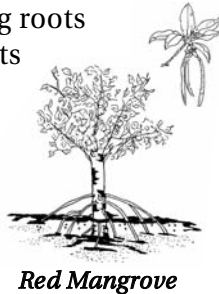


# Tampa Electric's Manatee Viewing Center: More than just manatees!

is working. As organisms rot and decay they form detritus, the slimy, foul-smelling muck that is the basic food of the entire system.

**RED MANGROVE (*Rhizophora mangle*):** Usually found along the water's edge, this tree is easily identified by the tall, arching roots called prop roots. These roots add stability to the tree. The leaves are dark green and waxy. The torpedo-shaped seeds are called "pencils" and can remain alive for up to 12 months while floating in the water before settling into the sediment.



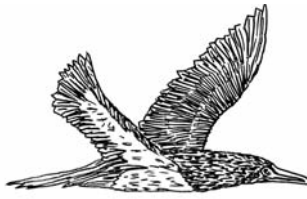
Red Mangrove

water. The easiest one to see and identify, however, is the mullet. This fish is frequently seen in large schools, and jumps out of the water.



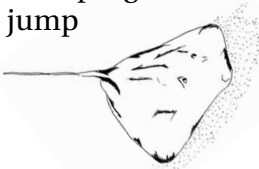
Brown Pelican

Watch for large diving birds, like the Brown Pelican, feeding on schools of fish. Also notice the large black-colored birds perched on the pilings with their wings spread apart. This is the Double-crested Cormorant drying its wings in the sunshine. Unlike most water birds, this bird does not have oil in its feathers, so it must periodically dry its wings out in order to fly.



Cormorant

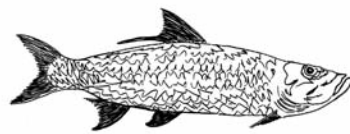
Keep an eye out as well for the leaping spotted eagle ray, which can jump completely out of the water. The southern stingray and the cow-nosed ray will glide along in the shallow waters on either side of the tidal walk.



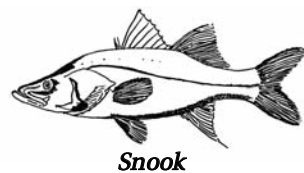
Stingray

## Tampa Bay Estuary

Now you have reached the Tampa Bay estuary. An estuary is a semi-enclosed body of water where salt water from the sea mixes with fresh water from rivers and streams. This mixture is known



Tarpon



Snook

as brackish water. There are many types of fish such as spotted sea trout, snook and tarpon that can be seen in the

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[tampaelectric.com/manatee](http://tampaelectric.com/manatee)



Tampa Electric expresses sincere gratitude to Patrick Cannizzaro and Sandra Upchurch, Hillsborough Community College, Institute of Florida Studies, for their efforts in developing this nature trail guide.

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## Tidal Walkway Nature Trail

A featured stop on the Great Florida Birding Trail, the Manatee Viewing Center's tidal walk offers more than just vibrant birdlife. Visitors can see a wide selection of native and Florida-friendly coastal plants and trees as well as a wide variety of animal life. You can use this guide as a resource when you visit the center. To learn more about the Manatee Viewing Center, go to [tampaelectric.com/manatee](http://tampaelectric.com/manatee).

**SLASH PINE (*Pinus elliottii*):** These tall, stately trees are valuable for lumber and resin and have needles in bundles of two or three. This native tree is valuable in reforestation projects because it grows rapidly and in many soil types. Even dead pine trees are important in the ecosystem. These "snags" provide a lookout point and nesting site for birds such as eagles, red-tailed hawks, woodpeckers, ospreys and many others.



Slash Pine

**RED CEDAR (*Juniperus virginiana*):** This naturally symmetrical evergreen tree grows to approximately 45 feet and is an important wildlife tree. Birds find cover in its dense foliage and feed on the blue fruits. Red cedar is a versatile tree that may be used for a wind break, screen or a mass planting. The tree is resistant to extremes of drought, heat and cold.

