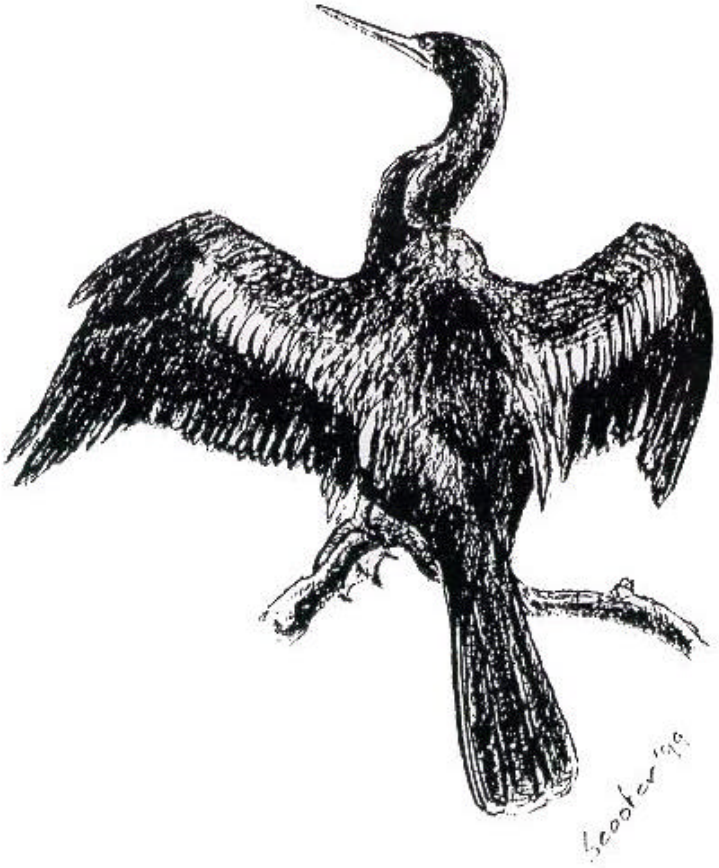
Brazos Bend



Outdoor Guide

During your visit to Brazos Bend State Park we hope you were able to view a diverse variety of plants and animals. The most important aspect that one can derive from nature is the recognition of the interdependence of all living things and man's role in ensuring their survival.

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Welcome

Brazos Bend State Park provides its visitors with a unique opportunity to see many different kinds of plant and animal life that are contained within its 3 major ecosystems; **tall-grass prairie, wetlands and bottom-land hardwood forest**. The wildlife is very visible to the public because the park is a sanctuary and provides them safety. Some animals, such as the **American alligator**, have remained essentially unchanged since the time of the dinosaurs and have lived in this area for at least 25,000 years. There are **Live Oak** trees in the park that have been here longer than Texas has been a state!

The park is here for your enjoyment, but remember that you are the visitor so please:

- Treat wildlife with respect
- Obey all warning signs.
- Be aware that alligators and venomous snakes exist in this park.
- Do not Litter.
- Be advised that it is against State Law to harm or remove anything from this wildlife preserve.

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Notes

The Delicate Balance

While walking the nature trails, try to be aware of the diversity as well as the mutual dependence each living thing has on its neighbor. The perpetuation of life is not possible unless all things work together in harmony and balance. There are, unfortunately, a few examples along these nature trails where man's interference has upset the balance of nature. The results are fairly easy to see. The introduction of non-native species, such as Chinese Tallow Tree, Water Hyacinth and Imported Fire Ants which have no natural enemies in our food chain, are almost impossible to control. Also the removal of large predators such as wolves, black bears and large cats, along with the destruction of neighboring habitat, allow deer populations to explode and become unhealthy. This is when man must step forward and take responsibility for his actions through conservation and management efforts.

Helpful Hiking Hints

- Take water and insect repellent !
- Carry your park map and mileage chart. *(available at park headquarters or visitor center.)*
- Wear suitable footwear such as hiking boots or tennis shoes. Open-toed shoes increase the risk of contact with Poison Ivy and other hazards.
- Most foot trails are not suitable for bicycles.
- Do not forget your checklist (s), binoculars and camera.

