TEXAS PARKS AND WILDLIFE

NATURE TRAILS

OF

THE NATURE CENTER

East Texas Ecological Education Center at Tyler

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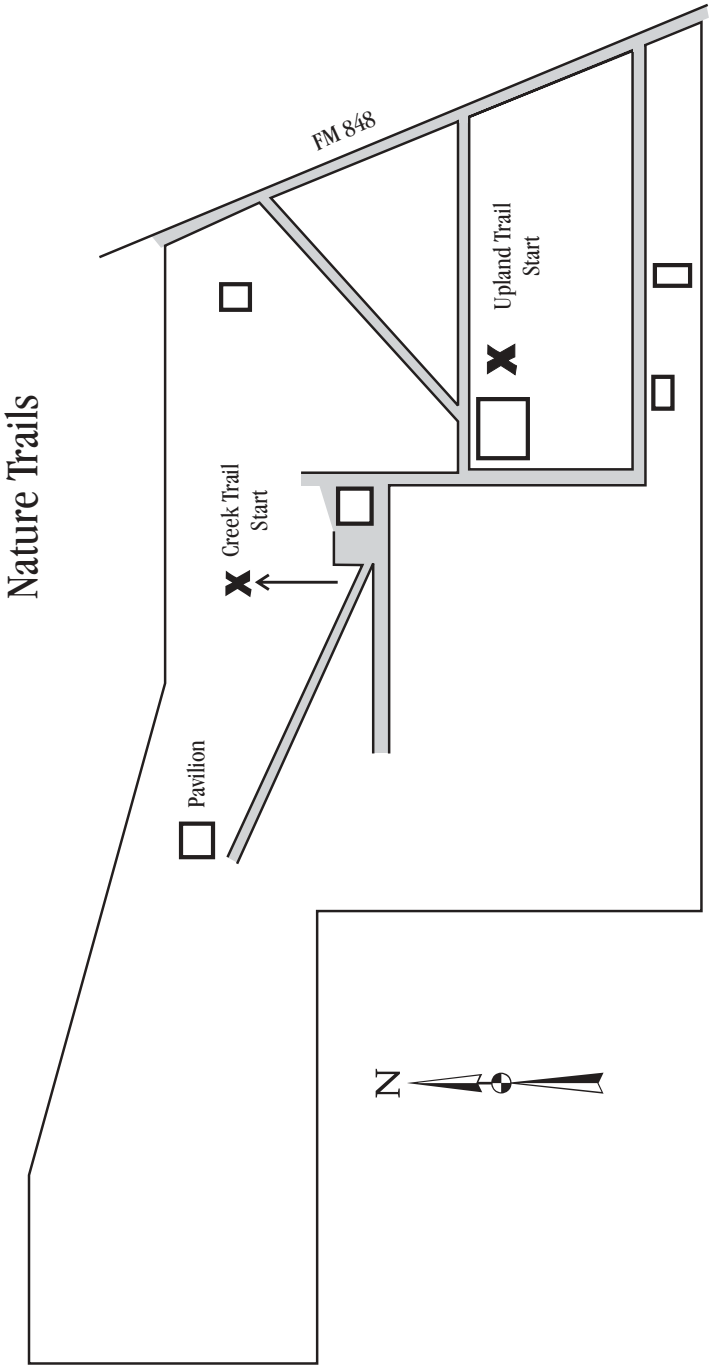
Nature Trails



Wildlife Division Publication

LANDSCAPE HISTORY

The East Texas Ecological Education Center at Tyler (The Nature Center) is located on land purchased in the 1950s by the Texas Parks and Wildlife Department to be developed into a quail farm. Prior to the Department's ownership, the land was continually farmed since its settlement about 1860. About 10 acres of grassland were subjected to continual mowing from 1954 - 1993. Since 1993, intensive mowing has been discontinued, some areas have been burned, and prairie restoration has been initiated.

The forested areas of The Nature Center are comprised mainly of fourth generation trees (trees have been harvested 3 times since the early 1800's); thus, most of the trees are less than 40 years of age. Although the forested area is small in size, about 75 acres, it is quite diverse and contains portions of 3 types of forest communities: dry upland, mesic (moist) upland, and mesic creek bottom. Therefore, The Nature Center provides an opportunity to visit and understand a diverse array of forest types.

A GUIDE TO THE NATURE TRAILS OF THE EAST TEXAS ECOLOGICAL EDUCATION CENTER AT TYLER

There are two separate nature trails at The Nature Center. One trail is a short path (0.2 mi.) around and through an upland pine stand, and the other is a longer path (0.9 mi.) along a spring fed stream (Quail Creek) that flows into Gilley Creek. The longer trail has been divided into two sections, giving you the option to stop after a short distance (0.2 mi.) or complete the entire trail. This long path differs from the one in the pine stand in being composed mostly of broad-leaved, deciduous trees with only a few scattered pines.

Along the trails are numbered posts that mark most of the woody plant species found on the The Nature Center. Each number corresponds to a number in this brochure with a brief description describing wildlife, human, and ecological dimensions of each plant. We have not marked all plants along the trails and encourage you to observe species that have not been designated. You will also find species that are marked more than once; however, you should notice that leaf shapes and bark often differ depending on the location and age of the plant. Most importantly, take your time. By looking and listening closely you may catch a glimpse of the local wildlife and can observe ecological features not discussed in the brochure. Remember, this is a natural area where snakes live. Most of the local snakes are not poisonous, but as always, be alert and watch your step. All snakes are elusive and avoid human contact whenever possible.

These trails are intended to promote an understanding of the importance of wildlife habitat components, while providing an enjoyable outdoor experience. A basic understanding of ecological principles is the key to maintaining, conserving, and preserving natural areas.

LEAF ADAPTATIONS

You will notice that plant species at The Nature Center fall into two general categories: deciduous broad-leaved plants and evergreen needle-leaved plants. These differing leaf shapes represent different adaptations by these species to regulate temperature and water loss. Pines and junipers have small, needle-shaped, evergreen leaves. This needle-like shape helps the leaf to maintain a temperature close to that of the surrounding air by convection (air flow). By using convection to regulate temperature instead of evaporation, evergreen needle-leaved plants are able to conserve water and survive in dryer climates. This method of temperature control also prevents needle-shaped leaves from freezing in colder, harsher climates, allowing them to photosynthesize all year. Evergreen conifers do shed their leaves. However, it is a continuous and constant process, not a seasonal one.

Pine leaves (needles) contain high levels of acid. As needles accumulate on the ground, they are slowly decomposed by fungi. This process releases acids that leach (remove) minerals from the soil. In addition, very little sunlight reaches the ground beneath these trees since the leaves are present all year. As a result of these two conditions, few soil organisms and plants can survive beneath pines and junipers.

Deciduous broad-leaved plants are adapted to maximizing photosynthesis during the warm season. The flat leaves provide a large surface area for absorbing sunlight; however, such large leaves require water cooling by evaporation. Therefore, plants must have enough water to regulate their temperature and survive. Most broad-leaved plants lose their leaves in the fall to protect them from freezing during the winter.

Although ideal for photosynthesis, the flat, broad, leaf shape of most deciduous plants has its drawbacks. The leaves at the top of the tree often block the sunlight from reaching the lower leaves. To combat this, some leaves have irregular shapes or notches which allow light to penetrate, and leaves on a single tree often vary in shape depending on where they are (top, middle, bottom). Species that grow in dense forests often have leaves that are large and arranged in single layers. In contrast, species found in open areas and along edges often have small leaves arranged in multiple layers.

Broad-leaved deciduous plants shed their leaves annually. The leaves are rapidly decomposed by bacteria, returning a variety of nutrients to the soil. The fertile soil and seasonal exposure to the sun, make the area beneath deciduous trees ideal for plants and many soil organisms.

ECOLOGICAL IMPORTANCE OF DEAD TREES

As you walk the trail notice the numerous dead and dying trees, snags, and rotting logs.

Dead trees, rotting logs, and snags scattered through the forest are still an integral part of wildlife ecology, even though their life has ended. These trees are usually riddled with cavities excavated by woodpeckers. They are utilized as nesting sites by a variety of birds. Squirrels also use the holes as den sites. For these trees to be optimum squirrel habitat, they must be 50 to 60 years old. A tree of this size can provide as many as 5 den sites. Fallen trees are excavated by raccoons, opossums, and armadillos. A variety of insects, spiders, millipedes, centipedes, and other invertebrates live in the decaying trees, and most of the wildlife that is dependent on these trees are insectivores that help control forest insect pests. As decay continues, the wood becomes soft, allowing amphibians and reptiles to burrow within, for escape cover, food, warmth, and sites for reproduction. Research into the importance of downed trees resulted in the U.S. Forest Service (1977) issuing a policy to "provide habitat needed to maintain viable, self-sustaining populations of cavity-nesting and snag-dependent wildlife." The availability of mature hardwood stands is essential for the maintenance of healthy populations of such wildlife.

