rich reddish brown color and is strong, hard, and close-grained

**Landscaping Info:** perfectly suited for the woodland seminatural garden; can be too messy in a more formal setting, dropping its abundant and juicy fruits in summer, then leaves in autumn, then producing many seedlings the following spring

**Other Facts:** fruit is often used in wine making, flavoring for liqueurs and brandies, jellies or preserves; extracts of the inner bark used to make wild cherry cough syrup

One of the common names "rum cherry" originated from a drink called cherry-bounce concocted from black cherry fruit and rum or brandy





Leaf



Bark



Fruit



Flower

**WARNING**

Cyanide compounds in the twigs and older, wilted leaves are toxic (and possibly lethal) to horses and cattle. In the spring of 2001 hundreds of thoroughbred horse foals were mysteriously miscarried or stillborn. The problem was traced to Eastern Tent Caterpillars that had fed on the many black cherry trees in the Lexington, Kentucky horse farm region. The caterpillars concentrated the toxic cyanide compounds present in black cherry foliage. Their feces contaminated the famous bluegrass pastures and was ingested by the grazing mares.



Twig

## Carolina Buckthorn

*Rhamnus caroliniana* Walt.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 2.5" - 6.0" long; 1.0" - 2.0" wide  
**Margin:** obscurely toothed; teeth rounded to sharp  
**Apex:** tapered to acute  
**Base:** rounded or tapered  
**Shape:** oblong to broadly elliptical  
**Color:** dark yellow-green above; paler below  
**Surface:** shiny above; smooth to occasionally hairy below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** reddish brown young; gray mature  
**Surface:** silky hairs or whitish bloom young; smooth and dotted with lenticels mature; leaf scars crescent to elliptical; 3 prominent bundle scars

### Buds:

**Size:** terminal 0.25" long  
**Shape:** elongated; laterals ovoid  
**Color:** rusty brown  
**Surface:** naked; densely hairy

### Fruit and Flowers:

**Drupe:** leathery; often depressed at apex; bony pits, rounded on the back  
**Size:** 0.33" diameter  
**Shape:** nearly spherical  
**Color:** green to yellow to red to black  
**Flower:** monoecious; perfect; axillary; 5 greenish white petals, <0.25" dia; in few-flowered clusters

**Bark:** gray; thin; smooth or with shallow furrows; occasionally with dark blotches

### Physical Attributes:

**Form:** shrub to small tree  
**Size:** 40.0', mature  
**Growth Rate:** moderate; 40.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** low  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); cuttings  
**Other:** no resprout/coppice potential

### Habitat and Ecology:

**Site:** most abundant on calcareous soils along streams and in rich bottom lands; also found frequently in thickets, on hillsides and ridges, or open land  
**Soil Texture:** fine to coarse  
**Soil pH:** 4.0 - 9.0  
**Range:** Virginia; south to western Florida; west to eastern Kansas, Oklahoma, and Texas; in Mississippi, reported by the NRCS Plants Database in 26 counties, primarily in the southern half of the State --- a few counties in the northeast quarter of the State

**Wildlife Value and Uses:** attractive to bees, butterflies and birds; berries eaten by songbirds and other wildlife

**Timber Value and Uses:** no commercial value in the timber industry

**Landscaping Info:** grown for foliage; good Fall color; requires pruning or training to produce a small tree; adaptable to a wide range of soil textures and pH

**Caution: all parts of plant are poisonous if ingested**

**Other Facts:** leaf has foul smell when crushed



Leaf



Bark



Fruit



Flower



Twig

**Black Locust**  
**false acacia, yellow locust**  
*Robinia pseudoacacia* L.

**Leaves:**

**Type:** pinnately compound, alternate, deciduous  
**Size:** 8.0" - 14.0" long; 7-19 leaflets, 0.5" - 2.0" long; 0.5" - 1.0" wide  
**Margin:** entire  
**Apex:** abrupt tip or notched  
**Base:** rounded or broadly wedge-shaped  
**Shape:** elliptic or oval  
**Color:** dull blue-green above; paler below  
**Surface:** glabrous above; slightly pubescent midrib below  
**Venation:** pinnate

**Twigs:**

**Size:** stout; thorns at nodes  
**Color:** greenish brown  
**Surface:** glabrous; somewhat angular; zigzag

**Buds:**

**Size:** terminal buds absent; laterals sunken under leaf scars  
**Shape:** leaf scars kidney-shaped  
**Color:** (see size)  
**Surface:** stout, paired stipular spines at each node

**Fruit and Flowers:**

**Legume:** flattened, slightly curved, on a thick, short stalk; seeds kidney-shaped, compressed, mottled brown, 4-8 per pod  
**Size:** 2.0" - 4.0" long; 0.5" wide  
**Shape:** oblong-linear  
**Color:** brown  
**Flower:** monoecious; perfect; irregular; in drooping racemes, 4.0" - 5.0" long; individual flowers white, 1.0" long; aromatic

**Bark:** gray, brown, to nearly black; heavy, rounded, scaly, reticulate ridges; deeply furrowed

**Physical Attributes:**

**Form:** single stem  
**Size:** 60.0', mature  
**Growth Rate:** rapid; 40.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** high  
**Anaerobic:** low

**Propagation:** seed (no cold stratification required); bare root; container; cuttings  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** adapted to a wide variety of soil types; grows best on deep, well-drained soils derived from limestone  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.6 - 8.2  
**Range:** native range follows the Appalachian Mountains from Pennsylvania to Alabama; a secondary population exists primarily in the Ozark Mountains; in Mississippi, north and central portions of the State

**Wildlife Value and Uses:** limited value in wildlife food plots, but provides excellent cover when planted in spoil areas

**Timber Value and Uses:** extensively utilized for fencing, mine timbers, and landscaping ties; used for decking and fences where preservatives are restricted; good erosion control plant on critical and highly disturbed areas due to its ease of establishment, rapid early growth and spread, and its soil building abilities

**Landscaping Info:** has often been planted as an ornamental because of its showy aromatic flower; characteristics discouraging recommendation for its use in landscaping include: a shallow aggressive root system, potential for spread by root suckers, elimination of other plants through competition, susceptibility to insect, wind, and ice damage, and large, stout stipular spines (thorns) at each node

**Other Facts:** considered noxious and/or invasive in some states; because of use in Asia and eastern Europe, it is the most widely planted tree in the world



Leaf



Bark



Flower



Fruit



Twig

**Black Willow**  
**swamp willow, Goodding willow,**  
**Dudley willow, sauz (Spanish)**  
*Salix nigra* Marsh.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 3.0" - 6.0" long; 0.25" - 0.75" wide  
**Margin:** finely glandular-serrate  
**Apex:** long-tapered  
**Base:** rounded  
**Shape:** lanceolate  
**Color:** yellow green above; paler below  
**Surface:** glabrous above; glabrous below  
**Venation:** pinnate

**Twigs:**

**Size:** slender; brittle  
**Color:** reddish brown  
**Surface:** pubescent at first, becoming glabrous;  
V-shaped leaf scars; 3 bundle scars; slitlike  
stipule scars

**Buds:**

**Size:** terminal bud absent; laterals 0.13" long  
**Shape:** laterals appressed  
**Color:** reddish brown  
**Surface:** one caplike scale

**Fruit and Flowers:**

**Capsule:** minute seeds with cottony tufts  
**Size:** <0.25" long  
**Shape:** ovate or conic; 2-valved  
**Color:** green (young); olive to reddish brown  
(mature)  
**Flower:** dioecious; each sex in terminal catkins,  
yellowish green, 3.0" - 4.0" long;  
staminate catkins erect; pistillate catkins  
drooping

**Bark:** light gray to nearly black; moderate  
fissures; forking ridges; long scaly plates

**Physical Attributes:**

**Form:** multiple stem  
**Size:** 100.0', mature  
**Growth Rate:** rapid; 50.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** low  
**Fire:** low  
**Anaerobic:** high

**Propagation:** bare root; container; cuttings  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** moist alluvial banks of streams and lakes;  
wet bottom lands; permanent swamps  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.8 - 8.0  
**Range:** found throughout the eastern United  
States and adjacent parts of Canada and  
Mexico; southeastern Minnesota; southwest  
to central Texas; east through the Florida  
panhandle; in Mississippi, throughout

**Wildlife Value and Uses:** Texas Plant  
Information Database (TPID) overall food and  
cover index for wildlife is only 4.35 out of a  
possible 10.0; the only "Good" rating was for  
non-game bird food and cover; a "Fair" rating  
was given for large and small mammal food  
and cover; honeybee attractant

**Note:**

**willow stands used extensively by some  
neotropical migrating birds**

**Timber Value and Uses:** most important  
American willow; though not strong or durable,  
wood is subject to little or no twisting and  
checking while drying; wood is soft and flexible;  
used for weaving baskets, wicker furniture,  
paneling, and caskets; primary other use is  
bank stabilization/erosion control

**Landscaping Info:** recommended method  
of propagation is from cuttings; no dormancy  
period for seed, and germination period occurs  
within 12-24 hours after seed fall

**Other Facts:** bark contains salicylic acid  
present in aspirin; used by Native Americans  
as an infusion to alleviate fever and pain just  
as aspirin is used for that purpose today; once  
used extensively for artificial limbs, because it is  
lightweight, doesn't splinter easily, and holds its  
shape well



Leaf



Bark



Flower



Fruit



Twig

**American Elder**  
elderberry, sweet elder, wild elder  
*Sambucus canadensis* L.

**Leaves:**

**Type:** pinnately compound, opposite, deciduous  
**Size:** leaf 5.0" - 9.0" long; leaflets (5-7 pairs), 1.5" - 4.0" long  
**Margin:** sharply serrate  
**Apex:** acuminate  
**Base:** often asymmetrical  
**Shape:** elliptical  
**Color:** green above; paler below  
**Surface:** shiny above; slightly pubescent below  
**Venation:** pinnate

**Twigs:**

**Size:** stout  
**Color:** light gray-green  
**Surface:** glabrous; numerous lenticels; leaf scars broadly crescent-shaped and often transversely connected, forming ringed nodes; bundle scars 3, 5, or 7;

**Buds:**

**Size:** terminal bud absent; laterals 0.13" long  
**Shape:** pointed  
**Color:** brown to red-brown  
**Surface:** several scales

**Fruit and Flowers:**

**Drupe:** berrylike  
**Size:** 0.25" dia.  
**Shape:** globose  
**Color:** purple-black  
**Flower:** monoecious; perfect; in slightly convex (usually profuse) clusters, 6.0" - 12.0" wide; flower, white, 0.25" dia.

**Bark:** thin; light gray and smooth; raised protuberances from lenticels; with age somewhat fissured and rough

**Physical Attributes:**

**Form:** multiple stems  
**Size:** 10.0' - 15.0', mature (occasionally 20.0')  
**Growth Rate:** rapid; 15.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** medium  
**Fire:** medium  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** rich soils along riverbanks and forest edges; also often on disturbed sites  
**Soil Texture:** medium  
**Soil pH:** 5.0 - 7.0  
**Range:** in a number of varieties throughout the continental U.S. except the far northwestern states (Washington, Oregon, Idaho, and Utah); native to eastern North America, from Nova Scotia; south to Florida; west to Minnesota and Texas; in Mississippi, throughout

**Wildlife Value and Uses:** many birds and mammals consume the fruit (relished by no fewer than 50 kinds of birds); bear love to eat the elderberry fruits, while deer, elk, and moose browse on the stems and foliage; game birds, squirrel and other rodents, and several kinds of browsers also feed on the fruit or foliage of elderberry

**Timber Value and Uses:** no commercial value in the timber industry

**Landscaping Info:** showy in full bloom but limited in use as an ornamental due to unkempt, sprawling growth habit

**Other Facts:** edible fruits and flowers used by Native Americans for medicine, dyes for basketry, arrow shafts, flutes, whistles, clapper sticks, and folk medicine; active alkaloids in elderberry plants are hydrocyanic acid and sambucine; both will cause nausea so care should be observed with this plant; high in Vitamin C

food products from the fruit include elderberry wine, jam, syrup, and pies; entire flower cluster can be dipped in batter and fried; petals can be eaten raw or made into a fragrant and tasty tea; flowers add an aromatic flavor and lightness to pancakes or fritters.

dried fruits cooked by both Spaniards and Cahuillas into a rich sauce "sauco" that needed no sweetening

**Note:** only the blue or purple fruits of elderberry are edible; red fruits of other species are toxic and should not be gathered





Leaf



Fruit



Bark



Flower



Twig

Warning: New growth of American elder contains a glucoside that can be fatal to livestock

## Sassafras

*Sassafras albidum* (Nutt.) Nees.

### Leaves:

**Type:** simple, alternate, deciduous; aromatic when crushed

**Size:** 4.0" - 6.0" long; 2.0" - 4.0" wide

**Margin:** entire

**Apex:** acute

**Base:** wedge-shaped

**Shape:** three shapes on a single tree: (1) entire and elliptical, (2) mitten-shaped either side, (3) 3-lobed; usually only one shape on mature trees

**Color:** yellow-green above; pale green below

**Surface:** glabrous above; pubescent below;

when young, commonly hairy along the veins

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** greenish 1st yr; then reddish brown

**Surface:** glaucous bloom 1st yr; then smooth; leaf scars raised; traverse bundle scar often divided into 3 sections

### Buds:

**Size:** terminal bud 0.25" dia.; laterals smaller

**Shape:** globular; 3-5 scales

**Color:** reddish brown

**Surface:** scales keeled

### Fruit and Flowers:

**Drupe:** thin flesh; pit light brown

**Size:** 0.5" long

**Shape:** ovoid

**Color:** dark blue

**Flower:** dioecious; unisexual; in racemes from terminal buds; sepals and petals similar; yellow-green; 0.5" long

**Bark:** dark green young; gray to reddish brown on older stems; narrow ridges, moderate fissures; aromatic

### Physical Attributes:

**Form:** single stem

**Size:** 75.0', mature

**Growth Rate:** slow; 24.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: high

Drought: high

Fire: high

Anaerobic: none

**Propagation:** seed (cold stratification required);

bare root; container; sprigs

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** dry, sandy soils, usually in association with other species; commonly along fence rows and in abandoned fields

**Soil Texture:** medium - coarse

**Soil pH:** 4.5 - 7.2

**Range:** widely distributed throughout the eastern and southern U. S. from Maine to Iowa; south to Florida; west to Texas; in Mississippi, throughout

**Wildlife Value and Uses:** fruits readily eaten by wildlife and birds (quail, wild turkey, kingbirds, crested flycatchers, mockingbirds, sapsuckers, pileated woodpeckers, warblers and phoebes); fruit, bark and wood eaten by black bear, beaver, rabbit and squirrel; twigs and foliage browsed by white-tailed deer

**Timber Value and Uses:** cultivated since 1630 for its leaves, bark, and wood; heartwood is orange-brown, coarse-grained, soft but durable, and used for purposes requiring lightwood, such as boat construction; also used for poles, posts, and crossties; small quantities used for cooperage and cabinetry

**Landscaping Info:** valued for fragrant spring blooms, interesting horizontal branching pattern, and striking fall color; small trees; medium to fast growing; work well for landscape use as specimen trees and mass plantings; easy to culture and require little care; adapted to dry, sandy soils, but do best in moist, fertile soils in partial to full shade

**Other Facts:** could properly be dubbed the "everything tree"; used by Native American tribes for numerous purposes ranging from refreshment, to tapeworms, "overfatness", and an emetic purification after funeral rituals; a "spring tonic" from the roots and twigs brewed by Colonials and sold for 7-8 cents a pint; twigs, water and molasses brewed for beer by South country folk; crushed dried leaves used to thicken pottage in Louisiana ---today, "File", made from the ground roots or leaves, is an important spice used in Cajun foods, such as gumbo; oil of sassafras is used in the manufacture of flavoring extracts, scented soaps, perfumes, and certain pharmaceutical compounds



Leaf



Bark



Flower



Fruit



Twig

## Carolina Basswood

linn, American linden

*Tilia americana* L. var. *caroliniana* (P. Mill.)  
Castigl.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 2.5" - 4.5" long; 2.5" - 5.0" wide  
**Margin:** serrate or coarsely dentate  
**Apex:** abruptly long-pointed  
**Base:** oblique and truncate or cordate  
**Shape:** cordate; ovate  
**Color:** dark yellow-green above; pale green below  
**Surface:** lustrous above; rusty brown woolly pubescence below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** reddish brown  
**Surface:** glabrous to slightly pubescent

### Buds:

**Size:** 0.25" long  
**Shape:** ovoid, acute  
**Color:** red  
**Surface:** glabrous, rarely pubescent

### Fruit and Flowers:

**Nutlet:** clustered on the end of peduncle attached to a bract  
**Size:** 0.13" - 0.25" dia.  
**Shape:** subglobose, ellipsoid or obovoid  
**Color:** tan to gray and hairy  
**Flower:** monoecious; perfect; in 8- to 15-flowered cymes hanging on a long stalk from a strap shaped green bract; flower, pale yellow, ciliate at apex, fragrant, 0.25" long

**Bark:** gray; furrowed; scaly ridges

### Physical Attributes:

**Form:** single stem  
**Size:** 80.0', mature  
**Growth Rate:** moderate; 50.0' maximum @20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** moderate-high  
**Fire:** none  
**Anaerobic:** low (short duration only)

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** moist upland sites; level to gently sloping  
**Soil Texture:** fine - medium  
**Soil pH:** 6.5 - 7.0  
**Range:** North Carolina south to Florida; west to Texas; north to Oklahoma, Missouri, and Kentucky; in Mississippi, reported by the NRCS Plants Database in Desoto, Lee, Grenada, Jefferson, Amite, Adams, and Forrest Counties

**Wildlife Value and Uses:** fair food and cover value for small and large mammals; high cavity value for cavity-nesting animals, including wood duck, pileated woodpecker, other birds, and small mammals

**Timber Value and Uses:** valued for its soft, light, easily worked wood, especially for turned items and hand carving; other uses include boxes, toys, woodenware, drawing boards, veneer, venetian blinds, excelsior, and pulp

**Landscaping Info:** used as an ornamental and a shade tree; yellow fall color; fruit persistent on tree; soil enriching species --- pulls calcium and magnesium from the soil profile and deposits it in leaf litter

**Other Facts:** sap used by Native Americans to make syrup; leaves eaten; cambium used to make soups and breads; leaf and bark extracts used as medicinals; freshly cut bark as an emergency wound bandage; still highly valued as a source of the "finest of the fine" honeys



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

## White Basswood

### bastwood, beetree

*Tilia americana* L. var. *heterophylla* (Vent.)  
Loud.