(Over 275 species of birds, approximately 62 different reptiles and amphibians and around 47 mammal species have been sighted in the park. Bird checklists and various identification guides may be purchased at either the Headquarters or Visitor Center gift shops.)

Potential Hazards

Staying on the trail will minimize the risk of exposure to the following hazards:

- **Fire Ants:** Their nests can be easily hidden in vegetation so pay attention to where you sit or stand.
- **Chiggers** Also called **"redbugs";** These microscopic mites inhabit taller grassy areas and will cause red itchy bumps.
- **Poison Ivy:** ***"Leaves of three, let them be."***
  This plant most often appears as a hairy vine attached to trees but often grows along the sides of the trails. It has three leaves growing off of a central stem.
- **Venomous Snakes: DO NOT KILL SNAKES!** Not even venomous ones. Most snakes in this park are non-venomous. Snakes are not aggressive and will not chase you, although they will defend themselves if threatened. There are 4 different species of venomous snakes in the park: the **Copperhead, Cotton Mouth (water-mocassin), Coral Snake and Rattlesnakes**.



- **Alligators:** Keep a distance of at least 30 feet between you and the alligator. Do not approach any dead grassy mounds near the lakeside during the summer (nests) and never approach a pod of young alligators (1 foot long or smaller) - mother is sure to be close by and on the look-out for intruders!
  (For more helpful information, refer to "Alligator Etiquette" on the back of your park map.)
- **Animal-Human Contact: DO NOT FEED OR APPROACH ANY ANIMAL IN THE PARK!** No matter how cute and harmless they may seem, wild animals are unpredictable and can carry ticks, parasites and various diseases such as rabies and distemper.

Bibliography

1. **Bland, Roger G**. *How to Know the Insects*. Iowa: Wm C. Brown Company Publishers, 1978
2. **Hotckiss, Neil**. *Common Marsh, Underwater, & Floating-leafed Plants of the United States and Canada*. New York: Dover Publications, Inc., 1972
3. **Hughes, Sarah Anne**. *A field Guide to Reptiles and Amphibians Coloring Book*. Boston: Houghton Mifflin Company, 1985
4. **Texas Parks and Wildlife Department**. *Texas Tracks*. Austin: Texas Parks and Wildlife, PWD-900-10/88
5. **Vines, Robert A**. *Trees, Shrubs, and Woody Vines of the Southwest*. Austin: University of Texas Press, 1960

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Most alligators 10 feet long or longer are males and generally top out at 14 feet. Female alligators typically grow no longer than 8 to 9 feet. It is extremely difficult to determine the age of an alligator that is larger than 6 feet. The life expectancy of alligators in the wild is about 25 to 35 years. The estimated population of alligators in the park (those 6 feet and above) is around 250 to 350.

At Brazos Bend State Park, the alligators have become accustomed to being in close proximity to humans and have learned that we pose no threat to their livelyhood. They have also learned that we are not a source of food. This is why we can visit their territory in relative safety. **Problems can arise if alligators begin to associate man with food. Sometimes food is given to the alligators by visitors thus creating problem alligators who will seek out humans in the expectation of being fed.**

Alligators and man can co-exist successfully when we follow a few basic rules:

DO NOT FEED, APPROACH OR HARASS!

1. Keep a distance of at least 30 feet from an alligator. If an alligator is in the trail or you cannot safely pass by one that is along the side of the trail, you must turn around and go back the way you came.
2. Never let your pet drink from the lakes or even approach the lakeside. Keep it under your control on a leash no longer than 6 feet.
3. Between the months of June and September, never approach a dead grassy mound near the edge of the water. This is most likely a nest and mother will be guarding it. The same applies to a pod of little gators (usually no longer than 1 foot in length).
4. Never feed or harass an alligator. It can loose its natural fear of humans, thus becoming a danger to visitors.
5. If an alligator approaches the area in which you are fishing and shows interest in your catch, YOU ARE THE ONE WHO NEEDS TO FIND ANOTHER SPOT. DO NOT USE A STRINGER. KEEP YOUR CATCH IN A BUCKET.