**SAW-GRASS (*Cladium jamaicense*):** Saw-grass is named for its sharp, rough blades. This plant is actually a sedge (not a grass), and thrives in brackish wetlands like this one and the Florida Everglades. Saw-grass blades can grow to three feet, providing food and shelter to birds and other animals. Look closely for a



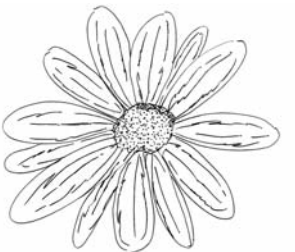
Saw-grass

marsh rabbit (*Sylvilagus palustris*) in this area making a meal on the green grasses and other vegetation. Marsh rabbits are dark, chestnut brown and only weigh two to three pounds. They live in marshes, along moist forest edges, and thickets.

**NICKERBEAN (*Caesalpinia bonduc*):** Notice the densely prickled brown seed pods on this aggressive, sprawling shrub-like vine. Nickerbean pods open to reveal shiny gray seeds. You must handle the leaves, stems and seed pods with care because of the many spines and sharp edges! Enjoy the lustrous shine of the seeds of the Nickerbean, a thorny tropical plant that some cultures believe holds various healing powers. Found in coastal areas, the plant often grows quickly, sometimes reaching lengths of up to 20 feet!

**BEACH SUNFLOWER (*Helianthus debilis*):** This prolific plant is both drought- and salt-resistant, providing excellent ground cover for landscapes. The bright yellow petals attract and provide nectar to butterflies. A self-seeder, this plant provides year-round color in Florida.

Beach Sunflower



**CABBAGE PALM (*Sabal palmetto*):** Located on the opposite side of the walkway, the cabbage palm is the state tree of Florida. Its trunk, which remains fairly constant in diameter throughout its life, can be partially or fully covered with old leaf bases, called boots. These boots will eventually drop off, leaving a smooth gray trunk. Many parts of this tree were eaten or used in other ways by Native Americans and early settlers; the heart and berries were eaten both raw and cooked, the boots were used as boot jacks to remove shoes, and the leaves were woven into baskets and mats. Also known by its Latin name, *Sabal palmetto*, this tree's flowers

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are a nectar source for bees and other insects, its berries providing food for a variety of wildlife. Dead cabbage palms provide homes for woodpeckers and other cavity-nesting birds.

**BUTTONWOOD (*Conocarpus erectus*):** Considered the fourth mangrove by some, this native tree grows to heights of 30 feet or more and was used extensively in the days of old to manufacture charcoal. It is still used for smoking fish and other meats. Note that there are two species of the buttonwood along the tidal walk – the more prominent green buttonwood and the silver buttonwood. These slow-growing trees can withstand salt, wind and drought, which make them invaluable coastal plants. Note the small cones resembling buttons that give the tree its name. Buttonwood trees make excellent landscape trees for your Florida-friendly yard.

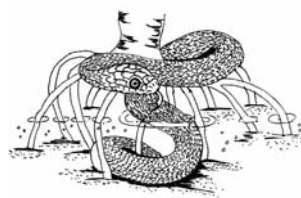


Buttonwood

**MARSH ELDER (*Iva frutescens*):** Found in coastal regions from Canada to Florida, this shrub does well in moist, salty soil (as long as the salt content is low). Marsh elder seeds are an excellent food source for many birds and small mammals.

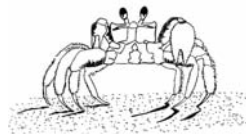
## Mangrove Forest

As you continue down the Tidal Walk, you'll notice one plant that dominates – you have moved into the mangrove forest. Mangroves are one of Florida's true natives, and are critical to the health of the Tampa Bay estuary. There are three types of mangroves in the Tampa Bay estuary: white, black and red mangroves. You will see all three species along the Tidal Walk.



Mangrove Snake

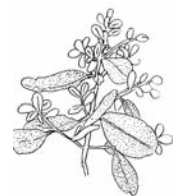
You are most likely to see mangroves in any coastal community from Tampa Bay south. Mangroves are very important to the ecosystem because they are the base of the food chain, provide valuable habitat, prevent erosion, filter out pollution, and are important nursery areas for shellfish, crustaceans and juvenile fish.