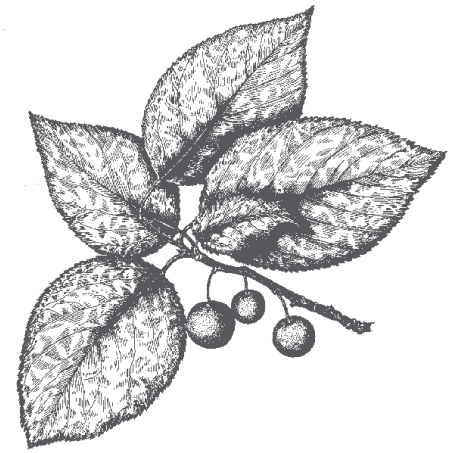
Besides providing food and cover, the decay of a tree results in the return of valuable nutrients to the soil. A log on the forest floor will gradually be broken down by bacteria and fungi to provide a basis for growth of new trees and invertebrates. In a few years, all traces of that tree will be gone, but the nutrients it provided in death will continue to nourish the wildlife community.

Notes

1.

SOUTHERN DEWBERRY
(Rubus trivialis)

Dewberries differ from Blackberries by trailing across the ground rather than growing upright. The shiny, jet black fruits are a favored food of deer, turkeys, quail, raccoons, squirrels, and many birds. Dewberry leaves are among the first to appear in spring, are highly palatable, and important browse for deer. The dense thorny thickets provide nesting sites and cover for birds, rabbits, and small rodents. Dewberries grow best in full sunlight and are valued for their use in desserts and jellies.



2.

MEXICAN PLUM
(Prunus mexicana)

With billowing, white, fragrant flowers, this is often one of the first plants to herald the coming of spring. Its dark red to purple fruits are desirable to many wildlife species. Plums are a staple food for wild turkeys, squirrels, raccoons, bobwhite quail, and many songbirds. White-tailed deer will also feed on the foliage and twigs. The wood is hard and heavy but seldom used commercially because of the tree's small size. Plums occur in open woods, bottomlands, and on prairie hillsides.

3.

CHINESE PRIVET
(Ligustrum sinense)

This exotic evergreen shrub is native to China, but is often cultivated for hedges and screens which has allowed it to spread into the surrounding landscape. The abundant white flowers have a fragrance that attracts honey bees and the small blue berries are eaten by songbirds. As true of other non-native plants, this shrub has the ability to grow in large spreading clumps that out-compete native plants. Thus, it soon dominates an area leaving a site with limited wildlife use.

4.

AMERICAN SWEETGUM
(Liquidambar styraciflua)

Small seeds from this species are of minor importance to wildlife, but are eaten by some birds and squirrels. White-tailed deer will also utilize leaves and twigs when resources are low. Larger, older trees are used for dens by squirrels and furbearers. Squirrels also prefer them for building leaf nests. Beavers are fond of this species, but a large percentage of trees survive beaver damage. This is a fast growing tree, highly resistant to disease and insects, making it one of the most important hardwood trees of the southeast. The wood is hard and heavy, but not very strong. It is widely used for veneers and plywood panels. Found in moist upland or bottomland sites, this species is an early woody invader which is shade intolerant.

5.

JAPANESE ROSE
(Rosa multiflora)

This rose is also known as Multiflora Rose, referring to its numerous, small blossoms. It is a native of Asia, but has been used extensively for fence rows and quail cover. After several years of small-scale trials in East Texas, the use of this plant is highly discouraged. Like most exotics, it can quickly spread into the surrounding landscape where it can out-compete local plant species and become a pest.

6.

BLACK CHERRY
(Prunus serotina)

This species is important to man and wildlife. The fruits are eaten by bobwhite quail, wild turkeys, and songbirds as well as small mammals. In autumn, the cyanic acid in the wilted twigs and leaves can be toxic to cattle, but not white-tailed deer. The wood is red-brown and hard, takes a beautiful polish and has been widely used in furniture and veneers. The leaves and inner bark contain hydrocyanic acid which was once used in cough medicines and tonics. This species thrives in many soil types, but prefers moist, fertile conditions. It grows rapidly for 40 to 50 years and bears a large fruit crop every 3 to 4 years. This species is shade and fire intolerant, has a medium life span, but is subject to many insect enemies and fungi.

7.

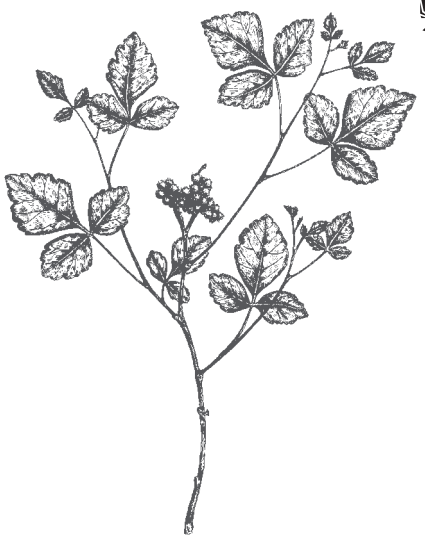
WATER OAK
(Quercus nigra)

This oak produces a large acorn crop that is eaten by white-tailed deer, turkeys, ducks, bobwhite quail, raccoons, squirrels, and feral hogs. White-tailed deer also browse young twigs and buds during late winter. The light brown wood is close-grained and moderately hard and heavy, but is inferior to wood from other species. The wood is used for fuel, cross-ties, poles, and this tree is often planted near streets as an ornamental. This species is dominant on bottomland terraces, in less frequently flooded areas, and along upland streams. Trees are shade intolerant, but grow rapidly in good soils, producing large seed crops every year or two after the age of 20. Growth is limited by fire, insects, and diseases such as trunk canker and heart rot.

8.

BLUEJACK OAK
(Quercus incana)

This species is also called Sandjack Oak, referring to its preference for sandy soils. It produces large crops of acorns that require two growing seasons to develop and mature. These crops are an important source of food for wildlife such as white-tailed deer, raccoons, turkeys, quail, squirrels and other rodents. It often forms dense thickets that provide cover for mammals and birds. The wood is coarse-grained, hard and strong, but is not favored commercially due to its small size. However, wood is used locally for fence posts and fuel. This is a small, often shrubby tree found in dry sandy hills and on upland ridges as well as in richer soils.



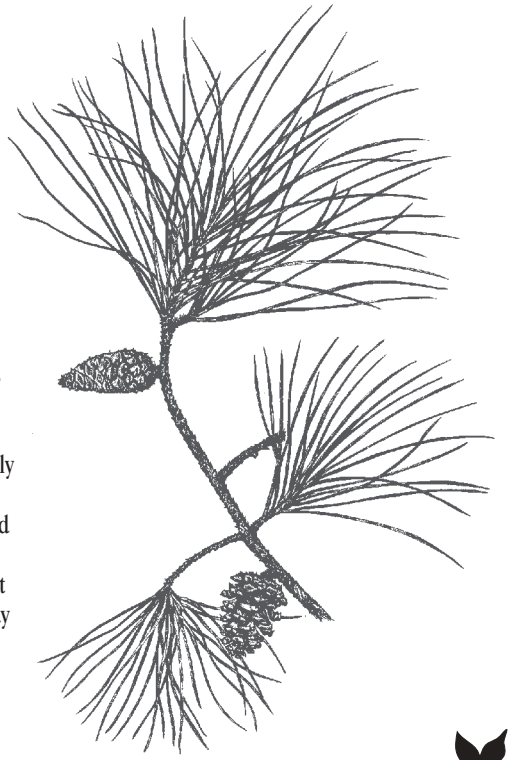
9. FRAGRANT SUMAC
(Rhus aromatica)

This is a small, thicket-forming shrub that provides excellent cover for wildlife. The species name *aromatica*, refers to the aromatic leaves of this small shrub. The small, red, berry-like fruit is covered with hairs and can be steeped to make a refreshing lemonade-type drink, hence it is often referred to as Lemonade Sumac. The fruit is eaten by several species of birds, including wild turkey, and mammals such as raccoons, opossums, and white-tailed deer. This shrub requires well-drained soils, but is tolerant of a wide range of soil nutrient levels.

10.

SHORTLEAF PINE
(Pinus echinata)

Pine cones are often eaten by squirrels when they are still green in late summer. Seeds from this species are preferred by several types of birds and mammals, especially songbirds. Beavers and rabbits often utilize the bark and foliage in addition to the seeds. This tree is relatively fire resistant and is commercially valuable as timber. It is used for general lumber, flooring, plywood, pulp wood, and the manufacture of turpentine. This is a fast-growing tree that is relatively resistant to disease and insects and thrives in sandy soils.



11. CHINABERRY
(Melia azedarach)

This exotic ornamental (also known as China Tree or Pride of India) is a native of the Himalaya Mountains and Eastern Asia. The fruits are eaten by catbirds, mockingbirds, and robins, but can cause a mild intoxication and temporary paralysis if too many are consumed. The fruits are poisonous to humans. It produces attractive purple flowers in spring and is a rapid grower, but like most exotic plants, it can quickly spread into the landscape where it becomes a pest. It is shade intolerant and it is not damaged by insects and fungus; however, it can be killed with fire.

12.

GUM BUMELIA
(Bumelia lanuginosa)

This thorny tree is commonly referred to as Woolly Buckthorn, Gum Elastic, or Chittamwood. It produces dense clusters of small, white flowers which open in summer, and black fruits which ripen by the end of September. The fruits are eaten by quail, turkeys, and other birds. Deer also consume the fruits and occasionally browse the leaves. The wood is close-grained and heavy, but rather soft and weak, therefore limiting its commercial value. It is a shade intolerant species and is often found on dry rocky soils along fence lines or in open woods, but does best near the edges of creek bottoms.