Food Chains

Insects, birds, mammals, reptiles, amphibians and fish all live within the park; while trees, shrubs and aquatic plants also flourish with unique diversity. Watch for interactions between these different organisms.

For instance, as an alligator prepares to lunge at a bullfrog, the bullfrog hungrily eyes a dragonfly. The dragonfly, in turn, catches a mosquito which has recently feasted on the nectar of a nearby flower. The flower, mosquito, dragonfly, bullfrog and alligator form one of the many food chains in the park.

Forests

As you walk through the **Live Oak** forest, keep in mind that everything living in this woodland plays an important role in the life cycle of the forest community. Plants provide food and shelter for wildlife. Wildlife continues the cycle when it dies and decomposes, returning vital nutrients to the soil. The rich soil then encourages the growth of new plants, and the cycle begins again.

Look for places where **White-tail Deer** have browsed for food. A "browse line" can actually be seen a few feet above the ground where most of the new leaves and underbrush have been eaten back from the edge of the trail. Also, stop a moment and listen to the sounds of the woodland. Different habitats have different sounds. The forest sounds are contained by the density of vegetation. You may hear the drumming of a woodpecker, the rustling of leaves in the wind, or the scratch of squirrel claws as they scurry up a tree trunk.

- **Live Oak -** It is one of the most common trees of Brazos Bend. It loses leaves yearly but not like other trees. Last year's leaves do not fall off until the new ones bud out in the spring. Some of the larger trees are estimated to be as old as 230 years.

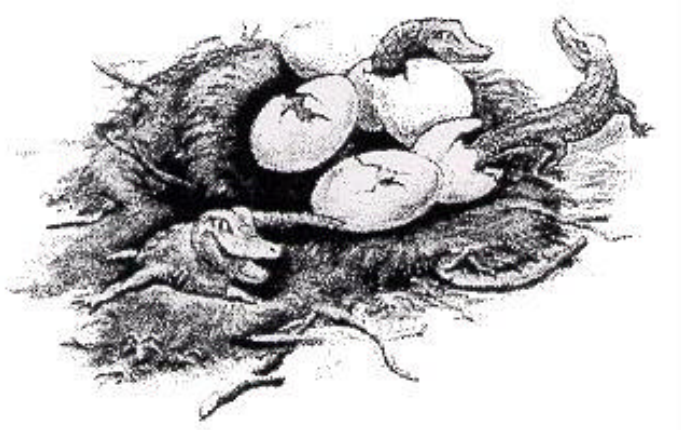
- **Yaupon -** It is the dominant understory plant. It is an evergreen with only the female tree bearing bright red berries. The leaves were used by the now-extinct **Karankawa Indians** as a ceremonial drink. The famed "Black Drink" which is a strong purgative. The berries are eaten as food by birds and mammals but are poisonous to humans. (Never eat any wild plant!!)

- **Epiphytes -** These are plants that grow on or are supported by another plant. They do not get food from the support plant. Look for **Resurrection Fern** on the limbs of Live Oak trees. It derives its name from its habit of curling up and appearing dead in dry weather, then uncurling and becoming green with the return of moisture. Can you tell if there has been much rain lately? **Spanish Moss** is in the same family as the pineapple. The hair-like stems, which may reach lengths of 25 ft., are covered with slender, grayish-green "leaves". Spanish Moss is not a true moss; it grows on the outer surfaces of trees, using them for support, but never causing them any harm. It survives on nutrients and moisture collected from the air and sunlight. The Indians found many uses for Spanish Moss including diapers for their babies and woven skirts for the women. Settlers dried it and used it as padding for upholstered chairs and couches.

- **Vines -** Poison Ivy is one of the most common plants in the park. It can be found sprouting from the ground or climbing trees. Notice the common leaf pattern of three leaflets at the end of each stem. The vine can be recognized

Males will mate with many different females and the mating actually occurs underwater accompanied with unusual displays of affection.

