

INKS LAKE STATE PARK INTERPRETIVE TRAIL GUIDE



Acknowledgements and Precautions

This Interpretive Trail Guide was developed as a class project by the 2013 class of the Highland Lakes Chapter of the Texas Master Naturalist program. We want to express our appreciation to the many individuals and organizations that made this project possible.

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This project builds on a previous interpretive guide titled *Inks Lake State Park Hiking Trail Guide for Pecan Flats* developed by Sarah Fryar in 2005.

We offer a special note of appreciation to Betty Cruikshank, the coordinator extraordinaire of the 2013 Highland Lakes Master Naturalist class; Jerry Stacy, who personifies the ideal of the Texas Master Naturalist; and the many other Master Naturalists who contributed to the Highland Lakes Master Naturalist class of 2013.

Thank you.

Precautions

Texas State law prohibits the collection and/or removal of any plant, animal, rock or other material from a State Park. This Trail Guide refers to some plants as being edible, but park visitors are not allowed to pick or consume any of the plants described. In addition, a poisonous plant could be confused with an edible plant.

At some times during the year, especially in November and December, the Pecan Flats area is closed due to public hunting. Visitors should verify that the Interpretive Trail is open before planning a hike. See the description for Trail Marker 27 for more information about public hunting.

INTRODUCTION

Welcome to the Inks Lake State Park Interpretive Trail! This guide is coordinated with numbered sign posts along the trail through the Pecan Flats primitive camping area. From the trailhead near the Park Headquarters (located at the entrance station), the trail winds for three miles through cedar, pecan and hardwood forests, along riparian and upland natural areas and up to scenic viewpoints over Inks Lake and adjoining landmarks.

The entire trail is 3.3 miles long and can be completed at a moderate pace in under three hours. The first sections of the trail are easy to follow and well maintained. The best views are on the final portion of the trail. This part of the trail has some narrow stretches and a modest amount of elevation gain.

You should plan to carry plenty of water. There are no sources of water on the trail. Composting toilets can be found in the Pecan Flats Campground area about half way along the trail.

Inks Lake State Park

Inks Lake State Park comprises 1,200 acres (almost two square miles) of rolling hills of granite and gneiss rock. It has abundant populations of White-tailed Deer and borders the pristine Inks Lake. Land for the park was officially set aside in 1939, but was not open to the public until 1950. It is among the most popular state parks in Texas.

This beautiful state park is located about 10 miles west of Burnet, Texas, off Highway 29. Travel three miles south on Park Road 4 and you will enter a Hill Country haven. It can also be reached from Highway 1431 in Kingsland or Highway 281 north of Marble Falls.

Inks Lake State Park is on the eastern side of the Llano Uplift, a geologic structure that includes Enchanted Rock and much of the northern Hill Country. The park offers 7.5 miles of stunning hiking trails with breathtaking views.

Interpretive Trail Guide

This trail guide was designed to share many interesting aspects of the park and to help you become more familiar with the Hill Country, some of its native trees and shrubs, and other natural phenomena. We hope you enjoy your stay and will come back soon.

This guide is organized around 28 numbered Trail Markers. From the trailhead adjacent to the Park Headquarters (located at the entrance station), follow the Green Trail about a quarter of a mile to the "Interpretive Trail" sign marking the beginning of the Yellow Trail to the left. Continue on the Yellow Trail another quarter of a mile until you cross Park Road 4 at the gate to the Pecan Flats Primitive Camping Area. The Trail Markers begin on the left side of the path just past the gate.

If you follow the yellow arrows, you will find all 28 of the Trail Markers in sequential order. Most of the markers indicate trees and shrubs typical of the Texas Hill Country, but you will also find markers that indicate items of geologic and natural science interest.