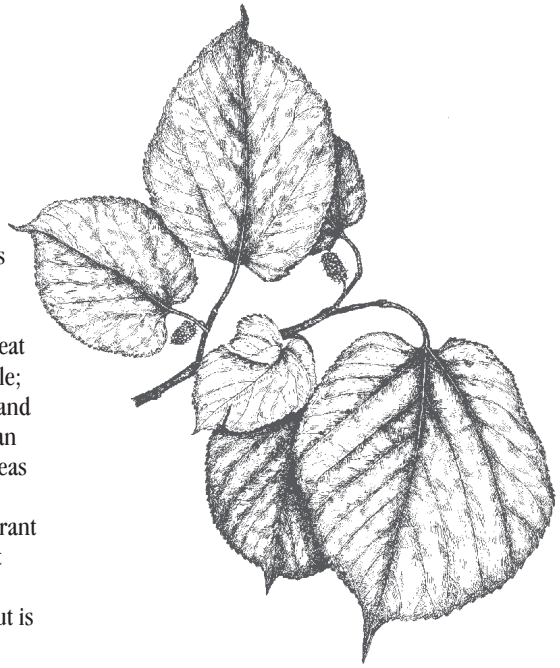
13.

LAUREL GREENBRIAR
(Smilax laurifolia)

This evergreen vine produces a black, shiny fruit that is eaten by wild turkeys, bobwhite quail, several songbirds, opossums, raccoons, squirrels, and rodents. The young stems are a favorite food of swamp rabbits, and it rates as one of the most important secondary foods for southern white-tailed deer. The fast-growing green canes and tender shoots are very palatable, and the leaves are eaten all year. In addition, it provides protective cover for small mammals like rabbits and other wildlife. It is partial to moist lowland areas and is shade tolerant.

14.

RED MULBERRY
(Morus rubra)



When laden with ripe fruit, this species attracts songbirds from large areas. Raccoons, squirrels, opossums, armadillos, and white-tailed deer also eat the fruits. The wood is soft, but durable; thus, it is used locally for fence posts, and was once used for barrel making. It can be grown as an ornamental in large areas due to its spreading growth form and attractive fleshy fruits. This shade tolerant tree prefers rich, moist soils and is not subject to significant insect or disease attacks. It is a relatively fast-grower, but is short-lived. Decaying leaves provide important soil nutrients.

15.

SUGAR HACKBERRY
(Celtis laevigata)

This species is the most widespread of the hackberries. Its small orange-red fruits are eaten by doves quail, turkeys, songbirds, squirrels, and other rodents. Deer occasionally browse twigs and leaves. The soft, yellow, weak wood is of limited value; however, the plant is drought resistant and fast-growing, making it an ideal tree for harsh conditions. This moderately shade tolerant tree has no major insect or disease problems, but is often damaged by Mistletoe. Its thin bark makes it highly susceptible to fire.

16.

JAPANESE HONEYSUCKLE
(Lonicera japonica)

Introduced from Asia, Japanese Honeysuckle occurs throughout the South. It is prevalent in low, moist areas along streams, fence rows, borders, and openings in the forest. The fruits are eaten by songbirds, turkeys, quail, and deer. The dense, semi-evergreen leaves are browsed by deer, and its tangled mat of stems provides excellent wildlife cover. Although valuable for wildlife, this exotic spreads by aboveground runners (stolons) and can grow as much as 15 feet per year; thus, it can quickly become a pest. This plant rapidly covers open areas, is difficult to control, and literally strangles out native plants.

17.

HERCULES CLUB
(Zanthoxylum clava-herculis)

The knobby warts on the bark of this tree, giving it a war club appearance, gave rise to its common name. It is also called Toothache Tree due to the numbing effect of the bark and leaves when chewed. The fruit, dense clusters of small, red pods, mature throughout the summer and are eaten by birds. Its soft, weak, yellow wood is of little commercial value; however, the plant has several medicinal properties. It prefers light sandy soils, and seems to have no major pest or disease problems. This species is common along edges and fence rows where the seeds have been deposited by birds. Passing through a bird's digestive system enhances seed germination.

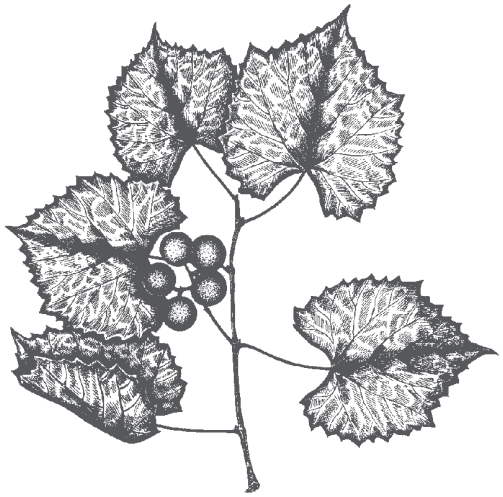
18.

FARKLEBERRY
(Vaccinium arboreum)

This is one of the few blueberries that grows in neutral or slightly alkaline soils; often called Huckleberry. The fruits are eaten by songbirds, bobwhite quail, turkeys, opossums, raccoons, foxes, skunks, squirrels, and white-tailed deer. Deer also browse on its vigorously-growing twigs and leaves. The wood is close-grained and used for tool handles, and the bark is used for medicinal purposes as well as for tanning hides. This drought resistant, shade intolerant species has no significant insect or disease enemies.

19.

MUSCADINE GRAPE
(Vitis rotundifolia)



In the summer, the dense foliage provides good escape cover and shelter as well as nesting sites for songbirds. The fruits are eaten by game birds, songbirds, and several mammals. White-tailed deer also forage on stems and foliage. The bark is often used as nest building material by songbirds and old dehydrated fruits are often eaten as a winter food source. Trees containing grapevines are preferred sites for leaf nests of gray squirrels. Grapes can be used for jellies, wines, and desserts. This is one of the most vigorous, long-lived, and disease-free grapes found in Texas.

20.

BRUSH PILE

Whether man-made or formed naturally, brush piles provide many important benefits to wildlife. Brush piles provide food and cover for mammals, birds, amphibians, reptiles, and a wide array of insects and other invertebrates. What appears to be a rotting pile of sticks to most people, is actually a vital component of many ecosystems. Decomposers return the energy contained in the debris, back to the soil to be utilized again by other animals. Predators such as hawks, snakes, and foxes, feed upon the rodents, rabbits, and insects that make their homes in brush piles. Brush piles can be created in areas such as gullies to benefit wildlife and control erosion.

21.

POST OAK
(Quercus stellata)

This tree dominates the woodlands of the Post Oak Savannah, and is also known as Cross Oak due to the crucifix-shaped leaves. Although variable, this oak usually produces a good crop of acorns every 2-4 years. Acorns are eaten by white-tailed deer, turkeys, raccoons, and squirrels. It provides good cover and nesting for wildlife. The hard, heavy, durable wood is used for railroad cross-ties, fuel, fence posts, furniture, and lumber. This slow growing species is subject to insect damage as well as many diseases.

22.

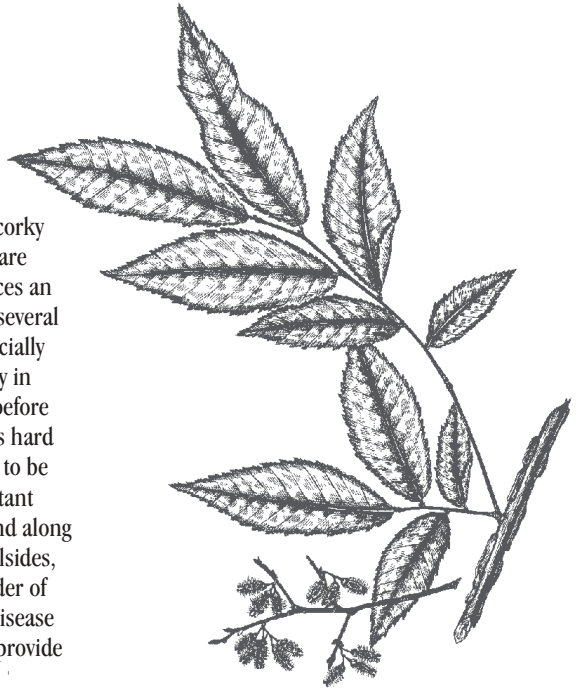
SASSAFRAS
(Sassafras albidum)

This fast growing, pest-free tree has beautiful fall coloration. Its deep blue fruit, which grows on a red stalk, is quickly eaten by quail, turkeys, rabbits, squirrels, foxes, and songbirds. White-tailed deer occasionally browse on buds and young foliage. It is interesting to note that the kingbird, crested flycatcher, and phoebe, all members of the flycatcher family and all primarily insect eaters, eat sassafras fruits. This species has little value as timber, but the root bark contains oil of sassafras. This oil was once used to make medicines, teas, candies, root beer, soaps, and perfumes. Today, leaves are still used to produce the creole gumbo seasoning called file'. One of the initial invaders of open areas, this shade intolerant, root-sprouting tree grows quickly, and often forms thickets.

