

FORT PIERCE INLET STATE PARK

UNIT MANAGEMENT PLAN

APPROVED PLAN

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Recreation and Parks
DECEMBER 8, 2006



Jeb Bush
Governor

Department of Environmental Protection

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Colleen Castille
Secretary

December 21, 2006

Ms. BryAnne White
Office of Park Planning
Division of Recreation and Parks
3900 Commonwealth Blvd.; M.S. 525
Tallahassee, Florida 32399

Re: Fort Pierce Inlet State Park

Lease #2742

Dear Ms. White:

On December 8, 2006, the Acquisition and Restoration Council recommended approval of the Fort Pierce Inlet State Park management plan. Therefore, the Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, approved the management plan for the Fort Pierce Inlet State Park. Pursuant to Sections 253.034 and 259.032, Florida Statutes, and Chapter 18-2, Florida Administrative Code this plan's ten-year update will be due on December 8, 2016.

Approval of this land management plan does not waive the authority or jurisdiction of any governmental entity that may have an interest in this project. Implementation of any upland activities proposed by this management plan may require a permit or other authorization from federal and state agencies having regulatory jurisdiction over those particular activities. Pursuant to the conditions of your lease, please forward copies of all permits to this office upon issuance.

Sincerely,

Paula L. Allen
Office of Environmental Services
Division of State Lands
Department of Environmental Protection

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INTRODUCTION

Fort Pierce Inlet State Park is located on the north side of Fort Pierce Inlet in St Lucie County (see Vicinity Map). A portion of the park that includes the waters of the Indian River lies within the Ft. Pierce city limits. Access to the park is from State Road A1A on the southern tip of North Hutchinson Island. The park is divided into two distinct parcels: Jack Island and Fort Pierce Inlet (see Reference Map). Large portions of the park have been altered for the purposes of mosquito control and construction and maintenance of the inlet. Significant natural features remain and include the park's sea grasses, maritime hammock and sandy beach. The park's Atlantic shoreline was utilized by the U.S. Navy for underwater demolition training during WW II and is currently a popular destination for public beach access.

The park is an important component of a network of state and local conservation areas that extend north from the inlet toward Vero Beach. These lands and waters include Avalon State Park, Indian River - Vero Beach to Ft. Pierce Aquatic Preserve, Kings Island, Pepper Park, Wildcat Cove and Coon Island and provide important habitat and water quality protection functions as well as additional resource based recreational opportunities.

Initial acquisition of Fort Pierce Inlet State Park began in 1973 with a purchase under the Environmentally Endangered Lands (EEL) program (see Addendum 1). In 1989, the Division consolidated the previously donated Pepper Beach Park (Jack Island) with Fort Pierce Inlet State Park. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) holds fee simple title to the park, with the exception of a narrow strip along the inlet that is owned by the Department of the Army and leased to the Division. Currently, the park is comprised of 1,140.77 acres.






At Fort Pierce Inlet State Park, public outdoor recreation and conservation is the designated single use of the property. There are no legislative or executive directives that constrain the use of this property. The park is administered jointly with Avalon State Park, located approximately 3.5 miles north along A1A.

Progress has been made in the areas of resource management and visitor services since approval of the 1997 plan. Resource management activity has focused on the removal of 16 species of exotic plants (11 Category I invasives), primarily Brazilian pepper and Australian pines. A total of 147 acres have been treated during the last planning cycle.


In 2002-2003, Osprey platforms and bat boxes were erected and a butterfly garden installed at the front entrance. The park was monitored annually for sea turtle and shorebird nesting. A total of 1,438 sea turtle nests, primarily loggerheads, were recorded on the beaches of Ft. Pierce Inlet and Avalon State Park since 1997-98. No shorebird nests were reported at Ft. Pierce Inlet. Gopher tortoise burrows were surveyed and marked in a ruderal area off the park drive. This area was also treated with fire to reduce woody vegetation and keep habitat favorable to tortoises. Natural areas, especially the maritime hammock were severely impacted during the 2004 hurricane season. The status of a rare orchid species previously known to inhabit the hammock is currently not known.

Staff time was devoted to repairs and clearing of debris for much of the 2004 hurricane season. The storm-damaged group camp was rebuilt and now has two new privies. New fish cleaning

Legend

-  Interstates
-  FDOT US Routes
-  FDOT State Routes
-  FDOT Local Roads
-  Park Boundary

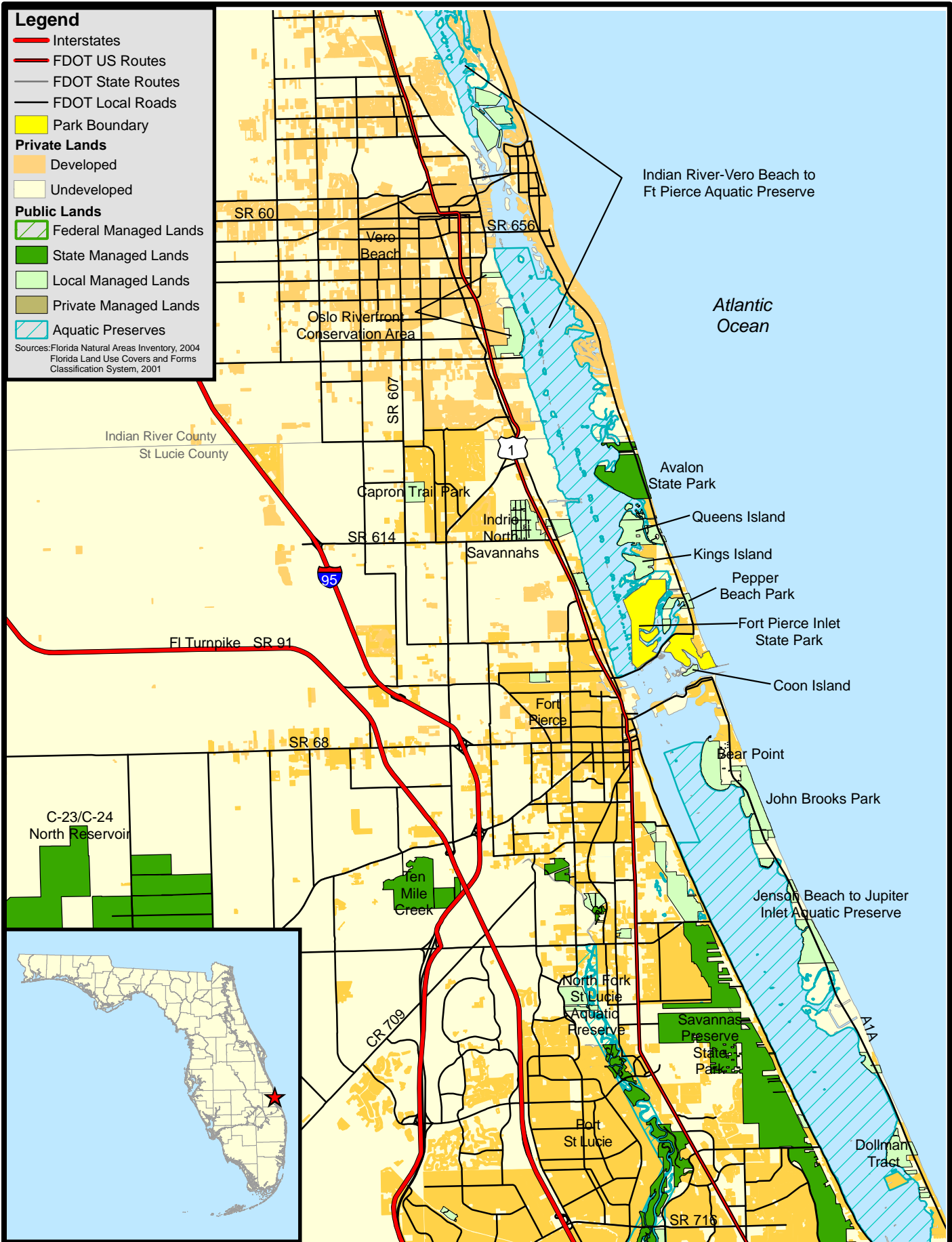
Private Lands

-  Developed
-  Undeveloped

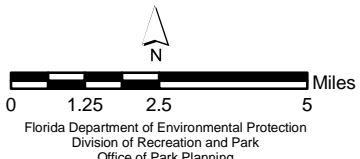
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-  Federal Managed Lands
-  State Managed Lands
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-  Private Managed Lands
-  Aquatic Preserves

Sources: Florida Natural Areas Inventory, 2004
 Florida Land Use Covers and Forms Classification System, 2001

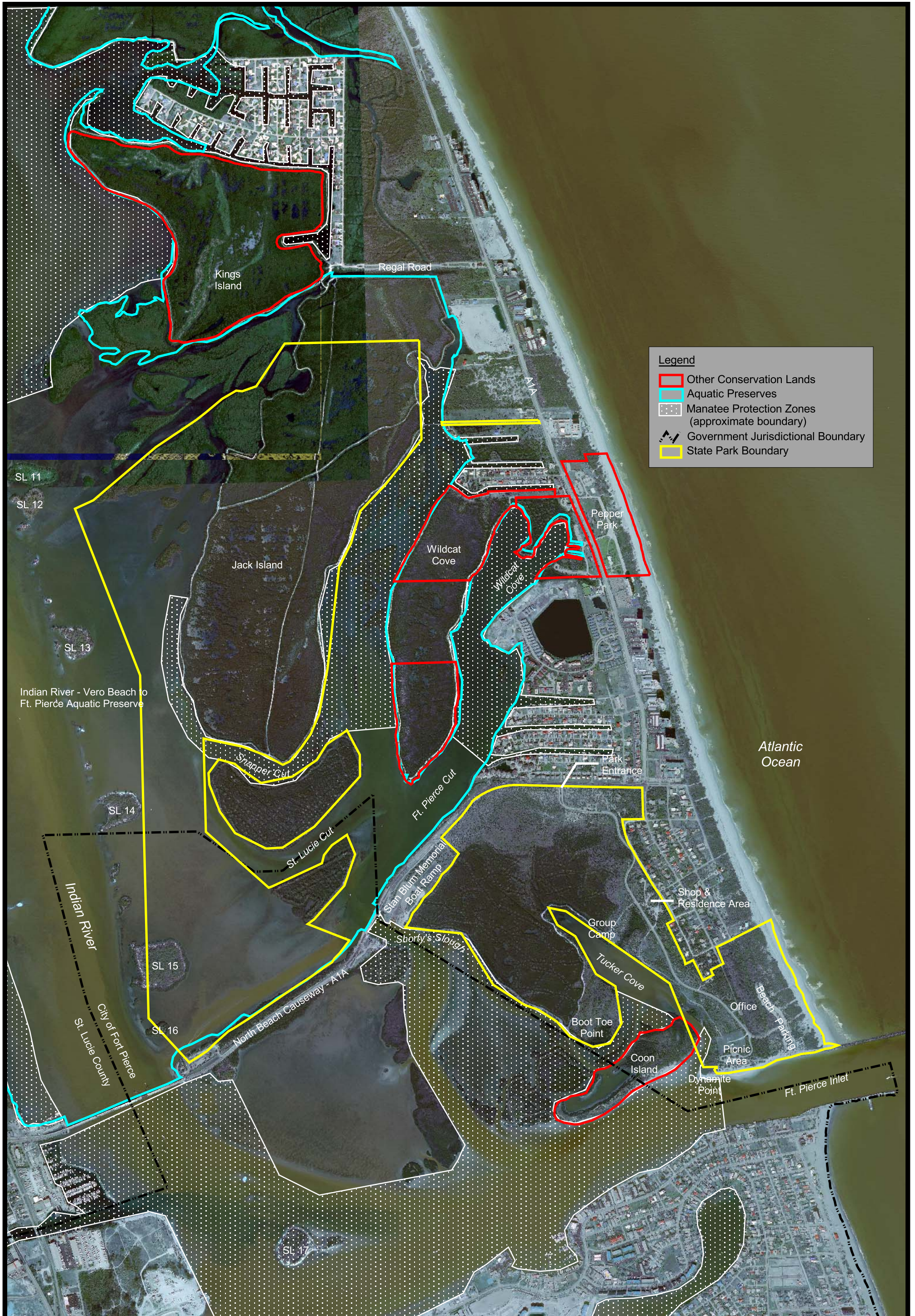


**FT PIERCE INLET
STATE PARK**



**VICINITY
MAP**

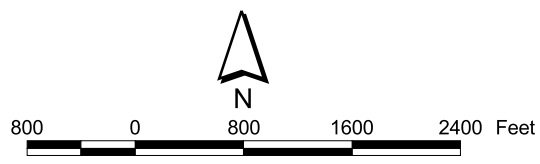
Florida Department of Environmental Protection
 Division of Recreation and Park
 Office of Park Planning



Legend

- Other Conservation Lands
- Aquatic Preserves
- Manatee Protection Zones (approximate boundary)
- Government Jurisdictional Boundary
- State Park Boundary

**FORT PIERCE INLET
STATE PARK**



Florida Department of Environmental Protection
Division of Recreation and Parks
Office of Park Planning

**REFERENCE
MAP**

tables were constructed along the inlet and the park's picnic area was expanded to include a new playground and additional picnic facilities.

