

## Identification of Alabama oaks and hickories

The oaks (*Quercus*) and hickories (*Carya*) are two of our most important genera of trees in the eastern forests. Their recognition and natural history is both challenging and fascinating for many people who are not aware of the diversity among the species. This program will illustrate those species native to Alabama, with a focus on identification features present in summer and winter.

Hickories (*Carya*): 11 species

aquatica (Pecan Hickory - PH)

caroliniae-septentrionalis

cordiformis

glabra

illinoensis

laciniosa

myristiciformis

ovalis

ovata

pallida

tomentosa

Oaks (*Quercus*): 39 species;

18 white oaks

*C* alba

*C* austrina (rare)

*C* boyntonii (rare)

*C* chapmanii (? rare)

*C* geminata (uncommon)

*C* lyrata

*C* macrocarpa (rare)

*C* margarettiae - similar to post but rose like white <sup>some times - leaf</sup>

*C* michauxii

*C* minima (uncommon)

*C* montana -

*C* muhlenbergii

*C* oglethorpensis (rare)

*C* prinoides (? rare)

*C* similis (rare)

*C* sinuata

*C* stellata

*C* virginiana

21 red oaks

acutissima (exotic)

*C* arkansana (rare)

coccinea

*C* eliottii (rare)

falcata

*C* georgiana (rare)

hemisphaerica

*C* imbricaria (rare)

incana (uncommon)

laevis

laurifolia

marilandica

myrtifolia (uncommon)

nigra

pagoda

palustris (rare)

phellos

rubra

shumardii

texana (uncommon)

velutina

\* Cross pollination  
is possible between groups  
- usually involves *C. illinoensis*

## HICKORIES OF ALABAMA; SPECIES CHARACTERS FOR IDENTIFICATION

### GROUP 1, PECAN GROUP (SECTION APOCARYA) Bud scales valvate or lacking; nut shell thin, easily cracked

#### 1a. Buds dark gray or brown; leaves usually with 11 or more leaflets; bark scaly

Pecan (*C. illinoensis*) widespread and commonly planted; nut elongate, round in cross section, smooth surfaced, meat sweet; bark slightly scaly  
Water hickory (*C. aquatica*) uncommon, in wet soils; nut orbicular, flattened, with corrugated surface, meat bitter; bark very scaly/shaggy

#### 1b. Buds yellow or yellow-brown; leaves usually with 7-9 leaflets; bark smooth to furrowed, not scaly

Bitternut hickory (*C. cordiformis*) common in mesic soils; nut slightly heart-shaped, lumpy or smooth surfaced; meat bitter

\* yellow bud (fall)

### GROUP 2, TRUE HICKORIES GROUP (SECTION CARYA) Bud scales imbricate; nut shell thick, not easily cracked

#### 2a. Buds, twigs and leaf undersides covered with silvery dots (peltate scales); nut oblong, dark brown or mottled, round in cross section

Nutmeg hickory (*C. myristiciformis*) rare, in calcareous clay soils; leaflets usually 7-11; young bark smooth, becoming scaly; nut resembles nutmeg fruit

#### 2b. Buds, twigs and leaf undersides not silvery-dotted but may have yellowish dots; nut oval/orbicular, pale, ridged or slightly flattened in cross section

##### 3a. Fruit husks > ¼ " thick; terminal bud often ½ " long

##### 4a. Leaflets usually 7-9; nuts usually > 1 " long, shell very hard and thick (requires a hammer or vise to crack)

Mockernut hickory (*C. tomentosa*) common throughout; lvs and twigs rough-hairy; buds shed loose outer scales; nuts to 1 ¼ "; bark furrowed  
Shellbark hickory (*C. laciniosa*) rare, in damp lowlands; lvs and twigs soft-hairy; buds retain loose outer scales; nuts to 2 "; bark scaly

- not tufts of hair on leaflet margin \* Not seen common in AL

##### 4b. Leaflets usually 5; nuts usually ¾ to 1 " long, shell hard but can be cracked by hand nutcracker; bark scaly/shaggy

Shagbark hickory (*C. ovata*) uncommon; lvs bear tufts of hairs along margin; twigs stout, hairy; terminal buds ovate, hairy, outer loose scales brown  
Southern shagbark hickory (*C. carolinae-septentrionalis*) widespread, common in limy soils; lvs nearly hairless; twigs slender, mostly hairless; terminal buds elongate, outer loose scales blackened.