In June, female alligators will start to build nests. They will gather grasses and build a mound (about 5 ft. in diameter and about 2 1/2 ft. high) near the water's edge. She will then lay approximately 25 to 50 eggs inside and cover them up. This will be guarded for the incubation period of about 60 days. Due to the warmer temperatures, the eggs that are near the surface tend to be males while the ones deeper in the nest where it is cooler tend to be females.



Around the end of August and the first of September when the baby alligators are ready to hatch, mother alligator will listen for "chirping" noises from the nest. They may need her to help them out of the nest as well as the shell. She will uncover the mound and help those stuck in the shell by gently rolling the eggs in her mouth and then releasing them into the water. Since baby alligators are hatched with a full set of teeth, they are able to hunt for their own food (mostly insects). They are from 7 to 9 inches long at birth. Mom's priority is to guard her babies. She gets help from the natural camouflage (yellow striping) of the hatchlings which helps them blend with the vegetation on the surface of the water. Also, the babies now use the "chirping" as a distress call. But even so, only about 4 percent of the hatchlings will survive to adulthood. Hatchling alligators will grow about a foot a year for the first 6 years.

- **American Alligator -** King of the wetlands and the largest predator in the park, the American Alligator dominates the wetland ecosystem. Alligators and other reptiles such as turtles are cold-blooded. This means that they cannot control their own body temperatures and must use the warmth of the sun as fuel for energy. Alligators, snakes and turtles can often be seen basking on the banks or floating logs. They seldom move during this process of "collecting energy" so it is important that we do not disturb them. If you see a basking alligator with its mouth open it is cooling off its body, much like the panting of a dog. The only other time it may open, its mouth is to warn you that you are too close. It may also hiss at you! Alligators often move from one body of water to another so you may see an alligator crossing a trail. A good way to estimate the length of an alligator whose body is not totally exposed above or out of the water is to estimate the distance in inches between the bump of its eye and the bump of its nose. Then convert that number into feet. For example, if you guess that there is 6 inches between the nose and eyes then the alligator is probably about 6 feet long.

Mating season begins in late March and lasts until the end of May. You may hear deep bellows coming from the lakes. This is the mating call of the male alligator. (Not to be confused with the call of the male bullfrog which has inflection and is repeated consecutively). You may also hear or witness head slapping in the water. Male alligators are very territorial during this time and sometimes challenge each other for territory or female partners.

even without its leaves by its "hairy" appearance. Deer eat the tender young shoots and birds eat the seeds with no harmful effects. Humans are the only animals allergic to its toxins. Even the smoke from burning poison ivy in campfires can cause an allergic reaction. If you come in contact with poison ivy wash exposed area thoroughly as soon as possible. Vines climb toward sunlight along tree trunks throughout the forest. Look for the smooth, gray-green **Alabama Supplejack (Rattan) Vine**, the summer blooming **Coral and Trumpet Vines** as well as the woody **Mustang Grapevine**. Various vines provide food sources in the forms of fruit and nectar. The vines of the forest use their unique habits of growth as a way to "steal" sunlight from the plants that support them. Vines have weak stems and must either creep along the ground or rely on some other object for climbing support.

Mustang grapevine

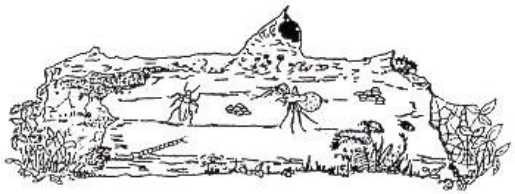
- **The Living Tree -** Notice the bark on any large oak tree. See how it thickens on the underside to help support the weight of the tree as it arches. The bark on the top side is thinner because it is not under the same stresses. Root systems also play an important role. They not only anchor the tree in the ground, but draw water and nourishment from the soil as well. The mighty underground system includes millions of thread-like rootlets. These rootlets can penetrate as for as the widest spread of the branches and as deep as the tree is high. Trees spend their lives collecting and storing energy which may then be used as food by other organisms. The **Yellow-bellied Sapsucker**, a relative of the woodpecker, chisels small holes in horizontal lines on the trunks of live trees. Look for short rows of little holes. These holes do not seem to hurt the tree because the sapsucker never girdles it (cuts the sapwood of the tree in a complete circle). The sapsucker will return year after year to check his work for more sap and insects.