PURPOSE AND SCOPE OF THE PLAN

This plan serves as the basic statement of policy and direction for the management of Fort Pierce Inlet State Park as a unit of Florida's state park system. It identifies the objectives, criteria and standards that guide each aspect of park administration, and sets forth the specific measures that will be implemented to meet management objectives. The plan is intended to meet the requirements of Sections 253.034 and 259.032, Florida Statutes, Chapter 18-2, Florida Administrative Code, and intended to be consistent with the State Lands Management Plan. With approval, this management plan will replace the May 29, 1997 approved plan. All development and resource alteration encompassed in this plan is subject to the granting of appropriate permits; easements, licenses, and other required legal instruments. Approval of the management plan does not constitute an exemption from complying with the appropriate local, state or federal agencies. This plan is also intended to meet the requirements for beach and shore preservation, as defined in Chapter 161, Florida Statutes and Chapters 62B-33, 62B-36 and 62R-49, Florida Administrative Code.

The plan consists of two interrelated components. Each component corresponds to a particular aspect of the administration of the park. The resource management component provides a detailed inventory and assessment of the natural and cultural resources of the park. Resource management problems and needs are identified, and specific management objectives are established for each resource type. This component provides guidance on the application of such measures as prescribed burning, exotic species removal, and restoration of natural conditions.

The land use component is the recreational resource allocation plan for the unit. Based on considerations such as access, population, and adjacent land uses, an optimum allocation of the physical space of the park is made, locating use areas and proposing types of facilities and volume of use to be provided.

In the development of this plan, the potential of the park to accommodate secondary management purposes ("multiple uses") was analyzed. These secondary purposes were considered within the context of the Division's statutory responsibilities and an analysis of the resource needs and values of the park. This analysis considered the park natural and cultural resources, management needs, aesthetic values, visitation and visitor experiences. For this park, it was determined that no secondary purposes could be accommodated in a manner that would not interfere with the primary purpose of resource-based outdoor recreation and conservation. Uses such as water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in this plan) are not consistent with this plan or the management purposes of the park.

The potential for generating revenue to enhance management was also analyzed. Visitor fees and charges are the principal source of revenue generated by the park. It was determined that multiple-use management activities would not be appropriate as a means of generating revenues for land management. Instead, techniques such as entrance fees, concessions and similar measures will be employed on a case-by-case basis as a means of supplementing park management funding.

The use of private land managers to facilitate restoration and management of this unit was also analyzed. Decisions regarding this type of management (such as outsourcing, contracting with the private sector, use of volunteers, etc.) will be made on a case-by-case basis as necessity dictates.

MANAGEMENT PROGRAM OVERVIEW

Management Authority and Responsibility

In accordance with Chapter 258, Florida Statutes, and Chapter 62D-2, Florida Administrative Code, the Division of Recreation and Parks (Division) is charged with the responsibility of developing and operating Florida's recreation and parks system. These are administered in accordance with the following policy:

It shall be the policy of the Division of Recreation and Parks to promote the state park system for the use, enjoyment, and benefit of the people of Florida and visitors; to acquire typical portions of the original domain of the state which will be accessible to all of the people, and of such character as to emblemize the state's natural values; conserve these natural values for all time; administer the development, use and maintenance of these lands and render such public service in so doing, in such a manner as to enable the people of Florida and visitors to enjoy these values without depleting them; to contribute materially to the development of a strong mental, moral, and physical fiber in the people; to provide for perpetual preservation of historic sites and memorials of statewide significance and interpretation of their history to the people; to contribute to the tourist appeal of Florida.

The Trustees have also granted management authority of certain sovereign submerged lands to the Division under Management Agreement MA 68-086 (as amended January 19, 1988). The management area includes a 400-foot zone from the edge of mean high water where a park boundary borders sovereign submerged lands fronting beaches, bays, estuarine areas, rivers or streams. Where emergent wetland vegetation exists, the zone extends waterward 400 feet beyond the vegetation. The agreement is intended to provide additional protection to resources of the park and nearshore areas and to provide authority to manage activities that could adversely impact public recreational uses. This management authority does not apply to the submerged lands of the Ft. Pierce Inlet, which are under the jurisdiction of the federal government.

Many operating procedures are standard system wide and are set by policy. These procedures are outlined in the Division's Operations Manual (OM) that covers such areas as personnel management, uniforms and personal appearance, training, signs, communications, fiscal procedures, interpretation, concessions, camping regulations, resource management, law enforcement, protection, safety and maintenance.

Fort Pierce Inlet State Park is categorized as a state recreation area within the Division's Unit Classification System. At a state recreation area, major emphasis is placed on maximizing the recreational potential of the park. Active recreational pursuits, such as swimming boating and beach activities are given priority. Program emphasis is devoted to promoting beneficial use of the area's recreational opportunities. Preservation of resources remains important and deterioration from public use of a resource directly supporting an important recreational pursuit

is not permitted. Development in the park is aimed at providing facilities that are accessible, convenient and safe, as needed, to support maximum recreational use.

Park Goals and Objectives

The following park goals and objectives express the Division's long-term intent in managing the park. At the beginning of the process to update this management plan, the Division reviewed the goals and objectives of the previous plan to determine if they remain meaningful and practical and should be included in the updated plan. This process ensures that the goals and objectives for the park remain relevant over time.

Estimates are developed for the funding and staff resources needed to implement the management plan based on these goals, objectives and priority management activities. Funding priorities for all state park management and development activities are reviewed each year as part of the Division's legislative budget process. The Division prepares an annual legislative budget request based on the priorities established for the entire state park system. The Division also aggressively pursues a wide range of other funds and staffing resources, such as grants, volunteers and partnerships with agencies, local governments and the private sector, for supplementing normal legislative appropriations to address unmet needs. The ability of the Division to implement the specific goals, objectives and priority actions identified in this plan will be determined by the availability of funding resources for these purposes.

Natural Resources

1. Continue to protect, improve and effectively manage the natural resources of the park.
 - A. Continue to work on exotic removal in the park, especially the treatment of cogon grass.
 - B. Prioritize spoil areas for reclamation.
 - C. Begin to prepare and implement a pilot reclamation program for the spoil areas found in the park.
 - D. Explore methods for clearly defining the offshore park boundary and surveying parks waters to establish extent and quality of different marine habitats. This should include working with Florida Fish and Wildlife Conservation Commission for additional marking of the area as a manatee zone and marking to protect seagrasses.
 - E. Continue to coordinate with St. Lucie Mosquito Control on best possible management of the mosquito impoundments.
 - F. Control visitor access to remote areas.
 - G. Continue to monitor cat activity and remove as needed. Biological staff to conduct quarterly surveys.
 - H. Repair/replace boundary fencing.

Cultural Resources

1. Continue to identify, preserve and actively manage cultural resources.
 - A. Continue to protect known sites.
 - B. Pursue funding for a Phase I archaeological survey (2-5 years).

Recreation

1. Continue to provide quality resource-based outdoor recreation and interpretive activities and facilities.
 - A. Maintain safe, high quality public beach access for fishing, swimming, surfing and general saltwater beach recreation.

- B. Provide adequate picnic and play areas for individuals, families and groups.
 - C. Provide opportunities for groups to camp overnight at the park.
 - D. Encourage bicycle and pedestrian access by maintaining a separate paved path to the primary use areas of the park.
 - E. Provide programming that promotes recreational use of the park, stewardship and understanding of park resources.
 - F. Host special event programs that serve to educate the public, promote use of the park and encourage resource-based recreation.
2. Seek funding to expand recreational and interpretive opportunities through the improvement of programs and the development of new use areas and facilities, as outlined in the management plan.
- A. Provide additional beach access by expanding the parking area.
 - B. Construct a concession facility in the beach use area.
 - C. Improve interpretation by updating/expanding signage, informational handouts and programming content.
 - D. Establish canoe/kayak access to Tucker Cove.
 - E. Expand picnic facilities along the inlet.
 - F. Expand hiking opportunities with a trail along Boot Toe Point.
 - G. Enhance special event programming at the park with an emphasis on promoting local and regional surfing contests.

Park Administration/Operations

- 1. Continue to provide quality administrative and operational services.
 - A. Conduct regular inspections of use areas and facilities and correct deficiencies to provide a safe, clean and well-maintained environment for visitors and staff.
 - B. Maintain vehicles, tractors, fire suppression equipment and other land management equipment in good/working condition.
 - C. Provide staff with appropriate training opportunities in visitor services, resource management, park operations, general maintenance, and interpretation.
 - D. Maintain partnerships with federal, state, and local agencies and non-governmental organizations.
 - E. Conduct community outreach activities to enhance public awareness and support of the park.
 - F. Provide universally accessible public facilities.
 - G. Recruit and maintain volunteer support to assist staff with park operations.

Management Coordination

The park is managed in accordance with all applicable Florida Statutes and administrative rules. Agencies having a major or direct role in the management of the park are discussed in this plan.

The Florida Fish and Wildlife Conservation Commission (FFWCC), assists staff in the enforcement of state laws pertaining to wildlife, freshwater fish and other aquatic life existing within park boundaries. In addition, the FFWCC aids the Division with wildlife management programs, including the development and management of Watchable Wildlife programs. The Department of State, Division of Historical Resources (DHR) assists staff to assure protection of archaeological and historical sites. The Department of Environmental Protection (DEP), Office of Coastal and Aquatic Managed Areas (CAMA) aids staff in aquatic preserves management programs. The DEP, Bureau of Beaches and Wetland Resources aid staff in planning and

construction activities seaward of the Coastal Construction Line and in the development of erosion control projects.

Public Participation

The Division provided an opportunity for public input by conducting a public workshop and an advisory group meeting. A public workshop was held on May 24, 2006. The purpose of this meeting was to present this draft management plan to the public. An Advisory Group meeting was held on May 25, 2006. The purpose of this meeting was to provide the Advisory Group members the opportunity to discuss the draft management plan.

Other Designations

Fort Pierce Inlet State Park is not within an Area of Critical State Concern as defined in section 380.05, Florida Statutes. Currently it is not under study for such designation. The park is a component of the Florida Greenways and Trails System.

All waters within Fort Pierce Inlet State Park have been designated as Outstanding Florida Waters, pursuant to Chapter 62-302 Florida Administrative Code. Surface waters in this unit are classified as Class III waters (Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife) by DEP. A portion of the park (all areas north of the North Beach Causeway) is within the Indian River—Vero Beach to Fort Pierce Aquatic Preserve as designated under the Florida Aquatic Preserve Act of 1975 (section 258.35, Florida Statutes).

Parts of adjacent waters have been designated as Manatee Protection Zones pursuant to Chapter 68C-22.008 Florida Administrative Code (see Reference Map for approximate boundaries). These zones include a mix of slow, maximum and idle speed zones applicable year-round in waters adjacent to the park. The FFWCC should be consulted for the exact locations of the St. Lucie County Manatee Protection Zones.

RESOURCE MANAGEMENT COMPONENT

INTRODUCTION

The Division of Recreation and Parks has implemented resource management programs for preserving for all time the representative examples of natural and cultural resources of statewide significance under its administration. This component of the unit plan describes the natural and cultural resources of the park and identifies the methods that will be used to manage them. The stated management measures in this plan are consistent with the Department's overall mission in ecosystem management. Cited references are contained in Addendum 2.

The Division's philosophy of resource management is natural systems management. Primary emphasis is on restoring and maintaining, to the degree practicable, the natural processes that shape the structure, function and species composition of Florida's diverse natural communities as they occurred in the original domain. Single species management may be implemented when the recovery or persistence of a species is problematic provided it is compatible with natural systems management.

The management goal of cultural resources is to preserve sites and objects that represent all of Florida's cultural periods as well as significant historic events or persons. This goal may entail active measures to stabilize, reconstruct or restore resources, or to rehabilitate them for appropriate public use.

