

Bowditch Point Preserve

50 Estero Boulevard
Fort Myers Beach

**Land Management Plan
2018**

Second Edition

Prepared by the Land Management Section
Parks & Recreation



Approved by Lee County Board of County Commissioners: 03/06/2018

Acknowledgements:

This document was prepared with the assistance of Lee County Conservation Lands Coordinators and Supervisors, Lee County Parks and Recreation staff and Lee County Bird Patrol.

Many Thanks for your Time and Talent,

Terry Cain

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Acronyms

ADA	Americans with Disabilities Act
BOCC	Board of County Commissioners
BPP	Bowditch Point Preserve
BPRP	Bowditch Point Regional Park
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FLU	Future Land Use
FLUCCS	Florida Land Use Cover and Forms Classification System
FNAI	Florida Natural Areas Inventory
FWC	Florida Fish and Wildlife Conservation Commission
IRC	Institute for Regional Conservation
LCPR	Lee County Department of Parks and Recreation
LSOM	Land Stewardship Operations Manual
LiDAR	Light Detecting and Ranging
NGVD	National Geodetic Vertical Datum
PPs	Photo Points
STRAP	Section-Township-Range-Area-Block.Lot (Parcel)
USFWS	United States Fish and Wildlife Service

Vision Statement

It is the vision of the Lee County Board of County Commissioners, Lee County Department of Parks and Recreation and Conservation Lands staff to ensure the preservation and restoration of Bowditch Point Preserve.

Preserved as an area that will continue to provide memorable experiences for visitors, Bowditch Point Preserve will continue to provide viable wildlife habitat for avian and land-based creatures.

Guided nature walks, wildlife viewing from trails along the Gulf of Mexico and San Carlos Bay, photography of scenery and wildlife, canoeing, kayaking, fishing, swimming, and hiking are some of the resource-based opportunities at Bowditch Point Preserve.

Maintaining a variety of ecosystems with exotic plant control, conservation education, and continued native plant restoration will provide an outstanding educational experience in this versatile outdoor classroom for residents and visitors.

I. Executive Summary

Bowditch Point has had famous owners and was historically known as the “short end” by residents and visitors. In 1895, James M. Bratt homesteaded the area also known as the government lighthouse reservation, as other homesteaders moved into palm-thatched chickees on the island. While the government may have anticipated a lighthouse at this site, there is no evidence a lighthouse was ever constructed. By the 1930s, Barron Collier owned the north end of Estero Island as well as other sites in Lee County. Tom Phillips purchased the old government reservation on Bowditch Point from Barron Collier’s estate in 1948, expecting to create the “Coney Island” of Florida on Fort Myers Beach. If Mr. Phillips were alive today, he may have seen his dream come true for Estero Island (Fritz 1963).

In the early 1970s Bowditch Point was the only large undeveloped property on Estero Island that had shoreline on both the Gulf of Mexico and San Carlos Bay. This point of land was utilized to deposit spoil from channel dredging which led to the area having the highest point on the island of 18 feet.

There was an attempt to develop the property in the 1970s and a seawall was constructed. Today portions of this seawall are visible while walking to the beach and over some of the nature trails. It is now quite a distance from the water due to sand accretion from dominant east to west longshore drift. This accretion built up the land, which became covered with both native and exotic vegetation. Beach dynamics continue with the northernmost point of the shoreline eroding along with an area toward the bay side of the island.

In 1987, the owner of Bowditch Point offered the land for sale with an assigned residential density of 155-units as well as direct access to Estero Boulevard and more than 1,000 feet of Gulf of Mexico beachfront. Lee County Board of County Commissioners were offered an option to buy within a timeframe that would expire December 1987. The owner received another offer in November because Lee County was unable to secure a funding source. In mid-December 1987, Lee County Board of County Commissioners secured funding and purchased Bowditch Point for \$5,750,000.00.

The goal of this land management plan is to guide future development of public facilities, restoration, and preservation of Bowditch Point. A balance for the needs of the public while also creating protection for the natural resources is a major component of the management plan.

Natural disasters, winds, tides, and longshore drift are elements to be considered in the management plan and will have a direct impact on how the plan is implemented. Any landing areas for boats in future plans will be influenced by tides and erosion.

The topographical features of the preserve consist of typical barrier island slope to the beach and bay as well as a manmade dredge spoil mound in the center of the Preserve.

Because of diverse vegetation and topographical features, the Preserve supports a variety of wildlife year-round as well as resting and loafing areas for migratory bird species.

Lee County Bird Patrol is a volunteer group that currently counts birds at Bowditch Point Preserve and submits their information to ebird.org. The group is composed of conscientious individuals who also monitor other wildlife and human impacts. The documentation this partnership provides will ensure conservation efforts at the Preserve.

This plan will detail the projects of the last 10 years and what is planned for the next 10 years.

Table 1: Management Work Summary (2007-2017)

<p>Natural Resource Management</p> <p>Invasive exotic plant species have been treated throughout the Preserve, which is now at maintenance level. This work was completed in house by staff and with volunteers.</p> <p>Overall Protection</p> <p>Debris is continually removed from the Preserve by staff and volunteers.</p> <p>Tri-annual site inspections have been conducted.</p> <p>Public Use</p> <p>The day dock has been completed and is in use.</p> <p>The number of guest visiting the Preserve was 414,345 from October 2016 to September 2017. This number only captures the guest arriving by car and does not include the people arriving by foot, boat, or trolley.</p> <p>Volunteers</p> <p>Volunteer groups, students, and community service workers have assisted in trail maintenance, exotic plant control, and debris removal.</p> <p>Trained volunteers lead weekly guided walks along the beach and trail systems during the winter season.</p> <p>During the winter season, there are weekly sunset sing alongs held on the lower patio led by volunteers.</p>
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II. Introduction

Bowditch Point Preserve (BPP) is located within Bowditch Point Regional Park (BPRP) that is located in the Town of Fort Myers Beach on the northwest end of Estero Island, Lee County. This point of the island exists due to years of accreted sand from longshore drift.

In this document, the site will be called by various names. Bowditch Point refers to the time before the point was purchased by the county. Bowditch Point Regional Park refers to the entire area after the purchase by Lee County and Bowditch Point Preserve refers to the area that has been restored or left in a natural state.

Sand is always on the move, which is typical of barrier islands. Bowditch Point historically was known to residents as the “short end”, since that time the name on maritime charts has been used, Bowditch Point. Bowditch Point was named after Nathaniel Bowditch, a world-famous mathematician and navigator who is credited as the founder of modern maritime navigation. His book *The New American Practical Navigator*, first published in 1802, is still carried on board every commissioned U.S. Naval vessel (wikipedia.org).

In 1987, the Lee County Board of County Commissioners obtained an option to purchase Bowditch Point for \$5,750,000.00. The Board’s decision on the source of funding for this acquisition was a very confusing process, which took eight months. This option was to expire on December 31, 1987. In November 1987, the Board was informed the owner had received another offer that he would accept if the County did not exercise its option by the deadline. To facilitate closing on the property by the deadline the Board increased the capital budget by \$6,500,000.00 in proposed bond revenues. This represented the acquisition price, \$100,000.00 to begin design and the associated bond cost. In essence, the Board loaned itself the money for acquisition from funds budgeted to other projects that would not be spent during a specific timeframe. In July 1988, ad valorem funds were used in place of the short-term loan. The Bowditch Point purchase took place December 22, 1987 and kept this parcel of land from being developed into homes or condominiums (Appendix A).

Lee County began ecological restoration and exotic plant control in 1987. The removal of Australian pines and Brazilian pepper opened up the Preserve and created walking paths. Many of the same paths exist today and exotic pest plants are monitored and controlled.

Dedication of Lee County’s Bowditch Point Regional Park on the west end of Estero Island was held on February 23, 1994 with several hundred people attending. Introduced at the dedication was the first phase of park construction developed with public charrettes (gathering of the public for collaborative design comments). The first phase, costing an estimated \$1,512,900.00, consisted of 15 picnic areas among coconut palms, a

bathhouse with rest rooms, 10 tables on the village commons deck and a boardwalk to the beach.

A limited parking area with 14 spaces was available to people with disabilities, the staff, and the general public, who could obtain parking passes in advance of their visit. Primary access to the Preserve was by biking, walking, boating, or by riding the beach trolley to the stop at Bowditch Point Regional Park. A new parking area with 63 spaces including three Americans with Disabilities Act (ADA) spaces was constructed in 2002. Major exotic plant control and new native vegetation installation was completed in 2002 in concert with the construction of the new parking area. Previous restoration has created improved habitat as well as new habitat for wildlife.

Maintenance for this site is divided into operations and land management; both are located in the Department of Parks & Recreation. Lee County Parks & Recreation operations takes care of the entire site and conservation lands shares the responsibility of the Preserve area. Only conservation lands management, expended and projected cost are reflected in this document.

The purpose of this Management Plan is to update the 2007 Plan, and to define the conservation, restoration and preservation goals for Bowditch Point Preserve for the next 10 years. It is a guide to support the best management practices for Lee County's Department of Parks and Recreation (LCPR).


III. Location and Site Description

Bowditch Point Preserve is located at 50 Estero Boulevard, Fort Myers Beach, Florida, on Estero Island in southwest Lee County within Section 24, Township 46 South, and Range 23 East. The Preserve is located at the western most point of the seven-mile long island of Estero. Bowditch Point Regional Park is a 17.95 - acre Park and Preserve surrounded on three sides by water, to the east and north by San Carlos Bay and to the west by the Gulf of Mexico. The Park area has facilities that include a parking area, restrooms-changing facilities, and outdoor showers available on the raised deck. Picnic tables and grills are in palm-shaded areas with wildlife viewing throughout the Park and Preserve. The Preserve is accessible from the south via Estero Island's main road, Estero Boulevard, which enters into a roundabout with an entrance to the west and paid parking (Figures 1 & 2).

The northernmost part of the Park is where the Preserve is located with native plants and local wildlife in five natural plant communities: beach dune, coastal grassland, coastal strand, mangrove swamp, and a restoration natural community area. These community designations are based upon Florida Natural Areas Inventory's Guide to the Natural Communities of Florida (FNAI 2010). Natural plant communities support a variety of wildlife on land and in the estuary that enhance wildlife viewing and other beach-related activities for residents and visitors.


Figure 1. Location Map






LEE COUNTY
Parks & Recreation
www.lee.org

Bowditch Point Regional Park / Preserve





0 0.25 0.5 1 1.5 2 2.5 3 Miles

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Date: 11/28/2017


This is not a survey.
Land Stewardship Staff has prepared this map
for informational and planning purposes.

Figure 2. 2017 Aerial Photograph

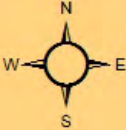


Legend

 Bowditch Point Regional Park/Preserve

 **Bowditch Point Regional Park / Preserve**

0 250 500 1,000 Feet



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IV. Natural Resources Description

A. Physical Resources

i. Climate

General information on the climate of southwest Florida is located in the Land Stewardship Operations Manual's (LSOM) Land Stewardship Plan Development and Supplemental Information section that can be found at:
<http://www.leegov.com/conservation2020/documents/LSOM.pdf>

ii. Geographic Features

Specific information on the geologic features such as physiographic regions, formations and maps can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

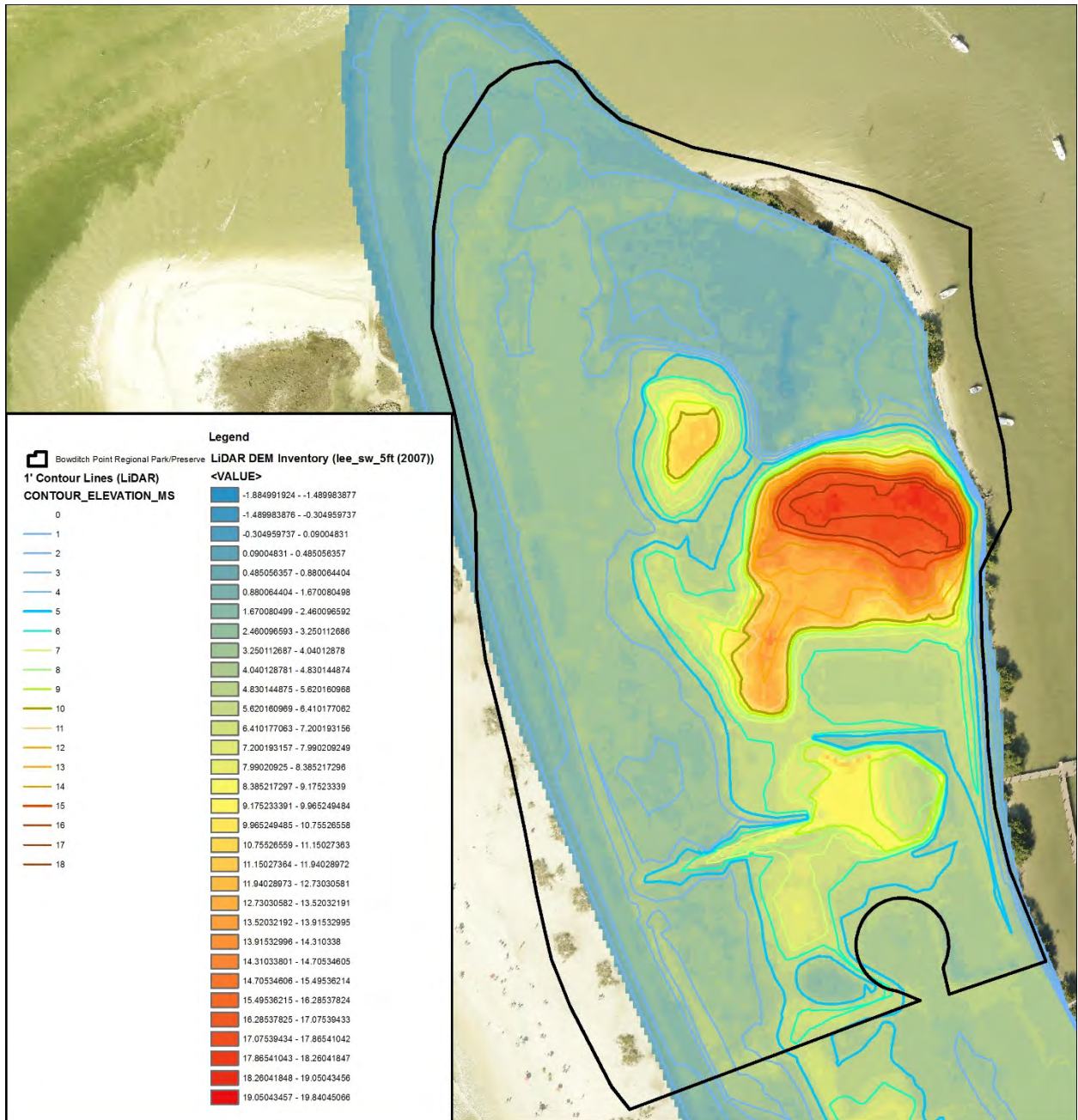
iii. Topographic Features


Topographic maps are the two dimensional representations of the three dimensional surfaces of the earth. Topographic maps depict elevations of land starting at its height above sea level. Contour lines represent land surface elevations on topographic maps. A contour line is a continuous, connecting line of an area that indicates the elevation of the land above sea level within the line.

The elevation of the site ranges from zero to eighteen feet (Figure 3). A majority of the site falls between zero and four feet in natural elevation where the beach areas rise out of the Gulf of Mexico and San Carlos Bay. The dramatic elevation rise within the Preserve is related to the early 1970s when Bowditch Point was the only undeveloped property on Estero Island that had shoreline on both the Gulf of Mexico and San Carlos Bay. This spit of land was utilized for spoil piles from channel dredging. This use led to the Preserve having the highest elevation on the island of 18 feet. The southernmost spoil pile was reduced to create a parking area. The northernmost spoil pile is the restoration natural community and is inhabited by a gopher tortoise population. All elevations are based on the National Geodetic Vertical Datum (NGVD).


The light detecting and ranging (LiDAR) data is an optical remote sensing technology measuring properties of scattered light to find range and/or other information of a distant target that shows elevation ranges from low to high. Figure 3 depicts both topographic contour lines and LiDAR data.


Figure 3. Topographic and LiDAR Map





Bowditch Point Regional Park / Preserve





0 125 250 500 750 Feet

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Date: 11/28/2017

iv. Soils

The Soil Survey of Lee County, Florida (Henderson 1984) depicts the northwest end of Estero Island as having soils of beaches and Matlacha gravelly fine sand (Figure 4).

Beaches consist of narrow strips of nearly level, mixed sand and shell fragments along the Gulf of Mexico. These areas are covered with salt water at daily high tides. The areas are subject to movement by the wind and tide and are bare of vegetation in most places. The only vegetation is salt-tolerant plants.

Beaches are used for recreation during the entire year. Homes, condominiums, beach cottages, and motels have been built on the fringes of beaches in many places (Henderson 1984).

Matlacha gravelly fine sand is a nearly level, somewhat poorly drained soil formed by filling and earthmoving operations. Slopes are smooth to slightly convex and range from 0 to 2 percent. Typically, the surface layer is about 35 inches of black, olive brown, grayish brown, dark brown, light brownish gray, very dark gray, and very pale brown mixed gravelly fine sand and sandy mineral material. The surface layer contains lenses of loamy sand and coated sandy fragments of former subsoil material with about 25 to 30 percent limestone and shell fragments. Below this, to a depth of 80 inches or more, is undisturbed fine sand.

This soil has severe limitations for sanitary facilities and recreational uses and moderate limitations for most building site development. The high water table and sandy surface texture are the major limitations (Henderson 1984).


Refer to the LSOM's Land Stewardship Plan Development and Supplemental Information section for additional information on soil types and limitation.

Table 2: Bowditch Point Preserve Soil Types


Preserve Name	Soil Type	Hydric?	Drainage Class	Acres*	% of Preserve*
Bowditch Point Regional Park Preserve	Beaches	Unranked	Poorly Drained	13.25	74.5
	Matlacha Gravelly Fine Sand	No	Somewhat Poorly Drained	4.50	25.5
<i>*Due to rounding values, total acreages (and therefore percentages) may not equal the true acreage of BPRPP. These numbers are approximations.</i>					

Figure 4. Soils Map



 **Bowditch Point Regional Park / Preserve**

0 125 250 500 750 Feet



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v. Hydrologic Components and Watershed

Portions of the northeast section and east side of the Preserve consist of a mangrove swamp that is influenced by tidal flow and fresh water runoff. Tides bring relatively clean water to the mangroves, and in turn, flush out accumulations of hydrogen sulfide and salts. The mangrove swamp also filters nutrients such as phosphorus and nitrogen from terrestrial runoff, which help to buffer the estuary from water pollution.

As stated in the soils section of this plan, beaches are subject to tidal influence and are covered with salt water at high or storm tides. Because spoil piles were created on the interior section of the point, which increased elevation, wash-overs during times of high and storm tides which enable sand accretion to build up the back side of the island is not possible. Because of this, there is an erosion problem on the bay side of the point.

The depth of the water table varies with the amount of fill material and the extent of artificial drainage. However, in most years, the water table is 24 to 36 inches below the natural surface under the fill material for two to four months. It is more than 60 inches below the natural surface under the fill material during extended dry periods (Henderson 1984).

Bowditch Point Preserve is located within the Greater Charlotte Harbor Watershed, which extends over an area of 4,400 square miles. The Peace River Basin begins in Polk County near Lakeland with the Myakka River Basin starting to the east in Manatee County until it winds and meanders to meet the north side of the Charlotte Harbor. To the south, Pine Island Sound and Matlacha Pass connect Charlotte Harbor to the tidal Caloosahatchee River and Estero Bay in Lee County.

The 300 square miles of the Estero Bay Watershed includes Ten Mile Canal, Six Mile Cypress Slough, Hendry Creek, Mullock Creek, Estero River, Spring Creek, Imperial River, Estero Bay, Hurricane Bay, Hell Peckney Bay, and the Matanzas Pass waterway.

These watersheds divide into sub basins and include Cow Creek and South Charlotte Harbor, with the Fort Myers Beach sub basins of South Fort Myers Beach Watershed and North Fort Myers Beach Watershed. The former watershed includes Bowditch Point Preserve. This watershed is subject to storm water runoff, tidal, and storm surges (Figure 5).

General information on hydrology and watersheds is located in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

Figure 5. Watershed Map



LEE COUNTY
Parks & Recreation
www.lee-parke.org

Bowditch Point Regional Park / Preserve

0 0.25 0.5 1 1.5 2 Miles

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Date: 11/28/2017

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B. Biological Resources

i. Ecological Functions

Lee County's preserves contain a diversity of plant communities that provide habitat for numerous plant and animal species. These preserves are not islands of habitat, but are pieces of a larger conservation effort striving to create or maintain a healthy and viable ecosystem. Ecosystem function information is located in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

Shoreline anchoring is the process by which the root systems of wetland vegetation stabilize soil at the water's edge and enhance the accretion of soil and/or peat at the shoreline. Dissipation of erosive forces is the process by which wetland vegetation diminishes the erosive impact on soil by waves, currents, and general water level fluctuations. These wetland functions protect both natural resources and man-made structures by inhibiting shoreline erosion and the creation of eroded sediments that can cause siltation of navigable waterway. Larger wetlands with extensive, persistent vegetation (e.g., forested wetlands) are probably the most effective at dissipating erosive forces (Scodari, 1990). The 2 acres of wetland hardwood forest provide this function with a forest of red (*Rhizophora mangle*), black (*Avicennia germinans*), and white mangroves (*Laguncularia racemosa*), and buttonwood (*Conocarpus erectus*), which dissipate wave energy and anchor soils with their intertwined root system. The sandy bay side of the Preserve is in need of shoreline anchoring plants to curb erosion.

Bowditch Point Preserve has 15.65 acres devoted to creating wildlife habitat that provides cover and food availability as well as specialized habitat needs such as coastal grasslands, standing snags, and fruit-bearing vegetation for the wildlife population. To prevent disturbances to wildlife no motorized vehicles or pets are allowed in the Preserve.

ii. Natural Plant Communities

The term "plant community" refers to the suite of floristic (plant) species that form the natural (i.e., native) vegetation of any place. In addition to anthropogenic influences, the combination of factors such as geologic, topographic and hydrologic assemblages, underlying soils, and climate determine the types of plants found in an area. These plants, in turn, determine the animal species that may be found there.

