

A Brief Manual of  
Common Native Plants at  
Laguna Atascosa National Wildlife Refuge

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## Section II A: Introductory Material.

### 1. How Plants are Named

Almost all organisms on the face of the Earth -- plants, animals, and microorganisms -- have two kinds of names: Common names and Scientific names.

Common names are associated with most “common” organisms, that is, ones that are frequently found in a locality. This manual will deal almost exclusively with plants and this discussion will only consider plants, although the principles apply equally to naming animals. If an animal is found to be closely and interestingly associated with a specific plant, it may be mentioned. Our locality of interest is Laguna Atascosa National Wildlife Refuge.

Every plant that has ever been described has a scientific name. Scientists who deal with the problem of naming plants are called taxonomists. In contrast with common names, which vary from locality to locality and several of which are sometimes applied to the same plant and a single name may be used for more than one plant, scientific names are unique to each organism. What makes taxonomy difficult is assuring the uniqueness of names, and associating each plant with the proper taxonomic group it belongs to.

The scientific name of a plant is composed of two parts: a genus name and a specific name. In print these names are both italicized and the genus is capitalized. For example: The tree whose common name is Anacua has as its scientific name *Ehretia anacua*. The genus name, *Ehretia*, is applied to a group of very similar plants, and the specific name, *anacua*, is applied to only this one species. This kind of name is called a binomial, since it has two parts: genus and species. (If there are different varieties of a species, you may see them named with a trinomial consisting of a genus, species and variety name.)

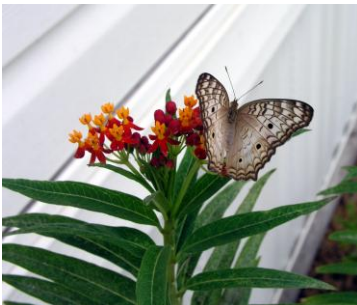
The idea that one binomial name can uniquely identify a plant was developed by the Swedish scientist Carl Linnaeus (1707 – 1778). He is the father of modern taxonomy and began publishing his catalogs of plants and animals in the 1730's. Like many early scientists, he was a physician as well as botanist and zoologist. He described many thousands of plants and animals in his works, and is therefore noted as the ‘author’ of these organism’s descriptions by the placement of his initial ‘L.’ after their specific name. The genus *Cordia* of the tree Anacahuita was first described by Linnaeus.

Sometimes defining what a species is is difficult. But in general it is a population of plants that, if the individual plants are near enough to each other, can interbreed, producing a new generation of the same plant. We won't be concerned with this intricacy of taxonomy.

Another intricacy of taxonomy that we will mostly ignore is the hierarchy of taxa (plural). A taxon (singular) is a group of related plants. Example: *Ehretia anacua* is a taxon of the rank species. *Ehretia* is a taxon of the rank genus, and is composed of several different species which are closely enough related to be included. The next higher ranked taxon we will ever consider is the family; for our tree, the Anacua, the family name is Boraginaceae, or the Borage family. The family, just as the genus was a group of species, is composed of a group of closely related genera (the plural of genus). Another common tree at Laguna Atascosa is the Anacahuita: it is also in the Borage family, but in a different genus (*Cordia*) and its binomial name is *Cordia boissieri*. There are several higher ranked taxa which we ignore; they climb up the ranks of greater inclusivity ending in the Division Plantae, which covers all plants. By the way, the spelling 'species' is both singular and plural.

## 2. Useful Terms to Describe Plants

The language of describing plants is also something to take note of. If you look into a manual of plants written to be useful to botanists, the scientists who study plants, you will find extensive technical data, such as a many page glossary of terms and several pages of plates showing the many shapes of leaves to be found on different plants. These are great if you want that much detail, and are interested in using keys, tables of plant characteristics used to identify an unknown plant, but are overkill and a source of confusion and frustration for those of us who are only interested in knowing a few local plants. I, and probably many of you, belong to the last group: interested amateurs. With that in mind, I have tried, in this manual, to use ordinary, non-technical language whenever possible. Here I use ordinary American units of measure: inches, acres, etc. (You might be interested in knowing that we in the USA are the only industrial nation on earth that still uses these old English units of measure; everybody else has adopted the international metric system.) With respect to describing leaves, I use only two technical terms: simple and compound. Each leaf has a stem (called a petiole) connecting it to a twig. A simple leaf has only one leaf blade. A once compound (pinnately compound) leaf has several leaf blades (called leaflets) on one stem; a twice compound (bipinnately compound) leaf has branches on its leaf stem each having several leaf blades; the leaf blades on compound leaves each have a stem, much like a simple leaf has.



Photos: T E Straw, August 2011.



Left: simple leaves (also White Peacock butterfly on milkweed). Center: once compound leaf. Right: Twice compound leaf. The entire main structure seen from top to bottom is one leaf with a main stem and several branching stems, the latter arrayed with several leaflets.

Each of these leaves is connected to its stem by a small knobby structure which makes it easy to snap the leaf off of the stem. This is also the connection that is broken when leaves naturally die and fall off. Look for the knob as a guide to identify whether the leaf is simple or compound. Of course leaves can be further described technically, but I will only use intuitive words like 'smooth edge' or 'hairy'.

### 3. Use of English and Spanish

Since this refuge is found in the heart of Hispanic America we will frequently see common names in both English and Spanish, and sometimes the Spanish language name is derived from a Native American or Native Mexican source word.

The history of this part of the world dictates the bi-lingual approach to naming organisms. The first European visitors here were Spanish explorers, who claimed the land for Spain in 1519. Their first known incursion into the Lower Rio Grande Valley was in about 1536. By 1690 Spanish explorers had traversed the Valley several times, and the first settlers appeared in about 1700. By the mid to late 1700's many Spanish ranches and missions were established along the river. The population of Cameron County, Texas, where Laguna Atascosa is located, is now about 85% Hispanic. We who deal with the visitors to Laguna Atascosa should recognize this history and make an effort to master the pronunciation of the Spanish common names of the local organisms. To this end, I have tried to include a pronunciation guide on the plant species sheets that are included here.

Non-Spanish European Americans settled in south Texas by the 1820's, but many settlements did not prosper. The Mexican War of 1846 brought Taylor's army across the coastal region between the Nueces River and the Rio Grande. Not one village was found in this region at the time. The King and Kenedy ranches were established in the 1850's, but European-Americans were not found in great number until after about 1900.

### 4. History of Botanical Surveys in the Area

The day to day work of a taxonomist involves two activities: sitting in the lab deciding which taxon a particular plant or group of plants belongs to, and getting out into the natural world looking for plants, hopefully new and not previously described ones. The earliest botanist who surveyed the region including south Texas and north east Mexico was Jean-Louis Berlandier (1805 – 1851). He was

a French physician, as well as a naturalist, and he worked as a biologist accompanying the Mexican Boundary Commission in the late 1820's when they surveyed the border with the USA. In the Mexican war in the mid 1840's, he served as a captain and cartographer under general Arista and in this capacity made the maps of the battle ground at Palo Alto, only a few miles south of our refuge. If you pay attention to the names of local plants you will find many for which he was the author, along with the Mexican Boundary Commission commander, Terán, such as the tree Anacua. His name is part of the common names of several, such as Berlandier ash and Berlandier fiddlewood.

## 5. Ecological Relationships and Ecosystems

The concept of ecology, as used by biologists, is fairly simple: All organisms enjoy a relationship with each other and with their physical environment. Sometimes lay people use the word 'ecology' differently, and much more vaguely: it has something to do with picking up junk in the 'environment'. Laguna Atascosa NWR is an excellent place to help visitors acquire an understanding of the concept of ecology because we know a lot of examples to use to illustrate the relationships involved and can point out and interpret them on our tours, in the visitor center and on the nearby trails. This discussion will be short and elementary in nature; you have undoubtedly studied biology at some time, and will recall more details. I am only helping to remind you to think about it again.

A broad view of relationships can be found in the so-called food chain where we have Producers, Consumers and Reducers. The food chain is more conceptual in nature and may be difficult to illustrate; I will also give you specific examples of relationships relevant to the situation here at Laguna Atascosa.

The **producers** are green plants, including many microorganisms, which carry out photosynthesis. This process uses sunlight energy to produce sugar and other complex organic (carbon containing) compounds out of carbon dioxide. These compounds are used by all organisms, including the plants, to furnish energy for their activities and to build the material of their bodies. (We will ignore those microorganisms which use mineral sources of energy, and not the sun.)