Because park units are often components of larger ecosystems, their proper management is often affected by conditions and occurrences beyond park boundaries. Ecosystem management is implemented through a resource management evaluation program (to assess resource conditions, evaluate management activities and refine management actions), review of local comprehensive plans and review of permit applications for park/ecosystem impacts.

RESOURCE DESCRIPTION AND ASSESSMENT

Natural Resources

Topography

The elevation at Fort Pierce Inlet State Park ranges from mean high water (MHW) to 10 feet above MHW. This area is part of the Atlantic Coastal Ridge physiographic region and the Atlantic Beach Ridges and Barrier Chain subzone. The topography of this beach system is influenced by the presence of nearby inlets and sand deposition by wind and water. The present inlet was built in 1921. A shallow natural inlet was once located northeast of Jack Island (approximately two miles north of the current inlet). This naturally-occurring inlet closed in the early 1900s due the opening of the man-made St. Lucie Inlet, 21 miles to the south, which reduced tidal volume and increased shoaling.

The beach dune ridge at Fort Pierce Inlet is similar to the beach proper due to water borne sediment slowly being deposited onto the beach. This is a result of the impoundment of sand by the north jetty of present day Fort Pierce Inlet and the net movement of littoral transported sand from north to south.

Much of the small-scale topography has been strongly affected by the deposition of spoils from

different sources. Spoils were piled through most of the uplands of the park from between two to six feet in depth.

Jack Island currently exists as a mosquito impoundment that was created by the construction of dikes around a tidal mangrove estuarine area in the Indian River.

Geology

There are two major features that make up the geologic formation underlying this area. The base rock is called the Anastasia Formation and is a coquinoid-quartz-limestone combination formed in the Pleistocene. Pamlico Sand is located on top of this formation with its more recent features having Holocene origins. The term “perched barrier island” is used to describe this formation.

Toward the end of the Pleistocene Epoch approximately 20,000 years ago, sea level experienced a severe drop. During this cooler time, the formation of sand dunes and beaches began. A new mainland shore was established inside of this dune region, with a subsequent sea level rise. Thus, an offshore barrier was formed.

This dynamic system is very evident on the high-energy beaches of eastern Florida. Fort Pierce Inlet State Park is located on the north side of Ft. Pierce Inlet, which has been stabilized with a jetty by the Army Corps of Engineers. Along most of Florida’s east coast there is a net southward migration of sand. Hence, by being on the north side of the inlet, Fort Pierce Inlet State Park beaches are slowly being deposited with water-borne sediments.

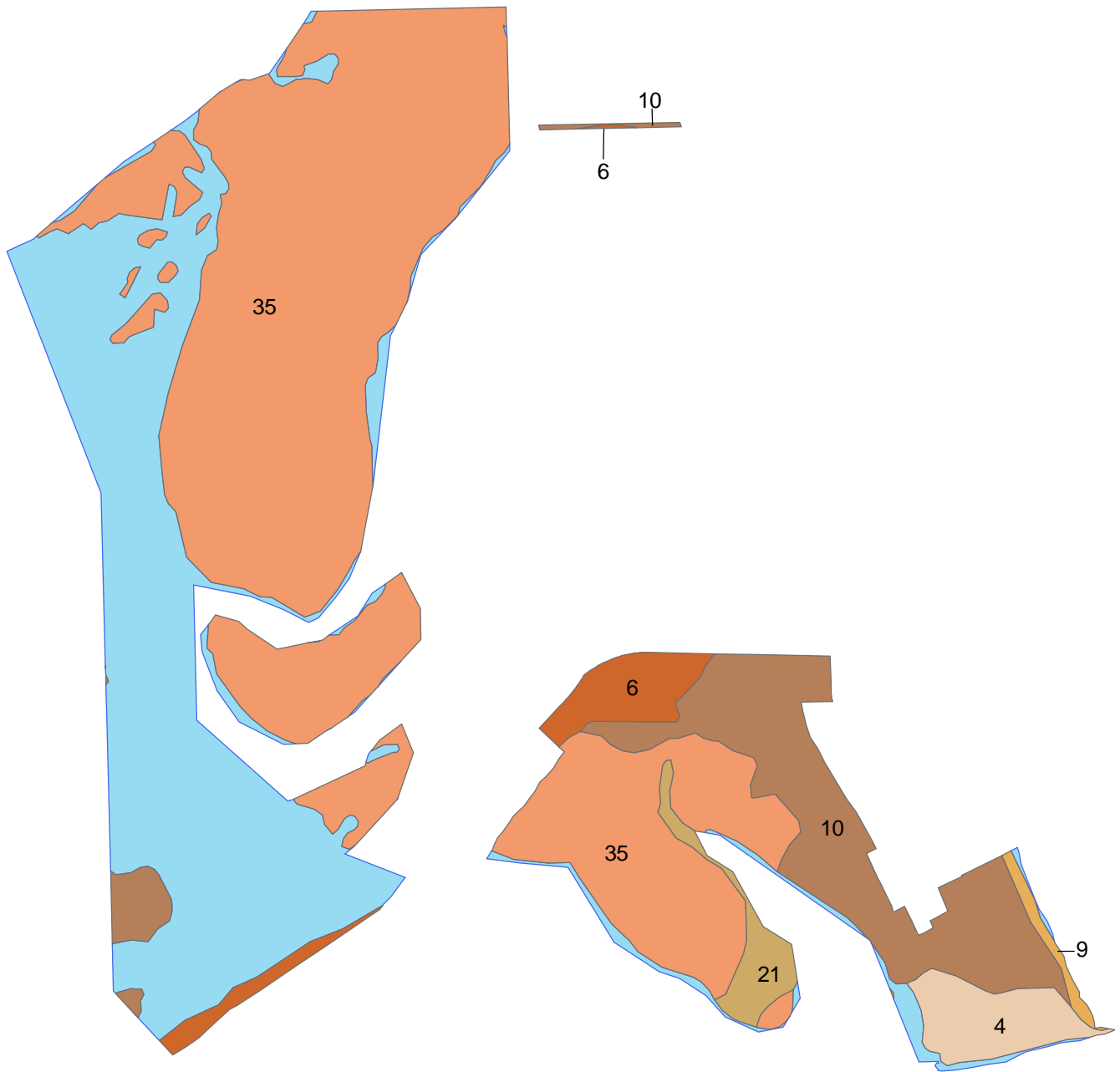
Soils

The natural soils of Fort Piece Inlet State Park are relatively recent due to the young age of the barrier island on which it is located. They are primarily composed of sand, quartz and shell fragments. There are 6 soil types found in this unit as described in the Soil Survey of St. Lucie County (1980) (see Soils Map). These soils include beaches, Canaveral Fine Sand, Lawnwood Sand, Pompano Variant-Kaliga Variant Association, Arents (0-5 percent slopes) and Arents (organic substratum) (USDA, 1980). Addendum 3 contains a description of these soils. Arents are soils derived from spoil material and occur through much of the park in the uplands. The spoils have a depth of 20 – 80 inches in many places. The dikes on the mosquito impoundments are also spoil materials. The soil map shown differs from the county’s soil survey, but cores were examined with Kevin Sullivan from the United States Department of Agriculture, Soil Conservation Service which helped more precisely define spoil areas. The northern section of the park currently labeled Canaveral Fine Sands (10) (See soil map) has a cap of spoils. If surficial spoils are less than 20 inches deep, areas are classified as the natural soil that exists below the added material.

The main erosional forces on the beach are storms from the northeast and hurricanes or tropical storms. Subsequent rebuilding of the dune system is quite slow when a severe storm of this type affects the area. The dune system is currently protected from foot traffic by dune crossovers. Other areas of this unit are unaffected by significant soil erosion due to the small amount of elevation change and vegetative cover.

Minerals

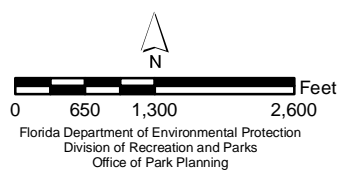
There are no known mineral deposits of commercial value located in this unit.



LEGEND

- 4 - Arents, 0 to 5 percent slopes
- 6 - Arents, organic substratum
- 9 - Beaches
- 10 - Canaveral fine sand, 0 to 5 percent slopes
- 21 - Lawnwood sands
- 35 - Pompano Variant-Kaliga Variant association
- Water

**FORT PIERCE INLET
STATE PARK**



**SOILS
MAP**

Hydrology

Fort Pierce Inlet State Park is located within the South Florida Water Management District. All drainage within this unit flows into the Indian River Lagoon and the Atlantic Ocean. The Indian River Lagoon, a shallow estuary located between the mainland and the barrier island, flows from Volusia County south to Palm Beach County. The Lagoon is one of the most biologically diverse estuaries in the United States (Harbor Branch Consortium, 1975). However, due to canalization into the Indian River, water quality has been degraded. Increased surface water run-off has raised organic pesticide loads and other pollutants in the river. Fort Piece Inlet State Park has a thin underlying freshwater lens. This lens is principally fed by the approximately 52 inches of rainfall the area receives annually. Most rainfall percolates into the surficial aquifer, although there is a fair amount of surface run-off into the Atlantic Ocean and Indian River Lagoon.

Natural Communities

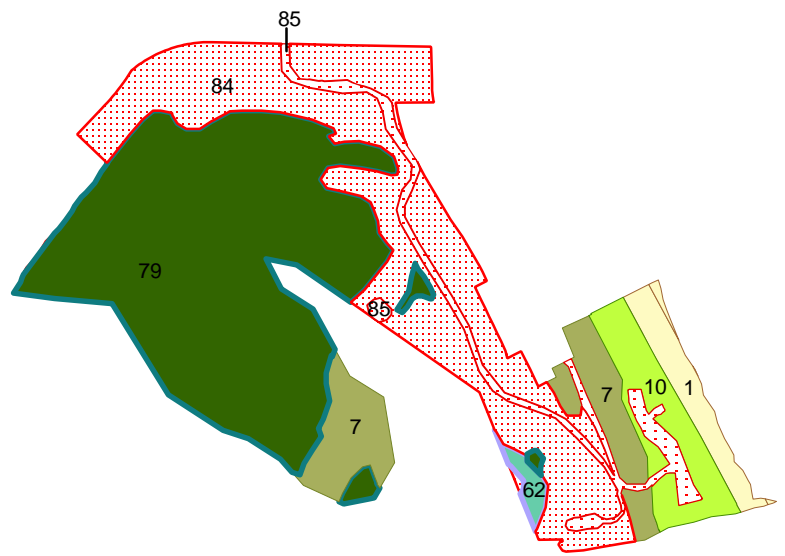
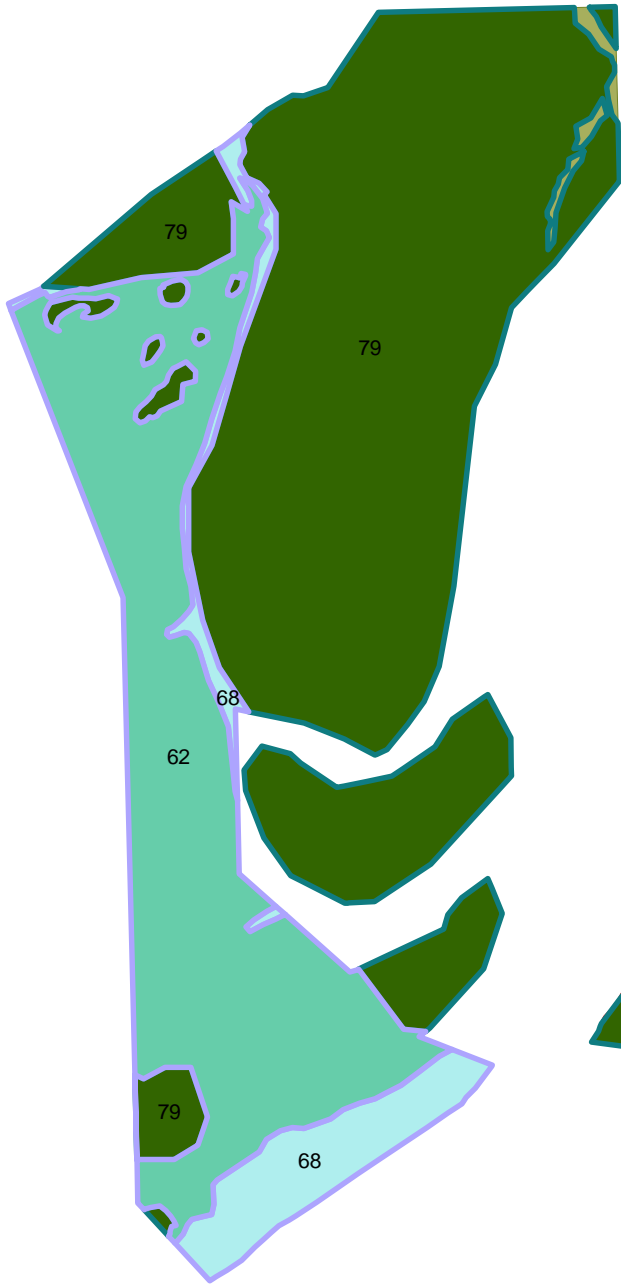
The system of classifying natural communities employed in this plan was developed by the Florida Natural Areas Inventory (FNAI). The premise of this system is that physical factors, such as climate, geology, soil, hydrology and fire frequency generally determine the species composition of an area, and that areas which are similar with respect to these factors will tend to have natural communities with similar species compositions. Obvious differences in species composition can occur, despite similar physical conditions. In other instances, physical factors are substantially different, yet the species compositions are quite similar. For example, coastal strand and scrub--two communities with similar species compositions--generally have quite different climatic environments, and these necessitate different management programs.

