# Florida's Southwest Gulf Coast Bay Roamer's Guide

A Regional Guide to Sea Life, Birds, Animals, Plants, Insects, Reptiles and, Area Habitats

SARASOTA BAY
ESTUARY PROGRAM

# Florida's Gulf Coast • Bay Roamer's Guide

## About this Field Guide

This field guide features diverse habitats throughout the Southwest Florida region. These guides will help you identify wildlife, sea life, native plants, and undesirable invasive species on your adventures.

Southwest Florida offers a variety of habitats for the bay roamer to explore, from our Gulf beaches to mangrove tunnels and upland habitats.

The sections of this publication highlight the most common species of plants, animals, and aquatic life you are most likely to see in each habitat. Some popular viewing places in Manatee and Sarasota counties are indicated on the map to the right.

## BAY HABITATS

Body of water connected to an ocean, formed by an indentation of the shoreline.


Mangroves


Seagrass Types


Oyster Beds


Artificial Reefs

## BEACH HABITATS

A sandy or pebbly shore, especially by the ocean or gulf between high- and low-water marks.


Sea Oats


Railroad vine


Beach sunflower


Buttonwood


Seagrape

## WETLAND HABITATS

Land consisting of marshes or swamps; saturated land.


Tidal Wetlands


Freshwater Wetlands

## UPLAND HABITATS

Parts of the coastal plains that are higher ground of a region or district; an elevated region.


Scrub


Pine Flatwoods


Hardwood Hammock

## INVASIVE SPECIES

A plant, animal, fungus, or bacterium that is not native and has negative effects on our environment. Not all introduced species are invasive.


Old world climbing fern


Rosary pea


Australian pine

Tampa Bay

## The Gulf Coast Heritage Trail of Manatee and Sarasota Counties

Experience an array of environmental, cultural, and historical sites throughout this region. *The Gulf Coast Heritage Trail* guide also locates popular beaches, parks, and conservation areas that provide opportunities for wildlife viewing throughout this coastal region's habitats.

Duette Preseve *(uplands)*


Robinson Preserve *(wetlands)*

To view *The Gulf Coast Heritage Trail* guide: sarasotabay.org, go to "eco-tourism."

Sarasota Bay

Manatee County

Sarasota County

Lido Beach

South Lido Park *(wetlands)*

Celery Fields *(wetlands)*

Gulf of Mexico

N W E S

Siesta Beach

Oscar Scherer State Park *(uplands)*

# TOPOGRAPHY
## of the Southwest Coast of Florida

The majority of our soils are poorly drained, with the subsurface water table very high during most of the year. This gives us freshwater swamps and marshes near beach areas, along with saltwater marshes and mangroves. Most of our mangroves are fringing and scrubby. Early attempts at controlling mosquitoes in the area led to "ditching" in mangrove and salt marsh areas to alter water flow. Ditches were dug by hand or created by dynamiting, seriously impacting these wetland habitats.

As a by-product, these efforts created mangrove tunnels that allow entry into interesting habitats. Also, small spoil islands dot the area, created by the ditching; larger spoils islands were created by dredging. Vegetation of spoil islands often includes mangroves, which can serve as roosts or nesting areas for marine birds. The spoil islands can be approached by water, providing excellent viewing opportunities for birders. However, these islands also provide habitat for invasive species. Fossils, common in many areas, may be found in unusual places. Shell middens are evidence of native South West Florida inhabitants. These middens are essentially the garbage dumps of Paleo-Indians, who likely inhabited our area about 11,000 years ago. The middens show glimpses of the past, just as our own landfills will provide future explorers an understanding of our times.

Our sandy beaches are rated very highly for their beauty, while providing nesting places for a variety of birds and sea turtles that come to our shores year after year. For the shell collector, the beaches offer a variety of treasures. Nearshore bars migrate up to the shore seasonally, bringing rare finds into surf areas.

Clearly, Southwest Florida has a great deal to offer the casual and serious roamer. The biggest decision is which area to explore first!

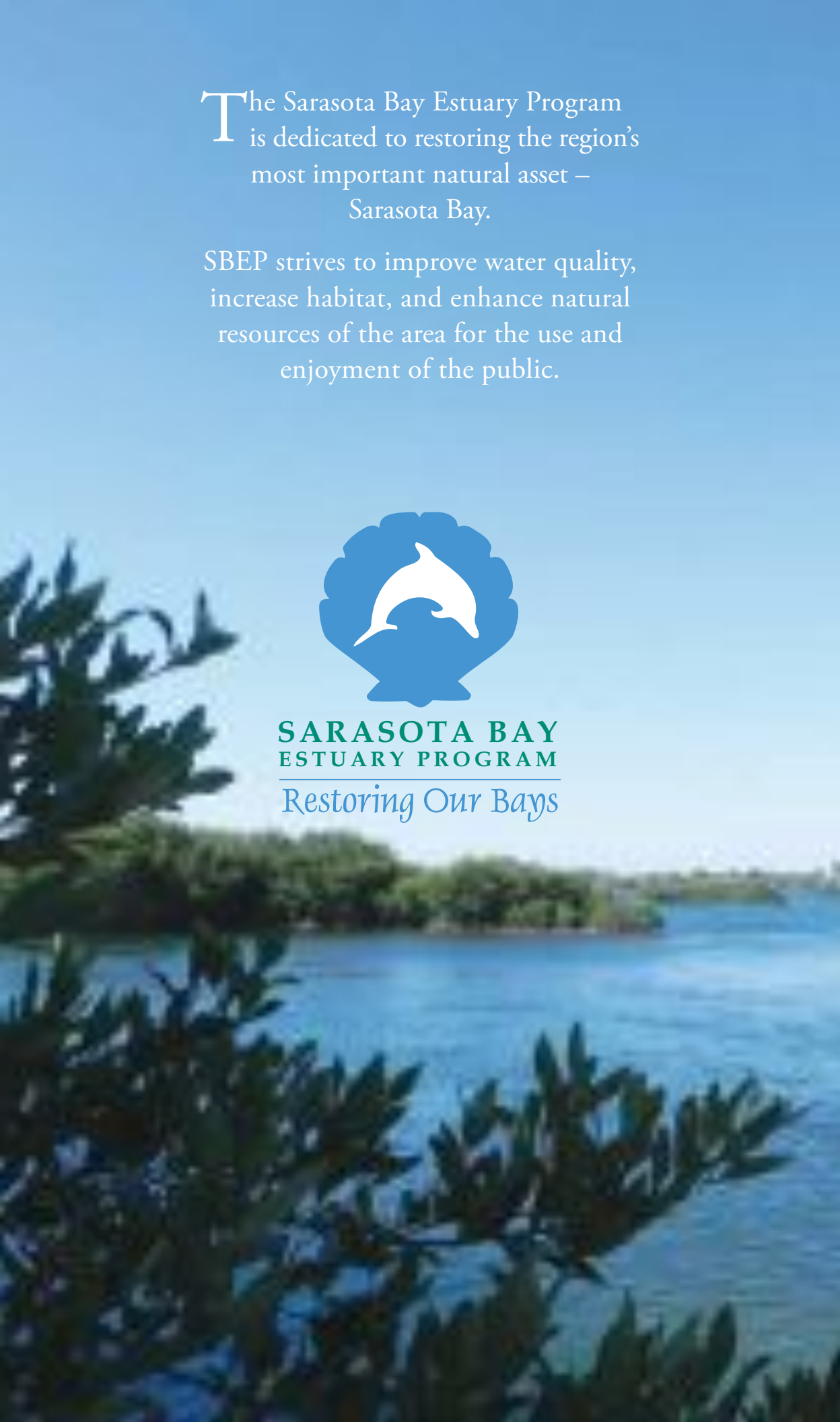

The low, flat elevation of Southwest Florida coupled with heavily urbanized coastal areas – make its ecosystem, infrastructure, and coastlines vulnerable to sea level rise. The Sarasota Bay Estuary Program has partnered with Mote Marine Laboratory to expand community awareness and education about sea level rise and adaptation planning.

To view the *Sea Level Rise -Tips for Adaptation Planning* brochure: sarasotabay.org – SLR web map.

Charlotte Harbor

The Sarasota Bay Estuary Program is dedicated to restoring the region's most important natural asset – Sarasota Bay.

SBEP strives to improve water quality, increase habitat, and enhance natural resources of the area for the use and enjoyment of the public.



SARASOTA BAY
ESTUARY PROGRAM
*Restoring Our Bays*

# BAY HABITATS

SARASOTA BAY ESTUARY PROGRAM
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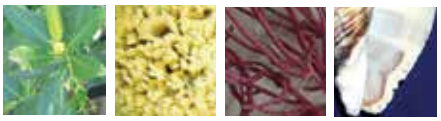
The bays of the Southwest Florida Gulf Coast are unique and beautiful natural environments. Humans are drawn innately to these safe, protected waters where life abounds. Wildlife from the sea, land, and air take refuge and thrive in the multitude of habitat types these bays offer. In estuaries, where freshwater meets saltwater, the abundance includes nursery ground for fish and shellfish.

More than 70 species of mangroves exist worldwide. These plants, found along tropical coastlines, are characterized as having a high tolerance for salt. Southwest Florida's Gulf Coast is home to three mangrove species: the red, black, and white mangroves. Of these, the red and black mangroves have extensive and convoluted root systems consisting of prop roots and pneumatophores.

Both of these complex root systems grow densely in mangrove swamps; submerged in brackish water, they provide a haven for young marine species. Additionally, the intricate mangrove roots hold onto sandy soils and protect the shorelines from erosion and damage during severe storms. These unique, salt-tolerant plants are crucial in filtering out pollutants; they are the final line of defense before stormwater runoff from the land enters the bays.




## Red mangrove *Rhizophora mangle*

The red mangrove trees are salt excluders, with specialized roots that prop them out of the saltwater. They keep salt out of their systems through root filtration. Leaves are deep green with a pointed tip; flowers are small with white petals. Propagules, also known as the trees' fruit, begin growing while still on the tree and then fall into the water, where they may float for years before setting root. The red mangrove's trademark arching prop roots grow from its branches down to the soil; these roots grasp the sandy soils and provide refuge for marine creatures. Red mangroves are also referred to as "walking trees" because their prop roots resemble legs walking out over the water.

## Black mangrove *Avicennia germinans*

The black mangrove is the most salt-tolerant mangrove species in Florida, typically found intermixed or slightly inshore from the red mangrove. The black mangrove has distinct aerial roots, called pneumatophores, which look like long gray fingers sticking up out of the ground. The pneumatophores aid in gas exchange when water levels are high. Black mangrove leaves are distinguished by a green upper surface and a silvery white underside; the silver color comes from a thin layer of salt, which the plant excretes through openings in the leaf.

# BAY HABITATS

Seagrass meadows are found in estuaries, where freshwater from rivers and tributaries meets saltwater from the sea to create a hyper-productive brackish environment. Eighty to 90 percent of Florida's commercially valuable fish and shellfish species spend part of their lives in an estuary.