#### Leaves:

**Type:** simple, alternate, deciduous; 2-ranked  
**Size:** 3.0" - 5.5" long; 2.0" - 3.0" wide  
**Margin:** finely glandular and dentately toothed  
**Apex:** long-tapered  
**Base:** obliquely heart-shaped or flattened  
**Shape:** ovate  
**Color:** dark green above; lighter below  
**Surface:** glabrous above; covered with thick, white to pale-brown woolly hairs below  
**Venation:** pinnate

#### Twigs:

**Size:** slender  
**Color:** reddish brown or yellowish brown  
**Surface:** zigzag branching; leaf scars half-round to crescent-shaped; scattered bundle scars; stipular scars prominent

#### Buds:

**Size:** terminal bud absent; laterals 0.25" long  
**Shape:** inequilateral  
**Color:** dark red to green  
**Surface:** 2 outer scales, hairy at margin

#### Fruit and Flowers:

**Nutlet:** leathery - woody, with woolly hairs  
**Size:** 0.33" long,  
**Shape:** ellipsoidal  
**Color:** rusty brown  
**Flower:** monoecious, perfect; in 10- to 20-flowered pubescent corymbs; distinctive leafy bract, 4.0" - 6.0" long, subtends cluster; flower, 5 petals, yellow, 0.25" long

**Bark:** gray-green and smooth when young; dark gray to gray-brown and deeply furrowed into narrow scaly ridges on older trees

#### Physical Attributes:

**Form:** single stem  
**Size:** 90.0', mature  
**Growth Rate:** moderate; 50.0' maximum @20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** moist, well-drained, gentle slopes in mixed hardwood forests; rare on the coastal plains

**Soil Texture:** medium

**Soil pH:** 5.7 - 7.2

**Range:** southwestern Pennsylvania; west into southern Ohio, Indiana, and Illinois to Missouri; south to northern Arkansas; east to northeastern Mississippi, Alabama, northwestern Florida, and Georgia; and north to Maryland; most common in the mixed mesophytic forests of the Cumberland Plateau, where it is second only to sugar maple (*Acer saccharum*) in frequency; in Mississippi the NRCS Plants Database reports verification only in Tishomingo, Washington, and Forrest Counties

**Wildlife Value and Uses:** preferred browse for white-tailed deer; flowers visited by honeybees for nectar; easily decayed wood produces a disproportionate number of cavities; used by cavity-nesting animals including wood ducks, pileated woodpeckers, and other birds and small mammals

**Timber Value and Uses:** wood is soft and light; valued for hand carving, cooperage, boxes, veneer, excelsior, and pulp; fibrous inner bark ("bast") has been used as a source of fiber for rope, mats, fish nets, and woven baskets

**Landscaping Info:** desirable ornamental tree; fragrant, cream colored flowers in May and June; especially attractive to bees (honey from the flowers considered a delicacy by beekeepers and honey connoisseurs); may not be a good choice for those allergic to bee venom or those who simply are not fans of the bee

**Other Facts:** Native Americans made thread and tangle-free rope from the inner bark, and stitched wounds with the thread. The Iroquois used the sapwood to carve elaborate masks.



Leaf



Bark



Fruit



Flower



Twig

## Hercules-Club toothache tree, prickly ash

*Zanthoxylum clava-herculis* L.

### Leaves:

**Arrangement:** odd-pinnately compound,

alternate, tardily deciduous-persistent

**Size:** 5.0" - 9.0" long; leaflets (7 - 9),  
1.0" - 2.5" long

**Margin:** crenate

**Apex:** acute to long-tapered

**Base:** unequally rounded to wedge-shaped

**Shape:** ovate to scythe-shaped

**Color:** bright green above; paler below

**Surface:** lustrous above; somewhat pubescent  
below

**Venation:** pinnate

### Twigs:

**Size:** stout

**Color:** brown; becoming gray-brown to yellow-  
brown 2nd season

**Surface:** brownish pubescence 1st  
season; smooth by 2nd season; leaf scars  
broadly triangular to heart-shaped; bundle scars  
(3); armed with straight or curved chestnut  
brown spines, 0.5" long or greater

### Buds:

**Size:** small

**Shape:** obtuse

**Color:** dark brown - black

**Surface:** smooth, indistinctly scaly

### Fruit and Flowers:

**Capsule:** wrinkled or roughened

**Size:** 0.25" long; single seed

**Shape:** ovoid to nearly globular

**Color:** brown; seed black, shiny

**Flower:** dioecious; in terminal cymose clusters;  
petals 5, oval, light green; stamens 5, longer  
than petals

**Bark:** light gray; conical, corky ridges, 1.0" or  
greater dia.

### Physical Attributes:

**Form:** single stem

**Size:** 40.0', mature

**Growth Rate:** moderate; 40.0' maximum @ 20  
yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: moderate

Drought: low

Fire: medium

Anaerobic: none

**Propagation:** seed (cold stratification required),  
bare root, container

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** sandy soils near the coast, near streams  
in low fertile valleys, and riverbanks in  
association with other hardwoods

**Soil Texture:** fine - medium

**Soil pH:** 5.0 - 8.0

**Range:** Atlantic Coastal Plain; Virginia, west to  
Texas, and north to Arkansas; NRCS Plants  
Database also includes Oklahoma

### Wildlife Value and Uses:

moderate  
palatability for browse animals; seeds eaten by  
granivorous birds; attracts butterflies; larval host  
and/or nectar source for the Giant Swallowtail  
butterfly (*Papilio cresphontes*)

**Timber Value and Uses:** no commercial  
value; rated high as fuelwood

**Landscaping Info:** not generally thought of  
as an ornamental, although it has aromatic,  
showy flowers

**Other Facts:** called "toothache tree" because  
chewing the bark or leaves produces numbness  
of the mouth and tongue, thus reducing the  
pain of a toothache --- the bark contains an  
analgesic





**Leaf**



**Bark**



**Form**



**Flower**



**Fruit**



**Twig**

## Red Buckeye

*Aesculus pavia* L.

### Leaves:

**Type:** palmately compound, opposite, deciduous  
**Size:** leaflets (5-7), 2.5" - 6.0" long, 1.5" - 2.5" wide  
**Margin:** coarsely serrate  
**Apex:** acuminate  
**Base:** cuneate  
**Shape:** lanceolate to obovate  
**Color:** dark green above; dull green below  
**Surface:** glabrous, sunken veins above; pubescent below  
**Venation:** pinnate

### Twigs:

**Size:** stout  
**Color:** reddish brown  
**Surface:** raised lenticels; triangular to round leaf scars; V-shaped bundle scars (6-7)

### Buds:

**Size:** terminal 0.25" - 0.5" long; laterals smaller  
**Shape:** ovate and imbricate  
**Color:** reddish green  
**Surface:** smooth

### Fruit and Flowers:

**Capsule:** 1-2 seeds  
**Size:** 1.0" - 2.0" dia.  
**Shape:** globular  
**Color:** tan - light brown  
**Flower:** monoecious; perfect; in large terminal panicles, 6.0" - 10.0" long, 4.0" - 6.0" wide; 4-5 flowers/panicle; single flowers, 1.0" - 1.5" long, petals, 4-5, small, deep red to reddish yellow

**Bark:** thin; gray-brown; smooth to superficially fissured

### Physical Attributes:

**Form:** single stem  
**Size:** 30.0', mature  
**Growth Rate:** moderate; 12.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** low  
**Anaerobic:** medium

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** moist sites of hardwood forests and along streambanks  
**Soil Texture:** medium  
**Soil pH:** 5.0 - 7.0  
**Range:** West Virginia; south to Florida; west to Texas; north and east through Oklahoma, Missouri, Illinois, Kentucky, and Virginia; in Mississippi, scattered throughout

**Wildlife Value and Uses:** first red tubular flowers to bloom in spring, which makes it very important to returning hummingbirds and the season's first butterflies; lush foliage provides excellent cover for songbirds; nominal food value for small mammals

**Timber Value and Uses:** none

**Landscaping Info:** easy to grow; recommended to all impatient gardeners, because it starts blooming when it is just 3 feet tall; cultivars are available --- "Atrosanguinea" has dark crimson flowers; "Alba" has white flowers; "Humilis" is low-growing, nearly prostrate, with smaller flowers; also, several hybrids between and among red buckeye, yellow buckeye (*A. flava*), common horsechestnut (*A. hippocastanum*), and Ohio buckeye (*A. glabra*) have been developed by horticulturists

**Other Facts:** reported that the Cherokees used to carry the buckeye nut around for good luck and to prevent rheumatism

**WARNING:** [seeds are deadly poisonous if eaten!](#)



Leaf



Bark



Flower



Fruit



Twig

**Common Serviceberry (Downy)**  
**Sarvis-berry, shadblow, shadbush,**  
**juneberry, sugarplum, Indian cherry**  
*Amelanchier aborea* (Michx. f.) Fern.

**Leaves:**

**Type:** simple, alternate, deciduous; leaf base partially covers petiole making leaf appear to "sit" on top of petiole

**Size:** 2.0" - 4.0" long; 1.0" - 2.0" wide

**Margin:** finely serrate

**Apex:** short-pointed

**Base:** remotely heart-shaped to rounded

**Shape:** oval to oblong

**Color:** yellow-green above; paler below

**Surface:** nearly glabrous above and below; (new leaves covered with silvery, woolly hairs)

**Venation:** pinnate

**Twigs:**

**Size:** slender

**Color:** brown

**Surface:** new growth slightly hairy; older growth glabrous; crescent-shaped leaf scars; 3 bundle scars; numerous lenticels

**Buds:**

**Size:** terminal bud 0.75" long; laterals smaller

**Shape:** conical, acuminate;

**Color:** greenish to reddish brown

**Surface:** overlapping scales, smooth

**Fruit and Flowers:**

**Pome:** dry; tasteless; numerous small seeds

**Size:** 0.50" dia.

**Shape:** globular

**Color:** reddish purple

**Flower:** monoecious; perfect; in clusters of racemes on short stalks; white; bell-shaped; 5 obovate petals; 1.0" dia.

**Bark:** gray/grayish brown/brownish black; thin; smooth young; narrow ridges and furrows with age

**Physical Attributes:**

**Form:** single stem

**Size:** 50.0', mature

**Growth Rate:** moderate; 25.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: tolerant

Drought: low

Fire: medium

Anaerobic: medium

**Propagation:** seed (cold stratification required); bare root; container; cuttings

**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** dry limestone soils; hillsides and ridges; sandy loams of streams and riverbanks; occasionally on wetter sites

**Soil Texture:** medium - coarse

**Soil pH:** 5.5 - 7.5

**Range:** found throughout the eastern half of the United States from Minnesota through eastern Iowa, Nebraska, Kansas Oklahoma and Texas; east to the Atlantic coast; north into Canada; in Mississippi, scattered throughout

**Wildlife Value and Uses:** fruit and foliage valuable wildlife food and cover for birds (over 40 species) and small and large mammals including squirrel, fox, deer, elk, and black bear

**Timber Value and Uses:** some use as pulpwood and tool handles

**Landscaping Info:** good ornamental; early spring flowers; showy fall color (orange, red, gold, and green blends); edible fruit; many cultivars available --- selected for variation in growth habit, flower size and color, and leaf color

**Other Facts:** prized by the Cree Native Americans for arrow wood; common name came from the plant's use as floral arrangements for religious "services"



Leaf



Bark



Fruit



Flower



Fruit



Twig

## Devil's Walkingstick

*Aralia spinosa* L.

### Leaves:

**Type:** odd-bipinnately compound, alternate, deciduous  
**Size:** 3.0' - 4.0' long; 2.0' - 3.0' wide; lateral leaflets 2.0" - 4.0" long, 1.5" wide; long-stalked terminal leaflet  
**Margin:** finely toothed  
**Apex:** long-tapered  
**Base:** rounded to wedge-shaped  
**Shape:** ovate  
**Color:** dark green above; paler below  
**Surface:** smooth above; smooth to sparsely hairy, occasionally stout prickles along the midrib below  
**Venation:** pinnate

### Twigs:

**Size:** very stout  
**Color:** gray - brown  
**Surface:** pale orange lenticels; irregularly scattered stout prickles; U-shaped leaf scars nearly encompassing the twig; 7-15 bundle scars

### Buds:

**Size:** terminal 0.5" - 0.75" long; laterals smaller  
**Shape:** conical  
**Color:** orangish brown  
**Surface:** outer overlapping scales

### Fruit and Flowers:

**Drupe:** remotely 5-angled, 5-celled; berry-like  
**Size:** 0.38" dia.  
**Shape:** globular; seeds oblong-flattened  
**Color:** black; pulp purplish, juicy  
**Flower:** perfect or unisexual by abortion; in large, terminal, compound panicles, 3.0" - 4.0" long, on light yellowish stalks in umbels; white; 5 petals; 5 stamens alternating with the petals

**Bark:** brown; thin; inner bark bright yellow; broad, flat interlacing ridges; shallow fissures; stout prickles

### Physical Attributes:

**Form:** single stem  
**Size:** 30.0', mature  
**Growth Rate:** moderate; 30.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** low  
**Fire:** high  
**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** moist soils of rich bottoms and gentle slopes; usually in the understory  
**Soil Texture:** fine - medium  
**Soil pH:** 5.5 - 7.2  
**Range:** eastern and south central U.S.; in Mississippi, scattered throughout

**Wildlife Value and Uses:** rated by the Texas Plant Information Database (TPID) as a "Good" food and cover source for upland game birds, non-game birds, and small-large mammals; "Fair" food and cover source for waterfowl

**Timber Value and Uses:** none; good attributes for erosion control

**Landscaping Info:** rapid growth; thicket-forming; coppices freely; deep-rooted; drought tolerant; insect tolerant; disease tolerant

**Other Facts:** bark, roots, and berries widely used in the frontier apothecary, and contain compounds suitable for pharmaceutical preparations today; young growth in spring before full leafout, can be dipped in batter, fried, and eaten



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

**Eastern Baccharis**  
**groundsel tree, saltmyrtle, seamyrtle,**  
**silverling**

*Baccharis halimifolia* L.