The park contains seven distinct natural communities (see Natural Communities Map) in addition to ruderal and developed areas. Park specific assessments of the existing natural communities are provided in the narrative below. A list of plants and animals occurring in the unit is contained in Addendum 4.









Beach dune. The beach dune community at Fort Pierce Inlet State is confined to the Fort Pierce Inlet portion of the unit and presently is in fair condition. The dunes are low and not well developed most likely because before purchase of the property foot and vehicular traffic disturbed the area. Dune crossovers have helped protect this community from erosion by foot traffic. This community contains the endangered beach star (*Cyperus pedunculatus*) and gopher tortoises.

Maritime hammock. This community is a mixture of warm temperate and tropical vegetation. Warm-temperate plant species (live oak, scrub hickory and red bay) dominate, but there are several common tropical species (gumbo limbo, black ironwood, blolly, stoppers, wild coffee, cocoplum, and Florida privet) as well.

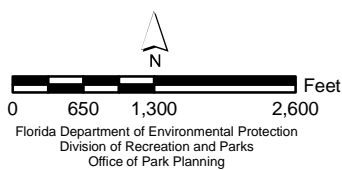
This community is in good condition. The major problem is encroachment of exotic plant species on the Fort Pierce Inlet portion. Removing exotic plants will improve the quality of the hammock. Expansion of the hammock is limited by soil quality. Currently, the hammock covers the portion of the park that has natural soils. The border of the hammock often marks a change in soil from natural to spoils. Future restoration of spoil areas will need exotic removal and planting of native plant species.



LEGEND

-  1 - Beach Dune-12.33 ac.
-  7 - Maritime Hammock-35.44 ac.
-  10 - Coastal Grasslands-20.20 ac.
-  62 - Estuarine Grass Bed-253.14 ac.
-  68 - Estuarine Unconsolidated Substrate-55.47 ac.
-  79 - Marine Tidal Swamp-642.41 ac.
-  84 - Ruderal-103.89 ac.
-  85 - Developed-17.89 ac.

**FORT PIERCE INLET
STATE PARK**



**NATURAL COMMUNITIES
MAP**

Coastal grassland. The coastal grassland community at Fort Pierce Inlet State Park is restricted to the Fort Pierce Inlet portion of the unit. The community is in good condition. Due to the low dune line, this community is in an early stage of succession. At this time, it is difficult to distinguish exactly where the dune community ends and the grassland community begins. The western portion (secondary dunes) of this community has been treated for Australian pine and Brazilian pepper trees.

Estuarine seagrass bed. Seagrass beds are present throughout the submerged land located within the unit. These areas need to be mapped to provide baseline data for possible future management decisions. This community appears to be in good condition. The reduction of seagrass beds has been documented in the Indian River as well as other major estuaries in Florida. This trend is caused by a number of variables, including a decrease in water quality, which increases turbidity and lowers the amount of light reaching the seagrass, prop-scarring by boats, the destruction of adjacent upland habitat and construction of seawalls. No formal submerged land survey has been conducted for this community.

Estuarine unconsolidated substrate. Some of this community is made up of muddy bottom, although areas of high intensity water flow have a sandy bottom.

Marine tidal swamp. There is natural tidal swamp located in the park. The areas are in good condition. Most of the mangroves run along the outer edge of the mosquito impoundments or occur in small pockets.

The small island south of Jack Island was ditched for mosquito control, but is not a mosquito impoundment. This island is made up of mangroves and does not have any upland areas.

The western portion of Fort Pierce Inlet and all of Jack Island are mosquito impoundments. The mosquito impoundments have all three mangrove species (red mangrove– *Rhizophora mangle*, black mangrove– *Avicennia germinans*, white mangrove – *Laguncularia racemosa*, and buttonwood – *Conocarpus erectus*) and they appear to be healthy, covering 90-95 percent of the impoundments. St. Lucie County Mosquito Control District has removed the majority of exotic plants on the dikes and wetlands of impounded areas. However, the impoundments are not functioning like undisturbed tidal swamps. Mosquito impoundments were created in order to reduce mosquito breeding, particularly in high marshes by keeping water levels in these areas constant. Due to the physical alteration, the condition of the managed swamp/marshes is considered poor. Fish and bird life appear to be doing well, but the area is no longer functioning like a non-impounded system. Water levels are kept within a tighter range than tidal swamps without dikes, so oxygen levels in the water and in sediments can become low. The impoundment of mangroves prevents the normal exchange of nutrients between tidal swamp and estuary, so the mosquito impoundments of the park probably contribute less to the overall productivity of the local estuarine system than a natural system. The impoundments at Fort Pierce Inlet portion of the park have some exchange of water over the tidal cycle through culverts.

Marine unconsolidated substrate. This natural community is located within the Fort Pierce Inlet portion of the unit. Marine unconsolidated substrate is found along the Atlantic coast shoreline extending from the intertidal zone seaward through the subtidal zone. The substrate of most of this area is soft sand bottom. Unconsolidated substrate is also found in the inlet.

Ruderal. Fort Pierce Inlet State Park contains ruderal areas that are comprised of spoil areas and mosquito impoundments.

Much of the Fort Pierce portion of the park is ruderal and has spoil derived soils (see soils map). Some of the ruderal area is covered with exotic vegetation, some a mixture of exotics and grasses, cabbage palms, seagrape, and winged sumac. A long-term effort should be made to slowly convert ruderal areas into more natural communities. The spoil varies in depth and quality and is the limiting factor for plant community recruitment and succession. The mosquito impoundment dikes are ruderal and are used for park vehicle use and a nature trail at Jack Island. Hammock species and mangroves run along the edges of the dikes. They have been treated for exotic plants, but will need monitoring, as they are prime locations for future exotic plant infestation.

Developed. The areas consist of parking lots, bathhouses, picnic areas, roads, a primitive group camp, residence areas, a shop complex, an entrance station and an administration building.

Designated Species

Designated species are those that are listed by the Florida Natural Areas Inventory (FNAI), U.S. Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FFWCC), and the Florida Department of Agriculture and Consumer Services (FDA) as endangered, threatened or of special concern. Addendum 5 contains a list of the designated species and their designated status for this park. Management measures will be addressed later in this plan.

There are eight designated plant species including the endangered beach star (*Cyperus pedunculatus*) and 24 designated animal species including the manatee, gopher tortoise and sea turtles.

A tidal flat site of critical importance to Johnson's seagrass (*Halophila johnsonii*) is located near the park waters and this threatened seagrass is found throughout the area. Because it appears that Johnson's seagrass does not reproduce by seed (only vegetatively), protection of large contiguous areas such as the one found near park waters is vital to its survival. In general, all seagrasses are vital to the health and productivity of nearshore coastal waters and those found near inlets harbor the greatest diversity of organisms, including juveniles of offshore and inshore fisheries species.

The West Indian manatee is commonly observed in the park. Tucker cove and Shorty's Slough are two areas where manatees are often seen. These waters, as well as all areas with adjoining grass beds have been designated as idle speed/no wake zones (manatee protection zones), but further posting of the area is needed. This should help protect the manatees and decrease the amount of wake and prop-scarring damage on the grass beds.

The beach area extending from Fort Pierce Inlet State Park to Avalon State Park is an important sea turtle nesting area. Park staff monitors the number of nests each year in the park, but does not mark them due to the low amount of predation in the area.

Gopher tortoises (*Gopherus polyphemus*) have done well in some of the areas of extensive spoil soils and in the beach dunes. The park has a moderate concentration of tortoises of all size

classes.

A 1988 live-trapping program revealed the presence of the southeastern beach mouse (*Peromyscus polionotus niveiventris*) in the coastal grassland/dune community. However, all subsequent work has shown that the beach mouse has been extirpated from the park. Since it is unknown why the mice have become locally extinct, it is not recommended to reintroduce them.

The estuarine wetland areas within Jack Island and Fort Pierce Inlet are host to a diverse assemblage of wading and shore birds. Many of these birds are designated species. The protection of these estuarine wetland communities will become even more important in the future as these communities disappear from other portions of the Indian River.

Special Natural Features

Special natural features of Fort Pierce Inlet State Park include the remaining maritime hammock and marine grass beds.

Cultural Resources

Evaluating the condition of cultural resources is accomplished using a three part evaluative scale, expressed as good, fair, and poor. These terms describe the present state of affairs, rather than comparing what exists against the ideal, a newly constructed component. Good describes a condition of structural stability and physical wholeness, where no obvious deterioration other than normal occurs. Fair describes a condition in which there is a discernible decline in condition between inspections, and the wholeness or physical integrity is and continues to be threatened by factors other than normal wear. A fair judgment is cause for concern. Poor describe an unstable condition where there is palpable, accelerating decline, and physical integrity is being compromised quickly. A resource in poor condition suffers obvious declines in physical integrity from year to year. A poor condition suggests immediate action to reestablish physical stability.

The Florida Master Site File lists one known archaeological site in the park, SL12, North Beach Fort Pierce. In addition to SR12, several other archaeological sites are recorded in the immediate vicinity of the park, which suggests the presence of unrecorded sites in the park. These sites are likely to be small or covered with spoil deposits, and therefore easily overlooked. In June of 1960, F.W. Hardon described the site as a sand burial mound located in a fill area to be subdivided. Observation during the cultural resource management evaluation in April, 2001, confirmed previous findings by the Division of Historical Resources that neither a discernible mound nor exposed artifacts are apparent, but the area appears highly disturbed due to past development activities. Despite its history of past archaeological investigations and land fill activities, the site is assessed to be in fair condition because the fill is likely protecting it from further degradation.

The name Fort Pierce comes from a U.S. army fort built just south of the present day town of Fort Pierce during the Seminole Indian Wars in 1838 by Lieutenant Colonel Benjamin K. Pierce. This Fort was accessible to the Atlantic Ocean through the Indian River Inlet which was located just northeast of the northern part of the present day Jack Island parcel. The presence of the inlet was documented as early as 1605 by an early Spanish explorer, Alvaro Mexia. The opening of the St. Lucie Inlet in 1892 diverted a large amount of water from the Indian River Inlet which is attributed to its closing in the early 1900s.

One of the main features of Fort Pierce Inlet State Park is Fort Pierce Inlet, a man-made inlet that was opened on May 8, 1921. Originally funded and dug by the Fort Pierce Inlet District from a local tax base, maintenance dredging and other draining expenses proved to be costly. Federal help was sought and in 1935 the federal government assumed responsibility for the maintenance of the inlet and harbor area.

During World War II, the area north of the Fort Pierce Inlet was used as an amphibious-training facility. The U.S. Naval Amphibious Training Base saw the beginning of what later became known as underwater demolition training. Approximately 140,000 men were trained at this top-secret facility, which was important to the United States' war effort. Currently a museum honoring these men and their program is located just north of Fort Pierce Inlet at Pepper Beach County Park.

RESOURCE MANAGEMENT PROGRAM

Special Management Considerations

Timber Management Analysis

Chapters 253 and 259, Florida Statutes, require an assessment of the feasibility of managing timber in land management plans for parcels greater than 1,000 acres if the lead agency determines that timber management is not in conflict with the primary management objectives of the land. The feasibility of harvesting timber at this park during the period covered by this plan was considered in context of the Division's statutory responsibilities, and an analysis of the park's resource needs and values. The long-term management goal for forest communities in the state park system is to maintain or re-establish old-growth characteristics to the degree practicable, with the exception of early successional communities such as sand pine scrub and coastal strand.