BPP consists of five native plant communities: beach dune, coastal grassland, coastal strand, mangrove swamp, and unconsolidated substrate. These plant communities are defined according to Florida Natural Areas Inventory (FNAI) Guide to the Natural Communities of Florida (2010). FNAI ranks natural areas as significant on a Global (G) or State (S) basis and numerically from one to five with one being critically imperiled

because of extreme rarity and five being demonstrably secure, although it may be quite rare in parts of its range (Appendix B).

Beach Dune

The northern most point of the Preserve as well as the western Gulf side of the Preserve consists of the largest section of beach dune community. Beach dune is characterized as a wind-deposited, foredune and wave-deposited upper beach that are sparsely to densely vegetated with pioneer species, especially sea oats (*Uniola paniculata*). Other pioneer species include beach cordgrass (*Spartina alterniflora*), sand spur (*Cenchrus incertus*), railroad vine (*Ipomoea pes-caprae*), beach morning glory (*Ipomea stolonifera*), and dune sunflower (*Helianthus debilis*). Beach dunes are very dynamic communities and mobile environments. The wind continually moves the sand inland from the beach until trapped by vegetation. This area is subject to drastic topographic alterations during winter storms and hurricanes. Intact beach dunes are essential for protection of inland biological communities and human infrastructure (Figure 6).

Coastal Grassland

In the northwestern section of the Preserve elevation increases slightly and coastal grassland exists, characterized by the gently undulating land scattered with small clumps of trees and shrubs. Typical plants include beach morning glory, sand spurs, prickly pear cactus (*Opuntia humifusa*), wax myrtle (*Myrica cerifera*), and groundsel bush (*Baccharis halimifolia*). Coastal grassland is a low flat area behind fore dunes that is found on broader barrier islands, capes, spits, and is best developed along the Gulf Coast, it may be flooded by salt water and covered with sand and debris during major storms.

If no major storms occur to renew the accretion process, coastal grasslands will often colonize into shrubs and trees and eventually may succeed to coastal strand or flatwoods (Figure 6).

Coastal Strand

Coastal strand is characterized as stabilized, wind-deposited coastal dunes that are vegetated with a dense thicket of salt-tolerant shrubs. This ecotonal community generally lies between beach dune and Coastal Grassland, as it does in the southwestern section of the Preserve. Shrubs subjected to this harsh environment are frequently dwarfed and pruned as a result of salt spray-laden winds that kill twigs on the seaward side of the vegetation. Typical plants include cabbage palm (*Sabal palmetto*), sea grape (*Coccoloba uvifera*), gray nickerbean (*Caesalpinia bonduc*), coin vine (*Dalbergia ecastophyllum*), necklace pod (*Sophora tomentosa*), and Spanish bayonet (*Yucca aloifolia*). Typical animals, although not all occurring at Bowditch Point Preserve include gopher tortoise (*Gopherus polyphemus*), six-lined racerunner (*Cnemidophorus sexlineatus*), and southern hognose snake (*Heterodon simus*). Coastal strand is probably the most rapidly

disappearing community in Florida because it is a desirable resort or residential property location (Figure 6).

Mangrove Swamp

The northeastern section of the Preserve along the waterway where the Gulf of Mexico meets San Carlos Bay is vegetated with red mangrove, black mangrove, white mangrove and buttonwood. Typically these species occur in zones defined by varying water level determined by land elevation. Red mangroves usually occupy the lowest zone along the shoreline and in the water; black mangrove the intermediate zone - a slight increase in land elevation; and white mangrove and buttonwood share the highest zone. On Fiddler Crab Bridge one can observe red, black, and white mangroves in the same zonal area.

Other plants associated with Tidal Swamps and seen in the park are glasswort (*Salicornia spp.*), sea purslane (*Sesuvium portulacastrum*), saltwort (*Batis maritima*), and sea oxeye (*Borrchia frutescens*).

Unconsolidated Substrates

Unconsolidated substrates are found in the sub-tidal regions surrounding tidal swamps. Bowditch Point Preserve supports healthy areas of subtidal, intertidal, and supratidal zones, which make up the unconsolidated substrate. The Preserve is subject to tropical storms and hurricanes.

Altered Landcover

Developed Areas

A total of 4.47 acres were developed into a recreation facility, which includes a parking area, restrooms, showers, deck with covered picnic areas, and grass areas with grills and picnic areas.

Restoration Natural Community

An estimated 4.72 acres have been treated for exotic pest plants and planted with native vegetation in the restoration area that was a former spoil area. This restoration area now inhabits a higher level of the gopher tortoise population noted at the Preserve.

Road

A total of 0.36 acres of paved roadway (Estero Blvd.) leads into BPP to bring visitors.

The condition of the plant communities at BPP is good. Invasive exotic plants are treated on a continuous basis. These areas will continue to be monitored and treated as needed

in the future for exotic pest plants. Volunteer workdays and designated coastal cleanups will help remove litter and trash as it washes in with the tides and storms.

Invasive exotics such as carrotwood (*Cupaniopsis anacardioides*), beach naupaka (*Scaevola sericea*), Brazilian pepper (*Schinus terebinthifolius*) and Guinea grass (*Panicum maximum*) are being treated and removed by staff. Contractors may be hired in the future for this work. Volunteer groups such as the Southwest Florida Division of the Parrotheads, a volunteer organization created by Florida musician Jimmy Buffett, create coastal cleanup days and Keep Lee County Beautiful Inc. organizes cleanups four times a year that aid in keeping the shoreline clean.

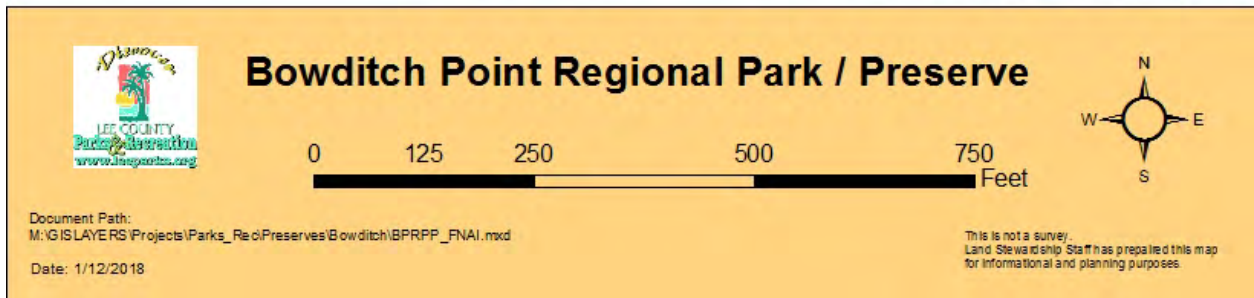
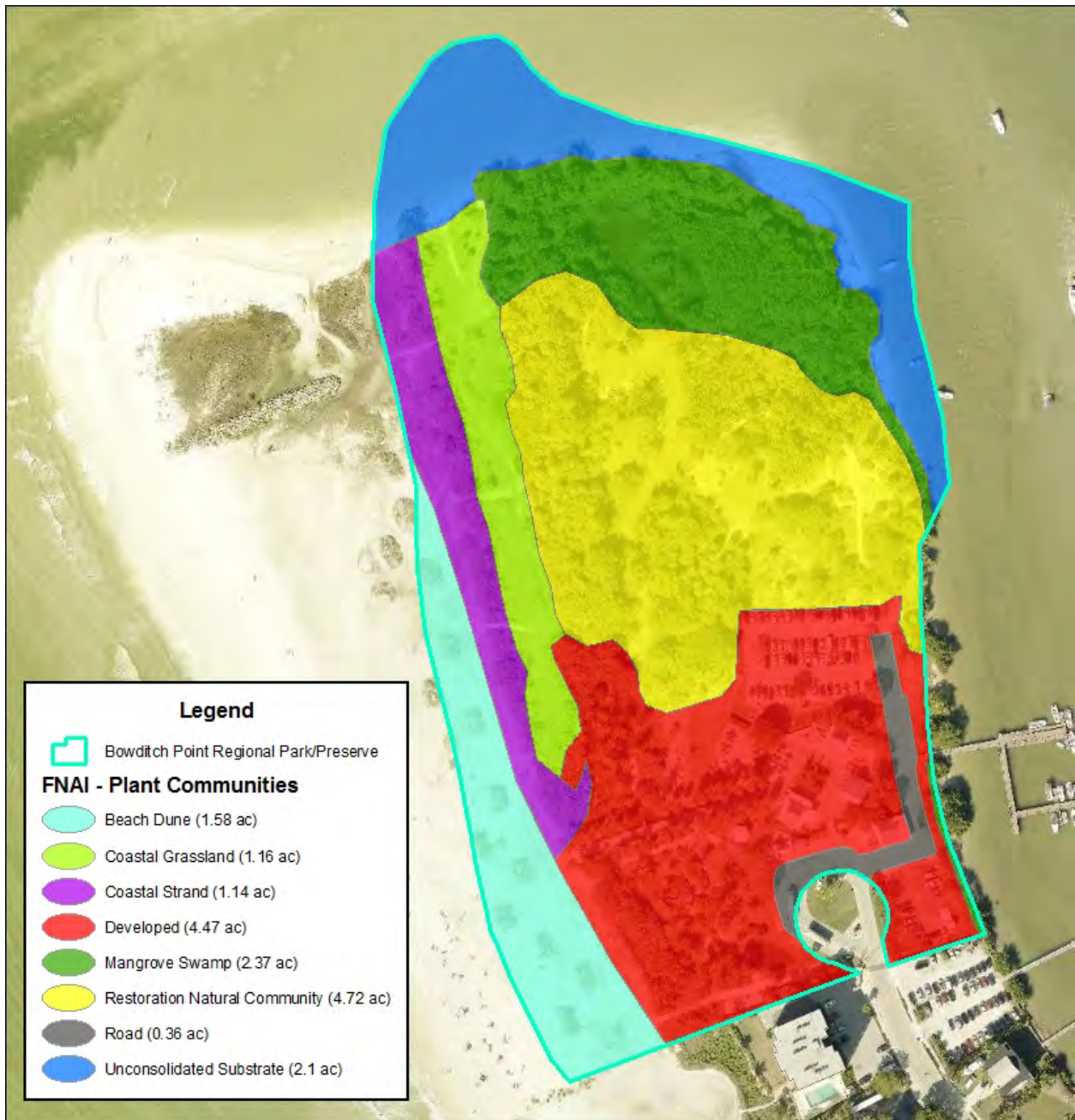
The plant communities are at maintenance level for invasive exotic vegetation since Lee County took possession. Cleanup events, Lee County staff, and volunteers keep this Preserve free of litter and exotic plants. An updated plant list can be found in the Appendix B section of this plan.

Plant community descriptions and further information is located in the Land Stewardship Operations Manual's (LSOM) Land Stewardship Plan Development and Supplemental Information section.

Table 3: Bowditch Point Preserve FNAI Plant Communities

Preserve Name	Native & Altered Plant Communities	Acres*	% of Preserve*
Bowditch Point Regional Park Preserve	Beach Dune	1.58	8.80
	Coastal Grassland	1.16	6.40
	Coastal Strand	1.14	6.40
	Mangrove Swamp	2.37	13.20
	Developed	4.47	25.00
	Road	0.36	1.80
	Restoration Natural Community	4.72	26.40
	Unconsolidated Substrates	2.15	12.00
* Due to rounding values, total acreages (and therefore percentages) may not equal the true acreage of BPP. These numbers are approximations.			

Figure 6: Plant Communities Map



iii. Fauna

Two types of tidal areas, salt marsh and mangrove fringe, are found in the Preserve.

Both are over wash marsh that occur on islands that are frequently inundated by tides and narrow fringe swamps located along waterways. These communities are significant in south Florida because they function as nursery grounds for most of the state's commercially and recreationally important fish and shellfish. The continuous shedding of mangrove leaves and other plant components produce as much as 80% of the total organic material available in the aquatic food web. These types of natural areas are breeding grounds for a substantial population of wading birds, shorebirds, and other animals. Breeding grounds have occurred on the white, open, sandy areas of the beach in past years.

Animals that rest, forage, or nest in the Preserve are gopher tortoise, brown pelican (*Pelecanus occidentalis*), osprey (*Pandion haliaetus*), bald eagle (*Haliaeetus leucocephalus*), raccoon (*Procyon lotor*), and a variety of wading birds. These include; snowy egret (*Egretta thula*), great blue heron (*Ardea herodias*), black-crowned night heron (*Nycticorax nycticorax*), white ibis (*Eudocimus albus*), green heron (*Butorides striatus*), and least tern (*Sterna antillarum*). A variety of plovers including the snowy (*Charadrius alexandrinus*) forage and have nested here.

Mangrove swamp grades into the coastal grassland and this area of the Preserve is located at a slightly higher elevation from the mangrove swamp area, providing good habitat and foraging area. Some of the wildlife that use this area are yellow rat snakes (*Elaphe obsoleta quadrivittata*), gray squirrel (*Sciurus carolinensis*), raccoon, opossum (*Didelphis virginiana*), and birds such as the pileated woodpecker (*Dryocopus pileatus*), northern cardinal (*Cardinalis cardinalis*), and blue jay (*Cyanocitta cristata*).

Coastal strand is located just behind the dune area with a slightly lower elevation than the coastal grassland. This area supports marsh rabbit (*Sylvilagus palustris*), butterflies, red shouldered-hawk (*Buteo lineatus*), American kestrel (*Falco sparverius*), and box turtle (*Terrapene carolina*).

Typical animals found in the beach dune area include ghost crabs (*Ocypode quadrata*), red-winged blackbird (*Agelaius phoeniceus*), and raccoon. Beach dune, especially along its ecotone with unvegetated beach, is also the primary nesting habitat for numerous shorebirds and marine turtles, including many rare and endangered species. Loggerhead turtles (*Caretta caretta*) have nested in the Preserve along with snowy plovers and least terns. Turtle nesting data are collected as a whole for Fort Myers Beach and not specific to the Preserve (www.turtletime.org).

A Wildlife Species List is found in Appendix C. The FNAI field reports for rare animal and plant species will be consulted and filled out if applicable, during site inspections. These can be found in the Land Stewardship Operations Manual on Lee County Parks and

Recreation Web site at www.leeparks.org under Natural Resources, Conservation 2020, and then Land Stewardship Operations Manual.

Additional general information about fauna on all preserves can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

iv. Designated Species

There are a variety of designated animal and plant species found in BPP and these species are listed in Appendix B and C. Although native plant and animal species found have some protection due to the preservation of the property, certain species need additional attention. For management purposes, all plants and animals listed (FWC), Florida Department of Agriculture and Consumer Services (FDACS), the Institute for Regional Conservation (IRC) and FNAI will be given special consideration. Additional natural history on these species and stewardship measures to protect them can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

Necessary management practices include the control of exotic pest plant communities, controlling marine debris and litter, wildlife monitoring and restoring native plant communities. Enforcement of unacceptable behavior, such as camping and fires, using vegetation for tents or tying off boats on mangroves and visitation by pets, will also protect the many species in these areas.

Gopher tortoises, a protected species, have been established on the west end of Estero Island for many years. Historically, the public would relocate tortoises from property to be developed, on or off the island, to the Preserve. Because of this, gopher tortoises have been relocated and monitored at the Preserve for over twelve years.

As of 2015, there were thirty-six burrows in the Preserve. Of these, 18 burrows have been confirmed as active. All of the burrows are now located in the previously disturbed land area. Burrows have been located in the coastal scrub area in the past, but those sites are now inactive.

Kelly Ussia, a Florida Gulf Coast University student, was an intern at the Preserve in 2015 and submitted a gopher tortoise study for her senior project. The results of this study can be found in the Appendix D section of the plan.

Continued exotic plant control and revegetation with plants eaten by gopher tortoises will encourage and support a healthy population. Education and informational signage will teach the public about the importance of protecting this animal.

Additional natural history information on this and other species in the plan and stewardship measures to protect them can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

v. Biological Diversity

Many species of birds, reptiles, invertebrates, fish, and mammals inhabit, forage, nest, or rest in Bowditch Point Preserve. At low tide, wading and shorebirds take advantage of the sand flats that are teeming with food. The mangrove canopy provides a roosting area for birds. Many species of fish either breed or spend some part of their juvenile life in the protection of the mangroves prop roots. The integrity and diversity of Bowditch Point Preserve and its associated waters must be protected when and where possible.

Management staff will perform the following actions in this regard:

- Control of invasive exotic vegetation and follow-up maintenance will provide suitable habitat for native wetland and terrestrial species.
- Removal of any debris and prevention of dumping on site will improve and protect water quality.
- Removal of hazardous debris such as monofilament line and other potential entrapment debris will also contribute to the quality of surrounding waters and protect wildlife species that use this area.
- On-going species surveys conducted by volunteers and staff will confirm and protect the diversity that is present.
- Provide educational opportunities for visitors and residents through interpretive signs, guided walks, and programs.

General information on biological diversity and measures used to help promote biological diversity can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

C. Cultural Resources

i. Archaeological Features

Bowditch Point Preserve is listed as surveyed and sited on the Lee County Archaeological Sensitivity Map (<http://leegis.leegov.com/gismaps.htm>). Site 8LL 778, known as Bowditch Point is listed in the Florida Master Site File as a general vicinity site located at the north end of Estero Island. However, this site was determined by Environmental Services and Permitting, Inc. of Gainesville to have been mistakenly reported (Appendix E). The original informant, Charles Nelson, did not recall reporting or knowing of the site, and subsurface testing by Environmental Services & Permitting, Inc. at the north end of Estero

Island did not identify any cultural material. The mounded material in this location are spoil piles from the dredging of the Matanzas Pass channel.

Observing the 1944 aerial photograph of Bowditch Point (Figure 7) makes it highly unlikely any material of archeological or historical significant was established at the point because this land did not exist until after 1953 (Figure 8).

General information on archaeological features in Lee County can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

ii. Land use History

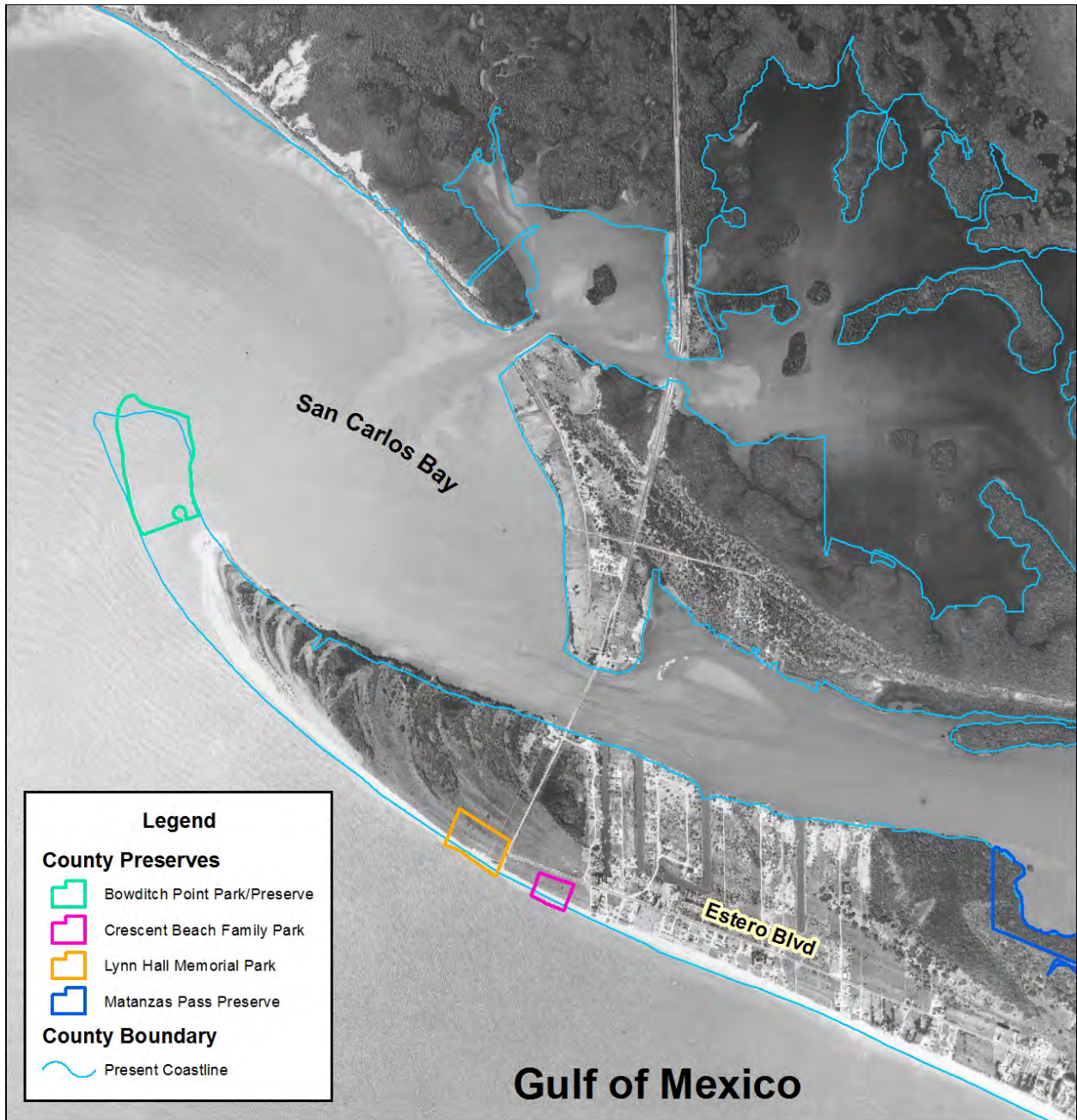
As seen in the 1944 aerial the area the Preserve now occupies had not accreted to its present day state until 1953, and prior to this time was under water (Figures 7 & 8). The historic references to the point would not include the land, as it is known today. Two historical books, one written in 1963 by Florence Fritz, *Unknown Florida*, and the other written in 1965 by Barrett and Adelaide Brown, *A Short History of Fort Myers Beach*, refer to the northwest end of the island as being the government lighthouse reservation, land owned by the government should a port be established. These two books suggest a lighthouse and shell mound existed at the point. If this is to be proven fact it would have to be accredited to land that was located farther south-closer to the bridge and not where the point is today. According to the Fritz book, James Bratt homesteaded the area in 1895 and Barron Collier acquired the north end of Fort Myers Beach in the 1930s. In the Brown's book it is stated that until 1951 the northwest part of the island from San Carlos Boulevard to Estero Pass (Matanzas Pass) at the tip was owned by the Collier Interest that included; Gasparilla Inn, Boca Grande's telephone, street lighting, and fire systems, Useppa Island Inn, and most of Punta Rassa and much of the lower coast.