**Leaves:**

**Arrangement:** simple; alternate; tardily deciduous or semi-evergreen  
**Size:** 1.5" - 2.5" long  
**Margin:** coarsely toothed near apex; some leaves entire  
**Apex:** acute  
**Base:** cuneate  
**Shape:** obovate  
**Color:** green above; paler below  
**Surface:** shiny above; sticky below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** green  
**Surface:** angled; often sticky

**Buds:**

**Size:** minute  
**Shape:** nearly globose  
**Color:** green  
**Surface:** solitary; sessile; 4 exposed scales - all but outermost encased in hardened greenish resin

**Fruit and Flowers:**

**Achene:** single seeded; feathery  
**Size:** < 0.5" long  
**Shape:** globular-oval (similar to dandelion)  
**Color:** white  
**Flower:** dioecious; in terminal, branched clusters (appear as feathery white tufts); 0.25" - 0.5" long; white; conspicuous

**Bark:** orangish brown young; gray with flat ridges and orangish shallow furrows mature

**Physical Attributes:**

**Form:** multiple stem  
**Size:** 10.0', mature  
**Growth Rate:** moderate; 10.0' maximum @ 20 yrs --- rapid early; 3.0' @ 2-3 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** low  
**Fire:** medium  
**Anaerobic:** high

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** occurs naturally in the upper fringes of irregularly flooded tidal fresh and brackish marshes, back dunes, and inland open woods, vacant fields, and desert habitats  
**Soil Texture:** fine - coarse  
**Soil pH:** 5.5 - 7.8  
**Range:** eastern and southern coastal states from Massachusetts to Florida and west to Texas, plus the northern adjacent states of Arkansas and Oklahoma; in Mississippi, reported throughout except the Mississippi River Delta and some of the northernmost counties

**Wildlife Value and Uses:** little or no value as a good food source for game animals; provides cover and nesting habitat for various species of birds; bees and small butterflies feed on nectar from the male flowers; songbirds attracted by the insects; marsh wrens and other small birds frequently nest in the openly branched, brittle stems

**Timber Value and Uses:** none

**Landscaping Info:** female plants are particularly attractive in flower; make a good landscape plant in exposed coastal conditions; highly resistant to salt spray and flooding; most commonly installed as 1 to 2 year-old containerized material

**Other Facts:** being investigated as soil bioengineering systems for tidal shoreline stabilization; conversely the ability to grow in dense clusters reaching over 3 feet in height within 2 to 3 years also makes it a potential invasive "pest" species

**Warning: The leaves of this plant are poisonous to livestock; the toxic compound in groundsel-bush attacks the hepatic and circulatory system**





Leaf



Bark



Female



Male

Flower



Fruit



Twig

**American Beautyberry**  
**French mulberry, American mulberry,**  
**wild goose's berries**  
*Callicarpa americana* L.

**Leaves:**

**Type:** simple, opposite/subopposite, deciduous  
**Size:** 4.0" - 8.0" long; 3.0" - 4.0" wide  
**Margin:** serrate  
**Apex:** acuminate  
**Base:** rounded to widely cuneate  
**Shape:** ovate  
**Color:** green/yellow-green above; paler below  
**Surface:** pubescent above; pubescent below  
**Venation:** pinnate

**Twigs:**

**Size:** slender to moderate  
**Color:** brown; gray scales  
**Surface:** scurfy and scaly; oval leaf scar;  
single bundle scar

**Buds:**

**Size:** small; superposed; naked  
**Shape:** fusiform-oblong  
**Color:** gray-brown  
**Surface:** smooth

**Fruit and Flowers:**

**Drupe:** berrylike  
**Size:** 0.25" dia.  
**Shape:** nearly spherical  
**Color:** pinkish red to lavender  
**Flower:** tubular; pinkish to blue; conspicuous;  
appearing from leaf axils in mid to late summer

**Bark:** brown; numerous raised lenticels

**Physical Attributes:**

**Form:** multiple stem  
**Size:** 6.0', mature  
**Growth Rate:** moderate; 6.0' maximum @ 20  
yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** high  
**Fire:** high  
**Anaerobic:** none

**Propagation:** seed (no cold stratification  
required); bare root; container; cuttings  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** dry, open woods, moist woods, thickets  
and hammocks; occurs as understory species  
in upland pine forests, upper slope pine-oak  
forests, and old-growth maritime forests;  
adapted to climates with hot, humid summers  
and moderate winters

**Soil Texture:** fine - coarse

**Soil pH:** 4.8 - 7.0

**Range:** occurs naturally on wooded slopes  
from Florida, north to Maryland, North Carolina,  
Tennessee, Missouri, Arkansas, Oklahoma, and  
northern Mexico; in Mississippi throughout

**Wildlife Value and Uses:** fruits important  
food source for many species of birds including  
bobwhite quail, mockingbirds, robins, towhees,  
and brown thrashers; fruit also eaten by  
armadillo, raccoon, wood rats, gray fox,  
opossum, and white-tailed deer; provides food  
well into the winter months when other food  
sources are unavailable

**Timber Value and Uses:** none

**Landscaping Info:** raised for their  
ornamental flowers as well as their colorful  
clusters of fruits; may be propagated by  
softwood cuttings, but they are primarily  
grown from seed; produces many volunteers  
that are very hearty and can be dug up and  
transplanted elsewhere in a more desirable  
location; flowers are produced on new growth;  
should be pruned after the fruits are gone, and  
may be pruned to the ground level in the winter  
if desired

**Other Facts:** leaves and branches used  
by the Alabama, Choctaw, Creek, Koasati,  
Seminole and other Native American tribes  
for various medicinal purposes; decoction  
(extract obtained by boiling) from roots, leaves  
and branches used in sweat baths to treat  
both malarial fever and rheumatism; boiled  
plant parts used for treatment in a sweathouse;  
a decoction of the roots used to treat dizziness  
and stomachaches; liquid from boiled roots and  
berries drunk to treat colic; bark from the stems  
and roots used to treat itchy skin; tea from the  
root bark taken to treat urine retention or "urine  
stopped-up sickness"



Leaf



Bark



Flower



Fruit



Twig

**NOTE:** *Callicarpa americana* has been found to be a natural insect repellent. Three chemicals have been isolated that appear to be the active ingredients; callicarpenal, intermedeol, and spathulenol. It has found to be repellent to the mosquitoes which carry yellow fever and malaria, as well as the tick which carries Lyme disease. The discovery and use of callicarpenal has been patented by the United States Department of Agriculture Agriculture Research Service.

**Swamp Cyrilla**  
**titi, leatherwood, he-huckleberry**  
*Cyrilla racemiflora* L.

**Leaves:**

**Type:** simple, alternate, tardily deciduous  
**Size:** 2.0" - 3.0" long; 1.0" - 2.0" wide  
**Margin:** entire  
**Apex:** rounded - minutely notched  
**Base:** wedge-shaped  
**Shape:** obovate - elliptical  
**Color:** dark green above; paler below  
**Surface:** shiny, glabrous, leathery above; glabrous below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** brown  
**Surface:** lustrous; often 3-sided; shield-shaped leaf scars; bundle scars curved (sometimes divided), top fringed

**Buds:**

**Size:** 0.25" long; laterals smaller  
**Shape:** ovoid  
**Color:** chestnut brown  
**Surface:** several loosely overlapping scales

**Fruit and Flowers:**

**Capsule:** 2-celled, 2 seeds; dry; indehiscent  
**Size:** capsule 0.13" long; seeds minute  
**Shape:** ovoid - conical  
**Color:** light brown  
**Flower:** monoecious; perfect, in erect racemes near the end of last year's twigs, 4.0" - 6.0" long; petals 5, 0.25" long, white or pinkish, furnished with nectar glands

**Bark:** reddish brown; thin; lustrous; shreddy

**Physical Attributes:**

**Form:** multiple stems  
**Size:** 7.0' - 12.0', mature (can reach 30.0')  
**Growth Rate:** moderate; 7.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** moderate - intolerant  
**Drought:** intolerant young; established plants moderate  
**Fire:** low  
**Anaerobic:** high

**Propagation:** seed (no cold stratification required); bare root; container; cuttings  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** often in thickets along swamps and pocosins; rich river bottoms; also on exposed sandy ridges in the Gulf states  
**Soil Texture:** medium - coarse  
**Soil pH:** 5.0 - 7.0  
**Range:** southern Virginia to northern Florida; west to eastern Texas; in Mississippi, scattered throughout

**Wildlife Value and Uses:** excellent deer browse and escape cover, relatively high nutrient value; provides environmental protection for a variety of birds, mammals, and aquatic wildlife; bee attractant - excellent honey from its flowers

**Timber Value and Uses:** none

**Landscaping Info:** excellent shrub for wet areas in the landscape; easy to propagate --- sends up suckers from its roots; tip cuttings can be started in spring; root cuttings any time; no pretreatment required for seeds; red fall color; leaves and seed persistent

**Other Facts:** spongy lower bark astringent and absorbent and is used as a styptic



Leaf



Fruit



Bark



Flower



Twig

## Strawberry Bush

### arrow wood

*Euonymus americanus* L.

#### Leaves:

**Type:** simple, opposite, deciduous

**Size:** 1.0" - 3.5" long

**Margin:** finely serrate

**Apex:** sharply pointed

**Base:** pointed

**Shape:** broadly lanceolate

**Color:** bright green above; paler below

**Surface:** glabrous above; glabrous below

**Venation:** pinnate

#### Twigs:

**Size:** stout

**Color:** olive green

**Surface:** 4-sided

#### Buds:

**Size:** terminal bud 0.25" long

**Shape:** pointed

**Color:** reddish green to reddish orange

**Surface:** scales (3 - rarely 5); serrulate at first

#### Fruit and Flowers:

**Capsule:** pulpy-warty surface (somewhat resembles a soft, pink, sweetgum ball)

**Size:** 0.5" - 0.7"; seeds (4-5), 0.24" - 0.39" long, eventually turn black

**Shape:** globular; seeds oval/elongate

**Color:** pink to reddish; seeds red

**Flower:** monoecious; perfect; in 1.0" - 3.0" cymes; petals, 5, nearly triangular; single flower, greenish white/yellow-green; 0.4" - 0.5" dia.

**Bark:** green; older stems darken and split

#### Physical Attributes:

**Form:** multiple stem

**Size:** 6.0', mature

**Growth Rate:** moderate; 6.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** intermediate

**Drought:** none

**Fire:** medium

**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container; cuttings

**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** deciduous woods, sandy thickets, swamps, woodlands, shady edges, ravines, and stream sides

**Soil Texture:** fine - coarse

**Soil pH:** 5.0 - 6.0

**Range:** occurs throughout much of the eastern United States; also known to occur in Ontario; in Mississippi, throughout

**Wildlife Value and Uses:** seeds eaten sparingly by wild turkey and some songbirds; leaves eaten by white-tailed deer and eastern cottontail rabbit - not abundant enough to be recognized as important in total diet; considered an important indicator of deer presence because it disappears in areas overstocked with deer

**Timber Value and Uses:** none

**Landscaping Info:** excellent ornamental; dark red autumn leaves; red capsules and scarlet arillate seeds produce the "burning effect," associated with some of its common names; best used in natural settings in the shade of larger shrubs and trees; bright green, square twigs provide winter interest

**Other Facts:** seed is a strong laxative; tea made from roots used to treat uterine prolapse, vomiting of blood, painful urination, and stomach aches; bark is diuretic, expectorant, and tonic--- used as a tea in the treatment of malaria, liver congestion, constipation; powdered bark used as a dandruff "cure"



Bark



Leaf



Flower



Fruit



Twig

## Burningbush

eastern wahoo, spindletree

*Euonymus atropurpureus* Jacq.

### Leaves:

**Type:** simple, opposite, deciduous

**Size:** 2.0" - 5.0" long; 1.0" - 2.0" wide

**Margin:** finely or doubly serrate

**Apex:** long-tapered

**Base:** acute

**Shape:** ovate to elliptical

**Color:** bright green above; paler below

**Surface:** glabrous above; sparsely pubescent below

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** purplish green

**Surface:** prominent pale lenticels; leaf scars half-round/half-oval; single bundle scar

### Buds:

**Size:** terminal bud 0.25" long; laterals smaller

**Shape:** ovoid

**Color:** purplish

**Surface:** sharp-pointed scales (3-5)

—

### Fruit and Flowers:

**Capsule:** deeply lobed (4 lobes); seeds surrounded by a thin fleshy, scarlet aril (fleshy appendage)

**Size:** 0.5" dia.

**Shape:** oblong-oval

**Color:** pinkish to purple

**Flower:** monoecious; perfect; in 7- to 15-flowered axillary cymes; single flower, 0.5" dia., petals, 4, dark purple, obovate, sometimes obscurely toothed at the margins

**Bark:** light gray; thin; smooth-scaly

### Physical Attributes:

**Form:** multiple stem

**Size:** 12.0' - 25.0', mature

**Growth Rate:** slow; 25.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

Shade: tolerant

Drought: medium

Fire: low

Anaerobic: low

**Propagation:** seed (cold stratification required);

bare root; container; cuttings;

**Other:** no resprout/coppice potential

### Habitat and Ecology:

**Site:** woodlands and thickets on moist, rich soils

**Soil Texture:** medium

**Soil pH:** 5.0 - 8.0

**Range:** widespread in the eastern U.S.; designated on the Nature Serve website as "imperiled" in MS based on the following Natural Heritage county distribution records: Chickasaw (28017), Clay (28025), DeSoto (28033), Lee (28081), Monroe (28095), Noxubee (28103), Oktibbeha (28105), Tishomingo (28141)

**Wildlife Value and Uses:** leaves and twigs favorite browse for white-tailed deer; seeds eaten by birds

**Timber Value and Uses:** no commercial timber value

**Landscaping Info:** adaptable and easy to transplant; attractive fruit and good fall color when open grown; not commonly used in gardens because of its susceptibility to scale and unkempt growth habit

**Other Facts:** *Euonymus* has been in use among physicians for a long time. The bark is tonic, laxative, alterative, diuretic, and expectorant; the seeds are cathartic and emetic.





Leaf



Fruit



Bark



Flower



Twig

## Swamp-Privet

*Forestiera acuminata* Poir.

### Leaves:

**Type:** simple, opposite, deciduous  
**Size:** 2.0" - 4.5" long; 1.0" - 2.0" wide  
**Margin:** remotely serrate above middle  
**Apex:** acuminate  
**Base:** wedge-shaped  
**Shape:** elliptical  
**Color:** yellow-green above; paler below  
**Surface:** glabrous above; slightly pubescent below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** light brown  
**Surface:** warty; white lenticels; single U-shaped bundle scar; lenticels small, circular to half-round

### Buds:

**Size:** terminal bud 0.06" long; laterals often superposed  
**Shape:** terminal ovoid; laterals globose  
**Color:** brown  
**Surface:** exposed scales (2-4 pairs)

### Fruit and Flowers:

**Drupe:** wrinkled, fleshy  
**Size:** .0.5" long  
**Shape:** ellipsoid  
**Color:** brownish to purple  
**Flower:** dioecious; unisexual; apetalous; staminate in stalked clusters, greenish yellow; pistillate, in panicles, 1.0" long

**Bark:** dark brown; remotely ridged; flaky; thin

### Physical Attributes:

**Form:** shrub or small tree  
**Size:** 33.0', mature  
**Growth Rate:** moderate; 30.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** low  
**Anaerobic:** high

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** occasional in river bottom floodplains or on moist soil near streams and margins of swamps  
**Soil Texture:** fine - medium  
**Soil pH:** 6.0 - 8.0  
**Range:** Indiana; west through Illinois, Missouri to Kansas; south to Texas; east to Florida; north through Georgia, South Carolina, Tennessee, and Kentucky; in Mississippi, the Delta counties, and along the major river and stream bottoms throughout the State

**Wildlife Value and Uses:** The Texas Plant Information Database (TPID) overall wildlife index is 8.46 out of a possible 10.0; food and cover ratings are "Excellent" for upland game and non game birds, waterfowl, and small mammals; "Excellent" food, and "Good" cover for large mammals

**Timber Value and Uses:** none

**Landscaping Info:** used occasionally as an ornamental

**Other Facts:** named in honor of Charles Le Forestier, a seventeenth century French physician and botanist; *acuminata* refers to the acuminate leaves; roots and bark used in a decoction as a health beverage; wood used for turning (Bailey and Bailey 1976), although reports on its durability vary (Plants for a Future 2001)



Leaf



Fruit



Bark



Flower



Twig

## Loblolly-Bay

*Gordonia lasianthus* (L.) Ellis

### Leaves:

**Type:** simple, alternate, persistent  
**Size:** 4.0" - 6.0" long; 1.5" - 2.0" wide  
**Margin:** finely-obscurely toothed above the middle  
**Apex:** acute  
**Base:** wedge-shaped  
**Shape:** oblong to oblanceolate  
**Color:** dark green above; paler below  
**Surface:** leathery above; scattered woolly hairs below  
**Venation:** pinnate

