

## Colloquium Field Trip Estero Island Historic Cottage and Matanzas Pass Preserve



### Learning Objectives:

- Define and identify the characteristics and main species of an estuary and barrier island environment.
- Describe the role and importance of mangroves in the ecosystem.
- Identify the main species found in the habitats found at the Matanzas Pass Preserve.
- Define and describe Lee County's Conservation 20/20 land acquisition program.
- Compare and contrast changing land use over time and identify associated challenges.

### Key Concepts:

- **Estuarine Environment** – Characteristics of an estuary include: partially enclosed shallow bay area, source(s) of freshwater, barrier islands and in southern Florida generally mangroves are predominate in these coastal areas. As nurseries for many fish and shellfish and rookeries for many wading birds, estuaries are important to Florida's economy. Sea grasses in the estuary are a major food source for manatees, sea turtles and many fish and invertebrates.

*"An estuary is an area where the salt water of the seas and the fresh water of rivers and streams meet and mix. As sea water is moved into this area by tides, the saltiness is diluted by fresh water flowing toward the sea. This mixture of salt water and fresh water is often called brackish water. An estuary, then, has some characteristics of the ocean and some of the characteristics of the fresh water. It is a very special environment.*

*Compared to the oceans, estuaries comprise only a small percentage of the total surface of the marine world. Though estuaries are small in size, they are large in productivity. The rivers and streams that drain into an estuary bring fertilizing minerals (nutrients) from the land. Marsh grasses, mangroves, seagrasses, seaweeds (algae), and microscopic algae (phytoplankton) manufacture food from the nutrients.*

*An estuary has a rich supply of food, and the built-in protection from the predators makes it a haven for small animals. Some animals such as worms, oyster, mussels and barnacles spend their entire lives in an estuary. Other animals such as shrimp, mullet and blue crabs spend only a part of their lives in an estuary. The rest of the time may be spent in either the fresh water of the river or the salt water of the sea.*

*The many small animals that live in the protective confines of an estuary will soon grow up and become adults. The shallow water and submerged plants provide excellent hiding places from larger, hungry fish. Because so many different kinds of young sea animals live and feed in an estuary, it is often referred to as a nursery (Crenshaw Wetlands - <http://edis.ifas.ufl.edu/4h027>)*

- **Mangroves** - There are three different species of mangroves – red, white and black in southwest Florida. Mangroves are collectively grouped together because of their ability to thrive in a saltwater environment. They can grow in freshwater, but there is less competition between other species in the saltwater areas. They serve an important role in the ecosystem by providing a nursery ground for fish and shell fish, stabilizing shorelines protecting inland areas from storm surges, and have a high rate of carbon sequestration. Mangrove leaves

constantly drop in the water (mangroves shed 7000 pounds of leaves per acre per year), they break down and the detritus is an important food source.