Providing many important ecological functions, seagrasses are rooted photosynthetic plants that take in carbon dioxide and release oxygen into the water and atmosphere. The roots of seagrasses prevent erosion by holding together the sediment of the bay floor. Seagrasses improve water quality by capturing fine sediment and filtering out some pollutants. Their leaf blades provide a surface for algal epiphytes, a food source for fish, crustaceans, and invertebrates. Seagrasses provide habitat for many adult fish and shellfish species and are an ideal nursery for juvenile fish. Seven distinct seagrass species are found on the Southwest Florida Gulf Coast; however, most meadows are dominated by three species.


## Turtle grass *Thalassia testudinum*

Turtle grass is the most common and largest of the seagrass species in the Southwest Florida bay systems. With wide, flat green blades less than one inch in width, this species has the deepest roots, which extend into the sandy soils and help maintain the bayfloor's sediment. Turtle grass grows in dense meadows, providing excellent cover for juvenile fish. It is also a favored food and source of freshwater for green sea turtles, which graze on the leaf blades and roots.

## Manatee grass *Syringodium filiforme*

Manatee grass has thin, branching leaf blades, distinguishable from those of other seagrass species by their cylindrical shape. The brittle and buoyant leaves break off frequently and can be seen floating along the water's surface. As the name suggests, this seagrass is a favored food and freshwater source for the manatee.

**Variegated sea urchin**
*Lytechinus variegatus*
Up to 4 inches across, globular body, purple to green, short spines. Diet: seagrass.

**Bay scallop**
*Argopecten irradians*
Up to 2 inches long, bivalve, (two hinged shells), blue eyes near scalloped edge of the shell. Diet: filter-feeder.

**Florida sea cucumber**
*Holothuria floridana*
Up to 8 inches long, elongated cylindrical shape, tough and leathery skin with blunt conical protuberances. Diet: filter-feeder.

**Northern quahog clam**
*Mercenaria mercenaria*
Up to 4 inches wide, bivalve, light tan to brown. Diet: filter-feeder.

**Mangrove tree crab**
*Aratus pisonii*
Less than 1 inch long, eight legs, head wide at mouth, mottled colors with red hues. Diet: algae, decayed wood, insect larvae.

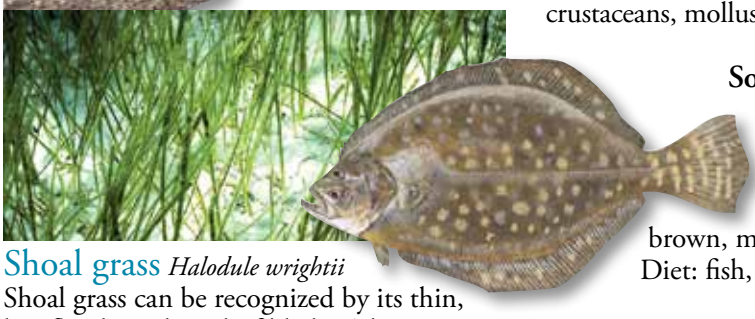
**Longnose spider crab**
*Libinia dubia*
Carapace up to 4 inches across, tan to brown, spiny and bumpy appearance, pointed snout. Diet: plants, animal tissue, detritus.

**Hermit crab**
*Pagarus pollicaris*
Under 2 inches across, greenish tan to brown, highly variable shells. Diet: plants, animal tissue, detritus.

# BAY HABITATS

**Double-crested cormorant**
*Phalacrocorax auritus*
Wingspan approximately 52 inches, long and bendable neck, black feathers, yellow hooked beak, black webbed feet, turquoise eyes.
Diet: fish.

**Gray snapper** *Lutjanus griseus*
(Also known as the mangrove snapper.)
Up to 35 inches long, pale gray to reddish brown hued with darker upper side, lighter underside, more prominent band across eye in juveniles. Diet: small fish, crustaceans, mollusks.



**Southern flounder**
*Paralichthys lethostigma*
Up to 3 feet long, flatfish, eyes on upwards facing side, brown, mottled to spotted.
Diet: fish, shrimp.

Shoal grass *Halodule wrightii*
Shoal grass can be recognized by its thin, but flat, branching leaf blades. This seagrass has a shallow root system and is able to colonize disturbed areas, such as a shoal that is periodically exposed to air or the barren scar a boat propeller may leave on a seagrass bed. In contrast to the other two species, shoal grass can tolerate lower levels of salinity, and thus is capable of growing further up tidal creeks and rivers.

**Mullet** *Mugil cephalus*
Up to 2 feet long, silvery, rounded snout, mouth towards underside.
Diet: detritus.

**Ivory barnacle**
*Balanus eburneus*
Under 1 inch across, light yellow to brown, enclosed in shell.
Diet: filter-feeder.

**Upside-down jellyfish**
*Cassiopeia xamachana*
Under 1 foot across, green-blue to brown tentacles that are oriented upwards. Diet: filter-feeder, occasionally small fish.

**Lined seahorse**
*Hippocampus erectus*
Less than 8 inches long, covered in bony plates, curled tail, yellow-tan to black with variable patterning.
Diet: brine shrimp, small crustaceans.

**Florida grass shrimp** *Palaemonetes sp.*
Up to 1 inch long, translucent tan to yellow, darker markings.
Diet: algae, small invertebrates.

**Florida manatee**
*Trichechus manatus latirostris*
Up to 10 feet long, gray-brown, large paddle tail, small eyes.
Diet: seagrasses, other aquatic plants.

**Sponge**
*Lissodendoryxisodictyalis*
Blue-green, porous.
Diet: filter-feeder.

# BAY HABITATS

## Oyster Beds

A variety of hard bottom surfaces – including oyster beds, coral reefs, and rocky reefs – is commonly found in bay waters. These hard surfaces are essential to such marine invertebrates as oysters, which must attach to a hard substrate to grow. Many fish, algae, and invertebrate species occupy the hard bottom habitat, while others seek temporary refuge in its dark crevices. When hard substrate is exposed, birds use it to perch and hunt for fish and crustaceans.

Currently the most abundant hard substrate in Southwest Florida's bays is oyster beds. Hard bottom habitats in the bays declined due to dredge-and-fill operations during periods of heavy development. Innovative approaches to restoring hard bottoms within the bays include oyster restoration efforts and artificial reef modules.

### Eastern oyster

*Crossostrea virginica*

The hard-working eastern oyster is unique in that its spat (attached larval stage) requires a hard substrate on which to grow and reach maturity. Because of this developmental trait, oysters are able to grow on top of other oyster shells in large groups called beds or reefs, which support many types of organisms. Oysters also fulfill an important ecological role: just one oyster is capable of filtering up to 15 gallons of water in an hour. This process cleans and improves the quality of bay waters.

**Eastern oyster**
*Crassostrea virginica*
Gray, purple, or dark brown, often encrusted with other organisms. Diet: filter-feeder.

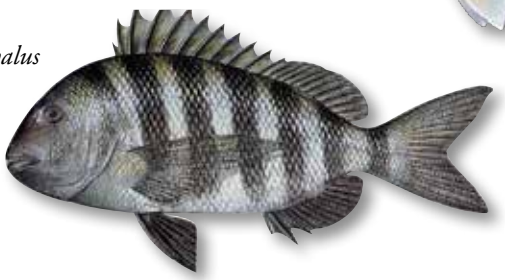
**Striped barnacle** *Balanus amphitrite*
Small, light with purple stripes, enclosed in shell. Diet: filter-feeder.

**Fire sponge** *Tedania ignis*
Bright orange-red, encrusting. Causes skin reaction.
Diet: filter-feeder.

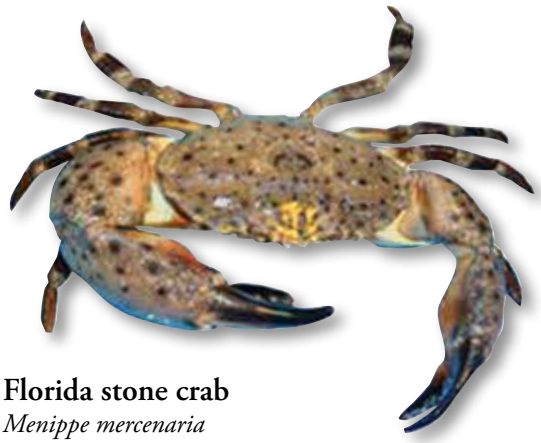
# BAY HABITATS

**Gag grouper**
*Mycteroperca microlepis*
Large, brown-gray with darker markings, large mouth, white fin edges.
Diet: fish, crabs, shrimp.

**Sheepshead**
*Archosargus probatocephalus*
Average 18 inches, silver body with five to seven dark vertical bars. Diet: oysters, clams, small fish, blue crabs, other crustaceans.



**Pinfish**
*Lagodon rhomboides*
Up to 15 inches, shiny silver, darker on top, spiked dorsal fin, blue and yellow horizontal stripes, black spot above gills.
Diet: crustaceans, mollusks, worms, small fish.



**Florida stone crab**
*Menippe mercenaria*
Large and stout, purple to brown mottling, dark tips on claws, light underside. Diet: opportunistic carnivore, including barnacles, bivalves, snails.

**Blue crab** *Callinectes sapidus*
Brown, flattened and broad, swimmerets, blue claws; female claws have red tips.
Diet: bivalves, snails, fish, crabs.

**Colorful sea whip**
*Leptogorgia virgulata*
Up to 2 feet tall, thin, branching soft coral, highly variable in color.
Diet: filter-feeder.

# BAY HABITATS

## Artificial Reefs



**Artificial reef ball,** out of the water.

Artificial reef modules are man-made structures of poured concrete. Hollow reef modules come in various sizes and shapes, with holes to allow the passage of water and organisms. Depending on the size and location of the reef modules, oysters and corals may naturally colonize the structure. Reef modules are placed on the bay floor; preliminary monitoring has documented a variety of marine life either taking up residency within the reef modules (gag groupers and stone crabs) or utilizing the habitat for its structure (gray snapper, sheepshead, and bait fish).

**Cownose ray** *Rhinoptera bonasus*
Wingspan up to multiple feet across, tan to brown, white underside, long barbed tail, indented snout. Diet: bivalves.

**True tulip**
*Fasciolaria tulipa*
Up to 8 inches long, smooth spire, white with red to tan mottling, light banding. Diet: bivalves, marine snails.

**Horse conch**
*Triplofusus giganteus*
Up to 24 inches long, largest marine snail in Florida, knobbed spire, bright red flesh. Diet: bivalves, snails.

**King's crown conch**
*Melongena corona*
Up to 5 inches long, flattened spire, white spines on whorls. Diet: bivalves, marine snails.

**Great blue heron**
*Ardea herodias*
3-4.5 feet tall, largest heron species in North America, wading bird, blue-grey, horizontal black band above eye, neck curls into "S" shape during flight. Diet: fish, crustaceans, amphibians, mice, lizards.

# BEACH HABITATS

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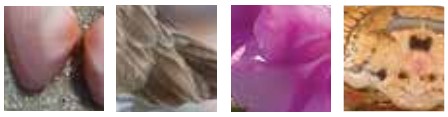
sarasotabay.org

Southwest Florida offers some of the most beautiful beaches in the world. White sand beaches meet turquoise-blue Gulf waters, creating a wonderful place to relax and for wildlife to flourish. Beaches are the interface of the ocean and the land – where creatures from both sides meet. From the dunes to the water's edge and beyond, beaches are home to many resilient and unique plants and animals.