- **Hollow Trees -** The term "heart-rot" sounds dreadful but is not as serious as it may sound. Trees use their heartwood centers only for support and not for sustaining the tree's life. The outer layers of sapwood perform this function. The centers of some trees rot and become hollow, thus providing food and shelter for forest inhabitants. However, heart-rot does weaken the tree's ability to

withstand strong winds and storms. Even if it falls, the tree will continue to serve its forest community.

Y **The Dead Tree -** An old tree gets many visitors! Woodpeckers, in search of a meal, have found wood-boring insects in abundance here. Well equipped with a strong, chisel-like bill, woodpeckers not only chisel into tree trunks to gather food, but also to build nest holes and roosting cavities. Their barbed tongues can spear and extract insects from the tree bark. While pecking, they sit upright against the tree, propped up by a stiff tail and aided by specialized feet with two toes in front and two toes behind. Several kinds of woodpeckers live in Brazos Bend State Park, including the **Red-bellied** and the secretive **Pileated Woodpecker**.

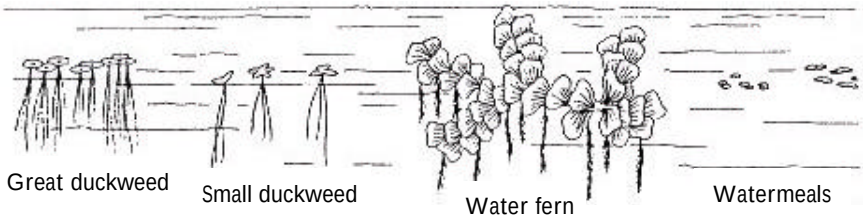
Y **The Recycled Forest -** Dead trees are never removed from this forest because their role is much too important to the health of the ecosystem. Everything in the forest community is in the process of becoming something else. An old log is in the process of returning to the soil the nutrients it stored while it was alive. Through decay, it serves as nature's "grocery store" where many plants and animals can find nourishment. As they dine, bacteria, fungi, lichens and insects are helping to break down this log and in time, it will become an indistinguishable part of the recycled forest floor. *(Never disturb or turn over dead limbs or logs! You may disturb a venomous spider or snake!)*



Y **Creepy Crawlies -**

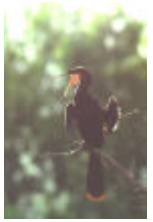
Insects and spiders may be the easiest creatures to spot on the trail. Along the ground, look for **Fire Ants, Red Harvester ants, and Velvet Ants** (which are really wingless wasps that sting!). Look on tree limbs and branches in the spring and summer to find caterpillars.

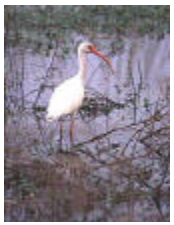
either a lily-type pad at the top or a large creamy, light yellow flower. **Water Hyacinth** floats on the surface and has a tall thick violet colored flower.



You can easily identify the **Black Willow** tree above you in the summer by its slender, tapered leaves. This tree is often found on river and lake banks. It was used for the manufacture of artificial limbs and during pioneer days, was burned to make fine charcoal for black gunpowder. Indians used its bark as an aspirin-like analgesic and cut saplings to use in constructing their huts.

