

Florida's Environment - Southwest Region¹

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Florida's Environment Series

Introduction

Southwest Florida (Fig.1) is dominated by wetland ecosystems, 40 percent of which are in conservation lands (Table 1). Inland, the northern reaches of this region are dominated by seasonally flooded pine flatwoods scattered with small ponds. Important native habitats include pine flatwoods, oak and cabbage palm hammocks, sand pine scrub, cypress domes, and dry prairies.

A mix of temperate and tropical species contributes to high plant and animal diversity and the region is considered one of the Earth's biodiversity hotspots.

Coastal waters in the northern part of the region receive freshwater from several rivers including the Caloosahatchee River, whereas the southern part of the region is dominated by marshes and swamps which drain by way of sheet flow into the Gulf of Mexico and Florida Bay. Estuaries support productive mangrove swamps and seagrass meadows. Highly productive fisheries, abundant waterbirds, and manatees and dolphins are supported by the coastal



Figure 1. Southwest Florida region with counties. Credits: UF/IFAS

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Table 1. Conservation land acreage in Florida's southwest region

County	Conservation Land & Water Acres	% of Total County
Charlotte	168,720	38%
Collier	855,820	66%
Glades	88,630	18%
Hendry	91,790	12%
Lee	80,640	16%
Region Total	1,285,600	37%

Based on 2006 Florida Natural Areas Inventory Managed Conservation Lands. Florida State University.

estuarine system. The attractive climate and natural features of southwest Florida are fueling rapid development in the region.

This document summarizes major rivers, lakes and springs, featured natural areas, and cultural aspects of Florida's southwest region. For information on other regions in Florida, refer to "The Florida Environment: An Overview" and the other seven regional profiles available online (<http://edis.ifas.ufl.edu>).

Major Rivers, Wetlands and Estuaries

There are few rivers in southwest Florida, although the Six-Mile Cypress Slough, Fakahatchee Strand (Figure 2), and Okaloacoochee Slough could be considered "rivers" of a sort. Sloughs and strands function as shallow conduits for overland flow of surface waters that accumulate during the rainy season. The major distinction between the terms strands and sloughs are that strands refer to a dominant presence of cypress trees throughout the waterway and sloughs specifically refer to the deeper areas where water moves across the landscape. Sloughs may occur within strands but may also occur within wetlands dominated by sawgrass or other vegetation. The entire surface water drainage system is a mixture of these diffuse wetland waterways, relatively few distinct stream channels, and an extensive network of manmade canals.

The **Caloosahatchee River** is the largest true river in southwest Florida. As Pleistocene sea levels

receded, The Caloosahatchee valley emerged as a river and series of lakes connected by wet prairies and waterfalls between the inland Lake Hicpochee and the Gulf of Mexico. In 1884 a canal was built connecting the river to Lake Okeechobee, then dredging and straightening occurred which further altered the drainage and flow of the watershed.

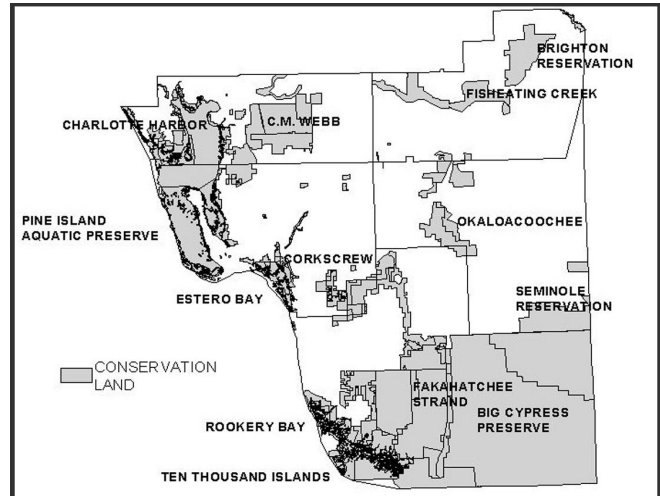


Figure 2. Southwest Florida major conservation lands. Credits: UF/IFAS

Combined with the Caloosahatchee River, the **Peace** and **Myakka** rivers serve a watershed of nearly 4,500 square miles.

Within this watershed, urban areas, agriculture, and phosphate mining operations contribute nonpoint source pollutants that contribute to water quality problems in the Charlotte Harbor estuary and contiguous coastal waters. More about Caloosahatchee River restoration efforts is available online (<http://crca.caloosahatchee.org>).