## On-shore

From beach to beach on the Southwest Florida Gulf Coast variations appear in the color and other characteristics of sand. Generally speaking, however, this area has lightly colored, soft sand that comes to the coast from the Appalachian Mountains. Over great periods of time, as the mountains break down, sediments wash down rivers to the Gulf of Mexico, where currents deposit them on Florida's Gulf Coast.

Sand dunes are created when sand and sediments are washed or blown ashore and settle on areas of slightly higher elevation. As a dune's height increases, so does the amount of material it captures, creating self-perpetuating growth. Because dunes develop above the normal high-tide line, plants establish themselves there. Sand dune vegetation is important because it provides cover for the wildlife that live on the beach, and prevents shore erosion. Plant roots hold on tightly to sand and soils, protecting the land from severe storms and high tides.



### Seagrape *Coccoloba uvifera*

Seagrapes grow in the sandy soils of beaches and withstand the salt spray that comes off the water. They can reach a maximum height of about 30 feet, with twisting branches. Large, nearly circular leaves are thick and leathery-feeling, with a dark green color and trademark red veins. Inconspicuous small flowers growing in long clusters at the base of the leaves yield summertime fruit that resemble a cluster of green grapes, turning purple toward the end of the season. Birds, squirrels, and other rodents feast on the seagrape's abundant fruit.

### Beach sunflower *Helianthus debilis*

The beach sunflower grows on sand dunes in striking clumps that can spread over large areas. This plant has deep green, hairy leaves that are rough to the touch and may grow up to 4 inches in length; they have bright yellow petals and a reddish-brown center; they are present year-round and attract many butterfly species. The beach sunflower is salt-spray tolerant and very drought tolerant. In addition to growing on beach dunes, this plant is often used in landscaping.

### Sand fiddler crab

*Uca pugilator*

Found in sandy or muddy intertidal areas, or mangrove-covered ground, where it digs its holes in the root-filled ground. Diet: algae, animal tissue, detritus.

# BEACH HABITATS

**Laughing gull** *Larus atricilla*
Gray upper wings, white underbody, black head, red beak.
Diet: opportunistic.

Railroad vine *Ipomoea pes-caprae*
Also referred to as a beach morning glory.
Flowers all year, peaking in May.

Sea oats *Uniola paniculata*
Important because of its ability to colonize and stabilize the dune, the sea oat (left) is a pioneer of the ocean-side of the dune – the fore-dune. The sea oat has rhizomatous roots, which spread below the ground by sending out long runners. This grass has green flat blades about 1 foot long and 1 inch wide. Its long stalks reach up to 5 feet and hold what look like golden-brown strands of oats. The oats are present nearly year-round, providing food for birds, endangered beach mice, and other rodents.

**Coquina** *Donax variabilis*
Small clam, varied bright colorations.
Diet: filters particles from sand and water.

**Sand dollar**
*Mellita quinquiesperforata*
Brown-green, circular and flat, rough to touch, many small spines underside.
Diet: filters particles from sand and water.

# BEACH HABITATS

**Snowy plover** *Charadrius nivosus*
Small, white underbody, tan upper body, black markings on shoulders and head. Diet: insects, invertebrates.

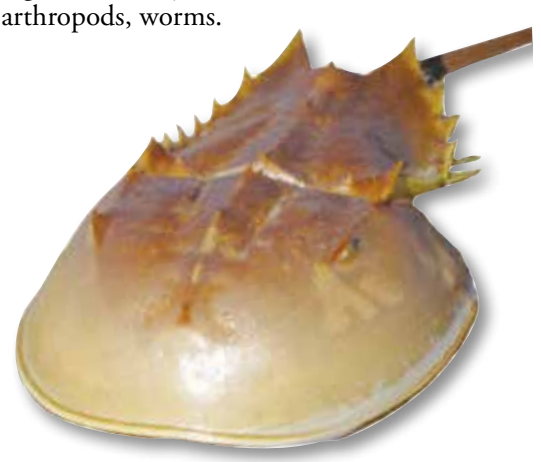
**Royal tern** *Sterna maxima*
White body, black sparse crown, orange bill, short forked tail. Diet: small fish, shrimp.

**Black skimmer** *Rynchops niger*
White underside, black upper body, distinctive red and black beak with lower mandible longer than upper. Diet: fish, beetles, crustaceans.

**Variegated sea urchin** *Lytechinus variagtus*
Short spines, can reach a diameter of around 4.3 inches.

Buttonwood *Conocarpus erectus*
Often referred to as the "fourth Florida mangrove," the buttonwood is highly sun-tolerant and can process some salt as well. This versatile plant can be found on coastal habitats. On sand dunes, these trees are kept small by salt spray; they usually do not reach more than 15 feet. Its green leaves are pointed, often undulating, and about 3 inches long. This tree is named for its rust-colored fruit, which is small and cone-like, appearing like an old-fashioned button.

**Horseshoe crab** *Limulus polyphemus*
Up to 12 inches across, brown exoskeleton, spine-like tail, segmented body. Diet: mollusks, arthropods, worms.



**Atlantic ghost crab** *Ocypode quadrata*
2 inches wide, white-tan body, black eye stalks. Diet: mole crabs, bivalves, algae, dead sea life.

# BEACH HABITATS

## Off-shore

The Gulf of Mexico waters that wash the Southwest Florida Gulf Coast are clear and relatively warm year-round. Varied off-shore habitats include sandy bottoms, sea grasses, or hard bottoms of coral and oysters. Because the waters of this coastline are shallow and calm, they support a tremendous variety of living things, some staying year-round, others coming and going seasonally.

**Bottlenose dolphin** *Tursiops truncatus*
Average 8 feet long, dark gray dorsal side, light gray underside, curved dorsal fin. Diet: fish, crustaceans.

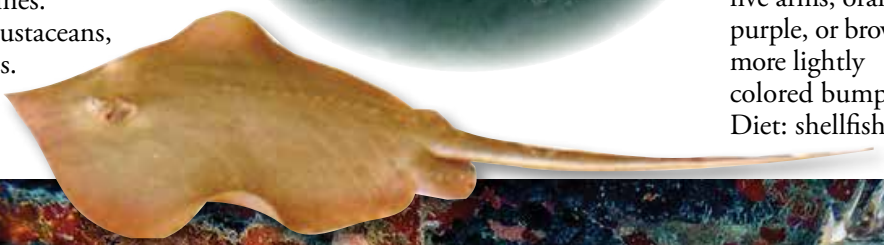
**Eastern brown pelican**
*Pelecanus occidentalis*
Large brown body with variable other colors, short tail, long pouched beak. Diet: fish.

# BEACH HABITATS

**Loggerhead sea turtle** *Caretta caretta*
3 feet long, large head, blunt jaws, red-brown carapace, yellow plastron.
Diet: fish, crustaceans, invertebrates.

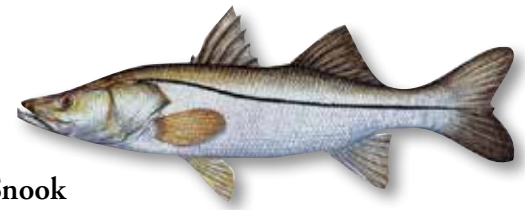
**Spiny sea star**
*Echinaster sentus*
Up to 7 inches across, five arms; orange, red, purple, or brown with more lightly colored bumps.
Diet: shellfish.

**Atlantic stingray**
*Dasyatis sabina*
1 foot across, brown-tan, pointed snout, long tail with spines.
Diet: crustaceans, molluscs.

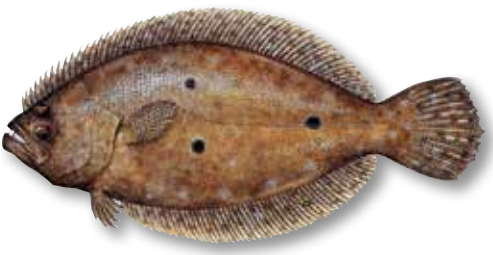


**Goliath grouper** *Epinephelus itajara*
Up to 8 feet long, brown and tan mottled pattern with black speckles. Diet: fish, crustaceans.

**Redfish (Red drum)** *Sciaenops ocellatus*
26 to 34 inches long, snout conical, extending over mouth; no chin barbels. Dorsal fin continuous; large black spot on tail.
Diet: fish, crustaceans.



**Snook**
*Centropomus undecimalis*
18 to 26 inches long, distinct black lateral line extends onto tail fin. Diet: fish, crustaceans.



**Flounder** *Paralichthys lethostigma*
14 to 24 inches long, flat oval, with long, wedge-shaped tail fin; larval fish swims upright, adult on side. Right eye "migrates" to upper (left) side. Found closer to shore.
Diet: fish, crustaceans.

**Red snapper**
*Lutjanus campechanus*
Up to 40 inches long, pink to red with lighter underside, large red eyes.
Diet: fish, crustaceans.

# BEACH HABITATS

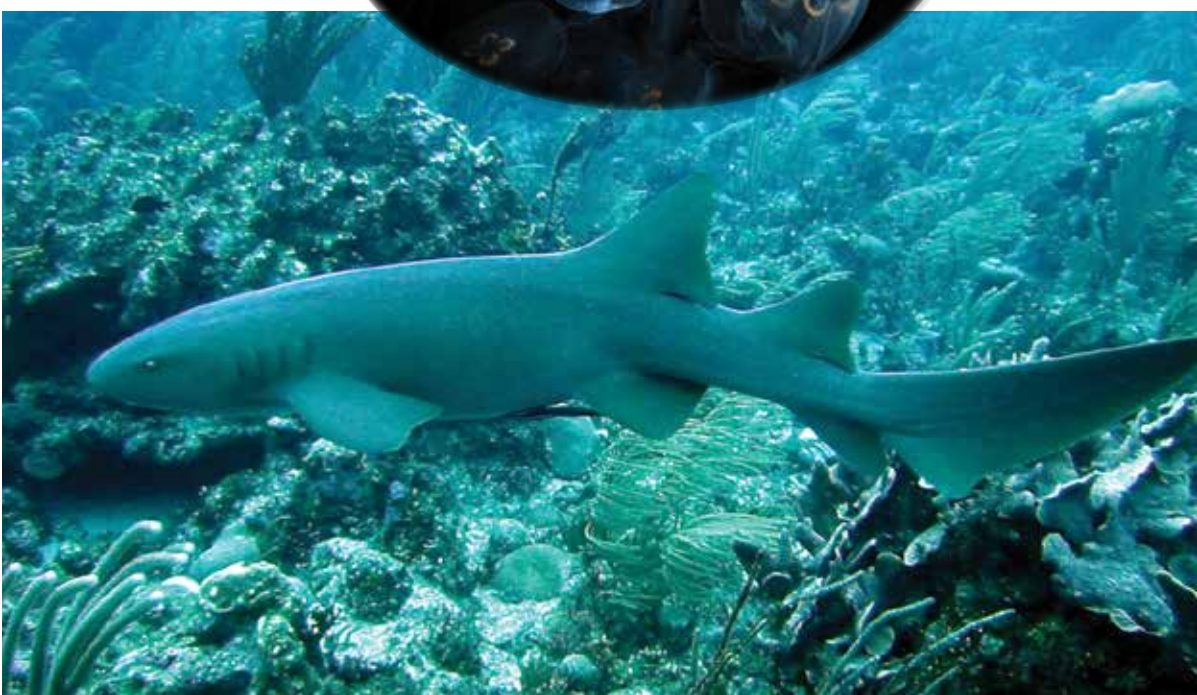
**Tarpon** *Megalops atlanticus*
Up to 8 feet long, shiny large silver scales, large eyes, large mouth. Diet: fish, crustaceans including shrimp.