### Twigs:

**Size:** moderately stout  
**Color:** dark brown  
**Surface:** wrinkled epidermal layers

### Buds:

**Size:** 0.25" - 0.33" long  
**Shape:** ovoid to globular  
**Color:** reddish  
**Surface:** terminal and lateral buds naked; silky hairs  
—

### Fruit and Flowers:

**Capsule:** woody, hairy, 5-sutured; seeds minute, winged  
**Size:** 0.75" long; 0.5" dia.  
**Shape:** ovoid  
**Color:** green immature; brown mature  
**Flower:** monoecious; perfect; solitary in leaf axils, on long reddish stalks; 5 petals, white, 1.5" long, 2.5" wide; stamens, yellow; fragrant; usually only one flower blooming at a time

**Bark:** dark gray to reddish brown; smooth to slightly fissured on young trees; thick, deeply fissured with narrow ridges on mature trees

### Physical Attributes:

**Form:** single stem  
**Size:** 65.0', mature  
**Growth Rate:** moderate; 40.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** low  
**Fire:** low  
**Anaerobic:** high

**Propagation:** seed (no cold stratification required); bare root; container; cuttings  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** low, wet soils of bays and swamp edges  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.5 - 6.0  
**Range:** North Carolina; south to Florida; east to Mississippi; in Mississippi, reported by the NRCS Plants Database in 5 counties in the extreme southeastern portion of the State

**Wildlife Value and Uses:** stump sprouts heavily browsed by white-tailed deer

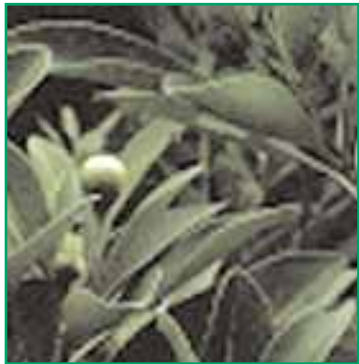
**Timber Value and Uses:** no commercial significance; could be used for pulp; could be used for firewood; has been used for riparian ecosystem restoration in central Florida

**Landscaping Info:** a handsome tree with showy, fragrant flowers, and dark green foliage; should be used more often as an ornamental

**Other Facts:** bark contains astringents suitable for leather tanning; wood has been used locally for cabinetry



Mature



Leaf



Young

Bark



Flower



Fruit



Twig

**Oakleaf Hydrangea**  
**mountain hydrangea, graybeard,**  
**French hydrangea, peegee hydrangea**  
*Hydrangea quercifolia* Bartr.

**Leaves:**

**Type:** simple, opposite/subopposite, deciduous

**Size:** 4.0" - 12.0" long; 3-7 pointed lobes;  
almost as wide as long

**Margin:** ciliate; serrate

**Apex:** acuminate - acute

**Base:** round to inequalateral

**Shape:** ovate

**Color:** yellowish green above; whitish below

**Surface:** rough pubescent above; tomentose  
below

**Venation:** pinnate

**Twigs:**

**Size:** stout

**Color:** young stems coppery; older cinnamon  
brown and gray-brown

**Surface:** young pubescent; older exfoliating

**Buds:**

**Size:** terminal bud 1.0" - 1.25" long

**Shape:** globose-conical to oblong

**Color:** orange

**Surface:** tomentose; 4-5 exposed scales

**Fruit and Flowers:**

**Capsule:** dry

**Size:** small

**Shape:** globose

**Color:** green to brown

**Flower:** cone-shaped clusters 6.0" - 12.0" long;  
3.0" - 5.0" wide; changing through the season  
from cream to rusty red

**Bark:** flaky, brown to gray-brown; exfoliating  
strips

**Physical Attributes:**

**Form:** multiple stem

**Size:** 6.0', mature

**Growth Rate:** rapid; 6.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: intolerant

Drought: medium

Fire: medium

Anaerobic: none

**Propagation:** seed (no cold stratification  
required); bare root; container; cuttings

**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** mixed hardwood forests, along streams  
and on forested hillsides, usually on calcareous  
soils,

**Soil Texture:** fine - coarse

**Soil pH:** 4.6 - 7.5

**Range:** native to the southeastern United  
States from Tennessee; south to the Florida  
Panhandle; west to the Mississippi River; in  
Mississippi, scattered throughout

**Wildlife Value and Uses:** limited value for  
wildlife food and cover

**Timber Value and Uses:** none

**Landscaping Info:** coarse textured foliage;  
best in partly shaded locations; large flower  
clusters last for months, color gradually  
changes from cream to pinkish to rusty red;  
flower clusters remain cohesive when dry--well  
suited for floral arrangements; color does not  
vary with soil pH; exfoliating tan, orange and  
cinnamon bark provide winter interest; fall  
leaf colors are red, purple, and bronze;  
Oakleaf hydrangea and peegee hydrangea  
(*H. paniculata*) are the only hydrangeas with  
cone-shaped flower clusters - all others have  
ball-shaped or flat-topped clusters

**Other Facts:** tea made from leaves used by  
the Cherokee as a purgative, to induce  
vomiting, and to regulate menstrual periods;  
bark chewed for high blood pressure and  
stomach problems; poultice used as an  
antiseptic to treat open wounds and sores



Summer



Fall

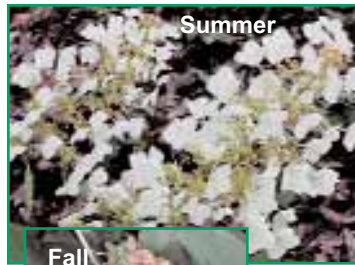
Leaf



Fruit



Bark



Summer



Fall

Flower



Twig

## Northern Spicebush

### benjaminbush

*Lindera benzoin* (L.) Blume *var. pubescens*  
(Palmer & Steyermark) Rehd.

#### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 1.5" - 3.0" long; 0.5" - 1.5" wide  
**Margin:** ciliate  
**Apex:** rounded to acuminate  
**Base:** cuneate  
**Shape:** obovate  
**Color:** dark green above; paler below  
**Surface:** glabrous to densely pubescent above; glabrous except for a few hairs along midrib below  
**Venation:** pinnate

#### Twigs:

**Size:** slender  
**Color:** olive green to brown  
**Surface:** glabrous; numerous light lenticels; leaf scars, crescent-shaped or half-round; bundle scars, 3

#### Buds:

**Size:** terminal absent; laterals minute  
**Shape:** globose  
**Color:** yellow-green to brown  
**Surface:** glabrous; scales (2-3)

#### Fruit and Flowers:

**Drupe:**  
**Size:** 0.5" dia.  
**Shape:** oblong  
**Color:** reddish  
**Flower:** dioecious; yellow clusters on nodes of prior year's growth; male and female with 6 short yellow sepals; staminate with 9 fertile stamens; pistillate with 12-18 rudimentary, infertile stamens

**Bark:** brown to gray-brown; numerous vertical light-colored lenticels

#### Physical Attributes:

**Form:** multiple stems  
**Size:** 5.0', mature  
**Growth Rate:** slow; 2.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** low  
**Fire:** (no data)  
**Anaerobic:** medium

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** stream banks, low woods, margins of wetlands; uplands, especially with exposed limestone  
**Soil Texture:** fine - medium  
**Soil pH:** 4.5 - 6.0  
**Range:** most of the eastern U.S.; in Mississippi scattered throughout

**Wildlife Value and Uses:** fruits and leaves eaten and/or browsed by over 20 species of birds and mammals (deer, raccoon, opossum, rabbit)

**Timber Value and Uses:** no commercial timber value

**Landscaping Info:** good shrubs with deep green leaves; bright yellow fall color when grown in partial sun; fragrant; moist soil is best; becoming available through commercial nurseries

**Other Facts:** used for various medicinal purposes by the Cherokee, Creek, Iroquois, and Rappahannock Native American tribes (D. E. Moerman 1986); extracts used as anti-arthritis, diaphoretic, emetic and herbal steam; dried fruits used as a spice, and the leaves for tea

#### NOTE:

Variation within the species: *Lindera benzoin var. pubescens* (Palmer & Steyermark) Rehd. is the more southern form of the species, absent from the northernmost states of the species range, with twigs and lower leaf surfaces hairy (vs. glabrous in *var. benzoin*). *Var. benzoin* does not occur in the states directly bordering the Gulf of Mexico. Another species of *Lindera* (Pond Berry) is listed as endangered in MS.





Bark



Flower

Leaf



Fruit



Twig

**Wax Myrtle**  
**southern bayberry**  
*Myrica cerifera* (L.) Small

**Leaves:**

**Type:** simple, alternate, persistent, aromatic

**Size:** 2.0" - 4.0" long; 0.5" wide

**Margin:** coarsely serrate-toothed

**Apex:** acute; rarely rounded

**Base:** wedge-shaped

**Shape:** oblanceolate

**Color:** yellow-green above; paler below

**Surface:** dark glands above; bright orange glands below

**Venation:** pinnate

**Twigs:**

**Size:** slender

**Color:** reddish gray 1st season; dark brown 2nd season

**Surface:** tomentose 1st season; glabrous 2nd season; resinous glandular; small pale lenticels; 3 bundle scars; 3-angled leaf scars

**Buds:**

**Size:** terminal bud absent; laterals 0.13" long

**Shape:** oblong-acute

**Color:** orange tinged yellow-green

**Surface:** several overlapping scales

**Fruit and Flowers:**

**Drupe:**

**Size:** 0.06" - 0.13" dia.

**Shape:** globular

**Color:** blue

**Flower:** dioecious; unisexual; staminate, in oblong catkins, <1.0" long, with acute scales 0.25" - 0.75" long; pistillate in bracteate catkins, < 0.5" long; white

**Bark:** gray-green with whitish gray patches; thin; smooth

**Physical Attributes:**

**Form:** rhizomatous

**Size:** 10.0' - 12.0', mature

**Growth Rate:** moderate; 10.0' maximum @ 20 yrs

**Life Span:** long (>100 yrs)

**Tolerances:**

Shade: intolerant

Drought: medium

Fire: low

Anaerobic: medium

**Propagation:** seed (cold stratification required); bare root; container

**Other:** no resprout/coppice potential

**Habitat and Ecology:**

**Site:** below 500 ft. under a variety of sites and conditions; restricted to climates with mild winters and long, hot, and humid summers; in the Gulf Coastal states wet sites, flatwoods, marshes

**Soil Texture:** fine - coarse

**Soil pH:** 5.5 - 7.0

**Range:** New Jersey; south along the coast into southern Florida; west through the Gulf states to Texas; atypical reported occurrences include Maine, Massachusetts, and New York; in Mississippi, scattered throughout the southern half of the State

**Wildlife Value and Uses:** provides consistent browse biomass in southeastern forests --- not however a "favored" deer species; fruits eaten by many birds including bobwhite quail and wild turkey; seeds important winter food source for Carolina wren and tree sparrows; no significant cover value for wildlife

**Timber Value and Uses:** no commercial timber value

**Landscaping Info:** popular ornamental because it grows quickly, responds well to pruning, and is heavily clothed in attractive evergreen foliage

**Other Facts:** first cultivated in 1699 for medicinal purposes; leaves, bark, and fruit yield pharmaceutical chemicals; Choctaw Native Americans used various concoctions from wax myrtle to treat fevers, tonsillitis, and other throat problems; the Seminole used it to make lye and as a tobacco substitute; and the Houma used the berries to make candles; fruit is the source of wax (by boiling) used in making bayberry candles



Bark



Leaf



Flower



Fruit



Twig

## Red Bay

### shore bay

*Persea borbonia* (L.) A. Sprengel

#### Leaves:

**Type:** simple, alternate, persistent, aromatic

**Size:** 3.0" - 4.0" long; 1.0" - 1.5" wide

**Margin:** entire

**Apex:** pointed or rounded

**Base:** rounded or broadly wedge-shaped

**Shape:** oblong-lanceolate

**Color:** bright green above; paler below

**Surface:** lustrous above; waxy bloom below

**Venation:** pinnate

#### Twigs:

**Size:** slender

**Color:** light brown

**Surface:** smooth; pale, rusty red pubescence;

current season somewhat 3-angled; linear to elliptical leaf scars; single linear bundle scar; no stipule scars

#### Buds:

**Size:** terminal bud 0.25" long; laterals smaller

**Shape:** ovoid

**Color:** reddish brown

**Surface:** naked; densely hairy; solitary or superposed

#### Fruit and Flowers:

**Drupe:** lustrous; persistent calyx; peduncles yellow-orange; large ovoid pit surrounded by dry thin flesh

**Size:** 0.5" long

**Shape:** oblong

**Color:** bright blue to blue-black

**Flower:** monoecious; perfect; in few- to many-flowered panicles on short stalks, in axils; bell-shaped; yellow, 0.25" long

**Bark:** reddish brown; broad, flat, somewhat scaly ridges; deep irregular fissures

#### Physical Attributes:

**Form:** single stem

**Size:** 70.0', mature

**Growth Rate:** moderate; 50.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** tolerant

**Drought:** low

**Fire:** none

**Anaerobic:** high

**Propagation:** seed (no cold stratification required); bare root; container; cuttings

**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** moist, rich soils of stream banks or swamp edges; occasionally on drier sites in association with longleaf pine

**Soil Texture:** fine - medium

**Soil pH:** 5.0 - 6.7

**Range:** North Carolina; south to Florida; west to Texas; northeast to Arkansas; in Mississippi, southeastern and coastal counties

**Wildlife Value and Uses:** fruit and foliage eaten by black bear and white-tailed deer; can withstand up to 40% browse loss of current foliage; seeds provide winter food for bobwhite quail; fruit eaten by songbirds and wild turkey; can provide essential habitat for gray squirrel when left as stringers along streams in pure even-aged pine stands

**Timber Value and Uses:** no significant commercial value; used locally for cabinetwork, interior finishing, and boat building; wood is heavy, strong and hard; colored bright red with thin, light-colored sapwood; seedlings can be used in wetlands and phosphate mine reclamation

**Landscaping Info:** occasionally used as an ornamental because of its showy fruit and evergreen, aromatic leaves; very resistant to insects and fungal disease

**Other Facts:** leaves have been used as a substitute for those of the Bay Laurel for flavoring soups and meat dishes; widely employed medicinally by the Seminole Indians to treat a variety of complaints, but especially as an emetic and body cleanser; used little if at all in modern herbalism

#### NOTE:

Some authorities recognize swamp bay as a variety of red bay (*Persea borbonia* var. *pubescens*). Others recognize swamp bay as a separate species (*Persea palustris*). Red bay occurs on xerix or mesic sites or dunes, while swamp bay is found in low wet areas --- swamps, banks of marshes and wet pine flatwoods



Leaf



Bark



Flower



Fruit



Twig

**Winged/Shining Sumac**  
**flameleaf sumac, dwarf sumac**  
*Rhus copallinum* L.

**Leaves:**

**Type:** odd-pinnately compound, alternate, deciduous

**Size:** 6.0" - 12.0" long; leaflets (9-21), 1.5" - 4.0" long, 0.75" - 1.3" wide

**Margin:** entire or remotely toothed above the middle

**Apex:** long-tapered

**Base:** wedge-shaped

**Shape:** leaflets oblong to lance-shaped

**Color:** dark green above; paler below

**Surface:** shiny above; somewhat hairy below; small green, leaflike wings along the rachis

**Venation:** pinnate

**Twigs:**

**Size:** stout

**Color:** gray-brown to reddish brown

**Surface:** hairy; numerous rusty red corky lenticels; U-shaped leaf scars; 5-11 bundle scars; commonly zigzag branching

**Buds:**

**Size:** terminal buds absent; laterals superposed occasionally, small

**Shape:** nearly spherical

**Color:** rusty brown

**Surface:** hairy

**Fruit and Flowers:**

**Drupe:** small; dry flesh; dense glandular hairs

**Size:** 0.25" long

**Shape:** nearly ovoid; pit kidney-shaped

**Color:** crimson

**Flower:** dioecious; in terminal pubescent panicles; petals, 5, greenish white/yellow, small, acute, reflexed above the middle; pistils abortive in polygamous flowers

**Bark:** thin; reddish brown; prominent horizontal lenticels - slough to papery scales with age

**Physical Attributes:**

**Form:** rhizomatous

**Size:** 8.0', mature

**Growth Rate:** moderate; 8.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

**Shade:** intolerant

**Drought:** medium

**Fire:** high (due to resprout ability)

**Anaerobic:** medium

**Propagation:** seed (no cold stratification required); bare root; container

**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** fallow fields; dry, sandy slopes and ridges; rarely in wet bottomlands; commonly thickets

**Soil Texture:** fine - coarse

**Soil pH:** 5.3 - 7.5

**Range:** throughout the eastern United States; in Mississippi, throughout except the Mississippi River Delta

**Wildlife Value and Uses:** primarily as a winter emergency food for wildlife; fruit eaten by ring-necked pheasant, bobwhite quail, wild turkey, and about 300 species of songbirds; also known to be important in the winter diets of ruffed grouse and the sharp-tailed grouse; bark eaten by fox squirrel and cottontail rabbit; fruit and stems eaten by white-tailed deer

**Timber Value and Uses:** none

**Landscaping Info:** good ornamental plantings and hedges because of the brilliant red fall foliage; best used on drastically disturbed sites where pioneer species are desirable; year-old nursery grown seedlings are normally used for planting large areas; established, stands will spread from the root sprouts outward three or more feet a year; colonies appear to lose vigor in about 15 years

**Other Facts:** fails to compete with invading tree species and is seldom found growing under a closed canopy



Bark



Flower

Leaf



Twig

Fruit

## Smooth Sumac

### scarlet sumac

*Rhus glabra* L.