For each Trail Marker, the guide has a description of one or more items of interest at that site. The guide includes latitude and longitude coordinates and occasional notes about the path to the next Trail Marker

indicated with this icon: ➡

PECAN FLATS INTERPRETIVE TRAIL GUIDE

GUIDE CONTENTS

- 1. Mesquite**
- 2. Mistletoe**
- 3. Bee Bush and Hackberry**
- 4. Cedar Elm**
- 5. Black Willow**
- 6. Wafer Ash**
- 7. Tasajillo (Pencil Cactus)**
- 8. Agarita**
- 9. Natural Cycles and Texas Persimmon**
- 10. Moss and Lichen**
- 11. Ashe Juniper**
- 12. Bottomland Decomposition**
- 13. Pecan**
- 14. Live Oak and Post Oak**
- 15. Chinaberry tree**
- 16. Natural Processes**
- 17. Vein of Quartz**
- 18. Mustang Grape**
- 19. Valley Spring Gneiss**
- 20. Vernal Pools**
- 21. Claret Cup Cactus, Lace Cactus, Yucca and Prickly Pear Cactus**
- 22. Scenic Overlook: Llano Uplift**
- 23. Scenic Overlook: Buchanan Dam and Inks Lake**
- 24. Scenic Overlook: Stumpy Hollow and Camp Longhorn**
- 25. Granite Boulder**
- 26. Wet Weather Creek Bed**
- 27. Deer Blind**
- 28. Mesquite with Claret Cup**

MESQUITE

Prosopis glandulosa Torr.

TRAIL MARKER: 1

N 30° 44' 2.1" W 098° 21' 57.2"

This first marker indicates the venerable and majestic mesquite tree. It is a survivor and can withstand drought and other severe weather. Its roots add nitrogen to the soil. Its seed pods have been used as food for humans, deer and other animals.

The word “mesquite” is a Spanish adaptation of the Aztec word *mizqitl*, meaning “tree.” Mesquite is commonly referred to as honey mesquite or western honey mesquite. It is well adapted to dry climates with tap-roots reaching depths of 40 feet, heights reaching up to 20 feet, and thorns approximately one inch in length along the branches. Since mesquite is such a hardy plant, it makes for a great pioneer species, meaning it can grow where other species cannot. In the Edwards Plateau region of Central Texas, mesquite often grows in the same area as Ashe Juniper, Texas Persimmon, Live Oak, Threeawns, Sideoats Grama and sedges. It is also associated with xeric species (species that prefer dry habitats) such as Catclaw.



There are many uses for mesquite other than BBQ. It provides a great habitat for many different wildlife species, including the White-tailed Deer that can be seen throughout the park. Mesquite produces pods, or beans as they are commonly referred to by the locals. The beans are sweet and can be eaten when cooked correctly. Native Americans ground up dried mesquite pods to make flour for breads and cakes. Native Americans also used the leaves, bark, and roots for eye treatments and to cure problems with the stomach and the skin. The gum that oozed from the trunk was probably the part most used for medicinal purposes. Darker sap was used to make black dye, and clear sap was used for making candy.



Mesquite pods are high in sugars and protein, but when uncooked are largely indigestible for large mammals, allowing for the pods, or seeds, to pass through the digestive tract. In Texas, most mesquite seeds are dispersed by cattle.

MISTLETOE

Phoradendron tomentosum

TRAIL MARKER: 2

N 30° 44' 2.5" W 098° 21' 56.5"

At the previous trail marker, you saw a mesquite tree. Here is another mesquite tree, but what is different about this one? If you look high in this mesquite tree, you will see an example of mistletoe.



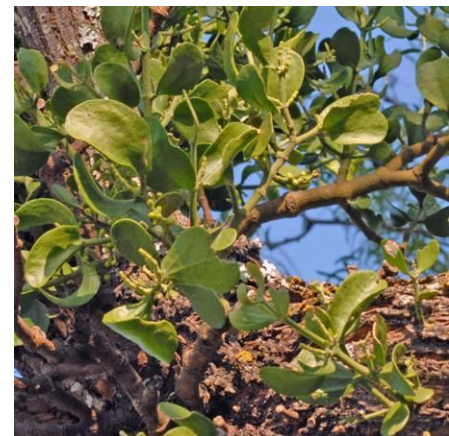
Mistletoe is a favorite around the holiday season. Not only is it a pretty decoration but as tradition goes, the custom of exchanging kisses under the mistletoe creates an opportune time to get that holiday kiss from your sweetheart.