**Amberjack** *Seriola dumerili*
Up to 6 feet long, blue-brown dorsal side, shiny silver underside. Diet: fish, crab, squid.

**Florida manatee**
*Trichechus manatus latirostris*
Up to 10 feet long, gray-brown, large paddle tail, small eyes.
Diet: seagrasses, aquatic plants.

**Moon jellyfish** *Aurelia aurita*
Can reach over 1 foot across, translucent to opaque white, rounded body, tentacles on the bell margin. Diet: invertebrates, crustaceans, plankton.

**Nurse shark**
*Ginglymostoma cirratum*
Up to 8 feet long, tan to brown body, small barbels near mouth.
Diet: stingrays, fish, crustaceans.



# WETLANDS HABITATS

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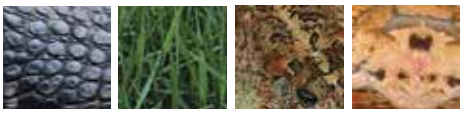
Wetlands are places of tremendous ecological importance and natural splendor. Florida's unique geology and hydrology have left wetlands of varying types and sizes scattered throughout the state. Wetlands, known for their stunning beauty, play an irreplaceable role in the water cycle and provide habitat for a unique array of animals and plants.

## Tidal Wetlands

Tidal wetlands – wetlands that receive salt water influxes – occur in two types on the Southwest Florida Gulf Coast: salt marshes and mangrove swamps. Both types are found along the coastlines of estuaries, where freshwater from the tributaries meets the saltwater from the Gulf of Mexico.

Tidal wetlands perform crucial ecosystem functions such as protecting the coastline during severe storms, filtering pollutants from the water, and providing habitat for a true plethora of wildlife. Without tidal wetlands, life on the Southwest Florida Gulf Coast would be very different.

Salt marshes represent one of the world's most productive ecosystems; these shallow areas are dominated by grasses that can withstand periodic inundation by saltwater. Florida mangrove swamps consist of three different mangrove species plus their halophytic allies, other salt-tolerant plant species that can grow in salty soils.



### Black needlerush *Juncus roemerianus*

Black needlerush is the dominant grass species of salt marshes. From a distance, black needlerush appears as dense meadows of green and gray with a hint of black. Up close you will notice that each stalk is a leaf wrapped tightly into a pointed cylinder.

Leaves grow up to 5 feet tall; flowers occur in brown clusters during late spring to early fall. Black needlerush's dense rhizomatous root system is critical for preventing shoreline erosion and also provides habitat for many wildlife species.

# WETLAND HABITATS

## Red mangrove *Rhizophora mangle*

The red mangrove trees are salt excluders. They have specialized roots that prop them out of the salt water, and keep salt out of their systems through root filtration. Leaves are deep green with a pointed tip; flowers are small with white petals. Propagules, also known as the trees' fruit, begin growing while still on the tree and then fall into the water, where they may float for years before setting root. The red mangrove's trademark arching prop roots grow from the branches down to the soiling, grasping the sandy soils and provide refuge for marine creatures. Red mangroves are also referred to as "walking trees" because their prop roots resemble legs walking out over the water.

## Black mangrove *Avicennia germinans*

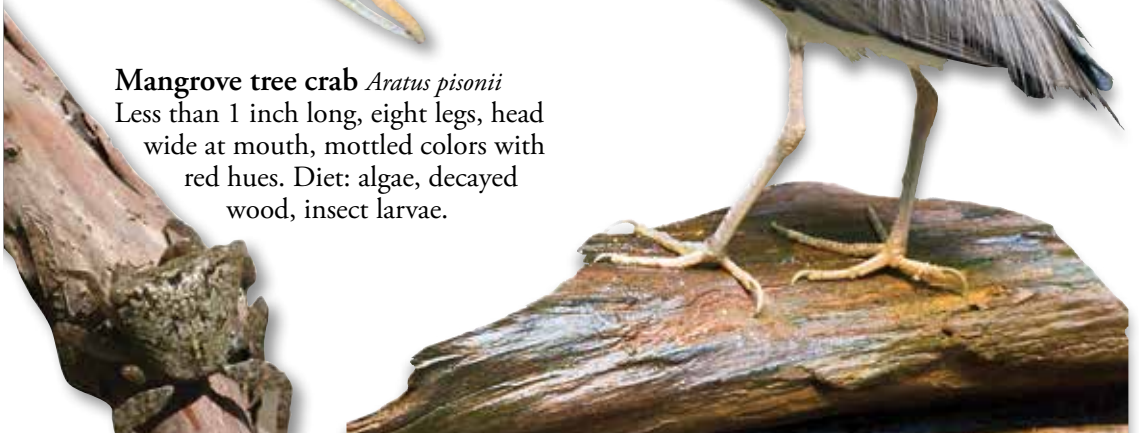
Black mangroves are the most salt-tolerant mangrove species found in Florida. They are typically found intermixed with or slightly inshore from the red mangrove. The black mangrove has distinguishable aerial roots called pneumatophores, which look like long fingers sticking up out of the ground. The pneumatophores aid in gas exchange when water levels are high. Black mangrove leaves are distinguished by a green upper surface with a shiny silver underside; the silver color comes from a thin layer of salt, which the plant excretes through openings in the leaf.

**White ibis** *Eudocimus albus*
Long, downward curving red beak, red legs, white body, black-tipped wings visible in flight. Diet: insects, aquatic invertebrates, small fish, small amphibians.

**Mangrove salt marsh snake** *Nerodia clarkii*
Up to 3 feet long, highly variable coloration, including bright orange and black. Diet: small fish, crabs, shrimp.

**Tricolored heron**
*Egretta tricolor*
Slate blue-gray with hints of red and green, white stripe down throat to underside. Diet: fish, amphibians, crustaceans, insects.

**Sand fiddler crab** *Uca pugilator*
Up to 1 inch, tan colored, males with one claw much larger than the other. Diet: organic material on and in sediment.



**Mangrove tree crab** *Aratus pisonii*
Less than 1 inch long, eight legs, head wide at mouth, mottled colors with red hues. Diet: algae, decayed wood, insect larvae.

# WETLAND HABITATS

White mangrove *Laguncularia racemosa*
White mangroves are the least salt-tolerant of the three mangrove species found in Florida. They are generally found landward of the other two mangrove types, but may also be interspersed with them. Without distinguishable above-ground roots, the white mangrove is best identified by its leaves. Leaves are rounded, typically with a notch at the apex; small black pits can be seen around the margin of the leaf.

**Brown Pelican** *Pelecanus occidentalis* (left). 42 to 54 inches in length with wing-span of 6 to 8 feet. White head, often with a yellowish wash in adult birds. Diet: variety of fish species, including menhaden pinfish, crustaceans.

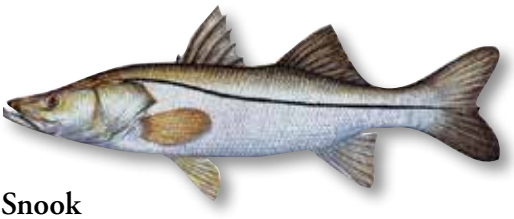
**Osprey**
*Pandion haliaetus*
Large-bodied, brown back and upper wings, white underside and head. Diet: fish.

**Raccoon** *Procyon lotor*
Black "mask" across face, black and gray striped tail. Diet: fruits, acorns, invertebrates, fish. (Highly opportunistic in suburban areas.)

**Marsh rabbit** *Sylvilagus palustris*
Shortened ears, brown tail; an avid swimmer. Diet: leaves, rhizomes, bulbs of marsh plants.

**Yellow-crowned night heron**
*Nyctanassa violacea*
White crown and back with the remainder of the body grayish, red eyes, short yellow legs. Diet: crustaceans, mollusks, frogs, aquatic insects, small fish.

**Roseate spoonbill** *Platalea ajaja*
Large-bodied, pink feathers, flattened spoon-like bill. Diet: small fish, crustaceans, aquatic insects, mollusks.



**Snook**
*Centropomus undecimalis*
18 to 26 inches long, distinct black lateral line extends onto tail fin. Diet: fish, crustaceans.

**Snowy egret**
*Egretta thula*
White feathers, yellow beak, black legs, yellow feet. Diet: fish, worms, insects, crustaceans, snakes, lizards.

# WETLAND HABITATS

## Freshwater Wetlands

Freshwater wetlands are beautiful, rich areas that are essential to the function of the water cycle in the Southwest Florida Gulf Coast. Wetlands capture and hold heavy rainfalls, allowing water to be filtered by plants and soils as it slowly percolates underground back into the aquifer. This process ensures that the aquifer is full of clean water. Water overflows from these wetlands and forms creeks and rivers that lead to coastal bays and, ultimately, the Gulf of Mexico.

Freshwater wetlands are defined by three factors: periodic inundation with water, hydric soils, and a unique suite of plants. Throughout the year, wetlands have variable amounts of water; plants and animals that call these areas home are adaptable to these seasonal changes.

### Bald cypress

*Taxodium distichum*

The majestic bald cypress is a symbol of the South. These trees can grow up to 150 feet and live for up to 600 years. Bald cypresses grow on the banks of rivers and lakes and withstand periodic inundation by water. Cypress "knees" stick up from the ground and are a distinct feature of Florida's freshwater systems. The distinguishing buttressed trunk supports the great weight of the crown. Its fruit feed a variety of wetland wildlife; the branches and roots are home to many plant and animal species.

**Southern water snake** *Nerodia fasciata*
3 to 4 feet long, thick dark bands, tan to dark brown body, keeled scales. Diet: fish, frogs, crayfish, salamanders, tadpoles.

**Southern toad** *Bufo terrestris*
2 to 4 inches, tan to gray brown, raised crest and knob behind each eye. Diet: snails, insects, other arthropods.

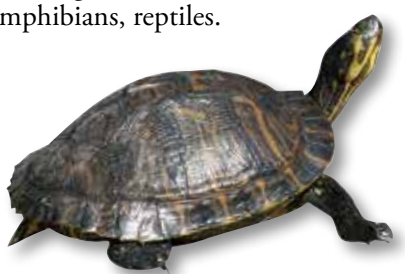
# WETLAND HABITATS

Coastal plain willow *Salix caroliniana*
The coastal plain willow is common near the banks of aquatic systems. Although capable of reaching 35 feet, most coastal plain willows stay shrubby, rarely exceeding 15 feet in height. This plant is recognizable by its branches, which drape downward over the banks. Leaves are less than 5 inches and pointed, with a green upper surface and a lighter underside. These plants provide valuable food and shelter for wildlife and, because they are able to grow in roadside ditches, are also important for removing pollutants from stormwater.