- **Native/Exotic Species** – Native species are plant or animal species that are from the particular area, they are adapted to the climate and important inhabitants of the natural environment. Exotic species are plants and animals that have been introduced or accidentally arrived in an area where they are not usually found. Invasive exotic species are aggressive and can takeover habitats making it difficult for native species to get their needed resources.
- **Recycling** – The boardwalk at Matanzas Pass is a good example of using recycled materials in construction. The boardwalk material is made up of plastic bottles and caps.
- **Water Quality** – Water quality in Estero bay has diminished over time with different land use practices. Freshwater flow from the Caloosahatchee is partially blocked from the Sanibel causeway. The creeks, canals and river that drain into Estero bay bring runoff of fertilizers and pesticides from commercial and residential developments.
- **Relationship to Economy** – Tourism plays a large role in our local economy where stunning beaches and captivating wildlife lure people from around the world. Additionally, commercial fishing and recreational fishing are also important industries.
- **Conservation 20/20** – This is the Lee County land acquisition program started by a group of concerned citizens who lobbied the county commissioners to set aside funds to purchase land for conservation. The measure was put up for a vote to the citizens and was approved in 1996. Each property owner in Lee County pays approximately fifty cents per one thousand dollars of property taxes toward the conservation 20/20 program – it works out to about the purchase of 2-3 pizzas per year. A small portion of Matanzas Pass Preserve was purchased through the conservation 20/20 program.
- **Nature of barrier islands/Development issues** – Barrier islands are constantly shifting and migrating in response to storm events and the impacts from wave action. As a result, they accrete and erode sometimes overnight. This dynamic nature of barrier islands causes difficulties for development. Waterside structures can be lost in a single weather event such as a hurricane, or be subject to beach accretion or erosion. Therefore, building on the beach or any part of a barrier island is risky. But people are drawn to this idyllic location which often results in highly developed beaches.
- **Early history and the Calusa** – During the early 16<sup>th</sup> C. when early Spanish explorers officially reached the shores of Southwest Florida, they encountered a sophisticated native culture that the Spanish called the Calusa Indians. At the time of Contact, the Calusa undoubtedly knew of the Spanish who probably raided this coast earlier, kidnapping indigenous people to enslave in the Caribbean in their gold mining efforts. The Calusa were a powerful people and controlled all of the Native groups in Southern Florida, including the Miami area. They thrived on the rich estuarine environment, eating fish and shellfish as well as hunting deer, bear, raccoon, possum, etc. , moving up and down waterways like the Caloosahatchee River on canoes. Large shell mounds can still be seen where Calusa villages once stood. When the Spanish tried to land, they were met with hostility which resulted in deaths, including that of Ponce de Leon on his second Florida exploration and attempted settlement when he was mortally wounded, returning to Havana where he died. Two successive Jesuit missions were established by the Spanish at the Calusa capital which is believed to have been located on **Mound Key** in Estero Bay. Each time the missionaries ran out of trade goods, the Calusa sent them packing.
- **Brief history of Estero Island** – Mid-19<sup>th</sup> century settlers to Estero Island began as a result of the Homestead Act of 1862. During the late 19<sup>th</sup> century, members of the Koreshans, a group of people living in a utopian commune near Estero, purchased land on Estero Island. Some lived on the island, and a saw mill was also established on the island by the Koreshans. Few people lived on the island in those early settlement days, but the 20<sup>th</sup> century brought the land boom of the 1920s. Developments on the island were just getting underway when hurricanes in 1921 and 1926 stalled the development plans. The Great Depression pushed back further development of the island. Fishermen, though, were living on the island and thriving in the 1930s, 40s and 50s (see **Fishing Industry** below). During the 1950s, there was a renewed interest in the island as a vacation getaway destination. Tourism and commercial fishing have both been major players in the history of the island.

- **Oysters** – An important filter feeder. They form reefs along the shallow mudflats and mangrove roots in the estuary. They filter the water and can remove toxins and pollution improving water quality. An oyster reef is an important habitat for fish, invertebrates and birds.
- **Fishing Industry** – The fishing industry has a deep history on Estero Island. During the 18<sup>th</sup> century, Spanish fishermen from Cuba fished these waters and sent dried and smoked fish back to Havana where local fishing banks had been “fished out.” Local fishermen have been plying the waters ever since. By the 1930s and 40s, commercial fishermen were the local year-round residents of the island. Later, the discovery of shrimp (“pink gold”) in the area brought more fishermen to the area to exploit this newly found resource. While commercial fishing has historically been the cornerstone of the Estero Island economy, tourism (including recreational fishing) has since become the mainstay of the local economy.

## Resources

- Matanzas Pass Preserve Brochure - [http://www.leeparks.org/pdf/Matanzas\\_brochure\\_for\\_web.pdf](http://www.leeparks.org/pdf/Matanzas_brochure_for_web.pdf)
- Matanzas Pass Preserve: Land Stewardship Plan 2006 – Lee County Parks and Recreation document concerning the property and conservation plans for it. This is available from the Office Manager in the Colloquium Library
- Conservation 20/20 website - <http://www.conservation2020.org/index.cfm>
- Audubon Guide of Florida -- Alden, Peter, Cech, R. Nelson, G (1998). National Audubon Society Field Guide to Florida, New York: Alfred A. Knopf
- The Everglades Handbook: Understanding the Ecosystem - Lodge, Thomas E. (Second Edition, 2004). CRC press, Boca Raton, FL.
- Ecosystems of Florida – Myers and Ewel eds. (1990). University of Central Florida Press, Orlando, FL.
- Florida Ecosystems – University of Florida - <http://edis.ifas.ufl.edu/topics/environment/ecosystems.html>
- Priceless Florida Natural Ecosystems and Native Species -- Rudloe, Anne, Ellie Whitney and D. Bruce Means 2004 Pineapple Press, Sarasota, FL.
- Mangroves -- Rey and Rutledge 2002. IFAS publication: University of Florida. <http://edis.ifas.ufl.edu/in195> This document is ENY-660 (IN195), one of a series of the Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date: January 2002. Reviewed: January 2009. Visit the EDIS Web Site at <http://edis.ifas.ufl.edu>.
- 4-H Project Record Manual: Wetlands1 -- Crenshaw, N. <http://edis.ifas.ufl.edu/4h027> one of a series of the Florida 4-H Youth Development Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Revised; September 1981, reviewed; January 2009.