23.

WINGED ELM
(Ulmus alata)

This species gets its name from the corky projections resembling "wings" that are often present on the twigs. It produces an abundant fruit crop that is eaten by several birds and mammals. Fruits are especially important because they ripen quickly in early spring and are often available before other fruits. The light brown wood is hard and heavy, but not strong, and tends to be brittle. As a result, it is not an important timber tree. This species can be found along river and creek banks, dry bluffs, hillsides, and fencerows; and, is an early invader of open fields. Subject to Dutch Elm Disease and insect attacks. Decaying leaves provide important soil nutrients.



24.

SOUTHERN RED OAK
(Quercus falcata)

One of the most common Red Oaks in East Texas. This species produces acorns that provide food for squirrels, deer, quail, turkeys, and songbirds. Seed production begins at 25 years, but the best seed crops are produced between 50-75 years. The wood is light red, coarse-grained, hard and strong, but it cracks badly when left in the sun and rots when in contact with soil. Therefore, it is not prime timber, but it has many uses such as flooring, crates, furniture, and fuel. The bark is rich in tannin which is used for tanning leather and as an astringent. This fairly long-lived species (100-150 yrs), prefers rich, loamy, well-drained sites often found along small upland streams and draws. Susceptible to fire, cankers, rot, and oak wilt.

25.

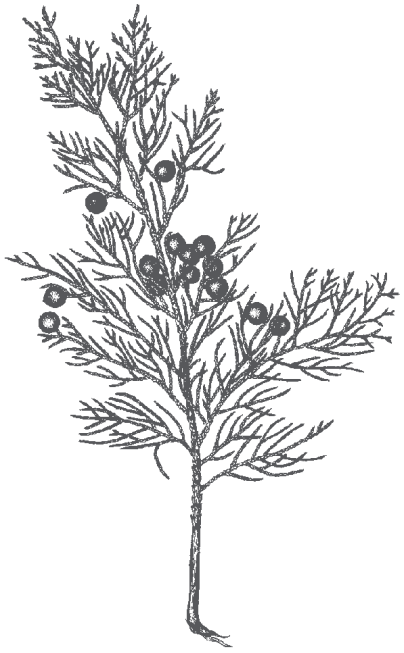
EASTERN REDBUD
(Cercis canadensis)

This small tree often forms a distinct understory with Flowering Dogwood. Like many legumes, Redbud seeds are not palatable. Therefore, they are not significantly used by wildlife. Surprisingly, the flower buds, flowers, and tender fruit are palatable to humans and are best served sauteed in butter, or the flowers can be tossed in a salad. It is also one of the most popular, fast-growing, native ornamentals. Clusters of purple flowers appear in early spring and cover the bare branches before the heart-shaped leaves are present. It is a hardy plant without serious insect or disease damage.

26.

EASTERN RED CEDAR
(Juniperus virginiana)

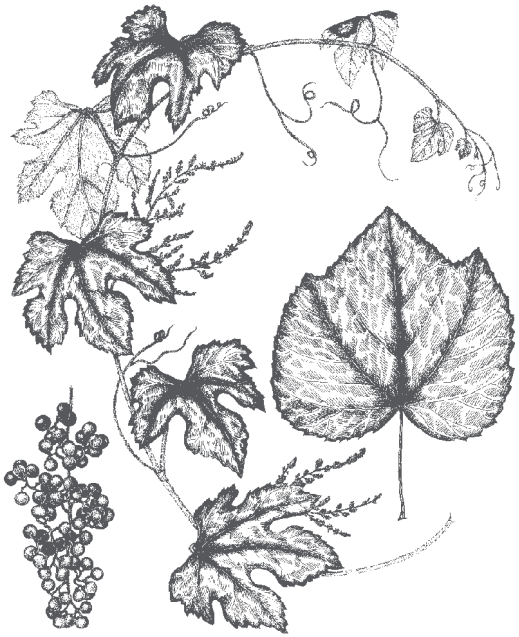
This species is important for protection and nesting cover. Seed-eating birds are the primary consumers of the berry-like, pale blue cones. Opossums, foxes, armadillos, rabbits, raccoons, skunks, and coyotes also eat the fruits. Cedar waxwings are often seen congregating in groups to feed on berries. Wood was formerly used for pencils. Today, it is used for cedar posts, cedar chests, closet lining, paneling, boats, and furniture. This species is cultivated as an ornamental in the southeast and is sometimes used as a Christmas tree. An aggressive invader of over-grazed ranges or abandoned fields; however, this slow growing, shade intolerant tree is often succeeded by hardwoods. Especially vulnerable to fire.



27.

POST OAK GRAPE
(Vitis lincecumii)

This grape is often called Pinewoods Grape. The fruit, which is smaller, more acidic, and more astringent than that of Muscadine Grape is still eaten by birds and mammals. In summer, the dense foliage provides good cover and nesting sites for songbirds. Wild Post Oak Grapes have also been used in the development of commercial varieties used in wine production.



28.

AMERICAN BEAUTYBERRY
(Callicarpa americana)

The pale blue flowers, and clusters of purple berries, readily distinguish this deciduous shrub. It produces large quantities of fruits that are eaten by many birds, raccoons, opossums, squirrels, foxes, armadillos, and wood rats. The berries are high in water content (80%), making them important during dry months. Deer and cattle compete for the leaves and twigs during the growing season and early winter. This drought resistant plant grows well in the shade, but prefers open areas. It is an excellent landscape plant.

29.

EDGE EFFECT
"The Best Of Both Worlds"

In this area of the trail, a noticeable change in vegetative species occurs as woodlands merge with open grassland. this transition reflects a habitat change. The resulting zone of plant diversity is referred to as an "edge". This edge provides two basic needs of all animal species - food and cover. These needs must be met year-round within an animal's home range, but are often not provided by the same types of plants.

30.

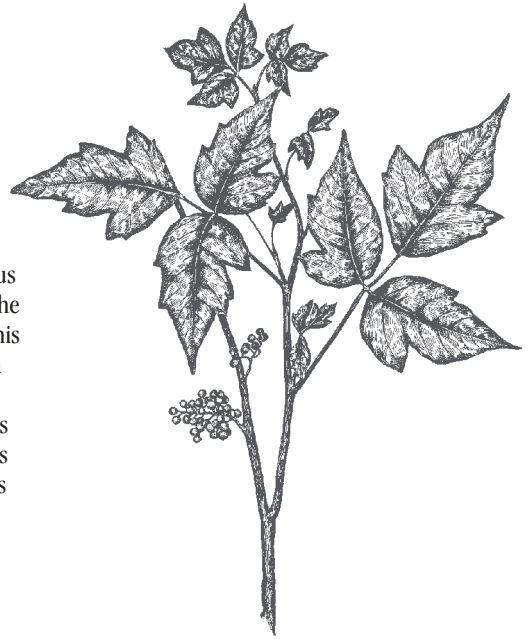
RUSTY BLACKHAW
(Viburnum rufidulum)

This shrub or small tree produces bluish fruits that are favored by turkeys, quail, many songbirds, squirrels, and other small rodents. Deer also eat the fruits and browse the twigs and leaves. The fruits have a raisin-like taste and can be eaten raw or cooked in jellies, sauces, or stews. Fast-growing and short-lived, but a good landscape plant because of its rusty red, new leaves in early spring, and its white, fragrant flowers and bluish fruits. An understory plant associated with edges, streams, fence lines, and moist woods. It grows best in open, sunny areas.

31.

POISON IVY
(Toxicodendron radicans)

This well known plant can grow as a suberect shrub or a woody vine. Its berry-like fruits are eaten by numerous birds, and contribute significantly to the diets of local squirrels. Contact with this plant can cause blisters and itching in some individuals; however, it has reported medicinal uses and the sap is sometimes used to make varnish. This vine climbs by means of aerial rootlets with sucker-like attachments, rather than twining like grape vines.

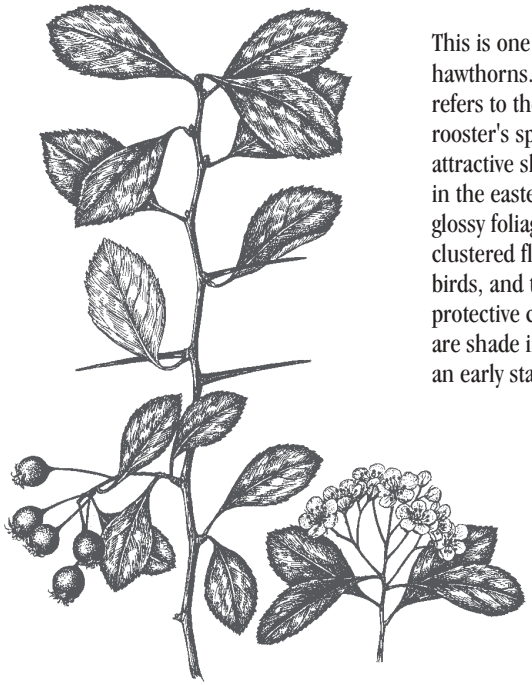


32.