During the development of this plan, an analysis was made regarding the feasibility of timber management activities for this park. It was then determined that the primary management objectives of the unit could be met without conducting timber management activities for this management plan cycle. Timber management will be reevaluated during the next update of this management plan.

Additional Considerations

Protection of near shore marine waters. These waters are visited by not only manatees and sea turtles but are included in the Indian River Lagoon, the most diverse estuary in the United States. For example, 359 species of fish have been recorded for the Lagoon. Currently the park is heavily used for swimming and boating. Park waters are a manatee protection zone and further posting of the area as "no wake" needs to be done. All work carried out in the park will be conducted in a way to avoid damage, such as erosion, to the surrounding waters.

Spoil area restoration. Fort Pierce Inlet State Park has two major interrelated resource management needs, which are the removal of invasive exotic plants and the restoration of spoil areas. The spoil areas are extensive at the park. The two major spoil areas include the area bordering the inlet west to Dynamite Point, then north, and the area along State Road A-1-A in the northern portion of the park. These spoil areas were created by the inlet dredging and by the building of the A-1-A highway. These areas have been colonized by exotic vegetation, especially Brazilian pepper (*Schinus terebinthifolius*) and Australian pine (*Casuarina equisetifolia*). Over

the long term, the park plans to eliminate exotic plants in spoil areas and restore them with native vegetation either through natural recruitment or through plantings. The areas of highest priority will be dependent on current vegetative cover, location and quality of spoil material. The presence of gopher tortoises also will affect some activities. Restoration will be dependent on outside funding and should be started with a small one to five-acre project.

There was a small area of spoil along Tucker Cove that was scraped down. It was hoped that it would be a tidal marsh community. Some of the lower area is starting to be covered with mangroves and the higher areas have converted to seashore dropseed grass (*Sporobolus virginicus*). This is not considered a future option for restoration, due to the large expense of the spoil removal.

The large spoil island partially located within the park boundaries just north of the State Road A-1-A bridge (Spoil Island SL15) is slated for restoration by Coastal Aquatic Management Areas (CAMA) as part of a Florida Department of Transportation mitigation project. The park will remain in contact with CAMA on the progress of this project.

Management Needs and Problems

- Implementation and maintenance of an effective exotic plant removal program.
- Restoration of spoil areas to native communities.
- Better management of mosquito impoundments for native wildlife.
- Further posting of park waters as a manatee zone.
- Maintenance of maritime hammock.
- Continuous updating of the plant and animal inventories.
- Identification, preservation and active management of cultural resources.

Management Objectives

The resources administered by the Division are divided into two principal categories: natural resources and cultural resources. The Division primary objective in natural resource management is to maintain and restore, to the extent possible, to the conditions that existed before the ecological disruptions caused by man. The objective for managing cultural resources is to protect these resources from human-related and natural threats. This will arrest deterioration and help preserve the cultural resources for future generations to enjoy.

- The park should continue the removal of exotic plant species both with staff work and outside grants for contract work. Exotic plants make it difficult for native plants to colonize the spoil areas, which dominate the park. In addition, exotics are visible to the public.
- Restoration of native communities will be a slow process due to the amount of time and money needed. Recruitment of native plants onto spoil soils is slow. Money should be found to plant a one to five acre area with native hammock species. The make up of the hammock can be modeled on the existing maritime hammock and use species like live oak. The test area will allow for adjustments for future and larger restoration activities.
- The native hammock should be maintained by removing all exotic vegetation and maintaining the area and its perimeter exotics free. Hammock species also exist on the mosquito impoundment dikes along with mangroves. Maintaining these dikes exotic free will allow for further growth and recruitment of mangroves and hammock plants.

- The park should continue to coordinate management of mosquito impoundments with St. Lucie County Office of Mosquito Control for improving water quality for fish and wildlife resources, while maintaining current acceptable mosquito reduction.
- Further posting of park waters as a manatee protection zone. This may be difficult as the park is heavily used for recreation. The county boat ramp next to the park has increased boat traffic in the area. The park will coordinate efforts with FFWCC to further identify and post protection areas.
- Survey of park waters to establish extent and quality of different marine habitats. There are significant seagrass beds in park waters, some of which include the endangered Johnson's seagrass. These should be identified and posted as seagrass protection zones, to protect the beds from boat damage.
- Identify, preserve and manage cultural resources
- Maintain, protect and interpret existing archaeological sites and their associated artifactual assemblage from vandalism, erosion and other forms of encroachment.
- Conduct ground disturbing activities in accordance with the Department of State, Division of Historical Resources (DHR) policy.
- Patrol sites for vandalism, discourage casual trails through cultural areas and use interpretative signage where appropriate.
- Pursue funding for a Phase I archaeological survey.

Management Measures for Natural Resources

Hydrology

Management activities will include maintaining or improving water quality at Fort Pierce Inlet State Park. Management activities will include measures to prevent soil erosion or other adverse impacts to the surrounding waters of Fort Pierce Inlet State Park and the Indian River Lagoon. Soil erosion is not a significant problem at the park due to small elevation changes in the park and adequate vegetative cover.

A small area (around 1.5 acres) was scraped down to mangrove and tidal marsh level. This area has progressed well, but due to the high cost of this restoration effort, it is not recommended that future hydrological changes be made as an alternative to hammock restoration of spoil areas.

St. Lucie County Mosquito Control controls the hydrology of the mosquito impoundments. The park should continue to work with Mosquito Control to obtain conditions in the mosquito impoundments as close to natural as possible.

Prescribed Burning

The objectives of prescribed burning are to create those conditions that are most natural for a particular community, and to maintain ecological diversity within the unit's natural communities. To meet these objectives, the park is partitioned into burn zones, and burn prescriptions are implemented for each zone. The park burn plan is updated annually to meet current conditions. All prescribed burns are conducted with authorization from the Department of Agriculture and Consumer Services, Division of Forestry (DOF). Wildfire suppression activities will be coordinated between the Division and the DOF.

The natural communities at Fort Pierce Inlet State Park are not fire dependent, although, prescribed burning is used on a small scale as a resource management tool. Burning small

sections of ruderal areas controls fuels (mostly grasses and cabbage palms) and maintains areas suitable for gopher tortoises. Many park staff members are trained for prescribed burning and are an important source of assistance at other parks.

Designated Species Protection

The welfare of designated species is an important concern of the Division. In many cases, these species will benefit most from proper management of their natural communities. At times, however, additional management measures are needed because of the poor condition of some communities, or because of unusual circumstances that aggravate the particular problems of a species. To avoid duplication of efforts and conserve staff resources, the Division will consult and coordinate with appropriate federal, state and local agencies for management of designated species. Specifically, data collected by the FWC and USFWS as part of their ongoing research and monitoring programs will be reviewed periodically to inform management of decisions that may have an impact on designated species at the park.

The West Indian manatee is commonly observed in the park. Tucker cove and Shorty's Slough are two areas where it is often seen. These waters, as well as all areas with adjoining grass bed flats that are within the park's 400 foot submerged lands lease, have been designated as idle speed/no wake zones (manatee protection zones), but further posting of the area is needed. This should help protect the manatees and decrease the amount of wake and prop-scarring damage on the grass beds.

The beach area extending from Fort Pierce Inlet State Park to Avalon State Park is an important sea turtle nesting area. Park staff monitors the number of nests each year within the park, but do not mark them or count hatchlings due to the low amount of predation in the area.

A 1988 live-trapping program revealed the presence of the southeastern beach mouse in the coastal grassland/dune community. However, all subsequent work has shown that the beach mouse has disappeared from the park. Since it is unknown why the mice have become locally extinct, it is not recommended to reintroduce them.

The estuarine wetland areas within Jack Island and Fort Pierce Inlet are host to a diverse assemblage of wading and shore birds. Many of these birds are designated species. The protection of these estuarine wetland communities will become even more important in the future as these communities disappear from other portions of the Indian River.

One of the few management advantages to the extensive spoil soils is that gopher tortoises have done well in some areas. The park has a couple of areas with moderate concentrations of tortoises of all size classes. These areas should be monitored for habitat quality and maintained free of all exotic vegetation. Currently, several species of exotics threaten invasion of these areas, including Brazilian pepper and cogon grass.

Exotic Species Control

Exotic species are those plants or animals that are not native to Florida, but were introduced because of human-related activities. Exotics have fewer natural enemies and may have a higher survival rate than do native species, as well. They may also harbor diseases or parasites that significantly affect non-resistant native species. Consequently, it is the strategy of the Division to remove exotic species from native natural communities.

Exotic species control is a resource management priority at Fort Pierce Inlet State Park. Several conditions at the park favor exotic species, including the extensive amount of spoil derived soils and a past history of heavy exotic infestation. The park completed an internally funded project, which removed and treated the last remaining large Australian pine and Brazilian pepper infestations. The treated areas still require maintenance work. Heavy damage from recent hurricanes has also opened areas to exotic invasion.

Priorities for exotic removal and maintenance are the maritime hammock areas, the vicinities around gopher tortoise burrows, any areas that have been treated recently, the vistas along the park drive, Australian pines in the mosquito impoundments and finally any other areas that contain exotic plant species. Three exotic species are of particular concern, Brazilian pepper and Australian pines due to their high densities and cogon grass due to its highly invasive nature. The park should also make the effort to remove exotic ornamentals from around buildings and residences and replace them with native plants. All areas of the park should eventually be brought to manageable levels.

All exotic removal should be done with the appropriate herbicides, using current standards and the appropriate protective gear.

Problem Species

Problem species are defined as native species whose habits create specific management problems or concerns. Occasionally, problem species are also a designated species, such as alligators. The Division will consult and coordinate with appropriate federal, state and local agencies for management of designated species that are considered a threat or problem.

There is the occasional problem with raccoons at Fort Pierce Inlet State Park. When a raccoon becomes a problem at the park it is trapped and removed according to accepted park service methods. There are few problem raccoons at the park, which may be due to their innovative raccoon proof trash receptacles. Service personnel removed a locally known feral cat colony in the past. Feral cats have not become a problem again and park staff will continue to monitor any cat activity during the course of their normal activities and remove them as needed.

Management Measures for Cultural Resources

The management of cultural resources is often complicated because these resources are irreplaceable and extremely vulnerable to disturbances. The advice of historical and archaeological experts is required in this effort. Approval from Department of State, Division of Historical Resources (DHR) must be obtained before taking any actions, such as development or site improvements that could affect or disturb the cultural resources on state lands (see DHR Cultural Management Statement).

Actions that require permits or approval from DHR include development, site excavations or surveys, disturbances of sites or structures, disturbances of the substrate, and any other actions that may affect the integrity of the cultural resources. These actions could damage evidence that would someday be useful to researchers attempting to interpret the past.

Research Needs

Natural Resources

Any research or other activity that involves the collection of plant or animal species on park

property requires a collecting permit from the Department of Environmental Protection. Additional permits from the Florida Fish and Wildlife Conservation Commission, the Department of Agriculture and Consumer Services, or the U.S. Fish and Wildlife Service may also be required.

Some small-scale hammock restoration should take place to research appropriate plant species, techniques and other possibilities for further work. Full-scale restoration will be a long and expensive process. A project to restore one to five acres of maritime hammock should include a diversity of plant species, most reflecting the existing hammock and several methods (planting methods, watering regimes, etc). This would have to be accomplished through grant monies and would be dependent on outside help.

A study should be started to map and note the quality of the different marine habitats, especially sea grass occurrences. This would form a baseline for future possible damage from outside sources and help in making future management decisions.

Cultural Resources

At such time, that funding becomes available, staff should pursue a Phase I archaeological survey to focus on refining information on known sites. The fact that a burial mound is recorded in an environment that presented ideal conditions for prehistoric settlement suggests that the potential for locating additional sites in the vicinity is fairly high. A Phase I survey focuses on evaluating known resources, locating new resources, and making some general statements about significance and recommendations for management.

Historical research is needed to definitively identify WWII installations for amphibious training in the area. The University of Miami, Indian River Community College, historical societies and the park Citizen Support Organization (for funding) are all possible sources for the park to consult regarding historical research.

Resource Management Schedule

A priority schedule for conducting all management activities that is based on the purposes for which these lands were acquired, and to enhance the resource values, is contained in Addendum 6. Cost estimates for conducting priority management activities are based on the most cost effective methods and recommendations currently available (see Addendum 6).