Pickerelweed *Pontederia cordata*
Beautiful pickerelweed can be seen in many types of freshwater systems from rivers to ditches. Its roots must be submerged, and the rest of the plant emerges two to three feet above the waterline. Nearly 1 foot long, arrow-shaped leaves point upwards out of the water. Violet flowers emerge in clusters in spring and summer. This plant is not only valued for its beauty, but also for its ability to attract butterflies and stabilize shore banks by holding soils together.

**Great egret** *Ardea alba*
Over 1 foot tall, white feathers, yellow beak, black legs and feet. Diet: fish, invertebrates, amphibians, reptiles.

**River otter** *Lontra Canadensis*
Can reach over 30 pounds, broad head, small ears and eyes, brown fur with lighter underside. Diet: fish, crustaceans, amphibians, small reptiles.



**Florida cooter** *Pseudemys floridana*
1 foot, dark carapace with yellow patterning, yellow stripe behind eye. Diet: plants, invertebrates.

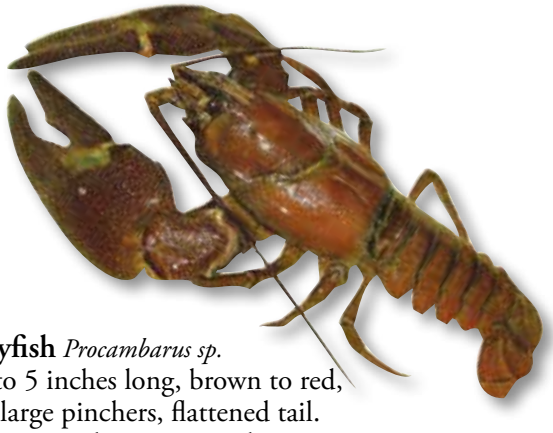
**Florida softshell turtle** *Apalone ferox*
Up to 2 feet, flattened, soft smooth olive green to brown shell, pointed snout. Diet: mollusks, crayfish, insects, fish, frogs, small turtles, snakes.

# WETLAND HABITATS

Maidencane *Panicum hemitomon*
Maidencane is a common grass that uses rhizomatous roots to grow in dense stands around the banks of lakes, rivers, and ephemeral depressions. It can reach up to 6 feet in height with flat, inch-wide leaves of 1 foot in length that branch off in different directions. Although typically green, entire stands may turn tan in the absence of water. Maidencane provides excellent food, cover, and nesting materials for wildlife.

**Great blue heron** *Ardea herodias*
Large slate-blue gray feathers, white markings on face, black stripe above eye. Diet: fish, amphibians, reptiles, small mammals, insects, birds.

**Sandhill Crane**
*Grus canadensis*
Up to 5 feet tall, red forehead, white cheeks, long dark pointed bill. During flight, this crane holds its head straight and trails its long legs. Diet: berries, small mammals, insects, snails, reptiles, amphibians. (below)



**Crayfish** *Procambarus sp.*
Up to 5 inches long, brown to red, two large pinchers, flattened tail. Diet: invertebrates, insect larvae.

**American alligator**
*Alligator mississippiensis*
Average 11 feet long, dark armored body, long snout, long tail. Diet: fish, turtles, reptiles, mammals, amphibians, birds.

# UPLANDS HABITATS

SARASOTA BAY ESTUARY PROGRAM
sarasotabay.org



The beautiful and productive bays we treasure depend upon healthy upland ecosystems. The Florida upland has three habitat types, starting with the higher elevation: scrubs, pine flatwoods, and hardwood hammocks. Rain water that lands in high areas flows into low areas; each step along the way is important in shaping the neighboring habitats.

## Scrub

The fabulous Florida scrub habitat is one of the state's most unique ecosystems. Scrub is the land of highest elevation in peninsular Florida, representing one of Florida's oldest terrestrial habitats. Florida's geologic history is defined by periods of inundation with water during times of high global temperatures, and expansion of land during times of low global temperatures. When Florida was mostly underwater, only a few high areas remained exposed – these areas are the Florida scrub. Florida scrub represents an ancient island chain existing in patches throughout the Lake Wales Ridge in Central Florida and in various other coastal regions. Oscar Scherer State Park in Osprey is a great place to visit one of the largest remaining patches of scrub on the Gulf Coast of Florida.

Scrub land consists of very well-drained white sand soils that make it critical for recharging Florida's aquifer system below. This also means that plants and animals in the scrub survive in extreme conditions, with intense heat and little water; the land also depends on infrequent but intense fires. Each creature in the scrub has special adaptations to cope with desert-like conditions and fire while the plant community is shrubby and low. An estimated 50 percent of plant and animal species in the scrub are endemic, meaning they are found in the Florida scrub but nowhere else in the world.

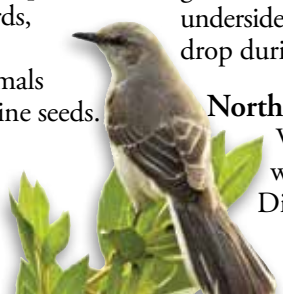
### Sand pine *Pinus clausa*

Sand pines, common in the scrub, reach a maximum height of about 80 feet. At a distance, they are distinguishable from other pines in that they are much thinner and have shorter leaves of approximately 3 inches. Sand pines are entirely dependent upon fire for reproduction. The cones of the sand pine are 1 to 3 inches long; they are a mix of regular cones and serrotinious cones, which are covered in wax. The serrotinious cone seeds are only released after an intense fire melts the wax, which allows the new seeds to drop to the bade, nutrient-rich soil and ash below. Cones remain on the trees as long as necessary before an intense fire passes. Sand pines are home to songbirds, woodpeckers, and birds of prey.

Small mammals eat the pine seeds.

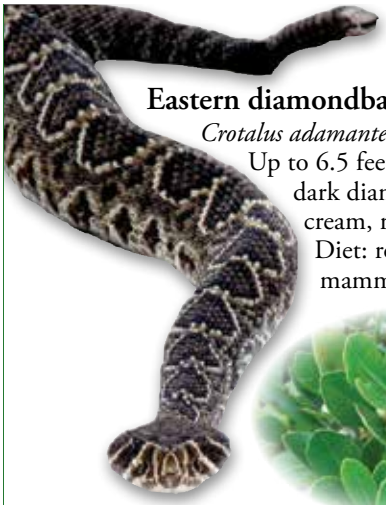
### Chapman oak *Quercus chapmanii*

Although capable of growing tall, the Chapman oak, as well as a few other shrubby oak species, comprises the trademark low understory of the scrub. The understory height is incredibly important for species such as the endangered scrub jay, which requires a perch of a certain height to watch for predators. These trees provide nesting area for birds, while their acorns are eaten by white-tailed deer and small mammals. The Chapman oak can be identified by its leaves, which are between 1 and 4 inches, have an undulating surface, and are deep green on the top with a dull light green on the underside. Leaves change color in the fall and drop during the winter.



**Northern mockingbird** *Mimus polyglottos*
Varied calls, gray, two white wingbars visible in flight.
Diet: insects, fruits, acorns.

# UPLAND HABITATS



**Eastern diamondback rattlesnake**
*Crotalus adamanteus*
Up to 6.5 feet, gray-brown with dark diamonds boarded in cream, rattle at tip of tail. Diet: rodents, small mammals. Venomous.

## Ground blueberry

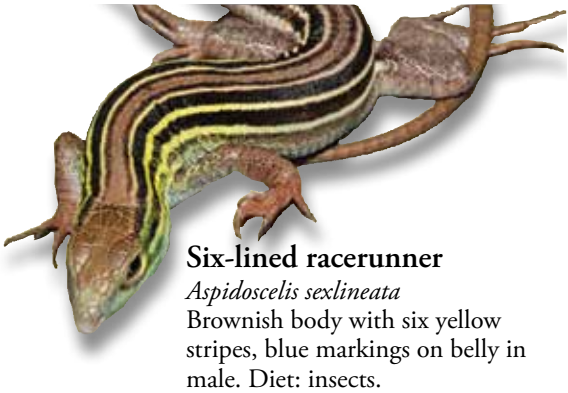
*Vaccinium myrsinites*

Ground blueberry is capable of growing in many different habitats, and is common in the sandy, dry soils of the scrub. This shrub typically grows under 2 feet in height and is identifiable by its small leaves, which are light green and deep red-purple. Small white springtime flowers yield blueberries in the summer to early fall; the blueberries are an important food source for many animals including raccoons, white-tailed deer, foxes, and black bears, and are delicious for people, too!

## Rusty lyonia

*Lyonia ferruginea*

This attractive shrub commonly grows between 3 and 10 feet in height, although it can grow taller. Leaves can reach 3 inches long and are dark green with a rusty, fuzzy underside; new growth is also a deep rust color, making this a particularly striking plant. Branches are twisted and can have a rusty fuzz on them. At the ends of the branches, white flowers provide nectar to insects and birds and ultimately yield a small capsule fruit.



**Six-lined racerunner**
*Aspidoscelis sexlineata*
Brownish body with six yellow stripes, blue markings on belly in male. Diet: insects.

**Eastern gray squirrel**
*Sciurus carolinensis*
Tan to dark gray, light colored underside, bushy tail. Diet: acorns, seeds.

**Raccoon** *Procyon lotor*
Black mask across face, black and gray striped tail. Diet: fruits, acorns, invertebrates, fish. Highly opportunistic in suburban areas.

**Gopher tortoise** *Gopherus polyphemus*
Gray-brown shell and body, highly-domed carapace, large forefeet, stumpy rear feet. Diet: vegetation, flowers.

**Florida scrub-jay**
*Aphelocoma coerulescens*
Gray body with blue head, wings, and tail. Diet: acorns, insects, small vertebrates.

**Black vulture**
*Coragyps atratus*
Featherless head, black body, white tips on wings. Wingspan over 50 inches. Diet: carrion.

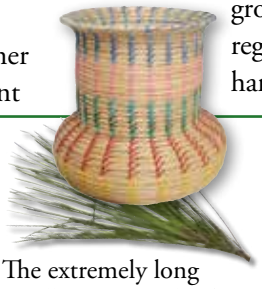
**Green treefrog**
*Hyla cinerea*
Large gray to bright green body, light-colored band down each side, prominent toe pads. Diet: insects.

# UPLAND HABITATS

## Pine Flatwoods

Pine flatwoods are characterized by sandy soils and have a unique plant structure that includes a high canopy of pines, a short understory of shrubs (such as saw palmetto and gallberry), and ecologically important grasses (such as wiregrass).

Plants and animals in the pine flatwoods have evolved to depend on fire for survival. Historically, longleaf pine ecosystems stretched continuously throughout the southeastern United States, and lightning strikes during the summer months created large-scale frequent fires. Today pine flatwoods are dominated by slash pines, as opposed to longleaf pines, and represent about 50 percent of Florida's remaining natural lands. These lands cannot maintain their ecological functions without periodic fire. Ideally, every one to eight years, fire clears the underbrush, creating more desirable habitat for wildlife while stimulating new plant growth. This habitat requires regular fire or it will transition to a hardwood forest.



The extremely long needles are popular for use in the ancient craft of coiled basket making.

