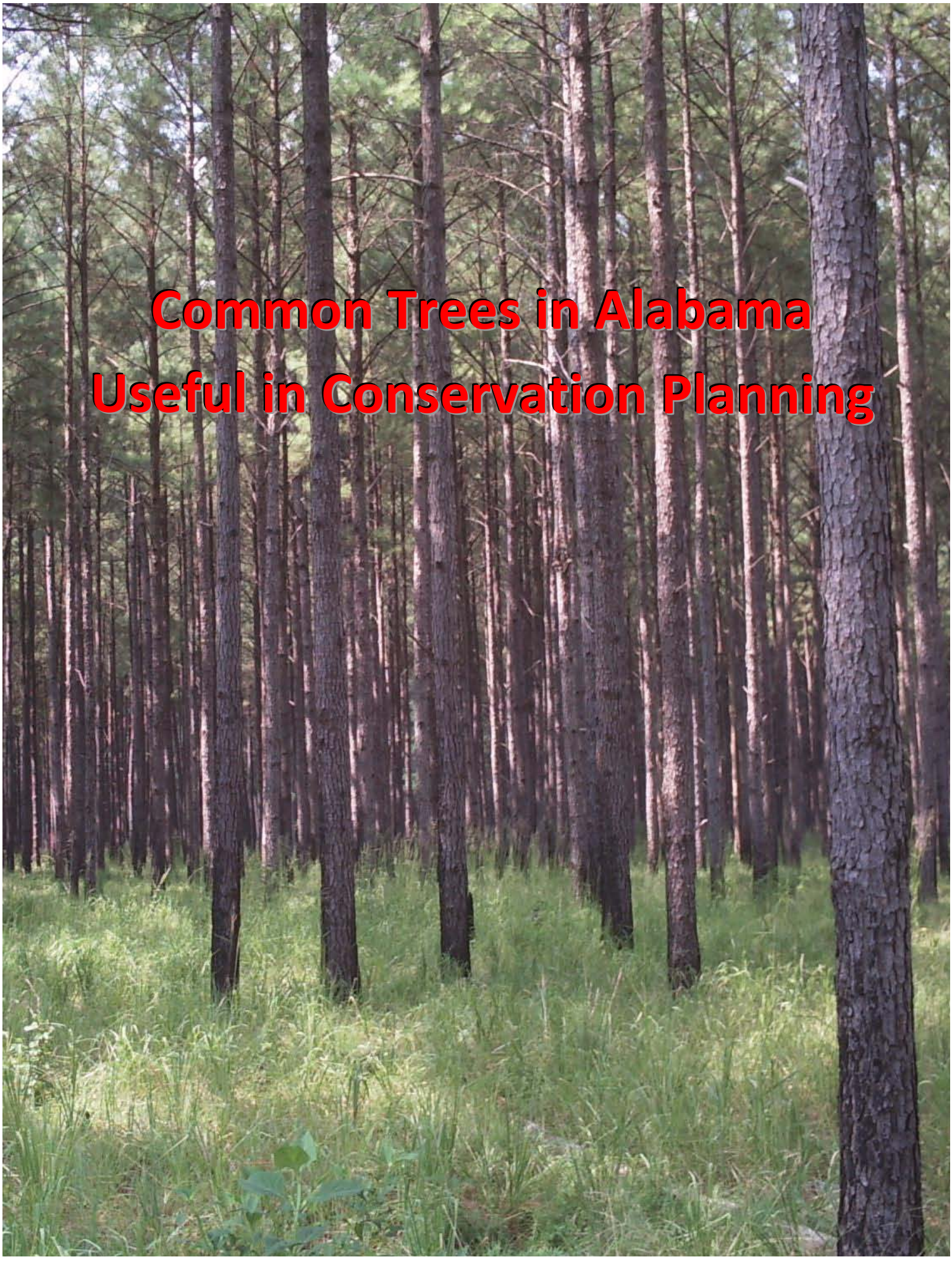
Common Trees in Alabama
Useful in Conservation Planning

Common Trees In Alabama
Useful In Conservation Planning

Compiled

by

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This manual has been put together to help NRCS conservation planners in many Southern States identify tree species common to the sites and soils of the South.

“A tree will be recognized by its fruit” is a truth and the method used to classify tree species taxonomically. However, the fruit is not always present on a tree. Therefore, we must look for other identifying characteristics that distinguish tree species.

Leaves can be a reliable substitute for fruit as a characteristic to use for identifying a tree. Leaves can be grouped according to their shape and structure. By selecting the proper leaf group, you can find your tree species more rapidly.

Answer the following questions while inspecting a tree leaf.

1. Are the leaves needle or scale-like?
    a. If yes, go to section labeled Conifers.
    b. If no, go to question 2.
2. Are the leaves simple?
    a. If yes, go to question 3.
    b. If no, go to question 4.
3. Are the leaves opposite one another on the twig?
    a. If yes, go to section labeled simple and opposite.
    b. If no, go to section labeled simple and alternate.
4. Are the leaves compound or bi-compound?
    a. If yes, go to question 5.
    b. If no, go to question 2.
5. Are the leaves opposite one another on the twig?
    a. If yes, go to the section labeled compound and opposite.
    b. If no, go to the section labeled compound and alternate.

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Compound and Alternate Leaves

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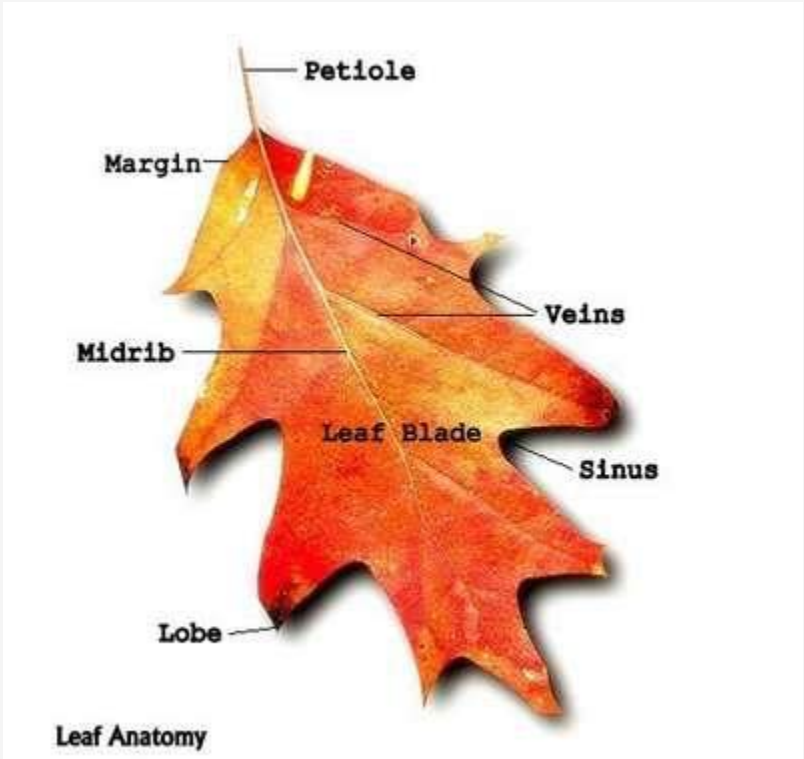