Since 1944, the northwest end of Estero Island and the surrounding areas have gone through great changes as seen in the aerial photos taken in 1953, 1968 and 1998 (Figures 8, 9 & 10). Land adjacent to Bowditch Point Regional Park has been developed with roadways, home sites, and condominiums.

The 1968 aerial shows the groins in place to try and stop erosion and in the 1998 aerial you can see the forest of Australian pines, dark trees in the center, that once took up most of the west end of the park preserve. These aerials are compared to present day aerials that show the terminal groin that was added to collect sand after the most recent beach nourishment, along with dune plantings along the beach.

In the 1970s, the point was used to deposit the spoil from dredging the channel and a seawall was constructed for future development of the land. Since Lee County acquired the land in 1987, exotic pest plants have been managed, native plants have been planted, and park amenities have been added.


Figure 7. 1944 Aerial

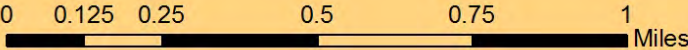




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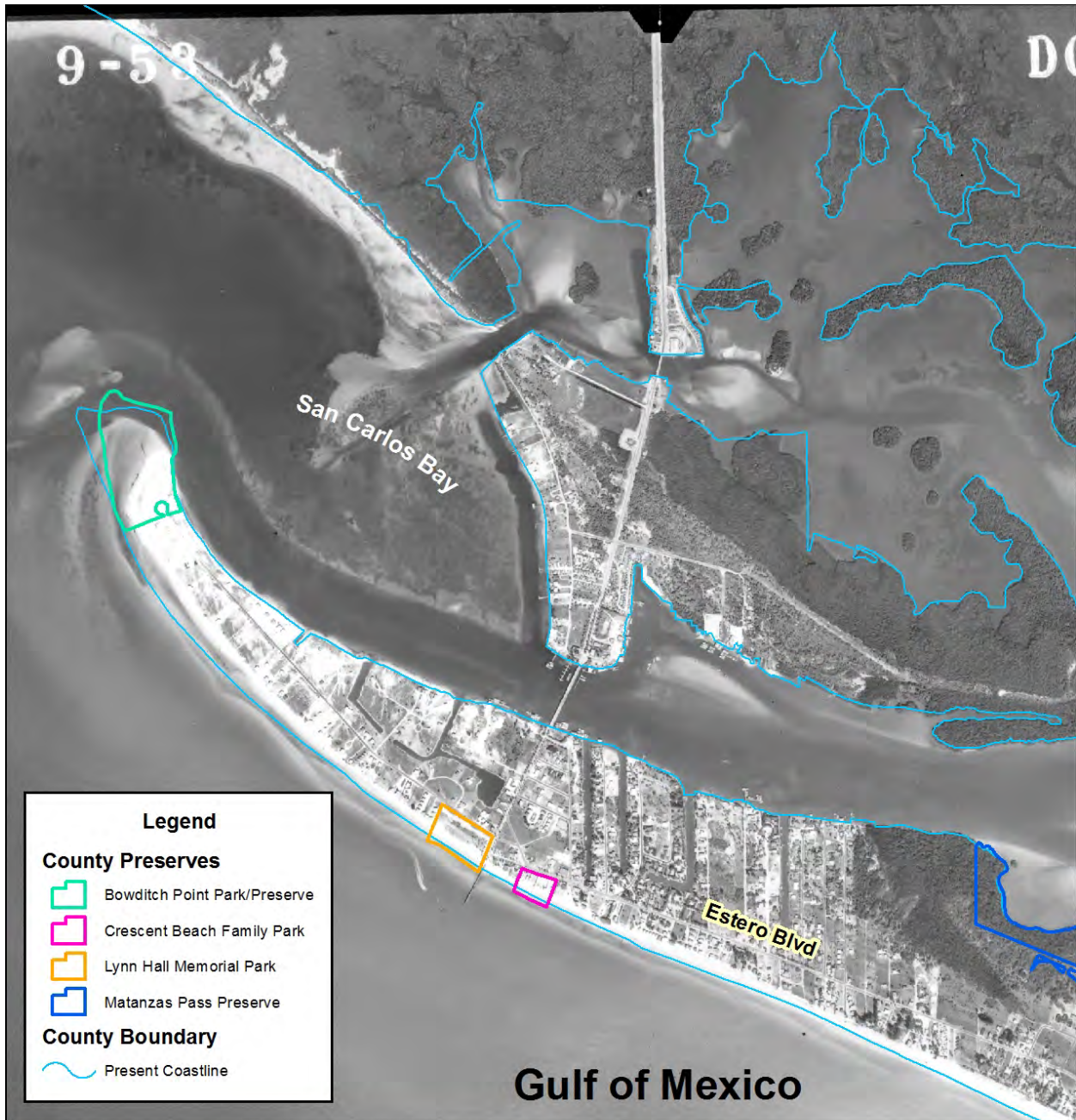
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Figure 8. 1953 Aerial

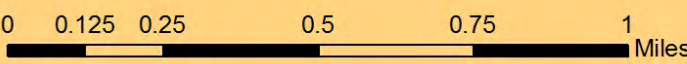




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Figure 9. 1968 Aerial Compared with 2016 Aerial

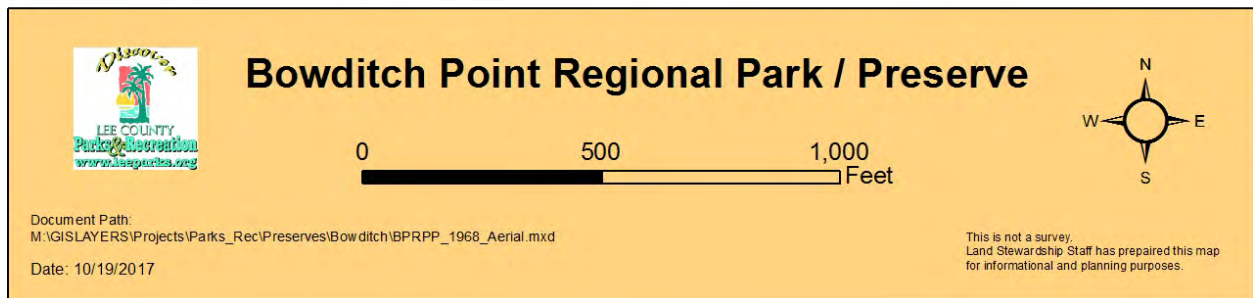



Figure 10. 1998 Aerial Compared with 2016 Aerial



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iii. Public Interest

Residents and visitors have used Bowditch Point Preserve for walking, shelling, sunbathing, swimming, fishing, and enjoying the sunset for many years. With the acquisition of the site by Lee County in 1987, these activities are guaranteed to remain a part of life on Fort Myers Beach.

The acquisition of this site was not without controversy. With the purchase option to expire on December 31, 1987, the funding for this site was not in place when the purchase was made. The Lee County Board of County Commissioners (BOCC) voted to purchase the property on December 15, 1987, preventing the property from becoming a 155-unit condominium development. To facilitate closing on the property by the deadline, the BOCC increased the capital budget in proposed bond revenues. The Board initially acquired Bowditch Point on December 22, 1987, by providing itself a short-term loan. In July 1988, ad valorem funds were used in place of the short-term loan. In February 1989, Bowditch Point was used as security for a bond issue.

A public planning meeting was held at Bay Oaks Community Center in July 1988 co-sponsored by Lee County Parks and Recreation and the Southwest Florida chapter of the American Society of Landscape Architects. For those in attendance the first order of business was to visit the point and to not limit ideas.

Parking and a desire to not develop the point commercially were topics of the workshop. Also supported was the retaining as much of the natural flavor as possible. A charter committee was formed to review a conceptual master plan that would be presented to the Board of County Commissioners August 17, 1988.

On May 31, 1989, the Board of County Commissioners approved the Professional services agreement with Herbert/Halback Inc. for the master planning through construction contract and public workshops were held at Bay Oaks Community Center in November 1989. On May 16, 1990, the Board approved a Supplemental Agreement that authorized detailed design of the park and its facilities.

Public and private school groups as well as private, government, and non-profit organizations use Bowditch Point Preserve as an outdoor classroom. Coastal geomorphology and ecology are effectively taught in this rare 17.9-acre area of beach dune, coastal grassland, coastal strand, and mangrove swamp on Estero Island.

With improved parking areas, an amphitheater, and rest rooms, Bowditch Point Preserve is a favorite beach stop for residents and visitors.

Information concerning this preserve and other Lee County managed conservation lands can be found on the website www.leegov.com/conservation2020.

V. Factors Influencing Management

A. Natural Trends and Disturbances

Natural trends influencing stewardship include hurricanes, drought, tropical storms, tidal flooding, and patterns of wet and dry seasons, freezes, bird migration and nesting seasons. Coastal grassland communities depend on occasional saltwater flooding to keep from transforming into a coastal strand community (FNAI 2010). High-intensity wind and long durations of standing salt water from tidal flooding or storm surge affects even salt-tolerant plant species by weakening or eventually killing them (Appendix F). Bird nesting and migration will be considered when events are planned or exotic pest plant control work is scheduled in the Preserve, to minimize disturbance to birds foraging, resting, feeding, and raising young.

Significant storms including Hurricane Charley in 2004 and Hurricane Irma in 2017 can and have caused damage to the vegetation in the Preserve with mortality and dieback of Jamaica dogwood, buttonwood, and sea grapes. If restoration needs to take place after a significant storm, plant community and site elevation will be taken into consideration. After flooding, low-lying areas of the Preserve are prone to hold salt water for a period of time. It is not unusual to have a storm tide wash over or high tide inundated the coastal areas of Bowditch Point Preserve and no precautions other than the removal of hazard trees needs to be taken.

B. Internal Influences

There are varieties of internal influences that affect Bowditch Point Preserve. Inappropriate public use, marine debris, visitor litter, and exotic pest plants. Use of the area was limited to pedestrians and boaters before Lee County acquired the site. The site was also used to deposit dredge spoil materials from the Matanzas Pass dredging project of 1970. Due to the disturbed area of the Preserve, exotic pest plants invaded the site. Control of exotic pest plants continues today along with constant debris maintenance, which is related to the use of passing boaters and visitors to the site. When applying any herbicide for invasive exotic plant removal, conservation land staff will follow the procedures described in the Land Stewardship Operations Manual. Once purchased and opened the Preserve was available to pedestrians, boaters, and individuals who obtained parking passes for the few original parking spaces. Lee County Parks and Recreation staff began the long process of exotic pest plant control. With the development of the beach-side boardwalk, deck, restrooms, and additional parking, a more diverse group of the public can enjoy this site. Visitors and residents require constant education and updating on the rules for the Lee County Park system. Confusion exists due to the contiguous beaches having differing rules regarding pets. The Town of Fort Myers Beach

allows leashed pets to walk on the beach, where Lee County Parks and Recreation allows dogs only at designated sites.

Conservation land staff has organized regular trash clean ups and has collaborated with volunteers, school groups, and Keep Lee County Beautiful Inc. to decrease litter.

An active boating community uses the shoreline of the Preserve and boating channel adjacent to the Preserve. Continual clean up of debris that washes up on the shore, including containers of cleaning solutions, oil, and paint collected before the pollutants leak into the waters will improve water quality.

Fishing is allowed in the Preserve, which could lead to problems with monofilament line litter. Monofilament line can cause injury and death to birds and other wildlife when tangled or ingested. Coordination with the Monofilament Recovery and Recycling Program (<http://fishinglinerecycling.org/>) to organize volunteer clean-up days and setting up recycling bins will help alleviate this problem.

Natural internal influences are the native plants and wildlife that need to be taken into consideration when any exotic plant or animal control will be exercised. A map of the gopher tortoise area is below and shows the area that is monitored where great care will be taken (Figure 11).

Visits by the Lee County Park Rangers, Lee County Maintenance staff, Lee County Parks and Recreation staff, and the Lee County Sheriff's Office, has improved the behavior of visitors in the Park.

C. External Influences


Bowditch Point Regional Park has two land-side neighbors, to the southwest is Pink Shell Vacation Villas consisting of individually owned condominiums, and to the southeast are the tennis courts and storage area of the Boykin Hotel Properties LP.

Concerns with the neighbors are beach rules conflicting with park rules (previously explained) and the policy of red drift algae raking. Private property owners may rake the beach in front of their property but not onto county owned-land. This situation will be monitored and if necessary, the use of signage and presentations/public workshops incorporating "When Nature is your Neighbor" and "Florida Yards and Neighborhoods" will be used to alleviate any problems.

The majority of the Preserve is surrounded by the Gulf of Mexico, San Carlos Bay and Matanzas Pass (Figure 12). Increased boating activity will likely occur as the population of Lee County continues to increase. Presently, one out of ten Lee County residents owns a power boat. With this comes the added problem of marine debris. Education and Keep Lee County Beautiful Inc., and school groups, will help control this problem.


Figure 11. Internal Influences Map






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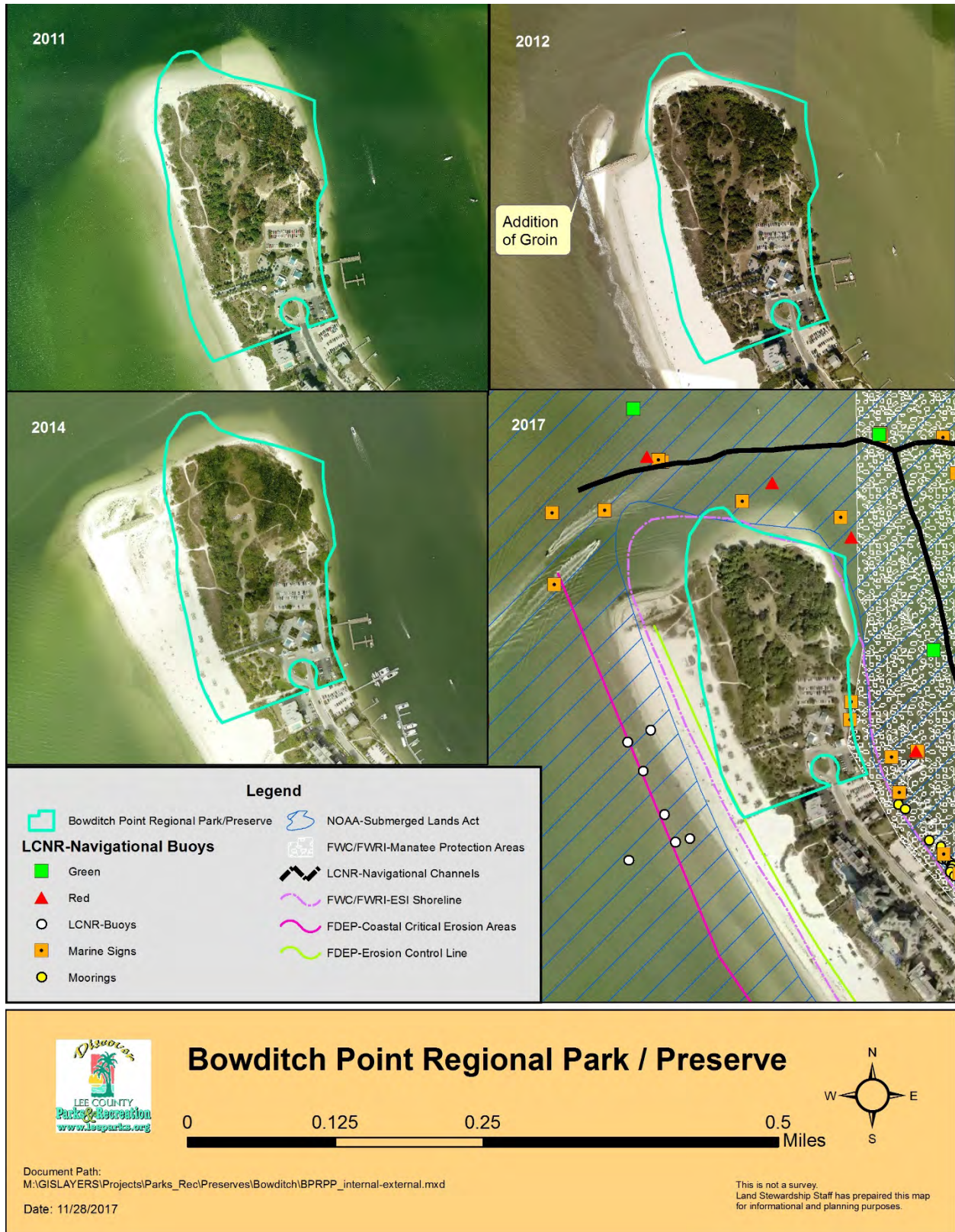


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Figure 12. External Influences Map



D. Legal Obligations and Constraints

i. Permitting

Lee County's Local Mitigation Strategy supports the efforts of the county to purchase environmentally sensitive areas in High Hazard Flood Zones (Storm Surge-Coastal; Appendix F). It also supports natural resource protection activities that preserve or maintain natural areas through restoration and nourishment. The management of BPP implements this strategy. If construction were to be considered in the Preserve, required permits would need to be obtained from various agencies.

ii. Other Legal Constraints

The 1996 Florida Statutes Mangrove Trimming and Preservation Act (Sections 403.9321 - 403.9333) applies to all mangrove cutting and trimming and will be followed when trimming trails in the wet primitive areas.

iii. Relationship to Other Plans

The Lee Plan is designed to depict Lee County, as it will appear in the year 2030. Given the projected increase in population (to 979,000 permanent residents with additional 18% seasonal residents) and the probable rate of technological change between the present date and 2030, it is impossible to describe the future face of the County with any degree of certainty or precision. However, the following list of themes will be of great importance as Lee County approaches the planning horizon:

- The growth patterns of the County will continue to be dictated by a Future Land Use (FLU) map that will not change dramatically during the time frame of this plan. With the exception of Cape Coral and Lehigh Acres, the County's urban areas will be essentially built out by 2030 (pending in some cases, redevelopment). The County will attempt to maintain the clear distinction between urban and rural areas that characterizes this plan. Its success will depend on two things: the continuing viability of agricultural uses and the amount of publicly owned land in outlying areas.
- The County will protect its natural resource base in order to maintain a high quality of life for its residents and visitors. This will be accomplished through an aggressive public land acquisition program and by maintaining and enforcing cost-effective land use and environmental regulations that supplement federal, state and regional regulatory programs.
- The County's traditional economic base will be diversified in order to increase the percentage of high-paying jobs, reduce tax burdens on residents and enhance the stability of the community. Traditional industries, such as agriculture, commercial

fishing, tourism, and construction, will continue to play a significant role in the County's economy, but will become less important in relation to new business opportunities afforded by the expanded international airport and the new university.

- Cultural, educational, and recreational opportunities will expand dramatically as the result of the County's increased urbanization.
- Increased urbanization will require a commensurate investment in the County's physical and social infrastructure. Public facilities will be maintained at adequate levels of service, partly by the construction of new facilities and partly by the use of new methods to conserve the capacity of existing facilities. Social problems, including, but not limited to crime and illegal drug use, will be addressed primarily by early intervention and programs designed to eliminate their root causes.

The Lee Plan's land use accommodation is based on an aggregation of allocations for 22 Planning Communities. These communities have been designed to capture the unique character of each of these areas of the County. Within each community, smaller neighborhood communities may exist; however, due to their geographic size, a planning community could not be created based on its boundaries. BPP falls within the Fort Myers Beach Planning Community.

The entire Lee Plan can be found on the internet at: <http://www.leegov.com/dcd/Documents/Planning/LeePlan/Leeplan.pdf>

The sections of the Lee Plan which may pertain to Preserve areas has been identified in the LSOM.

The two chapters of the Lee Plan that affect the management of BPP are Chapter V Parks, Recreation and Open Space and Chapter VII, Conservation and Coastal Management.

Staff will work to provide, whenever staffing and funding permit, appropriate environmental programs to the public in order to meet Goal 86: Environmental and Historic Programs.

Under Chapter VII, Goal 107: Resource Protection within Objective 107.1: Environmentally Critical Areas, Lee County Conservation Lands Staff has the responsibility to conserve and enhance the natural functions of environmentally critical lands, such as the wetland habitats found within these Preserves.

Objective 107.2: Plant Communities, states Lee County will protect, maintain and routinely update an inventory of native plant communities.

Objective 107.3: Wildlife, states that Lee County has a responsibility to maintain and enhance the fish and wildlife diversity for the benefit of a balanced ecological system.

Within Objective 106.1: Coastal High Hazard Area Expenditures, Policy 106.1.1, describes the need to seek approval from the County Commission for the use of public

funds in a Coastal High Hazard Area, in which Bowditch Point Preserve is located, for the development of public use facilities.

Because Bowditch Point Preserve is also located in the Town of Fort Myers Beach, their jurisdictional codes will need to be taken into consideration, should any changes be made to the Preserve.

E. Management Constraints and Coordination

The main constraints to management of the Preserve are funding and staffing. Coordinating with other agencies and adjacent landowners will be an important part of managing the Preserve.

F. Public Access and Resource-Based Recreation

The public has used the estimated 18 acre Bowditch Point Regional Park Preserve area for over 60 years, as shown in the 1944 aerial (Figure 7), at least the area known as the short end. These uses include walking, swimming, picnicking, and fishing to name a few. For historic use of the Preserve, see the Land Use History and Public Interest section of this plan.

Public use of this Preserve will always need to be monitored and controlled to ensure that it does not interfere with the health of the ecosystem or the wildlife that use this beach and mangrove habitat. Staff will make sure that the public is complying with Lee County Parks and Recreation's rules as well as educating visitors about the Preserve and what makes it such a unique and important area. The environmental education programs offered each year will also be important for educating visitors and instilling respect for the resources while enjoying the Park Preserve.