Several small rivers and streams occur near the coast including the **Estero, Imperial, and Blackwater** rivers. Major pathways for drainage by overland flow include **Deep Lake Strand, Okaloacoochee Slough, Fakahatchee Strand, Roberts Lake Strand, and Gum Slough**. The largest of these overland drainage systems is the Okaloacoochee Slough, which is about 2 miles wide and 50 miles long. The Okaloacoochee Slough runs southwest to the Fakahatchee Strand, which is roughly 20-miles long and drains to the Gulf of Mexico in the area of the Ten Thousand Islands National Wildlife Refuge.

The major wetland system in southwest Florida is the **Big Cypress Swamp**, which is more appropriately described as the Big Cypress Basin (BCB) watershed, because the habitats within the BCB encompass over 2,500 square miles. Fakahatchee Strand is the primary drainage slough for Big Cypress Swamp.

Other major drainage systems in southwest Florida include the Golden Gate Canal, Henderson Creek Canal, Faka Union Canal, and Cocohatchee River Canal, although plans are underway to fill some of these canals to restore important wetland habitat. Naturally formed lakes are uncommon in southwest Florida due to shallow soils atop a limestone base rock. Naturally occurring lakes include **Lake Trafford**, a large shallow lake, and **Deep Lake**, which is one of the deepest lakes in Florida. Lake Trafford, the largest lake in southwest Florida (1,500 acres), feeds a natural sheet flow of water south to coastal estuaries, Corkscrew Swamp, and across Picayune Strand. Deep Lake was formed from dissolution of the underlying limestone base rock.

Featured Natural Areas (see Table 2 for detailed list of natural areas)

Rookery Bay National Estuarine Research Reserve is in Collier County. The core of the reserve consists of mangrove wetlands, and pine and oak uplands. The combined Aquatic Preserves total 112,000 acres. Rookery Bay is nationally recognized as one of the few remaining undisturbed mangrove estuaries in the United States. As one of only 25 National Estuarine Research Reserves, it serves as an outdoor classroom and laboratory for students and scientists, as well as home to recreationally and commercially important fish and shellfish, dolphins, manatees, and important nesting areas for waterbirds.

Fakahatchee Strand State Park is the largest cypress strand (linear) swamp on Earth. Although dominated by cypress swamp and wet prairie habitats, pine flatwoods and hardwood hammocks also occur and provide important habitat for the Florida panther, Florida black bear, Everglades mink and Big Cypress fox squirrel. The buffering effect of the slough and the deeper lakes that intersperse it shield the swamp interior from extreme cold temperatures and this

fosters a high level of rare and endangered tropical plant species. Fakahatchee Strand is the only place in the world where bald cypress trees and royal palms share the forest canopy. It is the orchid and bromeliad capital of the continent with 44 native orchids and 14 native bromeliad species.

Collier Seminole State Park encompasses 6,430 acres dominated by mangrove swamp but that also includes tropical hammock habitat and pine flatwoods, as well as cypress swamps and salt marsh habitat. The rare Florida royal palm is common here, and wood storks, bald eagles, roseate spoonbills, Florida black bears, and American crocodiles have been documented in the park. A boardwalk provides easy access and viewing.

J.N. Ding Darling National Wildlife Refuge (NWR) is one of Florida's best-known and most visited wildlife observation sites in Florida. Ding Darling also administers the Caloosahatchee NWR, Island Bay NWR, Matlacha Pass NWR, and the Pine Island NWR as a land management complex. There are brackish and freshwater impoundments in the refuge providing habitat for Mottled ducks, American swallow-tailed kites, roseate spoonbills, white ibis, wood storks, mangrove cuckoos, and all types of herons.

Estero Bay Aquatic Preserve is bordered on the west by a chain of barrier islands, which include Estero Island, Long Key, Lovers Key, Black Island, Big Hickory Island, and Little Hickory Island. Within the estuary are hundreds of smaller islands, including Mound Key, which is an ancient shell mound island believed to have been the central location of the Calusa Indian nation. Mangroves and seagrasses provide habitat for nesting and wintering waterbirds, and home to a sizable population of manatees and bottle-nosed dolphins. The estuary is not supplied with freshwater by any major river, but rather by a number of small rivers and creeks.

Charlotte Harbor National Estuary is the second largest open water estuary in the state. The estuary and contiguous coastal waters serve as a home, feeding ground and/or nursery area for more than 270 species of resident, migrant, and commercial fishes. Manatees, sea turtles, wood storks, and dolphins also depend on this estuary.