Leaf Anatomy


Simple Leaf


Compound Leaf


Unlobed Leaf


Lobed Leaf

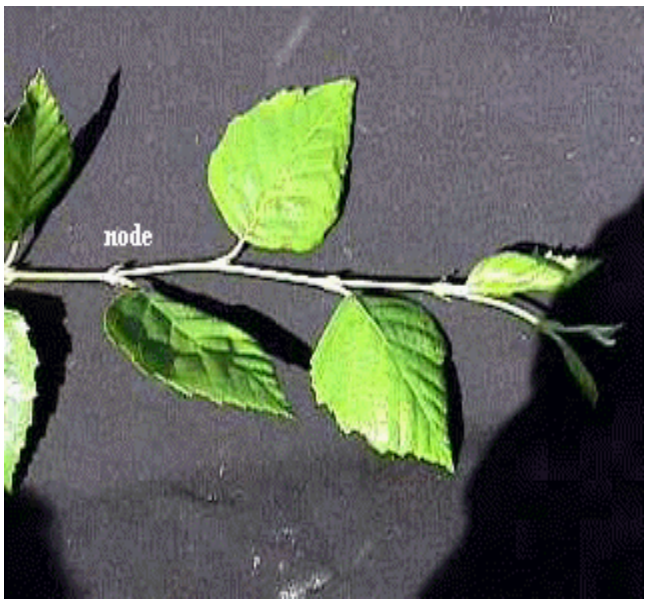

Bipinnate Leaf


Pinnate Leaf

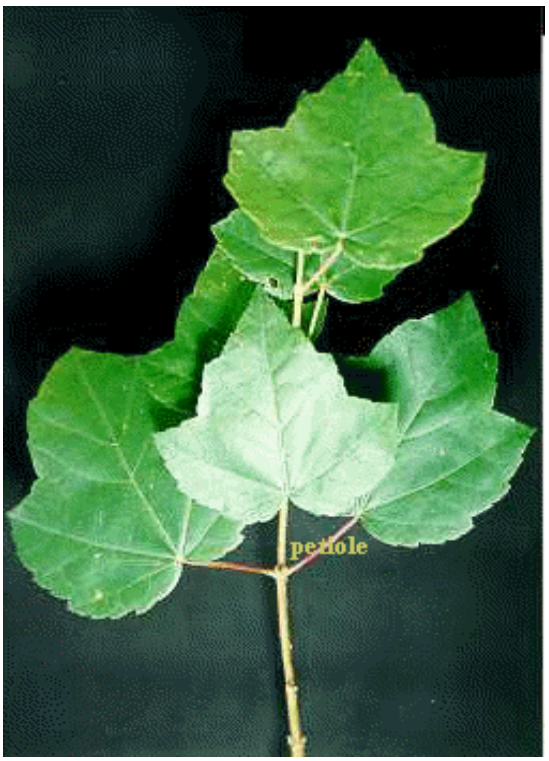
Needles

Scale-like Leaves

Alternate: one petiole/node



Opposite: 2 petioles/node



CONIFERS

loblolly pine ***Pinus taeda*** **Pinaceae**

Needles are fascicled, in groups of 3 sometimes 4, about 7 inches long, evergreen, and flexible. **Twigs** are red-brown and scaly with red-brown buds. **Bark** is brown, dark and rough on young trees and red-brown and plated on larger trees. **Cones** are about 5 inches long, brown-gray and armed with a sharp prickle. Loblolly pine is found on a variety of sites in the southern U.S. and is shade intolerant. The commercially important wood is used for pulpwood, plywood and construction lumber.

CONIFERS

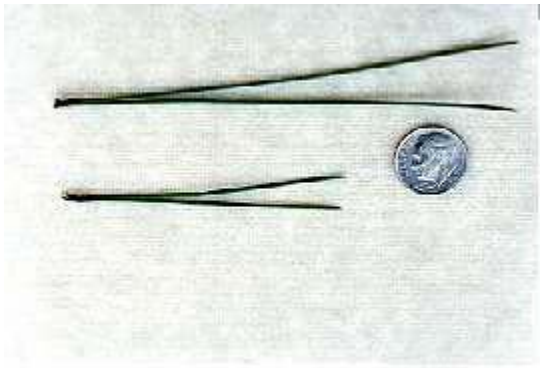
longleaf pine *Pinus palustris* Pinaceae

Needles are fascicled, in groups of 3, very long (about 17 inches long), drooping, evergreen, and flexible. Foliage is arranged in tufts on ends of stout branches. **Twigs** are red-brown and scaly with prominent silvery white buds. **Bark** is red-brown and plated. **Cones** are about 11 inches long, brown-gray and armed with prickles. The seedlings can spend many years in a grass stage. Longleaf pine is the state tree of Alabama. This species is found on well-drained sandy soils and on swamp edges in the southeastern Coastal Plain and is intolerant of shade. The commercially important wood is used for pulpwood, plywood, poles and construction lumber. This tree was an important source of turpentine and resin. The foliage is used as pine straw. It is also an important nesting tree for the red-cockaded woodpecker.

CONIFERS

shortleaf pine *Pinus echinata* Pinaceae

Needles are fascicled, in groups of 2 and sometimes 3, 2-5 inches long, evergreen and flexible. **Twigs** are brown and scaly with red-brown buds. **Bark** is red-brown and plated, with small resin holes in the plates. **Cones** are approximately 2 inches long, gray and armed with prickles. Shortleaf pine is found on a variety of sites in the southeastern U.S. and is intermediate in shade tolerance. The commercially important wood is used for pulpwood, plywood and construction lumber.



CONIFERS

baldcypress *Taxodium distichum* var. *distichum* Cupressaceae or Taxodiaceae

Needles are alternate, 1/2 inch long, feathery and deciduous. Small branches bearing foliage are deciduous. **Bark** is red-brown and shreddy. **Trunk** may swell at base and be surrounded by "knees". **Cone** is green when young, about 1 inch in diameter, becoming brown and woody with peltate scales when mature. Baldcypress is found in swamps in the southeastern US. Intermediate shade tolerance. Pondcypress (***Taxodium distichum* var. *imbricarium***) is separated from baldcypress by leaves that are appressed to the branch rather than feathery. The soft and decay resistant wood of both species is used for greenhouses, boxes and boats. The seed is eaten by waterfowl.

CONIFERS

eastern redcedar *Juniperus virginiana* Cupressaceae

Needles are scale-like, overlapping, green and evergreen. Juvenile foliage is sharp and pointed. **Bark** is red-brown and shreddy. **Cones** are about 1/4 inch in diameter, waxy-blue, fleshy and berry like. Eastern redcedar is found in open areas throughout the east and central US. Shade intolerant. The durable, fragrant wood is used for fence posts, railroad ties, cedar chests and pencils. The seed cones are eaten by many birds and animals.

BROADLEAF SIMPLE LEAVES OPPOSITE

red maple ***Acer rubrum*** **Aceraceae**

Leaves are simple, opposite, and deciduous with 3-5 lobes. Leaf margins are toothed, petioles are often red, and leaves turn bright orange-red in fall. **Twigs** are a shiny red with V-shaped leaf scars and blunt reddish-brown buds. **Bark** is smooth and ranges in color from brown gray to white, but becoming gray-brown, scaly and plated with age. **Flowers** are bright red in spring and appear before the leaves. **Fruit** is a scarlet double samara. Red maple occurs on a very wide range of sites in the east and central U.S. Intermediate shade tolerance. Wood used for pallets and furniture. Seeds eaten by birds and small animals.