The Preserve is highlight number 2 on the Estero Bay portion of The Great Calusa Blueway. Lee County's paddling trail that provides an ecological tour of the bays, rivers, backwaters and shorelines of Southwest Florida. Information on this canoe/kayak trail can be found at www.greatcalusablueway.com and a map of the Estero Bay portion of this trail is located in Appendix G.

Existing improvements to the property are primitive hiking trails with a bridge through a mangrove area that meanders down to the beach and leads to a rest area over looking the bay. The trails provide enjoyable hiking, as well as wildlife viewing, fishing spots, and photography. The Preserve also has picnic areas, a trolley stop, informational kiosk, restrooms with changing areas, an outdoor shower, and two butterfly gardens. The concrete path leads to a Mobi mat (semi-ridged ground surface material) for easier access to the beach. This path runs parallel to the boardwalk that leads to the beach and upper deck patio. There is an area on the east side of the parking lot to land and launch paddle

craft. Guest wishing to launch must park their vehicle first so as not to block traffic, in this tight one-way driving parking lot (Figure 13).

Future improvement to the trails in the Preserve side of the Park will be unlikely due to the frequency of flooding in these areas. Because of limited geographic space, it is unlikely that there will be future improvements to the parking area or the amenities in place today, other than updating.

The Master Site Plan for BPP (Figure 13) displays other existing improvements such as the amphitheater, the overlook on the bay, and parking. There are 63 paid parking areas with three being ADA in addition to the 14 parking spaces in the staff parking area. The staff parking area includes spaces for personal cars, county vehicles and a tractor. Parking in the public area is on a first come first served basis because of the limited guest parking. This, at times, creates a traffic jam and a need to close the parking area until spaces become available.

The day dock on the bay side of the Preserve is accessible for small boat docking from 8:00am until ½ hour past sunset and is frequently used. There is no fishing from this dock.

Access to BPP can be achieved by foot, bike, car, boat, Beach Trolley and paddle craft. The cul-de-sac located adjacent to BPP is a trolley stop for the Ft. Myers Beach Trolley and brings many guest to the site.

The challenge of providing a positive experience for visitors, while protecting the fragile ecosystem of the Preserve is the focus for county staff.

Figure 13. Public Amenities/ Master Site Plan Map

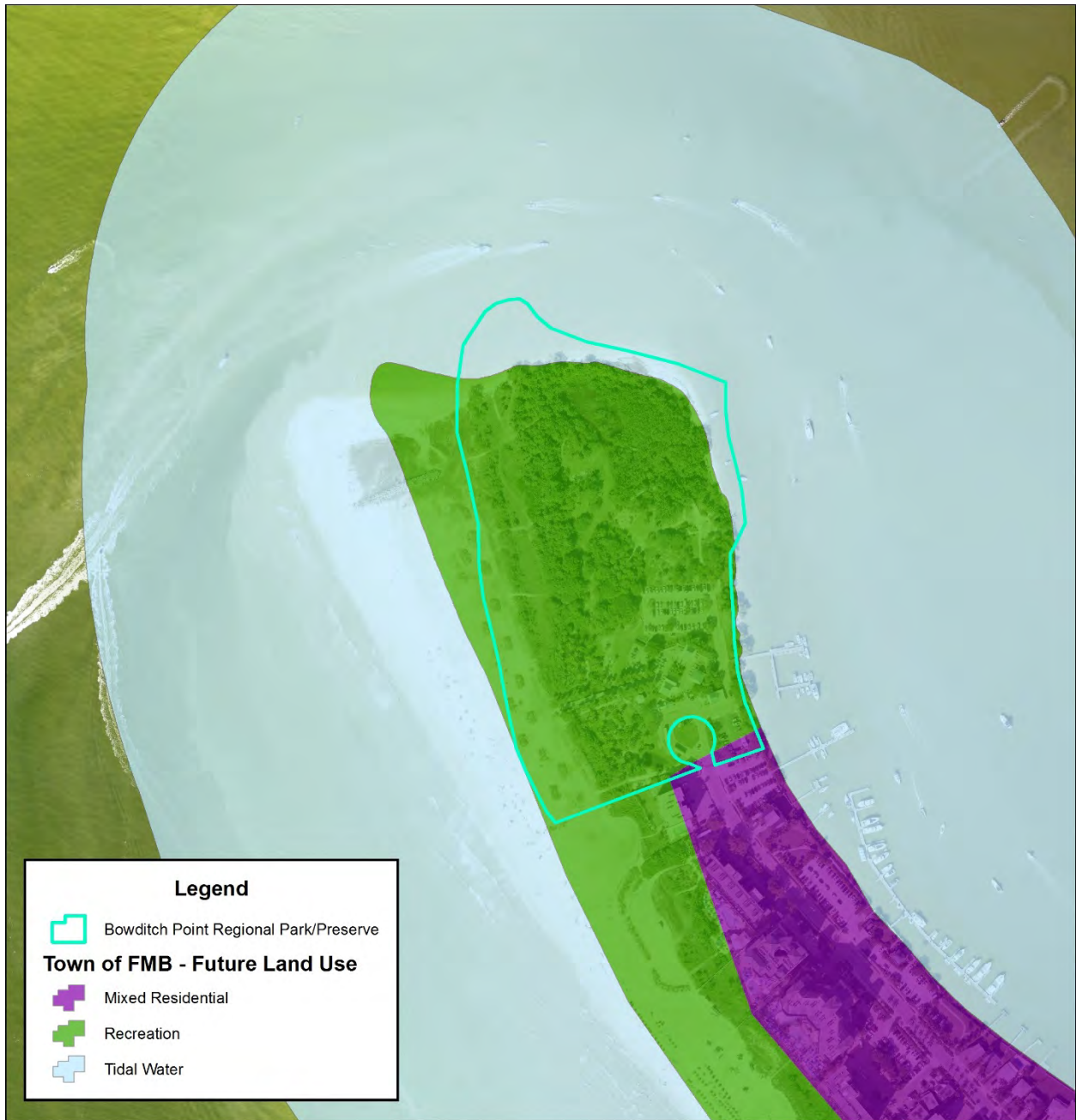



In 1987, the Lee County Board of County Commissioners obtained an option to purchase the estimated 17-acre north end of Ft. Myers Beach, Bowditch Point for \$5,750,000. The Board's decision on the source of funding for this acquisition was a very confusing process that took eight months. This option was to expire on December 31, 1987. In November 1987, the Board was informed the owner had received another offer that he would accept if the County did not exercise its option by the deadline. To facilitate closing on the property by the deadline the Board increased the capital budget by \$6,500,000 in proposed bond revenues. This represented the acquisition price of \$100,000 to begin design and the associated bond cost. In essence, the Board loaned itself the money for acquisition from funds budgeted to other projects that would not be funded during a specific timeframe. Bowditch Point was assigned a residential density of 155 units as well as direct access to Estero Boulevard and more than 1,000 feet of Gulf of Mexico beachfront. The Lee County Board of County Commissioners purchase took place December 22, 1987 and kept this parcel of land from being developed into homes or condominiums. In July 1988, ad valorem funds were used in place of the short-term loan.

Today, Bowditch Point Regional Park and Preserve is under one STRAP number, 24-46-23-W1-0080D.0400 with a Future Land Use designation by the Town of Ft. Myers Beach as Recreational (Figure 14). The Town of Ft. Myers Beach, with two different zonings for the Preserve, designates zoning. One zone is for the parking area and facilities and is zoned CF, Community Facilities. The picnic area, beach and preserve are zoned EC, Environmentally Critical (Figure 15).


The legal description for Bowditch Point Preserve can be found in the Deed located in Appendix A.

Figure 14. Future Land Use Map



 **Bowditch Point Regional Park / Preserve**

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Figure 15. Zoning and STRAP Map



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VI. Management Action Plan

A. Management Unit Descriptions

Bowditch Point Regional Park and Preserve has been divided into six management units to better organize and achieve management goals. BPRPP consists of five native plant communities: beach dune, coastal grassland, coastal strand, mangrove swamp, and unconsolidated substrate. These plant communities are defined according to Florida Natural Areas Inventory (FNAI) Guide to the Natural Communities of Florida (2010) and were used to delineate the six management units, which were created based on habitat type, management needs, and restoration required (Figure 16).

Management Unit #1 consists of 3.20 acres of beach area that runs along most of the Preserve. The most eastern part of this unit also has a mangrove fringe. The beach is the area used most by visitors and residents. Because this beach area is subject to foot and boat traffic, it is heavily impacted by marine debris, storm and tidal surges, and erosion.

Management Unit #2 consists of 4.33 acres of coastal scrub and includes trails to the Gulf-side beach and the point with a view of Sanibel Island and San Carlos Bay-Bunche Beach Preserve. Exotic pest plants are at a maintenance level in this unit.

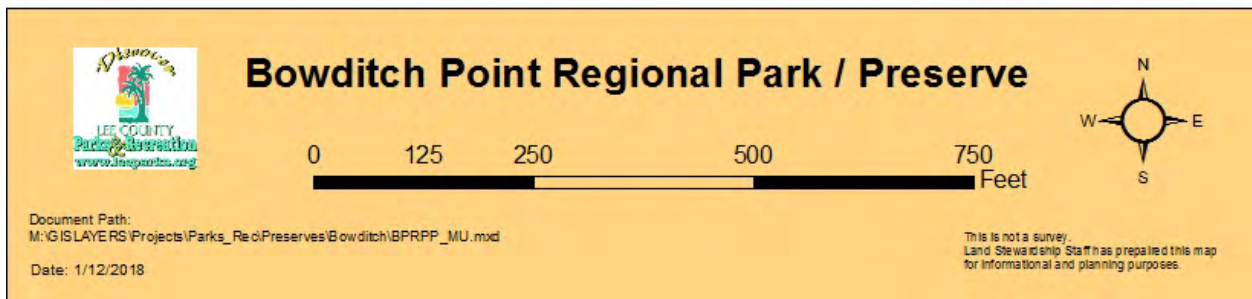
Management Unit #3 consists of 2.06 acres and includes a mangrove swamp with a walking bridge through the mangrove swamp as part of the trail. This area is tidally influenced and exotic pest plants are minimal and at a maintenance level in this unit.

Management Unit #4 consists of 4.47 acres of previously disturbed land. This is the site of the 1970 spoil piles from the dredging project in Matanzas Pass that has created the highest point in the Preserve. This area is inhabited by a gopher tortoise population and was heavily impacted by exotic pest plants. This unit is at maintenance level for exotic plants and has been restored with native vegetation.

Management Unit #5 consists of 2.15 acres of the parking area and community recreation facilities, which includes rest rooms, outside showers, picnic areas, upper and lower patio, staff workshop and offices.

Management Unit #6 consists of 1.71 acres that includes trails, picnic areas, and the boardwalk to the beach. This area needs to be monitored for exotic pest plants and is at management level (Figure 16).

Figure 16. Management Units Map



B. Management Work to Date

Focus for the last ten years at the Preserve has been to control the exotic plant population and achieve a maintenance level of control. This has been accomplished and continued success will be guaranteed with quarterly inspections and treatment.

Guided nature walks were created and continue twice a week during the winter season.

Photo points have been established and will be taken every five years to note changes in the landscape, amenities, animal population and erosional issues (Appendix H).

Continued partnerships with volunteer groups will help to insure marine debris is kept under control through frequent cleanups.

C. Goals and Strategies

The following are the on-going and long-term goals for the Preserve.

Natural Resource Management

- Exotic plant control and maintenance
- Monitor and protect listed species
- Photo point monitoring
- Exotic and feral animal removal

Overall Protection

- Debris removal and prevention of dumping

Public Use

- Public access and maintenance
- Educational sign installation
- Guided nature walks

Volunteers

- Assist volunteer and nonprofit group(s) to either have special event clean ups or staff generated clean ups at the Preserve.

The following is a description of how each of these goals will be implemented, the success criteria used to measure accomplishments of each goal and a projected timetable outlining the management units in which each activity will take place.

Natural Resource Management

Exotic plant control and maintenance

The most current FLEPPC “List of Invasive Species” will be consulted in determining the invasive exotic plants to be controlled in each MU. The goal is to continue to control these exotic species by conducting quarterly or “as needed” treatments of exotic plant regrowth and initial treatments of newly discovered species. This goal will maintain the entire preserve at a maintenance level of exotic species, defined as having less than 5% invasive exotic plant coverage.

Monitor and protect listed species

As discussed in the Designated Species section, there are listed species that have been documented on the preserve including gopher tortoises and tricolored herons. These species will benefit from restoration activities, such as exotic plant control activities. During management activities, efforts will be made to minimize any negative impact to listed species. Specific examples of this will include treatments near gopher tortoise burrows in cooler months when tortoises are less active and avoid or relocate listed plant species found on the preserve.

The Preserve is part of a countywide tri-annual site inspection program conducted for all Preserves. The site inspection spreadsheet is available on the LCPR’s computer server (“S” drive). These inspections allow staff to monitor for impacts and/or changes on the site and to update lists of animal sightings and plant species. If, during these inspections, staff finds FNAI listed species not previously documented, they will be reported using the appropriate forms.

Photo point monitoring

Nine photo points (PPs) have been established (Appendix H). The PPs were created to monitor landscape changes and erosion points at the Preserve. Additional photos have been taken of the facilities to determine wear. Photos will be taken at least every five year to monitor changes.

Exotic and feral animal removal

The exotic animal species recorded at the Preserve are feral cats. Great care has been taken to trap the cats through the years. At times it seems like the problem has been taken care of then another cat will appear. As residents vacation or leave the area, cats are left behind. This condition will need to be monitored at all times.

FWC’s Feral and Free Ranging Cats policy is *“To protect native wildlife from predation, disease, and other impacts presented by feral and free-ranging cats”* (FWC 2003). Any feral cats will be trapped and taken to Lee County Animal Services. Staff will continue to

work with the Animal Services staff to prevent establishment of feral cat colonies adjacent to preserves.

Overall Protection

Upkeep and replacement of boundary signs and ordinances/rules signage is required to delineate property boundaries and to assist with law enforcement measures.

Continued partnerships with other organizations, volunteers and volunteer groups to control marine debris along with ongoing effort to prevent dumping.

Public Use

Public access and maintenance

Amenities discussed in the Public Access and Resource-Based Recreation section of this plan include primitive hiking trails with a bridge through a mangrove area. The trails provide enjoyable hiking, as well as wildlife viewing, fishing spots, and photography. The Park area has picnic tables, a trolley stop, informational kiosk, restrooms with changing areas, an outdoor shower, and two butterfly gardens. The concrete path leads to a Mobi mat (semi-ridged ground surface material) for easier access to the beach. This path runs parallel to the boardwalk that leads to the beach and upper deck patio. There is an area on the east side of the parking lot to land and launch paddle craft. Maintenance for the Preserve including trail trimming, plantings and tree maintenance will be coordinated with the facility staff.

Educational sign installation

Keeping up educational information for residents and visitors will be a continued effort as signs age and new information becomes available. A gopher tortoise education / protection sign is currently in the planning stage.

Guided nature walks

Seasonal guided walks will continue to be supported at the Preserve.

Volunteers

The LSOM identifies the Land Management Volunteer Program's mission statement as:

"To aid in the management and preservation of Lee County resource-based public parks and preserves and to provide volunteers with rewarding experiences in nature."

Staff will continue to work with volunteer groups and to assist with the many diverse stewardship activities that will be associated with this Preserve such as trail maintenance, trash removal, wildlife monitoring, and other land management projects. Seasonal guided naturalist walks occur weekly and are led by trained volunteers.

VII. Projected Timetable for Implementation

The following timetable is based on obtaining necessary funding for numerous land management projects. Implementation of these goals may be delayed due to changes in staff, extreme weather conditions, or a change in priorities on properties managed by Lee County. Details on each management activity are found in the Management Action Plan section.

Table 4: Projected Timetable for Implementation

Management Activity	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Natural Resource Management											
Exotic Species Control											
Contracted Plant Treatments			X			X			X		
In-house Plant Treatments	On-Going	→	→	→	→	→	→	→	→	→	→
Exotic/Feral Animal Removal	Conducted as needed, monitoring on-going										
Monitor & Protect Listed Species											
Conduct tri-annual inspection	On-Going	→	→	→	→	→	→	→	→	→	→
Photo Point Monitoring	On-Going				X					X	
Overall Protection											
Debris Removal & Prevent Dumping	On-Going	→	→	→	→	→	→	→	→	→	→
Boundary & Ordinance/Rules Sign Maintenance	On-Going	→	→	→	→	→	→	→	→	→	→
Public Use (Maintenance and Guided Walks by Park Staff and Volunteers)											
Public Access Maintenance	On-Going	→	→	→	→	→	→	→	→	→	→
Interpretive Sign Maintenance	On-Going	→	→	→	→	→	→	→	→	→	→
Guided Nature Walks	On-Going	→	→	→	→	→	→	→	→	→	→
Volunteers											
Assist Volunteer Groups	On-Going	→	→	→	→	→	→	→	→	→	→

VIII. Financial Consideration

A. Funding

Funding sources will be investigated and applications will be made for appropriate grants or other sources of funding such as FWC's Invasive Plant Management Section for exotic control projects. Expended and Projected Costs and Funding Sources are listed in Appendix I.

B. Staffing

Maintenance for the Preserve is divided into operations and land management; both are located in the Department of Parks and Recreation. Conservation Lands management section is responsible for the management of the natural resources on all Preserves, and tasks include; conservation and restoration of biological communities, which includes:

- exotic plant removal and monitoring
- debris removal
- forming partnerships with other agencies and neighbors
- establishing volunteer programs
- protecting water resources
- ensuring appropriate compatible public access are maintained
- environmental educational programs
- response to public

Conservation Lands staff from other Preserves will be available to assist with management from time to time.

LCPR operations staff is responsible for taking care of daily public uses such as trash and litter collection, oversight of boardwalk, vegetation, and facilities. Partnerships with the Florida Department of Environmental Protection (FDEP) and Keep Lee County Beautiful will be important to aid in the marine debris problem.

IX. Literature Cited

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X. Appendices

- A. December 1987, Fee Simple Deed between Norman L. Randall, Jr. and Charlotte MacMillan and Lee County, a political subdivision of the State of Florida
- B. Plant Sightings for Bowditch Point Regional Park Preserve
- C. Wildlife Sightings for Bowditch Point Regional Park Preserve
- D. Gopher Tortoise Study
- E. Erroneous Florida Master Site File
- F. Storm Surge-Coastal High Hazard Map
- G. Great Calusa Blueway Map
- H. 2017 Photo Points
- I. Expended and Projected Costs and Funding Sources Tables

Appendix A: December 1987, Fee Simple Deed between Norman L. Randall, Jr. and Charlotte MacMillan and Lee County a political subdivision of the State of Florida

10.50 ac.
31,635.00 Δ Δ Δ
31,635.38

OFF REC 1961 PG 2851

FEE SIMPLE DEED

2384839

THIS INDENTURE,

Made this 18th day of DECEMBER, A.D., 1987, BETWEEN:

NORMAN L. RANDALL, JR. and CHARLOTTE MacMILLAN, of the County of Lee, in the State of Florida, party of the first part,

and

LEE COUNTY, a political subdivision of the State of Florida, whose correct mailing address is Post Office Box 398, Fort Myers, Florida 33902-0398, of the County of Lee, in the State of Florida, party of the second part,

WITNESSETH that the said party of the first part, for and in consideration of the sum of Ten Dollars and other valuable considerations to him in hand paid by the said party of the second part, the receipt whereof is hereby acknowledged, has granted, bargained, sold, and transferred, and by these presents does grant, bargain, sell and transfer unto the said party of the second part all that certain parcel of land lying and being in the County of Lee, and State of Florida, more particularly described as follows:

All that part of ISLAND SHORES CLUB SECTION, according to plat thereof recorded in Plat Book 9, Page 41, Public Records of Lee County, Florida, together with all lands accreted thereto, lying Northwesterly of a line described as follows:

From the intersection of the line common to Lots 39 and 40 of Block D of said subdivision with the waters of Matanzas Pass, run Southwesterly along said common line to its intersection with the Northeasterly line of Block F of said subdivision; thence continue in a straight line across said Block F to the intersection of the Southwesterly line of said Block F with the line common to Lots 44 and 45 of the unnumbered block in said subdivision; thence Southwesterly along said line common to said Lots 44 and 45 to the waters of the Gulf of Mexico and the end of said line, containing approximately 14.5 acres more or less at this time.

EXCEPTING the turnaround previously deeded to Lee County, Florida described as 60' radius whose center lies between lots 40 and 50.

SUBJECT TO easements, restrictions and reservations of record and taxes for the calendar year 1987 and all subsequent years.

SAID PROPERTY is vacant and unimproved and does not constitute the homestead of either of the Grantors.

TOGETHER with all the tenements, hereditaments and appurtenances, with every privilege, right, title, interest and estate, dower and right of dower, reversion, remainder and easement thereto belonging or in anywise appertaining:

WILLIAM L. STEWART
P. O. Box 700
Fort Myers, Florida 33902

RECORD VERIFIED - CHARLIE GREEN, CLERK
BY J. TURNER, DC

3162550
Lee County, Florida
3162550
Lee County, Florida

TO HAVE AND TO HOLD the same in fee simple forever.

IN WITNESS WHEREOF, the said party of the first part has hereunto set his hand and seal the day and year first above written.

Signed, Sealed and Delivered in the Presence of:

RECORDED & RETURNED VERIFIED
2:42 PM '87
DEC 30
CLERK OF SUPERIOR COURT
JAMES H. SMITH, JR.

[Signature]
[Signature]

Norman L. Randall, Jr. (Seal)
NORMAN L. RANDALL, JR.

Judith L. Smith
Ray W. Woodling

Charlotte Macmillan (Seal)
CHARLOTTE MacMILLAN

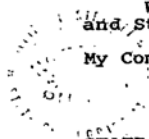
STATE OF FLORIDA
COUNTY OF LEE

I HEREBY CERTIFY That on this day personally appeared before me, an officer duly authorized to administer oaths and take acknowledgments, NORMAN L. RANDALL, JR., to me well known and known to me to be the individual described in and who executed the foregoing deed, and he acknowledged before me that he executed the same freely and voluntarily for the purposes therein expressed.

WITNESS my hand and official seal at Fort Myers, said County and State, this 22nd day of DECEMBER, A.D., 1987.