Archeologists have found fossil pollen records that show that mistletoe has been in existence for millions of years. Mistletoe is considered to be a semi-parasite. Even though it obtains most of its nutrients from its host tree, it does have green leaves, which indicate that it performs photosynthesis.



Long ago, people noticed that wherever birds left their droppings, mistletoe would appear. This is where its common name comes from. “Mistle” is an Anglo-Saxon word for “dung” and “toe” means “twig;” thus, mistletoe means dung-on-a-twig. Mistletoe is also called witch’s broom and “basket on high.”

The berries of mistletoe are quite toxic to people, but to wild animals such as squirrel or deer, the berries are a divine feast rich in protein. Mistletoe also provides a great habitat for many species of wildlife.



BEE BUSH and HACKBERRY

TRAIL MARKER: 3

N 30° 44' 1.3" W 098° 21' 55"

Just to the right of this trail marker, you will see Bee Bush, which is a shrub, and directly behind the marker is a small hackberry tree.

BEE BUSH

Aloysia gratissima

Bee Bush is a perennial shrub that reaches a height of about 10 feet and is a member of the verbena family. It produces clusters of white, vanilla-scented flowers. These flowers grow in spikes and extend above the one-inch long leaves. They appear between March and November, depending upon the amount of rainfall, and are loved by bees.

This fragrant, slender shrub has a light gray bark. It grows in various types of soil from moist loams to caliche. It will grow in partial shade but blooms most prolifically in full sun. Bee Bush can be pruned as a hedge for privacy. This lovely native shrub is also valued as browse for wildlife.



HACKBERRY

Celtis Sp.

The name “hackberry” originated from the Scottish word *hagberry*, meaning “bird cherry.” This misunderstood tree can grow up to 100 feet in height and is extremely drought-resistant. Some consider it unattractive with its appearance of wart-like growths, leathery leaves and frequent limb shedding. Many people claim to suffer from seasonal allergies from the pollen the tree produces. For these reasons, many traditional landscapers do not list it as a desirable plant.



However, this is one of the most valuable trees to wildlife. The fruit is known to be consumed by at least 25 species of birds including wild turkeys. The fruit is round to oval and emerges as orange-red turning to deep purple. The flesh is thin, yellow, sweet, and very desirable. The fruit was eaten by Native Americans.

Other names for hackberry trees are one-berry, false-elm, hoop-ash, and nettle-tree. Some commercial uses for the wood include pallets, furniture, and sporting goods.



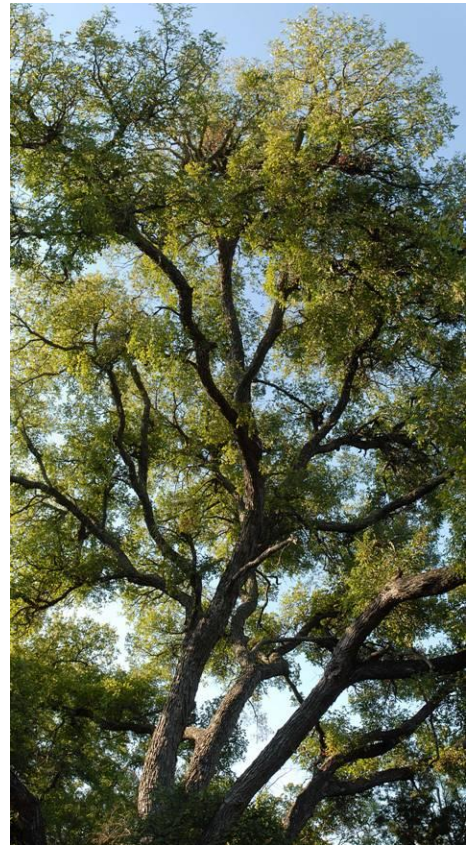
CEDAR ELM

Ulmus crassifolia

TRAIL MARKER: 4

N 30° 44' 1.5" W 098° 21' 53.8"