BROADLEAF SIMPLE LEAVES OPPOSITE

flowering dogwood *Cornus florida* Cornaceae

Leaves are simple, opposite, deciduous, oval to elliptical in shape, and with lateral veins running parallel to the leaf margin (arcuate venation). Small white hairs can be seen when you split the leaf. **Twigs** are green to purple-green in color with V-shaped leaf scars. Leaf **buds** with two non-overlapping bud scales (valvate). Flower buds are shaped like onions. **Bark** is brown-black and blocky. **Flowers** are surrounded by four white sepals. **Fruit** is a shiny red drupe. Flowering dogwood is found as an understory tree on moist, well-drained soils in the southeastern U.S. The wood is hard and used for tool handles and mallet heads. The fruit is important to wildlife and is eaten by many species of birds and mammals. A popular ornamental but suffers from disease on poor sites.

BROADLEAF SIMPLE LEAVES ALTERNATE

American beech ***Fagus grandifolia*** **Fagaceae**

Leaves are simple, alternate, deciduous, elliptical in shape, and coarsely serrate with parallel lateral veins running to the margin teeth. Dead leaves persist on twigs over the winter. **Twigs** are slender, gray, and zigzag with long, pointed, yellow-brown, "cigar" buds. **Bark** is blue-gray, thin and smooth. **Fruit** is a brown triangular nut enclosed in a spiny bur. American beech is found on fertile, mesic sites in the eastern U.S. and is very tolerant of shade. The hard wood is used for furniture and turnery. Nuts are eaten by turkey, waterfowl and many small to large mammals.

BROADLEAF SIMPLE LEAVES ALTERNATE

black cherry ***Prunus serotina*** **Rosaceae**

Leaves are simple, alternate, deciduous, elliptical and finely toothed with brown hair on the midrib and a pair of glands on the petiole near the leaf base. **Twigs** are red-brown with a waxy bloom. **Bark** is black-red and smooth with horizontal lenticels when young, becoming flaky and scaly with age. **Flowers** are white. **Fruit** is a purple-black drupe. Black cherry is found on a variety of sites in the east and central U.S. and is intolerant of shade. The lustrous red-brown wood is commercially valuable and used for furniture, cabinets and veneer. The fruit is a valuable wildlife food.

BROADLEAF SIMPLE LEAVES ALTERNATE

black tupelo/blackgum ***Nyssa sylvatica*** **Cornaceae**

Leaves are simple, alternate, deciduous, elliptical to obovate with an occasional large tooth or two on the margin. Seedlings or saplings may show many teeth on the margin (see photo below). Leaf scars have 3 bundle scars. **Buds** are purple-brown often with yellow hair, and with overlapping scales. Branches are often at 90 degree angles to the trunk. **Bark** is gray to dark brown and furrowed, becoming scaly or blocky on larger stems. **Fruit** is a blue-black drupe and the stone is only lightly ridged. Blackgum is found on a variety of sites in the eastern U.S. and is shade tolerant. The wood is moderately heavy and used for pulp, veneer and gunstocks. The fruit is important to wildlife and is eaten by many species of birds and mammals. Flowers are also popular with bees. This tree is used in landscaping for its attractive form and red fall color.

BROADLEAF SIMPLE LEAVES ALTERNATE

black willow ***Salix nigra*** **Salicaceae**

Leaves are simple, alternate, deciduous, lanceolate, about 6 inches long with finely toothed margins and red glands on margin teeth. **Twigs** are yellow-brown to red-brown, thin and smooth. **Bark** is dark brown and ridged with prominent loose plates. **Fruit** is a capsule borne on female trees. Black willow is found next to streams and in wet areas in the east and central U.S. and is intolerant of shade. The soft wood is used for pulpwood, boxes, baskets and wicker furniture. In the past, the bark and leaves were used to make aspirin.

BROADLEAF SIMPLE LEAVES ALTERNATE

cottonwood/eastern cottonwood ***Populus deltoides*** **Salicaceae**

Leaves are simple, alternate, deciduous, triangle-shaped, and coarsely toothed with a long and flat petiole that flutters in the wind. **Twigs** are stout with a large, pointed, sticky, green terminal bud. **Bark** is gray-brown and smooth on young trees, and deeply grooved and ridged on older trees. **Fruit** is borne on female trees and the cottony seeds released from brown capsules resemble cotton. Cottonwood is primarily found on floodplains in the south and central U.S. and is intolerant of shade. The soft wood is used for pulpwood, crates and fuel. The bark is eaten by beaver and the small seeds are eaten by birds.

BROADLEAF SIMPLE LEAVES ALTERNATE

winged elm ***Ulmus alata*** **Ulmaceae**

Leaves are simple, alternate, deciduous, doubly serrate, elliptical, up to 3 inches long, leathery and with a rounded, slightly uneven leaf base. Leaves of seedlings may be rough. **Twigs** can be corky-winged and buds are ovoid and black-red striped. **Bark** is brown-gray and grooved to somewhat scaly. **Fruit** is a notched, elliptical, hairy samara. The elms display a vase-shaped form. Winged elm is found on a variety of sites in the southeast U.S. and is tolerant of shade. The heavy, shock resistant wood is used for boxes, posts, and hockey sticks.

BROADLEAF SIMPLE LEAVES ALTERNATE

American elm *Ulmus americana* Ulmaceae

Leaves are simple, alternate, deciduous, doubly serrate, ovate, smooth to rough, up to 7 inches long and often with a greatly unequal leaf base. **Twigs** are red-brown and mostly hairless with black-red striped ovoid buds. **Bark** is gray with interlacing ridges and brown-white inner bark. **Fruit** is a deeply notched, round and hairy samara. The elms display a vase-shaped form. Before American elm's distribution was reduced by Dutch Elm disease, American elm was widely distributed throughout the east and central U.S.

BROADLEAF SIMPLE LEAVES ALTERNATE

sugarberry ***Celtis laevigata*** **Ulmaceae**

Leaves are simple, alternate, deciduous, and ovate with toothed margins, long pointed apices and 3 main veins arising from the petiole. **Twigs** are thin and zigzag. **Bark** is gray and smooth with corky warts. **Fruit** is a sweet, orange-red drupe. Sugarberry is usually found on moist sites in the southeast U.S. and is tolerant of shade. The wood is used for furniture and boxes, and the fruit is a favorite of birds.

BROADLEAF SIMPLE LEAVES ALTERNATE

hophornbeam *Ostrya virginiana* Betulaceae

Leaves are simple, alternate, deciduous, thin, and elliptical to ovate with a round to heart-shaped base, hair below and doubly serrate margins. Lateral veins break up toward the leaf margin. **Twigs** are red-brown, slender, and zigzag. **Buds** are pointed, and green-brown striped. **Bark** is red-brown and scaly. **Fruit** is a nutlet enclosed in a hop-like paper sac. Hophornbeam is found in the understory in moist, well-drained forests in the east and central U.S. and is tolerant of shade. The wood is hard and pale and used in specialty items. The seed is eaten by turkey and other birds as well as small animals.

BROADLEAF SIMPLE LEAVES ALTERNATE

Hornbeam, muscle wood, blue beech *Carpinus caroliniana* Betulaceae

Leaves are simple, alternate, deciduous, thin, doubly serrate, elliptical to ovate and hairy underneath. **Twigs** are slender, zigzag, and red-brown. **Buds** are pointed and brown-maroon striped. **Bark** is gray, smooth, and fluted with a sinewy appearance. **Fruit** is a nutlet on a 3-lobed leafy bract. Hornbeam is an understory tree found on moist, well-drained sites in the eastern U.S. and is tolerant of shade. The wood is hard and pale and used for tool handles and bowls. The seed is eaten by turkey, songbirds and rodents.