My Commission Expires: 2/11/89

[Signature]
Notary Public (SEAL)



STATE OF WASHINGTON
COUNTY OF KING

I HEREBY CERTIFY That on this day personally appeared before me, an officer duly authorized to administer oaths and take acknowledgments, CHARLOTTE MacMILLAN, to me well known and known to me to be the individual described in and who executed the foregoing deed, and she acknowledged before me that she executed the same freely and voluntarily for the purposes therein expressed.

WITNESS my hand and official seal at Seattle, said County and State, this 18th day of DECEMBER, A.D., 1987.

My Commission Expires: 5/2/91

[Signature]
Notary Public (SEAL)



Appendix B: Plant Sightings for Bowditch Point Regional Park Preserve

Scientific names for this list were obtained from Wunderlin & Hansen 2003&2015 Atlas of Florida Vascular Plants /florida.plantatlas.usf.edu

Family	Scientific Name	Common Name	FDACS	FNAI	IRC	EPPC
Gymnosperms						
Araucariaceae						
Pinaceae (pine)						
65	<i>Pinus elliotii</i>	Slash pine (planted)				
Zamiaceae (zamia)						
66	<i>Zamia pumila</i>	Florida arrowroot-coontie				
Monocotyledons						
Amaryllidaceae (amaryllis)						
75	<i>Hymenocallis latifolia</i>	Mangrove spiderlily				
Arecaceae (palm)						
84	<i>Cocos nucifera</i>	Coconut palm				
86	<i>Sabal palmetto</i>	Cabbage palm				
86	<i>Serenoa repens</i>	Saw palmetto				
Commelinaceae (spiderwort)						
93	<i>Commelina diffusa</i>	Common dayflower				
93	<i>Commelina erecta</i>	Whitemouth dayflower				
Cyperaceae (sedge)						
111	<i>Cyperus ligularis</i>	Swamp flat sedge				
112	<i>Cyperus odoratus</i>	Fragrant flatsedge				
112	<i>Cyperus rotundus</i>	Nutgrass				II
117	<i>Fimbristylis cymosa</i>	Hurricanegrass				
124	<i>Rhynchospora colorata</i>	Star rush				
Orchidaceae (orchid)						
159	<i>Oeceoclades maculata</i>	Monk orchid				
Poaceae (grass)						
178	<i>Andropogon glomeratus</i> var. <i>pumilus</i>	Bushy bluestem				
179	<i>Andropogon virginicus</i>	Broomsedge bluestem				
182	<i>Aristida patula</i>	Tall threeawn				
182	<i>Aristida purpurascens</i>	Arrowfeather threeawn				
187	<i>Cenchrus spinifex</i>	Coastal sandbur				
190	<i>Cynodon dactylon</i>	Bermudagrass				
190	<i>Dactyloctenium aegyptium</i>	Durban crowfootgrass				II
198	<i>Distichlis spicata</i>	Saltgrass				
212	<i>Panicum maximum</i>	Guineagrass				II
216	<i>Paspalum vaginatum</i>	Seashore paspalum				
222	<i>Schizachyrium scoparium</i> var. <i>littoral</i>	Little bluestem				
225	<i>Spartina alterniflora</i>	Saltmarsh cordgrass				
225	<i>Spartina patens</i>	Saltmeadow cordgrass				
227	<i>Sporobolus virginicus</i>	Seashore dropseed				
227	<i>Stenotaphrum secundatum</i>	St. Augustinegrass				
229	<i>Tripsacum dactyloides</i>	Facahatchee grass				
229	<i>Uniola paniculata</i>	Sea oats				
Dicotyledons						
Aizoaceae (mesembryanthemum)						
252	<i>Sesuvium portulacastrum</i>	Shoreline Seapurslane				
Amaranthaceae (amaranth)						
254	<i>Alternanthera flavescens</i>	Yellow joyweed				
255	<i>Alternanthera sessilis</i>	Sessile joyweed				
256	<i>Amaranthus australis</i>	Southern amaranth				
256	<i>Amaranthus floridanus</i>	Florida amaranth				
257	<i>Atriplex cristata</i>	Crested saltbush				

Family	Scientific Name	Common Name	FDACS	FNAI	IRC	EPPC
257	<i>Blutaparon vermiculare</i>	Samphire				
259	<i>Salicornia bigelovii</i>	Glasswort			R	
259	<i>Suaeda linearis</i>	Sea blite				
Anacardiaceae (cashew)						
261	<i>Schinus terebinthifolius</i>	Brazilian pepper				I
261	<i>Toxicodendron radicans</i>	Poison ivy				
Annonaceae						
262	<i>Annona glabra</i>	Pondapple				
Apocynaceae (dogbane)						
274	<i>Asclepias curassavica</i>	Scarlet Milkweed				
274	<i>Asclepias feayi</i>	Florida Milkweed				
276	<i>Cynanchum angustifolium</i>	Gulf coast swallowwort				
Asteraceae (aster)						
296	<i>Ambrosia artemisiifolia</i>	Common ragweed				
296	<i>Ambrosia hispida</i>	Coastal ragweed				
298	<i>Baccharis angustifolia</i>	Saltwater falsewillow				
298	<i>Baccharis halimifolia</i>	Groundsel tree				
299	<i>Bidens alba</i>	Beggarticks				
300	<i>Borrchia frutescens</i>	Bushy seaside oxeye				
300	<i>Borrchia arborescens</i>	Tree seaside oxeye				
311	<i>Emilia fosbergii</i>	Florida tasselflower				
312	<i>Erigeron quercifolius</i>	Oakleaf fleabane				
313	<i>Eupatorium capillifolium</i>	Dogfennel				
315	<i>Flaveria linearis</i>	Narrowleaf yellowtops				
316	<i>Gaillardia pulchella</i>	Firewheel				
320	<i>Helianthus debilis subsp. Vestitus</i>	West coast dune flower				
323	<i>Iva frutescens</i>	Marshelder				
324	<i>Lactuca graminifolia</i>	Grassleaf lettuce				
330	<i>Pluchea carolinensis</i>	Cure -for- all				
330	<i>Pluchea odorata</i>	Sweetscent				
330	<i>Pluchea baccharis</i>	Rosy camphorweed				
332	<i>Rayjacksonia phyllocephala</i>	Camphor daisy				
337	<i>Solidago sempervirens</i>	Seaside goldenrod				
337	<i>Sphagneticola trilobata</i>	Wedelia creeping oxeye				II
343	<i>Verbesina virginica</i>	White Crownbeard				
Avicenniaceae (black mangrove)						
344	<i>Avicennia germinans</i>	Black mangrove				
Bataceae (saltwort)						
345	<i>Batis maritima</i>	Saltwort				
Boraginaceae (borage)						
351	<i>Cordia sebestena</i>	Largeleaf Geiger tree				
352	<i>Heliotropium angiospermum</i>	Scorpionstail				
352	<i>Heliotropium curassavicum</i>	Seaside heliotrope				
Brassicaceae (mustard)						
356	<i>Capparis flexuosa (misapplied)</i>	Jamaican caper				
Burseraceae (gumbo-limbo)						
362	<i>Bursera simaruba</i>	Gumbo limbo				
Cactaceae (cactus)						
365	<i>Opuntia humifusa</i>	Prickly pear cactus				
Casuarinaceae (sheoak)						
379	<i>Casuarina equisetifolia</i>	Australian pine				I
Chrysobalanaceae (coco plum)						
382	<i>Chrysobalanus icaco var. icaco</i>	Horizontal coco plum				
382	<i>Chrysobalanus icaco var. pellocarpus</i>	Red tipped coco plum				
382	<i>Geobalanus oblongifolius</i>	Gopher apple				
385	<i>Clusia rosea</i>	Pitchapple				

Family	Scientific Name	Common Name	FDACS	FNAI	IRC	EPPC
Combretaceae (combretum)						
390	<i>Conocarpus erectus</i>	Buttonwood				
390	<i>Laguncularia racemosa</i>	White mangrove				
Convolvulaceae (morning-glory)						
395	<i>Ipomoea alba</i>	Moonflower				
395	<i>Ipomoea cordatotriloba</i>	Tievine				
395	<i>Ipomoea indica var acuminata</i>	Oceanblue morning –glory				
396	<i>Ipomoea sagittata</i>	Saltmarsh morning glory				
Euphorbiaceae (spurge)						
425	<i>Poinsettia cyathophora</i>	Paintedleaf				
Fabaceae (pea)						
438	<i>Caesalpinia bonduc</i>	Grey nicker bean				
441	<i>Chamaecrista nictitans</i>	Sensitive pea				
443	<i>Crotalaria rotundifolia</i>	Rabbitbells				
443	<i>Dalbergia ecastaphyllum</i>	Coinvine				
449	<i>Erythrina herbacea</i>	Coralbean				
450	<i>Galactia regularis</i>	Downy milkpea				
451	<i>Indigofera hirsuta</i>	Hairy indigo				
459	<i>Piscidia piscipula</i>	Jamaica dogwood				
464	<i>Sophora tomentosa</i>	Yellow necklacepod			R	
469	<i>Vigna luteola</i>	Hairy pod cowpea				
Goodeniaceae (goodenia)						
479	<i>Scaevola plumieri</i>	Beachberry; Inkberry				
479	<i>Scaevola taccada</i>	Beach naupaka				I
Lamiaceae (mint)						
488	<i>Callicarpa americana</i>	Beautyberry				
494	<i>Monarda punctata</i>	Spotted beebalm				
Malvaceae (mallow)						
519	<i>Sida rhombifolia</i>	Cuban jute				
519	<i>Talipariti tiliaceum v. tiliaceum</i>	Sea hibiscus; Mahoe				II
519	<i>Thespesia populnea</i>	Portia tree				I
Moraceae (mulberry)						
526	<i>Ficus aurea</i>	Strangler fig				
Myricaceae (bayberry)						
528	<i>Myrica cerifera</i>	Wax myrtle				
Myrsinaceae (myrsine)						
528	<i>Rapanea punctata</i>	Myrsine				
Oleaceae (olive)						
536	<i>Forestiera segregata</i>	Florida swamprivet				
Passifloraceae (passionflower)						
533	<i>Passiflora suberosa</i>	Corkystem passionflower				
Petiveriaceae (guinea hen weed)						
554	<i>Rivina humilis</i>	Rouge plant				
Phytolaccaceae (pokeweed)						
554	<i>Phytolacca americana</i>	American pokeweed				
Plumbaginaceae (leadwort)						
558	<i>Limonium carolinianum</i>	Carolina sealavender				
Polygonaceae (buckwheat)						
563	<i>Coccoloba diversifolia</i>	Pigeon plum (planted)				
563	<i>Coccoloba uvifera</i>	Seagrape				
Rhizophoraceae (mangrove)						
578	<i>Rhizophora mangle</i>	Red mangrove				
Rubiaceae (madder)						
586	<i>Chiococca alba</i>	Snowberry				
588	<i>Hamelia patens</i>	Firebush (planted)				
591	<i>Psychotria nervosa</i>	Wild coffee				
591	<i>Randia aculeata</i>	White indigoberry				

Family	Scientific Name	Common Name	FDACS	FNAI	IRC	EPPC
Rutaceae (citrus)						
596	<i>Zanthoxylum fagara</i>	Wild lime (planted)				
Sapindaceae (soapberry)						
599	<i>Cupaniopsis anacardioides</i>	Carrotwood				I
Sapotaceae						
601	<i>Chrysophyllum oliviforme</i>	Satinleaf (planted)			T	
602	<i>Sideroxylon celastrinum</i>	Saffron plum				
602	<i>Sideroxylon foetidissimum</i>	False mastic				
Solanaceae (nightshade)						
608	<i>Lycium carolinianum</i>	Christmasberry				
609	<i>Physalis walteri</i>	Walter's groundcherry				
Surianaceae (baycedar)						
614	<i>Suriana maritima</i>	Bay cedar			R	
Theophrastaceae (theophrasta)						
616	<i>Jacquinia keyensis</i>	Joewood	T	G4/S3	R	
Verbenaceae (vervain)						
621	<i>Duranta erecta</i>	Golden dewdrop				
622	<i>Phyla nodiflora</i>	Capeweed				
623	<i>Stachytarpheta jamaicensis</i>	Blue porterweed				
Verbenaceae (vervain)						
623	<i>Stachytarpheta cayennensis</i>	Nettle-leaf porterweed				II
Veronicaceae (speedwell)						
626	<i>Bacopa monnieri</i>	Herb-of grace				
Vitaceae (grape)						
634	<i>Parthenocissus quinquefolia</i>	Virginia creeper				
635	<i>Vitis rotundifolia</i>	Muscadine				

Shaded cells are exotic plants

FDACS (Florida Department of Agriculture and Consumer Services)

E= Endangered

T= Threatened

CE= Commercially Exploited

FNAI (Florida Natural Areas Inventory)

G= Global Status

T= Global Subspecies that is rare or imperiled

S= Florida Status

1 = Critically imperiled because of extreme rarity (5 or fewer occurrences or less than

1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.

2 = Imperiled because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

3 = Either very rare and local throughout its range (21-100) occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

4 = Apparently secure

5 = Demonstrably secure

IRC (Institute for Regional Conservation)

CI= Critically Imperiled

I = Imperiled

R = Rare

Florida EPPC Status (Exotic Pest Plant Council)

Highlighted plants are exotic species.

I = species that are invading and disrupting native plant communities

II = species that have shown a potential to disrupt native plant communities

Appendix C: Wildlife Sightings at Bowditch Point Regional Park Preserve

Scientific Name	Common Name	Designated Status		
		FWC	USFWS	FNAI
CRUSTACEANS				
Family: Grapsidae (marsh, shore and talon crabs)				
<i>Aratus pisoni</i>	Mangrove tree crab			
Family: Ocypodidae (ghost and fiddler crabs)				
<i>Ocypode quadrata</i>	Atlantic ghost crab			
<i>Uca rapax</i>	Fiddler crab			
HORSESHOE CRABS				
Family: Limulidae (horseshoe crabs)				
<i>Limulus polyphemus</i>	Horseshoe crab			
ARACHNIDS				
Family: Araneidae (orb weaver)				
<i>Gasteracantha elipsoides</i>	Crab like spiny orb weaver			
INSECTS				
Family: Cyrtacanthacridinae (spurthroated grasshoppers)				
<i>Schistocerca americana</i>	American grasshopper			
Family: Romaleidae (lubber grasshopper)				
<i>Romalea microptera</i>	Eastern lubber grasshopper			
Family: Pieridae (whites and sulphurs)				
Subfamily: Pierinae (whites, marbles and orange tips)				
<i>Ascia monuste</i>	Great southern white			
Subfamily: Coliadinae (sulphurs)				
<i>Phoebis philea</i>	Orange –barred sulphur			
Family: Nymphalidae (brushfoots)				
<i>Danaus plexippus</i>	Monarch			
Subfamily: Heliconiinae (longwings)				
<i>Argaulis vanilla</i>	Gulf fritillary			
Subfamily: Nymphalinae (brushfoots)				
<i>Junonia evarete</i>	Mangrove buckeye			
<i>Anartia jatrophae</i>	White peacock			
Family: Hesperidae (skippers)				
Subfamily: Pyrginae (open winged skippers)				
<i>Phocides pigmalion</i>	Mangrove skipper			
AMPHIBIANS				
Family: Hylidae (treefrogs and their allies)				
<i>Osteopilus septentrionalis</i>	Cuban treefrog*			
REPTILES				
Family: Cheloniidae (sea turtle)				
<i>Caretta caretta</i>	Loggerhead		T	
Family: Colubrids (fangs located angled at the back of the mouth)				
<i>Elaphe obsoleta quadrivittata</i>	Yellow rat snake			
<i>Nerodia clarkii compressicauda</i>	Mangrove water snake			
<i>Coluber constrictor priapus</i>	Southern black racer			
Family: Dermochelyidae (leatherback turtles)				
<i>Dermochelys coriacea</i>	Leatherback	FE	E	G3/S2
Family: Dipsadidae (rear-fanged snakes)				
<i>Diadophis punctatus punctatus</i>	Southern ring neck snake			

Scientific Name	Common Name	Designated Status		
		FWC	USFWS	FNAI
Family: Emydidae (box and water turtles)				
<i>Malaclemys macrospilota</i>	Ornate diamondback terrapin			
<i>Terrapene Carolina</i>	Florida box turtle			
Family: Polychridae (anoles)				
<i>Anolis carolinensis</i>	Green anole			
<i>Anolis sagrei</i>	Brown anole*			
Family: Scincidae (skinks)				
<i>Eumeces fasciatus</i>	Five lined skink			
Family: Testudinidae (tortoises)				
<i>Gopherus polyphemus</i>	Gopher tortoise	SSC		
BIRDS				
Family: Accipitridae (hawks, kites, accipiters, harriers, eagles)				
Subfamily: Elaninae and Milvinae (kites)				
<i>Elanoides forficatus</i>	Swallow-tailed kite			G5/S2
Subfamily: Buteoninae (buzzard, hawks and eagles)				
<i>Haliaeetus leucocephalus</i>	Bald eagle	T	T	G4/S3
<i>Buteo lineatus</i>	Red-shouldered hawk			
<i>Accipiter striatus</i>	Sharp-shinned hawk			
Family: Alcedinidae (kingfishers)				
<i>Ceryle alcyon</i>	Belted kingfisher			
Family: Anatidae (swans, geese and ducks)				
Subfamily: Anatinae (dabbling ducks)				
<i>Anas fulvigula</i>	Mottled duck			
<i>Anas discors</i>	Blue-winged teal			
Subfamily Merginae (mergansers)				
<i>Mergus serrator</i>	Red-breasted merganser			
Family: Anhingidae (anhingas)				
<i>Anhinga anhinga</i>	Anhinga			
Family: Ardeidae (herons, egrets, bitterns)				
<i>Ardea alba</i>	Great egret			
<i>Ardea herodias</i>	Great blue heron			
<i>Bubulcus ibis</i>	Cattle egret			
<i>Butorides virescens</i>	Green heron			
<i>Egretta caerulea</i>	Little blue heron	ST		G5/S4
<i>Egretta thula</i>	Snowy egret			G5/S3
<i>Egretta tricolor</i>	Tricolored heron	ST		G5/S4
<i>Egretta rufescens</i>	Reddish egret	ST		G4/S2
<i>Nycticorax nycticorax</i>	Black-crowned night heron			
<i>Nyctanassa violacea</i>	Yellow-crowned night heron			
Family: Cardinalidae (cardinals, some grosbeaks, new world buntings, etc.)				
<i>Cardinalis cardinalis</i>	Northern cardinal			
Family: Cathartidae (new world vultures)				
<i>Coragyps atratus</i>	Black vulture			
<i>Cathartes aura</i>	Turkey vulture			
Family: Charadriidae (plovers)				
<i>Charadrius alexandrinus</i>	Snowy plover			
<i>Charadrius melodus</i>	Piping plover			
<i>Charadrius semipalmatus</i>	Semipalmated plover			
<i>Charadrius wilsonia</i>	Wilson's plover			
<i>Pluvialis squatarola</i>	Black-bellied plover			

Scientific Name	Common Name	Designated Status		
		FWC	USFWS	FNAI
Family: Columbidae (pigeons and doves)				
<i>Columbina passerina</i>	Common ground dove			
<i>Streptopelia decaocto</i>	Eurasian collared-dove			
<i>Zenaida macroura</i>	Mourning dove			
Family: Corvidae (jays, crows and their allies)				
<i>Corvus brachyrhynchos</i>	American crow			
<i>Cyanocitta cristata</i>	Blue jay			
<i>Corvus ossifragus</i>	Fish crow			
Family: Falconidae (falcons)				
<i>Falco peregrinus</i>	Peregrine falcon			
<i>Falco sparverius paulus</i>	Southeastern American kestrel	T		G5T4/S3
Family: Fregatidae (frigatebirds)				
<i>Fregata magnificens</i>	Magnificent frigatebird			
Family: Gaviidae (loons)				
<i>Gavia immer</i>	Common loon			
Family: Hirundinidae (swallows)				
<i>Progne subis</i>	Purple martin			
<i>Hirundo rustica</i>	Barn swallow			
Family: Icteridae (blackbirds, orioles, ect.)				
<i>Agelaius phoeniceus</i>	Red-winged blackbird			
<i>Molothrus ater</i>	Brown-headed cowbird			
<i>Quiscalus quiscula</i>	Common grackle			
<i>Quiscalus major</i>	Boat-tailed grackle			
Family: Laniidae (shrikes)				
<i>Lanius ludovicianus</i>	Loggerhead shrike			
Family: Laridae (gulls, terns and skimmers)				
<i>Larus argentatus</i>	Herring gull			
<i>Larus atricilla</i>	Laughing gull			
<i>Larus delawarensis</i>	Ring-billed gull			
<i>Larus fuscus</i>	Lesser black-backed gull			
<i>Larus marinus</i>	Great black-backed gull			
<i>Rynchops niger</i>	Black skimmer			
<i>Sterna antillarum</i>	Least tern			
<i>Sterna forsteri</i>	Forster's tern			
<i>Sterna maxima</i>	Royal tern			
<i>Sterna sandvicencis</i>	Sandwich tern			
Family: Mimidae (mockingbirds, thrasher and allies)				
<i>Dumetella carolinensis</i>	Grey catbird			
<i>Mimus polyglottos</i>	Northern mockingbird			
Family: Pandionidae (osprey)				
<i>Pandion haliaetus</i>	Osprey			
Family: Parulidae (wood-warblers)				
<i>Dendroica coronata</i>	Yellow-rumped warbler			
<i>Dendroica dominica</i>	Yellow-throated warbler			
<i>Dendroica palmarum</i>	Palm warbler			
<i>Geothlypis trichas</i>	Common yellowthroat			
<i>Parula americana</i>	Northern parula			
Family: Passeridae (Old world sparrows)				
<i>Passer domesticus</i>	House sparrow			

Scientific Name	Common Name	Designated Status		
		FWC	USFWS	FNAI
Family: Pelecanidae (pelicans)				
<i>Pelecanus erythrorhynchos</i>	American white pelican			
<i>Pelecanus occidentalis</i>	Brown pelican	SSC		G4/S3
Family: Phalacrocoracidae (cormorants)				
<i>Phalacrocorax auritus</i>	Double - crested Cormorant			
Family: Picidae (woodpecker)				
<i>Dryocopus pileatus</i>	Pileated woodpecker			
<i>Melanerpes carolinus</i>	Red-bellied woodpecker			
<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker			
<i>Picoides pubescens</i>	Downy woodpecker			
Family: Scolopacidae (sandpipers)				
<i>Arenaria interpres</i>	Ruddy turnstone			
<i>Calidris alba</i>	Sanderling			
<i>Calidris alpina</i>	Dunlin			
<i>Calidris canutus</i>	Red knot			
<i>Calidris mauri</i>	Western sandpiper			
<i>Calidris minutilla</i>	Least sandpiper			
<i>Calidris pusilla</i>	Semipalmated sandpiper			
<i>Tringa semipalmatus</i>	Willet			
<i>Limosa fedoa</i>	Marbled godwit			
Family: Rynchopinae (skimmers)				
<i>Rynchops niger</i>	Black skimmer	ST		G5/S3
Family: Strigidae (true owls)				
<i>Bubo virginianus</i>	Great horned owl			
Family: Sturnidae (starlings)				
<i>Sturnus vulgaris</i>	European starling			
Family: Sulidae (boobies and gannets)				
<i>Morus bassanus</i>	Northern gannet			
Family: Sylviidae (gnatcatchers)				
<i>Poliophtila caerulea</i>	Blue-grey gnatcatcher			
Family: Threskiornithidae (ibises and spoonbills)				
<i>Eudocimus albus</i>	White ibis	SSC		G5/S4
<i>Platalea ajaja</i>	Roseate spoonbill	ST		G5/S2
Family: Troglodytidae (wrens)				
<i>Troglodytes aedon</i>	House wren			
Family: Tyrannidae (tyrant flycatchers)				
<i>Myiarchus crinitus</i>	Great crested flycatcher			
<i>Sayornis phoebe</i>	Eastern phoebe			
<i>Tachycineta bicolor</i>	Tree swallow			
<i>Tyrannus dominicensis</i>	Gray kingbird			
MAMMALS				
Family: Didelphidae (opossums)				
<i>Didelphis virginiana</i>	Virginia opossum			
Family: Leporidae (rabbits and hares)				
<i>Sylvilagus palustris</i>	Marsh rabbit			
Family: Felidae (cats)				
<i>Felis catus*</i>	Feral cat			
<i>Lynx rufus</i>	Bobcat			

Scientific Name	Common Name	Designated Status		
		FWC	USFWS	FNAI
Family: Procyonidae (raccoons)				
<i>Procyon lotor</i>	Raccoon			
Family: Sciuridae (squirrels)				
<i>Sciurus carolinensis</i>	Gray squirrel			
Family: Trichechidae				
<i>Trichechus manatus latirostris</i>	Florida manatee	E	E	

Key

FWC: Florida Fish & Wildlife Conservation Commission
 USFWS: United States Fish and Wildlife Service
 FNAI: Florida Natural Areas Inventory

SSC: State Species of Special Concern
 ST: State-designated Threatened
 FE: Federally-designated Endangered
 E: Endangered

FNAI (Florida Natural Areas Inventory)

G = Global Status
 T = Global Subspecies that is rare or imperiled
 S = Florida Status

1 = Critically imperiled because of extreme rarity (6 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.