The Charlotte Harbor State Buffer Preserve

covers an area of approximately 42,400 acres in Charlotte and Lee counties. The preserve is primarily mangrove and salt marsh wetlands with a mix of freshwater marsh, coastal scrub, tropical hardwood hammocks, and pinelands. The preserve fronts miles of open bay waters, tidal creeks, and the mouth of the Myakka, Peace and Caloosahatchee rivers. The coastal wetlands are largely undisturbed and have high ecological value. The preserve provides additional protection to a group of aquatic preserves that have been established to protect the Charlotte Harbor estuary. These aquatic preserves include Gasparilla Sound / Charlotte Harbor (80,000 acres), Cape Haze (11,289 acres), Matlacha Pass (14,000 acres), and Pine Island Sound (62,000 acres).

Babcock-Webb Wildlife Management Area

includes 79,000 acres in Charlotte County and is dominated by pine flatwoods and seasonally flooded prairies and marshes, and includes cypress swamp and hardwood hammock habitats. The pine flatwoods support red-cockaded woodpeckers, which are even rarer in south Florida than they are in north Florida.

Cultural History

The Paleo-Indians that inhabited south Florida roughly 10,000 years ago lived in an arid savannah and scrub landscape that supported mastodon, giant sloth, and other large mammals often referred to as Pleistocene megafauna. These huge animals were the staple food source for these early peoples. With the end of the ice age and associated sea level rise approximately 8,500 years ago, Florida's environment became wetter and the Pleistocene megafauna disappeared.

During the next 6,000 years, the native peoples in south Florida were defined as the Archaic peoples and were a more traditional hunter-gatherer society. Climatic conditions during the Archaic period changed from wet to dry with a prolonged drought that persisted about 3,000 years. Human populations declined during this period and became increasingly concentrated in coastal areas. Roughly 4,000 to 5,000 years ago the drought ended and sea levels rose creating more favorable living conditions and an increase in the human population in southwest

Table 2. Recreational and cultural opportunities in natural areas in southwest Florida

County	Natural area	Phone	Web site
Collier	Everglades National Park [see south east Region for detail]	(305) 242-7700	http://www.nps.gov/ever
Collier	Rookery Bay Aquatic Preserve & NERR	(239) 417-6310	http://www.rookerybay.org/
Collier	Barefoot State Preserve	(239) 591-4986	http://myfwc.com/recreation/View_Destinations_site-sw10.htm
Collier	Cape Romano- Ten Thousand Islands Aquatic Preserve	(239) 417-6310	http://www.dep.state.fl.us/coastal/sites/caperomano/
Collier	Delnor-Wiggins Pass State Park	(239) 597-6196	http://www.floridastateparks.org/delnorwiggins/default.cfm
Collier	Royal Palm Hammock Creek	(239) 394-3397	http://www.dep.state.fl.us/gwt/guide/regions/south/trails/blackwater_riv.htm
Collier	Collier Seminole State Park	(239) 394-3397	http://www.floridastateparks.org/collierseminole/default.cfm
Collier	Florida Panther NWR	(239) 353-8442	http://www.fws.gov/floridapanther/index.html
Collier	Big Cypress Natural Preserve	(941) 695-4111	http://www.nps.gov/bicy/index.htm
Collier	Fakahatchee Strand Preserve State Park	(239) 695-4593	http://www.floridastateparks.org/fakahatcheestrand/
Collier	Corkscrew Swamp Sanctuary	(941) 657-3771	http://www.corkscrew.audubon.org/
Collier/ Lee	Corkscrew Regional Ecosystem Watershed	(800) 248-1201	http://www.crewtrust.org/
Collier	Picayune Strand State Forest	(941) 352-4212	http://www.fl-dof.com/state_forests/picayune_strand.html
Collier	Lake Trafford	(941) 657-2401	http://www.laketrafford.com/

Table 2. Recreational and cultural opportunities in natural areas in southwest Florida