BROADLEAF SIMPLE LEAVES ALTERNATE

river birch *Betula nigra* Betulaceae

Leaves are simple, alternate, deciduous, doubly serrate and two-ranked. Leaves are triangular in shape with a wedge-shaped base and a hairy underside. **Twigs** are zigzag, hairy and with lenticels and triangular leaf scars. **Bark** is orange-pink-brown and scaly or may peel**.** **Fruit** is a nutlet enclosed in a papery cone. River birch is found along rivers and streams in the east and central U.S. and is intolerant of shade. The wood is red-brown and used for pulp and light furniture. This tree is a popular ornamental and cultivars are available for landscaping.

BROADLEAF SIMPLE LEAVES ALTERNATE

American holly *Ilex opaca* Aquifoliaceae

Leaves are simple, alternate, leathery, stiff, and evergreen with sharp spines on the leaf margin. **Twigs** are gray-white and smooth. **Bark** is light gray and smooth. **Fruit** is an orange-red drupe found on female trees. American holly is found in mesic forests in the southeastern U.S. and is very shade tolerant. The white, hard wood is used for specialty items such as piano keys. The fruit is eaten by birds and animals. A popular ornamental.

BROADLEAF SIMPLE LEAVES ALTERNATE

southern magnolia ***Magnolia grandiflora*** **Magnoliaceae**

Leaves are simple, alternate, evergreen, elliptical, approximately 11 inches long, shiny and leathery with maroon hairs on the underside. **Twigs** and buds are covered with maroon hairs and stipular scars surround the twig. Terminal buds are up to 1 1/2 inches long. **Bark** is gray-brown and smooth when young, becoming grooved and scaly with age. **Flowers** are large, white and wonderfully fragrant. **Fruit** is a cone-like cluster of red follicles. Southern magnolia is found on moist to wet sites in the southeastern Coastal Plain and is shade tolerant. The pale, heavy wood is used for pulpwood, furniture and pallets. A popular ornamental for the evergreen leaves and fragrant flowers, but the fruit can be messy and the roots may block septic lines.

BROADLEAF SIMPLE LEAVES ALTERNATE

red mulberry *Morus rubra* Moraceae

Leaves are simple, alternate, deciduous and heart-shaped with a long pointed apex, roughly toothed margin and a rough, prominently veined surface. Leaves often have 1-3 lobes and are hairy on the underside. Petiole exudes milky sap when cut. **Twigs** are brown with large, shiny ovoid terminal buds with 6-7 overlapping scales. **Bark** is brown to red-brown, becoming ridged and scaly with age. **Fruit** is an edible red-purple drupe that resembles blackberry. Red mulberry is found on a variety of sites in the east and central U.S.

BROADLEAF SIMPLE LEAVES ALTERNATE

osage-orange, bois D'Arc, hedge apple *Maclura pomifera* Moraceae

Leaves are simple, alternate, deciduous and ovate with a smooth margin. Leaves have a long pointed apex and a long petiole which exudes milky sap when cut. **Twigs** are gray, zigzag, armed with spines, and with raised leaf scars and sunken lateral buds. **Bark** is orange-brown and ridged. **Fruit** is a large ball of drupes that resembles broccoli or "green brains." Osage-orange is found on a variety of sites throughout the east and central U.S. and is shade intolerant. The orange wood was used for bows by Native Americans and in dyes. The unusual fruit is sometimes eaten by squirrels and thickets provide excellent wildlife cover.

BROADLEAF SIMPLE LEAVES ALTERNATE

common persimmon ***Diospyros virginiana*** **Ebenaceae**

Leaves are simple, alternate, deciduous, oval to elliptical in shape, 2-6 inches long, and without teeth on the leaf margin. **Twigs** are dark with orange lenticels and black lateral **buds** with two overlapping scales. Lateral buds look like snakeheads to some observers. Old bud scales remain attached at branch junctions. Leaf scars have only one bundle scar. **Bark** is black and blocky like an "alligator hide". **Fruit** is a pulpy edible berry. Trees are dioecious so some trees will never bear fruit. Common persimmon is found in a variety of habitats in the southeast and central US. Usually tolerant of shade. The wood is hard and used for turnery. The fruit is eaten by many birds and animals. Unripe fruit is very astringent!

BROADLEAF SIMPLE LEAVES ALTERNATE

eastern redbud ***Cercis canadensis*** **Caesalpiniaceae**

Leaves are simple, alternate, deciduous, and heart-shaped with smooth margins. **Twigs** are maroon to black and zigzag. **Buds** are small and black above raised leaf scars. **Bark** is brown-black to red-brown and scaly. **Flowers** appear before leaves and are a brilliant purple-pink. **Fruit** is a red-brown legume 3-4 inches long. Redbud is an understory tree found on a variety of sites in the east and central U.S. The seed is eaten by birds and animals including deer. Cultivars with different flower and leaf colors are available for landscaping.

BROADLEAF SIMPLE LEAVES ALTERNATE

sassafras ***Sassafras albidum*** **Lauraceae**

Leaves are simple, alternate, deciduous, very aromatic, ovate to oval, and sometimes with 1-3 lobes or "mitten-like." Young **twigs** are mottled red, black, and green, pubescent and aromatic. The terminal **bud** is yellow-green and prominent with up to four overlapping scales. **Bark** is dark green when young and brown-gray to red-brown, thick and ridged on larger trees. **Flowers** are yellow in early spring and the **fruit** is a dark blue drupe on a red stalk. Sassafras is found on a variety of sites in the eastern U.S. and is intolerant of shade. The wood is used for fence posts and home-made fishing rods. Oil of sassafras extracted from the roots is used in perfumes, tea and herbal remedies. Many birds and mammals eat the fruit and bear and deer browse the foliage.

BROADLEAF SIMPLE LEAVES ALTERNATE

sweetgum ***Liquidambar styraciflua*** **Hamamelidaceae**

Leaves are simple, alternate, deciduous, star-shaped and toothed. Young twigs are brown to green and twigs often have corky projections. **Buds** are large, shiny, and green-red-brown with many overlapping scales. **Fruit** is a spiny ball containing many capsules. **Bark** is gray to dark brown and ridged but the ridges become flattened on large trees. Sweetgum is intolerant of shade and is found on a variety of sites in the south. This species reproduces aggressively through seed production and root sprouting. The wood is used for pulp, boxes ands pallets. The seeds are eaten by birds, ducks and squirrels.

BROADLEAF SIMPLE LEAVES ALTERNATE

sycamore ***Platanus occidentalis*** **Platanaceae**

Leaves are simple, alternate, deciduous, palmately veined, large, and with 3-5 roughly toothed lobes. **Twigs** are zigzag with 'dunce-cap' buds and leaf scars encircling the buds. **Bark** is brown and peels to expose striking white inner bark. **Fruit** is a round ball of achenes. Sycamore is found in moist areas in the east and central U.S. and is intermediate in shade tolerance. The yellow-brown, coarse wood is used for pulpwood, veneer, butcher blocks and pallets. This species is a den tree for wildlife.

BROADLEAF SIMPLE LEAVES ALTERNATE

WHITE OAK GROUP

white oak ***Quercus alba*** **Fagaceae** (white oak)

Leaves are simple, alternate and deciduous with 7-10 round lobes. Lobes lack bristle tips and sinuses range from deep to shallow. **Buds** are red-brown, round, and hairless. **Bark** is gray to white with loose and scaly plates. On very large trees the bark is grooved and more fissured. **Fruit** is an acorn about 3/4 inches long with a "knobby cap" covering 1/3 of the nut. The acorn matures in one season. White oak is found on a variety of sites in the eastern U.S. and on more fertile, well-drained soils in Alabama. White oak is of intermediate shade tolerance. The valuable wood is used for furniture, flooring and trim. Acorns eaten by game birds, deer, bear and many small mammals.