2 = Imperiled because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

3 = Either very rare and local throughout its range (21-100) occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

4 = Apparently secure

5 = Demonstrably secure

* = Not native

Appendix D: Gopher Tortoise Study by Florida Gulf Coast University Senior Kelly Ussia, 2015

Gopher Tortoise (*Gopherus polyphemus*) Burrows at Bowditch Point

Kelly Ussia, Environmental Studies (B.A.) & Biology (B.S.)
 Florida Gulf Coast University Department of Marine and Ecological Sciences
 Mentor: Edwin Everham, Ph. D. Professor of Environmental Studies



Abstract:
 The gopher tortoise (*Gopherus polyphemus*) is a keystone species, and therefore a critical component of any ecosystem it occupies. Recently, Florida populations of gopher tortoise have been declining. The habitat that is suitable for this species is becoming more and more fragmented. Suitable gopher tortoise habitat is located at Bowditch Point Regional Park, in Lee County, Florida. This population was monitored in 2006, 2009, and 2013. Since these surveys a number of ecological changes have occurred at Bowditch Point Regional Park, such as changes in hydrology, ground cover, and erosion. This study monitored the population in 2015 and examined how the total number and location of gopher tortoise burrows have changed over time. By monitoring this population we can better understand gopher tortoise population dynamics and related human impacts in order to provide successful conservation strategies for this keystone species.

Introduction:

- Gopher tortoises:
 - Dig burrows that are used by over 300 species for shelter, homes, and overwintering sites¹
 - Modify understory¹
 - Are threatened east of the Mississippi River²
 - Occupy habitat that is becoming heavily fragmented¹
- Bowditch Point:
 - Is located at the northern most end of Estero Island in Lee County, Florida³
 - Has a gopher tortoise population that started in the early 1970's, which was monitored in 2006, 2009, and 2013³
 - Has recently undergone ecological changes due to dredging, erosion, and beach restoration

Methods:

- Transect surveys covering all of Bowditch Point were completed
- GPS coordinates were recorded for every burrow located
- Burrow activity (active or inactive) were recorded for every burrow located
- G-leas³ were conducted for:
 - Number of active and inactive burrows in 2006, 2009, 2013, and 2015
 - Number of burrows in NE, NW, SE, and SW quadrants for 2006, 2009, 2013, and 2015
 - Number of burrows in zones created for 2006, 2009, 2013, and 2015
- One-way ANOVA was conducted to analyze the nearest neighbor over time
- Location of burrows relative to Florida Land Use and Cover Classification System (FLUCCS) codes were analyzed



Figure 1: 2013 Gopher Tortoise Burrow Locations on 1/31/2013 Aerial. (Adapted from Google Earth)



Figure 2: 2009 Gopher Tortoise Burrow Locations on 6/18/2009 Aerial. (Adapted from Google Earth)



Figure 3: 2013 Gopher Tortoise Burrow Locations on 1/31/2013 Aerial. (Adapted from Google Earth)



Figure 4: 2015 Gopher Tortoise Burrow Locations on 3/31/2015 Aerial. (Adapted from Google Earth)



Figure 5: Zones used for analysis



Figure 6: Zone Locations of Burrows in 2006, 2009, 2013, and 2015



Figure 7: Gopher tortoise

Discussion:

- Constraints:
 - Only three years of data over an eight year period
 - Data collected by three different people
 - Had to interperate others' data and make decisions on what data to include and what to leave out
- Conclusions and Implications:
 - Spike in burrow numbers from 2006 to 2009, this spike indicates an increase in population size
 - Number of burrows consistent from 2009 to 2015
 - How gopher tortoises are using this land has not changed from 2006 to 2015
 - Changes in crowding
 - The data and results have directly informed land management systems at Bowditch Point
- Next Steps:
 - Continual data taken every year to monitor population
 - Look at relationship between understory, canopy cover, and burrow locations
 - Genetic testing
 - Compare this site to other sites that have been previously disturbed in a similar manner

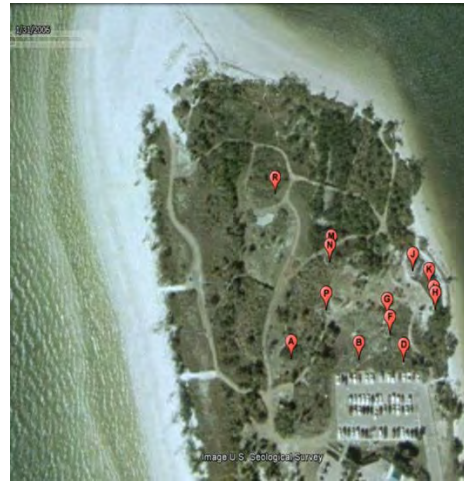
Acknowledgments:
 I would like to give a special thanks to Terry Cain for giving me the idea for this project and providing me with the necessary information to make this project happen. Dianna Loesch and Katie Broomfield were also a huge help with the data collection for this project so a big thank you to them. I would also like to thank Dr. Everham for helping me with developing the project, analysis, and presentation. Finally, I would like to thank Logan McDonald for editing my work.

Literature Cited:
 1. Geyer, C., Johnson, V. M., & Hermann, S. M. (2012). Effects of population density on patterns of movement and behavior of gopher tortoises (*Gopherus polyphemus*). *Herpetological Monographs*, 26(1), 122-134.
 2. Gopher tortoise (*Gopherus polyphemus*). (n.d.). U.S. Fish & Wildlife Service.
 3. Cain, T. (2007). Bowditch Point Regional Park Gopher Tortoise (*Gopherus polyphemus*). Lee County Parks and Recreation.

Gopher Tortoise Burrows 2006



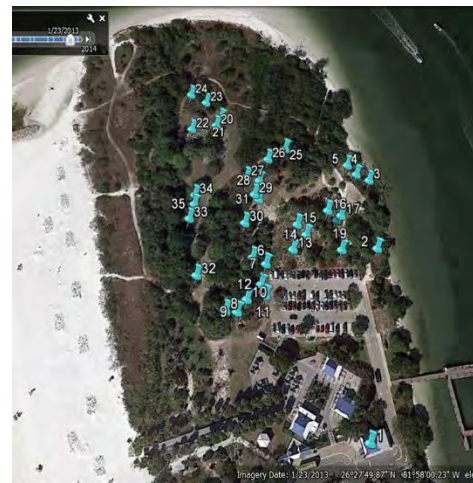
Gopher Tortoise Burrows 2009



Gopher Tortoise Burrows 2013



Gopher Tortoise Burrows 2015



	Active	Inactive	Total					
2006	9	3	12	One Burrow marked ? For active/inactive so left out				
2009	29	6	35	One Burrow marked ? For active/inactive so left out				
2013	28	7	35					
2015	18	18	36					
	84	34	118					

Appendix E: Erroneous Florida Master Site File

GV

P



FLORIDA MASTER SITE FILE

ARCHAEOLOGICAL SITE FORM

STATE OF FLORIDA
DEPARTMENT OF STATE
Division of Archives, History
and Records Management
AH8ED0408-04

Original
 Update

SITE NUMBER 8L1778 COUNTY Lee

SITE NAME: Bodwitch Point

USGS QUAD: Ft. Myers Beach

NOTE: Please attach an 8 1/2" x 11" copy of the appropriate portion of the above map, with site location indicated.

TOWNSHIP/RANGE/SECTION:

Township	Range	Section
46 S	23 E	24, 13, 14

X			

NOTE: The figure to the left represents a regular section (1 square mile); please indicate the location of your site by placing an X in the appropriate portion of the section.

If the section is irregular or part of a land grant, please check below and disregard above instructions.

Irregular section
 Land grant _____ (name)

UTM COORDINATES:	Zone	/	Easting	/	Northing
	17		403700		2927200

NOTE: If you are unfamiliar with calculating UTM measurements, leave blank.

FRESH WATER SOURCE unk DISTANCE TO WATER San Carlos Bay ca. 100m N

LOCAL VEGETATION _____

TOPOGRAPHICAL SETTING bay beach

PRESENT LAND USE _____

LOCAL INFORMANT (inc. private collections) Charles Nelson 887-734-3964

ADDRESS RR# 8 Whispering Pine, Cape Coral

LOCAL INFORMANT (inc. private collections) _____

ADDRESS _____

SURVEY DATE 10/87 OTHER MASTER SITE FILE NUMBERS _____

RECORDER(S) (list principal investigator first) Diane Boyle

ADDRESS Piper Archaeology, P.O. Box 919, St Petersburg, FL 33731

PROJECT NAME Lee County Archaeological Plan

- TYPE OF SITE (check one or more as appropriate):
- | | | |
|---|---|--|
| <input type="checkbox"/> indeterminate | <input type="checkbox"/> mound(s) | <input type="checkbox"/> historic refuse |
| <input type="checkbox"/> unknown | <input type="checkbox"/> burial mound(s) | <input type="checkbox"/> historic earthworks |
| <input type="checkbox"/> single artifact | <input type="checkbox"/> platform/temple mound(s) | <input type="checkbox"/> shell ring |
| <input type="checkbox"/> artifact scatter | <input type="checkbox"/> canal | <input type="checkbox"/> redeposited |
| <input type="checkbox"/> lithic scatter | <input type="checkbox"/> canoe | <input type="checkbox"/> house/homestead |
| <input type="checkbox"/> midden(s) | <input type="checkbox"/> prehistoric earthworks | <input type="checkbox"/> military |
| <input checked="" type="checkbox"/> shell midden(s) | <input type="checkbox"/> prehistoric cemetery | <input type="checkbox"/> historic cemetery |
| <input type="checkbox"/> shell works | <input type="checkbox"/> mission | <input type="checkbox"/> _____ |

NATIONAL REGISTER: Listed Date Determined Eligible Date
 Determined Not Eligible Date Unaccessed

THREATS TO SITE:

- zoning
- development
- deterioration
- borrowing
- transportation
- fill
- dredge
- logging
- vandalism
- phosphate mining
- agriculture/plowing
- recreation

REMARKS:

- preservation recommended
- severely disturbed/destroyed
- recommended for further testing

REPOSITORY

BIBLIOGRAPHIC DATA

NOTE: Cite any reports referring *specifically* to this site. General background material need not be cited. Use *Florida Anthropologist* format.

CULTURAL CLASSIFICATION prehistoric aboriginal

CULTURAL PERIOD

ARTIFACTS (Check as many as apply):

- aboriginal ceramics
- nonaboriginal ceramics
- lithics
- worked bone
- human bone/burial(s)
- animal bone/identified bone
- shell food remains
- worked shell
- plant remains
- wood
- metal
- precious metal/coin(s)
- glass
- brick/bldg materials
- other human remains (e.g., hair)
- leather
- pollen
- misc. historic (please list)
- misc. prehistoric (please list)

DIAGNOSTIC ARTIFACTS

SITE SIZE (approx acreage) unk

SITE SIZE (est in sq meters) unk

DEPTH OF CULTURAL DEPOSIT (if known) unk

ELEVATION

	Meters	Feet
Max	<u> </u>	<u> </u>
Min	<u> </u>	<u> </u>

SITE DISTURBANCES

- bioturbation
- erosion
- mining/borrow pit
- agricultural
- residential/commercial
- dredging/ditching
- site looting
- forest preparation or harvesting
- fill
- previous archaeological excavations

DEGREE OF SITE DESTRUCTION

- relatively undisturbed
- moderate
- minor
- major

COLLECTION STRATEGY

- general
- selective
- controlled

TYPE OF INVESTIGATION

- surface collection
- shovel test
- extensive excavation
- test excavation
- auger test
- coring
- remote sensing
- none
- unknown
- informant interview

OPTIONAL NARRATIVE DESCRIPTION (if there is no published report, provide a short description of the site on a separate sheet.)

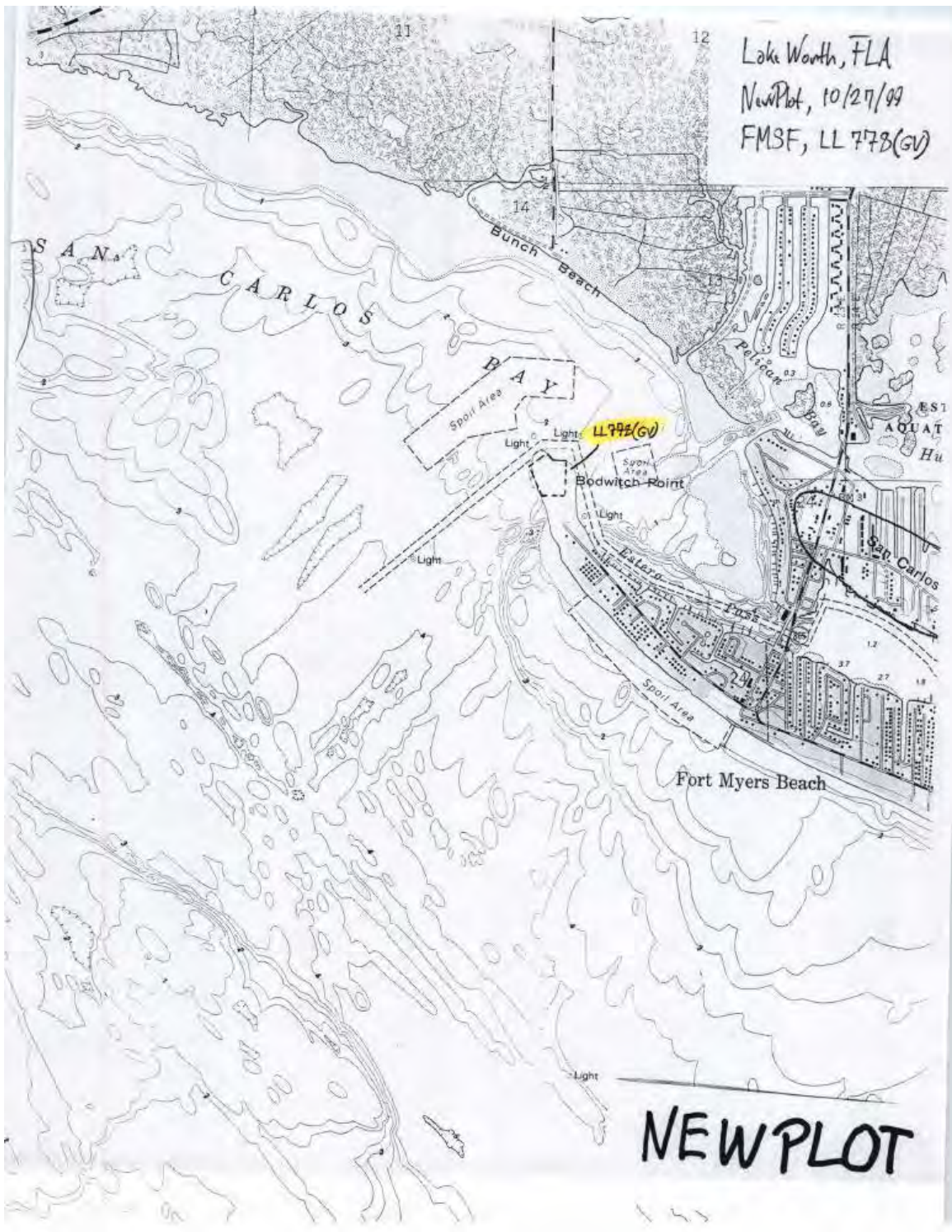
OPTIONAL PHOTOGRAPHS OR SKETCHES OF DIAGNOSTIC OR UNIQUE ARTIFACTS (Please attach separate sheet(s).)

FORM PREPARED BY Diane Boyle

ADDRESS Piper Archaeology, P.O. Box 919, St. Petersburg, FL 33731

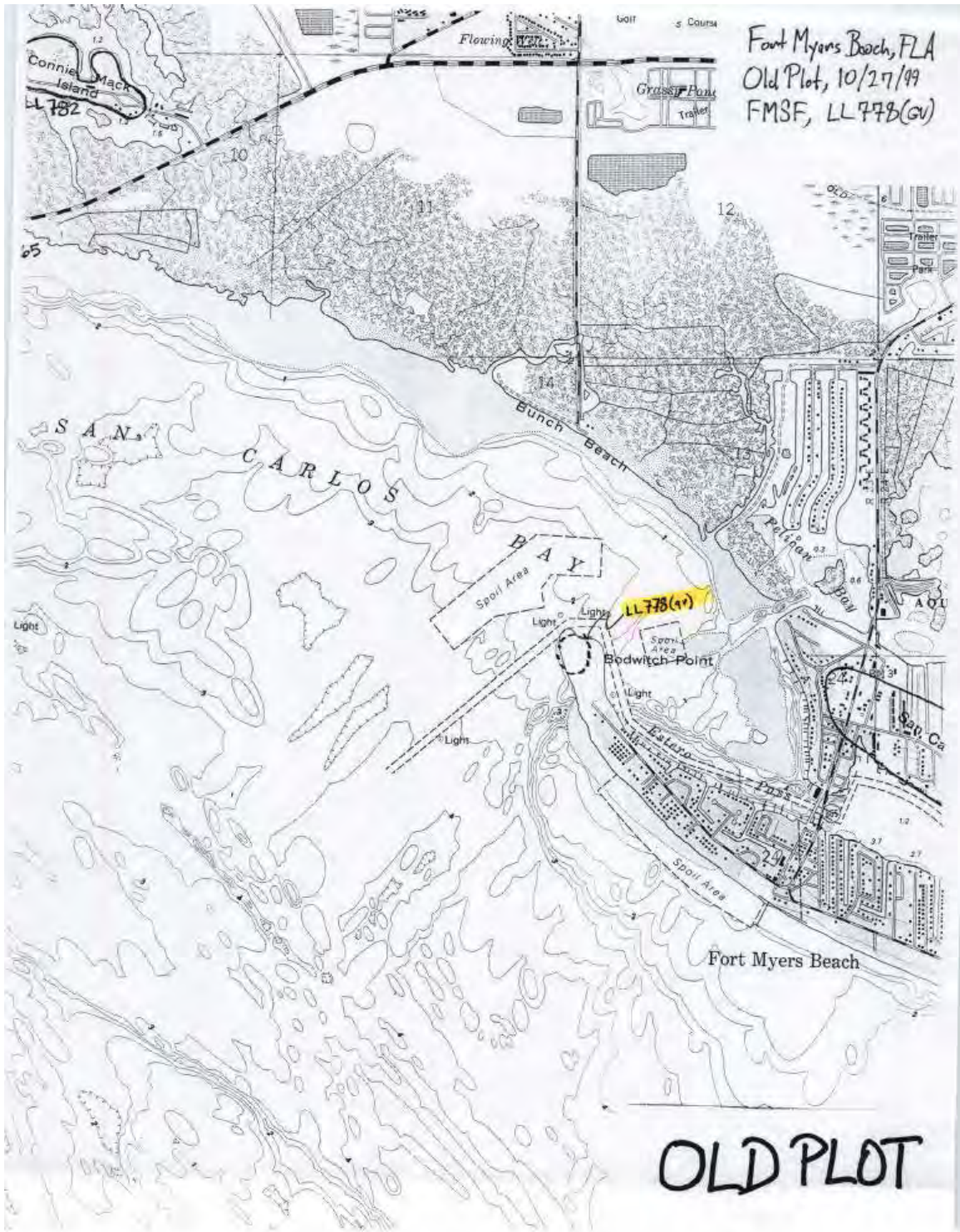
DATE 11-5-87

AFFILIATION (FAS chapter, government agency, etc.): _____



Lake Worth, FLA
NewPlot, 10/27/99
FMSE, LL 778(GV)