The **consumers** include those organisms (animals and microorganisms) which consume the plants for their source of energy and material, and those animals which consume other animals for theirs. Continued production and consumption as outlined here would soon use up all the available carbon dioxide, and life would have to cease.

The **reducers** are those organisms which consume the dead plants and animals, and the waste products produced by living plants and animals, as their source of energy and material. By doing this, the reducers convert much of the organic material back into carbon dioxide, allowing life to continue. Reducers are

bacteria and fungi principally, but also include those scavenging animals which are intermediaries between the dead animals they eat and the microorganisms which finish the job.

Let us consider the concept of symbiosis, which describes specific, intimate relationships between two different organisms. The word symbiosis means living together, but is used in biology to define three specific classes of intimate relationships: parasitism, commensalism and mutualism.

In **Parasitism** one of the partners of the association is benefitted and the other is harmed. An example that is quite common on the refuge is the Christmas Mistletoe (*Phoradendron tomentosum*) which is parasitic on Honey Mesquite (*Prosopis glandulosa*). The host tree provides all of the needed nutrition of the parasite until it is established and carries out photosynthesis on its own; at that point the parasite only uses the tree for physical support and a source of water and mineral nutrients. The relationship is then called hemi-parasitic because the parasite is able to provide its own energy and organic material. The tree is harmed by reduced growth, and in case of extensive colonization, the tree may be killed. This parasite also is found on other trees in the local area, so Mesquite is not an obligate host.

Another parasite affecting trees on the refuge is the Huisache Girdler (*Oncideres pustulata*). This insect does exactly what its name implies: It chews a groove around small branches causing them to fall to the ground. This is obviously harmful to the tree, especially if the infestation is extensive. Other girdlers also attack commercially important fruit trees. The benefit to the insect is due to its habit of first boring a small hole in the branch, towards the tip from the groove site, and laying an egg inside the branch. While the girdled branch lies on the ground the egg hatches and the larva grows as it chews its way to maturity. The adult emerges later to go on to infest another tree. The ½ to ¾ inch gray and white beetle also infests Tepeguaje, Mesquite, Retama, Texas Ebony and citrus trees.

**Commensalism:** in this case one of the partners is benefitted and the other is basically unaffected. An example found here is the Bailey's Ball Moss (*Tillandsia baileyi*) which is an epiphyte on Texas Ebony (*Ebenopsis ebano*). Epiphytes only get physical support from their host plant. They get all their water and mineral nutritional needs from rain, and as they are photosynthetic, they provide their own energy and organic material.

Another local example is the relationship between the Cattle Egret (*Bubulcus ibis*) and cattle and other large grazing animals. As the cattle move around eating grass, they stir up insects which the Egrets are able to capture and eat. The cattle are unaffected, but the Egrets benefit.

The third class of relationships is **Mutualism**; in this case both partners benefit. Local examples include the general activity of pollinating insects, such as bees which get pollen and nectar as nutrients, and the innumerable flowering plants that get their flowers fertilized, allowing seeds to be produced.

Many of the local trees are legumes (Fabaceae) and they are usually hosts for a kind of bacteria which form nodules on the roots. Inside these nodules the plant provides the bacteria with all its nutritional needs and the bacteria 'fix' molecular nitrogen from the air converting it into ammonia, an essential nutrient used by the plant for synthesis of proteins and nucleic acids (DNA).

Many other relationships between organisms can be illustrated, but I will quit here. However, I will give you one specific example of the kind of relationships plants have with their physical environment:

**Theme:** The elevation of the land in Coastal Prairie and Marsh habitat determines the salinity of the soil which in turn determines the species of plants that grow there. To understand this, we need more information about the lower Rio Grande valley.

### **A general introduction to the Lower Rio Grande Valley, including political geography, geology, climate and biogeography.**

**Political Geography:** Four Texas counties are included: Cameron, Willacy, Hidalgo and Starr. Laguna Atascosa NWR is located in Cameron County.

**Geology:** The four counties of the Lower Rio Grande Valley are located in the Pleistocene and Recent delta of the river.

That part of the Pleistocene delta found in the United States is bounded by, on the:

South: The Rio Grande River.

West: The Bordas Escarpment, a rocky ridge extending north from about Rio Grande City.

East: The Gulf of Mexico.

North: The location of the major change in the environment from what we see here to a different soil type (sandy with dunes) and vegetation (savannah – a prairie with scattered motts (groves) of live oak) in Brooks and Kenedy Counties. This change is readily seen near the Border Patrol check station at Sarita, on US Highway 77 north of Harlingen, but starts farther south.

The Pleistocene Era in geology is the 'ice age'. The geologically recent delta includes all of Cameron, most of Willacy and a small part of Hidalgo Counties.

The topography of the Pleistocene delta (which includes the area of the recent delta) is generally flat, falling from an elevation of about 250 feet above sea level

on the west, at a slope of 0.04% (about 2.1 feet per mile), to sea level on the east. The essential flatness of the land is seen especially well in the agricultural lands away from the coast. Previous to the construction of the Falcon and Amistad dams, the river delta was subject to annual flooding by the river. Since then flooding occurs only from heavy rain, and rarely, at near shore locations, including Laguna Atascosa, from hurricane induced storm surge.

In 1995, when I first came to Laguna Atascosa NWR as a volunteer, there was a sign located about where the picnic area now is, that pointed to the extent of the storm surge from a hurricane; However, I don't recall which storm or when it occurred. You may be able to find a free pamphlet on hurricane preparedness at the Walmart store in Harlingen, sponsored by them and the local Fox News station, which shows the extent of storm surge flooding anticipated from a major hurricane. It includes areas as far west as FM 1847 and Rio Hondo.

**Climate:** At the coast the annual rainfall is about 27 inches. The greatest rainfall occurs in September and the least in the winter, and usually from heavy thunderstorms and hurricanes. The annual average temperature is about 74° Fahrenheit (greatest from June to September, averaging about 82°, with an average range of from about 92° during the day to about 72° at night). Prevailing winds are from the southeast except in December when they arise generally from the northwest. The average early AM relative humidity in December is about 85% and in July about 90%. Heavy dew and fog are frequent, even during periods of drought. The Lower Rio Grande River Valley is classified as subtropical and semiarid.

Laguna Atascosa ecologists have taken advantage of the characteristic high humidity, dew and fog to construct 'guzzlers'. These devices collect the water condensing on their metal roofs, store it in a tank and dispense it into a drinking cup for use by the wildlife. Of course, rainfall is also captured by the guzzlers.

**Biogeography:** Ecologists characterize the different biogeographic regions, or ecosystems, by the kinds of plants found there, since the plants don't move around freely like the animals do. The lower Rio Grande valley is included in: The Matamorán Biotic District of the Tamaulipan Biotic Province. Enter these terms in the search box on the 'worldwildlife' website for detailed information. Biogeographically speaking, we are located in a part of a much larger region in north east Mexico. This illustrates the principal that politics has no control over ecology.

There are four major habitat types in the Lower Rio Grande Valley:

1. River floodplain.
2. Coastal prairie and marsh.
3. Barrier island.
4. Brush / grassland.



River floodplain: This is found along the Rio Grande River and resaca banks. In general the vegetation becomes more lush from west to east. Native Sabal Palm forest originally was found along the river for 80 miles upriver from the coast; it is now found only at the Sabal Palm Grove Sanctuary just south of Brownsville. Most common shrubs and trees are granjeno, ebony, tepeguaje, Mexican Ash, cedar-elm, retama, huisache, black willow and mimosa. Giant reed and many vines are also found.

Coastal prairies and marshes: Most of the mainland portion of Laguna Atascosa NWR lies in this habitat type. Details follow.

Barrier islands: South Padre Island is the local example. Vegetation consists of a sparse, single layer of low diversity, generally without trees and shrubs.

Brush and grasslands: This occurs away from the river and coast. This is the most widespread habitat in the Lower Rio Grande Valley, consisting of low trees, shrubs, cacti and yucca with grassy openings. There is an overstory of larger trees with an impenetrable understory. Along canal banks, roadsides, etc there is a dense growth of Buffelgrass, an exotic plant from India. Most of the agricultural land west of and away from the coast is of this habitat which has been cleared of its original vegetation.

Now back to our theme: The elevation of the land in Coastal Prairie and Marsh habitat determines the salinity of the soil which in turn determines the species of plants that grow there.