Land Management Review

Section 259.036, Florida Statutes, established land management review teams to determine whether conservation, preservation, and recreation lands titled in the name of the Board of Trustees of the Internal Improvement Trust Fund (board) are being managed for the purposes for which they were acquired and in accordance with a land management plan adopted pursuant to s. 259.032, the board of trustees, acting through the Department of Environmental Protection (department). The managing agency shall consider the findings and recommendations of the land management review team in finalizing the required update of its management plan.

Fort Pierce Inlet State Park has not been subject to a land management review.

LAND USE COMPONENT

INTRODUCTION

Land use planning and park development decisions for the state park system are based on the dual responsibilities of the Division of Recreation and Parks. These responsibilities are to preserve representative examples of original natural Florida and its cultural resources, and to provide outdoor recreation opportunities for Florida's citizens and visitors.

The general planning and design process begins with an analysis of the natural and cultural resources of the unit, and then proceeds through the creation of a conceptual land use plan that culminates in the actual design and construction of park facilities. Input to the plan is provided by experts in environmental sciences, cultural resources, park operation and management, through public workshops, and environmental groups. With this approach, the Division objective is to provide quality development for resource-based recreation throughout the state with a high level of sensitivity to the natural and cultural resources at each park.

This component of the unit plan includes a brief inventory of the external conditions and the recreational potential of the unit. Existing uses, facilities, special conditions on use, and specific areas within the park that will be given special protection, are identified. The land use component then summarizes the current conceptual land use plan for the park, identifying the existing or proposed activities suited to the resource base of the park. Any new facilities needed to support the proposed activities are described and located in general terms.

POPULATION AND VISITOR USE

The park is located along the "Treasure Coast" of Florida, a region that stretches through Indian River, St. Lucie and Martin County from St. Lucie Inlet to Sebastian Inlet. A band of barrier islands are separated from the mainland by the Indian River Lagoon, with the park located at the southern end of North Hutchinson Island. The coastal waters, sandy beaches, parks and green spaces of the area are an attractive draw for resource-based recreation.

Fort Pierce Inlet State Park is located within the Ft. Pierce-Port St. Lucie Metropolitan Statistical Area (MSA) that includes both Martin and St. Lucie Counties. While it remains one of the less commercialized stretches of the Florida Atlantic coastline, demographic data reveals a rapidly growing urban area. The MSA had an estimated 2004 population of nearly 350,000, which represents growth of nearly 38 percent since 1990. The population is projected to increase an additional 37 percent by 2020 (BEBR, 2004).

As of 2000, over 895,000 people resided within 50 miles of the park, which includes the urban areas of Melbourne and Palm Bay to the north and West Palm Beach to the south. The park is situated just north of the city of Fort Pierce, population 38,732 (BEBR, 2004).

It was estimated that 192,402 people visited the park in fiscal year 2005/06. This is a 28 percent increase over 1996/97 levels. Visitation has risen steadily over the last ten years, despite slight dips during those periods impacted by severe storms. Visitation generally rises during the late spring and peaks through the summer season. Peak visitation coincides with the best times to experience saltwater beach activities.

EXTERNAL CONDITIONS

An assessment of the conditions that exist beyond the boundaries of the unit can identify any special development problems or opportunities that exist because of the unit's unique setting or environment. This also provides an opportunity to deal systematically with various planning issues such as location, adjacent land uses and the park interaction with other facilities.

Existing Use of Adjacent Lands

Adjacent land uses surrounding the Fort Pierce Inlet parcel include residential and limited commercial. The southern boundary of the parcel lies adjacent to Ft. Pierce Inlet, and the sloughs and coves of the Intracoastal Waterway. Small, undeveloped mangrove islands dot the area, including Coon Island, which is a popular boating destination managed by St. Lucie County. The County operates the Stan Blum Memorial Boat Ramp at the east end of the North Beach Causeway adjacent to the western boundary of the Fort Pierce Inlet parcel. In 1999, the Division released leasehold interest in approximately 14 acres so the County could construct this facility. State Road A1A separates the north boundary from single and multi-family residential and limited commercial development, and a subdivision (Fort Pierce Shores) abuts the eastern boundary. Condominiums and rental properties line State Road A1A as one heads north along the Atlantic shoreline. Additional beach access, fishing and canoe/kayak opportunities are available at St. Lucie County's Pepper Beach Park, less than one-mile north, and the City of Fort Pierce's South Jetty Park, directly across Fort Pierce Inlet. Adjacent land uses surrounding the Jack Island parcel consist primarily of the open waters of the Indian River and lands managed by the St. Lucie County Mosquito Control District. Single-family homes are located on the south side of the Jack Island access road.

Adjacent land uses contribute to the challenges of managing park resources and maintaining a quality visitor experience. Adjacent residential areas are potential sources for exotic plants and animals. The location of the park along a major inlet and in proximity to a county maintained public boat ramp contributes to heavy boat traffic in adjacent waters. Boating activity has the potential to adversely impact seagrasses, resting and feeding shorebirds and may detract from canoeing and kayaking the coves and sloughs around the park. Park staff work with local law enforcement, FFWCC and Florida Park Patrol to protect resources of the park and public health and safety.

Planned Use of Adjacent Lands

Lands adjacent to the Ft. Peirce parcel are nearly built out. Additional residential development is anticipated along the access road to Jack Island and existing vacant parcels along the A1A corridor are anticipated to be converted to residential, resort condominium and commercial uses in the future. Projected changes in adjacent land use area not expected to significantly impact park resources, although increases in visitation can be anticipated as the area's population grows.

PROPERTY ANALYSIS

Effective planning requires a thorough understanding of the unit's natural and cultural resources. This section describes the resource characteristics and existing uses of the property. The unit's recreation resource elements are examined to identify the opportunities and constraints they present for recreational development. Past and present uses are assessed for their effects on the property, compatibility with the site, and relation to the

unit's classification.

Recreation Resource Elements

This section assesses the unit's recreation resource elements those physical qualities that, either singly or in certain combinations, supports the various resource-based recreation activities. Breaking down the property into such elements provides a means for measuring the property's capability to support individual recreation activities. This process also analyzes the existing spatial factors that either favor or limit the provision of each activity.

Land Area

As discussed in the resource management component, the majority of park land is either spoil deposited from construction of the inlet, the Intracoastal Waterway or the state road, or ditched and diked former wetlands now managed as mosquito impoundments. Despite a high level of human disturbance, ample hiking, off-road biking and wildlife viewing opportunities are available, particularly along the dikes of the impoundments. In contrast, the maritime hammock of the park provides an opportunity for visitors to experience a remnant natural community that is becoming increasingly rare in coastal Florida.

Water Area

The park contains several hundred acres of submerged lands west of Jack Island to the State Road A1A causeway that are part of the Indian River/Vero Beach to Fort Pierce Aquatic Preserve. Adjacent waters include the sloughs and coves of the Indian River, Atlantic Ocean and Fort Pierce Inlet. These areas provide fishing, swimming, surfing, boating and wildlife observation opportunities. Frequent boat traffic within park boundaries and adjacent waterways requires monitoring and enforcement to ensure resource protection and visitor safety.

Shoreline

The Fort Pierce and Jack Island parcels provide nearly five miles of shoreline. The sandy shoreline along the beach and Fort Pierce Inlet are most suitable for recreation. However, swift currents and boating traffic limit the suitability of the inlet for recreation. The park has designated swimming and surfing areas that are restricted to the beach shoreline. Shoreline fishing opportunities are available along the beach and inlet. The majority of park shoreline consists of mangroves and is difficult to access.

Natural Scenery

Given the location of the park within an urban area and the disturbance of park lands from past uses, visual resources are not outstanding. However, views of the Indian River from Jack Island, the Atlantic Ocean from the beach and the hardwood canopy within the maritime hammock lend high quality scenic elements to the landscape. The natural scenery of the park will improve over time as areas formerly covered in exotics are restored or recovered to vegetation that is more natural.

Significant Wildlife Habitat

The tidal flats, impounded areas and inlet and beach shoreline support a variety of bird life. Spoil areas provide habitat for gopher tortoises. Wildlife viewing opportunities are good, particularly for birding, and the park is a designated stop on the east section of the Great Florida Birding Trail.

Archaeological and Historical Features

No visible evidence remains from the one known archaeological site at the park due to the deposition of dredge spoil. In addition, there are no features remaining from the use of the park as a WW II training facility.

Assessment of Use

All legal boundaries, structures, facilities, roads and trails existing in the unit are delineated on the Base Map. Specific uses made of the unit are briefly described in the following sections.

Past Uses

The most notable past use of the property was the location of the original Underwater Demolition Training facility of the U.S. Navy during World War II. Stylistic reference to this past use is made by the bunker-like design of the buildings of the park. Park lands have served as a dredge spoil site and were modified for the purposes of mosquito control. The latter is still an actively managed use and is discussed in detail in the Resource Management Component.

Comprehensive Plan and Zoning Designations

Existing future land use designation for the park is Conservation - Public (Cpub) (St. Lucie County, 1990). Park lands are zoned Institutional (St. Lucie County, 2000). Existing land use and zoning designations are consistent with current and projected future uses of the park.

Current Recreation Activities and Visitor Programs

Primary recreational activities at Fort Pierce Inlet State Park are dependent on the surrounding waters of the Indian River and Atlantic Ocean. Surfing and fishing are a major focus of recreational activity at the park. The beach is also popular for swimming, sunning and beachcombing. A high level of recreational boating occurs in park and adjacent waters, although motorized boats are not able to launch from within the park. Birding is popular along the park shorelines and the hammocks of the park. The park's picnic and playground facilities receive heavy use. Primitive camping is available for groups and several miles of trails provide opportunities for hiking, biking and nature study.

The park offers a variety of personal interpretive and recreational programs that include guided walks, talks and all day special events. One of the most significant annual events is Party in the Park, which attracts a variety of organizations that focus on natural history and environmental education. The park hosts several annual surfing competitions. Park staff also provide off-site educational programs for area schools.

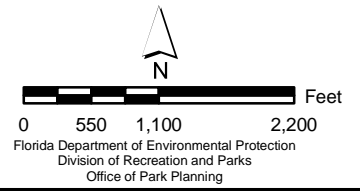
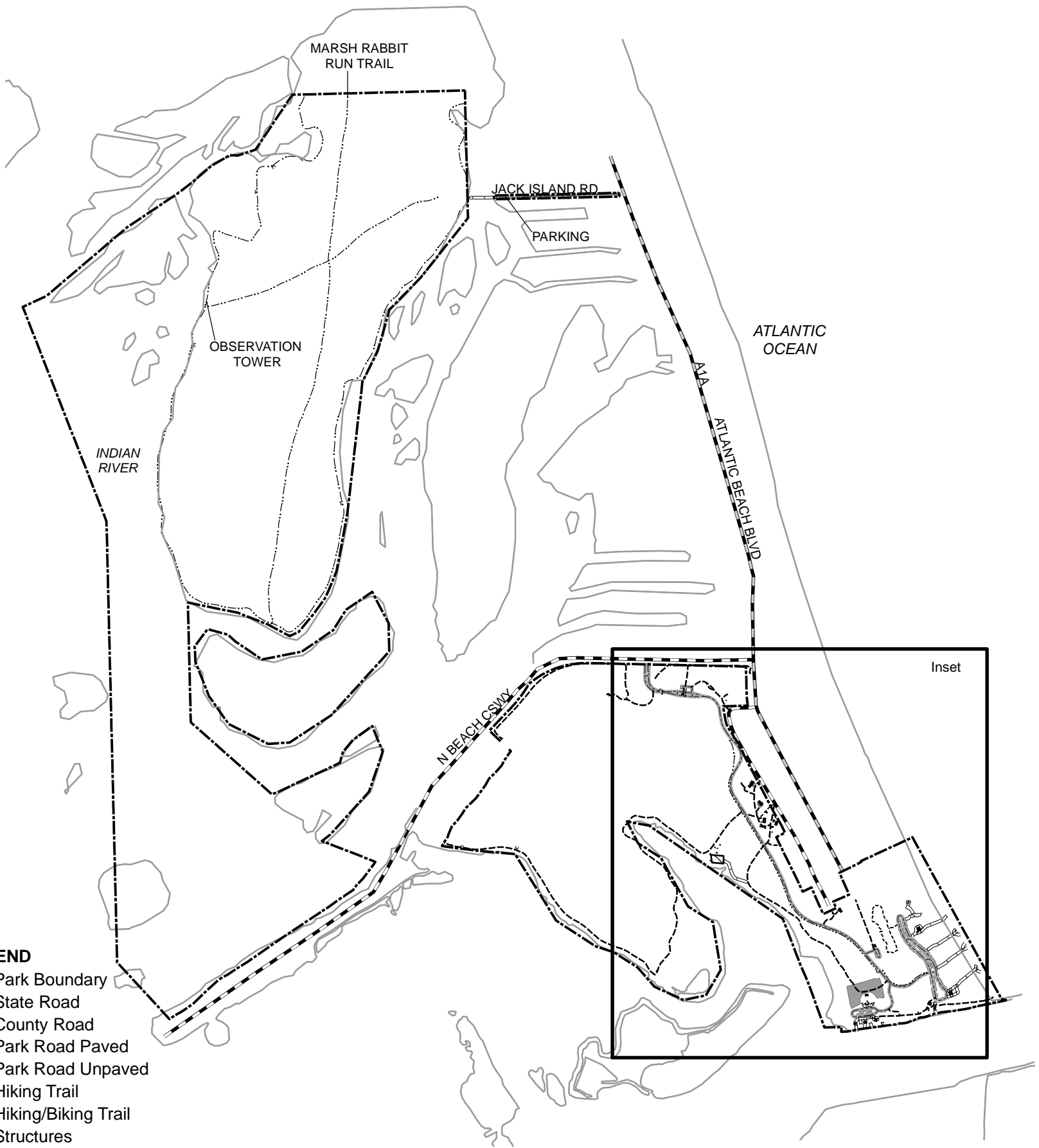
Protected Zones