The Cedar Elm is another tree that is abundant at Inks Lake State Park. It loves the rocky, poorly drained, and compacted soils prevalent in some parts of Central Texas and may reach 90 feet in height. Cedar Elm leaves are small and shiny green with serrated or jagged edges and are thicker than other elm leaves. In the fall the many small leaves turn a bright gold, but as they begin to fall, they do not contribute significantly to leaf litter because they decompose very rapidly. The Cedar Elm is hardy, is well-adapted to the Central Texas environment and is considered to be a deer-resistant tree.



BLACK WILLOW

Salix nigra

TRAIL MARKER: 5

N 30° 44' 1.5" W 098° 21' 53.6"

You are now entering a riparian zone, which is an area that is the interface between land and a river or stream. In riparian zones, you will find plant species that are identified with water, such as the Black Willow, sycamore trees and various forbs and grasses.

The Black Willow is a medium-sized deciduous tree that typically grows up to fifty feet tall with a trunk up to three feet in diameter. It is typically found in swamps and near riverbeds, therefore earning it the nickname of “swamp willow.” The large trunks and roots help prevent erosion in these areas. The Black Willow grows in clumps along these water courses in the Southwestern United States and in parts of Mexico.

In the spring, the tree produces flower clusters called catkins similar to those of the Live Oak. These yellow blooms grow about 1 to 2 inches in length and have soft, dense hairs. The wood of the tree is weak, soft, and reddish to pale brown in color. The fruit of the tree is a small capsule that can be broken open revealing numerous, small down-covered seeds. The leaves turn a beautiful bright yellow in the fall.

Historical uses include a quinine substitute made from the roots. The bark contains the chemical compound salicylic acid and was used as an aspirin substitute to treat fevers and coughs. Native Americans used parts of the tree for baskets and mat making. Today, weavers treat the bark with a method that produces a peach color in natural fabrics.



WAFER ASH

Ptelea trifoliata

TRAIL MARKER: 6

N 30° 44' 1.1" W 098° 21' 53"



This valuable native North American tree is also known as the hop-tree, potato-chip tree, quinine tree, and the stinking ash, to name a few. The genus name *Ptelea* is the classical name for elm, and trifoliolate means three leaflets. The Wafer Ash is the northernmost member of the rue or citrus family.

The Wafer Ash is often a large rounded shrub, but it can grow to a tree of 25 feet in height. It makes a great understory or cover tree for small mammals. It is often found in full sun to partial shade but may fail to flower if it receives too much shade. Like the Black Willow, the Wafer Ash does well in seep areas found in riparian zones. It flowers in March and bears fruit August through September. The fruits are borne on drooping clusters on slender pedicels and have a thin wafer-like appearance. The seeds are oblong or ovoid, leathery and reddish brown.

The Wafer Ash's most valued use in nature is to serve as a host plant to the Giant Swallowtail Butterfly and the Two-tailed Tiger Swallowtail Butterfly. These butterflies lay their eggs on the leaves, and the caterpillars feed on the leaves after hatching. When the swallowtail larvae first hatch, they resemble bird droppings. This mimicry protects them from predators until they are larger and morph into a beautiful green color that matches the leaves. Other floral visitors include bees, wasps, flies, and ants. White-tailed Deer do not make use of it as browse because of the bitter taste of the leaves.

The dried wafer-like fruit has been used as a substitute for hops in beer making in the past, hence the name hop-tree. The bitter root bark was used in a tincture in tropical countries as a tonic for dyspepsia. Some early Western physicians used the tonic as a stomachic because of the alkaloid berberine it contains.