➢ Bird Life - Located in the **Central Flyway**, Brazos Bend State Park is visited by over 270 bird species, many of them waterfowl. Among the many fall migratory waterfowl, one can view **Blue-winged and Green-winged Teal, Pintails, Woodducks and American Wigeons**. Many geese and **Sandhill Crane** flocks may be viewed just outside the park. It is not uncommon to see a **Bald Eagle** feasting on these geese flocks. Eagles or an ocassional **Osprey** may be seen fishing the lakes of the park in the winter months. On occassion even **Peregrine Falcons** have been sighted. You may also sight the bright yellow **Prothonotary Warbler** or the red and black flash of the **Vermillion Flycatcher**. Listen for the call of the **Northern Parula** or the peeping of the **Black-bellied Whistling Ducks**. Some of the more common water birds that can be found at various times of the year are **Great Blue, Little Blue, Tri-Colored, Green, Yellow-Crowned and Black-Crowned Night Herons, Great and Snowy Egrets, and White Ibis**. Look for an **Anhinga** drying its wings. This bird swims under water and spears fish. You may see it swimming about with just its neck and head above the surface.





(Be sure to take a bird checklist and identification guide with you!)

- Marsh **-** looks similar to a flooded grassland
- Swamp **-** looks similar to a flooded forest

- **Succession -** Many of the lakes you see are undergoing a major change. The orderly, gradual, and continuous replacement of wetland plants with woodland plants is called succession. Pond succession occurs as water plants die, decompose, and build up the soil level in the lake. Rainwater also helps this build-up also by washing silt down from the surrounding higher ground. Eventually the lake fills in and becomes a meadow then finally a forest.

Aquatic Life

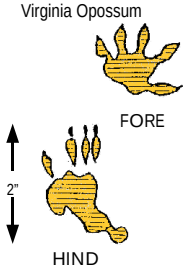
- **Insects -** Depending upon the time of year, the wetlands are home to a great variety of **dragonflies, damselflies, butterflies and moths**. Dragonflies and damselflies are very similar. To tell them apart, watch as they land. Damselflies fold their wings while dragonflies leave their wings open. Similarly, when they land, butterflies usually fold their wings while moths keep their wings spread out.

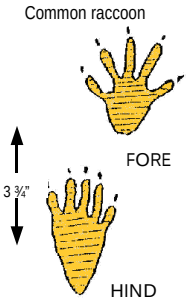
- **Vegetation -** The "green slime" you see covering the water is not slime at all. It is **Duck Weed**, the smallest known flowering plant. As its name implies, it is a favorite food of waterfowl. The small green floating petaled plant is called **Water Lettuce** and it is a favorite food of the water turtles such as **Red-eared Sliders and Musk Turtles**. The tall grass growing further out in the lake is called **Southern Wild Rice,** an excellent food source for birds. Of course during the summer months you can't help but notice the Water Lotus and Water Hyacinth. **Water Lotus** is the tall stalk which has

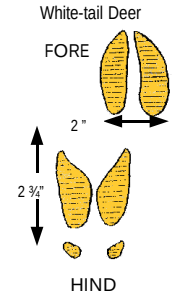
You may encounter the web of the larger **Golden Silk Spider** or the smaller crab-like **Gasteracantha Spider** strung across the trail. Don't worry, these spiders are harmless to humans. If you happen to walk into a spider web you will startle the spider who will retreat to the outer edge of the web. It is best to back out of the web instead of streaming it along after you.

Snakes are also visible throughout the park. You may encounter a venomous snake but you are more likely to see one of the many varieties of non-venomous snakes such as the **Broad-Banded Water Snake** or a **Texas Rat Snake**. You may also discover other **reptiles**, such as the **Green Anole** or the **Five-Lined Skink** along the path. Please be very careful not to disturb **ANY** plant or animal that you discover along the trail, with possible exception of the mosquito trying to include you in it's food chain!