##### 3b. Fruit husks ¼ " or less thick; terminal bud < ½ " long

##### 5a. Leaf petiole and rachis hairy; leaflets usually 7-9; buds distinctly yellow-dotted

Sand hickory (*C. pallida*) common in dry uplands; lvs often whitened beneath; fruit husks yellow-dotted; bark furrowed

"pale hickory" - hairy axillary - leaflet tufts at joint - slender twigs (leaves small)

##### 5b. Leaf petiole and rachis hairless; leaflets usually 5 or 7; buds barely or not yellow-dotted

Pignut hickory (*C. glabra*) common in uplands; leaflets usually 5; twigs slender, buds about ¼ " long; nut retained in thin husk; bark roughly furrowed  
Hammock hickory (*C. glabra* var. *megacarpa*) uncommon, in mesic sandy coastal plain soils; lfts 5-7; twigs fairly stout, buds > ¼ "; husk retains nut; bark smooth to shallowly furrowed

Red hickory (*C. ovalis*) uncommon, in uplands; lfts 5-7; twigs fairly stout, buds > ¼ ", husk slightly winged, splits to base of nut; bark furrowed or scaly

- yellow dotted

OAKS OF ALABAMA; SPECIES CHARACTERS FOR IDENTIFICATION  
GROUP 1, SPECIES HAVING ALL THEIR LEAVES LOBED

**White Oaks, no awns (bristles) on tips of lobes; bark whitish-gray and scaly, at least on large branches; acorns mature in one summer season**

Post Oak Complex - Stellate - star shaped

**Stellate hairs present on leaves; twigs hairy; acorns ½ to ¾ " long, cup bowl-shaped**

Delta post oak (*Q. similis*) rare, in wet, calcareous clays; lvs narrowed near base, often 3-lobed above middle; can be a tall tree

Post oak (*Q. stellata*) common in dry uplands; lvs often 4-7" long, with squarish lobes at middle; can be a tall tree

Sand post oak (*Q. margarettiae*) uncommon, in sandy scrub; lvs rarely over 4" long; small tree - rough underneath leaves

Boynton oak (*Q. boyntonii*) rare, sandstone outcrops; lvs yellowish beneath, often 3-lobed; small tree or shrub

**No rough stellate hairs; twigs usually hairless; acorns ¾ to 1 ¼ " long**

Bluff oak (*Q. austrina*) rare, in mesic, loamy sands; lvs green and smooth below, shallowly lobed; acorn to ¾ ", cup bowl-shaped, scales flat

White oak (*Q. alba*) common throughout; lvs pale below, lobes finger-like; acorn ¾ to 1", cup bowl-shaped, scales knobby

Overcup oak (*Q. lyrata*) common in swamps and wet lowlands; juvenile lvs green below, mature ones whitened; acorn to 1 ¼", cup covers nut

Bur oak (*Q. macrocarpa*) rare, in clay soils; lvs pale below, widest beyond middle; acorn > 1", cup deep and fringed on margin; twigs may be corky

**Red Oaks, awns on tips of lobes; bark dark gray or black, tight or furrowed, not scaly; acorns mature after two summers**

**Leaves pale and velvety beneath; twigs overall hairy**

Southern red oak (*Q. falcata*) common in uplands; lvs often 3-lobed or with long terminal lobe

Cherrybark oak (*Q. pagoda*) common in lowlands; lvs with simple, symmetrical lobes

**Leaves green beneath, smooth or hairy only on veins or in vein axils; twigs smooth or scarcely hairy**

**Winter buds often > ¼ " long**

Black oak (*Q. velutina*) common in uplands; leaf lobing varies; buds gray, angled, hairy; acorn cup margin with loose scales; yellow inner bark

Turkey oak (*Q. laevis*) uncommon, in sandy scrub; lvs deeply lobed; buds brown, conical; acorn cup margin scales inrolled; pinkish inner bark

**Winter buds usually < ¼ " long**

**Acorns < 5/8 " long**

Georgia oak (*Q. georgiana*) rare, rock outcrops; leaf lobes with few teeth; acorn cup bowl-shaped

Pin oak (*Q. palustris*) rare, acidic, wet lowlands (but often planted); largest leaf lobes with several teeth; acorn cup shallow

**Acorns ¾ to 1 " long**

Nuttall oak (*Q. texana*) rare, wet lowlands; lvs broadest above middle; acorn cup often thin on its margin

Scarlet oak (*Q. coccinea*) common in uplands; lvs lustrous beneath; bud tips white-hairy; twigs red-brown; acorn sometimes ringed on tip

Shumard oak (*Q. shumardii*) widespread; lf lobing varies; buds grayish, scales tight; twigs greenish-gray; acorn often with silvery coating