COMMON PERSIMMON
(Diospyros virginiana)

The richly sweet fruit of this plant is not only desired by wildlife, but people as well. Ripe fruits are especially important to opossums, raccoons, deer, and foxes, but are eaten by several birds and small mammals. The green fruit is highly astringent and unpalatable. The dark brown wood is very strong, hard, and heavy, but yields an inferior grade of lumber. However, the wood is used to make shuttle blocks and golf clubs. It is a pioneer species found on almost all types of soils, particularly disturbed areas and woodlands, but growth is best in rich bottomlands. A valuable plant for erosion control and land reclamation.

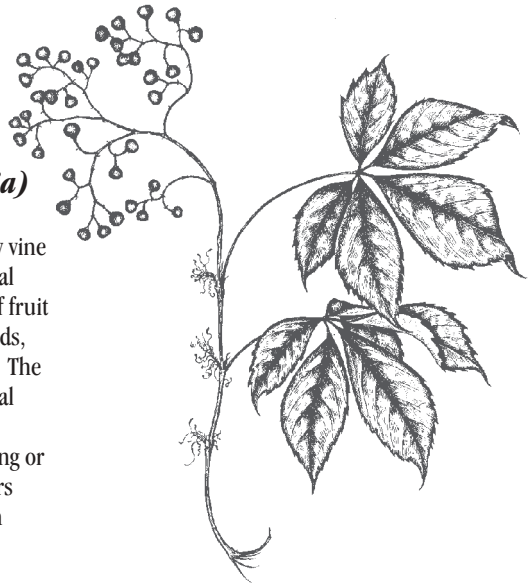
33. COCKSPUR HAWTHORN
(Crataegus crusgallii)



This is one of the most widespread Texas hawthorns. The species name, *crusgallii*, refers to the long thorns which resemble a rooster's spurs. It is one of our most attractive shrubs and is widely cultivated in the eastern part of the state for its glossy foliage, red fruit, and white clustered flowers. Fruits are consumed by birds, and the thorns provide a good protective cover for wildlife. Hawthorns are shade intolerant, and often represent an early stage in plant succession.

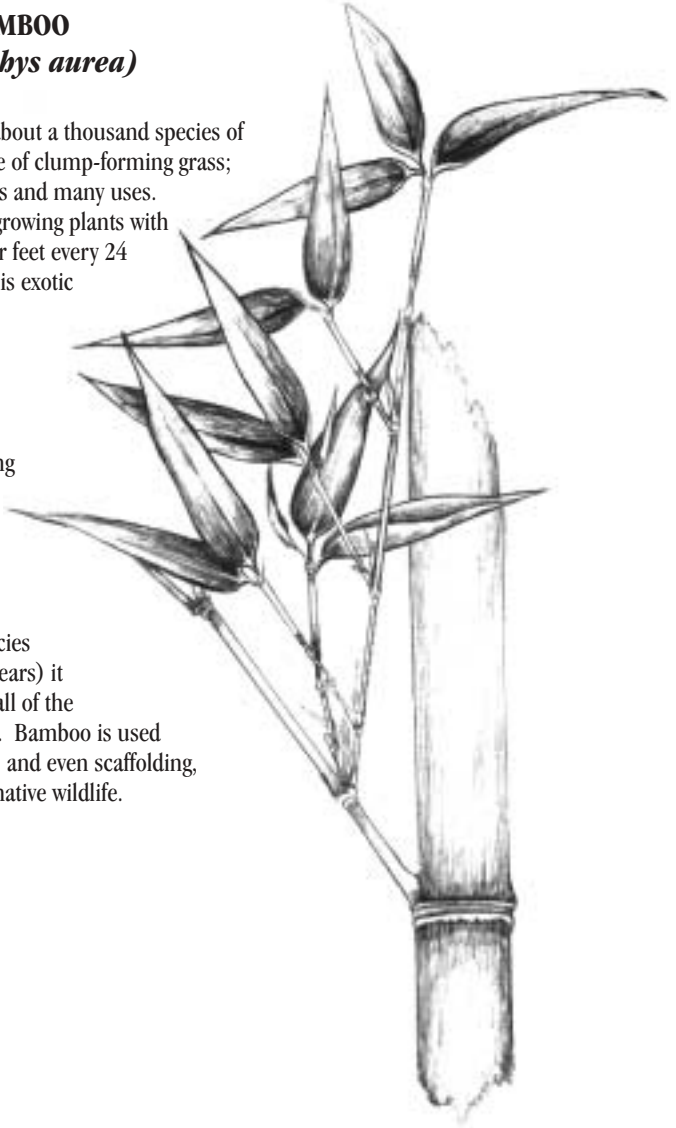
34.

VIRGINIA CREEPER
(Parthenocissus quinquefolia)



With beautiful fall coloration, this woody vine is attractive as well as productive. Several birds forage on the grape-like clusters of fruit including mockingbirds, robins, bluebirds, brown thrashers, and various thrushes. The bark has been used to produce medicinal tonics, and it is often planted as an ornamental ground cover. It is a climbing or trailing vine with adhesive discs. It favors moist soils, sunny clearings, and stream banks.

35. YELLOW BAMBOO
(Phyllostachys aurea)



In the world there are about a thousand species of bamboos. Bamboos are a type of clump-forming grass; they have a wide range of sizes and many uses. Bamboo is one of the fastest growing plants with one species growing up to four feet every 24 hours. The rapid growth of this exotic plant allows it to out-compete slower-growing natives. One unique feature of bamboo is that after it flowers the plant dies. New plants are able to reestablish from seed, maturing in 5-10 years, but losing an entire grove places a huge economic strain on farmers and wildlife (especially, Giant Pandas). More interestingly, when a species flowers (every 30, 60, or 120 years) it happens on a worlwide scale; all of the plants flower at the same time. Bamboo is used to make fishing poles, baskets, and even scaffolding, but provides little use for our native wildlife.

36.

WOODLAND POND

This small shallow pond is a valuable source of water for wildlife, and provides a breeding site for amphibians. Ponds like this one are not suitable for fish; they are usually oxygen deficient and often dry up in the summer. The absence of fish make these small ponds ideal for amphibians since their young are not subject to predation.

37.

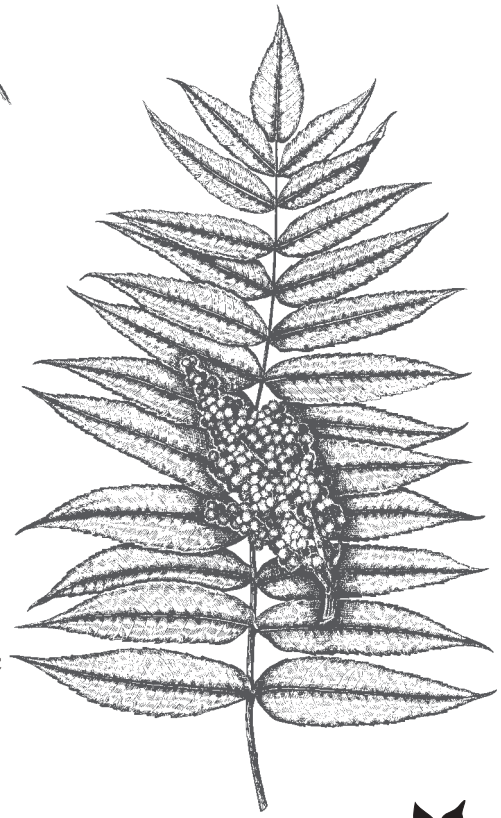
POSSUM-HAW
(Ilex decidua)

This small tree produces a bright orange-red fruit that is eaten by turkeys, quail, and songbirds. Opossums show a fondness for the fruit, hence the name Possum-haw. This deciduous tree prefers rich moist soils along streams and creeks. It is a relatively fast-grower but is short-lived. It is often referred to as Deciduous Yaupon since it resembles Yaupon, but sheds its leaves in the fall. It can be reduced to ground level by fire, but resprouts easily. Not subject to insect pests or diseases.

38.

SMOOTH SUMAC
(Rhus glabra)

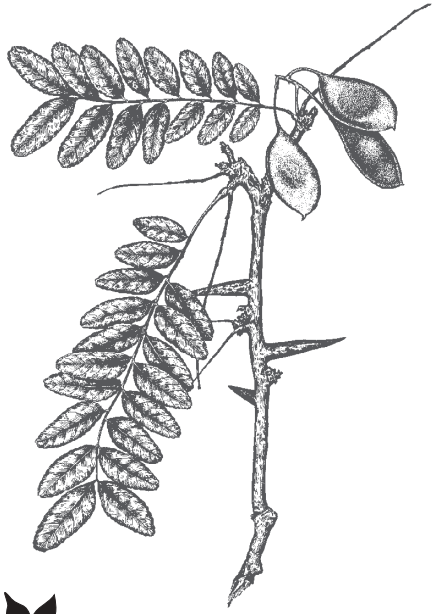
Thickets formed by this small tree are attractive to many species of wildlife as nesting and escape cover. The bright red clusters of fruit are eaten by quail, turkeys, and several songbirds. The foliage is browsed by deer, and rabbits eat the bark and small branches. Its bright showy fruit and scarlet fall leaves make this plant very attractive. The flowers are used by bees to make a fine amber-colored honey, and a drink can be made from the fruit. It does not suffer serious damage from insects or disease, but is prone to fire damage. Sumac grows in sunny areas often along forest edges. It often forms thickets from underground runners and is ideal for controlling erosion on steep banks.