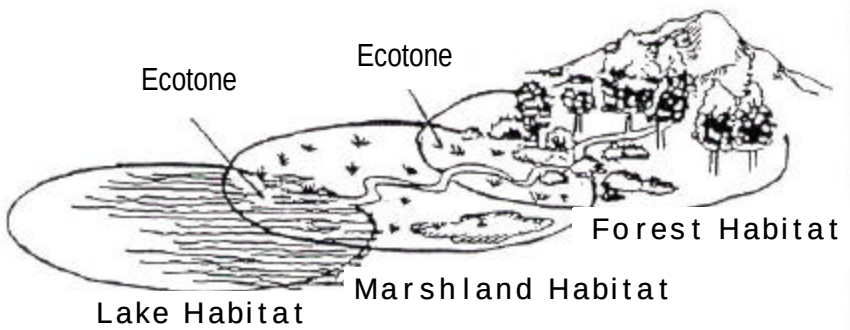
- **Animal Tracks -** Watch for different kinds of animal tracks along the trail. Often the forest animals prefer walking along our man-made trails because it is easier than cutting through thickets of trees and shrubs. The most common tracks found in this forest area are **White-tail Deer, raccoons and Nine-banded Armadillos.** But you may also see **opossums, coyotes or feral hog** tracks. Have you noticed the small disturbed areas in the soil along the trail? These are caused by a common "critter" of Brazos Bend, the **Nine-banded Armadillo**. It searches the soil for insects with its long snout. It can smell insects as deep as 8 inches! It uses its sharp claws to get to them. The armadillo is a new-comer to this area, migrating from South America somewhere around 1850. This unique mammal's excellent hearing and a strong sense of smell help to compensate for its rather poor eyesight. If alarmed, the armadillo is likely to spring straight off the ground and then run quickly away or into its burrow.







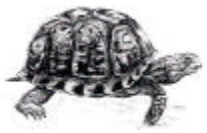
Ecotones



Look around you. Are you standing in or have you walked through an ecotone? An ecotone is an area where any two ecosystems overlap. Due to this overlapping of environments, ecotones have a greater variety of plant and animal life than other areas. Other ecotones in the park include prairie and wetland, wetland and forest, and sometimes all three.

Coastal Prairie

As you walk across the prairie or look out over it from the platform, imagine herds of thousands of **American Bison** grazing throughout the 12 foot high grasses that once covered most of Texas. Today less than 2 percent of native prairie exists undisturbed. Gone are the **American Bison**, **Prairie Chicken and Cougar**. Today's prairie community is dominated by several grasses including **Little Bluestem, Indian grass, Switch Grass and a few stands of Big Bluestem**. You will also find an extensive variety of native Texas wildflowers. Most of the small mammal population of the park is found on the prairie, along with bobcat and coyote who prey on them. In this area you may also find the 2 box turtle species: the **Three-toed Box Turtle and the Ornate Box Turtle**. In the winter months, you may notice a hawk (**Northern Harrier**) hovering just above the grass in search of a meal.



Scattered within the coastal prairie are numerous swales and **ephemeral ponds** creating a considerable surface area of prairie wetland. The plants growing in these wetland habitats vary with the depth of the water, soil type, water chemistry, drying effects during the summer and past land use disturbances. It is not uncommon to find a resident alligator living in these ponds during rainy months. The water on the prairie as well as other wetlands play another very important role. In our particular area they recharge the Gulf Coast Aquifer which supplies us with most of our drinking water.

Numerous small mounds, or **"pimple mounds"**, support their own little ecosystem on the prairie. Pimple mounds are thought to be formed by silty sand which has been forced upward through the crevices of the compacted clay surface.

At times you may notice the prairies have been mowed or burned. This is to control non-native and woody plants that threaten the growth of the native grasses and forbs. Grass roots run deep enough not to be harmed by fire or mowing. Any disturbance of the soil by farming, grazing or development allows for the invasion of non-native plants. By preserving and restoring prairies we not only protect the bio-diversity of the area but we are protecting a piece of Texas history.

Wetlands / Marshes / Swamps

The wetland areas of the park consist of 7 lakes and 1 major slough. A major creek (**Big Creek**) bisects the park as it winds its way eastward to the **Brazos River**, our park's eastern boundary. In addition to groundwater recharge, wetlands serve as a natural means of flood control. When heavy rainfall dumps large amounts of water into an area, run-off occurs producing floods that are destructive to homes and crops. Flooding is reduced in a wetland area because it collects the run-off. Wetlands also serve as a buffer zone between rivers or streams and upland areas. These upland areas serve as homes to man, animals and many types of plants.