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Ecosystems of South Florida

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South Florida is home to a vast variety of ecosystems. Small variations in elevation (in some cases, only inches), water salinity, soil type and fire frequency dictate which landscape community will prevail. Below are descriptions and photographs of some of South Florida's very unique ecosystems.

Coral Reefs

Star and Staghorn Coral found in the Florida Keys.

Coral reefs may contain thousands of species of plants and animals. They require relatively calm, clean waters with stable temperatures and salinity.

Coral is a collection of small, individual coral animals called polyps. Polyps secrete a limestone cup around themselves and as they grow they come into contact with other polyps, forming a living reef. When the polyps die, new polyps build their home on top of the limestone skeletons. As you can imagine, coral reefs take a long time to grow.

Zooxanthellae are tiny plants (algae) that grow in the tissues of coral polyps .They depend on coral for food and protection and the coral depend on zooxanthellae for oxygen and food.

Freshwater Marsh

Freshwater marshes are generally wetlands with an open expanse of grasses, sedges, rushes and other herbaceous plants, where standing water occurs for much of the year. Marshes generally contain few if any trees and shrubs. Marshes act as natural filters. As water passes over the marsh, water flow is reduced and suspended particles settle out.

Wet prairies, sawgrass marshes, and ponds and aquatic sloughs are freshwater marsh communities common in South Florida. The word "slough" (pronounced "slew") is used to describe Everglades areas where there is slightly, deeper water than in the surrounding marshes and where a slow current is present.

Animals found in the marsh can include fish, invertebrates, frogs, snakes, alligators, white-tailed deer, the Florida panther and other mammals. Many waterbirds and wading birds nest and forage in marshes as well.

Sawgrass marsh with spatterdock, Water Conservation Area 3.

Hardwood Hammock

Hardwood hammock in Fern Forest.

Hardwood hammocks are localized, thick stands of hardwood trees that can grow on natural rises of only a few inches in the land. In South Florida, hammocks occur in marshes, pinelands and mangrove swamps. Hammocks rarely flood because of their slight elevation. Woodland that is not logged or burned for 20 or more years will develop into a hammock.

Hammocks may contain trees of a temperate or tropical climate origin such as the sabal palm, live oak, red maple, mahogany, gumbo limbo and cocoplum. The diverse flora found in hammocks also includes many additional tree species, epiphytes, "air plants", and ferns. More epiphytes are found in South Florida hammocks than in any forest in the United States.

Wildlife found in hammocks can include tree snails, raccoons, opossums, birds, snakes, lizards, tree frogs and large animals such as the Florida panther, bobcats and deer.

Salt Marsh

Salt marshes exist along the coast, where land and marine waters meet. These areas are at least occasionally inundated with salt water and contain non-woody, salt-tolerant plants. Marshes generally contain few if any trees and shrubs.

Most animals of coastal marshes can tolerate varying levels of waters and salinity in waters. Animals that may be found in these areas include small mammals, fish, juvenile fish, shellfish, and birds.

Salt marsh.

Scrub

Scrub community.

Generally, scrubs are communities dominated by pinewoods with a thick understory of oaks and saw palmetto. Scrubs occupy well-drained, nutrient-poor, sandy soils. Plants that grow here have adapted to dry conditions. Fires play an important role in the life of scrubs. In the absence of fires, a hardwood forest of oak will develop.

Animals that live in the scrub are adapted to hot, desert-like conditions. Gopher tortoises, scrub jays, lizards, insects and spiders are commonly found here.

Dunes

Close-up of dunes at Blowing Rocks beach

A little over 60% of Florida's coastline is sandy. South Florida's beaches are primarily composed of quartz and calcium carbonate sand, with the percentage of calcium carbonate sand increasing in the area of Florida's southern tip .

Dunes are created by dune grasses, which trap sand grains being moved across the beach by wind. Dunes stabilize the mounds of sand that protect the coast against winds and pounding tides. The vegetation found within Florida's dunes varies and is dependent upon many factors including storm waves, windblown sand, salt spray, substrate (soil) and climate .

Florida beaches are important nesting sites for sea turtles and shore birds. A loss of beach habitat to real estate development has caused a decline in the nesting shore bird and sea turtle populations.

Freshwater Swamp

Freshwater swamps are generally wet, wooded areas where standing water occurs for at least part of the year. During the dry season, their muck soils may dry out and burn.

While the freshwater swamp seen in this picture is dominated by cypress trees, other freshwater swamps found in Florida can be dominated by bay trees (i.e. sweetbay, sweet gum) or hardwoods (i.e. oak, elm, red maple). Other plants found in swamps include epiphytes ("air plants") growing from trees, vines and ferns. Influences on the characteristics of a swamp include temperature, fire frequency, the length of time soils are covered with water and the amount of organic matter accumulation .

Many animals spend part of their lives in the swamp, moving as water levels rise and fall. Wood storks, herons, many other birds, otters, black bear, and the Florida panther are only a few of the animals that find food, homes and nesting sites in Florida's swamps.

Freshwater swamp in Loxahatchee NWR.

Pinelands

Pinelands in Everglades National Park.

Pinelands, or pine flatwoods, are the most common plant communities in Florida. Pinelands occur on nearly level land composed of coarse, poorly drained soil. Longleaf pine and slash pines are the dominant trees in pinelands. Understory plants commonly include saw palmettos, wildflowers and ferns.

Plants that grow in the pinelands must be resistant to fire as areas such as these are maintained by fire. Fires are beneficial to the pines as young pine seedlings require lots of sunlight to survive, and the fires destroy hardwood competitors. When fires occur, hardwood seedlings and other understory plants are affected, while the thick bark of the pine resists fire damage. Without fires, hardwoods would eventually overshadow the pines and a hardwood hammock would emerge.

Wildlife commonly found in pinelands includes deer, squirrels, bobcats, skunks, opossums, raccoons, birds, snakes and tortoises.

Mangroves

Three species of mangroves are found in Florida: the red mangrove, black mangrove and white mangrove. Typically, red mangroves grow along the water's edge, black mangroves grow on slightly higher elevations than the red mangrove and white mangroves grow upland from the red and black. The buttonwood is often associated with the mangrove community. It is usually found growing with the white mangrove, upland of the red and black mangroves. Mangroves grow in flooded saltwater areas and are salt tolerant.

Early settlers to South Florida regarded mangrove forests as being useless, mosquito-infested, uninhabitable lands. Today, ecologists realize their important role in coastal ecosystems. Mangrove leaves, trunks and branches fall into the water and are transformed into detritus, which is the basis of an elaborate food chain. Mangroves provide protected habitat, breeding grounds and nursery areas to many terrestrial and marine animals. Mangroves also provide shoreline protection from wind, waves and floods.

Many terrestrial and marine animals including invertebrates, fish, amphibians, reptiles, birds and mammals find food and shelter within Florida's mangrove forests .

Red mangrove.

Information for this poster was taken from the South Florida Virtual Tour website. To take a virtual trip of South Florida or to learn more, visit the South Florida Virtual Tour website at http://sofia.usgs.gov/virtual_tour

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