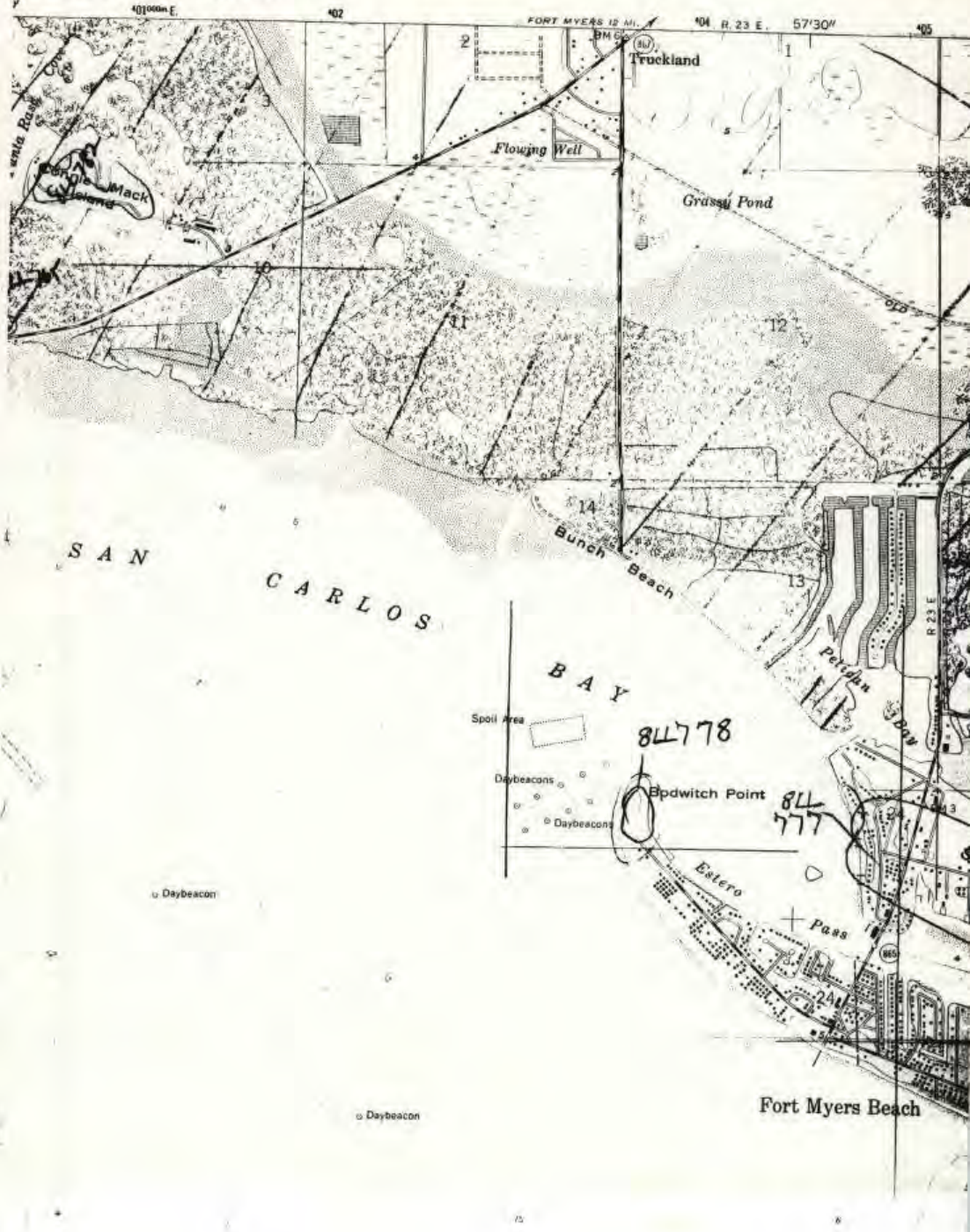
NEW PLOT



Fort Myers Beach, FLA
Old Plot, 10/27/99
FMSE, LL778(GV)

OLD PLOT

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



LL 778

8/29/91

Spoke with Annette Sapp
and Ed Estabrook
from Piper. Inform-
ant said site was
on Bodwath point
in 1987, but no evi-
dence was found
when tested by
Dickinson in 1989.
Agreed to call site
a "6V" on quad
map -

Lu Tergo

LL778

herbert • halback, inc.
landscape architects, planners and graphic designers

315 east robinson street, suite 505
orlando, florida 32801
(407) 422-1449 • FAX (407) 872-0524

July 30, 1991

Ms. Laura Kammerer
R.A. Gray Building
500 S. Bronough Street
Tallahassee, FL 32399-0250

RECEIVED
AUG 2 1991

Re: Bodwitch Point Regional Point
Florida Master Site File Update #8LL778
Herbert/Halback Project 8901.1

COMPLIANCE REVIEW

Dear Laura:

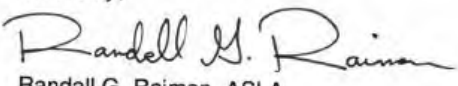
Please find enclosed the information you requested for update of Master Site File #8LL778. The cover letter to the archaeology report gives an overview of the work performed at Bodwitch Point and the apparent error in the previous site file information.

I have also enclosed the certificate to dig form from Lee County that we completed and their request that the Master Site File be updated.

If you need additional information, please contact me or Martin Dickinson at SouthArc (Environmental Services and Permitting is now SouthArc) at 904-372-2633.

Thank you for your help in this matter.

Sincerely,



Randall G. Raiman, ASLA
Senior Project Manager

*Mistake in file
FSF?*

RGR/wbn
Enclosures

cc: Frederick Halback

LL778

DATE: July 18, 1991

FDO #: 5-5-91

LEE COUNTY
CERTIFICATE TO DIG

Name of Project: Bodwitch Point Regional Park

Location: Northern tip of Estero Island

STRAP NO: 24-46-23-08-0000D-040

Name of Applicant or Agent: Herbert/Halback, Inc.

315 E. Robinson St., Suite 505

Address: Orlando, FL 32801 Phone: (407) 422-1449

Activity: County Regional Park featuring gulf swimming, picnic facilities

and restrooms. Location information for site #8LL778 appears to be in error.

See attached letter and archaeology report. (PART OF APPLICATION)

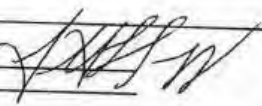
NOTE: AERIAL AND SITE PLAN MUST BE INCLUDED WITH THE APPLICATION

STAFF USE ONLY

Approved: Conditions: 726-2200 Sean Conn

2235 - direct line

813/335-2443

Certified By: ANNETTE L. SNAPP 

Date Certified: 7/26/91

DENIED: For reasons outlined below: _____

Level 1: Level 2: None: FMSF #: 8LL778

Conditions: Unaltered: Disturbed: Destroyed:

LOCATION OF SITE NOT AT FMSF RECORDED LOCATION

Actions: (Check all that apply)

Survey: Salvage: Test Pit:
Full Excavation: Designation: None:

Comments: APPLICANT IS REQUESTED TO SUBMIT FMSF UPDATE FOR 8LL778
REGARDING INCORRECT LOCATIONAL INFORMATION TO BOTH THE
FLORIDA DIVISION OF HISTORICAL RESOURCES AND LEE COUNTY

PLANNING DIVISION. (335-2235) 1831 HENDRY ST.
P.O. BOX 398
FT. MYERS, FL 33902-0398

CERTIFIED
RETURN REQUIRED REQUESTED

LL 778

RECEIVED JUL 10 1989

Environmental Services & Permitting, Inc.

ESP

July 7, 1989
File: 298-89-01

Mr. Randall G. Raiman
Senior Project Manager
Herbert Halback Inc.
315 East Robinson Street, Suite 505
Orlando, Florida 32801

Re: Bodwitch Point Regional Park, Lee County, Florida
Project #8901

Dear Mr. Raiman:

As specified by Task 1.03 of the Bodwitch Point Regional Park project scope, we have completed an archaeological assessment of the project area. The completed Designation Report is attached. This letter will document all task activities.

The project tract is located at the northwest end of Fort Myers Beach (Figure 1). Comparison of the tract boundaries with the 1944 Soil Conservation Service aerial indicates that the entire project tract postdates 1944 (Figure 2). However, in order to verify this conclusion, we placed 16 subsurface tests in the portion of the tract which would have been the oldest area (Figure 3). These tests were 30 cm square and screened through 1/4 inch mesh. All tests revealed a deep (over 80 cm) deposition of dredge spoil material. The material consisted of a mixture of sands, clays, and marine shell. The Lee County Soil Survey (1984) describes the site as a combination of Matlacha gravelly fine sand and beaches (Figure 4). Matlacha soils are Udalfic Arents or fill.

The shoreline of the entire tract was also surface inspected for evidence of cultural material. No such material was located. Finally, ESP contacted Mr. Charles Nelson of Cape Coral, who had previously been listed as reporting a site (8LL778) on Bodwitch Point (Florida Master Site File Form completed by Piper Archaeology 1987). Mr. Nelson indicated that he thought this report was an error and that he knew of no sites on Bodwitch Point.

Based on the information obtained for this task, it is the opinion of ESP's archaeologists that no significant cultural resources (archaeological sites) are located within the project tract. It is our recommendation that the Florida Division of Historical Resources be notified that the location information for site #8LL778 appears to be in error.

LL778

Mr. Randall G. Raiman
July 7, 1989
Page 2

If we can be of any further assistance on this project, please
do not hesitate to contact Lucy Wayne or me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Martin F. Dickinson".

Martin F. Dickinson
Staff Scientist

MFD:lbw:2
Attachments

22778

DESIGNATION NO. _____

LER COUNTY
DESIGNATION REPORT

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts pursuant to Ordinance No. 88-62.

1. Name of Property

historic name: Bodwitch Point
other names/site number: 8LL778

2. Location

street & number: _____ | not for publication
city, town: FT Myers Beach, FL | vicinity
strap number: _____ zip code: _____

3. Classification

Ownership of Property	Category of Property	Number of Resources	
		Within Property	Contributing Noncontributing
<input type="checkbox"/> private	<input type="checkbox"/> building(s)	_____	_____
<input type="checkbox"/> public-local	<input type="checkbox"/> district	_____	_____
<input type="checkbox"/> public-State	<input checked="" type="checkbox"/> site	<u>0</u>	<u>0</u>
<input type="checkbox"/> public-Federal	<input type="checkbox"/> structure	_____	_____
	<input type="checkbox"/> object	_____	_____
		<u>0</u>	<u>0</u>
			<u>0</u> Total

4. Official Actions

Date of Initiation: 7/7/89 Date of Designation: _____
Conditions: _____

Initiated by: Environmental Services & Permitting, Inc. Resolution No. _____

Note: If initiated by owner, or owner's agent, attach notarized letter of authorization.

Other: Variances, Special Exceptions or Re-zonings Granted Pursuant to this Application: _____

5. Designation

I hereby certify that this property is:

- _____ Designated as an individual historic resource.
- _____ Designated as an individual archaeological site.
- _____ Designated as a historic district.
- _____ Designated as an archaeological zone.

Signature of the Chairman of the
Historic Preservation Board

Effective Date

LL778

6. Individual Historic or Archaeological Buildings, Structures or Sites
(pursuant to Section 7A1, 88-62)

- a. A physical description of the building, structure or site and its character-defining features, accompanied by photographs.

dredge spoil deposition postdating 1944

Architectural Classification

Materials

foundations _____
walls _____
roof _____
other _____

Photographs attached: yes no (black and white glossy, 3X5 or larger)

- b. Statement of Significance: A statement of the historical, cultural, architectural, archaeological or other significance of the building, structure or site as defined by the criteria for designation as established by Ordinance 88-62.

Applicable Criteria (circle all that apply)

Section 7.D.1	a	b	c	d	e
Section 7.D.2	a	b	c	d	e
Section 7.D.3	a	b	c	d	-
Section 7.D.4	a	b	c	d	e

Criteria consideration (exceptions)

Section 7.D.5	a	b	c	d	e
---------------	---	---	---	---	---

Area of Significance (enter categories)

NOT SIGNIFICANT

Period of Significance

5182W(2)

LL778

Significant Dates

N/A

Cultural Affiliation

N/A

Architect/Builder

N/A

Significant Person

N/A

N/A
State significance of property, and justify criteria considerations, and areas and periods of significance noted above.

Statement attached: yes no

- c. Description of the existing condition of the building, structure or site including any potential threats, or other circumstances that may affect the integrity of the building, structure or site.

Location information for this site appears to be in error. Area designated is deep dredge spoil post during 1944.

- d. A statement of rehabilitative or adaptive use proposals.

N/A

- e. A location map showing relevant zoning and land use information.

Map attached: yes no

- f. Staff recommendation concerning the eligibility of the building, structure or site for designation pursuant to Ordinance 88-62 and a listing of those features of the building, structure or site which require specific historic preservation.

Not eligible.

5182W(3)

7. Historic or Archaeological Districts

- a. A physical description of the district, accompanied by photographs of buildings, structures or sites within the district indicating examples of contributing and noncontributing properties within the district. Also, a list of all contributing properties outside the proposed boundaries of the district.

N/A

- b. A description of typical architectural styles, character-defining features, and types of buildings, structures or sites within the district.

N/A

- c. An identification of all buildings, structures and sites within the district and the proposed classification of each as contributing, contributing with modifications, or noncontributing, with an explanation of the criteria utilized for the proposed classification.

N/A

- d. A statement of the historical, cultural, architectural, archaeological, or other significance of the district as defined by the criteria for designation established by this ordinance.

N/A

- e. A statement of recommended boundaries for the district and a jurisdiction for those boundaries, along with a map showing the recommended boundaries.

N/A

- f. A statement of incentives requested, if any, and the specific guidelines which should be used in authorizing any alteration, demolition, relocation, excavation or new construction within the boundaries of the district.

N/A

5182W(4)

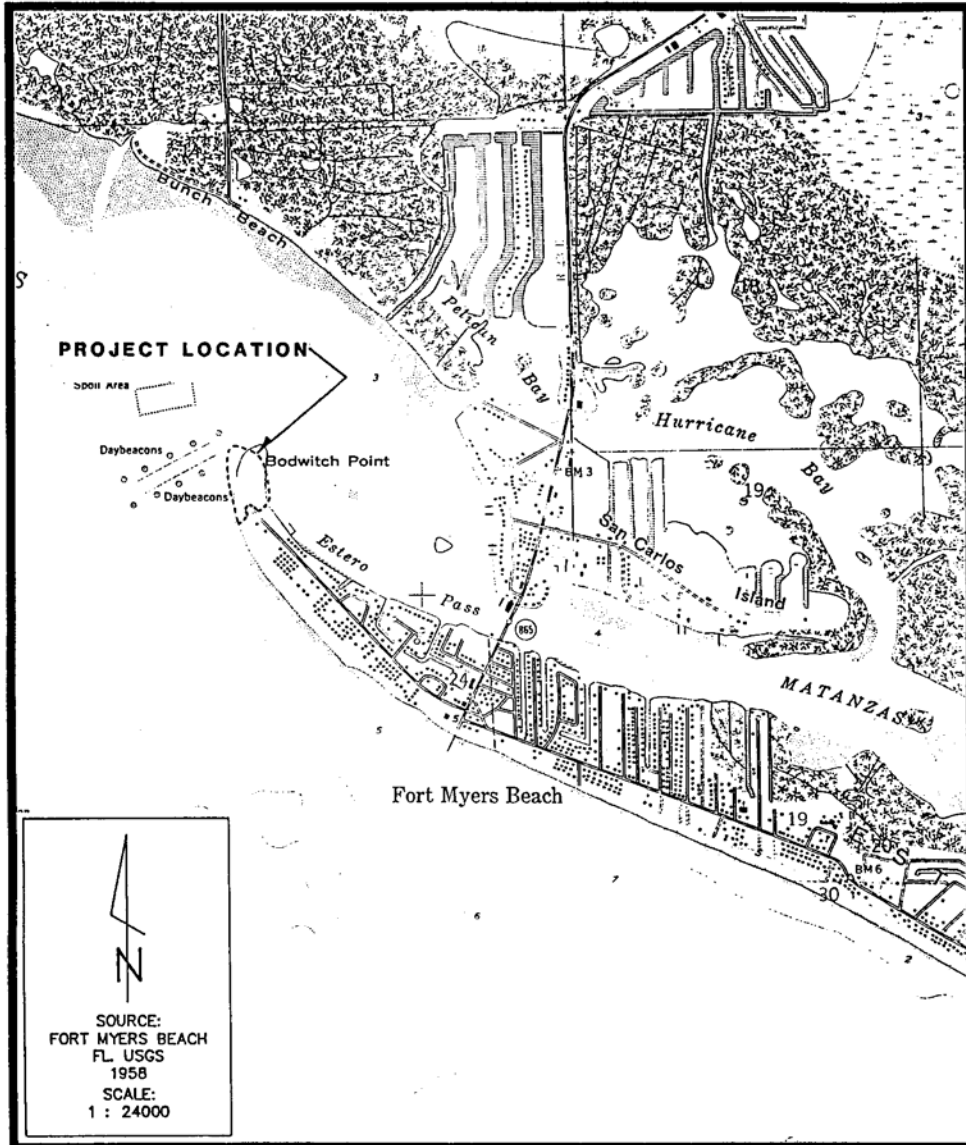


FIGURE 1. PROJECT LOCATION MAP, BODWITCH POINT, LEE COUNTY, FLORIDA.

PREPARED BY:
ENVIRONMENTAL SERVICES & PERMITTING, INC. 7/89

22778

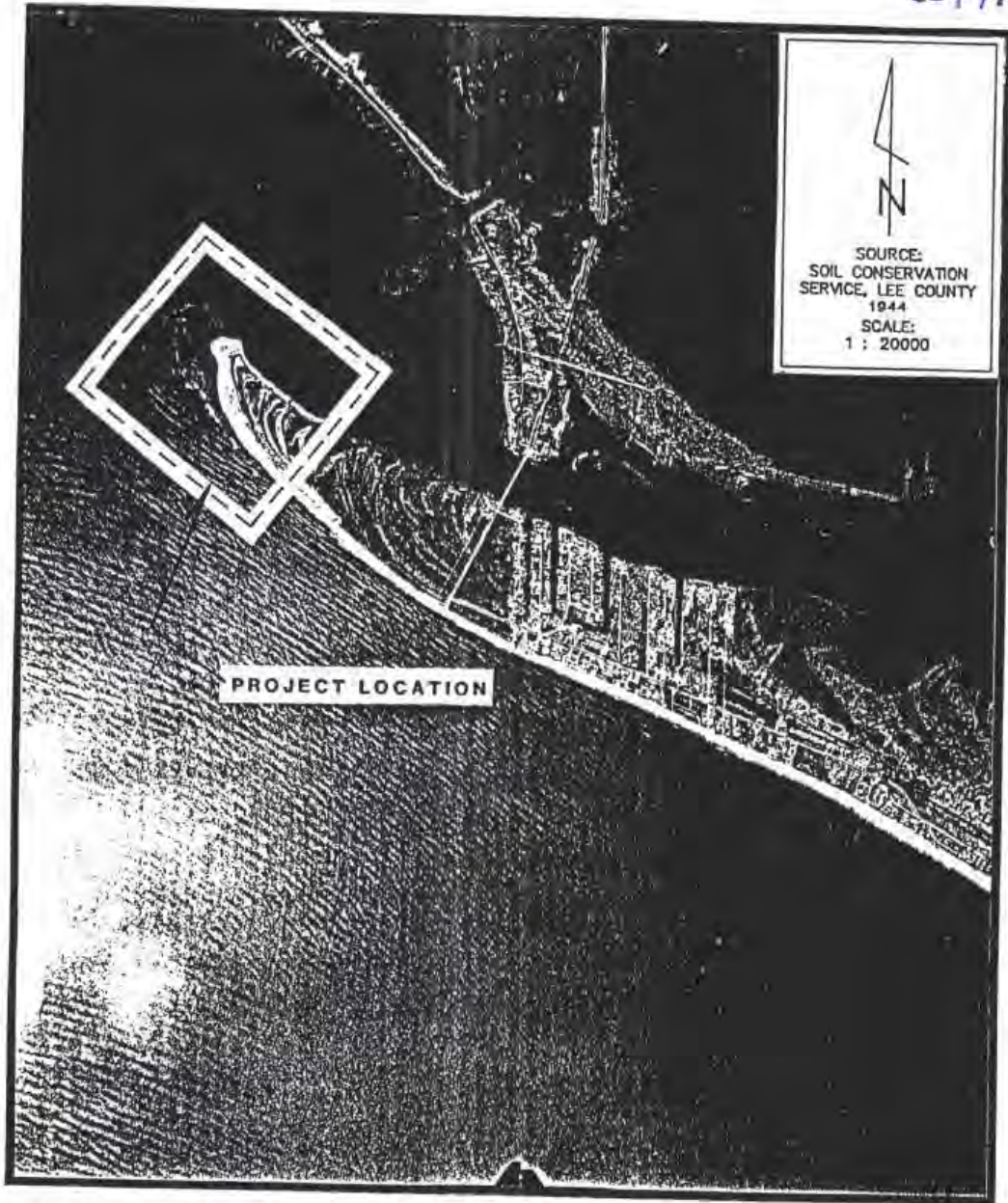


FIGURE 2. SOIL CONSERVATION SERVICE AERIAL PHOTOGRAPH 1944
BODWITCH POINT, LEE COUNTY, FLORIDA.