BROADLEAF SIMPLE LEAVES ALTERNATE

WHITE OAK GROUP

post oak ***Quercus stellata*** **Fagaceae** (white oak)

Leaves are simple, alternate and deciduous with 3-5 smooth, variable lobes and cross-shaped lobes on some leaves. The underside of the leaf is very hairy with star-shaped clusters of hairs (need a hand lens to see). **Twigs** are brown-gray and pubescent. Terminal **buds** are ovoid, red-brown, and pubescent. **Bark** is gray-brown, shallowly grooved and scaly. **Fruit** is an acorn up to 1 inch long with a slightly striped and pubescent nut, and shaggy bowl-shaped cap. The acorn matures in one season. Post oak is found on upland sites in the south and south central U.S. and is intolerant of shade. The wood is used as white oak lumber and for posts. Acorns eaten by game birds, deer, bear and many small mammals.

BROADLEAF SIMPLE LEAVES ALTERNATE

WHITE OAK GROUP

overcup oak ***Quercus lyrata*** **Fagaceae** (white oak)

Leaves are simple, alternate and deciduous with 5-9 smooth and irregular lobes. **Twigs** are smooth (but corky on older twigs) with round, pubescent buds. **Bark** is brown-gray and scaly. **Fruit** is an acorn about 1 inch long with the thin cap almost completely enclosing the dark brown nut. Acorns float in water and mature in one season. Overcup oak is found next to streams and rivers and in flood prone areas in the southern U.S. The wood is used as white oak lumber. Acorns eaten by water fowl and many small mammals.

BROADLEAF SIMPLE LEAVES ALTERNATE

WHITE OAK GROUP

swamp chestnut oak/cow oak ***Quercus michauxii*** **Fagaceae** (white oak)

Leaves are simple, alternate, deciduous, obovate (wider towards the tip) with regular, rounded and shallow lobes. Lobes may be smooth or with mucronate tips. **Bark** is gray-brown and scaly. Terminal buds are ovoid, red-maroon, and smooth. **Fruit** is an acorn 1 1/2 inches long with the cap covering half the nut. The acorn matures in one season. Swamp chestnut oak is found on wet sites in the east and central U.S. and is intolerant of shade. Swamp chestnut oak can be distinguished from chestnut oak and chinkapin oak by more obovate leaves, a larger acorn, and habitat. The wood is used as white oak lumber and was once used in making baskets. Acorns eaten by game birds, deer, and many small mammals.

BROADLEAF SIMPLE LEAVES ALTERNATE

RED OAK GROUP

cherrybark oak ***Quercus pagoda*** **Fagaceae** (red oak)

Leaves are simple, alternate and deciduous with 5-11 bristle-tipped lobes, prominent basal lobes and a pagoda shape to some observers. **Bark** is gray and fairly smooth on young trees, and darker and flaky on older trees, similar to black cherry. Terminal **buds** are reddish with varying degrees of pubescence. **Fruit** is an acorn 1-inch long which matures in two seasons. The cap covers up to 1/2 of the acorn. Cherrybark oak is found on bottomland sites in the south and south central U.S. and is intolerant of shade. The wood is used for flooring and furniture. Acorns eaten by game birds, deer, bear and many small mammals.

BROADLEAF SIMPLE LEAVES ALTERNATE

RED OAK GROUP

southern red oak ***Quercus falcata*** **Fagaceae** (red oak)

Leaves are simple, alternate, deciduous, with 3-5 bristle-tipped, falcate lobes. The terminal lobe is often 3-pronged. Leaves are shiny and droopy with rusty hair below. Leaves have prominent bell-shaped leaf bases. **Twigs** are gray-brown with rust colored hairs and buds are ovoid, red-brown, and hairy. **Bark** is brown-black, fissured, rough, and blocky at the base. **Fruit** is an acorn 1/2 inches long with a shaggy cap covering 1/3 of the orange-brown striped, pubescent nut. The acorn matures in two seasons. Southern red oak is usually found on poorer sites in the southeastern U.S. The wood is used as red oak lumber. Acorns eaten by game birds, deer, and many small mammals.

BROADLEAF SIMPLE LEAVES ALTERNATE

RED OAK GROUP

Shumard oak ***Quercus shumardii*** **Fagaceae** (red oak)

Leaves are simple, alternate, and deciduous with 7-11 lobes bearing many bristle-tips, and sinuses that extend more than half way to the midrib. Terminal **buds** are blunt, gray, angled, and smooth. **Bark** is gray and smooth, becoming shallowly grooved on larger trees. **Fruit** is an acorn similar to northern red oak. Shumard oak is found on bottomland sites in the south and south central U.S. and is intolerant of shade. The wood is used for trim, furniture and flooring. Acorns eaten by game birds, deer, bear and many small mammals.

BROADLEAF SIMPLE LEAVES ALTERNATE

RED OAK GROUP

Nuttall oak ***Quercus texana*** **Fagaceae** (red oak)

Leaves are simple, alternate and deciduous with 5-7 bristle-tipped lobes that are variable in size, and deep U-shaped sinuses. The terminal lobe is usually elongated and the upper lobes point toward the apex. Terminal **buds** are brown, ovoid, and angled with some hair. **Bark** is gray and smooth becoming shallowly fissured with age. **Fruit** is an acorn up to 1 1/4 inches long with a pubescent, dark brown, striped nut and a cap that covers up to half of the acorn. The acorn matures in two seasons. Nuttall oak is found in wet areas in the southern U.S. The wood is used as red oak lumber. Acorns eaten by water fowl and many small mammals. This species is known as *Quercus nuttallii*.

BROADLEAF SIMPLE LEAVES ALTERNATE

RED OAK GROUP

water oak ***Quercus nigra*** **Fagaceae** (red oak)

Leaves are simple, alternate, tardily deciduous, usually spatulate, and with a bristle-tip at the apex. They are often irregularly lobed or pronged on seedlings and saplings. Terminal **buds** are red-brown to gray, angled and smooth. **Bark** is gray-black and smooth but becoming shallowly grooved with age. **Fruit** is an acorn less than 1/2 inches long with a cap sitting on the base of the flat-topped nut. The acorn matures in two seasons. Water oak is found on dry and wet sites in the southern U.S. and is intolerant of shade. The wood is used as red oak lumber. Acorns eaten by game birds, deer, and many small mammals.

BROADLEAF SIMPLE LEAVES ALTERNATE

RED OAK GROUP

willow oak ***Quercus phellos*** **Fagaceae** (red oak)

Leaves are simple, alternate, thin, deciduous, up to 5 inches long and 1 inch wide, and with yellow tufts of hair on the midrib. The leaf base and tip are somewhat tapered. Terminal buds are small, brown, smooth and pointed. **Bark** is gray-brown and smooth becoming shallowly fissured with age. **Fruit** is an acorn 1/4 to 1/2 inches long with the green-brown, saucer-like cap covering up to 1/4 of the nut, maturing in two seasons. Willow oak is found on moist to wet sites in the eastern U.S. and is intolerant of shade. Willow oak is distinguished from laurel oak by a thinner and generally longer leaf, and often with hair on the midrib. The wood is used as red oak lumber and for fuel. Acorns eaten by game birds, deer, and many small mammals.