Main Ideas:

Geology and Climate determine the lay of the land and characteristics of the soil. This habitat is found on land that was formerly the bottom of the ocean, and is located in the Rio Grande River flood plain. This results in a generally flat topography.

The ocean and the seabed are salty, and as the ocean recedes, the resulting newly exposed soil is salty. The hyper-saline Laguna Madre and the ocean are immediately adjacent to this environment. Prevailing south-east winds bring salty mist and spray, and occasionally salt water flooding, across the land, maintaining the salinity of the soil. The prevailing winds also carry silt and clay soil particles away from the beach and salt flats found adjacent to the Laguna Madre. This windblown material, being salty, results in a second frequent source of salinity for the inland soils. Ground water found here is also brackish.

The wind blown soil particles are deposited inland forming dunes, or low hills called 'lomas'. In addition, the Rio Grande flood plain is cut with old river channels called 'resacas'. These flood channels have a prominent bank or levy

formed from flood-borne soil. Dunes and levees give the otherwise flat land topographic relief, which means that there are frequent changes in elevation of the soil surface.

Fresh water from rain removes some of the salt from higher elevations forming a salinity gradient. The higher elevations have less salt in the soil than the lower elevations.

The landform and salinity regimes result in three distinct habitat types in the Coastal Prairie and Marsh habitat. Plants are distributed according to their tolerance for salt.

1. Salt flats. Because of periodic salt water flooding, the flats are largely barren of plants, except at the edges of lomas. Halophytic herbaceous plants such as salt-wort and sea ox-eye are common.
2. Marshes. These are wetlands during periods of sufficient rainfall. *Spartina* cord grass is predominant with trees such as mesquite, huisache and retama scattered throughout.
3. Lomas. These clay dunes support a chaparral association of thorny shrubs and low trees. Common plants are coyotillo, mesquite and huisache with prickly-pear, tasajillo, colima and yucca on the edges. Buffalo grass is found in open areas with *Baccharis* and leather-leaf in a band around the lomas.

## 6. Management of the Refuge for Various Wildlife Species

This information has been abstracted from the  
Laguna Atascosa National Wildlife Refuge  
*Comprehensive Conservation Plan, September, 2010*

The LANWR area known today as Unit 7, where the Bayside Drive is, was a World War II era US Army gunnery range and training facility. At the end of the war it was transferred to the precursor of the US Fish and Wildlife Service for the purpose of conserving this habitat for the benefit of waterfowl and migratory shorebirds. This was the first part of the refuge, and its acquisition began the process that resulted today in the current refuge, consisting of 4 large tracts known as: the Laguna Atascosa Unit (45,187 acres); the Bahia Grande unit (21,762 acres); the South Padre Island Unit (24,808 acres); and the Coastal Corridor Unit (5,250 acres), totaling 97,007 acres (about 152 square miles).

The mission of the US Fish and Wildlife Service, the federal agency responsible for National Wildlife Refuges, is: “*Working with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people.*” Refuges are managed so as to accomplish this mission.

Local managers of National Wildlife Refuges are not left in isolation with no coordination and assistance from the US Fish and Wildlife Service. The management of refuges is guided by a landscape-wide approach which takes into account fish, wildlife, and habitat conservation beyond the boundaries of a particular refuge. In this way, activities on the refuge complement ecosystem-wide efforts by all agencies involved in conservation.

This coordinative, ecosystem approach is embodied in the goals and methods of the USFWS Strategic Habitat Conservation report, resulting in structured, science driven, efficient and transparent decisions. Key elements of the approach involve biological planning, conservation design, conservation actions, and monitoring and research. The individual refuge's management staff and professional biologists focus on federal or state listed species (endangered or threatened) and other key priority species (focal species) that represent larger guilds or groups of species that use habitats similarly. Conservation actions that benefit a focal species benefit all members of that guild of species.

This ecosystem approach to management adopted by the USFWS results in protecting and restoring the natural function, structure, and species composition of an ecosystem, while recognizing that all components are interrelated. Management and planning issues of concern include management of federal and state listed endangered and threatened species, wildlife management, wetland management and restoration, land protection and acquisition, cultural resources management, interagency coordination and partnerships, visitor's services, environmental education, and outreach.

Laguna Atascosa's refuge resources include: A unique blend of temperate, subtropical, coastal, and Chihuahuan desert habitats; Mexican plants and wildlife species whose northern range includes the refuge; Migratory birds which rest and feed here; and all the more northerly species whose range comes this far south. The following is an inventory of species that have been recorded on this refuge: 450 plants, 415 birds, 42 mammals, 44 reptiles and amphibians, about 40 fish, 128 butterflies. Innumerable other species of insects, other invertebrate animals, and microorganism have not yet been inventoried. Looking for something to do in your spare time?

**Focal species which orient management actions on LANWR include:**

1. Those federal or state listed species that are known to (or may) reproduce or nest on the refuge, and are representative of particular habitats at risk are:  
Ocelot, Jaguarundi, Northern Aplomado Falcon, Reddish Egret, Kemps Ridley sea turtle, and Black-spotted newt. In addition to these focal species, other endangered or threatened species are Hawksbill sea turtle, Loggerhead sea turtle, Green sea turtle, Leatherback sea turtle, and Piping Plover.

2. Those priority bird species known to nest on the refuge or are rare or uncommon on the refuge during any season are:  
Wilson's Plover, Snowy Plover, Audubon's Oriole, Arctic Peregrine Falcon, and Texas Botteri's Sparrow.
3. Those priority waterfowl species that occupy important wintering or nesting habitat associated with LANWR or are representative of freshwater wetlands at risk are:  
Redhead, Mottled Duck, and Northern Pintail.

**Management tools employed at LANWR to accomplish its mission and goals include:**

1. Public hunting seasons for Whitetail Deer are used to control exotic and invasive wildlife species. These species, which damage native habitat and compete with native species for resources, include Nilgai antelope and Feral hogs. The hunt also prevents overpopulation by the deer, preventing habitat destruction.
2. Prescribed fire. A burn will maintain and restore native functioning prairie and marshland ecosystems, and help control invasive or exotic plants. The objectives of one recent specific burn were to remove rank, standing vegetation to improve travel corridors for brooding wildlife and to preserve, protect, restore and enhance habitat for migratory waterfowl, Sandhill Cranes and nesting or brooding ducks.
3. Law enforcement. In addition to all the normal beneficial activities of law enforcement agencies in any environment, preventing trespass and unlawful removal or destruction of native flora and fauna help maintain the viability of local ecosystems.
4. Control public access and wildlife-dependent recreational uses. Regulating hunting and fishing activity and preventing off-trail encroachment by the public enable a 'wildlife first' approach to management.
5. Control and regulate economic use of refuge lands. Cooperative farming agreements help provide supplemental food sources for wildlife and support reforestation efforts in return for the farmer's share of agricultural crops used. Oil and gas exploration and development are closely regulated; the federal government does not own all mineral rights to lands on the refuge.
6. Monitoring wildlife, non-game animal and plant populations by periodic inventories, including waterfowl, migratory shorebirds and deer, allow for the evaluation of management practices used. Monitoring for hazardous materials

and arranging for their removal enhances habitats, and therefore supports their use by plant and wildlife resources.

7. Devise specific conservation actions to enhance recovery of endangered or other focal species and improve viability of habitats. For instance: Ocelot habitat is protected and increased by reforestation efforts. Lead recovery efforts from contamination by gunnery range activities enhance viability of wildlife populations. Continue surveillance of the refuge for the presence of the Jaguarundi. Conduct sea turtle patrols on south Padre Island to find and relocate nests to a safe haven for improved hatching success. Maintain and improve nesting habitat for the Aplomado Falcon. Monitor shorebird and waterbird breeding activity so that seasonal closure to public access can be accomplished. Continue to work with neighboring landowners and other state or federal agencies to improve coordination of conservation efforts. Establish specific research projects with universities and other conservation agencies. Emphasize actions to increase viability and recovery of brushland, wetland, coastal prairie, and barrier island habitats.

Section II B, Individual Plant Species Data Sheets

Map of Location of Individual Specimens of Plants.