#### Leaves:

**Type:** pinnately compound; alternate; deciduous

**Size:** 12.0" - 24.0" long; leaflets (11-31), 2.0" - 4.0" long

**Margin:** sharply serrate

**Apex:** long tapered

**Base:** rounded

**Shape:** lanceolate to oblong-lanceolate

**Color:** dark green above; paler below

**Surface:** lustrous above; whitish waxy bloom below; rachis (axis) smooth light lavender

**Venation:** pinnate

#### Twigs:

**Size:** stout

**Color:** bluish waxy bloom

**Surface:** glabrous; somewhat flattened; leaf scar U-shaped, nearly encircles bud; pith orange-brown; sap, milky and sticky

#### Buds:

**Size:** terminal bud absent; laterals small

**Shape:** rounded

**Color:** silvery to tan

**Surface:** pubescent

#### Fruit and Flowers:

**Drupe:** numerous; compact clusters, covered with short sticky red hairs

**Size:** 0.25" dia.; clusters 8.0" - 12.0" long

**Shape:** spherical

**Color:** dark red to bright red

**Flower:** polygamous (functionally dioecious) in terminal pubescent panicles, 8.0" - 12.0" long; petals, 5, greenish yellow; staminate and perfect panicles more open; pistillate panicles compact

**Bark:** thin; brown; smooth; numerous horizontally elongated lenticels; somewhat scaly on older portion of trunk

#### Physical Attributes:

**Form:** rhizomatous

**Size:** 12.0', mature

**Growth Rate:** moderate; 12.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

Shade: intolerant

Drought: medium

Fire: high

Anaerobic: low

**Propagation:** seed (no cold stratification required); bare root; container

**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** open woodlands, prairies, on dry rocky hillsides, and in canyons.

**Soil Texture:** medium - coarse

**Soil pH:** 5.3 - 7.5

**Range:** present in all of the contiguous 48 states of the United States, into southern Canada and northern Mexico; in Mississippi, scattered throughout

**Wildlife Value and Uses:** fruits are important winter sustenance for gamebirds and songbirds

**Timber Value and Uses:** none

**Landscaping Info:** sympodial branching, summer flowers, fall foliage colors, and ripened fruits on bare twigs in winter make it a landscape plant of continuous interest; weediness can become a drawback if not properly managed

**Other Facts:** widely used species among Native American tribes, including root and leaf teas to treat diarrhea, dysentery, and mouth and throat ulcers; leaves smoked for asthma; blossoms used by the Chippewa in a mouthwash for teething children; fruits eaten by Comanche children, and the leaves were added to tobacco for smoking by adults; fruits used to make red dyes, and the inner bark used to make yellow dyes.





Leaf



Bark



Flower



Fruit



Twig

## Staghorn Sumac

*Rhus hirta* (L.) Sudworth

*Rhus typhina* L.

### Leaves:

**Type:** pinnately compound, alternate, deciduous  
**Size:** 12.0" - 24.0" long; leaflets 2.0" - 5.0" long, 1.0" wide  
**Margin:** singly, sharply serrate  
**Apex:** long-tapered  
**Base:** slightly cordate  
**Shape:** oblong - lance-shaped  
**Color:** dull green above; paler below  
**Surface:** smooth above; hairy along the midrib below; rachis stout & densely hairy  
**Venation:** pinnate

### Twigs:

**Size:** stout  
**Color:** brown  
**Surface:** covered with dense greenish brown to black hairs; dotted with conspicuous orange-brown lenticels; (exudes sticky, milky fluid when bruised)

### Buds:

**Size:** terminal bud absent; laterals small  
**Shape:** laterals conical  
**Color:** orange-brown  
**Surface:** covered with matted wooly hairs

### Fruit and Flowers:

**Drupe:** thin, dry flesh; hard kidney-shaped pit  
**Size:** 0.13" dia.  
**Shape:** globular to hemispherical  
**Color:** dense coat of crimson hairs  
**Flower:** dioecious; in dense terminal panicle clusters; petals, 5, greenish yellow; staminate strap-shaped, reflexed above the middle; pistillate, erect

**Bark:** dark brown; thin; horizontally elongated lenticels; larger trunks superficially scaly

### Physical Attributes:

**Form:** single stem  
**Size:** 30.0', mature  
**Growth Rate:** rapid; 30.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** intermediate  
**Drought:** high  
**Fire:** high  
**Anaerobic:** none

**Propagation:** seed (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** old fields; abandoned pasture; rocky slopes; occasionally moist sites  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.5 - 7.2  
**Range:** found throughout the eastern half of the United States; in Mississippi, probably scattered throughout with other sumacs --- the NRCS Plants Database shows distribution in Mississippi but without specific site verifications

**Wildlife Value and Uses:** (same as *Rhus copallina*) primarily as a winter emergency food for wildlife; fruit eaten by ring-necked pheasant, bobwhite quail, wild turkey, and about 300 species of songbirds; also known to be important in the winter diets of ruffed grouse and the sharp-tailed grouse; bark eaten by fox squirrel and cottontail rabbit; fruit and stems eaten by white-tailed deer

**Timber Value and Uses:** none

**Landscaping Info:** similar to other sumacs; brilliant seasonal colors from foliage and fruit; good adaptability; pruning for control

**Other Facts:** wood is highly colored and has a limited use in the manufacture of novelties



Leaf



Fruit



Bark



Flower



Twig

**Poison Sumac**  
**swamp sumac, poison elder,**  
**poison ash, and thunderwood**  
*Toxicodendron vernix* (L.) Kuntze  
also as (*Rhus vernix* L.)

**Leaves:**

**Type:** odd-pinnately compound, alternate, deciduous

**Size:** 7.0" - 15.0" long; leaflets (7-13), 3.0" - 4.0" long

**Margin:** entire

**Apex:** pointed or rounded

**Base:** unequally wedge-shaped

**Shape:** oblong to obovate

**Color:** dark green above; paler below

**Surface:** lustrous above; smooth below

**Venation:** pinnate

**Twigs:**

**Size:** stout

**Color:** light brown to orangish brown

**Surface:** smooth; many minute raised lenticels; crescent-shaped leaf scars; many bundle scars

**Buds:**

**Size:** 0.25" long; laterals smaller, similar

**Shape:** conical

**Color:** purplish

**Surface:** smooth; 2 outer scales

**Fruit and Flowers:**

**Drupe:** dry, smooth

**Size:** 0.25" dia.

**Shape:** nearly spherical

**Color:** creamy white

**Flower:** polygamous; in long, narrow axillary pubescent panicles near the ends of the branches, on slender pubescent pedicels (stalks); petals, 5, yellowish green; 0.25" long

**Bark:** gray - grayish brown; thin; smooth; longitudinal striations; horizontal lenticels

**Physical Attributes:**

**Form:** single stem

**Size:** 25.0' - 30.0', mature

**Growth Rate:** (no data)

**Life Span:** (no data)

**Tolerances:**

**Shade:** tolerant

**Drought:** low

**Fire:** low

**Anaerobic:** high

**Propagation:** seed (cold stratification required); bare root; container; cuttings

**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** most abundant on permanently wet sites (swamps, bogs); occasionally with other bottomland species

**Soil Texture:** fine - coarse

**Soil pH:** 5.6 - 6.5

**Range:** all of the eastern United States; in Mississippi, primarily in the southeastern quarter of the State, and other permanently wet/moist sites

**Wildlife Value and Uses:** fruit is not toxic to birds or animals and is consumed by many kinds of wildlife, such as bobwhite, pheasant, grouse, and rabbit, especially in winter, when other food is scarce; moderate food value for large mammals; low food value for small mammals and terrestrial birds; no value as wildlife cover

**Timber Value and Uses:** none

**Landscaping Info:** **POISONOUS** All parts, in all seasons if plant sap contacted; symptoms include severe skin redness, itching, swelling, and blisters following direct or indirect contact; toxic principle is Urushiol.

**Other Facts:** used occasionally in the treatment of fevers, ague, ulcerated bladder, asthma and wasting diseases, and as a wash to treat foul ulcers, though it is an extremely poisonous plant

"Toxico" means "poison tree" and refers to poison sumac's extremely dangerous and rash-producing properties.

Black varnish can be made from the sap, as in a related Japanese species.



Bark



Leaf



Flower



Fruit



Twig

## Bigleaf Snowbell

*Styrax grandifolius* Ait.

### Leaves:

**Type:** simple, alternate, deciduous  
**Size:** 2.0" - 5.0" long; 1.0" - 3.0" wide  
**Margin:** remotely to distantly serrate or entire  
**Apex:** acute - acuminate  
**Base:** rounded - wedge-shaped  
**Shape:** obovate  
**Color:** pale green above; white below  
**Surface:** glabrous above; stellate hairy along the veins below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** brown  
**Surface:** pubescent, becoming glabrous; crescent-shaped leaf scars; single central bundle scar

### Buds:

**Size:** terminal bud absent; axillary bud (1-3/node), 0.13" long  
**Shape:** elliptical  
**Color:** white; eventually rusty  
**Surface:** axillary superposed, scurfy, naked

### Fruit and Flowers:

**Drupe:** dry; persistent style remnant at apex; enclosed below by persistent calyx  
**Size:** 0.33" long  
**Shape:** obovoid - globose  
**Color:** brown  
**Flower:** monoecious; perfect; in 6.0" long axillary racemes of 5 to 20 flowers; white; bell-shaped; 0.75"- 1.0" long

**Bark:** chestnut brown to black; smooth; thin

### Physical Attributes:

**Form:** shrub or small tree  
**Size:** 6.0' - 40.0', mature  
**Growth Rate:** moderate (no data @ 20 yrs)  
**Life Span** (no data)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** moderate  
**Fire:** none  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container; cuttings  
**Other:** (no data)

### Habitat and Ecology:

**Site:** Moist or wet soils of valleys and uplands; in understory of hardwood forests  
**Soil Texture:** medium  
**Soil pH:** 4.5 - 6.5  
**Range:** Virginia; west through Ohio, Indiana, and Illinois; south through Arkansas to Texas; east to Florida; north up the Atlantic coast; in Mississippi, scattered throughout

**Wildlife Value and Uses:** bee attractant

**Timber Value and Uses:** none

**Landscaping Info:** occasional use as an ornamental; potential as a landscape tree in parks and other natural areas

**Other Facts:** *S. americanus* (American snowbell) is very similar to *S. grandifolius* (bigleaf snowbell), but *S. grandifolius* has larger leaves, longer racemes, and more and larger flowers than *S. americanus*



Leaf



Bark



Flower



Fruit



Twig

**Common Sweetleaf**  
**horsesugar, yellow wood**  
*Symplocos tinctoria* L'Her.

**Leaves:**

**Type:** simple, alternate, tardily deciduous  
**Size:** 5.0" - 6.0" long; 1.0" - 2.0" wide  
**Margin:** wavy-toothed  
**Apex:** acuminate or acute  
**Base:** tapered  
**Shape:** oblong  
**Color:** dark green above; pale below  
**Surface:** glabrous, leathery above; pubescent below  
**Venation:** pinnate

**Twigs:**

**Size:** stout  
**Color:** gray-brown  
**Surface:** pubescent; lenticels scattered, small, elevated; leaf scar half-round; single large horizontal bundle scar

**Buds:**

**Size:** terminal bud 1.0" long; laterals small, embedded  
**Shape:** terminal ovoid acute  
**Color:** brown  
**Surface:** terminal 4-scaled, ciliate on margins

**Fruit and Flowers:**

**Drupe:** dry  
**Size:** 0.5" long; seed small  
**Shape:** drupe cylindrical; seed ovoid  
**Color:** green young; brown mature  
**Flower:** monoecious; perfect; at first surrounded by 3 oblong, overlapping bracts; flowers on stout, short, silky stalks; petals 5, white, 0.5" long; orange anthers

**Bark:** gray to brown; thin; smooth to slightly furrowed; corky/warty outgrowths

**Physical Attributes:**

**Form:** single or multiple stem  
**Size:** 15.0' - 30.0', mature  
**Growth Rate:** moderate; 8.0' maximum@ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** medium  
**Drought:** high  
**Fire:** high  
**Anaerobic:** moderate (seasonal)

**Propagation:** seed (cold stratification required); cuttings  
**Other:** (no data)

**Habitat and Ecology:**

**Site:** understory on moist, rich forest soils and along stream banks and swamp margins  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.5 - 7.5  
**Range:** along the eastern U.S. coastal states from Delaware; south to Florida; west to eastern Texas and Arkansas; in Mississippi, approximately one-half the State east of a line running from the northeast corner to the southwest corner

**Wildlife Value and Uses:** seeds eaten by birds; nectar insect attractant; larval host - King's hairstreak butterfly; browsed by deer and domestic animals; very important browse plant in longleaf pine regions; over 50% utilization indicates overstocked range

**Timber Value and Uses:** no commercial value

**Landscaping Info:** not commonly found in nurseries; most collected from the wild and propagation success may be minimal

**Other Facts:** colonists made a bright yellow dye by boiling the leaves and inner bark





Leaf



Fruit



Bark



Flower



Twig

## Tree Sparkleberry

farkleberry, huckleberry, gooseberry  
*Vaccinium arboreum* Marsh.