A protected zone is an area of high sensitivity or outstanding character from which most types of development are excluded as a protective measure. Generally, facilities requiring extensive land alteration or resulting in intensive resource use, such as parking lots, camping areas, shops or maintenance areas, are not permitted in protected zones. Facilities with minimal resource impacts, such as trails, interpretive signs and boardwalks are generally allowed. All decisions involving the use of protected zones are made on a case-by-case basis after careful site planning and analysis.

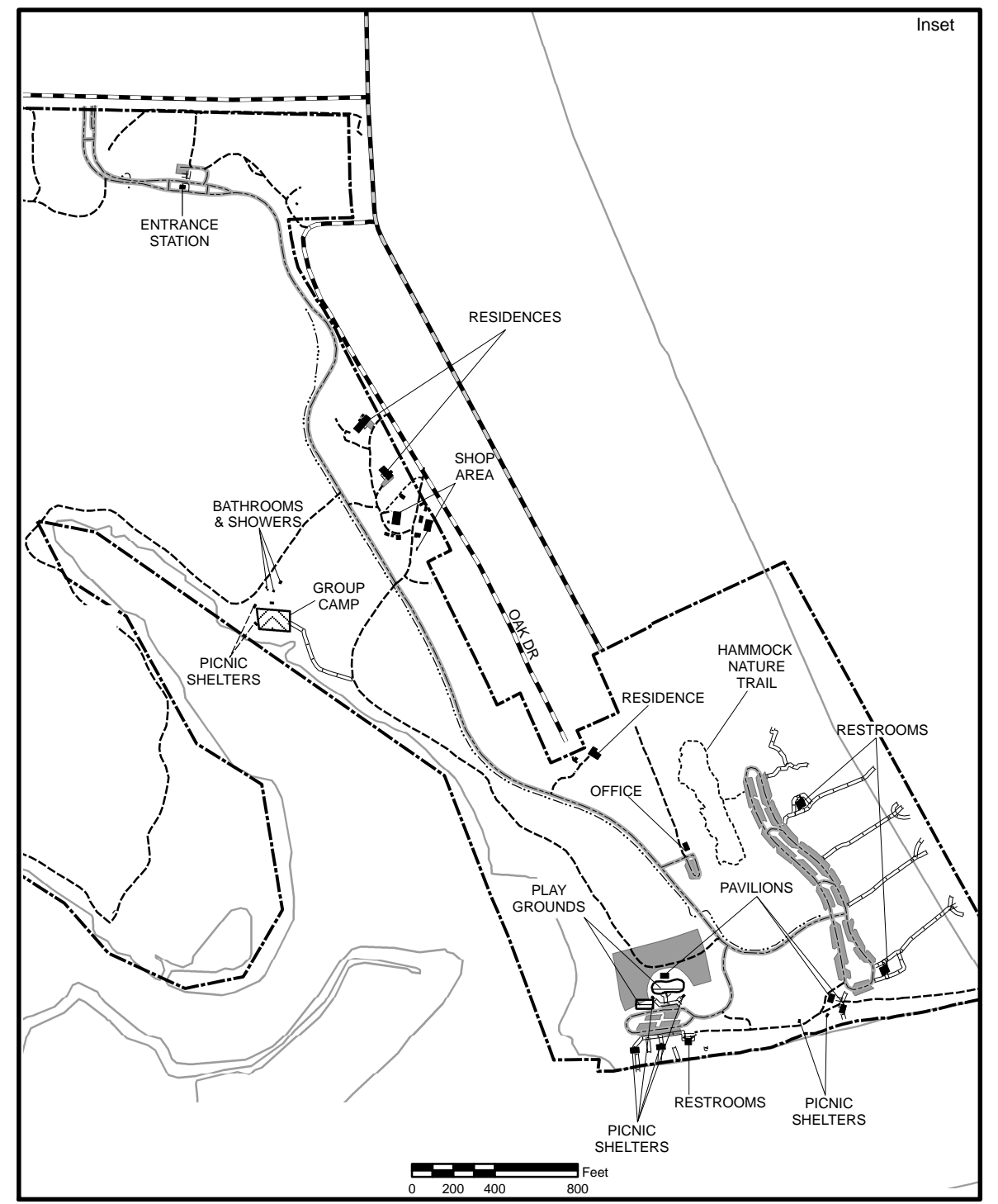
LEGEND

- Park Boundary
- == State Road
- - - County Road
- Park Road Paved
- - - Park Road Unpaved
- ... Hiking Trail
- · - · Hiking/Biking Trail
- Structures
- Parking Lots
- ▨ Camp Site

**FORT PIERCE
INLET STATE PARK**



Inset



BASE MAP

At Fort Pierce Inlet State Park the beach dune, maritime hammock, tidal swamp, marine and estuarine unconsolidated substrate and estuarine grass beds have been designated as protected zones.

Existing Facilities

Existing recreation facilities at the park are located primarily on the Fort Pierce Inlet parcel. The beach use area provides boardwalk access, picnic facilities, restrooms, showers and parking to support beach use. A nature trail allows controlled exploration of the adjacent maritime hammock. The picnic area contains a large playground for children, covered picnic shelters and restrooms along the inlet. A primitive group camping area provides camping opportunities for organized groups. Use areas are linked by a separate paved bicycle/pedestrian path along the park entrance road. Support facilities include an entrance station, assorted shop buildings, staff residences and an administrative office. The park is on central water with wastewater treated through onsite septic systems.

A small parking area and footbridge provide access to miles of hiking and off-road biking trails along the dikes of Jack Island. All existing facilities are in satisfactory condition. The following is a listing of recreation and support facilities at Fort Pierce Inlet State Park.

Recreation Facilities

Beach Use Area

Large picnic shelters (2-12 tables)	Bathhouses (2)
Small picnic shelters (2-2 table)	Outside showers
Scattered picnic tables	Interpretive sign
Beach boardwalks (4)	Paved parking (261 spaces-8 handicapped)

Picnic Area

Large picnic shelter (12 tables)	Larger restroom
Medium picnic shelters (2-8 table w/grills)	Outside shower
Small picnic shelters (2-2 table)	Paved parking (50 spaces-4 handicapped)
Scattered picnic tables and grills	Unpaved overflow parking (120 vehicles)
Large playground equipment	

Primitive Group Camp

Small picnic shelters (3-2 table)	Fire ring
Privies (2)	Outside showers

Jack Island

Observation tower	Foot bridge
Interpretive kiosk	Paved parking (11 spaces-1 handicapped)

Trails

Jack Island shared use trail (6 mi.)	Paved bicycle/pedestrian trail (1.2 mi.)
Hammock nature trail (0.5 mi.)	

Support Facilities

Entrance station	Four bay shop (2)
Paved parking (5 spaces-1 handicapped)	Flammable storage building
Bike rack	Storage shed

Shop office
Residences (3)
Administrative office

Paved parking (10 spaces)
Park Drive (1 mi.)

CONCEPTUAL LAND USE PLAN

The following narrative represents the current conceptual land use proposal for this park. As new information is provided regarding the environment of the park, cultural resources, recreational use, and as new land is acquired, the conceptual land use plan may be amended to address the new conditions (see Conceptual Land Use Plan). A detailed development plan for the park and a site plan for specific facilities will be developed based on this conceptual land use plan, as funding becomes available.

Site Planning and Design Process

During the development of the unit management plan, the Division assesses potential impacts of proposed uses on the resources of the property. Uses that could result in unacceptable impacts are not included in the conceptual land use plan. Potential impacts are more thoroughly identified and assessed through the site planning process once funding is available for the development project. At that stage, design elements, such as sewage disposal and stormwater management, and design constraints, such as designated species or cultural site locations, are more thoroughly investigated. Advanced wastewater treatment or best available technology systems are applied for on-site sewage disposal. Stormwater management systems are designed to minimize impervious surfaces to the greatest extent feasible, and all facilities are designed and constructed using best management practices to avoid impacts and to mitigate those that cannot be avoided. Federal, state and local permit and regulatory requirements are met by the final design of the projects. This includes the design of all new park facilities consistent with the universal access requirements of the Americans with Disabilities Act (ADA). After new facilities are constructed, the park staff monitors conditions to ensure that impacts remain within acceptable levels.

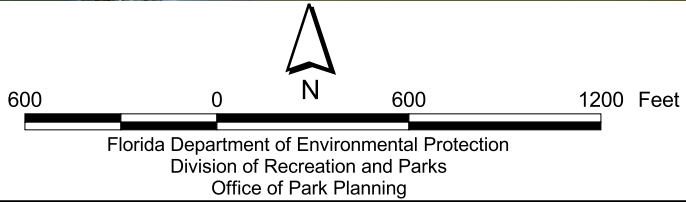
Much of the uplands of Ft. Pierce Inlet State Park consist of spoil areas that are highly altered and classified as ruderal. However, the park does contain listed species, and important habitats that should be given careful attention during the site design and construction process. The following discussion identifies several resource issues that may affect park development. Biological and/or archaeological surveys may be necessary prior to construction of facilities and proposed locations and project designs may be reevaluated based on information collected.

Generally, ruderal areas are desirable locations to focus development impacts given their lack of sensitive resources. However, the park does have a community of gopher tortoises that have established themselves within ruderal areas of the park and require special attention if facilities are proposed in these areas. The park's maritime hammock is one of the few, intact natural upland communities at the park. Proposed improvements in the vicinity of this community will be designed to avoid impacting high-quality hammock.

Mangrove fringed shorelines and nearshore seagrasses present challenges to providing public access to adjacent waters. Proposed improvements along park shorelines require sensitive designs that address potential impacts to these resources. In addition, manatees and shorebirds utilize the adjacent waters and tidal flats. Enhanced access to waters of the



FORT PIERCE INLET
STATE PARK



CONCEPTUAL
LAND USE PLAN

Indian River lagoon should be accompanied by education to promote responsible use of these areas and minimize disturbance to listed species.

Potential Uses and Proposed Facilities

Existing uses and facilities at the park are appropriate and should continue. Proposed improvements focus on facilitating canoe/kayak access to adjacent waters, enhancing picnicking and interpretive opportunities, meeting staff housing needs and securing reliable access to Jack Island.

Beach Use Area. The park's existing dune boardwalks are recommended to be replaced to improve visitor safety, maintain universal access to the beach and reduce costs associated with structures susceptible to damage from storms. Alternatives to traditional boardwalk designs will be considered when replacing existing or developing new beach access routes.

The parking area is recommended to be expanded up to 150 spaces to accommodate the increasing numbers of visitors to this area. The configuration of the expanded parking area should serve to spread use north along the beach, while avoiding impacts to the core of the maritime hammock.

A concession facility is proposed to meet the needs of park visitors and include food service, basic beach related supplies and equipment rentals, with the potential to provide expanded recreational services (canoe/kayak tours, fishing, surfing lessons, etc.). A site within existing ruderal or developed areas conveniently located to the beach use area is recommended. Consideration should be given to adding on to or replacing the existing bathhouse at the north end of the parking lot with a combined concession/bathhouse facility.