Plant Sheet 1: Allthorn

Plant Sheet 2: Texas Ebony

Plant Sheet 3: Anacua

Plant Sheet 4: Tepeguaje

Plant Sheet 5: Brasil

Plant Sheet 6: Huisache

Plant Sheet 7: Fiddlewood

Plant Sheet 8: Texas Persimmon

Plant Sheet 9: Cenizo

Plant Sheet 10: Mesquite

Plant Sheet 11: Mistletoe

Plant Sheet 12: Yucca

Plant Sheet 13: Texas Torchwood

Plant Sheet 14: Colima

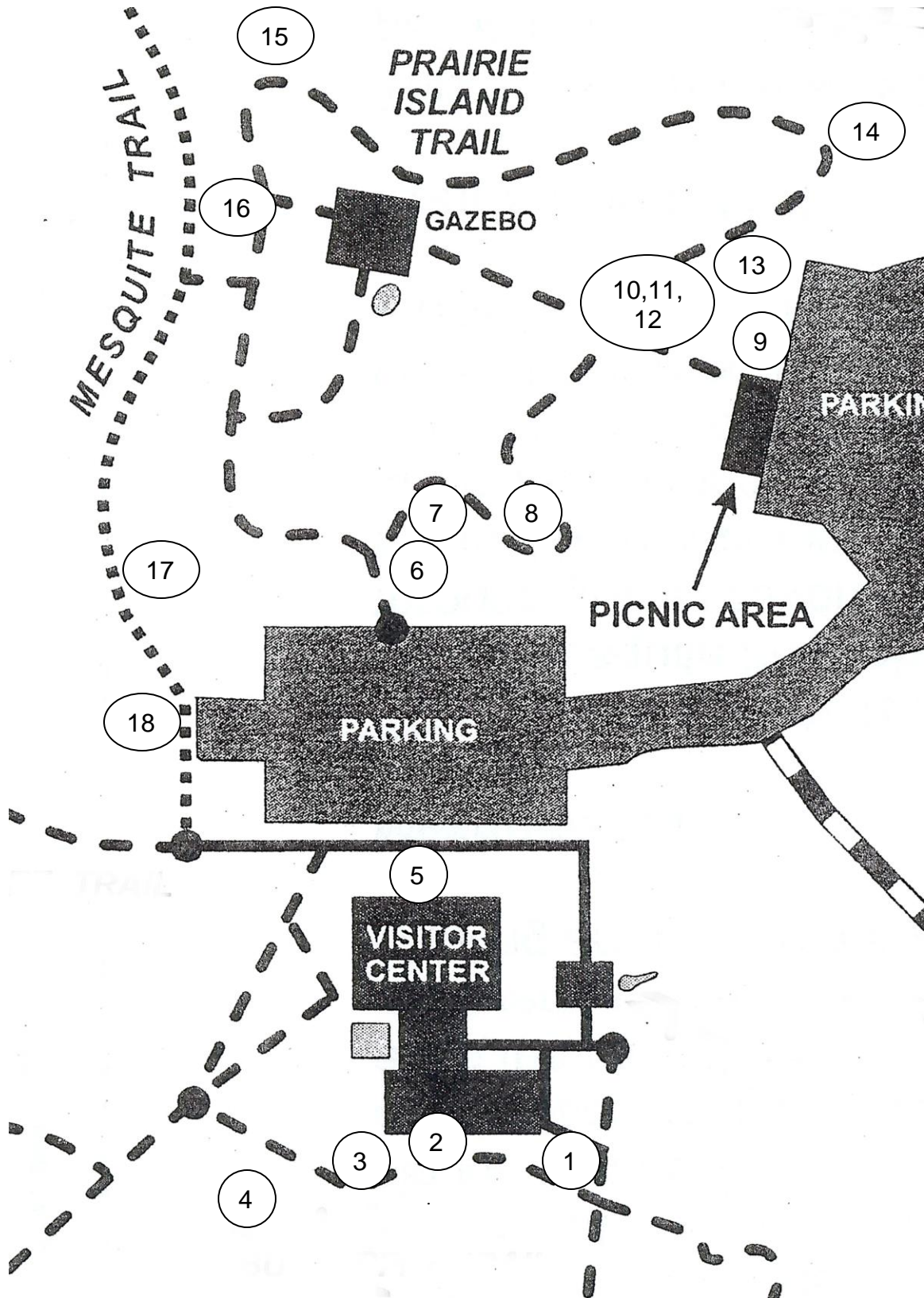
Plant Sheet 15: Retama

Plant Sheet 16: Texas Porlieria

Plant Sheet 17: Anacahuita

Plant Sheet 18: Johnsongrass and Buffelgrass

Map of Location of Individual Specimens of Plants.  
Numbers refer to Plant Sheet Numbers.



## Plant Sheet 1: Allthorn

1. Scientific name: *Koeberlinia spinosa* of the Capparaceae (Caper Family). The genus is named for an early German clergyman and botanist. There are two varieties know: *spinosa* and *tenuispina*; apparently *spinosa* is the local variety. This species is found across the SW USA in all the states bordering Mexico; in Texas it is found mostly in counties along the Rio Grande.
2. Common names: These names all come from the spiny nature of the plant, and several have Biblical references. Allthorn; Crown of Thorns; Corona de Christo; Crucifixion Thorn; Spiny Allthorn; Junco (a Spanish word for a rush, which is a reed-like plant).
3. Description: A small, native, perennial, much branched tree characterized principally by its thick array of very sharp spines. The smaller branches, twigs and spines are dark green, and form a rounded crown; in the absence of leaves, these twigs carry out photosynthesis. Usually shrub-like and less than 6 feet tall, it can grow to from 10 to 30 feet tall. The smooth spines (thorns) are 1 to 3 inches long. The quarter inch green/white flowers are found from May to October, usually after rain, and are in clusters along the sides of twigs. The black fruit are fleshy and contain 1 to 4 seeds.
4. Ecological role: This plant displays a strong adaptation to an arid, desert-like environment with its green twigs and thorns; these plant parts carry out photosynthesis in the absence of leaves. Leaves, like the flowers, are produced after rain, and are minute, simple structures which are soon lost from the tree. The tree provides cover and shelter for small birds, reptiles and mammals. The fruit is eaten by birds and mammals, and new growth is browsed by deer and livestock.
5. Human use: Don't mess with Mother Nature! The sharp spines pose a hazard to anyone who gets too close. The fruit may have been eaten by native peoples, but no reference to other cultural or ethnobotanical use was found.



Left: Allthorn branches which terminate in thorns.  
Right: Allthorn tree.



Photos: T E Straw, Aug 2011.



## Plant Sheet 2: Texas Ebony.

1. Scientific Name: *Ebenopsis ebano* of the Fabaceae (Pea or bean family – formerly called Leguminosae after legume, the name of the fruit produced). In the USA it is found only in Texas, almost exclusively south of Corpus Christi. It is also found in eastern Mexico. This species was originally named by Berlandier in the genus *Mimosa*, but later reclassified. The pea family is very large, with 236 different species; *Ebenopsis* has two species, but only *E. ebano* occurs in the USA.

2. Common Names: Texas Ebony; Ebano; Ebony Blackbead. Source of these names is not known; perhaps a reference to the unrelated tropical Ebony tree used extensively for fancy woodworking.

3. Description: This native, perennial, evergreen tree/shrub can be as tall as 25 or 30 feet and has a dense, rounded crown with dark green, twice compound leaves. The white flowers occur as a thick, cylindrical spike off the sides of spiny, crooked branches and twigs; the tree blooms in the summer or early fall. The fruit are thick, 4 to 6 inch, dark brown or black pods with large heavy seeds. This tree provides full shade, and is shrubby-looking until full grown or is trimmed.

4. Ecological role: It is a larval food plant host for the butterflies Coyote Cloudywing (*Acalarus toxeus*) and Large Orange Sulfur (*Phoebis agarithe*) and for the moth *Sphingicampa blanchardi*. The tree is also a preferred host for the epiphyte Bailey's Ball Moss (*Tillandsia baileyi*) which is found along the Gulf coast from Corpus Christi to Tampico, Mexico. Rodents, deer, and Javelina eat the seeds, deer browse the leaves, and birds nest in the tree.

5. Human Use: The wood of this tree is used for charcoal production, carpentry and handicrafts, especially carving. The green seeds are boiled and eaten in Mexico; dry seeds are toasted, ground and boiled as a coffee substitute; and the dry seeds will pop like popcorn. It is used as an ornamental in landscaping where it is found to be drought and root-rot resistant. Red, dry seeds are used in jewelry. The seeds may be planted, but must be scarified first.