PREPARED BY:
ENVIRONMENTAL SERVICES & PERMITTING, INC. 7/89

LL778

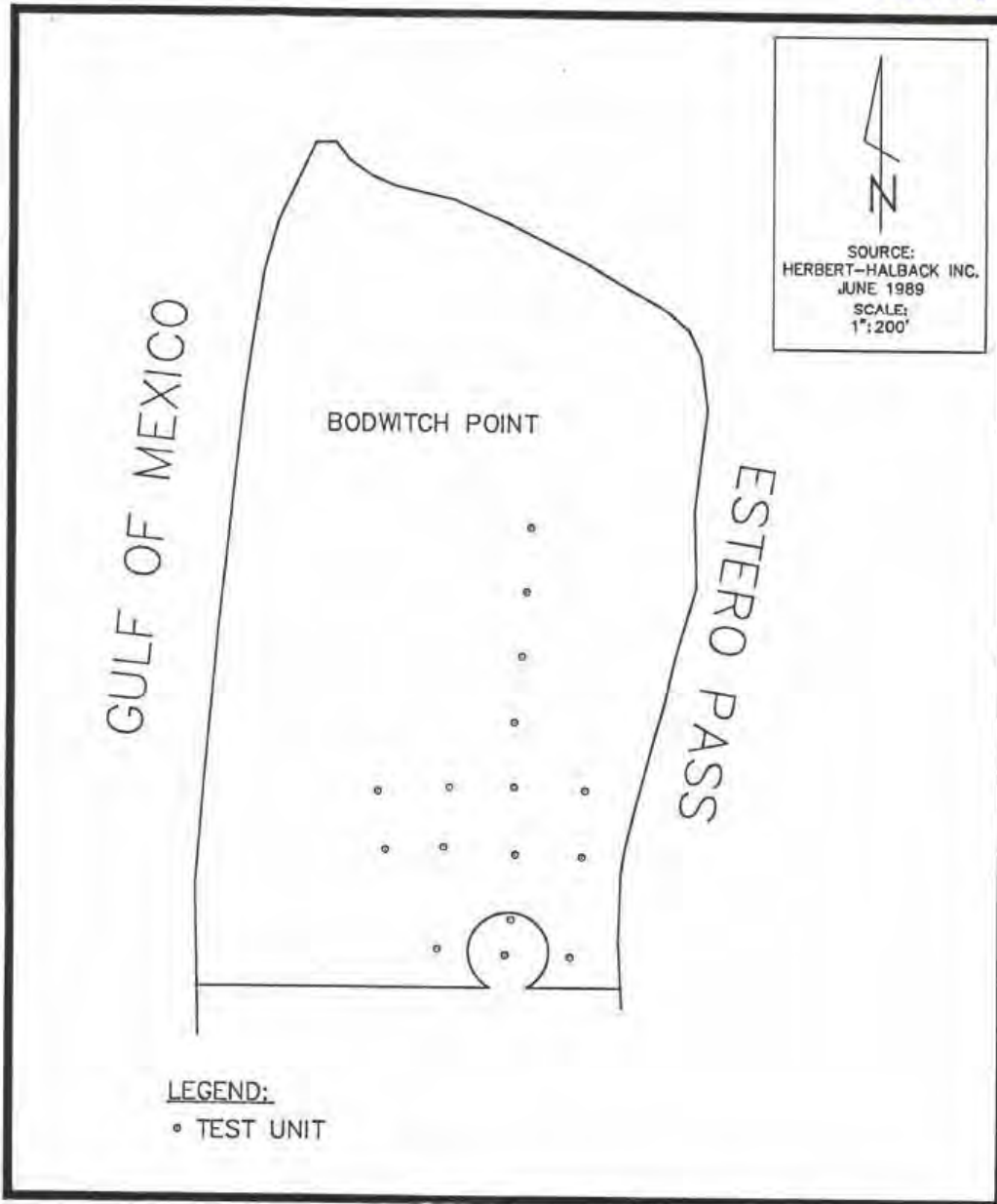


FIGURE 3. TEST UNIT LOCATIONS, BODWITCH POINT, LEE COUNTY, FLORIDA.

PREPARED BY:
ENVIRONMENTAL SERVICES & PERMITTING, INC. 7/89

LL778

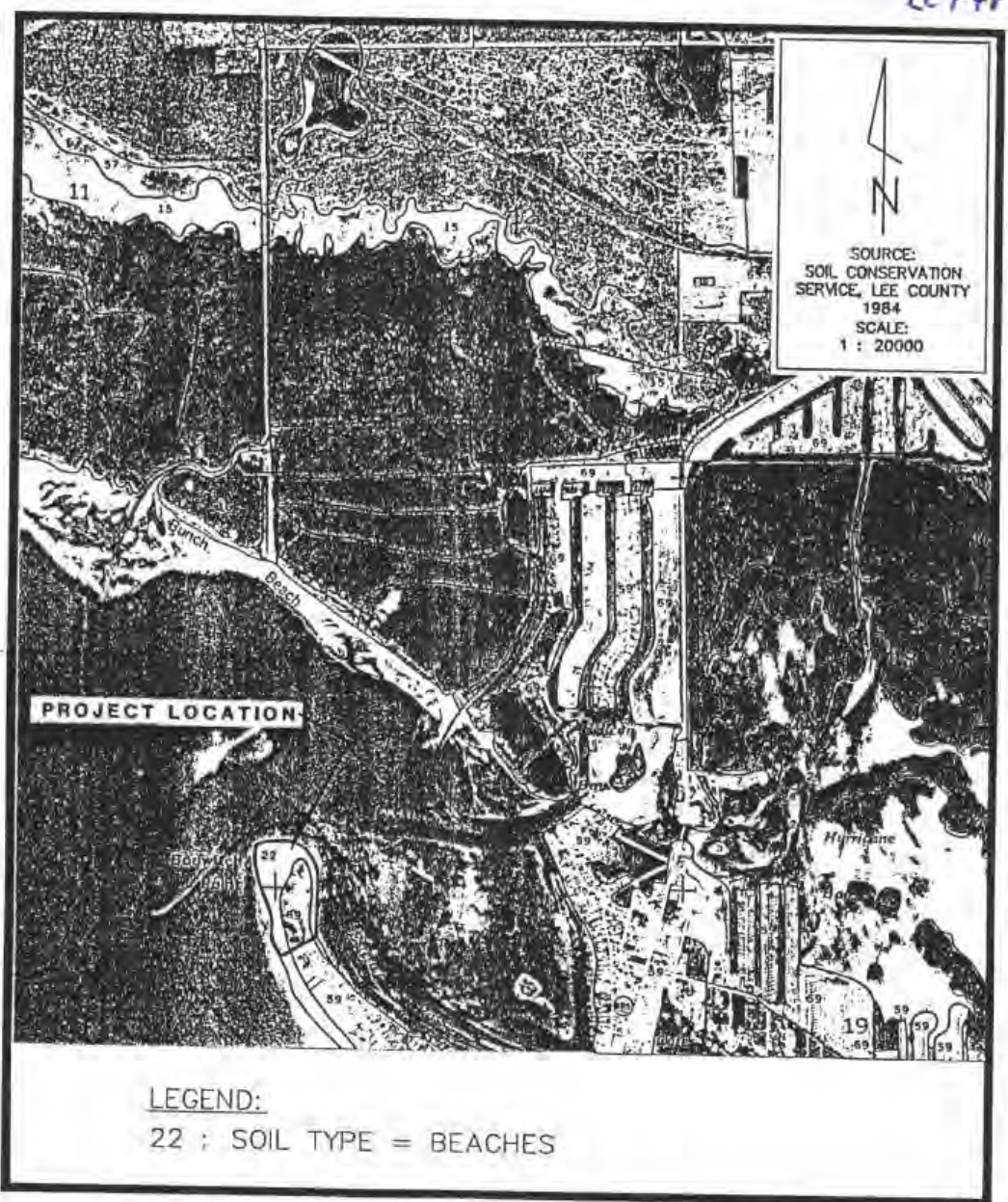
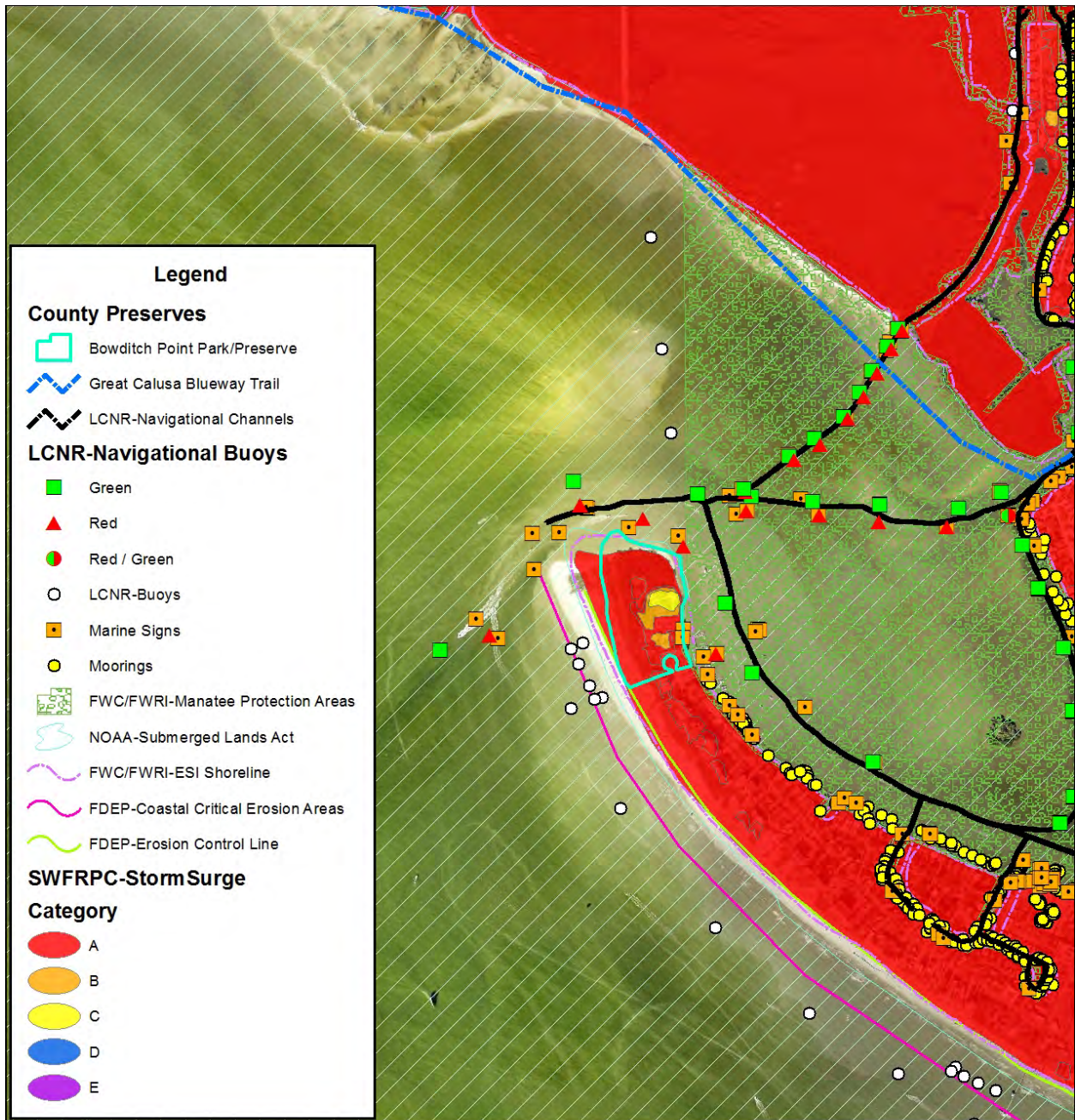



FIGURE 4. LEE COUNTY SOIL SURVEY, BODWITCH POINT, LEE COUNTY, FLORIDA.


PREPARED BY:
ENVIRONMENTAL SERVICES & PERMITTING, INC. 7/89

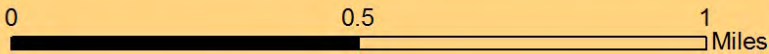
Appendix F: Storm Surge-Coastal High Hazard





Bowditch Point Regional Park / Preserve





0 0.5 1 Miles

Document Path:
M:\GISLAYERS\Projects\Parks_Rec\Preserves\Bowditch\BPRPP_internal-external.mxd

Date: 11/9/2017

This is not a survey.
Land Stewardship Staff has prepared this map
for informational and planning purposes.

Appendix G: Great Calusa Blueway Map



The Great Calusa Blueway · Estero Bay



Highlights & Access Points

- 1 SAN CARLOS BAY - BUNICHE BEACH PRESERVE**
GPS: N26 23 39 W81 50 23
Call to day-use pass prices. Variety of ecosystems including mangrove, salt marsh, and cypress swamps. Kayaking, canoeing, and fishing are popular activities. Information available at 239-445-4586. Kayak and canoe rentals from Recreation Management of Lee County. 239-765-7786.
- 2 BOWDITCH POINT**
GPS: N26 23 46 W81 50 25
A 17-acre Lee County preserve with sandy beaches on both the bay and Estero River. Popular for kayaking, canoeing, and fishing. Information available at 239-445-4586.
- 3 HOLIDAY ADVENTURE TOURS & BOAT RENTAL AT PINK KEY MARINA**
GPS: N26 22 49 W81 51 42 W
Boat rentals, kayaking, and fishing. Information available at 239-445-4586.
- 4 SAN CARLOS RV PARK & ISLAND RESORT**
GPS: N26 22 49 W81 51 42 W
RV park and resort with amenities. Information available at 239-445-4586.
- 5 SALTY SAM'S MARINA**
GPS: N26 22 49 W81 51 42 W
Marina with boat rentals and fishing. Information available at 239-445-4586.
- 6 MAYANZAS PASS PRESERVE**
GPS: N26 22 49 W81 51 42 W
A 17-acre Lee County preserve with sandy beaches on both the bay and Estero River. Popular for kayaking, canoeing, and fishing. Information available at 239-445-4586.
- 7 THE MOUND HOUSE**
GPS: N26 22 49 W81 51 42 W
Historic site with archaeological remains. Information available at 239-445-4586.
- 8 FORT MYERS BEACH**
GPS: N26 22 49 W81 51 42 W
Beach area with recreational facilities. Information available at 239-445-4586.
- 9 LOVERS KEY STATE PARK & TACKLE OUTFITTERS**
GPS: N26 23 39 W81 50 23
Call to day-use pass prices. Variety of ecosystems including mangrove, salt marsh, and cypress swamps. Kayaking, canoeing, and fishing are popular activities. Information available at 239-445-4586. Kayak and canoe rentals from Recreation Management of Lee County. 239-765-7786.
- 10 DOG BEACH**
GPS: N26 22 49 W81 51 42 W
Beach area with recreational facilities. Information available at 239-445-4586.
- 11 BIG HICKORY ISLAND LANCHES**
GPS: N26 22 49 W81 51 42 W
Lanchonette with food and drinks. Information available at 239-445-4586.
- 12 BOW TIE ISLAND**
GPS: N26 22 49 W81 51 42 W
Island with recreational facilities. Information available at 239-445-4586.
- 13 MOUND KEY ARCHAEOLOGICAL STATE PARK**
GPS: N26 22 49 W81 51 42 W
Historic site with archaeological remains. Information available at 239-445-4586.
- 14 ESTERO RIVER SCULPTURE**
GPS: N26 22 49 W81 51 42 W
Sculpture of the Estero River. Information available at 239-445-4586.
- 15 KOSHAN STATE HISTORIC SITE**
GPS: N26 22 49 W81 51 42 W
Historic site with archaeological remains. Information available at 239-445-4586.
- 16 ESTERO RIVER CANOE & TACKLE OUTFITTERS**
GPS: N26 23 39 W81 50 23
Call to day-use pass prices. Variety of ecosystems including mangrove, salt marsh, and cypress swamps. Kayaking, canoeing, and fishing are popular activities. Information available at 239-445-4586. Kayak and canoe rentals from Recreation Management of Lee County. 239-765-7786.
- 17 HICKORY BAIT & TACKLE AT WEEKS LANDING**
GPS: N26 23 39 W81 50 23
Bait and tackle shop. Information available at 239-445-4586.
- 18 BIG HICKORY FISHING HOOK & MARINA**
GPS: N26 23 39 W81 50 23
Fishing hook and marina. Information available at 239-445-4586.
- 19 IMPERIAL RIVER PRESERVE**
GPS: N26 20 10 W81 50 15
Preserve with recreational facilities. Information available at 239-445-4586.
- 20 RIVER PARK**
GPS: N26 20 14 W81 48 29
Park with recreational facilities. Information available at 239-445-4586.
- 21 IMPERIAL RIVER BOAT RAMP**
GPS: N26 20 19 W81 48 17
Boat ramp with recreational facilities. Information available at 239-445-4586.
- 22 RIVERSIDE PARK**
GPS: N26 20 30 W81 46 46
Park with recreational facilities. Information available at 239-445-4586.

A COMPLETE LIST OF GUIDES AND OUTFITTERS CAN BE FOUND AT WWW.CALUSABLUEWAY.COM

Great Florida Florida Greenways & Trails
www.floridablueway.com www.dsp.state.fl.us/gwt/guide/

Boat Launch Lodging
Public Craft Launch Hiking
Parking for canoe/kayak Restaurant or Concession
Phone Canoeing
Pump Out Station Historic Site

TRAIL MARKER
NOTE: Please note that trail markers are not necessarily one-to-one with GPS coordinates.

NOT FOR NAVIGATIONAL USE
This map is not for navigational use. It is intended for recreational purposes only. For more information, please contact the Florida Department of Transportation at 239-445-4586.

THE GREAT CALUSA BLUEWAY

Estimated mile marks

Advanced paddlers (foral markers)

Trail marker (GPS coordinates)

Map Channels (Marker)

Trail markers (Special markers)

Appendix H: 2017 Photo Points

Bowditch Point Regional Park & Preserve Photo Points 2017. Point directions of N, E, S, W

26° 27' 43" N 81° 58' 01" W



Southernmost boundary –mid beach



26° 27' 46" N 81° 58' 03" W



Groin/Jetty



26° 27' 54" N 81° 58' 04" W



Northernmost Point



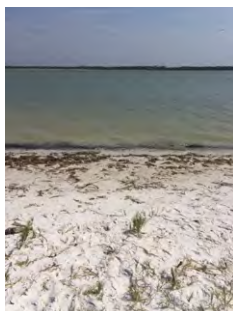
26° 27' 52" N 81° 58' 00" W



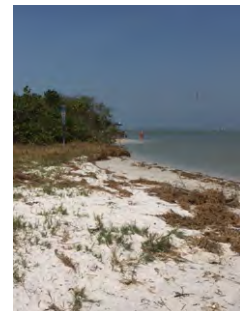
Island Mid-point



26° 27' 55" N 81° 57' 59" W



North Bay Side



Bowditch Point Regional Park & Preserve Photo Points 2017. Point directions of N, E, S, W

26° 27' 51" N 81° 57' 58" W

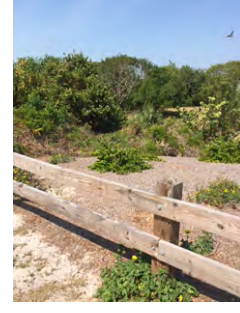


Top of Hill Bay Side



26° 27' 51" N 81° 57' 60" W

Top of Hill Gulf Side



26° 27' 48" N 81° 58' 02" W



Preserve Lower Picnic Entrance



26° 27' 48" N 81° 57' 57" W

Bay Side Parking



Extra Photos

Signs at Point



Point Erosion



Bridge



Bridge area

Gopher Tortoise Burrow and Gopher Tortoise



Day Dock

Entrance Sign

Kiosk



Education Sign



Boardwalk



Boardwalk to Beach



Picnic Area



Path to Beach



Appendix I: Expended and Projected Costs and Funding Sources Tables

<i>Expended Costs 2008-2017</i>		
Natural Resource Management		
<u>Item</u>	<u>Funding Source</u>	<u>Costs</u>
Exotic Plant Treatments (In House 4 days a month)	LCPR	\$29,000.00
Planting Native Plants	LCPR/FFS	Donation
Tree Removal	LCPR	\$3,451.00
	Total	\$32,451.00
Overall Protection		
<u>Item</u>	<u>Funding Source</u>	<u>Costs</u>
Boundary Signs-Initial	LCPR	\$105.00
Marine Debris Removal	KLCB/Parrotheads/LCPR	\$5,000.00
Boundary Signs-Replacement	LCPR	\$50.00
	Total	\$5,155.00
Public Use		
<u>Item</u>	<u>Funding Source</u>	<u>Costs</u>
Maintenance Supplies (tools)	LCPR	\$2,873.84
Trail & Public Access Maintenance	LCPR	\$31,595.00
	Total	\$34,468.84
BPP Total Expense Costs To Date	Total	\$72,074.84

Projected Costs Formulas

Natural Resource Management			
<u>Item</u>	<u>Funding Source</u>	<u>Costs</u>	<u>Occurrences</u>
Exotic Plant Treatments (In House 2 days a month)	LCPR	\$6,600.00	240
Contracted Exotic Plant Treatments	FWC/LCPR	\$3,600.00	2
Native Planting	LCPR	\$2,000.00	2
Tree Removal	LCPR	\$5,000.00	2
Total		\$17,200.00	
Overall Protection			
<u>Item</u>	<u>Funding Source</u>	<u>Costs</u>	<u>Occurrences</u>
Boundary Signs-Replacement	LCPR	\$100.00	5
Gopher Tortoise Protection Educational Sign	LCPR	\$2,500.00	1
Marine Debris Removal	KLCB/Parrotheads/LCPR	\$5,000.00	240
Total		\$7,600.00	
Public Use			
<u>Item</u>	<u>Funding Source</u>	<u>Costs</u>	<u>Occurrences</u>
Maintenance Supplies (tools)	LCPR	\$2,000.00	10
Trail & Public Access Maintenance	LCPR	\$5,000.00	10
Total		\$7,000.00	

BPP Total Projected Expense Cost For The Next 10 Years \$31,800.00

Due to the timeframe of this management report, all associated management expenses have been projected over 10 years.

Total costs have been distributed evenly across a 10 year timeframe to generate a projected annual management expense of **\$3,180.00 per year**.

Total projected annual management expense will be **\$31,800.00 over 10 years**.

Total projected restoration expense to occur within the timeframe of this plan will be **\$0**.

(Tree removal has been taken into consideration for management due to the frequency of aging trees, higher water table, and hurricanes.)