### Longleaf pine *Pinus palustris*

These beautiful pines were once the dominant pine in the flatwoods; however, logging in the early 19th century and modern development have reduced their numbers. These majestic trees can reach heights of up to 150 feet and can live up to 300 years. Their pine needles are the longest of any pine in the Southeast United States, grow in fascicles (groupings) of three, and can reach over 1 foot. White tufts at the tips of branches distinguish longleaf pines.

### Saw palmetto *Serenoa repens*

Saw palmettos have a large fan-shaped leaf and long stems that grow along the ground. These shrubs provide an excellent habitat for ground-nesting birds, including the endangered grasshopper sparrow, along with ground-nesting rodents and the Florida panther, which often makes its den in the protection of the intricate stems. Springtime white flowers yield large amounts of fruit in the summer and early fall. (This fruit is a very important food source for many wildlife species, is believed to have beneficial medicinal applications for humans. Flowers and fruit are highest in number during the year following a fire. (below)

### Slash pine *Pinus elliottii*

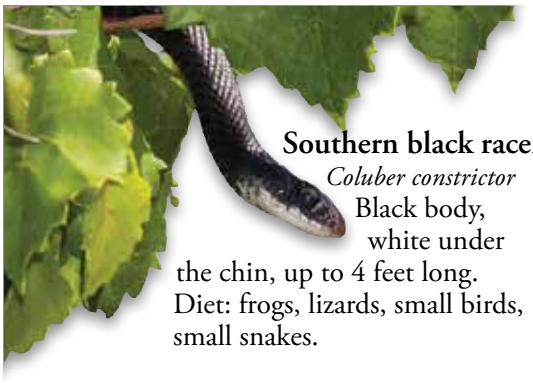
Slash pines are now the dominant tree species of the flatwoods. They can reach heights of up to 115 feet, with needles usually between 8 and 11 inches. The pine seeds provide food for gray squirrels, fox squirrels, and wild turkeys. Pines provide an excellent habitat for a variety of bird species, including woodpeckers that occupy cavities and hawk species that monitor the lands from perches high in the branches. The Florida black bear uses these trees as scratching posts and searches for insects under the thick bark.

**Pine warbler** *Dendroica pinus*
Small-bodied. Males have yellow markings on head and chest while females and juveniles are a dull gray-olive color overall, brighter on throat and breast. Diet: pine seeds, other small seeds.

**Pileated woodpecker** *Dryocopus pileatus*
Large black body, white stripes on face and neck, bright red crest. Diet: ants, beetles, other insects.

Saw palmetto

# UPLAND HABITATS



**Southern black racer**
*Coluber constrictor*
Black body, white under the chin, up to 4 feet long.
Diet: frogs, lizards, small birds, small snakes.

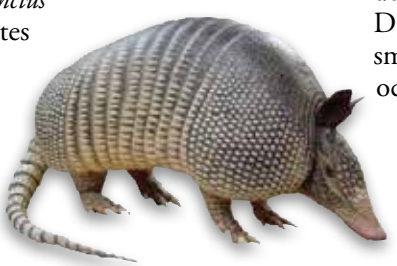
**Pinewoods treefrog**
*Hyla femoralis*
Green, gray, or brown body; large toe pads, yellow dots on interior of rear leg.
Diet: insects.

## Wire grass *Aristida stricta*

Wire grass is a bunch grass that grows thin leaves, reaching a maximum of 3 feet in height. This native grass provides excellent cover for small animals to seek refuge, and is a valuable food source for gopher tortoises and northern bobwhite quail. Wire grass depends on frequent fires for flower production and assists in carrying fires through the flatwoods; wiregrass bunches improve connectivity throughout the understory and provide the appropriate balance of fuel.

**Gray fox**
*Urocyon cinereoargenteus*
Gray furred body with red markings, black on snout, bushy tail with black stripe.
Diet: small mammals, birds, eggs, fruits, acorns.

**Nine-banded armadillo**
*Dasypus novemcinctus*
Armor-like plates cover most of the body, long pointed tail, pointed snout.
Diet: insects, insect larvae.



## Pine Flatwoods (continued)

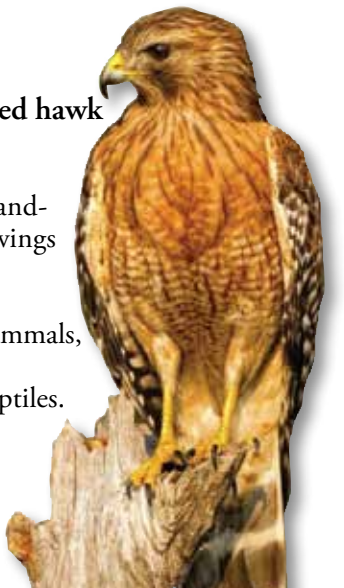
**Bald eagle** *Haliaeetus leucocephalus*
Large raptor, dark brown body, white head and tail.
Diet: fish, small mammals, carrion.

**Bobcat** *Lynx rufus*
15 to 35-pound cat, tan with dark markings, light underside, pointed ears with black tufts, short bobbed tail.
Diet: rodents, birds.

White tailed deer laying in a field of wire grass.

**White tailed deer**
*Odocoileus virginianus*
Brown to reddish-brown coat, white tail. Diet: nuts, twigs, fungi, plants, carrion, small birds.

**Red-shouldered hawk**
*Buteo lineatus*
Reddish body, banded black-and-white striped wings are prominent during flight.
Diet: small mammals, small birds, occasionally reptiles.



# UPLAND HABITATS

## Hardwood Hammock

Hardwood hammocks vary greatly depending on their elevation and location in the state. Upland hammocks are typically sandier and drier, while bottomland hardwoods have nutrient-rich clay soils and experience periodic flooding. In parts of South Florida, hardwood hammocks contain tropical Caribbean plant species that have dispersed there via storms or migrating birds that bring seeds.

Hardwood hammocks on Florida's Gulf Coast have many oak species. Because several types of oaks are deciduous, the ground is often covered with decaying leaves that retain moisture and add nutrients to the soil. The leaf cover and logs in various stages of decay provide wonderful protection for small animals. Ephemeral, or seasonal, ponds in low-lying hammocks typically do not contain predator fish and provide a valuable breeding habitat for amphibians.

### Southern live oak

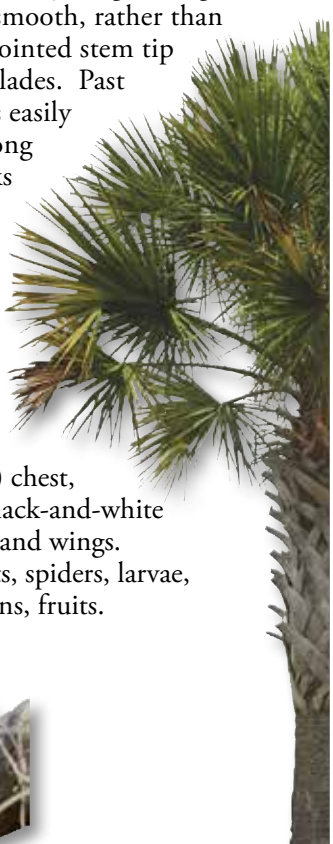
*Quercus Virginiana*

A large, sprawling tree usually graced with Spanish moss and strongly reminiscent of the Old South, live oak is one of the broadest spreading of the oaks, providing large areas of deep, inviting shade. Trees reach 40 to 60 feet in height with a 60 to 100 foot spread, and usually possess many sinuously curved trunks and branches. The bark is dark, thick, and furrowed longitudinally. Leaves are stiff and leathery, with the tops shiny dark green and the bottoms pale gray. Live oak will thrive in almost any location and has very good wind resistance. It is a tough, enduring tree that will respond with vigorous growth to plentiful moisture on well-drained soil.

### Cabbage palm

*Sabal palmetto*

Cabbage palm is the state tree of Florida. Palms are not true trees and are more closely related to grasses. The cabbage palm grows throughout Florida in a variety of habitats, and can handle both drought and prolonged wet soils. A young palm may be mistaken for a saw palmetto, as both have fan-like leaves. The young cabbage palm, however, has smooth, rather than sawed stems and a pointed stem tip that meets the leaf blades. Past a certain height, it is easily distinguished by a long palm trunk that lacks branches until the very top.



### Wild coffee

*Psychotria nervosa*

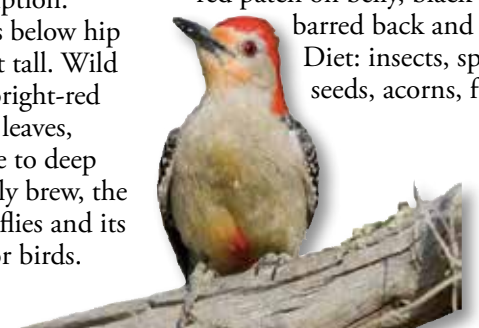
While the Florida variety of wild coffee is related to the type of coffee plant from which we get our favorite caffeinated drink, it is not tasty nor recommended for human consumption. This small shrub commonly grows below hip height, but can reach up to 15 feet tall. Wild coffee is an attractive shrub with bright-red small fruit and bright-green shiny leaves, which have a wavy appearance due to deep veins. Although not fit for our daily brew, the flower of this shrub attracts butterflies and its fruit is an excellent food source for birds.

### Red-bellied woodpecker

*Melanerpes carolinus*

Red cap and nape, buffy (yellow-brown) chest, red patch on belly, black-and-white barred back and wings.

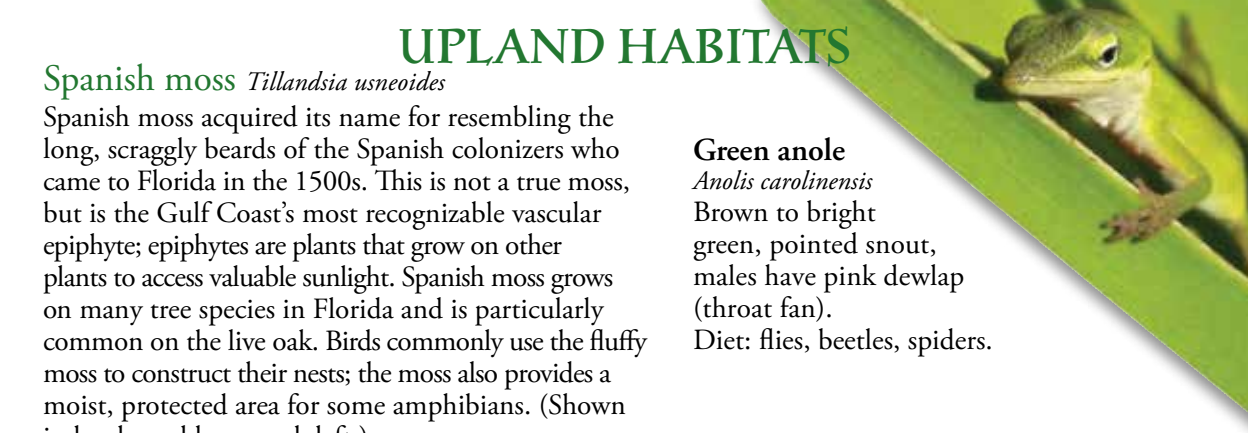
Diet: insects, spiders, larvae, seeds, acorns, fruits.