BROADLEAF COMPOUND LEAVES OPPOSITE

green ash ***Fraxinus pennsylvanica*** **Oleaceae**

Leaves are compound, opposite and deciduous, with 5-9 ovate leaflets. **Twigs** are green-brown and flattened at the nodes with a dark brown, suede-like terminal bud. The leaf scar is shield-shaped with the lateral bud sitting above the scar. **Bark** is gray to brown with corky interlacing ridges forming a diamond pattern. **Fruit** is a winged samara and the wing extends half the distance down the body. Green ash is found on fertile, moist to intermittently wet soils in the east and central U.S. and is intolerant of shade. Green ash is distinguished from white ash by lateral buds above the leaf scar rather than within the leaf scar, and wing extending farther down the seed body. The hard wood is used for handles, baseball bats, furniture and crates.

BROADLEAF COMPOUND LEAVES OPPOSITE

boxelder *Acer negundo* Aceraceae

Leaves are compound with 3-9 leaflets, opposite, and deciduous. Boxelder is the only pinnately compound maple in the U.S. **Twigs** are green to purplish-green with white fuzzy lateral buds. Leaf scars are V-shaped. **Bark** is gray-brown and grooved. **Fruit** is a double samara that matures in fall. Boxelder has the widest range of North American maples and is found on a range of sites, usually near rivers, lakes, and swamps, in the east and central U.S. It is intolerant of shade. The wood is soft and used for crates and pulp. The seeds are eaten by birds and small animals.

black locust ***Robinia pseudoacacia*** **Fabaceae**

Leaves are pinnately compound, alternate, and deciduous with 7-25 leaflets that are 1/2-2 inches long. **Twigs** are stout with paired stipular spines at each node. **Bark** is light brown becoming deeply furrowed with corky prominent ridges. **Flowers** are white, fragrant, pea-like and showy. **Fruit** is a legume, 2-4 inches long. Black locust is found on a variety of sites in open areas in the east and central US. Intolerant of shade. The heavy wood is used for pulp and railroad ties.

honeylocust *Gleditsia triacanthos* Caesalpiniaceae

Leaves are pinnately or bipinnately compound, alternate, and deciduous with 9-20 leaflet pairs. Leaflets are one inch long and hairy underneath. **Twigs** are stout and zigzag with large sometimes branched thorns. **Bark** is gray-brown and smooth becoming scaly and rough with thorns. **Flowers** are green-yellow. **Fruit** is a brown twisted legume, 8-24 inches long with sweet edible pulp between the seeds. Honeylocust is found on a variety of sites in open areas in the east and central U.S. and is intolerant of shade. The pods are eaten by deer and cattle. The wood is hard and used for fence posts and specialty items.

black walnut *Juglans nigra* Juglandaceae

Leaves are alternate, deciduous and pinnately compound with up to 21 lanceolate leaflets, usually with no terminal leaflet (juvenile trees often show a terminal leaflet). **Twigs** are stout with monkey-faced leaf scars and a brown chambered pith. **Bark** is dark brown to black and deeply grooved. **Nuts** are round, weakly corrugated, and enclosed by a round, green, indehiscent husk. Black walnut is found on fertile, moist sites in the east and central U.S. and is intolerant of shade. The commercially valuable wood is used for furniture and veneer. The nuts are eaten by squirrels and people.

pecan ***Carya illinoinensis*** **Juglandaceae**

Leaves are alternate, deciduous and pinnately compound with up to 17 sickle to lance-shaped leaflets. **Twigs** are stout and gray-brown with light brown hairy buds with valvate scales. The pecan **nut** is known world wide. Pecan originated from the central U.S. but has naturalized in the southern U.S. and is intolerant of shade. The heavy wood is used for handles and pulpwood.

bitternut hickory ***Carya cordiformis*** **Juglandaceae**

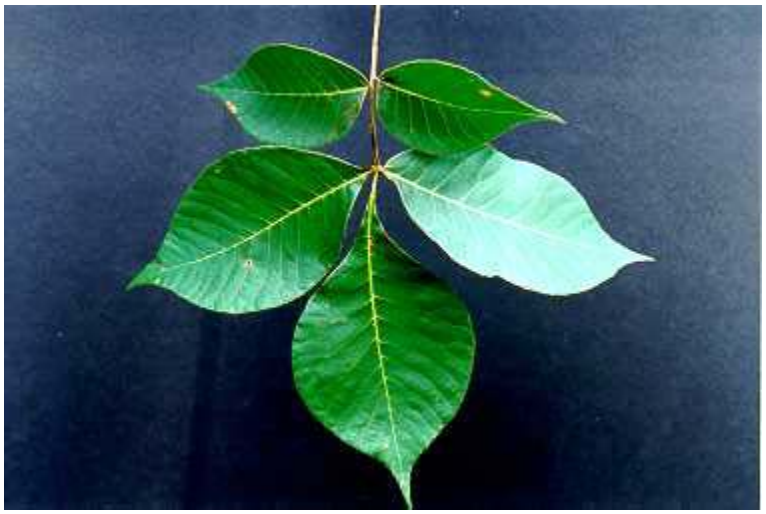
Leaves are alternate, deciduous and pinnately compound with 7-11 lanceolate to obovate leaflets. The leaf base may be tapered or cordate. Leaflets and rachis may show hair. **Twigs** bear bright yellow, valvate buds. **Bark** is smooth on young trees and on larger trees the bark is gray-brown with tight interlacing ridges. **Nut** is round, grooved, 4 ribbed and bitter tasting, and the husk is thin, winged and with yellow scales. Bitternut hickory is found on moist, fertile soils in the east and central U.S. and is intolerant of shade. The hard wood is used for pulpwood and furniture.

mockernut hickory *Carya tomentosa* Juglandaceae

Leaves are alternate, deciduous and pinnately compound with 7-9 obovate leaflets. Leaves and rachis are very hairy and lemon scented. **Twigs** are stout, red-brown and hairy with large hairy terminal buds. **Bark** is gray with interlacing ridges. **Nut** is round with a thick husk that splits to the base. Mockernut hickory is found on a variety of upland sites in the eastern U.S. and is intolerant of shade. The hard wood is used for pulpwood and furniture. The nuts are eaten by many small mammals.

shagbark hickory *Carya ovata* Juglandaceae

Leaves are alternate, deciduous and pinnately compound with 5 obovate leaflets and hair on the petiole and rachis. The teeth on the leaf margin have tiny tufts of hair visible to the naked eye. **Twigs** are brown, stout and hairy with large terminal buds showing loose outer scales. **Bark** is smooth on young trees and dark gray breaking into long loose strips on large trees. The 4-ribbed white **nut** is enclosed by a thick husk which is pale on the inside and splits to the base. Shagbark hickory is found on moist sites in the east and central U.S. and is intermediate in shade tolerance The hard wood is used for pulpwood, furniture and novelty items. The nuts are eaten by many small animals.



