

New College Field Guide Series

The Barrier Islands of Southwest Florida

A Field Guide to the Flora and Fauna of the Barrier Islands of Southwest Florida



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www.treefoundation.org

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Introduction

Florida is an assemblage of numerous diverse ecosystems, some of which are found no where else in the world. Florida has various terrestrial ecosystems such as Pine Flatwoods, dry prairies, hardwood forests, and Pine Rocklands; aquatic ecosystems such as rivers and springs, lakes, swamps, and marshes; and coastal ecosystems such as coral reefs, mangrove forests, dunes and maritime forests. In this field guide the major plant and animal inhabitants of the southwest Florida barrier island ecosystems will be described, which should help in their identification.

Barrier islands are formed from sand deposits that build up by various forces. These low-lying islands are constantly washed and blown by waves and winds. The constant impact by waves deposit and erode sediment, which constantly change the physical and biological features of barrier islands. The distribution of sand by winds creates dunes on the islands, which are then colonized by plants that stabilize the sand, providing a habitat for various animals.

The barrier islands of southwest Florida provide a home for a great diversity of animals, despite the relatively extreme living conditions. The distribution of plants on barrier islands is controlled by various factors. The sand on the barrier on barrier islands do not retain water well, have low nutrient levels, and are often in direct sunlight and heat.

Salt is the key factor in affecting the distributions of plants on the islands. The salt spray from crashing waves and flooding deposit salt onto the beach and dunes of the barrier islands. The most salt tolerant plant species will inhabit areas closest to the shore, whereas plants with low salt tolerance will inhabit areas further from the shore.

The gradation of plant species created by the various factor controlling their distribution, creates a wide variety of habitats on which a diverse assemblage of animals can live. As you move from the shore facing the ocean to the opposite side of the island, you may encounter habitats such as: the surf zone, the beach, the primary dune, swales or smaller dunes beyond the primary dune, and the maritime forests (mangroves) and marshes.

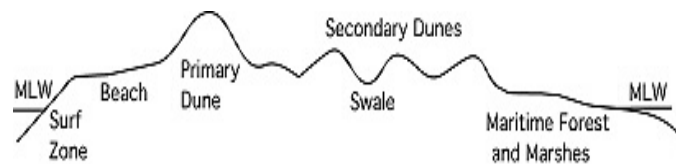


Figure 1: Phases of the Barrier Island

In addition to being a diverse ecosystem providing numerous recreational, economic, and natural resources to society, the barrier islands of Florida are extremely important in protecting the safety of Florida's residents. They are known as barrier islands because they provide an essential barrier, blocking strong storm waves that would otherwise erode the mainland coast. This is especially true during strong storms like Hurricanes, which frequent the Florida coast.

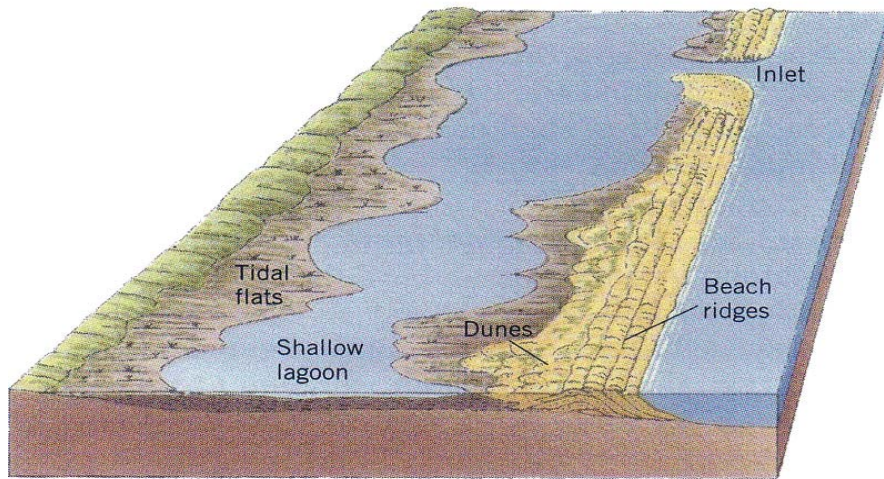


Figure 6 (barrier island and the mainland)

Invertebrates

Surf Zone Invertebrates:

Figure 2

Coquina Surf Clam

Donax variabilis





Figure 3

Mole Crab

Emerita talpoida



Figure 4

Horseshoe Crab

Limulus polyphemus

Beach and Dune Invertebrates:



Ghost Crab

Ocypode quadrata



Figure 5

Hermit Crab

Coenobita clypeatus

Plants

Primary Dune Species:



Sea Oats

Uniola sessiliflora



Bitter Panicum
Panicum amarum

Figure 6



Coastal Searocket
Cakile lanceolata



Figure 8

Beach Elder
Iva imbricata

Secondary/ Foredune Dune Species:



Railroad Vine
Ipomoea pes-caprae brasiliensis



Seaside Goldenrod

Solidago sempervirens

Figure 10



Sea Purslane

Sesuvium portulacastrum



Saltmeadow Cordgrass
Spartina patens

Figure 12

Mangroves:



Red Mangrove

Rhizophora mangle



Black Mangrove

Avicennia germinans

Figure 14



Figure 15



Figure 16

White Mangrove
Laguncularia racemosa

Birds



Figure 17

Masked Booby
Sula dactylatra
Year-round



Figure 18

Brown Pelican

Pelecanus occidentalis

Year-round

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Figure 19

Reddish Egret

Egretta rufescens

Year-round



Figure 20

Wilson's Plover*Charadrius wilsonia*

Year-round

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Figure 21

Black Skimmer*Rynchops niger*

Year-round

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Figure 22

Gull-billed Tern

Sterna nilotica

Year-round

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Figure 23

Sanderling

Caladris alba

Winter only

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Figure 24

Piping Plover

Charadrius melodus

Notes: Endangered species

Winter only



Figure 25

Sandwich Tern

Sterna sandvicensis

Winter only (Southern Gulf Coast)

Year-round (Northern Gulf Coast)



Figure 26

Bridled Tern

Sterna anaethetue

Spring and summer (breeding)

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Figure 27

Whimbrel

Numenius phaeopus hudsonicus

Winter only

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Figure 28

Brown Noddy

Anous stolidus

Spring and summer (breeding)

The Future of Florida's Barrier Islands

The barrier islands of Florida are built upon the accumulation of unstable sediments. Despite this fact, the barrier islands are considered prime real estate for development, which is the main conservation issue faced by the islands.

Development on the islands not only directly destroys important habitats, but also causes a dramatic increase in the erosion of the islands, increasing habitat loss. The development of the barrier islands leaves the residents vulnerable to damages from severe storms, such as hurricanes.

There have been various efforts to try and combat the erosion caused by development, most of which have proven to be either unsuccessful or unsustainable: Placing jetties that extend off the beach to prevent the natural movement of sediments along the beach may actually create more erosion. Some municipalities have spent millions to “re-nourish” their eroded beaches by dumping sand onto the beach from other areas, which has had inconsistent results.

Unless the development of barrier islands is halted, and a sustainable alternative for development is found, we will continue to lose this incredibly diverse habitat.

Figure Credits

Dune Zonation Diagram (figure 1)

<http://www.uwf.edu/rsnyder/ffnwf/barrier/barrier.html>

Coquina Surf Clam (figure 2)

<http://www.jaxshells.org/track4.htm>

Mole Crab (figure 3)

<http://animaldiversity.ummz.umich.edu/site/accounts/pictures/Eucarida.html> (figure 3)

Horseshoe Crab (figure 4)

<http://www.thekarenzagrroup.com/bayguardian/limulusindex.php>

Hermit Crab (Figure 5)

<http://www.reptilecity.com/>

Barrier Island Diagram (figure 6)

http://www.planetgeography.net/ib/coasts/shoreline_environment figure 6

Sea Oats (Figure 7)

<http://www.netaxs.com/~mhmyers/cdjpgs/beachgrassL.jpg>

Bitter Panicum (Figure 8)

<http://wfrec.ifas.ufl.edu/extension/dunes/Panicum.htm>

Coastal Searocket (Figure 9)

<http://home.sandiego.edu/~pkemp/Searocket.jpg>

Beach Elder (Figure 10)

<http://wfrec.ifas.ufl.edu/extension/dunes/iva.htm>

Railroad Vine (Figure 11)

http://image03.webshots.com/3/4/83/55/7148355VTjklFjLfm_ph.jpg

Goldenrod (Figure 12)

<http://wildflowers.jdcc.edu/Marsh%20Goldenrod.jp>

Sea Purslane (Figure 13)

<http://www.bogos.uni-osnabrueck.de/expo/alle/bilder/Sesuvium-portulacastrum.jpg>

Cordgrass (Figure 14)

http://davesgarden.com/pics/Floridian_1075486429_866_tn.jpg

Red Mangrove (Figure 15)

http://www.class.uidaho.edu/italy2004/Wetland_files/imagesNWR/Red%20Mangroves.jpg and
http://web.mala.ca/belize/images/plant%20images/rmangrove_fruit.jpg

Black Mangrove (Figure 16)

<http://www.flmnh.ufl.edu/fish/southflorida/mangrove/images/keysmangrove2.JPG>

White Mangrove (Figure 17)

http://web.mala.ca/belize/images/plant%20images/wmangrove_tree

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