### Leaves:

**Type:** simple, alternate, deciduous or tardily deciduous  
**Size:** 1.0" - 3.0" long; 1.0" wide  
**Margin:** entire or with minute glandular teeth  
**Apex:** acute or rounded  
**Base:** wedge-shaped  
**Shape:** oblong, oval  
**Color:** dark green above; paler below  
**Surface:** lustrous above; hairs along midrib and principal veins below  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** brown  
**Surface:** crooked; many branched; single bundle scar; leaf scar half-round

### Buds:

**Size:** terminal buds absent; laterals very small  
**Shape:** nearly globular  
**Color:** reddish brown to reddish purple  
**Surface:** several overlapping scales

### Fruit and Flowers:

**Berry:** many-seeded  
**Size:** berry 0.25" dia.; seeds minute  
**Shape:** berry globular; seeds kidney-shaped  
**Color:** berry lustrous-black  
**Flower:** monoecious; perfect; in short axillary racemes, 2.0" - 3.0" wide, with small leaf-like bracts; flower, white, bell-shaped, 0.25" long

**Bark:** reddish brown; narrow shreddy ridges; thin

### Physical Attributes:

**Form:** multiple stem  
**Size:** 28.0', mature  
**Growth Rate:** moderate; 28.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
Shade: tolerant  
Drought: medium  
Fire: medium  
Anaerobic: low

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** moist soils near streams and lakes, along hillsides, and in high mountain valleys as an understory species; can maintain itself on soils of limestone origin  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.0 - 7.0  
**Range:** Kansas; east to Virginia; south to Florida; west to Texas; in Mississippi, throughout

**Wildlife Value and Uses:** flowers are a bee attractant; foliage and fruit provides browse for white-tailed deer, and food for many species of hares and rabbit; fruits are consumed by black bear, chipmunks, and numerous species of birds, including the American robin, ruffed grouse, and tanagers; shrubby thickets of tree sparkleberry form favored activity centers for transplanted ruffed grouse in northern Georgia; denser growth favored for nesting by other bird species

**Timber Value and Uses:** no commercial significance

**Landscaping Info:** attractive glossy summer foliage and reddish purple color in the fall; growth form gives a less desirable winter appearance

**Other Facts:** the only "sparkleberry" having fruit considered to be inedible by humans because of taste; bark formerly used for tanning leather; root extracts were traditionally used to treat diarrhea



Leaf

Bark



Flower



Twig



Fruit

**Deerberry**  
**highbush huckleberry, squaw**  
**huckleberry, southern gooseberry**  
*Vaccinium stamineum* L.

**Leaves:**

**Type:** simple, alternate, deciduous  
**Size:** 1.0" - 3.0" long; 0.5" - 1.0" wide  
**Margin:** entire  
**Apex:** round to cuspidate  
**Base:** round to obtuse  
**Shape:** elliptical to ovate  
**Color:** dark green above; paler bluish white below  
**Surface:** waxy above; occasionally hairy below  
**Venation:** pinnate

**Twigs:**

**Size:** slender  
**Color:** new growth green and red; older brown  
**Surface:** rough; leaf scars small, half-round to circular; one tiny "dot-like" bundle scar; zigzag branching

**Buds:**

**Size:** small; 0.02" - 0.06" long  
**Shape:** pointed  
**Color:** light yellow to reddish orange  
**Surface:** 4-6 overlapping bud scales

**Fruit and Flowers:**

**Berry:** numerous seeds  
**Size:** 0.25 " dia.  
**Shape:** globular  
**Color:** blue to purplish black  
**Flower:** monoecious; perfect; on specialized flowering branches subtended by leafy bracts; bell-shaped; 5-lobed; single flower, greenish white to purple, yellowish exerted stamens; 0.25" long

**Bark:** reddish brown; rough; shreddy

**Physical Attributes:**

**Form:** multiple stem  
**Size:** 16.4', mature  
**Growth Rate:** moderate; 16.0' maximum @ 20 yrs  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** high  
**Fire:** medium  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** moist soils in mixed upland and flatwoods habitats  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.0 - 7.0  
**Range:** central Florida; west to east Texas; north to Missouri, Indiana, Massachusetts and Vermont, and southern Ontario; in Mississippi, scattered throughout ---no verified reports shown in the Mississippi River Delta counties by the NRCS Plants Database

**Wildlife Value and Uses:** berries eaten by ruffed grouse, bobwhite quail, wild turkey, fox, raccoon, black bear, chipmunks, squirrel, and numerous songbirds; berries and vegetation significant food resource for white-tailed deer, and the source of the common name

**Timber Value and Uses:** none

**Landscaping Info:** makes an attractive specimen shrub; informal mixed hedge; background shrub in a mixed border; can be trained to a single leader, or allowed to grow with multiple trunks

**Other Facts:** more than 400 species of blueberries (genus *Vaccinium*) occurring in the northern hemisphere



Leaf



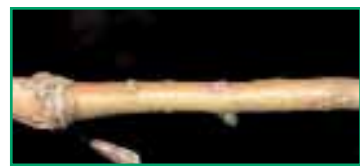
Bark



Flower



Fruit



Twig

## Elliot's Huckleberry

*Vaccinium elliotii* Chapman

*Cyanococcus elliotii* (Chapman) Small

### Leaves:

**Type:** simple, alternate, deciduous;

**Size:** 1.5" long; 1.0" wide

**Margin:** minutely toothed; gland-tipped hairs on the leaf margins.

**Apex:** acute

**Base:** rounded

**Shape:** elliptical

**Color:** bright green above; paler below

**Surface:** shiny above; shiny below

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** woody stems green 2 - 3 years

**Surface:** young twig variations; 1) glabrous, powdery-pubescent, 2) short shaggy-pubescent, sometimes with a few stipulate-glandular hairs intermixed

### Buds:

**Size:** terminal bud absent; lateral buds small

**Shape:** lateral buds globose

**Color:** pinkish green

**Surface:** glabrous

### Fruit and Flowers:

#### Berry:

**Size:** 0.5" dia.

**Shape:** globular - spherical

**Color:** blue - purplish black

**Flower:** monoecious; perfect; bell/tubular-shaped; white to pinkish white; 0.25" long; prior to leafout

**Bark:** thin; narrow shreddy ridges; reddish brown

### Physical Attributes:

**Form:** multiple stem

**Size:** 10.0', mature

**Growth Rate:** moderate; 8.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: intermediate

Drought: low

Fire: high

Anaerobic: none

**Propagation:** seed (cold stratification required);

bare root; container; cuttings

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** wide range of habitats, from wetlands to dry uplands.

**Soil Texture:** medium - coarse

**Soil pH:** 4.5 - 5.6

**Range:** Coastal Plain; southeastern Virginia; south through Florida; west to Arkansas and eastern Texas; in Mississippi, throughout

**Wildlife Value and Uses:** one of the earliest blooming native shrubs; provides nectar for hummingbirds and bees when flowers are still scarce; in the southeast, berries are a preferred summer food of wild turkey, ruffed grouse, quail, black bear, red fox, cottontail, fox squirrel, white-footed mice, skunk and chipmunks; also eaten by songbirds --- scarlet tanager, eastern bluebird, scrub jay, rufous-sided towhee, gray catbird, northern mockingbird, brown thrasher, northern cardinal, the American robin, and several other thrushes

**Timber Value and Uses:** none

**Landscaping Info:** beautiful scarlet to maroon fall color; often evergreen in the coastal plain, retaining the fall colors throughout the winter; southern blueberries require no chemical spraying, no supplemental watering, no winter protection, and no fertilizing

**Other Facts:** highbush blueberries are the source of the commercial rabbiteye blueberries grown in the American southeast; berries eaten by Native Americans, other plant parts utilized for medicinal preparations



**Bark**



**Leaf**



**Flower**



**Fruit**



**Twig**

**Mapleleaf Viburnum**  
**dockmackie, guelder-rose,**  
**maple-leaved arrowwood,**  
**possum-haw, squash-berry**  
*Viburnum acerifolium* L.

**Leaves:**

**Type:** simple, opposite, deciduous  
**Size:** 1.0" - 3.0" wide  
**Margin:** coarsely serrate; deeply 3-lobed  
**Apex:** acuminate  
**Base:** cordate (heart-shaped)  
**Shape:** suborbicular  
**Color:** bright green to dark green above; paler below  
**Surface:** glabrous above; minute black dots, stellate (hairy tufts) to smooth below  
**Venation:** palmate

**Twigs:**

**Size:** slender  
**Color:** velvety gray  
**Surface:** pubescent

**Buds:**

**Size:** 0.75" - 1.25" long  
**Shape:** ovoid  
**Color:** 4 dark purple scales  
**Surface:** pubescent

**Fruit and Flowers:**

**Drupe:** berrylike  
**Size:** 0.33" - 0.5" dia.  
**Shape:** egg-shaped  
**Color:** black  
**Flower:** monoecious; perfect; in upright, flat-topped clusters, 1.0" - 3.0" wide; flowers, white, 0.16" - 0.24" dia.

**Bark:** gray-brown; smooth

**Physical Attributes:**

**Form:** multiple stem  
**Size:** 6.0', mature  
**Growth Rate:** slow; 6.0' maximum @ 20 years  
**Life Span:** long (>100 yrs)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** high  
**Fire:** low  
**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** moist, well-drained soils; upland forests, hillsides, and ravine slopes; tolerant of acid soils  
**Soil Texture:** medium - coarse  
**Soil pH:** 4.8 - 7.5  
**Range:** from Wisconsin, Illinois, Arkansas and Texas, east to the Atlantic and north into Quebec; in Mississippi, reported by the NRCS Plants Database in only two counties (Webster and Kemper), but is probably more widespread

**Wildlife Value and Uses:** fruits eaten by deer, rabbit, mice, skunks, ruffed grouse, ring-necked pheasant, wild turkey, and numerous species of songbirds; foliage, twigs and bark browsed by moose, deer, rabbit, and beaver; nesting and escape cover for small mammals and birds

**Timber Value and Uses:** none

**Landscaping Info:** good summer and fall colors from flowers, foliage, and fruit; good for large heavily shaded locations in dryish soil where it can naturalize and form loose open colonies; generally available locally; best propagation method is transplant

**Other Facts:** all plant parts used medicinally by the Cherokee, Chippewa, Iroquois, and Menominee Native American tribes in the form of infusions, decoctions, tonics, and poultices, for everything from smallpox, to fever, stomach cramps, sore tongue, and colic --- including a poultice from the inner bark used by the Iroquois for pain caused by witchcraft; introduced into cultivation in 1736





Bark



Flower

Leaf



Fruit



Twig

**Possumhaw Viburnum**  
**smooth witherod, wild raisin,**  
**possum-haw**  
*Viburnum nudum L.*

**Leaves:**

**Type:** simple, opposite, deciduous  
**Size:** 6.0" long; 1.5" - 2.0" wide  
**Margin:** entire to slightly wavy and revolute  
**Apex:** acuminate  
**Base:** cuneate  
**Shape:** lanceolate  
**Color:** green above; paler below  
**Surface:** lustrous above; rusty-scurfy, raised veins below  
**Venation:** palmate

**Twigs:**

**Size:** slender  
**Color:** brown  
**Surface:** rusty-scurfy when young; leaf scars encircle twig (U- to V-shaped)

**Buds:**

**Size:** flower buds terminal; laterals 0.5" long  
**Shape:** terminal (long-narrow); laterals, "duckbill" bud  
**Color:** rusty  
**Surface:** terminal 2 scales, pubescent; laterals several scales

**Fruit and Flowers:**

**Drupe:** bitter  
**Size:** 0.25" dia.  
**Shape:** globose to elliptical  
**Color:** pink - red - dark blue (mature)  
**Flower:** monoecious; perfect; in terminal flat-topped clusters, 2.5" - 5.0" wide; flower, white or cream colored, 0.25" dia.

**Bark:** brown to gray; smooth; slightly scaly/blocky on older stems

**Physical Attributes:**

**Form:** single - multiple stem  
**Size:** 15.0' - 20.0', mature  
**Growth Rate:** rapid; 20.0' maximum @ 20 yrs  
**Life Span:** short (<50 yrs)  
**Tolerances:**  
**Shade:** moderate  
**Drought:** intermediate  
**Fire:** low  
**Anaerobic:** high

**Propagation:** seed (cold stratification required); bare root; container; cuttings  
**Other:** resprout/coppice potential

**Habitat and Ecology:**

**Site:** along streams, swamp margins, and low moist slopes in the uplands  
**Soil Texture:** fine - coarse  
**Soil pH:** 5.5 - 6.8  
**Range:** Wisconsin; south to Illinois, Arkansas, and Texas; east to Florida; north to Maine; in Mississippi, scattered throughout

**Wildlife Value and Uses:** Texas Plant Information Database (TPID) overall wildlife rating of 7.95 of a possible 10.0; rated as "Excellent" food source for small and large mammals, non-game and upland game bird species, and waterfowl; "Excellent" cover source for non-game birds; "Good" cover resource for small and large mammals and upland game birds

**Timber Value and Uses:** no commercial timber value; "Excellent" erosion control rating by TPID

**Landscaping Info:** attractive foliage and showy flowers and fruit; transplanting is recommended establishment method; ease and cost of establishment is medium; self-incompatible and needs to grow close to a genetically distinct plant of the same species in order to produce fruit and fertile seed

**Other Facts:** tea made from the bark is antispasmodic, diuretic, tonic and a uterine sedative (Foster. S. & Duke. J. A. A Field Guide to Medicinal Plants. Eastern and Central N. America. Houghton Mifflin Co. 1990 ISBN 0395467225)



Leaf



Fruit



Bark



Flower



Twig

## Rusty Blackhaw Viburnum

*Viburnum rufidulum* Raf.

### Leaves:

**Type:** simple, alternate, deciduous

**Size:** 2.0" - 3.0" long; 1.0" - 1.5" wide

**Margin:** finely-remotely serrate

**Apex:** rounded or abruptly sharp-pointed

**Base:** rounded or wedge-shaped

**Shape:** oval

**Color:** dark green above; paler reddish below

**Surface:** glossy above; scattered pubescence below (scattered red hairs)

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** reddish brown - gray

**Surface:** numerous small reddish colored lenticels; woolly rusty red hairs; V-shaped or crescent-shaped leaf scars; 3 equidistant bundle scars

### Buds:

**Size:** flower buds terminal, 0.5" long; lateral buds 0.5" long;

**Shape:** oblong; valvate scales

**Color:** reddish

**Surface:** terminal buds, 2 scales, woolly hairs; laterals, several scales

### Fruit and Flowers:

**Drupe:** drooping clusters; red stalks

**Size:** 0.25" dia.

**Shape:** globose to elliptical

**Color:** bright blue

**Flower:** monoecious; perfect; in flat-topped, sessile clusters, 4.0" - 6.0" wide; flowers white to cream colored, with 5 spreading lobes

**Bark:** dark brown - nearly black; transversely and longitudinally divided into narrow fissures (resembles flowering dogwood)

### Physical Attributes:

**Form:** single-multiple stem

**Size:** 20.0', mature

**Growth Rate:** rapid; 20.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

**Tolerances:**

**Shade:** moderate

**Drought:** high

**Fire:** low

**Anaerobic:** low

**Propagation:** seed (cold stratification required); bare root; container; cuttings

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** well-drained soils in the understory of upland mixed hardwood forests, and frequently along roads, fence rows and at the edges of fields

**Soil Texture:** fine - coarse

**Soil pH:** 7.0 - 7.5 (optimum 7.0)

**Range:** Virginia; northwest to Ohio; west to Kansas; south to Texas; east to Florida; in Mississippi, scattered throughout

### Wildlife Value and Uses:

Texas Plant Information Database (TPID) wildlife value ratings: "Excellent" food resource for large and small mammals, upland game birds, non-game birds, and waterfowl -- "Good" cover resource for large and small mammals, upland game birds, and non-game birds --- "Fair" cover resource for waterfowl

**Timber Value and Uses:** no commercial value; excellent erosion control species

**Landscaping Info:** foliage turns a rich reddish purple in fall; flower clusters very showy; drupes lustrous purple or dark blue-black with a waxy bloom

**Other Facts:** bark is antispasmodic; historical use in the treatment of cramps and colic (Chevallier. A. The Encyclopedia of Medicinal Plants Dorling Kindersley. London 1996 ISBN 9-780751-303148)



Bark



Leaf



Flower



Fruit



Twig

## Tree of Heaven

### Chinese sumac, stinking shumac

*Ailanthus altissima* (P. Mill.) Swingle

#### Leaves:

**Type:** odd or even pinnately compound; alternate; 10-41 leaflets/leaf

**Size:** leaf 12" - 36" long; leaflets 2.0" - 7.0" long, 1.0" - 2.0" wide

**Margin:** entire

**Apex:** long-tapering - acute

**Base:** lobed

**Shape:** lanceolate

**Color:** dark green above; paler (whitish) below

**Surface:** light green veins above; circular glands under lobes on leaflet bases below

**Venation:** pinnate

#### Twigs:

**Size:** stout

**Color:** chestnut brown - reddish brown

**Surface:** smooth to velvety; light colored lenticels; heart-shaped leaf scars

#### Buds:

**Size:** terminal absent; laterals small, partially hidden by leaf base

**Shape:** ovoid

**Color:** reddish brown

**Surface:** finely pubescent

#### Fruit and Flowers:

**Samara:** large drooping clusters, single seed

**Size:** 1.0" long

**Shape:** single winged; twisted tips on female trees

**Color:** green; turning brown

**Flower:** dioecious; terminal clusters up to 20.0" long; flower, 5 petals, 5 sepals, male and female yellow-green, staminate flowers have disagreeable odor when crushed

**Bark:** light gray; rough; patches of tan fissures

#### Physical Attributes:

**Form:** single stem

**Size:** 50.0', mature

**Growth Rate:** rapid; 50.0' maximum @ 20 yrs

**Life Span:** short (<50 yrs)

#### Tolerances:

**Shade:** intolerant

**Drought:** medium

**Fire:** low

**Anaerobic:** none

**Propagation:** seed (cold stratification required); bare root; container

**Other:** resprout/coppice potential; allelopathic

#### Habitat and Ecology:

**Site:** agricultural areas, natural forests, urban areas; establishes readily on disturbed sites, such as railroad embankments, highway medians, fencerows, and roadsides

**Soil Texture:** fine - coarse

**Soil pH:** 4.9 - 7.5

**Range:** reported by the NRCS Plants Database to be present in all but 6 of the contiguous U.S. states; in Mississippi, reported in 2 counties.