GLOSSARY

Abortive . Arrested development; barren, nonfunctioning.
Achene or Akene. A small, hard, dry, one-celled, one-seeded fruit which does not open by valves.
Acicular. Needle-shaped.
Aculeate. Prickly; beset with prickles.
Acuminate . Tapering at the end; long-pointed.
Acorn. Fruit of the oak, consisting of a nut with its base enclosed in a cup of overlapping scales.
Acute. Tapering to a point at an angle less than a right angle.
Adaxilly. Borne on the side nearest the axis, as the upperside of a leaf.
Adnate. Said of unlike parts which grow together.
Alluvial. Relating to the deposits of sand, clay or gravel made by river or stream action.
Alternate. Not opposite to each other on the axis or stem.
Ament. A unisexual spike of flowers with scaly bracts, usually deciduous, in one piece.
Anastomosing . Uniting to form a network.
Androgynous. An inflorescence with staminate and pistillate flowers.
Angiospermou s . Plants having their seed borne within a ripened ovary.
Annular. In the form of a ring.
Anther. The pollen-bearing portion of the stamen.
Anthesis. The opening of a flower.
Apex. Tip; top; that portion fartherest from the base or the point of attachment.
Apical. At the apex or summit of an organ.
Apiculate . Ending in a short-pointed tip.
Appressed . Lying close and flat against.
Arborescen t. Tree-like in growth or general appearance.
Aromatic. Fragrant; spicy.
Attenuate. Slenderly tapering.
Auriculate . Ear-shaped appendages.
Awl-shaped . Tapering from the base to a slender and stiff point.
Awn. A bristle-shaped appendage.
Axil. The upper angle formed by a leaf or branch with the stem.
Axillary. Situated in an axil.
Axis. The central line of an organ or the support of a group of organs.
Berry. A fruit which is fleshy throughout except the seed.
Bi-or-bis. A Latin prefix signifying two or twice.
Bisexual. Having both stamens and pistils.
Blade. The expanded portion of the leaf.
Bole. Stem or trunk of a tree.
Bract. A modified, reduced leaf subtending a pedicel or peduncle or belonging to an inflorescence or occurring at the base of shoots.
Bracteate . Having bracts.
Bracteolate . Furnished with bractlets.
Bractlet. A little bract.
Bundle-scars. The scars within a leaf-scar; the calloused ends of the fibrovascular bundles of a leaf.
Caducous . Falling off very early.

Callous. Hard.
Calyx. The outer envelope of a flower, usually green in color.
Cambium. A thin-walled formative tissue between the bark and the wood.
Campanulate . Bell-shaped.
Canescent . Hoary, usually with gray pubescence.
Capitate. Arranged in a head; Collected into a dense cluster.
Capsule. A dry dehiscent fruit composed of more than one carpel.
Carpel. A simple pistil or a member of a compound pistil. A modified leaf.
Catkin. A scaly-bracted spike of usually unisexual flowers.
Caudate. Furnished with a slender tip or tail-like appendage.
Ciliate. Fringed with hairs on the margin.
Clavate. Club-shaped.
Coherent . Two or more similar parts or organs joined.
Complete. Said of flowers when all parts are present.
Compound Ovary . The base of a pistil composed of more than one carpel.
Cone. An inflorescence or fruit formed of closely overlapping scales.
Conical. Cone-shaped.
Conifer. A cone-bearing gymnosperm.
Connivent . Coming in contact; converging.
Convolute . Rolled up from the sides.
Cordate . Heart-shaped.
Coriaceous . Leathery.
Corolla. The inner, usually bright-colored portion of the floral envelope.
Cortex. Rind; bark.
Corymb. A flat-topped, or convex flower-cluster with the outer flowers opening first.
Cotyledons . First leaves of the embryo as seen in the seed.
Crenate. Scalloped; with rounded teeth.
Crenate-serrat e. Scalloped, with teeth directed forward.
Crenulate . Diminutive of crenate.
Crown. The expanded top of a tree or shrub consisting of branches and branchlets.
Cruciate. Cross-shaped.
Cuneate. Wedge-shaped.
Cuspidate . Tipped with a cusp or sharp and rigid point.
Cyme. A broad and flattish flower cluster, the central flowers opening first.
Cymose. Cyme-like or borne in a cyme.
Deciduous . Falling off, usually at the close of the season.
Decurrent. (Leaf). Extending down the stem below the point of insertion.
Decussate. Alternating in pairs at right angles.
Dehiscent . Opening at maturity to free the seed; splitting open.
Deliquescen t . Applies to a tree with a broad spreading habit. The branches subdivide until they apparently disappear.
Deltoid. Shaped like an equilateral triangle.
Dentate. Toothed with the teeth directed outward.
Denticulate . Diminutive of dentate.
Depressed . Somewhat flattened from above.
Dichotomou s . Forking regularly in pairs.
Didynamous . (Stamens). Two pairs of unequal length.
Digitate. With members arising from one point.
Dioecious . Unisexual with staminate and pistillate flowers on separate plants.
Dissepiment . A partition in an ovary or fruit.

Distichous or Distichously. Said of leaves arranged alternately in two vertical ranks.
Drupaceous . Drup-like or the nature of a drupe.
Drupe. A fleshy fruit with a bony vessel enclosing the seed.
Echinulate . Beset with diminutive prickles.
Ellipsoida l. Of the shape of an ellipse.
Emarginate . With the margin notched; notched at the apex.
Embryo. The rudimentary plant in a seed.
Entire. Without divisions, lobes, or teeth.
Evanescent . Early disappearing.
Excrescenc e . An outgrowth, such as a wart.
Exfoliate . To come off in layers or scales.
Falcate. Scythe-shaped; curved like a scythe.
Fascicle . A close bundle or cluster.
Fasiculate . Borne in fasicles.
Ferrugineou s. Rust-colored.
Filament. The portion of the stamen supporting the anther.
Filiform. Thread-shaped; long, slender and terete.
Fimbriate . Fringed.
Flexuose. Zigzag; bending alternately in opposite directions.
Fluted. With alternate ridges and depressions.
Foliaceous . Leaf-like in texture or appearance, bearing leaves.
Follicle. A dry one-celled seed vessel consisting of a single carpel, and opening only by the ventral suture.
Fringed. Bordered with slender processes or marginal appendages.
Fruit. The seed-bearing portion of a plant.
Fulvous. Tawny; dull yellow.
Funicle. The stalk of a seed.
Gamopetalou s . With united petals.
Gamosepalou s . With united sepals.
Glabrate. Nearly glabrous or becoming glabrous.
Glabrous. Smooth, without hairs or down.
Glandular. Bearing glands or gland-like.
Glaucous. Covered with a bluish or whitish bloom, waxy.
Granulose . Composed of, or appearing as if covered by, minute grains.
Gymnosperm . Plants whose seeds are not enclosed in a seed vessel.
Gynoecium . The aggregate of carpels in a flower.
Habit. General appearance of the plant.
Habitat. Where the plant grows.
Head. A dense cluster of sessile flowers or the crown of a tree
Heartwood. The mature and usually highly colored dead wood in stems that increase in diameter by the addition of an annual ring of wood on the outside beneath the widening bark.
Hirsute. With rather coarse or stiff hairs.
Hoary. Grayish white, with a fine close pubescence.
Imbricated . Overlapping like shingles on a roof.
Impressed . Sunken as though by pressure.
Incised. Cut sharply, irregularly and more or less deeply.
Incomplete . Said of flowers in which one of the outer parts is wanting.
Indehiscen t . Remaining persistently closed and not opening to free the seed.
Indeterminate inflorescen c e . One where the main axis is not terminated by a flower.