TASAJILLO (PENCIL CACTUS)

Cylindropuntia leptocaulis

TRAIL MARKER: 7

N 30° 44' 1.6" W 098° 21' 50.5"

Watch out for this plant! Its prickly spines are barbed and can be difficult to remove. The Pencil Cactus got its name from the stem's resemblance to a pencil. The stem is covered with spines that can be up to two inches long. It tends to live in areas where other shrubs are present and, in ideal conditions, can sometimes grow to heights greater than four feet when it is being protected by neighboring shrubs. Each new growth or branch can grow to six inches and often twists and tangles with other branches and shrubs nearby, creating a dense and woody thicket of spines. It produces a beautiful light yellow to yellow-green flower that only opens in the late afternoon and then closes at night in the months of May and June. This cactus is commonly referred to as the Desert Christmas Cactus because of its bright red berries that appear after the cactus flowers. Another common name for this plant is jumping cactus.



AGARITA

Berberis trifoliolata

TRAIL MARKER: 8

N 30° 44' 1.7" W 098° 21' 50.2"

The Agarita is a small evergreen shrub growing in many soil and weather conditions throughout the Texas Hill Country. The stiff and pointy leaves resemble that of the holly plant. It provides shelter for birds and small animals.

Agarita has small yellow blooms in the spring that attract honeybees because of the rich pollen. The small red Agarita berries are also a valuable food source for birds and other wildlife and can be used to make a sweet delicious jelly.

Many Texas herbalists consider this a favorite medicinal plant because every part of the plant has a use. Historically, the roots and the leaves provided treatment for many ailments, from fevers to stomach disorders. The bark was chewed by Native Americans to treat gum diseases. The Mescalero Apache shaved the bark, mixed it with water, and used it as an eyewash. The entire plant was used as a ceremonial plant by many Native Americans. The yellow wood of the plant as well as the berries have been used for dyes for hides and skins as well as for face paint. Today, the berries are used for fabric dyes. The Agarita is a desirable addition to any landscape, not only for its modern uses and drought tolerance but for the fascinating history it holds.



CYCLES OF NATURE

TRAIL MARKER: 9

N 30° 44' 2.1" W 098° 21' 49.3"

From this viewpoint, you can envision many examples of the cycles of nature. The physical environment abounds with these natural cycles--from the diurnal cycle of day and night, the seasons of the year, the cycles of abundant rainfall and drought all the way to the cycles of tectonic movement over many millions of years.

At the left edge of the meadow in front of you is a Texas Persimmon tree, which is described on the next page. Across the meadow, there are Yucca plants that periodically send a flowering stalk 6-10' above the ground. You will find more information about Yucca plants further along the trail.

Beside the post, you can see a stump of a Loblolly Pine with very obvious growth rings. Most trees produce one new ring every year. Can you discover how old this tree was when it was cut down?

The mix of Juniper and hardwood trees you see (Pecan, Live Oak and others) changes over time. You may notice some of the Juniper trees with dead branches. This is a sign of drought. These trees react to reduced rainfall by letting some of their limbs die off to conserve how much water they need to survive.

On the ridge beyond the meadow, you can see rocky outcrops. These represent part of the endless geological cycle of orogeny (mountain building) and erosion.

Humans are also part of the cycles of nature. In the fall, Native Americans ate the fruits of the Texas Persimmon. They also used various parts of the Yucca plant. The fibers of the long spears were spun and braided into cords and rope. The sharp spikes on the end of the spears were used as needles. The roots of the Yucca can be used to make soap. As a result, the yucca is sometimes called the "rope and soap" plant.

TEXAS PERSIMMON

Diospyros texana

TRAIL MARKER: 9

N 30° 44' 2.1" W 098° 21' 49.3"

The Texas Persimmon is native to Texas, living mostly in the southern portions of the state. Here at Inks Lake State Park, most of these trees reach to heights of 12 feet and higher with multiple trunks and smooth, peeling bark resembling a Crape Myrtle. Its leaves are thick and leathery and somewhat fuzzy underneath.



Other distinguishing characteristics are its drought resistance mechanisms. The shape of its leaves and the smooth bark guide rain water down to the base of the tree so that every drop can be used by the roots. If drought becomes severe, the leaves of the Texas Persimmon will drop until the drought is over and will come back as soon as there is adequate water for survival.