County	Natural area	Phone	Web site
Collier/ Hendry	Okaloacoochee Slough State Forest	(941) 694-2181	http://www.fl-dof.com/state_forests/okaloacoochee.html
Charlotte	Cecil M. Webb WMA	(941) 575-5768	http://www.fl-dof.com/state_forests/okaloacoochee.html
Charlotte	Cedar Point Park	(941) 475-0769	http://www.lcra.org/parks/recreation_areas/cedar_point.html
Charlotte	Babcock Wilderness Adventures	(800) 500-5583	http://www.babcockwilderness.com
Charlotte	Charlotte Harbor Natl Estuary	(941) 995-1777	http://www.charlotteharbornep.org/
Charlotte	Island Bay NWR & Wilderness	(941) 472-1100	http://www.fws.gov/refuges/profiles/index.cfm?id=41547
Charlotte	Don Pedro Island State Park	(941) 964-0375	http://www.floridastateparks.org/donpedroisland/
Charlotte	Gasparilla Sound - Charlotte Harbor Aquatic Preserve	(941) 575-5861	http://www.dep.state.fl.us/coastal/sites/gasparilla/
Charlotte	Lemon Bay Aquatic Preserve	(941) 575-5861	http://www.dep.state.fl.us/coastal/sites/lemon/
Charlotte/ Lee	Cape Haze Aquatic Preserve	(941) 575-5861	http://www.dep.state.fl.us/coastal/sites/capehaze/
Glades	Fisheating Creek State Park	(863) 946-3352	http://www.fisheatingcreek.com
Lee	Pine Island Sound Aquatic Preserve	(239) 575-5861	http://www.dep.state.fl.us/coastal/sites/pineisland/
Lee	Pine Island NWR	(239) 472-1100	http://www.fws.gov/dingdarling/pineisland/
Lee	Matlacha Pass Aquatic Preserve	(239) 575-5861	http://www.dep.state.fl.us/coastal/sites/matlacha/
Lee	Matlacha Pass NWR	(239) 472-1100	http://www.fws.gov/dingdarling/matlachapass/
Lee	Gasparilla Island State Park	(239) 964- 0375	http://www.floridastateparks.org/gasparillaisland/default.cfm
Lee	Lovers Key State Park	(239) 463-4588	http://www.floridastateparks.org/loverskey/
Lee	Sanibel-Captiva Conservation Foundation	(239) 472-2329	http://www.sccf.org/
Lee	Caloosahatchee National Wildlife Refuge	(239) 472-1100	http://www.fws.gov/dingdarling/caloosahatchee/
Lee	Caloosahatchee Regional Park	(239) 338-3146	http://www.leeparks.org/facility-info/facility-details.cfm?Project_Num=0253
Lee	J.N. Ding Darling NWR	(239) 472-1100	http://www.fws.gov/dingdarling/
Lee	Estero Bay Aquatic Preserve	(239) 463-3240	http://www.dep.state.fl.us/coastal/sites/estero/
Lee	Lakes Regional Park	(239) 432-2000	http://www.leeparks.org/
Lee	Six-Mile Cypress Slough Preserve	(239) 432-2004	http://www.leeparks.org/sixmile/
Lee	Hickey's Creek Canoe Trail	(850) 488-3701	http://www.dep.state.fl.us/gwt/guide/regions/westcentral/trails/hickey.htm
Lee	Cayo Costa State Park	(239) 964-0375	http://www.floridastateparks.org/cayocosta/

Florida, as well as the formation of the Everglades and Big Cypress Swamp. By 2,500 years ago, south Florida resembled the current natural environment and the people living there have been described as the Glades cultural tradition.

The Glades tradition was subdivided into three major geographical groups: the Okeechobee Region,

the Glades Region, and the Caloosahatchee region. Of the various Glades tradition peoples, the Calusa were the most powerful and dominant society. However, the Calusa were devastated by diseases introduced by European explorers and by 1700, the Calusa nation had declined from 10,000 to 2,000 people. In 1704, the Spanish attempted to ferry 280 remaining Calusa to Cuba for safety; most died on the

way and for all practical purposes, the Calusa had become extinct.

During the 1700s, another group of Native Americans, the Creeks, moved southward into central and south Florida. These people became known as "cimarrones," Spanish for "wild ones" or "runaways." This word became Seminole in the native Muskogean tongue. Until 1821, the Creeks/Seminoles prospered in Florida under Spanish rule, but the 1800s brought turmoil. The natives resisted suppression by American forces during the Seminole Indian Wars until finally being defeated in 1858, when nearly all of the Seminoles were relocated to reservations in Oklahoma. An estimated 200-300 remaining Seminoles sought refuge in the isolated southern Florida swamps. Today, their descendants occupy the Brighton, Immokalee, and Big Cypress Seminole Reservations.

Pioneers of European descent began to settle south Florida in the mid- and late-1800s. In the late 1800s and 1900s, wetlands drainage allowed extensive agriculture and ranching in the area. More recent events include the construction of Alligator Alley (US I-75) across the state, which cut across the Everglades. Freezing temperatures in central Florida during the 1980s devastated citrus groves and resulted in a major shift of the citrus industry to southwest Florida, increasing citrus acreage from approximately 40,000 acres in 1970 to 180,000 acres in 2000. Coastal south west Florida also is one of the fastest urbanizing regions of the country. Between 1960 and 2000, human population increased 10-fold from 90,000 to 900,000 people.

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