Texas Ebony tree, fruit and flowers.

Photos: T E Straw, August 2011

Plant Sheet 3: Anacua. Ah-nahk'-wah.

1. Scientific name: *Ehretia anacua* of the Boraginaceae (Borage Family). This tree was first named by Berlandier. It is found in South and East Texas; it freezes back in more northern areas.
2. Common names: Anacua; Knockaway; Sugar-berry; Sandpaper tree; Manzanita; Anaqua; Anacahuite. Anacahuite comes from two Aztec (Nahuatl) words meaning paper and tree; Anacua is a contraction of this word, and Knockaway is an English corruption of the same.
3. Description: This perennial, native plant is a small tree or shrub with a rounded crown. It has no spines. Its moderate sized, simple leaves are arranged alternately, have a mostly smooth edge, and a sandpapery surface texture. It is evergreen, but replaces its leaves in spring. Its flowers are small, white, and in clusters, and are attractive to honeybees. The fruit is small, yellow to orange in color, and contains two small stony pits.
4. Ecological role: This plant provides good cover for small animals. The fruit is eaten by coyote, raccoon, and chachalaca; deer browse the leaves. This tree is the obligate host for the Anacua Tortoise Beetle, *Coptocycla texana*.
5. Human use: The edible fruit is used for making preserves. The wood is hard and strong, and has traditionally been used for fence posts, tool handles, wheels, spokes, and similar implements. No ethnobotanical or medical use is noted. The tree is also used as an ornamental, and is drought tolerant once established.



Left: Anacua leaves. Right: Anacua fruit.



Photos: T E Straw, August 2011.

## Plant Sheet 4. Tepeguaje. Teh-peh-wah'-heh

1. Scientific Name: *Leucaena pulverulenta* of the Fabaceae (Pea family). Found only in Texas in the USA, mostly along the gulf coast south of Corpus Christi. It is also common in NE Mexico.
2. Common Names: Tepeguaje; Great Leadtree; Chalky Leucaena; Giant Ipil Ipil. The Spanish name Tepeguaje comes from the Native Mexican words for this tree: guache (Nahuatl language) or guaje (Totonac language). (The Nahua people may have originated in SE Texas.) Tepe (green sod or turf) is a Spanish word which may or may not have contributed to the name of this tree. In Mexican Spanish tepeguaje is a very hard and compact wood, and also an adjective meaning 'set' or 'obstinate'. Remind you of any people you know?
3. Description: This native, perennial tree / shrub can grow to 30 feet tall, with a broad rounded crown. It is usually the tallest tree I find around the refuge. Its doubly compound leaves are quite large and feathery looking; leaflets are very small. The blossoms, appearing from March to July, are white and ball shaped, containing many individual flowers. It has no spines. Fruit is a thin legume.
4. Ecological role: Tepeguaje provide nectar for insects, and cover and nest sites for many birds, especially grackles. It is a pioneer, overstory tree protecting many smaller plants in the understory.
5. Human use: It is know from archeological records that the seeds were used for human food in NE Mexico at least 6000 years ago. Leaves and seeds continue to be used in Mexico, where it is cultivated, for human food, livestock fodder and as a medicinal for treatment of dysentery. It was introduced in SE Asia by the early 1900's where it is now used for shade, shelter and nitrogen production for coffee plantations. Tepeguaje is also used as an ornamental shade tree or boulevard planting. Its straight, smooth trunk is used for lumber.



## Plant Sheet 5. Brasil

1. Scientific name: *Condalia hookeri* of the Rhamnaceae (Buckthorn Family). Found only in the SE half of Texas in the USA, it also ranges into Mexico. Two different varieties are known, *C. h. hookeri* and *C. h. edwardsiana*, but their individual ranges were not specified.
2. Common Names: The genus *Condalia* is known as snakewood. *C. hookeri* is commonly known as: Brasil; Brazilian Bluewood; Bluewood Condalia; Capul Negro, and Brazilwood.
3. Description: This native, perennial plant is usually small and shrub-like, and it forms thickets. The crown is thin with spiny, stiff branches. Its simple leaves are small and smooth. Flowers are green and very small, with no petals; they appear in the summer. Fruit is black when ripe, small and spherical.
4. Ecological Role: This plant provides good wildlife habitat, with shelter and food for small animals. The fruit is eaten by raccoon and fox and many birds. Nectar is attractive to insects. It is a larval host for the American Snout Butterfly (*Libytheana carinenta*) and the Tamaulipan Agapema Moth (*Agapema galbina*). The moth has not been observed in the United States for 50 years, and may be extirpated here.
5. Human Use: The wood is highly regarded as a fuel wood, and has been used to extract a blue dye. This is the source of the 'blue' references in the common names. The fruit is edible and used for making jelly, although the thorny nature of the shrub makes it hard to pick them. The fruit, called Capul Negro, is black when ripe, and is only about ¼ inch in diameter.



Left: Brasil leaves

Photo: T E Straw. September 2011.

## Plant Sheet 6: Huisache. Wee-sah'-cheh

1. Scientific Name: *Acacia farnesiana* of the Fabaceae (Pea Family). Many synonyms are found for this plant and this name is not accepted by some authorities. The name 'farnesiana' comes from the Italian family Farnese who in the 1600's maintained the first private botanical gardens in Europe, and introduced Huisache to Europe. It is found, presumably as a native, from the southern tier of US states south to Chile. It has been introduced into the tropics worldwide. The genus *Acacia* is commonly known as 'wattle'.
2. Common Names: Because of its wide distribution it has a very large number of common names. Locally it is know as Huisache or Texas Huisache. Others include: Aroma; Sweet Acacia; Mealy Wattle; Cassie. The name 'Huisache' comes from the Nahuatl language and means 'many thorns'.
3. Description: This perennial, native plant is usually a small tree or shrub, and occurs in thickets. It usually has many stems arising from the base, and is as broad as tall. It is a facultative wetland indicator species, being as likely to be found in wetland as upland, and is tolerant of salty or calcareous soils; curiously, it is also a xerophyte, being adapted to dry environments. Blossoms are golden yellow, ½ inch balls containing many individual flowers, and are a herald of spring locally. The small, green or grey-green, doubly compound leaves have many very small leaflets. Fruits are brown to black, rounded legumes up to 3 inches in length.
4. Ecological role: This tree provides good cover and feed (seeds and leaves) for many wildlife species. It is a favored host for the Hiusache Girdler (*Oncideres pustulata*), a parasitic beetle that lays eggs in the small branches. Some butterflies also use it as a larval food plant.
5. Human use: It is valuable across the globe for many uses, too many to catalog here. The flowers are used to make perfume in Europe and India where the essential oil called Cassie is produced; this oil is also used in aromatherapy. Bees use the tree as a nectar source. The leaves contain 18% protein and are used as livestock fodder. It is weedy and a pest in many locations, including south Texas pastures. It has a variety of medicinal uses in South America and India. It is a valuable aromatic, ornamental tree.



Left: Two  
multistemmed  
Huisache trees.  
Right: leaves.

Photos: T E Straw, August 2011.

## Plant Sheet 7: Fiddlewood.

1. Scientific Name: *Citharexylum berlandieri* of the Verbenaceae (Verbena Family). Occurs in the LRGV of Texas and throughout Mexico. This species is named for Jean-Louis Berlandier, the early botanical explorer. Several other verbenas are found locally.
2. Common Names: Fiddlewood; Berlandier's Fiddlewood; Negrito (little black one); Orcajuela; Encorba Gallina (?? hen); Spanish Mulberry.
3. Description: This plant is a native, perennial, evergreen shrub with small, white flowers found in a dense spike at branch tips from February to August; it may bloom several times a year. It has dark green, simple, generally smooth leaves. Fruit are small and two seeded, starting out orange-red and turning black when ripe, hence the name Negrito. It has no spines.
4. Ecological Role: It is attractive to butterflies and other pollinating insects. Several birds and other small animals eat the fruit.
5. Human Use: In Mexico it is used as a remedy for the common cold. It is a fast growing, attractive ornamental and is used in landscaping. Although this species does not grow very large, some species are reported to be used in making fiddles; its name Fiddlewood may come from this use.



Fiddlewood tree and fruit.

Photos: T E Straw, September 2011.