Northern red oak (*Q. rubra*) in mesic soils; lf lobes rather symmetrical, lvs hairless; buds red-brown; acorn cup saucer-shaped

**OAKS OF ALABAMA; SPECIES CHARACTERS FOR IDENTIFICATION**  
**GROUP 2, SPECIES WITH LEAVES UNLOBED OR SEMI-LOBED**

**1a. Leaves distinctly broadest at the tip**

- Blackjack oak (*Q. marilandica*) common in dry uplands; petiole stout, short; buds > ¼ " long, gray, hairy, angled; bark dark, blocky  
Water oak (*Q. nigra*) common throughout; petiole slender, to ½ " long; lvs variable, tufts of gray hair in vein axils; buds gray-hairy, < ¼ " long  
Arkansas oak (*Q. arkansana*) rare, in sandy uplands; petiole slender, > ½ " long; buds red-brown, < ¼ " long

**1b. Leaves broadest near middle or only slightly broader near the tip**

**2a. Leaves hairy over lower surface or whitened by a close, short layer of hairs**

**3a. Leaves evergreen; acorn cup scales knobby, stem (peduncle) elongate**

- Live oak (*Q. virginiana*) common in lower coastal plain; large tree  
Sand live oak (*Q. geminata*) rare, in coastal sandy scrub; lvs with distinct veins, margins strongly revolute (curled under); small tree or shrub  
Dwarf live oak (*Q. minima*) rare, in coastal pine flatwoods; some lvs with a few large teeth, margins revolute; rhizomatous shrub

**3b. Leaves deciduous; acorn cup scales flat, imbricate, stem short**

**4a. Leaves pale beneath; widespread in sandy scrub or coastal pinelands**

- Runner oak (*Q. elliotii*) uncommon, in pine flatwoods; lvs pale beneath, margins revolute; rhizomatous shrub  
Bluejack oak (*Q. incana*) uncommon, in sandy scrub; lvs blue-green, grayish beneath; twigs hairy; small tree

**4b. Leaves greenish beneath; uncommon or rare trees of clay soils**

- Oglethorpe oak (*Q. oglethorpensis*) rare, clay soils; lvs green beneath; bark ashy gray, scaly (a white oak); small tree  
Shingle oak (*Q. imbricaria*) uncommon, moist soils; lvs gray-green beneath; bark furrowed (a red oak); large tree

**2b. Leaves not perceptively hairy, but hair tufts may be in vein axils; underside green or gray-green, smooth**

**5a. Bark ashy gray, scaly, at least on large branches (white oaks)**

- Durand oak (*Q. sinuata*) uncommon, in clay soils; lvs of juvenile trees green below; twigs hairless; acorn cup saucer-shaped; a large tree  
Chapman oak (*Q. chapmanii*) rare, in coastal sand scrub; twigs hairy; lvs green beneath; acorn cup bowl-shaped; small tree or shrub

**5b. Bark dark gray, smooth or furrowed (red oaks)**

- Myrtle oak (*Q. myrtifolia*) rare, in coastal sandy scrub; lvs evergreen, margins revolute; small tree or shrub  
Laurel oak (*Q. laurifolia*) common in wet lowlands; lvs semi-evergreen, apex blunt, top surface dull green; large tree  
Darlington oak (*Q. hemisphaerica*) common in sandy uplands; lvs semi-evergreen, glossy above and below, apex acute, veins distinct; large tree  
Willow oak (*Q. phellos*) widespread; leaves deciduous, mostly ½ " wide or less; twigs very slender; large tree

**GROUP 3, SPECIES WITH LEAVES UNLOBED BUT TOOTHED**

- Chestnut oak (*Q. montana*) common in rocky uplands; bark dark gray or brown, deeply ridged; acorn cup wok-shaped, scales knobby; large tree  
Swamp chestnut oak (*Q. michauxii*) common in wet lowlands; lvs hairy; bark ashy gray, scaly; acorn cup bowl-shaped, scales flat; large tree  
Chinkapin oak (*Q. muhlenbergii*) common in limy soils; lvs often > 4" long, teeth often 10 or more per side; bark ashy gray, scaly; large tree  
Dwarf chinkapin oak (*Q. prinoides*) rare, in acidic upland rocky soils; lvs usually < 4" long, 9 or fewer teeth per side; bark scaly; shrub or small tree  
Sawtooth oak (*Q. acutissima*) naturalized exotic; lf teeth tipped with awns; bark furrowed; acorn cup fringed by long scales; a tall tree