39.

FLOWERING DOGWOOD
(Cornus florida)

Known for its early-blooming, showy white flowers, this species is a valued ornamental. Although poisonous to humans, numerous songbirds as well as squirrels and raccoons eat the fruits. White-tailed deer browse the leaves and twigs, particularly sprouts. The bark is a natural remedy for fever, and the wood is used for tool handles. Indians made red dye from the roots and toothbrushes from the young branches. Dogwood is a fierce competitor for soil moisture often limiting the growth of other understory plants. The foliage contains significant nutrients and is important for soil improvement. It can be found in the understory and prefers moist, slightly acidic soils along streams and lower slopes. Dogwoods are susceptible to fire damage, but will sprout vigorously following a light ground fire.



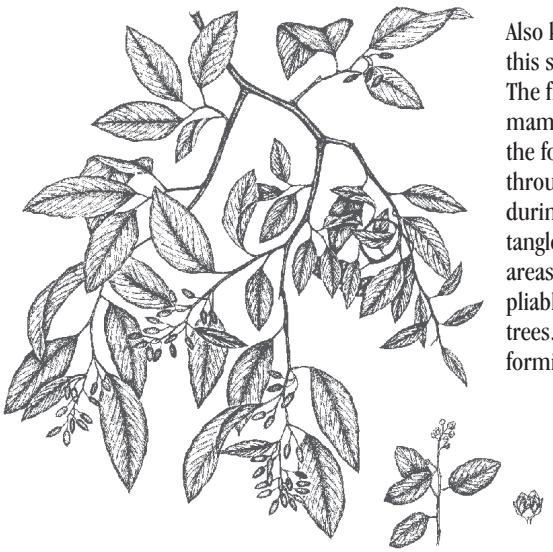
40.

WATER HONEY LOCUST
(Gleditsia aquatica)

This species resembles and easily hybridizes with Honey Locust. However, Water Honey Locust has a smoother bark and often has smaller leaves and leaflets. White-tailed deer, rabbits, squirrels, quail, and waterfowl utilize the seed and part of the seed pod for food. Grazing animals eat the saplings and young seedlings. The wood is sometimes used for fence posts, but is not very durable. It prefers rich bottomlands that have periodic flooding. Not subject to insect or disease attack, but thin bark susceptible to fire damage.

41.

ALABAMA SUPPLEJACK
(Berchemia scandens)



Also known as rattan vine, the stems of this species are used for wicker ware. The fruit is eaten by many birds and mammals, and white-tailed deer prefer the foliage. Ripened fruits persist throughout the winter providing food during this critical period. It forms dense tangles that provide excellent nesting areas and escape cover. The strong pliable stems may girdle and kill larger trees. It grows in rich, moist soils often forming hedges or thickets along fences.

QUAIL CREEK STATION #1

This small stream is similar to many other East Texas headwater streams. Shallow groundwater from neighboring hillsides filters downhill through sandy soils and then surfaces at the stream as springs. This natural filtering process removes impurities from the groundwater, resulting in clean spring water. Spring water flow and frequent stormwater runoff generate water currents which erode the stream bottom to create streambed characteristics. Most headwater streams in Northeast Texas are on steeply sloped land and have rapid water currents, especially when carrying runoff. The rushing water cuts through steam banks and moves obstacles, resulting in straight stream channels similar to that seen at stream station #1. As slope lessens and water speed slows, the energy needed to move obstacles is lost. The result is a meandering stream channel as seen at stream station #2. After flowing a few hundred yards, Quail Creek joins other headwater streams to form Gilley Creek. The waters of Gilley Creek meander into Lake Tyler and eventually into the Angelina River.

Although Quail Creek is small, it is home to a diversity of animals which are especially adapted to living in headwater ecosystems. Dozens of aquatic invertebrate species, at least 4 species of fish, and several species of amphibians, including toads and salamanders, live in and utilize this aquatic habitat. Terrestrial wildlife such as raccoons, coyotes, and deer, frequent the stream in search of food and water.

42.

EASTERN HOP HORNBEAM
(Ostrya virginiana)

The flower of the hop hornbeam is called a catkin. Wildlife eat the fruits, buds, and catkins of this species. The fruits are small flat nutlets in drooping sacs that resemble hops. These nutlets are high in protein and fat; thus, a good food source. This species is unusual in that it retains dead leaves throughout winter. The bark is very distinctive, smooth, and tight on younger trees, becoming shreddy with upturned scales on older trees. The thin bark of the Hop Hornbeam makes it very susceptible to fire. Hop hornbeam is a very shade-tolerant understory species; slow-growing and short-lived.

43.

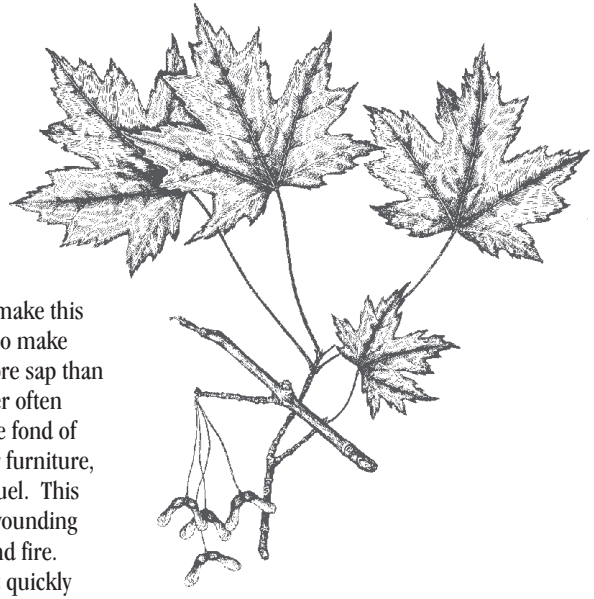
SILKTREE
(Albizia julibrissin)

Also called Mimosa, this exotic small tree is native to China and temperate Asia. Its delicate fern-like foliage, and soft pink powder-puff-like flowers make it a prized ornamental. The pink blossoms attract hummingbirds and bees. The seed pods are bean-like, containing flattened, shiny brown seeds. Like many other exotics, this fast growing tree often escapes into the native landscape. Its popularity has declined in recent years due to its susceptibility to a fungus called Mimosa Wilt.

44.

WHITE ASH
(Fraxinus americana)

The winged seeds of this tree ripen in August and September. Wood ducks, quail, turkeys, songbirds, and small mammals utilize the seeds while deer browse young twigs and leaves. White Ash wood is highly valued commercially. The strong, elastic wood is used to make tool handles and baseball bats. It grows well in moist, well-drained soils and a variety of upland situations. Subject to damage by insects, fungi, and fire.



45.

RED MAPLE
(Acer rubrum)

Thin bark and attractive leaves make this tree distinctive. It can be used to make maple syrup, but it requires more sap than a Sugar Maple. Rabbits and deer often browse foliage, and squirrels are fond of the seeds. The wood is used for furniture, gun stocks, wooden ware, and fuel. This tree is particularly sensitive to wounding and subsequent rots, insects, and fire. However, fire-killed trees sprout quickly from roots. Red Maple is most common in wetter areas, but is found on drier ridges throughout the East Texas Piney Woods.

46.

AMERICAN ELM
(Ulmus americana)

The American Elm is extensively planted as a shade tree. It is a moderately fast-grower that flowers only after reaching the age of 35-40 years. Seeds are an important source of food for many song birds, game birds, and rodents. White-tailed deer, opossums, turkeys, and rabbits browse on buds and twigs. The soft wood is used for furniture, crates, caskets, and sometimes for boats. It is sometimes found on wet flats and bottomland sites but, does best on better-drained soils. Subject to Dutch Elm Disease and insect attacks. Decaying leaves provide important soil nutrients.

47.

AMERICAN ELDERBERRY
(Sambucus canadensis)

As a large shrub or a small tree, Elderberry is an important source of wildlife food. The purple berries are favored by numerous bird species as well as deer, and many small mammals. This plant is famous for a variety of culinary and medicinal products made from the fruit, bark, and leaves. It is especially known for the outstanding wines, jellies, and desserts made from the sweet fruits. This plant is fast-growing, easy to transplant, good for landscaping, and hardy. It often forms thickets and can sprout from the stump. Elderberry can be found along streams and in wet areas.

48.

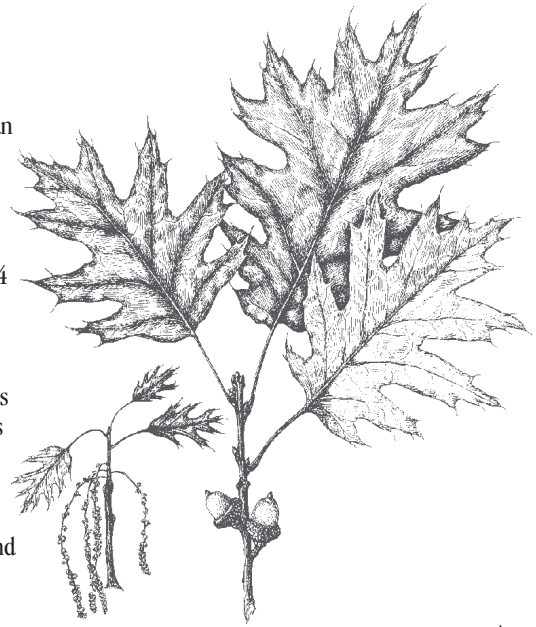
PECAN
(Carya illinoensis)

This is the Texas state tree. It is a fast-growing, tall, and long-lived hickory. The nutrient-rich nuts are a favored food of many species of wildlife, especially squirrels, deer, and crows. Many cultivated varieties have been developed for fruit production. Trees begin to bear fruit at about 20 years of age and may live to be 300 years old. The wood is valuable for paneling, flooring, and furniture. Pecans are prone to insect and fire damage. They prefer the deep rich soils associated with streams and river bottoms, but have been widely planted throughout the state.