## Plant Sheet 8: Texas Persimmon.

1. Scientific Name: *Diospyros texana* of the Ebenaceae (Ebony Family) There is only one genus in this family, and it includes the tropical ebony whose wood is so valuable. In the USA, it only occurs in the southern 2/3 of Texas, but is also found in N E Mexico.
2. Common Names: Texas Persimmon; Mexican Persimmon; Chapote; Black Persimmon; Chapote Prieto.
3. Description: Usually a small tree, the Texas Persimmon can reach 40 feet in a good environment. It frequently has several trunks with peeling bark that reveals a handsome grey, white and pink underlayer. It is a native, perennial plant with simple, small, dark green, leathery leaves; in our locality it is evergreen. It has no spines. Flowers are 3/8 inch across, green / white and urn shaped; the male and female flowers occur on separate trees. The one inch fruit is edible and sweet when soft and black. Flowers appear from February to June, and fruit is ripe in August and September.
4. Ecological Role: It provides good cover for wildlife; deer loaf under the thick canopy of groves of Persimmon and other woody tree species. Deer browse the foliage and other mammals, such as coyote and raccoon, and birds eat the fruit. This tree is a larval host plant for the Gray Hairstreak butterfly (*Strymon melinus*) and Henry's Elfin butterfly (*Callophrys henrici*), although the latter is not likely to be found here.
5. Human Use: The wood of this tree is black and dense and is easily polished; it is used for tools, engraving blocks and carving. The fruit is edible, and can be used for various desserts. The Comanche used it as a food crop. The fruit pulp is used to make a black dye suitable for dyeing leather. The tree is a valuable ornamental with its small stature and pleasant shape; the peeling bark enhances its beauty. Mexican natives use it medicinally as an astringent and to treat diabetes. The plant is also one of the invaders of grassland and pastures; It can be eliminated by cutting and burning, or by browsing by Spanish goats.



## Plant Sheet 9: Cenizo.

1. Scientific Name: *Leucophyllum frutescens* of the Scrophulariaceae (Figwort Family). In the USA it is found in Arizona and Texas and also in N E Mexico. This plant was described by Berlandier, but in another genus. There are two other species of *Leucophyllum* in Texas, occurring farther west.
2. Common Names: Cenizo (Spanish for ash colored); Purple or Texas Sage (but it's not a 'sage'); Texas Silverleaf; Texas Barometer Bush (because it blooms in response to rainfall).
3. Description: A shrub rarely exceeding 5 feet, this native, evergreen, perennial plant has grey-green, small, simple leaves covered with silvery-grey hairs. The flowers are one inch, cup-shaped and bright pink-purple in color; they are borne along the stem in the angle of the leaves and appear intermittently throughout the spring and summer. The fruit is a small, exploding capsule, containing very tiny seeds. Male and female organs are on the same plant, but in separate flowers. It has no spines.
4. Ecological Role: This plant is attractive to butterflies and other nectar-seeking insects; it is a larval host for the Theona Checkerspot butterfly (*Chlosyne theona*) and for the large, showy Calleta Silkmoth (*Eupackardia colleta*). It provides cover and nest sites for several small animals. Deer sometimes browse the leaves, but the plant is quite resistant to damage from this activity.
5. Human Use: It is an attractive, water conserving ornamental that is drought resistant when established in well drained soil. It forms good thick hedges, and prevents erosion. It is used as a medicinal plant in Mexico to treat upper respiratory complaints, diarrhea, fever, rheumatism, TB, bile problems and, interestingly, also jealousy. Studies of extracts of the leaves have shown protective activity against liver problems.



Cenizo leaves and flowers.



Photos: T E Straw, September 2011.



Plant Sheet 10: Honey Mesquite. Most people say Mess-keet, but more properly, it should be Mess-kee-teh'

1. Scientific Name: *Prosopis glandulosa* of the Fabaceae (Pea Family). This plant was first described by Linnaeus. In the USA it is found in all states south and west of Missouri; it is found over most of Mexico.
2. Common Names: Mesquite; Honey Mesquite; Glandular Mesquite; Algaroba. Its Spanish name, Mesquite, comes from the Aztec name, Mizquitl.
3. Description: This native, perennial tree reaches a height of 20 feet, and is commonly wider than tall. It has spines. It has large, bright green, feathery, doubly compound leaves. Its small flowers occur from February to September, are yellow / white in color and form compact spikes up to 4 inches long. The fruit is a rounded, straight pod up to 8 inches long. It is a pioneer species, establishing itself quickly. It is drought and fire resistant, has a very long tap root.
4. Ecological Role: Mesquite is a nectar plant and also provides food, shelter and nest sites for many other animals; up to 75% of the coyote's diet is mesquite seeds in late summer. Migrating birds recognize flowering in the spring as a signal that there are enough insects available to feed on, and induces them to stop over for rest and refueling. This tree is a larval host for the Reakirt's Blue Butterfly (*Hemiargus isola*), Long-tailed Skipper Butterfly (*Urbanus proteus*), and the large, showy moth *Sphingicampa heiligbrodti*. It is also a host for Mistletoe, a parasitic plant. Browsing of Mesquite seedlings by Jackrabbits (*Lepus spp.*) induces thicker, more bushy growth with taller stems; this is an example of a self-regulating feed-back loop that will minimize the effect of the browsing.
5. Human Use: Mesquite is a fast growing, showy, ornamental shade tree that is drought resistant, and fixes nitrogen. Leaves and seeds may be toxic to livestock if this plant is a high percentage of their diet. Several chemicals isolated from Mesquite have been found to be protective against a wide range of parasites; this is supportive of traditional use of Mesquite as a medicinal for skin irritation, as an antacid, for wound irrigation and preventive for bed wetting. Leaves are used as livestock fodder. Beans are used extensively as a foodstuff and this plant's resin is used for glue and as chewing gum. Wood is used for fuel, construction and making implements and weapons.



Left to right:  
Mesquite  
tree. Flowers  
and Fruit

Photos: T E Straw, August 2011.

## Plant Sheet 11: Mistletoe.

1. Scientific Name: *Phoradendron tomentosum* of the Viscaceae (Christmas Mistletoe Family) There are many species in this family of parasitic plants, each quite specific for its host plant. This species is found scattered throughout Texas, Oklahoma and Louisiana and into Mexico.
2. Common Names: Christmas Mistletoe; Mistletoe; Injerto (Spanish meaning 'in-grafted tree').
3. Description: This hemi-parasitic sub-shrub is found on the branches of susceptible host trees: preferentially Honey Mesquite, Sugar Hackberry, and Cedar Elm in this locality. Though all of the same species, the parasites of these different trees are genetically differentiated toward their specific host. It uses the host as a source of water and mineral nutrition, but carries out photosynthesis itself to supply organic materials. The water carrying tissues of the host and Mistletoe form a continuous pipeline. It is a native, perennial, evergreen plant with brittle, smooth, green stems and thick, leathery leaves. Female plants produce small, round, white berries, and male plants have yellow flowers in spikes. It is spread to other host trees by birds.
4. Ecological Role: A parasite as explained above. It is a larval host plant for the Great Purple Hairstreak Butterfly (*Atlides halesus*). It is a valuable feed for deer: in one study it averaged 35% of the diet, and was used up to 65% in the winter. Mistletoe is extremely tolerant of cold weather: it was unharmed by either the big freeze of 1983 or of 1989, both of which severely damaged other trees and crops in the LRG valley.
5. Human Use: Some of the 'uses' depicted here are reasons to avoid the tree. The parasite causes damage to the host, and can kill it. Landscape trees can usually be saved by cutting out the Mistletoe, but a better policy is to plant resistant species. The berries are toxic to humans, so caution must be observed when using it as a Christmas decoration. It is a valuable emergency feed for cattle, sheep and goats in the late winter and early spring; usual efforts to clear the parasite from trees works against this use. In Mexico, a medicinal use for treating diseases of the hooves of cattle is reported. For possible use in human medicine, proteins extracted from this plant have been shown to have a cytotoxic effect on breast cancer cells.



Left: Mistletoe growing on Honey Mesquite (*Prosopis glandulosa*).

Photo: T E Straw, August 2011.