This unique tree is dioecious, meaning that there are male and female trees. Only the female trees produce fruit. The Texas Persimmon tree blooms from February to June. In August and September, Texas Persimmons ripen into glossy black and very sweet fruits with multiple large seeds providing a very palatable food source for native wildlife (and park visitors). The fruit is edible to humans, but be sure it is ripe before taking a big bite. Ripe fruit will be dark purple to black in color. If the fruit is still green, it has one of the most acerbic tastes of anything you may ever eat. Ethnographic records indicate Native Americans used the fruit medicinally as an astringent to treat mouth ailments.

MOSS AND LICHENS

TRAIL MARKER: 10

N 30° 44' 2.5" W 098° 21' 48.6"

At this trail marker, you see examples of moss, which is the dark green plant growing on the rock, as well as lichen, which is the lighter sage-colored plant.

MOSS

Bryophyta

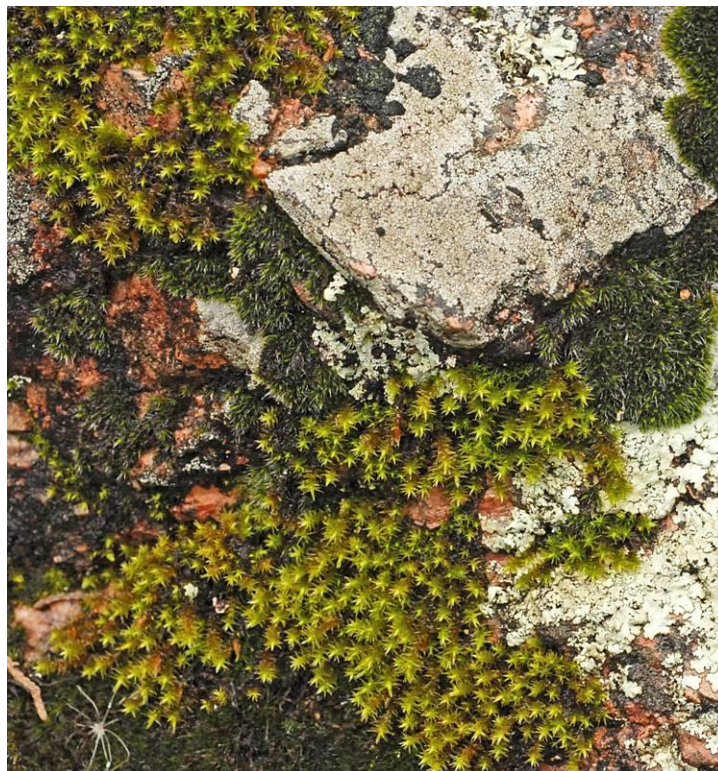
There are 12,000 species of moss with the scientific name *Bryophyta*. Most mosses are less than 4 inches tall. The damp gneiss outcroppings at Inks Lake State Park provide an ideal habitat for mosses.

Mosses are non-vascular plants without proper roots. They are herbaceous, or non-woody, absorbing water through their leaves and harvesting sunlight to create food through photosynthesis.

Moss species grow primarily near damp areas with a water supply. Mosses are further classified by what they are growing on: rocks, waterfall spray areas, tree trunks, or disturbed soil. They rely on the wind to disperse their spores.

Mosses provide us with an early warning, or bioindicator, of air pollution. The nitrogen levels in moss can be monitored. Some will not grow in an area of high pollution. Some mosses are used in the treatment of wastewater.

Mosses are becoming popular in commercial and residential landscapes because of their velvety beauty and because they provide contrast to other plants.



LICHENS

Unlike mosses, lichens are not a single organism. They are a combination of two different organisms, usually a fungus and an algae. The fungus and algae work together in a symbiotic relationship, meaning that they both benefit. The fungus provides moisture and shelter while the algae photosynthesizes and produces food in the form of simple sugars. Nitrogen is provided by bird excrement, organic debris, and plant leachate. There are as many as 20,000 species of lichen with more being discovered.