49.

SHUMARD OAK
(Quercus shumardii)

This oak is one of the largest and fastest growing red oaks, making it an ideal shade tree for lawns or parks. Acorns are eaten by deer, squirrels, turkeys, waterfowl, and songbirds. Seed production begins at about 25 years and good crops occur every 2-4 years. The wood of this species has some commercial value as cabinets, flooring, veneer, and lumber. The thick bark of the Shumard Oak offers some protection against fire, but it is susceptible to wilt and leaf disease. This beautiful oak, with its symmetrical leaf design, is never found in groves, but occurs singly and widely spaced in rich moist bottomlands.

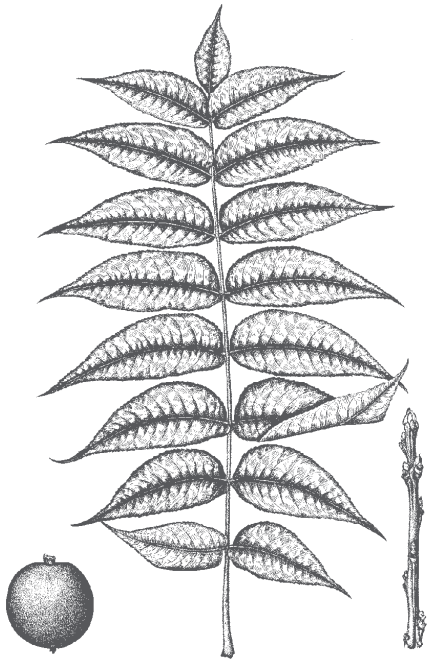


50.

AMERICAN HOLLY
(Ilex opaca)

This small evergreen tree is used as a common Christmas decoration. Its bright red winter fruits and thick handsome foliage make it very attractive as an ornamental. Numerous birds and mammals take advantage of this winter food source, and the foliage is often browsed by deer and cattle. Holly wood is unique; it is almost ivory white when first cut but gradually turns brown when exposed to the air. It can be found along stream banks and in rich, moist soils. Very shade tolerant. Does not have serious insect pests or diseases, but is susceptible to fire damage.

51.



BLACK WALNUT
(Juglans nigra)

Black walnuts produce a husk covered nut that is sweet and edible. Walnuts are a favorite food of squirrels and are often used in candies, confections, and ice cream. Nuts ripen in the fall, but the husks do not split. The beautifully grained wood makes some of the finest lumber; as a result most of the larger trees have been harvested. Due to its ability to absorb shock and its resistance to shrinkage and warping, it is prized for gun stocks and furniture. Walnut roots secrete a substance known as juglone which inhibits the growth of seedlings, even other walnuts, around the parent tree. Although shade intolerant, Black Walnut has few insect enemies and is fairly resistant to fire due to its thick bark. Black Walnut is usually found along streams or at the edge of fields in bottomland floodplains.

QUAIL CREEK HANDS-ON ACCESS

Visitors are welcome to observe the stream and aquatic life up close. Fish can be observed in the deeper pools and invertebrates are often hidden among the water-saturated leaves, rocks, and gravel. Since the creek is small and easily disturbed, we ask that nothing be removed and that hands-on use be limited to this designated area only.

52.

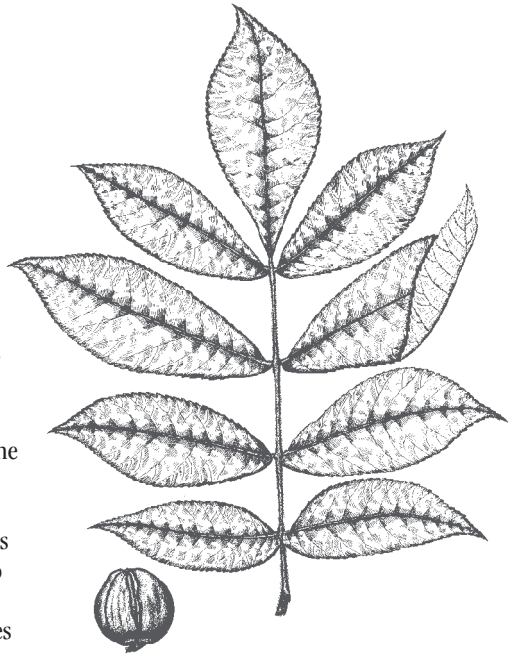
BOTTOMLAND POST OAK
(Quercus similis)

Also known as Swamp Post Oak, this large bottomland oak is similar to Post Oak which occurs on upland sites. It is distinguished by its leaf pattern; leaves have narrow lobes that rarely form the characteristic cruciform shape like Post Oak. It is very similar to Post Oak in all other accounts. For more information refer to #21.

53.

MOCKERNUT HICKORY
(Carya alba)

The nut of this hickory is small with a thick shell. The kernel is extremely difficult to extract, hence the name "mockernut". The sweet nuts are readily eaten by raccoons and squirrels despite the thick hull, and deer browse young shoots. The wood is especially good for tool handles because of its shock resistance and resiliency. Trees begin crop production at about 20 years of age with prime production occurring between 40-150. Mockernut Hickories are long-lived and can survive for hundreds of years. This hickory is shade intolerant and is extremely sensitive to fire damage, but is resistant to insects and fungi. It is usually found in moist upland sites or along creeks and streams.



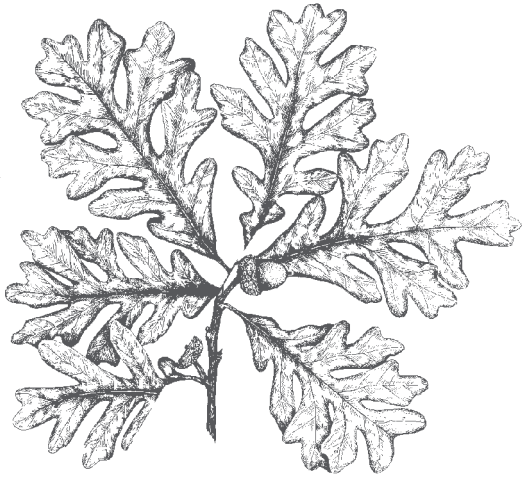
QUAIL CREEK STATION #2

Refer to Quail Creek Station #1.

54.

WHITE OAK
(Quercus alba)

White Oak is common in the forests of East Texas. This large, long-lived oak is a prolific acorn producer. Acorns are eaten by deer, raccoons, squirrels, turkeys, and quail. It has a heavy, hard wood that is the most important wood of the white oak group. It is used for fuel, railroad ties, baskets, cabinets, barrels, tools, furniture, and construction. It is prone to heart rot resulting from fire, and is susceptible to insect attack, cankers, and root rot. It prefers rich, fertile soil.



55.

DEVIL'S WALKING STICK
(Aralia spinosa)

This peculiar-looking tree has a distinct subtropical appearance. Its black berries are eaten by many species of songbirds, foxes, and skunks, and the leaves are browsed by deer. The bark has been used for medicinal purposes; it has been used to treat toothaches, rheumatism, and as a stimulant. The stout, spiny stems, large compound leaves, and immense flower cluster make it attractive as an ornamental. Fast-growing, but short-lived, this species is relatively pest free. However, it is easily damaged by fire and mowing equipment. It is shade intolerant and grows along streams and forest edges.

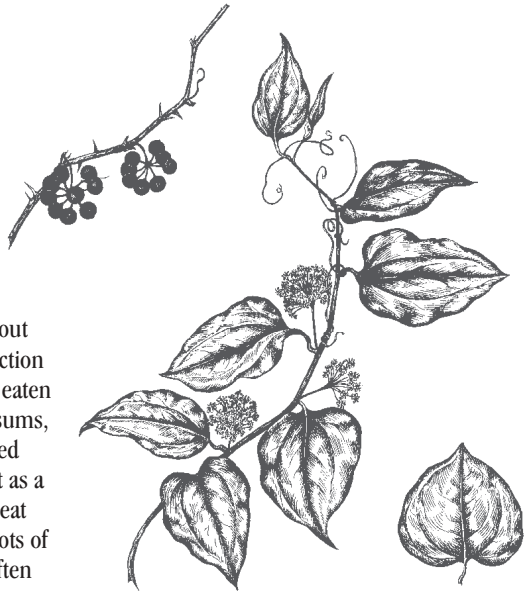
56.