## Plant Sheet 12: Yucca.

1. Scientific Name: *Yucca treculeana* of the Agavaceae (Century Plant Family). Also included in Asparagaceae, which may be newest classification. Found in southern Texas and New Mexico in the USA, and in northern Mexico.
2. Common Names: Spanish Dagger; Spanish Bayonet; Palma Pita; Izote de Chocha (Izote in Spanish means Yucca); Don Quixote's Lace, Soaptree Yucca.
3. Description: This native tree is a woody monocot, a relative of grasses and lilies. It reaches to about 10 feet, is sometimes branched at the top, and is crowned by a rosette of erect, long, thick, V-shaped, smooth, green leaves which are adorned with a very sharp thorn-like tip. The flowers are large and creamy white arranged in a spike which may be several feet tall. Fruits are 4 inch, green capsules, turning black when ripe, which contain many seeds.
4. Ecological Role: It is a preferred nest site for the endangered Northern Aplomado Falcon (*Falco femoralis septentrionalis*), which has been successfully reintroduced here in the refuge. It is a nectar plant for insects, deer and cattle browse the leaves, and javelina eat the trunk. It is a larval host plant for the Yucca Giant-Skipper Butterfly (*Megathymus yuccae*). The raptorial songbird, Loggerhead Shrike (*Lanius ludovicianus*), also known as the butcher-bird, will impale its prey on the leaf-tip spines. This yucca has an obligate mutualistic relationship with the Yucca Moth (*Tegeticula treculeanella*), which means that they both have an unavoidable requirement for the other in order to reproduce and live. The moth is the only pollinator of the flowers of the yucca, because the female moth has uniquely shaped, tentacle-like mouthparts which collect pollen in one flower and deposit it on the stigma of another; she also has a specialized, cutting organ to deposit her eggs directly into the ovary of the flowers. The yucca, in its turn, provides fertilized seeds, which are the only food the moth larvae can utilize to grow and develop.
5. Human Use: The Aztec people of Mexico used the sharp spine-tipped leaves to stab into snake bites to help the poison to escape. It has medicinal use as a purgative. The flowers are edible; the developing flower bud, before it opens, is picked, sliced and cooked; the fully opened flowers are picked and used in fresh salads. Many local residents enjoy these traditional foods, and this causes a problem for law enforcement on the refuge. Sometimes people will trespass in order to pick the flowers; it is unlawful to enter off-trail areas or to remove anything from the refuge.



## Plant Sheet 13: Texas Torchwood.

1. Scientific Name: *Amyris texana* of the Rutaceae (Rue or Citrus Family). *Amyris* comes from the Greek meaning 'intensely scented'; plants of this genus are aromatic, especially from resin exuded by the plants. It occurs in S E Texas and Mexico.
2. Common Names: Texas Torchwood; Chapotillo; Texas Torchwood Amyris; Lantrisco. The 'torchwood' name is used because the wood ignites easily.
3. Description: This native, evergreen, perennial shrub is densely branched, and grows to 6 feet or less. It has no spines. Its leaves have a characteristic compound structure of three leaflets arising from a common point; called 'trifoliate'. The leaflets have a toothed edge. The white / green flowers are in 2 inch clusters and appear from February to November. Fruit are small, round and black / blue colored.
4. Ecological Role: This shrub provides nectar for many insects, and birds eat the fruit. Deer are known to browse the leaves. Some related plants are larval hosts for the Giant Swallowtail Butterfly (*Papilio cresphontes*).
5. Human Use: Its principal use is as an ornamental shrub; it has showy flowers and fruit and is winter hardy and aromatic. Its leaves have been investigated for potentially useful chemicals and have been found to contain anti-termite, anti-algal and anti-fungal activities.



Plant Sheet 14: Colima Coh-lee'-mah.

1. Scientific Name: *Zanthoxylum fagara* of the Rutaceae (Rue or Citrus Family). Found in the USA in S E Texas and S Florida and in Mexico, the Caribbean and Central and South America to Peru. *Zanthoxylum* literally means yellow wood; the genus was first named by Linnaeus. *Fagara* comes from an Arabic word confused with a Chinese word meaning aromatic spice (the Sichuan Pepper, which comes from another species of *Zanthoxylum*).
2. Common Names: Lime Pricklyash; Colima; Wild Lime; Uña de Gato (Cat's Claw in Spanish); Correosa (flexible, easily bent in Spanish).
3. Description: This native, evergreen, perennial, shrub/ tree grows up to 20 feet tall. It has a spreading, umbrella-like crown with irregular branches. Its spines are strongly recurved, or hook-like, hence its name 'Cat's Claw'. The leaves are once compounded with a flattened petiole supporting the tooth edged leaflets; leaflets, flowers and fruit have tiny gland-spots on them. The one seeded, red, turning brown fruit is edible, and has a spicy, lemon-zest flavor. Chewing on any plant parts will leave your mouth numbed. The conspicuous, yellow / green flowers, which grow in the leaf angles along the stems, appear in winter and spring; the sexes are in separate flowers (unisexual), with both being found on the same plant.
4. Ecological role: This chaparral inhabiting plant provides nest sites for small animals, nectar for insects, and birds eat the fruit. The leaves contain about 15% protein, and they and soft twigs are browsed by deer. It is a larval host for the Sickling Skipper Butterfly (*Achylodes thraso*) and the Giant Swallowtail Butterfly (*Papilio cresphontes*).
5. Human Use: Colima has many traditional uses in medicine: Treatment of stomach ache, circulation problems, syphilis, and it is a stimulant and tonic. Nahua women (from the Mexican State of Veracruz) revere it for regaining equilibrium in reproductive health. Florida Natives construct bows and arrows from it. Other *Zanthoxylum* species also have a variety of proven medicinal uses. It is an aromatic ornamental with conspicuous flowers and attractive fruit; it is drought resistant and grows in full sun or shade. Powdered leaves and bark are used as a spice. It is used in tooth paste and powder for its refreshing taste. A yellow dye can be made from its wood.



Colima fruit and leaves.

Photos: T E Straw, Sept 2011.

## Plant Sheet 15: Retama Reh-tah'-mah

1. Scientific Name: *Parkinsonia aculeata* of the Fabaceae (Pea family). First named by Linnaeus in 1753. Found in southern tier of US states, south through much of South America; naturalized in much of world's tropics.
2. Common Names: Retama ('broom' in Spanish); Jerusalem Thorn (not named for city in Israel – corruption of Spanish 'girasol' meaning 'turning toward the sun, sunflower'); Horse Bean; Lluvia de Oro (Spanish for 'golden rain'); Mexican Palo Verde (palo verde is Spanish for 'green stick')
3. Description: This native tree grows to 30 feet tall. Smaller stems and twigs are green, and carry out photosynthesis; branches tend to be droopy like weeping willow. Leaves are doubly compound with two long, parallel leaf stems each with many, tiny leaflets that drop easily from cold or drought. Small, ½ inch, yellow flowers are found in spikes. Flowers are of one sex, but both kinds are found on the same tree. Fruit is a green turning brown, 2 to 4 inch pod. It has spines. The tree is an indicator of a wetland environment and seeds out aggressively there, but will grow on high, dryer land too. It is considered an aggressive weed in many situations, especially in Australia. Plant (seed) eating insects are used to control the plant.
4. Ecological Role: It is a nectar source for insects, wildlife browse the leaves and eat the seeds, and it is a favored cover and nest site for many animals. Retama is the larval host for the uncommon butterfly Clench's Greenstreak (*Cyanophrys miserabilis*), also called the Sad Greenstreak (why ??).
5. Human Use: Retama is a traditional source of medicines used for treatment of stomach ache, epilepsy and fever, and is regarded as an abortifacient (causes abortions) and diaphoretic (producing perspiration). Extracts of aerial parts have been found effective in reducing fertility (in rats) and controlling diabetes. It is used for fuel, forage, erosion control, ornamental plantings and as a bee plant. Plantings form good hedges, and it is known to fix nitrogen in the soil. Dried, cooked seeds have been used as food by the Papago people of Arizona; the seeds contain about 42% protein.



Retama tree, fruit and flower.

Photos: T E Straw, September, 2011.

## Plant Sheet 16: Texas Porlieria

1. Scientific Name: *Guajacum angustifolium* of the Zygophyllaceae (Creosote Bush or Caltrop family). Both spellings of the Lignum-vitae genus name: *Guaiaicum* and *Guajacum*, were used by Linnaeus; rules of plant naming indicate the latter is preferred, but both are used. It is found in the south half of Texas and Northeastern Mexico.