# UPLAND HABITATS

## Spanish moss *Tillandsia usneoides*

Spanish moss acquired its name for resembling the long, scraggly beards of the Spanish colonizers who came to Florida in the 1500s. This is not a true moss, but is the Gulf Coast's most recognizable vascular epiphyte; epiphytes are plants that grow on other plants to access valuable sunlight. Spanish moss grows on many tree species in Florida and is particularly common on the live oak. Birds commonly use the fluffy moss to construct their nests; the moss also provides a moist, protected area for some amphibians. (Shown in hardwood hammock left.)



**Green anole**
*Anolis carolinensis*
Brown to bright green, pointed snout, males have pink dewlap (throat fan).
Diet: flies, beetles, spiders.

**Wild boar**
*Sus scrofa*
Varied fur color, short legs, two tusk-like teeth, males over 200 pounds. Diet: vegetation, acorns, invertebrates, fish, small mammals, amphibians, reptiles.

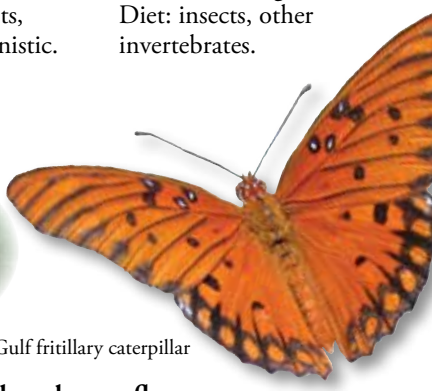
**Southern leopard frog**
*Rana sphenocephala*
Up to 3.5 inches, pointed snout, green or brown body with dark spots, two lightly raised ridges down back. Diet: crayfish aquatic insects.

**Virginia opossum**
*Didelphis virginiana*
Grayish fur, white cone-shaped head, hairless prehensile tail.
Diet: eggs, snakes, invertebrates, fruits, carrion. Opportunistic.

**Oak toad**
*Bufo quercicus*
1.5 inch stout body, gray to brown, yellow stripe on back, pairs of dark markings.
Diet: insects, other invertebrates.

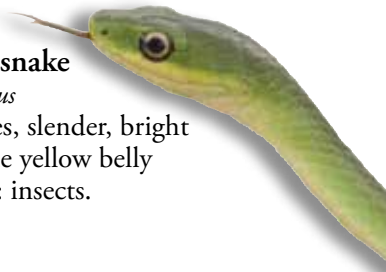
**Thorn spider or Crab-like spider**
*Gasteracantha cancriformis*
Up to half inch abdomen, disk-shaped, whitish or yellow with black spots, six permanent reddish spines on sides and rear.

Gulf fritillary caterpillar

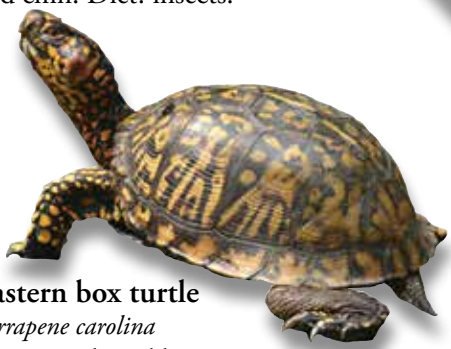


**Gulf fritillary butterfly**
*Agraulis vanilla*
Up to 2.75 inches across, forewings long, fairly narrow, orange above with black spots and lines, forewings have silvery spots at front edge visible above and below.

**Northern cardinal**
*Cardinalis cardinalis*
Black markings around a short, thick, reddish beak, crest. Males bright red, females brown-red.
Diet: seeds, fruits, insects.



**Rough green snake**
*Opheodrys aestivus*
Up to 32 inches, slender, bright green back, pale yellow belly and chin. Diet: insects.



**Eastern box turtle**
*Terrapene carolina*
Up to 8 inches, able to retreat fully into shell, high domed carapace.
Diet: fruits, insects.

# INVASIVE SPECIES

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Invasive species, whether plants or animals, are species that pose a threat to the environment, economy, or human well-being. These species did not exist in Florida prior to European colonization and, therefore, are relatively new to Florida's ecosystems. Invasive species are by definition non-native to the area; however, not all non-native species are invasive. Some key differences are that invasive species typically spread quickly and damage wildlife, plants, or human health. Florida is particularly vulnerable to invasive species because it provides a mild climate and, with multiple seaports and its proximity to tropical regions, has many avenues for arrival.

## Brazilian peppertree

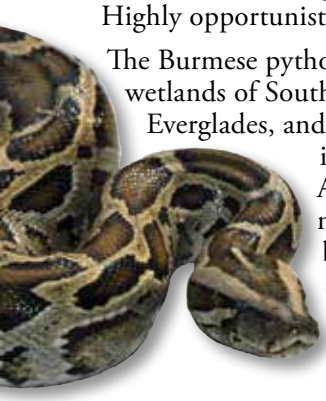
*Schinus terrebinthifolius*

Native to eastern South America. Up to 35 feet tall the Brazilian peppertree has dense intertwining branches with deep green, and toothed leaves that smell of pepper when crushed; female plants have clusters of small red berries.

The Brazilian peppertree grows quickly in dense thickets and is capable of shading out and smothering native vegetation, from the mangroves on the coastline to the pines in the uplands.

## Burmese python *Python molurus bivittatus*

Native to southeast Asia. Up to 23 feet long, tan body with red-brown blotches bordered in black, light underside. Diet: mammals, birds, reptiles, amphibians. Highly opportunistic.



The Burmese python can be found in wetlands of South Florida, including the Everglades, and is quickly expanding its range northward. A serious threat to native ecosystems because it eats nearly anything, it has no predators in Florida.

## Carrotwood

*Cupaniopsis anacardiopsis*

Native to Australia. Up to 35 feet tall, the carrotwood has shiny green, rounded leaves up to 4 inches long with a light green mid-vein. Clusters of yellow-orange rounded fruit split open in summer.

The carrotwood is moderately salt-tolerant and is a particular threat to coastal areas. These trees can be found on sand dunes, coastal islands, and in tidal marshes intermixed with mangroves. A mature carrotwood has a dense canopy, shades out the trees below and makes the surrounding area uninhabitable for other plants.

## Brown widow spider

*Latrodectus geometricus*

Native to subtropic areas of southern and southeast Asia. A "cousin" to the more famous *Latrodectus mactans* (black widow), Generally lighter in color than the black widow species – its color can range from tan to dark brown to black, with shades of grey also possible. Like the black widow it has a prominent hourglass-shaped marking on the underside of its abdomen, usually a vivid orange or yellowish color.

## House mouse *Mus musculus*

The house mouse has been domesticated as the pet, or "fancy" mouse, and as the laboratory mouse. Adult body length of 7.5 to 10.75 inches; colors, include white, grey, brown, and black. Found in and around homes and commercial structures, as well as in open fields and agricultural lands, the house mouse causes damage to crops and stored food.

INVASIVE SPECIES

# INVASIVE SPECIES

## Old world climbing fern (above image)

*Lygodium microphyllum*

Native to Asia, Australia, and Africa. This densely twining vine has dark brown leaf rachis (or leaf stem) with small, light green leaves. It can have dark spores on leaflet tip undersides.

Old world climbing fern – found in moist areas and wetlands, including the Everglades – engulfs entire areas of shrubs and trees and forms dense mats that shade out other vegetation. It also threatens native wetland vegetation by carrying fire to the canopy where it does not naturally occur. It is capable of spreading rapidly because it reproduces by releasing a high number of wind-dispersed spores.

## Air potato vine *Dioscorea bulbifera*

Native to Asia and Africa. This climbing vine has large, heart-shaped glossy leaves; leaf veins begin near the leaf stem and radiate toward the leaf edges. Large potato-like tubers hang on the vine.

Air potato overtakes shrubs and tall trees in a variety of upland areas. Its vines grow upward quickly to reach the sunlight and its large leaves shade out the plants underneath. The air potato spreads rapidly by producing numerous tubers, which grow into new vines.

## Para grass *Urochloa mutica*

Native to Africa. Para grass reaches up to 10 feet high when growing erect or more than 16 feet long when creeping along the ground. Often a green or purplish color, para grass is also known as buffalo grass and California grass. This locally invasive grass grows in various wetland habitat types, such as marshes and floodplains, as well as disturbed areas such as roadsides. It was introduced to Florida by the late 1870s to be used as livestock feed.

## Guinea grass *Panicum maximum*

Originally from Africa. Guinea grass leaves are long and narrow, flat and bright green, fine and soft. Hairy leaves can grow 5 to 39 inches long; tiny flowers are green or tinged with purple. Plants can grow 3 to 9 feet tall. Often found growing in disturbed areas such as agricultural areas and roadsides, Guinea grass has a tendency to invade areas of natural upland habitat and displace local plants. It can survive long, dry periods, as well as fire. Seeds are dispersed by wind, birds and flowing water. Introduced to Florida agriculturally as animal feed.

**Black spiny-tail iguana** *Ctenosaura similis*

Native to Mexico and Central America. Females grow to over 3 feet long, males to nearly 5 feet long; has a crest of long spines extending down the center of the back.

Diet: Primarily herbivorous, but will opportunistically eat smaller animals, eggs, arthropods.

# INVASIVE SPECIES

**Eurasian collared dove** *Streptopelia decaocto*
Native to Asia and Europe. Approximately 1 foot long from beak to end of tail, a wingspan of 18.5 to 21 inches across. Its name is derived from the white and black collar on its neck. It is grey with yellowish or pinkish hues. The largest populations are typically found around farms or where livestock are fed and grain stores. Diet: grain, seeds, shoots, insects.

## Ceasar's weed
*Urena lobata*
Up to 10 tall, this single-stalked plant has free-branching stems and a bushy appearance. Palmately-lobed, hairy leaves and pinkish-violet flowers resembling a hibiscus. Its pubescent fruit hooked bristles that cling to clothing or fur. Caesar's weed is salt spray tolerant.

**Cane toad** *Bufo marinus*
Native to Central and South America. From 4 to 6 inches long, squat body, reddish brown splotches, lacks crests over eyes, warty-textured skin.
Diet: insects, amphibians, snakes, birds, small mammals.

The cane toad can be found in moist, natural areas, but is more common in suburban areas and disturbed natural areas. This ravenous predator poses a great threat to native wildlife populations. Also its toxic skin can be dangerous to humans and pets.

**European starling**
*Sturnus vulgaris*
Native to Europe. 7 to 9 inches long from beak to tail, a wingspan of 12 to 15.5 inches across. It has black, glossy iridescent feathers with speckles; black beak and legs during non-breeding, yellow beak and red legs during breeding.
Diet: arthropods, seeds, fruits.

The European starling can be seen in developed areas and disturbed natural areas, this aggressive bird harms native, cavity-nesting avian species by parasitizing their nests. They oust parent birds from the cavity and destroy their eggs.

## Skunk vine *Paederia foetida*
Native to eastern and southern Asia, Skunk vine grows up to 30 feet long. The Skunk vines releases a foul odor when crushed. A woody, thorn-less vine that climbs into tree canopies or crawls along the ground.