#### Wildlife Value and Uses: (no data)

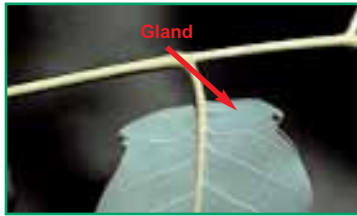
**Timber Value and Uses:** wood often used in China for lumber, fuelwood and other products; occasionally used for low-grade lumber, pulpwood and fuelwood in the U.S.

**Landscaping Info:** use for any purpose is highly discouraged; first introduced to America by a gardener in Philadelphia, PA, in 1784, and by 1840 was commonly available from nurseries; also brought into California mainly by the Chinese who came to California during the goldrush in the mid-1800s

**Other Facts:** toxin produced in the bark and leaves of *A. altissima* is being studied as a possible source for a natural herbicide; used in traditional herbal medicine in China

produces toxins that prevent the establishment of other plant species (allelopathy)

single tree can produce around 325,000 to 350,000 seeds a year; wind and water dispersed; viable seed produced by 2 to 3 year-old plants



Leaf



Fruit



Bark



Flower



Twig

## Mimosa

### silk tree

*Albizia julibrissin* Durazz.

#### Leaves:

**Type:** bipinnately compound, odd pinnately compound, alternate, deciduous; 8-25 branchlets (30-60 leaflets/branchlet)

**Size:** 20.0" long; leaflets 0.38" - 0.5" long

**Margin:** ciliate; entire

**Apex:** rounded to obtuse

**Base:** inequilateral

**Shape:** leaflets falcate (sickle-shaped)

**Color:** green to yellow-green above; paler below

**Surface:** glabrous above; glabrous below

**Venation:** pinnate

#### Twigs:

**Size:** Slender

**Color:** green

**Surface:** slightly zig-zag branching; multiple raised light gray lenticels

#### Buds:

**Size:** minute; psuedoterminal buds

**Shape:** rounded

**Color:** brown

**Surface:** few-scaled

#### Fruit and Flowers:

**Legume:** glabrous

**Size:** 4.0" - 8.0" long; 1.5 " wide

**Shape:** oblong-pointed; flattened

**Color:** green; turning gray-brown

**Flower:** monoecious; flower pink with red tips; threadlike, 5.0" - 7.0" long, conspicuous

**Bark:** smooth; gray to brownish gray; faint vertical striations

#### Physical Attributes:

**Form:** single or multiple stem

**Size:** 25.0', mature

**Growth Rate:** rapid; 20.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: intolerant

Drought: medium

Fire: medium

Anaerobic: low

**Propagation:** seed (no cold stratification required); bare root; container

**Other:** resprout/coppice potential

#### Habitat and Ecology:

**Site:** urban areas and roadsides

**Soil Texture:** fine - coarse

**Soil pH:** 4.8 - 7.3

**Range:** exotic; naturalized throughout much of the South; in Mississippi throughout

**Wildlife Value and Uses:** attracts bees, birds, and butterflies

**Timber Value and Uses:** none

**Landscaping Info:** frequent choice of homeowners; fine texture, fragrant and showy flowers, and fast growth rate make it a popular plant; good summer color; attracts hummingbirds; reseeds; Charlotte and Tryon cultivars are disease resistant; negatives --- subject to vascular wilt disease and webworm

**Other Facts:** introduced to the U.S. from Asia in 1745; dried leaves used as a tea substitute; cooked flowers eaten as a vegetable; gummy extract from the plant used as a plaster for abscesses, boils, etc., and also as a retentive in fractures and sprains (Plants for a Future (PFAF) website)

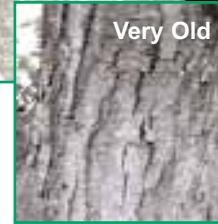
#### WARNING:

Silk tree is listed by the Florida Exotic Pest Plant Council as a Category I species, defined as an invasive exotic plant that is disrupting native plant communities. In many parts of Florida and the southeast, silk tree has invaded road shoulders, abandoned fields and (in rare cases) natural habitats.





Leaf



Bark



Flower



Fruit



Twig

## Japanese Privet

*Ligustrum japonicum* Thumb.

### Leaves:

**Type:** simple, opposite, evergreen

**Size:** 2.0" - 3.0" long;

**Margin:** entire

**Apex:** rounded to acute

**Base:** acute

**Shape:** elliptical

**Color:** dark green above; paler below

**Surface:** shiny, waxy above; 6-8 sunken veins below

**Venation:** pinnate

### Twigs:

**Size:** slender

**Color:** light brown

**Surface:** white corky lenticels; shape somewhat square

### Buds:

**Size:** terminal <0.04"; laterals minute

**Shape:** elongate

**Color:** light brown

**Surface:** pubescent; terminal and laterals several scales

—

### Fruit and Flowers:

#### **Drupe:**

**Size:** 0.25" dia.

**Shape:** globose - oblong

**Color:** dark blue (mature)

**Flower:** monoecious; perfect; in terminal panicles, 2.0" - 4.0" long; white; conspicuous; upright,

**Bark:** grayish brown; smooth; light horizontal, raised lenticels

### Physical Attributes:

**Form:** multiple stem

**Size:** 10.0', mature

**Growth Rate:** rapid; 10.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

#### **Tolerances:**

Shade: tolerant

Drought: medium

Fire: medium

Anaerobic: none

**Propagation:** seed (cold stratification required);

bare root; container; cuttings

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** grows in a wide variety of habitats;

soil disturbances of all sorts such as forest clearing, abandoned agricultural lands, and fence construction, as with *Ligustrum sinense* except *L. japonicum* is not as adept at handling wet sites

**Soil Texture:** fine - coarse

**Soil pH:** 5.5 - 6.9

**Range:** Virginia, North Carolina, South Carolina, and Gulf Coast states; west to Texas; in Mississippi, reported by the NRCS Plants Database in only 5 counties - Washington, Hinds, Madison, Marion, and Forrest, but known to be found in many others

**Wildlife Value and Uses:** provides a source of food for birds when other berries or food sources are meager, unfortunately also allows dispersion of the plant helping it to naturalize over a wide area

**Timber Value and Uses:** none

**Landscaping Info:** many cultivars available and plants grafted onto *L. quihoui* for protection against nematodes are preferred when available

**Other Facts:** from the website Plants for a Future including a disclaimer as to validity of the following --- leaves and roasted seeds can be used as a coffee substitute; extracts of the plant show antibacterial, antiulcer and hypotensive activity; a commercial insect wax is produced on the branches --- used for candles and as a polish for earthenware pots, book edges etc.; controversy over whether wax is produced by the plant or the insects and in response to what mechanism

### WARNING:

This shrub can be invasive and readily reseeds. If you do have plants, remove flowers and fruit to limit spread.

**Poisonous Part:** Berries.

**Symptoms:** Abdominal pain, nausea, vomiting, diarrhea, headache, weakness, cold and clammy skin.

**Toxic Principle:** Glycosides: ligustrin, syringin, and others.

**Severity:** HIGHLY TOXIC. MAY BE FATAL IF EATEN



Bark



Leaf



Flower



Ligustrum spp.



Fruit

Twig

## Chinese Privet

*Ligustrum sinense* Lour.

### Leaves:

**Type:** simple, opposite, evergreen to semi-deciduous  
**Size:** 2.0" long; 1.0" wide  
**Margin:** entire  
**Apex:** acute  
**Base:** acute  
**Shape:** elliptical  
**Color:** light green above; paler below  
**Surface:** glabrous above; pubescent on midrib below --- occasionally on branch veins  
**Venation:** pinnate

### Twigs:

**Size:** slender  
**Color:** orange-brown  
**Surface:** densely pubescent (hairs @ right angle to twig surface); raised tan lenticels

### Buds:

**Size:** small  
**Shape:** ovoid  
**Color:** (no data)  
**Surface:** sessile; sometimes superposed; 2-3 pairs of exposed scales

### Fruit and Flowers:

**Drupe:** fleshy  
**Size:** 0.2" - 0.3"  
**Shape:** ellipsoidal to nearly globose  
**Color:** green (new); blue-black (mature)  
**Flower:** monoecious; perfect, terminal and upper axillary clusters on short branch in panicles, 2.0" - 4.0" long; petals (4), white, 0.06 - 0.1" long

**Bark:** light mottled gray; thin, somewhat rough; raised, horizontal lenticels

### Physical Attributes:

**Form:** multiple stems  
**Size:** 10.0' - 15.0' (occasionally up to 35.0')  
**Growth Rate:** rapid; 15.0' maximum @ 20 yrs  
**Life Span:** (no data)  
**Tolerances:**  
**Shade:** tolerant  
**Drought:** tolerant  
**Fire:** intolerant (resprout from root collar)  
**Anaerobic:** tolerant

**Propagation:** seed; (no cold stratification required); bare root; container  
**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** grows in a wide variety of habitats; soil disturbances of all sorts such as forest clearing, abandoned agricultural lands, and fence construction  
**Soil Texture:** fine - coarse  
**Soil pH:** 5.6 - 7.8  
**Range:** Florida; north to southern New England; west to the eastern parts of Kansas, Oklahoma, and Texas

**Wildlife Value and Uses:** fruits eaten by a variety of birds, including cedar waxwings and northern bobwhite; may be particularly important to northern bobwhite in winter after other food sources are depleted; Chinese and European privets browsed by deer ---likely other privets also; in southeastern Texas fruits and foliage consumed by the cotton rat in the fall and the fruit in winter

**Timber Value and Uses:** none

**Landscaping Info:** native to China and introduced into the United States in 1852 for use as an ornamental shrub; still available and promoted by nurseries, but considered an invasive weed species; poses the threat of large-scale ecosystem modification due to its ability to successfully compete with and displace native vegetation; provides cover for northern bobwhite in northern Georgia; terminal twigs and foliage maintain a crude protein content of >10.5% year-round, but may be toxic to livestock

**Other Facts:** For over 1,000 years Chinese Privet has been used in traditional Chinese medicine. It has antibacterial, antiseptic, anti-tumor, cardio-tonic, diuretic and tonic properties. In traditional Chinese medicine the leaves are used to treat cold, congestion, fever, pain, abscesses, headache, swelling, vertigo, and broken bones. (electronic media data --- source and information not verified)

**Poisonous Part:** Berries.

**Symptoms:** Abdominal pain, nausea, vomiting, diarrhea, headache, weakness, cold and clammy skin.

**Toxic Principle:** Glycosides: ligustrin, syringin, and others.

**Severity:** HIGHLY TOXIC. MAY BE FATAL IF EATEN



Bark



Flower



Leaf



Fruit



Twig

## Chinaberry

*Melia azedarach* L.

### Leaves:

**Type:** bipinnately compound, leaflets (5-9); alternate, deciduous,  
**Size:** leaf 10.0" - 22.0" long; leaflet 1.0" - 2.0" long  
**Margin:** coarsely serrate to entire and lobed  
**Apex:** acuminate  
**Base:** cuneate  
**Shape:** ovate  
**Color:** bright green above; paler below  
**Surface:** hairy then glabrous above; glabrous below  
**Venation:** pinnate

### Twigs:

**Size:** very stout  
**Color:** olive brown to brown  
**Surface:** numerous pale lenticels; 3-lobed large leaf scar

### Buds:

**Size:** small  
**Shape:** globular  
**Color:** orangish cream color  
**Surface:** fuzzy

### Fruit and Flowers:

**Drupe:** stalked; thin flesh; single seeded  
**Size:** 0.75" dia.  
**Shape:** sub-globose  
**Color:** green (immature); yellow (mature)  
**Flower:** monoecious; perfect; in axillary panicles; petals (5), purple; conspicuous, 0.79" dia.

**Bark:** brown - reddish brown; slightly criss-crossing furrows

### Physical Attributes:

**Form:** single stem  
**Size:** 50.0', mature  
**Growth Rate:** rapid; 50.0' maximum @ 20 yrs  
**Life Span:** moderate (>50 yrs)  
**Tolerances:**  
**Shade:** intolerant  
**Drought:** high  
**Fire:** none  
**Anaerobic:** none

**Propagation:** seed (no cold stratification required); cuttings; bare root; container  
**Other:** no resprout/coppice potential

### Habitat and Ecology:

**Site:** appears most often on disturbed soils; can invade floodplain and marsh communities  
**Soil Texture:** fine - coarse  
**Soil pH:** 4.0 - 8.0  
**Range:** originally from the Himalayas; currently present in the southern U.S. from Virginia to California; in Mississippi throughout

**Wildlife Value and Uses:** (no data)

**Timber Value and Uses:** cultivated commercially for use in the manufacture of fiberboard (Little 1979); also used in cabinet work, for auto bodies, to build crates, musical instruments, matches, tool handles and fuel wood (Santos 1987); rated "medium low" ecological impact by Nature Serve

**Landscaping Info:** widely introduced as an ornamental shade tree because of its large compound leaves, its distinctive clusters of lilac-colored flowers and its round yellow fruits; it is now considered primarily as an invasive pest species

**Other Facts:** revered for its beauty in its native range and used for its insecticidal, anti-viral and possible anti-cancer properties; shiny, hard seeds used as beads and for rosaries; extracts have pharmacological properties ---used in China to kill parasitic roundworms

### WARNING:

listed by the Florida Exotic Pest Plant Council as a Category I species (invading and disrupting natural communities); reported to be invasive and disruptive in 11 other states, including Hawaii and Texas; seeds dispersed by birds --- a single tree can cause thicket formation

### CAUTION!

All parts of Chinaberry tree are poisonous. Eating as few as 6 berries can result in death. Birds (including mockingbirds, robins, and catbirds) that eat too many seeds have been known to become paralyzed.



Leaf



Bark



Flower



Fruit



Twig

## Royal Paulownia

princess tree, empress-tree

*Paulownia tomentosa* (Thunb.) Sieb. & Zucc.  
ex Steud.

### Leaves:

**Type:** simple, opposite, deciduous

**Size:** 5.0" - 10.0" long

**Margin:** cordate to three-lobed

**Apex:** acuminate

**Base:** heart-shaped

**Shape:** heart-shaped

**Color:** yellow-green above; lighter below

**Surface:** glabrous

**Venation:** pinnate

### Twigs:

**Size:** stout

**Color:** light brown

**Surface:** numerous lenticels, leaf scar nearly circular, circular arrangement of bundle scars; hollow pith second year

### Buds:

**Size:** terminal bud lacking; laterals small

**Shape:** elliptical, sharp-pointed

**Color:** tan to rust

**Surface:** pubescent

### Fruit and Flowers:

**Capsule:** 2- to 3-valved; woody; 1000s of small seeds; sticky (immature); dry, persistent when mature; seeds tiny, flat, winged

**Size:** 1.25" - 1.75" long; 1.0" - 2.0" dia.;

**Shape:** ovoid, pointed

**Color:** green; then brown,

**Flower:** monoecious; perfect; in terminal panicles, 8.0" - 10.0" long; flower violet or blue, tubular, conspicuous

**Bark:** grayish brown; shallow fissures; thin

### Physical Attributes:

**Form:** single stem

**Size:** 70.0', mature

**Growth Rate:** rapid; 60.0' maximum @ 20 yrs

**Life Span:** moderate (>50 yrs)

**Tolerances:**

Shade: intolerant

Drought: medium

Fire: (no data)

Anaerobic: none

**Propagation:** seed (no cold stratification required); bare root; container; cuttings

**Other:** resprout/coppice potential

### Habitat and Ecology:

**Site:** moist, deep, well-drained soils of steep slopes or open valleys, but will germinate and grow on almost any moist, bare soil

**Soil Texture:** medium - coarse

**Soil pH:** 4.5 - 7.5

**Range:** New York, New Jersey; west to Illinois; south through Missouri and Oklahoma to Texas; east to the Atlantic; in Mississippi, scattered throughout

**Wildlife Value and Uses:** (no data)

**Timber Value and Uses:** potential for pulpwood; wood highly prized for manufacture of specialty items in Asia, brisk export business of logs to Japan; export market has led to establishment of commercial plantations in this country

**Landscaping Info:** introduced into this country as an ornamental, and it still retains some popularity for that purpose

**Other Facts:** Extraordinary growth rate is a major factor in the commercial interest in this species such as, an expectation of sawlogs in 15 yrs, and reports from Russia of height growth to 43.0' in 11 years.