Inflorescenc e. Flower-cluster.
Indigenous . Applied to plants that are native to a certain region.
Internode . The portion of a stem between two nodes.
Inversed. Inverted.
Involucre . The whorl of bracts subtending a flower or flower cluster.
Irregular . Said of flowers showing inequality in the size, form, or union of similar parts.
Laciniate . Cut into deep irregular segments or lobes.
Lamina. The blake of a foliage leaf.
Lanceolate . Shaped like a lance, several times longer than wide.
Leaflet. A single division of a compound leaf.
Leaf-scar. The scar left by the falling of a leaf.
Legume. A simple fruit opening along two opposite sutures or lines as in the fruit of the Leguminosae.
Lenticel. A corky excrescence on young or sometimes older bark for providing aeration for the interior of the twig or branch.
Lobed. Said of leaves that have the margin more or less cut or divided.
Lunate. Crescent-shaped.
Lustrous. Glossy, shining, possessed with a sheen.
Lyrate. Cleft or divided with a large terminal lobe, the lower lobes progressively smaller.
Microcarpa . Refers to small seeds.
Monoeciou s . Unisexual with the staminate and pistillate flowers on the same plant.
Mucilaginou s. Slimy, sticky.
Mucro or Mucronate . With a short and small abrupt tip.
Naked buds . Without scales.
Naval stores . Refers to tar, turpentine, rosin, etc.
Node. The portion of a stem which normally bears one or more leaves, also branches.
Nut: A bony or woody indehiscent fruit resulting from either a simple or compound ovary.
Nutlet. A small nut.
Obcordate . Inverted heart-shaped.
Oblanceola. te. Lanceolate but tapering toward the base more than toward the apex.
Oblong. Longer than broad with nearly parallel sides.
Obovate. Ovate with the broader end toward the apex.
Obovoid . Inversely egg-shaped.
Obtuse. Blunt or rounded at the apex.
Ochraceous . Light yellow with a tinge of brown.
Odd-pinnate (leaf) . With an odd or an unpaired leaflet at the tip of a compound leaf.
Orbicular . A flat body circular in outline.
Oval. Broad-elliptic, about 1 1/2 times as long as broad and rounded at the ends.
Ovary. The ovule-bearing portion of the pistil.
Ovate. Having the outline of a hen's egg.
Ovoid. Solid ovate, solid oval.
Ovulate. Bearing ovules.
Ovule. The part of the flower which after fertilization becomes a seed.
Palmate. With a number of divisions or lobes which radiate from a point.

Panicle. A compound flower-cluster, the lower branches of which are longest with their flowers blooming first.
Paniculate . Borne in panicles.
Papillose . Bearing minute nipple-shaped projections.
Pedicel. The stalk of a flower in a compound inflorescence or cluster of flowers.
Peduncle . A flower-stalk supporting either a cluster of flowers or a single flower.
Pedunculate . Borne on a peduncle.
Peltate. Descriptive of a plane body attached by its lower surface to the stalk.
Pendulous . Loosely pendant, or loosely hanging.
Perfect flowe r . Said of a flower with both stamens and pistil.
Perianth. The envelope of a flower; a term usually used when the calyx and corolla are not clearly distinguishable.
Pericarp . The wall of the fruit or seed-vessel.
Petal. A modified leaf, a part of the corolla.
Petaloid . Colored and resembling a petal.
Petiolate . Having a petiole.
Petiole. The stalk of a leaf.
Pilose. Hairy with soft hairs.
Pinna. A single leaflet in a compound leaf.
Pinnate. Compound with the leaflets placed on opposite sides of a common petiole or rachis.
Pinnatified . Pinnately cleft.
Pistil. The seed-bearing organ of a flower consisting of ovary, stigma, and connecting style when present.
Pistillate . A flower with one or more pistils and usually without fertile stamens.
Pith. The central celIular part of a stem.
Pollen. The fertilizing spores or grains contained in an anther.
Polygamous . Bearing perfect and unisexual flowers on the same plant.
Pome. A fruit of two or more carpels enclosed in.thick flesh, like the apple and the pear.
Prickle. A small spine formed as an outgrowth of the bark or rind.
Puberulent . Very slightly pubescent.
Puberulous . Minutely pubescent.
Pubescence . A covering of short and soft hairs.
Pulvinate . Cushion-shaped.
Punctate . Dotted with depressions, or translucent internal glands, or with colored dots.
Raceme. A simple indeterminate flower-cluster with pedicelled flowers on a lengthened axis or rachis.
Racernose . Raceme-like or borne in racemes.
Rachis. The axis of a compound leaf; the axis of a spike or raceme.
Raphe. The part of the funicle that forms a ridge on an ovule.
Receptacle . The terminal portion of an axis (stem) forming a common support on which floral organs, sepals, petals, stamens and pistils or flowers are borne.
Reflexed . Turned or bent abruptly backward.
Reniform . Kidney-shaped.
Repand. With a slightly wavy or sinuate margin.

Resupinate. Upside down.
Reticulate. Netted; in the form of a network.
Retuse. With a shallow notch at the rounded apex.
Revolute . Rolled back from the margin or apex.
Rhombic. Having the shape of a four-sided figure' with equal sides, but not of right angles.
Rhomboidal. Approaching a rhombic outline.
Rostrate. Narrowed into a slender tip.
Rufous. Reddish-brown.
Rugose. Wrinkled.
Samara. An indehiscent winged fruit.
Scabrous . Rough to the touch.
Scale. A thin scarious body, usually a degenerate leaf, sometimes of epidermal origin.
Scarious. Thin, dry, membranous, not green.
Scurfy. Covered with small bran-like scales.
Seed. The ripened ovule, consisting of the embryo and its proper. coats.
Sepal. One of the modified leaves forming the calyx.
Septate. Divided by partitions.
Serrate. Toothed, with the teeth directed forward.
Serrulate. Serrate with fine teeth.
Sessile. Without a stalk.
Setose. Beset with bristles.
Sinuate. With a strongly wavy margin.
Sinus, The opening between two lobes of a leaf.
Spatulate. Gradually narrowed downward from a rounded summit.
Spicate. Arranged in, or resembling a spike.
Spike. A simple indeterminate flower-cluster with sessile flowers.
Spine. A sharp, woody or rigid outgrowth from the stem.
Spinose, Spiny. Bearing spines.
Stamen. One of the pollen bearing organs of a flower.
Staminate. Provided with stamens and usually in the sense without pistils.
Stellate. Star-shaped.
Stigma. The portion of the pistil which is receptive to the pollen.
Stigmatic. Relating to the stigma.
Stipitate. Having a stipe.
Stipe. The stalk of a pistil or similar organ.
Stipular. Pertaining to stipulus.
Stipule. An appendage at the base of a petiole or each side of its insertion.
Stoma (PI. Stomata) . Openings or pores in the epidermis of leaves connecting internal cavities with the external air.
Stomatiferou s. Bearing stomata.
Strobile. The same as cone.
Style. The part of the pistil between the ovary and the stigma.
Subcordate . Slightly cordate.
Subcoriaceous . Somewhat leathery.
Subglobose . Somewhat rounded.
Suborbicula r . Somewhat circular or spherical.
Subsessile . Nearly sessile.
Subtend. To be inserted under; to embrace in an axil.
Subulate. Awl-shaped.
Succulent . Juicy, fleshy.

Sulcate. Longitudinally grooved or furrowed.
Syncarp. A fleshy aggregate fruit.
Taper. Gradually narrowing toward one end.
Terete. Circular in cross section.
Testa. The outer coat of a seed, commonly hard and brittle.
Tomentose . Densely pubescent with matter wool or tomentum.
Tomentum . A pubescence composed of matted woolly hairs.
Truncate. Ending abruptly as cut off at the tip.
Tuberculate. Beset with knob-like projections.
Turbinate. Top-shaped; inversely conical.
Undulate. With a wavy margin or surface.
Valvate. Said of buds in which the scales meet without overlapping.
Vascular. Furnished with vessels or ducts.
Veins. Threads of fibro-vascular tissues in a leaf or other organ.
Ventral (Leaf) . Pertaining to the lower or abaxial side.
Villose or Villou s . With long and soft hairs; hairy.
Viscid. Glutinous, sticky.
Whorled. With three or more leaves or branches at a node.