Leaf blades have rounded to heart-shaped bases and pointed tips with smooth margins. Skunk vine flowers are small, light grayish-pink or lilac with red centers; its small fruit is spherical and shiny brown.

# INVASIVE SPECIES

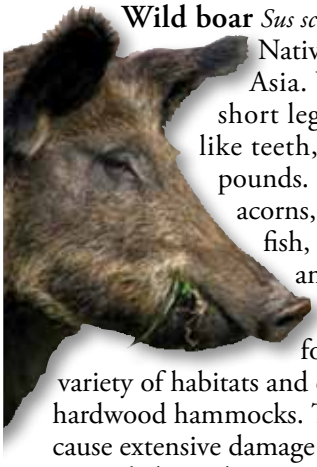
## Rosary pea *Abrus precatorius*

Native to India and parts of Asia. It is a high-climbing, twining or trailing woody vine with slender herbaceous branches. Leaves 2 to 5 inches long, with 5 to 15 pairs of oval to oblong leaflets less than 1 inch long. It grows over small trees and shrubs. Roots grow very deeply onto the ground and are very difficult to remove. Fire encourages the growth of rosary pea. Its red seeds, used in percussion instruments and as beads, contain abrin, making them highly toxic to humans.

## Cogongrass *Imperata cylindrica*

Native to Southeast Asia. Up to 4 feet high, it has a flat blade less than 1 inch wide, off-centered mid-vein, with slightly serrated edges and a light green to brown color. Cogongrass produces long, white fluffy seed heads in spring.

Cogongrass, found in disturbed areas, pastures, and natural areas, reproduces by both small seeds and an extensive rhizomatous root system. Its roots grow so densely and aggressively that no other plants can occupy the area, and dry cogongrass can provide fuel for wildfires. Cogongrass was introduced to Florida as forage for cattle; as it turns out, cattle do not eat this grass.



## Wild boar *Sus scrofa*

Native to Europe and Asia. Varied fur color, short legs, two tusk-like teeth, males over 200 pounds. Diet: vegetation, acorns, invertebrates, fish, small mammals, amphibians, reptiles.

Wild boars are found in a large variety of habitats and especially prefer hardwood hammocks. These animals cause extensive damage to native habitats by rooting up vegetation to search for food.

## Nile monitor lizard *Varanus niloticus*

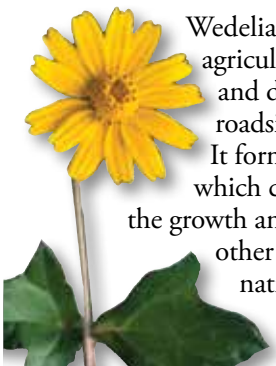
Native to Africa. Up to 7 feet long, sharp claws, brown to green-gray, yellow banding and underside. Good swimmer. Diet: mammals, birds, reptiles, amphibians, sea turtles eggs and hatchlings. Highly opportunistic.

The Nile monitor lizard is currently found along canals, on sea walls, and in sandy areas in the southern portion of Florida's Gulf Coast. These animals threaten native ecosystems because they are highly opportunistic predators that alter natural predator-prey balances.

## Wedelia *Wedelia triloba*

Native to South America. Mat-forming perennial herb, Wedelia's leaves are fleshy with irregularly-toothed margins and are usually 2 to 4 inches long and 1 to 5 inches wide. Orange-yellow flowers are solitary and 1 inch across. New plants arise from nodes that root at the soil surface.

Wedelia typically invades agricultural areas, waste places and disturbed sites, and along roadsides, trails, and streams. It forms a dense thicket, which crowds out and prevents the growth and regeneration of other plants, including native species.



## Mother-in-law tongue

*Sansevieria trifasciata*

Native to Africa. The name of this evergreen perennial is derived from the sharpness of its stiff, pointed leaves, which are dark green with a lighter banding. Leaves grow vertically from a basal rosette and are 27 to 36 inches long and 2 to 2.5 inches wide. This plant readily spreads above or beneath the ground by a creeping rootstalks.

# INVASIVE SPECIES

## Water hyacinth *Eichhornia crassipes*

Native to Brazil. This floating aquatic plant grows up to 4 feet tall with long leaves curve around a central stalk. Attractive light purple flower clusters.

Water hyacinth may be found in any freshwater body in the state. This aquatic plant is able to spread at an alarming rate and take over entire stretches of water systems. Dense areas of water hyacinth block boat passage, overtake and shade out native aquatic plants, and prevent oxygen from reaching the water. Brought to Florida as an ornamental plant.

## Lionfish *Pterois sp.*

Native to Southeast Asia, Australia, and the southern Pacific. Adults average 1 foot, reddish brown and white vertical striping, showy, elongate fins. Diet: fish, crustaceans.

The ornate lionfish can be found on coral and rocky reefs in shallow waters off the coast. These fish have a voracious appetite and predate most reef organisms that they can consume. They are a serious threat to the species composition of the reefs and many commercially valuable fish species. Long venomous spines on fins can also be dangerous to humans.

## Water lettuce *Pistia stratiotes*

Native to Africa and South America. This aquatic plant is free-floating with rosette leaves that resemble an open head of lettuce, thick, fuzzy leaves with ridges, and stringy white roots.

Water lettuce may occur in any freshwater body in Florida. It grows in dense mats that can entirely block large waterways, shade out native aquatic life below, and reduce the amount of oxygen reaching the water. Water lettuce has been in Florida since at least the 1700s leading some to suggest the plant may actually be native.

## Green mussel *Perna viridis*

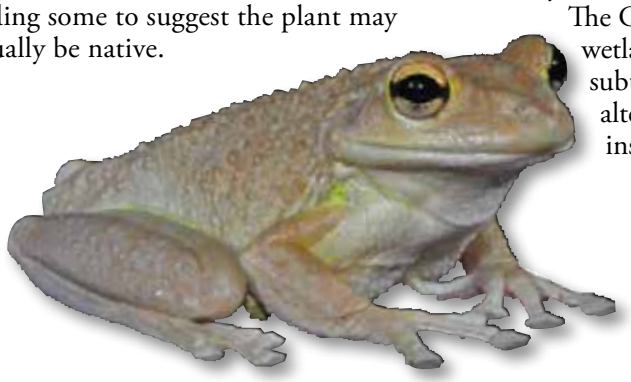
Native to Southeast Asia. 3 to 4 inches long, brown to black shell with blue-green edges. Diet: filter-feeder.

The green mussel which grows in clusters on hard surfaces in saltwater, displaces native bivalves (such as oysters) that need a hard substrate to grow on. Green mussel areas are a pest to humans because they can block water intake areas of boats or bay facilities.

## Cuban tree frog *Osteopilus septentrionalis*

Native to Caribbean. 1 to 6 inches long, pale brown to gray skin, prominent toe pads and eyes. Diet: snails, insects, frogs, small reptiles.

The Cuban tree frog lives in a variety of wetlands and is becoming common in suburban and urban areas. These frogs alter the composition of native frogs and insects by predating them.



# INVASIVE SPECIES

**Fruit fly**
*Drosophilid*ae family
Females are about 2.5 millimeters (0.098 inch) long; males are slightly smaller with darker backs. Males are easily distinguished from females based on color differences, with a distinct black patch at the abdomen.

Fruit flies are one of the most destructive pests of fruit in the world. Most of Florida's crops, including citrus, fall within their wide range of host fruits, vegetables, and nuts. It is imperative to act quickly and decisively when any species of fruit fly is found. There are several methods utilized to support and protect Florida from exotic fruit fly pests.

**Weevil**
*Curculionoidea superfamily*
The adult weevil is dark, oval-shaped, 1/2 inch long with a blunt snout and distinctive antennae. Many weevil species damage crops and infect more than 200 types of plants, most commonly rhododendrons, azaleas, and yew. The tell-tale signs are: C-shaped notches in leaves, stunted growth, and yellow, wilting leaves. Weevils are often found in dry packaged foods in the home.

**Red fire ants**
*Solenopsis invicta*
Native to South America. 1/8 inch to 1/4 inch long, reddish bodies. Diet: opportunistic omnivores.

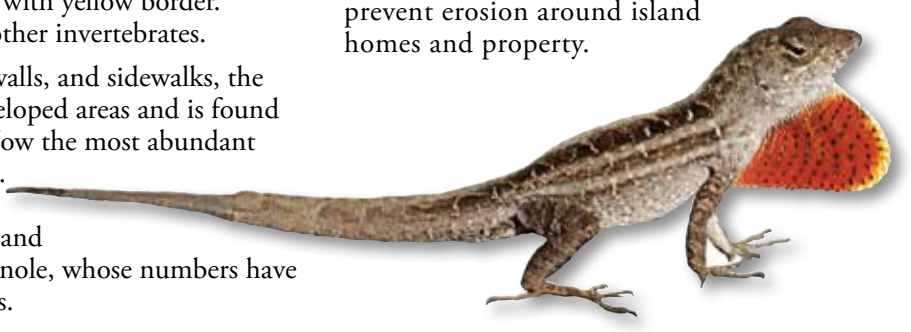
Red fire ants can be found in a variety of natural areas, live in colonies, and usually make their mounds in areas of open sunlight. Their sting is dangerous to humans, pets, and wildlife. Red fire ants forage as a team and are able to predate young birds, small reptiles, amphibians, and other organisms, thus presenting a threat to the balance of Florida native wildlife.

**Brown anole** *Anolis sagrei*
Native to Cuba and the Bahamas. Brown tan or gray, blunt snout, markings on back, males have reddish orange dewlap (throat fan) with yellow border. Diet: arthropods, worms, other invertebrates.

Seen frequently on rocks, walls, and sidewalks, the brown anole thrives in developed areas and is found in most natural habitats. Now the most abundant lizard in Southwest Florida. The brown anole is noticeably more aggressive and displaces the native green anole, whose numbers have declined from natural levels.

**Australian pine** *Casuarina sp.*
Native to Australia and southeast Asia. Australian pines can reach more than 100 feet in height. A pine-like tree, its long, thin, jointed green "needles" protect very small leaves. It has a small spiky, dark brown cone.

The Australian pine, which is not a true pine, is common in coastal areas, especially on barrier islands. The Australian pine may be allelopathic: the toxic "needles" fall to the ground and may leach chemicals into the soil, preventing other species' growth. Australian pine stands create impenetrable mats of leaves that make any other growth impossible. Also, a shallow root system does not anchor the tree well, making these pines dangerous to structures during severe storms. The Australian pine was brought to Florida's coast as a wind-block and to prevent erosion around island homes and property.



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**Information from this guide was gathered from a variety of scientific sources including these websites:**

University of Florida IFAS Extension's invasive species guide: **extension.ifas.ufl.edu/environment/invasive_species.shtml**
University of Florida Center for Aquatic and Invasive Plants: **plants.ifas.ufl.edu/**
Florida's Fish and Wildlife resources and habitats: **myfwc.com/wildlifehabitats/**
Florida Natural Areas Inventory conservation information: **fnai.org/**
Environmental Protection Agency Low Impact Development: **water.epa.gov/polwaste/green/**
Sarasota Bay Estuary Program Teacher Resources: **sarasotabay.org/education-resources/teacher-resources/**

**Visit these sites to learn more about wildlife in Southwest Florida.**



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