Leaf



Bark



Flower



Fruit



Twig

## GLOSSARY

- Acorn.** A single nut, circular in cross section with a scaly cup attached at the base.
- Acuminate.** The leaf tip is narrowed abruptly into a tapering point.
- Acute.** Either the leaf tip or the leaf blade ends in an angle less than 90° and the tip is not prolonged into a point.
- Allelopathy.** Organic chemicals released by one plant that have a detrimental effect on the germination, growth, or metabolism of a different plant.
- Annual.** Acorns that mature in one growing season.
- Apetalous.** Having no petals.
- Apex.** Tip, terminal end, or the narrowed and pointed end.
- Apical.** Relating to the tip or apex.
- Appressed.** Lying close and flat against.
- Arcuate.** Curved, as in an arc.
- Ascocarps.** Sexual fruiting bodies of ascomycete fungi.
- Attenuate.** Leaf blade tapering to a long slender point.
- Awn.** A small pointed process or slender bristle.
- Axillary.** Situated in or growing from the angle formed by the junction of a vein and the midrib of a leaf.
- Biennial.** Acorns that mature in two growing seasons.
- Bipinnate.** Doubly or twice pinnate
- Bristle-tipped.** The leaf tip and lobes are prolonged into a long slender bristle.
- Calyx.** The outer perianth of a flower, usually green.
- Catkin.** An inverted, scaly bracted inflorescence with sessile flower.
- Ciliate.** Margin fringed with short hairs.
- Crenate.** A rounded type of marginal tooth.
- Cordate.** Heart-shaped with the base rounded and notched where the blade is attached to the petiole.
- Corolla.** The inner perianth of a flower, usually colored.
- Cuneate.** The leaf base is shaped like a wedge with straight sides tapering down to a point on the petiole.
- Cup.** Basal covering of an acorn.
- Cyme.** Flower cluster.
- Cymose.** Cyme like.
- Deciduous.** Not persistent, applied to leaves that live less than a year.
- Decurrent.** Leaf blade extends down the petiole.
- Deltoid.** Shaped like an equilateral triangle.
- Dentate.** The leaf margin has wide-angled teeth pointing outward.
- Distal.** Far from the point of attachment.
- Elliptical.** Leaf shaped like an ellipse with both the tip and base sloped uniformly.
- Emarginate.** Notched
- Entire.** Leaf margin is a smooth, even line with no indentations.
- Fascicled.** In clusters or bundle.
- Glabrous.** Smooth, not pubescent or hairy.
- Glandular.** Bearing glands.
- Glaucous.** Surface is covered with a whitish bloom that rubs off.
- Inflorescence.** The flowering portion of a plant.
- Lanceolate.** Leaf shape is several times longer than wide and broadest below the middle, shaped like a spear point.
- Lateral.** Relating to the side.
- Leaflet.** On a compound leaf, one of the "leaf-like" structures.

**Lenticel.** Lens-shaped corky growths on young bark.

**Linear.** Long and narrow with parallel margins.

**Lobe.** The division of a leaf blade.

**Lunate.** Crescent shaped.

**Margin.** The edge of a leaf.

**Midrib.** The central vein or associated area of the leaf.

**Mucronate.** Lobe tip ends abruptly in a short, small point.

**Nut.** A hard fruit, (e.g., acorn or hickory nut).

**Mucilaginous.** Slimy.

**Oblanceolate.** Leaf shape is somewhat lanceolate but is widest above the middle and tapering toward the petiole.

**Oblong.** Longer than broad with rounded ends and sides nearly parallel.

**Obovate.** Leaf shape is broadly egg-shaped and widest above the middle.

**Obtuse.** The leaf tip tapers abruptly to a blunt or rounded point forming an angle greater than 90°.

**Odd Pinnate.** Compound with an odd number of leaflets.

**Orbicular.** Circular.

**Ovate.** Egg-shaped in outline; broad end at the base with the tip acute or rounded.

**Palmate.** Radiately lobed or divided.

**Panicle.** A compound inflorescence with stalked flowers; bushy branched.

**Peduncle.** Stalk supporting one or more acorns.

**Pedicel.** The support of a single flower in a cluster.

**Petiole.** Slender stem-like structure that supports the leaf blade.

**Pinnate.** Compound with leaflets on each side of a common axis.

**Pistils.** The seed-bearing organ of the flower.

**Pistillate.** Provided with Pistils, or a flower lacking stamens.

**Pith.** Center of a stem.

**Pubescent.** Covered with fine soft short hairs.

**Raceme.** An elongated inflorescence with short-stalked flowers.

**Reticulate.** Marked with a network pattern.

**Revolute.** Edge of leaf is slightly rolled or turned under.

**Rhizomatous.** Thickened subterranean stem producing shoots above and roots below.

**Rounded.** The leaf tip or leaf base makes a full arc in outline, U-shaped base.

**Rugose.** Wrinkled.

**Samara.** An indehiscent, winged fruit.

**Serrate.** Sharp teeth, pointed forward like a saw.

**Sessile.** Without a stalk or petiole.

**Sinuate.** The margin bends in a strong wavy line without producing a sinus.

**Sinus.** The space between two lobes of a leaf.

**Spatulate.** Leaf shape is broad and rounded above the middle but with the sides wedge-shaped and tapering toward the petiole.

**Stamen.** Pollen bearing organ of the flower.

**Staminate.** Flower, bearing stamen but without pistils

**Stellate.** Resembling a star in shape or cross section.

**Stipule.** Appendage at base of petiole of the leaf.

**Tomentose.** Slightly pubescent with matted (woolly) hair.

**Tomentum.** Densely pubescent.

**Tooth.** An edge or lobe of a leaf blade divided into tooth-like projections, usually ending in a slender bristle.

**Truncate.** Leaf base almost forms a straight line at right angles to the midrib.

**Vein.** A rib-like thickened tissue in the leaf blade. Woolly. Covered with long matted hairs.

**Xerophytic.** Structurally adapted for survival with a limited supply of water.

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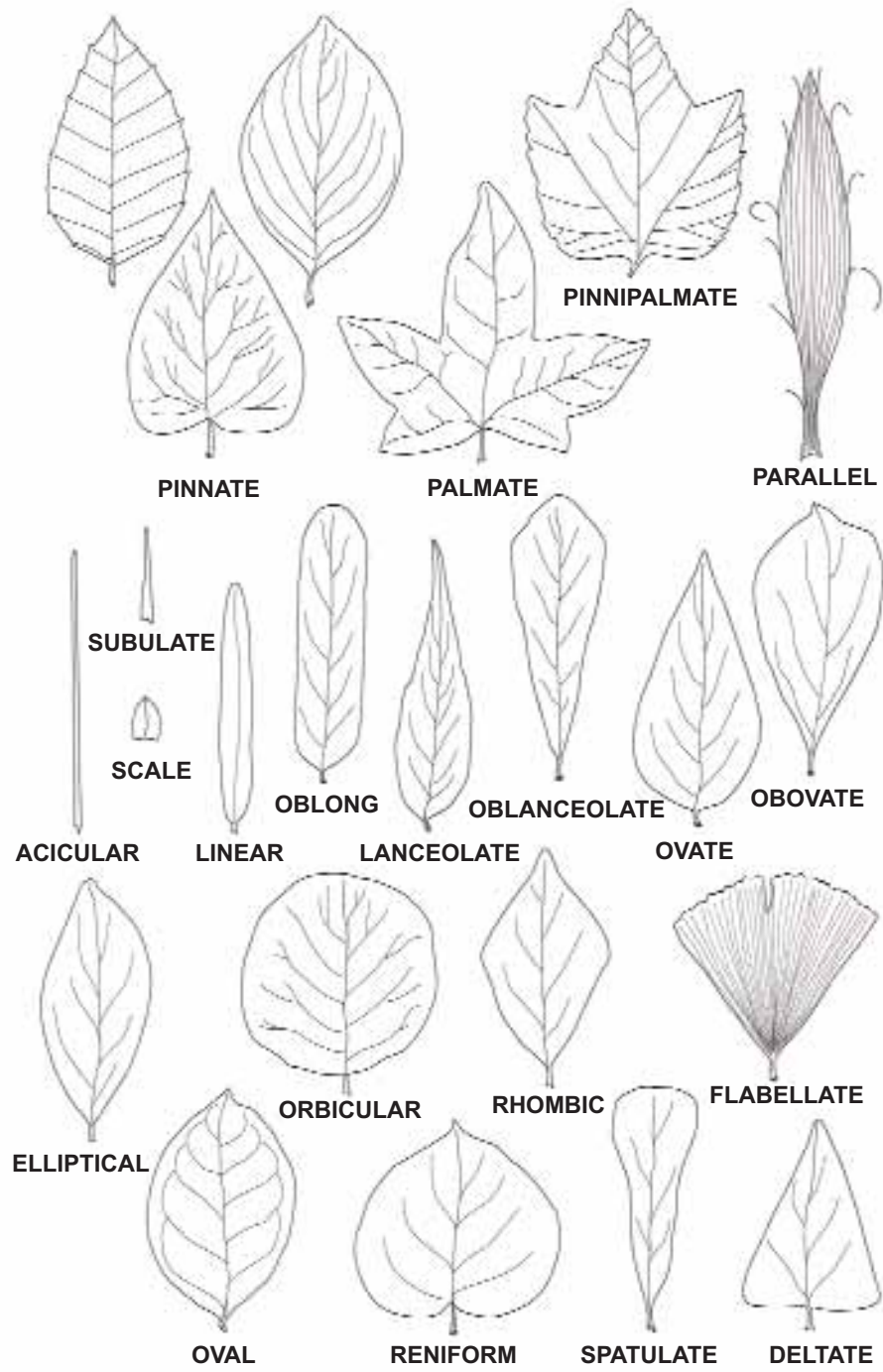
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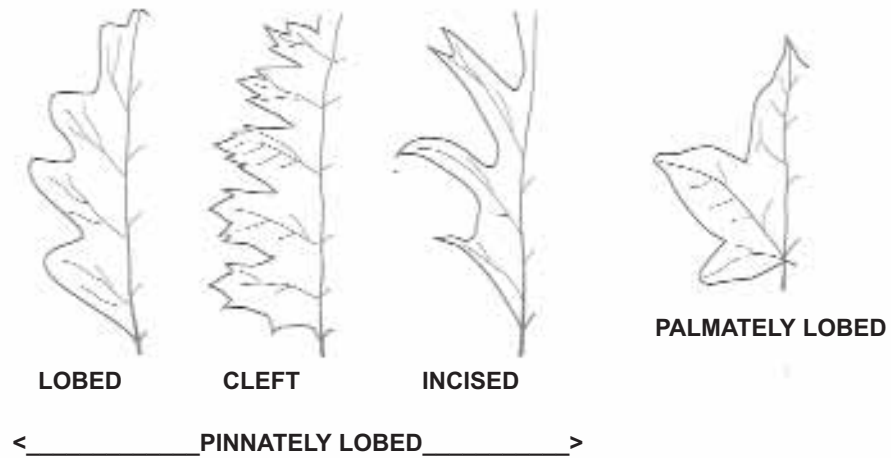
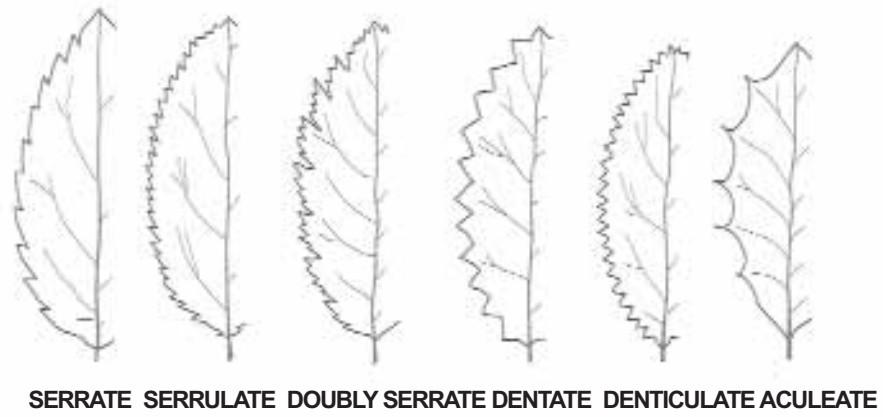
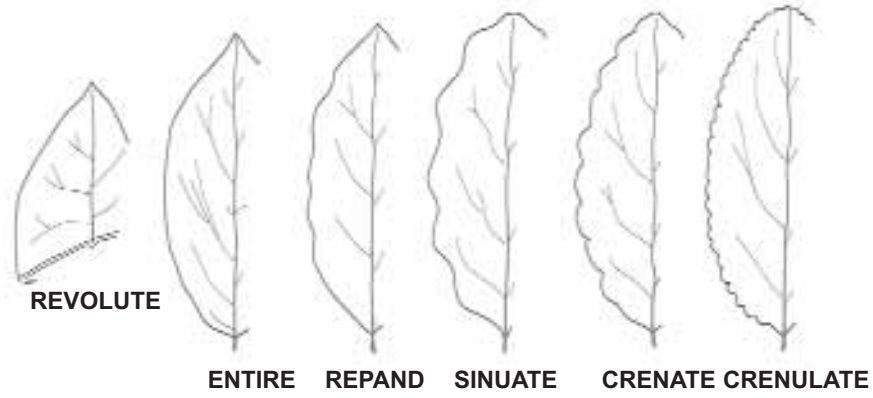
## Selected References

1. Harrar, Ellwood S., and J. Gorge Harrar. Guide to Southern Trees, 2nd edition. Dover Publications Inc., New York. 1962.
2. Brown, Claud L., and L. Katherine Kirkman. Trees of Georgia and Adjacent States. Timber Press, Portland, Oregon. 1990.
3. Sargent, Charles Sprague. Manual of the Trees of North America (Exclusive of Mexico), Volumes I and II. Dover Publications, Inc., New York. 1965.
4. Stein, John, Denise Binion, and Robert Acciavatti. Field Guide to Native Oak Species of Eastern North America. U.S. Dept. Agr., Forest Service, FHTET-2003-01. 2003.
5. Trelease, William. Winter Botany An identification guide to native trees and shrubs. 1967.
6. Oefinger, Simoen W., and Lowell K. Halls. Identifying Woody Plants Valuable to Wildlife in Southern Forests. U.S. Dept. Agr., Forest Service, Research Paper SO-92.
7. Halls, Lowell K., in cooperation with the Forest Game Committee of the Southeastern Section of the Wildlife Society. Southern Fruit-producing Woody Plants Used by Wildlife. U.S. Dept. of Agr., Forest Service General Technical Report SO-16. 1977.
8. Brockman, C. Frank. Trees of North America, A Field Guide to the Major Native and Introduced Species North of Mexico. Golden Press, New York. 1968.
9. Halls, Lowell K., and Thomas H. Ripley (Editors), in cooperation with the Forest Game Research Committee of the Southeastern Section of the Wildlife Society. Deer Browse Plants of Southern Forests. U.S. Dept. of Agr., Forest Service, South and Southeast/ Forest Ex[tr] Stas., 78 pp., illus. 1961.
10. Rushforth, Keith. International Paper Pocket Guide to Trees. Mitchell Beazley International Ltd. 1992.
11. U.S. Dept. of Agriculture, Natural Resources Conservation Service. Plants Database, Electronic media, website address <http://plants.usda.gov>. 2007.
12. North Carolina Division of Forest Resources, Raleigh, NC, electronic media
13. U. S. Dept. of Agriculture, U.S. Forest Service, Silvics Manual, Volume 2, electronic media, website at <http://www.na.fs.fed.us/spfo/pubs/silvics>
14. Texas Plant Information Database (TPID), electronic media, website at <http://tpid.tpwd.state.tx.us/index.asp>
15. University of Wisconsin, electronic media, website at [www.uwgb.edu/biodiversity/herbarium/trees](http://www.uwgb.edu/biodiversity/herbarium/trees)
16. Plants and People Project, electronic media, website at <http://homepage.mac.com/cohora/plants/index.html>
17. University of Michigan - Dearborn, electronic media, website at <http://herb.umd.umich.edu/>
18. U.S. Dept. of Agriculture Forest Service - FEIS Fire Effects Information system, electronic media, website at [www.fs.fed.us/database/feis](http://www.fs.fed.us/database/feis)

## LEAF VENATION AND SHAPE



## LEAF MARGINS AND LOBING



## LEAF APICES AND BASES



ACUMINATE



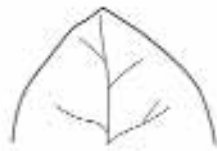
ACUTE



MUCRONATE



CUSPIDATE



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ROUNDED



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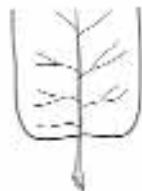
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