Fiddler Crab

Mangroves can live in both freshwater and saltwater; the mangroves along this Tidal Walk are thriving where fresh water meets salt water. This fascinating plant obtains fresh water from salt water. The white and black mangroves excrete excess salt through their leaves, while the red mangrove blocks absorption of salt at their roots. Nature is an amazing thing! Even though they are not endangered, red, white and black mangroves are protected plants, which means that state and local regulations have been enacted to protect Florida's mangroves. Mangroves cannot be removed, pruned, or disturbed on either state or private land without a permit from local or state agencies. Be sure to check with officials in your area before taking action!

**WHITE MANGROVE (*Laguncularia racemosa*):** Identify a white mangrove by its leaves. They are light yellow-green, oval-shaped and have a notched tip. Additionally, the leaves have two distinguishing glands at the base of the leaf blade where the stem starts. The two glands pump out the salt and sugar that the plant produces. You may see ants or other insects enjoying the sugar. The white mangrove usually grows in the highest elevations farther upland than either the red or black mangroves. The white mangrove has no visible aerial root systems like the black or red mangroves.



White Mangrove

**BLACK MANGROVE (*Avicennia germinans*):** At high tides, the water will cover the roots of the black mangrove. This is the largest of the mangroves and can grow up to 50 feet tall. It has numerous breathing tubes, called pneumatophores, which grow vertically up from the mud and provide air to the roots. The leaves are slender and pointed with a silvery gray backing. As you walk, notice the difference between the white and black mangrove leaves. You can see that the black mangrove leaves are lighter in color than the white mangrove! The leaves are often coated with salt crystals which were eliminated from the tree. It was thought that early Native Americans used the leaves when cooking to add a salty taste to their food. The seeds are lima bean-shaped and actually germinate while still on the tree. The seeds float in the water until they wash up on a shoreline and find a sandy spot to settle into.



Black Mangrove

## Coastal Berm

This area of sandy, high ground is called a coastal berm. This is a ridge of sand, shell and debris created by storm tides. Coastal berms are common along the southwest Florida coast and support a variety of vegetation types because the materials that create them can be so varied. Notice the sea grapes growing on the berm.

**COIN VINE (*Dalbergia ecastophyllum*):** A trailing or climbing shrub or vine with stems to 25 feet in length, the plant grows in marshes behind the sand dunes, in mangrove swamps and wherever the tides carry the seed. The fruit are one-seeded pods, one-half to one inch in diameter. They are flat, round and copper-colored at maturity accounting for the common name, "coin vine." Chemical compounds in these plants cause fish to become stupefied when roots or bark are crushed and placed in the water, a technique commonly used by coastal native Americans years ago.

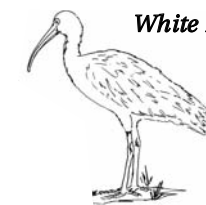
**SEA GRAPE (*Coccoloba uvifera*):** These native trees are useful to bees (for honey) and produce an edible fruit that is often made into jelly or a wine-like beverage. Birds and animals feed freely on the abundant grape-like fruits. This plant is widely used in central to south Florida landscapes because of its tolerance to salty soils. It is very sensitive to cool temperatures; its leaves will turn orange and red when cold stressed, and look quite beautiful!



Sea Grape

## Shoreline Habitat

Plants and animals living along the shoreline have had to adapt to several environmental stresses. Low soil oxygen levels, tidal fluctuations, and drought conditions brought on by a salty environment make life here a challenge. Since this is an area sometimes covered with water and sometimes exposed, a host of animals, both terrestrial (land-based) and marine, make use of it.



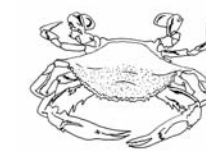
White Ibis

At low tide, look on the mud flat for the footprints of raccoons, ibis, egrets, herons and others who have come to feed on crabs, worms, mollusks and other tasty critters. The low tide also provides an excellent opportunity for wading birds to feast on fish trapped in tide pools or swimming in the shallow water.



Green Heron

The small holes you see in the mud belong to marine worms that live below the surface (in the benthos). The holes provide a way to obtain both oxygen and food, as well as a way to discharge waste. This shoreline community plays a vital role in the estuarine food web – providing food and shelter for terrestrial and marine organisms of all shapes and sizes. The smell at low tide is proof that the system



Blue Crab