The most commonly found lichens in the park are crustose lichens. Crustose lichens are considered to be a pioneer species because they can grow where other species cannot. These interesting organisms literally eat stone, turning rock into dirt. The fungal part of the lichen produces a chemical that breaks down the rock and over many years produces enough soil for other organisms to grow.

Lichens grow on trees, rocks, and soil. They are non-parasitic to trees. Some scientists believe that the presence of lichens may be an indicator of pure air quality as they will not grow in a smoky or polluted environment. Some lichen extracts may be used for dyeing fibers.



ASHE JUNIPER

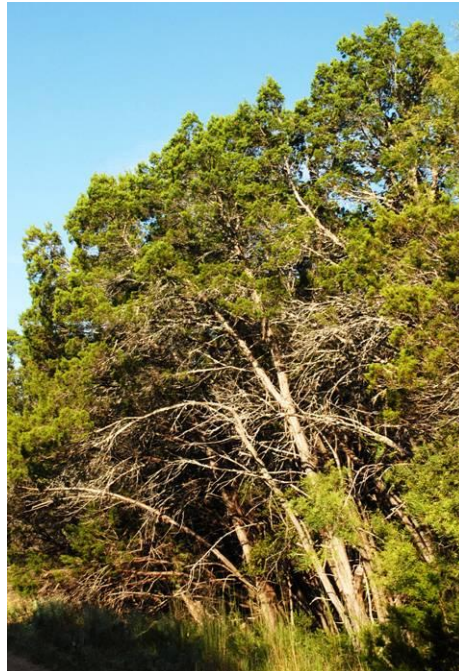
Juniperus ashei

TRAIL MARKER: 11

N 30° 44' 2.9" W 098° 21' 44.3"

Ashe Juniper is very abundant in Central Texas and can be seen almost everywhere you look in the park. These trees have been a part of the Central Texas plant community for thousands of years.

Ashe Juniper is sometimes referred to as mountain cedar and is the cause of the dreaded "cedar fever" that many Texans are cursed with every year. According to many locals, juniper berry tea may be effective against "cedar fever."



Native birds have taken advantage of the overabundance of Ashe Juniper. Older stands, or groups, of Ashe Juniper and oaks are the primary habitat for endangered species such as the Golden-cheeked Warbler and the Black-capped Vireo. As the Ashe Juniper ages, its bark becomes shaggier and almost fluffier, providing for the perfect nesting material for some species of birds, most notably the Golden-cheeked Warbler. Big thickets of these older stands are now disjunct or in isolated areas, creating a loss of habitat for these species.



The wood of the Ashe Juniper is extremely rot resistant, which makes it very good fence post material. It provides year-round shade for wildlife and is great for erosion control, but is considered by some to be a "water hog" that competes with other vegetation for rainwater. However, the tree will die if it receives too much saturating moisture over a period of time.



Now, if you follow the directional arrow to the left, the trail markers will be in the same order as this guide.

BOTTOMLAND DECOMPOSITION

TRAIL MARKER: 12

N 30° 44' 3.5" W 098° 21' 37.7"

Behind this marker is a magnificent Pecan tree, but the phenomenon of interest here is on the ground around you.

Pecan Flats is an example of bottomland, the areas near a water source where the water table is near enough to the surface that plants like Pecan trees can grow.

What is the difference between soil and dirt? Dirt has no living organisms in it. Soil is the combination of dirt and the microorganisms that allow plants to grow. Where does dirt and soil come from? It may seem like a silly question, but the answer is more subtle than you might think. Ultimately, dirt accumulates from dust particles within every raindrop and more importantly from the decomposition of plant and animal life.

Decomposition is a very vital part of bottomland ecology. Snags, which are dead trees, and fallen logs are home to many organisms, some that cannot even be seen by the naked eye. These microorganisms break down the litter on the forest floor, replenishing the nutrients in the soil. Besides being home to microorganisms, they also provide shelter and habitat for small animals and some bird species. This is one of many reasons why firewood should not be collected in the park.