2. Common Names: Texas Porlieria; Texas Lignum-vitae; Guayacán; Soap Bush; Iron-wood; Tuber Anemone.

3. Description: This native, perennial tree / bush usually does not exceed 6 feet in height. It has stout, stubby, gnarled branches. It is evergreen, with dark green, once compound leaves that curl up at night or mid-day to conserve water; leaflets are small and leathery. The 1 inch, fragrant, purple – violet flowers have 5 petals and prominent yellow stamens (pollen forming structures), and they appear from March to September, usually after rain. Two small red seeds form in a heart-shaped pod.

4. Ecological Role: This tree's flowers attract insects, seeds are eaten by wildlife, and it provides nest sites for birds. The leaves contain up to 18% protein and are an important deer browse. It is a larval host plant for two butterflies: Gray Hairstreak (*Strymon melinus*) and Lyside or Guayacan Sulfur (*Kricogonia lyside*).

5. Human Use: Its name 'Lignum-vitae' indicates a very hard wood, and it is used for marine and machine bearings, pulleys, and fence posts. The bark of the root is used for soap, and because it doesn't fade colors, is good for washing woolens. Because it is drought tolerant and has showy, fragrant flowers it has potential as an ornamental for landscape use.



Plant Sheet 17: Anacahuita. Ah-nah-cah-wee'-tah.

1. Scientific name: *Cordia boissieri* of the Boraginaceae (Borage family). The genus *Cordia*, first described by Linnaeus, has about 2 dozen species from several tropical American countries. *C. boissieri* is found in the United States only in south Texas. One other species of *Cordia* is found in Texas, but not locally.
2. Common names: Anacahuita; Anacahuite; Mexican Olive. Anacahuite is derived from two Aztec (Nahuatl) words, for paper and tree, and is preserved for us in the Spanish language of Mexico.
3. Description: This native plant is a small tree or shrub with stout, sometimes contorted, trunk and branches and an umbrella shaped crown. It has no spines. The alternate, simple leaves are large, pubescent, and have a smooth margin. The flowers, occurring throughout the year clustered at the tip of branches, are large, white and showy. The fruit is white to yellow and egg shaped, reminiscent of an olive; it contains a stony pit.
4. Ecological role: This plant provides good cover for small animals and nest sites for birds. Butterflies are attracted to the flowers. The fruit is used by birds, and mammals. Excessive consumption of fruit by deer and livestock may cause a narcosis resembling drunkenness. This tree is not threatened or endangered.
5. Human use: The fruit is edible in moderate quantity, and is used to make jelly. Leaves and other plant parts have been used medicinally to treat cold or flu-like symptoms and rheumatism, but there is little evidence that chemicals from the tree, or whole plant parts, are effective. However, recent research (2009) has found anti-microbial and anti-oxidant activity in this plant (search PubMed.gov). The tree is commonly cultivated as an ornamental for landscaping use.



Photos: T E Straw, August 2011.

Left:  
Anacahuita  
tree. Top  
right:  
Anacahuita  
flowers.  
Bottom right:  
Anacahuita  
fruit.





## Plant Sheet 18: Johnsongrass and Buffelgrass.

1. Scientific Names: **Johnsongrass**: *Sorghum halepense* of the Poaceae (grass family). It is named for Wm. Johnson who introduced it into Alabama in 1840; it spread across the south since then. It is a native of the Mediterranean region and Asia Minor.

**Buffelgrass**: *Pennisetum ciliare* of the Poaceae. A native of Africa, West Asia and India, this grass has been introduced into most worldwide warm and dry locations. Abundant in the southern USA.

2. Common Names: Johnsongrass, Aleppo Milletgrass.  
Buffelgrass, African Foxtail, Zacate Buffel (zacate is Spanish for fodder or hay).

3. Description: Both of these grasses are introduced, *ie* not native. They are tolerant of drought and saline conditions. **Johnsongrass**, a long lived perennial, is an indicator species for wetland, but is usually found on upland. It has erect, green foliage to 3 ½ feet tall, yellow flowers appearing mostly from May to November, and abundant, brown fruit (grain seeds) which are easily spread. It forms a dense, tangled sod. It also reproduces by underground stems called rhizomes; these allow rapid regrowth after fire. **Buffelgrass**, also a long lived perennial, has 3 foot green foliage, yellow flowers in mid-summer, and brown fruit in late summer. This fruit resembles a sandburb, and Buffelgrass is sometimes classified with the sandburs in the genus *Cenchrus*. It is an erect plant growing with a bunch-grass habit.

4. Ecological Role: They are both noxious and / or invasive weeds in native communities. They provide some food for larger mammals, but are not very valuable for smaller wildlife species; the seeds are not frequently used by birds.

5. Human Use: They were introduced as fodder crops for livestock. Both of these plants are drought and fire resistant, and in some growth stages show toxicity to livestock. However, they do produce palatable fodder for browsing and grazing animals.



Johnson grass



Buffel grass

## Section II E. References Used and of Use.

I have used these references extensively in researching this plant manual, but I do not cite specific uses of the sources. Remember that I am not a botanist; none of the material included in this manual is original to me except the writing and photos as noted.

1. World Wide Web. Search for individual plants and animals in the following. Most of these references will have links to others that are also valuable.

a. USDA, NRCS. The PLANTS Database.

<http://plants.usda.gov> National Plant Data Team, Greensboro, NC 27401-4901 USA. Good for scientific information on plants in the USA.

b. USDA, ARS, National Genetic Resources Program Germplasm Resources Information Network (GRIN) [Online Database].

[www.ars-grin.gov](http://www.ars-grin.gov) . Good for scientific information on plants in the USA.

c. Ladybird Johnson Wildflower Center, Austin, Texas:

[www.wildflower.org](http://www.wildflower.org) Good for general information on flowering plants in Texas.

d. Texas Entomology website: [www.texasento.net](http://www.texasento.net) Good for information on insects of Texas.

e. Wikipedia, the free encyclopedia: <http://en.wikipedia.org>

This reference seems valuable for biographical information, but should be used with caution for scientific information, as many contributors may not be knowledgeable.

f. NatureServe. 2011. NatureServe Explorer: an online encyclopedia of life [web application], Version 7.1, NatureServe, Arlington, Virginia. [www.natureserve.org/explorer](http://www.natureserve.org/explorer) Good for information on a large variety of organisms.

g. Jepson Flora Project: Jepson Interchange for California Floristics. [www.ucjeps.berkeley.edu](http://www.ucjeps.berkeley.edu) A source of information on plants whose range includes CA; good for etymology of scientific names.

h. efloras. Published on the Internet: <http://www.efloras.org> Missouri Botanical Garden, St. Louis, MO and Harvard University Herbaria, Cambridge, MA. Good for general plants information.

- i. <http://www.worldwildlife.org> This site has information about worldwide ecosystems; you will see a discussion the Tamaulipan mezquital (NA1312), also known as the Tamaulipan Biotic Province.
- j. PubMed. <http://www.ncbi.nlm.nih.gov/pubmed/> US National Library of Medicine, National Institutes of Health.
- k. US Forest Service Plants Database, Fire Effects Information System. <http://www.fs.fed.us/database/feis/plants>
- l. International Legume Database and Information Service Legume Web. <http://www.ildis.org/legumeweb>

## 2. Books.

- a. Lonard, Robert I, James H Everitt, and Frank W Judd. *Woody Plants of the Lower Rio Grande Valley, Texas*. Number 7, Miscellaneous Publications, Texas Memorial Museum, University of Texas at Austin. 1991.
- b. Everitt, James H and D Lynn Drawe. *Trees, Shrubs, and Cacti of South Texas*. Texas Tech University Press, 1993.
- c. Scott, James A. *The Butterflies of North America. A Natural History and Field Guide*. Stanford University Press, 1986. This older book has a lot of butterfly biology in it, including an extensive list of host plants. Butterfly names are sometimes obsolete.
- d. Brock, Jim P and Kenn Kaufman. *Butterflies of North America*. Houghton Mifflin Company, 2003. Up to date guide, also with host plant information.
- e. Richardson, Alfred and Ken King. *Plants of Deep South Texas: A Field Guide to the Woody and Flowering Species*. Texas A & M University Press, 2011. New and up to date; a pictorial guide.

## 3. Journal Articles.

- a. Eduardo Estrada, *et al.* Ethnobotany of Plant Species Used in the Cumbres de Monterrey National Park, Nuevo Leon, Mexico. *Journal of Ethnobiology and Ethnomedicine*, 2007, Vol 3 # 8. Published online 30 January 2007. Source found in PubMed.