SOUTHERN WAX-MYRTLE
(Myrica cerifera)

The waxy coating on the fruit of this evergreen shrub gave rise to its name. Originally the fruit was boiled to remove wax, which was used for candle making. Fruits and buds serve as food for wildlife. Songbirds, ducks, quail, turkeys, rails, and gray foxes utilize the fruit while deer browse young twigs and leaves. This species is often used as a landscape plant, and is resistant to insect and disease damage. Plants also survive burning by resprouting vigorously from the root collar. Wax-Myrtle grows in swamps, wooded areas, sandy soils, and low-lying acid prairies.

57.

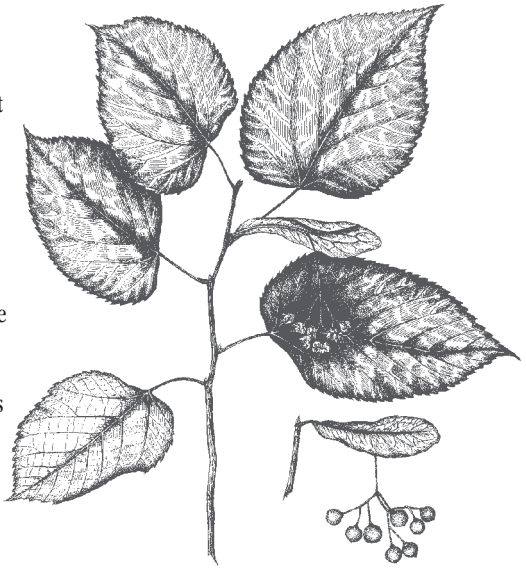
COMMON GREENBRIAR
(Smilax rotundifolia)



In addition to providing food, this stout woody vine also provides good protection cover. Its black berry-like fruits are eaten by turkeys, songbirds, rabbits, opossums, wood rats, and raccoons. White-tailed deer also depend on greenbriar fruit as a winter food source, and cattle often eat the stems and leaves. Shoots and roots of this plant are edible and roots are often utilized in wood carving. This shade tolerant species may overburden young trees, but rarely inhibits the growth and development of tree seedlings. Vines are used extensively for decoration, and flourish in open areas.

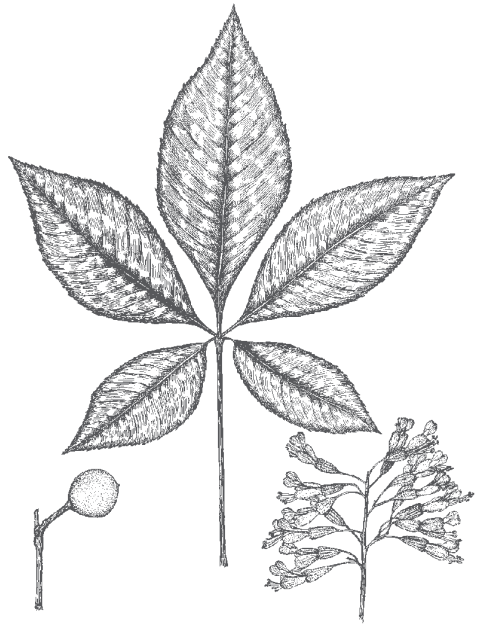
58.

CAROLINA BASSWOOD
(Tilia caroliniana)



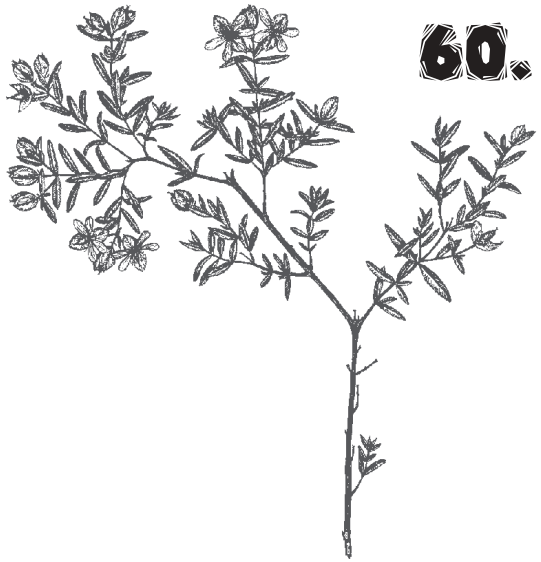
The name Basswood comes from the bast or fiber obtained from the bark of these trees. By simmering the bark and removing the fibers, indians and early settlers were able to utilize these fibers to make chord. This species is easily confused with Red Mulberry, but can be distinguished by its uneven leaf base. The almost woody fruits of the basswood are sometimes eaten by squirrels and rodents, and rabbits and deer utilize twigs and foliage. The flowers make an excellent white-colored honey, and the wood is one of the best native woods for carving. It grows best along streams and creek bottoms.

59.



RED BUCKEYE
(Aesculus pavia)

Buckeyes have a peculiar life cycle; they leaf out and go dormant earlier than most other species. It is not uncommon for them to lose their leaves in late summer, often alarming the unexperienced gardener. The attractive bright red tubular flowers of Red Buckeye make it appealing to hummingbirds. The fruit, a pod containing 1-2 chestnut-brown seeds with a white "eye", are distasteful and poisonous. However, squirrels may eat newly fallen fruit. Native Americans used ground up fruit to produce a fish-stunning substance. Red Buckeye is usually an understory plant growing in moist woods and along stream banks.



60.

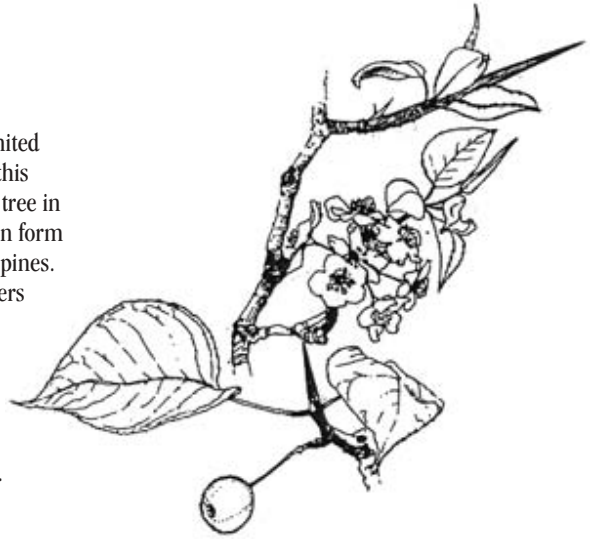
ST. ANDREW'S CROSS
(Ascyrum hypericoides)

This small shrub, named for its pale yellow, cross-shaped flower, rarely exceeds a height of 3 feet. It is an important source of white-tailed deer food in East Texas. It is sometimes cultivated for an ornamental, but is rather short-lived.

61.

CALLERY PEAR
(Pyrus calleryana)

Introduced from Eurasia by the United States Department of Agriculture, this pear has become a highly popular tree in the South. Seedlings are variable in form and have thick, stout, prominent spines. Its showy white, odd smelling flowers are some of the first to bloom in spring. Although planted for its fruit, seeds are easily dispersed by birds into the surrounding landscape. This pear grow best in moist, fertile, well-drained soils.



Wildflowers, Ferns, Trees, Shrubs, and Vines (unmarked)

Aloe, False	*Manfreda virginica*
Blackberry, Louisiana	*Rubus louisianus*
Black-eyed Susan	*Rudbeckia hirta*
Bullnettle, Texas	*Cnidoscolus texanus*
Clematis, Many Color	*Clematis versicolor*
Dayflower, Erect	*Commelina erecta*
Elephantfoot	*Elephantopus* spp.
Fern, Blunt-lobed Cliff	*Woodsia obtusa*
Fern, Christmas	*Polystichum acrostichoides*
Fern, Rattlesnake	*Botrychium, virginianum*
Fern, Resurrection	*Polypodium polypoidiodes*
Fern, Western Bracken	*Pteridium aquilinum*
Four-O'Clock	*Mirabilis albida*
Frostweed	*Verbesina virginica*
Goldenrod	*Solidago* spp.
Greenbriar, Small's	*Smilax smallii*
Green-dragon	*Arisaema dracontium*
Hackberry, Dwarf	*Celtis tenuifolia*
Hawthorn, Bush's	*Crataegus bushii*
Honeysuckle, Coral	*Lonicera sempervirens*
Horsemint, Spotted	*Monarda punctata*
Mayapple	*Podophyllum peltatum*
Milkweed, Butterfly	*Asclepias tuberosa*
Morningglory, Bigroot	*Ipomoea pandurata*
Pea, Butterfly	*Centrosema virginianum*
Peppervine	*Ampelopsis arborea*
Phlox, Drummond	*Phlox drummondii*
Plum, Chickasaw	*Prunus angustifolia*
Pokeberry	*Phytolacca americana*
Ragweed	*Ambrosia* spp.
Sleepy-Daisy	*Xanthisma texanum*
Snailseed, Carolina	*Cocculus carolinas*
Sneezeweed, Bitter	*Helenium amarum*
Spanish Needles	*Bidens bipinnata*
Spleenwort, Ebony	*Asplenium platyneuron*
Sunflower, Ashy	*Helianthus mollis*
Tickclover	*Desmodium* spp.
Trumpet-creeper	*Campsis radicans*
Violet	*Viola* spp.
Yaupon	*Ilex vomitoria*

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