Picnic Facilities. Two additional picnic shelters are proposed between the southern end of the existing beach parking lot and the inlet. This area is ruderal, open and lacking shade, and receives significant visitor traffic. Additional shelters would enhance the appeal of this area for picnicking.

Interpretation. It is recommended that informational materials be developed and/or updated on existing interpretive programs and that programming content be expanded as staffing allows. Updated and improved interpretive signage is recommended within the main use areas of the park and the county boat ramp at Cook Point. Signage at the latter site will require coordination with the county and should focus on boater education to encourage an understanding of and adherence to established speed zones.

Canoe/kayak Access. The need exists to provide a safe, convenient location to launch canoes and kayaks from the park. Tucker Cove provides an abundance of adjacent ruderal uplands, sheltered waters and easy access to the mangrove islands and tidal flats of the Indian River Lagoon. A site along the Tucker Cove shoreline has been identified on the Conceptual Land Use Plan for development of a canoe/kayak launch and small stabilized parking area. Shoreline vegetation, topography and bottom configuration will need to be assessed to finalize a site location and determine the most appropriate facility design.

Trails. Hiking opportunities are recommended for expansion with a trail incorporating a portion of the dike that runs along Boot Toe Point. Roughly 1.3 miles of trail are proposed that

would end at a wildlife overlook designed to provide views of the adjacent tidal flats. A small trailhead parking area near the entrance to the group camp road would provide access to the trail. The layout of the trail should keep hikers away from the group camp as much as is practical.

Support Facilities. Two additional residences are proposed within a ruderal area that formerly supported an employee-owned trailer residence.

Potable water is recommended as a long-term need at the Jack Island parking area. Vehicular access to Jack Island requires the use of a private road (Regal Road) north of the existing park boundary. If a secure, long-term easement cannot be obtained for the continued use of this route, or additional uplands acquired that would provide alternative access, consideration should be given to upgrading the existing footbridge to accommodate service vehicles.

Central sewer lines are located near the park on the north side of A1A. It is recommended that the park eventually be connected to central sewer to meet long-term needs for waste disposal and treatment and protect adjacent water quality.

Facilities Development

Preliminary cost estimates for the following list of proposed facilities are provided in Addendum 6. These cost estimates are based on the most cost-effective construction standards available at this time. The preliminary estimates are provided to assist the Division in budgeting future park improvements, and may be revised as more information is collected through the planning and design processes.

Beach Use Area

Replace dune boardwalks
Expanded parking (up to 150 spaces)
Concession facility

Picnic Facilities

Picnic shelters (2)

Interpretation

Interpretive panels/kiosks (3)

Canoe/Kayak Access

Canoe/kayak launch
Unpaved parking (up to 10 vehicles)

Trails

Hiking trail (1.3 miles)
Unpaved trailhead parking (up to 5 vehicles)

Support Facilities

Staff residences (2 units)
Potable water at Jack Island
Upgrade Jack Island bridge

Existing Use and Recreational Carrying Capacity

Recreational carrying capacity is an estimate of the number of users a recreation resource or facility can accommodate and still provide a high quality recreational experience and preserve the natural values of the site. Capacity is determined by identifying the land and water requirements for each recreation activity at the park, and then applying these requirements to the property's land and water base. This analysis identifies a range within which the recreational carrying capacity most appropriate to the specific activity, the activity site and the park's classification is selected.

The recreational carrying capacity for this park is a preliminary estimate of the number of users the park could accommodate after the current conceptual development program has been

implemented. When developed, the proposed new facilities would approximately increase the park's capacity as shown in Table 1.

Table 1--Existing Use and Recreational Carrying Capacity						
Activity / Facility	Existing Capacity		Proposed Additional Capacity		Estimated Recreational Capacity	
	One Time	Daily	One Time	Daily	One Time	Daily
Trails						
Nature	5	20	13	52	18	72
Shared-use	60	240			60	240
Picnicking	212	636			212	636
Beach Use	807	1,614	450	900	1,257	2,871
Camping						
Group Camping	32	32			32	32
Boating						
Canoe/kayak			24	48	24	48
Fishing	110	220			110	220
TOTAL	1,226	2,762	487	1,000	1,713	4,119

Optimum Boundary

As additional needs are identified through park use, development, research, and as adjacent land uses change on private properties, modification of the unit's optimum boundary may occur for the enhancement of natural and cultural resources, recreational values and management efficiency. Identification of lands on the optimum boundary map is solely for planning purposes and not for regulatory purposes. A property's identification on the optimum boundary map is not for use by any party or other government body to reduce or restrict the lawful right of private landowners. Identification on the map does not empower or require any government entity to impose additional or more restrictive environmental land use or zoning regulations. Identification is not to be used as the basis for permit denial or the imposition of permit conditions.

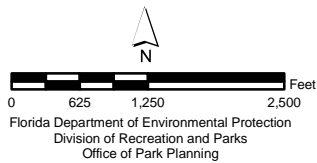
The optimum boundary map reflects lands identified for direct management by the Division as part of the park. These parcels may include public as well as privately owned lands that improve the continuity of existing park lands, provide additional natural and cultural resource protection, and/or allow for future expansion of recreational activities. At this time, no lands are considered surplus to the needs of the park.

Acquisition of the north end of Jack Island would provide resource management capability of the remainder of the island up to an existing private road.

The park boundary on Tucker Cove appears to include the eastern end of Coon Island. The island is managed by St. Lucie County and experiences a significant amount of recreational use.



**FORT PIERCE
INLET STATE PARK**



LEGEND

- Park Boundary
- Optimum Boundary

OPTIMUM BOUNDARY MAP

Park staff has no means of access and insufficient operational capacity to manage the activity that occurs there. It is recommended that the Division pursue release of this portion of the park so that management jurisdictions are clarified. The park boundary would be pulled back an appropriate distance toward the mainland shoreline consistent with the rest of the park boundary along Tucker Cove.

Addendum 1—Acquisition History and Advisory Group Documentation

Fort Pierce Inlet State Park Acquisition History

Sequence of Acquisition

The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees) acquired Fort Pierce Inlet State Park to protect, develop, operate and maintain the property for public outdoor recreational, park, conservation, historic and related purposes.

On August 10, 1973, the Trustees obtained title to the property known as Fort Pierce Inlet State Park. The initial acquisition was made with funds from the Environmentally Endangered Lands (EEL) program. Since the initial purchase, the Trustees have acquired several additions through purchase (under the LATF program), lease (from Department of the Army), transfer of an existing park unit (Pepper Beach Park) and the transfer of sovereign lands. In 1964, the City of Fort Pierce had donated Pepper Beach Park (also known as Jack Island) to the Division. The Division managed Pepper Beach Park as an individual unit of the state park system until 1989, when Pepper Beach Park was consolidated with Fort Pierce Inlet State Park.

Lease Agreements

On March 14, 1974, the Trustees conveyed management authority of Fort Pierce State Park to the Division of Recreation and Parks (Division) under lease No. 2742. The lease is for a period of ninety-nine (99) years. On August 6, 1991, Division leased additional property from the Department of the Army (DOA), for a period of fifteen (15) years, for management as part of Fort Pierce Inlet State Park. The Trustees and DOA leases expire on January 22, 2067 and August 5, 2006 respectively.

According to the Trustees and DOA leases, Division manages Fort Pierce Inlet State Park to provide resource-based public outdoor recreation compatible with the conservation and protection of the property.

Title Interest

The Trustees and DOA hold fee simple title to Fort Pierce Inlet State Park.

Special Conditions on Use

Fort Pierce Inlet State Park is designated single-use to provide resource-based public outdoor recreation and other related uses. Uses such as, water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in this plan) are not consistent with this plan or the management purposes of the park.

Outstanding Reservations

Following is a listing of outstanding rights, reservations and encumbrances that apply to Fort Pierce Inlet State Park.

Fort Pierce Inlet State Park Outstanding Rights, Uses, Encumbrances, Etc.

Instrument: Easement
Instrument Holder: Trustees
Beginning Date: November 16, 2000
Ending Date: November 15, 2050
Outstanding Rights, Uses, Etc.: The easement allows St. Lucie County to construct, operate and maintain a bicycle path and pedestrian trail.

Instrument: Easement Modification Agreement
Instrument Holder: Division
Beginning Date: February 11, 1997
Ending Date: Perpetual
Outstanding Rights, Uses, Etc.: The easement allows Charles E. Wickard to use a portion of Fort Pierce Inlet State Park for ingress and egress and maintain it.

Instrument: Lease
Instrument Holder: DOA
Beginning Date: August 6, 1991
Ending Date: August 5, 2006
Outstanding Rights, Uses, Etc.: The leased property is to be used for public park and recreational purposes. Gambling is prohibited.

Instrument: Warranty Deeds/Amendment No. 2
Instrument Holder: 4 Grantors
Beginning Date: Dates given in the deeds
Ending Date: Forever
Outstanding Rights, Uses, Etc.: Subject to restrictive covenants from the North Beach Development Company, an easement to North Beach Water Company, and certain easements set forth in plat book 9, page 36.

Instrument: Easement
Instrument Holder: Division
Beginning Date: February 25, 1977
Ending Date: Coterminous with Trustees Lease No. 2742
Outstanding Rights, Uses, Etc.: The easement allows Florida Power and Light to construct, install, operate and maintain a distribution system in the Fort Pierce Inlet State Park to provide power to the park.

Instrument: Easement
Instrument Holder: Division
Beginning Date: October 5, 1976
Ending Date: Coterminous with Trustees Lease No. 2742 or when the subject land is not used for the purposes outlined in the easement
Outstanding Rights, Uses, Etc.: The easement allows St. Lucie County to clear,

Fort Pierce Inlet State Park Outstanding Rights, Uses, Encumbrances, Etc.

construct and maintains a public road right -of -
way. If and when the subject land is not used for the
purposes stated in the easement, the easement
interest will revert to the instrument holder.

Instrument:Special Use Permit
Instrument Holder:Division
Beginning Date:July 1, 1975
Ending Date:The permit is for one year ending on June 30, 1976,
but it is automatically extendable yearly until
terminated in writing.
Outstanding Rights, Uses, Etc.:The permit allows the Seventh Coast Guard District
to operate and maintain an electric light for
maritime navigation. Division may terminate the
permit if the subject property is not used for the
purposes stated in the permit.

Instrument:Warranty Deed
Instrument Holder:Michael Beehalter
Beginning Date:May 18, 1966
Ending Date:Forever
Outstanding Rights, Uses, Etc.:Owners of adjoining private property shall have the
right to use a certain road located in the park.

Fort Pierce Inlet State Park Outstanding Rights, Uses, Encumbrances, Etc.

Fort Pierce Inlet State Park Advisory Group List

The Honorable Robert J. Benton, III
Mayor
City of Fort Pierce
P.O. Box 1480
Ft. Pierce, FL 34954-1480

The Honorable Doug Coward, Chair
St. Lucie County Board of County
Commissioners
2300 Virginia Ave
Fort Pierce, FL 34982

Perry Smith, Park Manager
Avalon and Ft. Pierce Inlet State Parks
905 Shorewinds Drive
Fort Pierce, FL 34949-1549

Flip C. Gates, Jr., Chair
St. Lucie Soil and Water
Conservation District
P.O. Box 3630
Fort Pierce, FL 34948-3630

Dale Armstrong, Senior Forester
Okeechobee District
Florida Division of Forestry
1025 Edwards Road
Ft. Pierce, FL 34950

Steve Coughlin, Regional Biologist
Florida Fish and Wildlife Conservation
Commission
8535 Northlake Boulevard
West Palm Beach, FL 33412
Represented by:
David Sweetay

Laura Herren, Manager
Indian River-Vero Beach to Ft. Pierce
Aquatic Preserve
3300 Lewis Street
Ft. Pierce, FL 34981

Jim David, Director
St. Lucie County Mosquito Control District
3150 Will Fee Road
Ft. Pierce, FL 34982

Mr. Dennis Gates
Florida Audubon Society
21 Flores Way
Pt. St. Lucie, FL 34952

John Holt, Vice President
The Conservation Alliance
11122 Orange Avenue
Fort Pierce, FL 34945
772-465-5844

Cheryl Williams
Surfing Representative
1571 3rd Avenue
Vero Beach, FL 32960
Represented by:
Charles Williams

Craig Mundt, President
North Beach Association
5051 North A1A, Unit 12-1
Ft. Pierce, FL 34949

Fort Pierce Inlet State Park Advisory Group Staff Report

The Advisory Group appointed to review the proposed land management plan for Ft. Pierce Inlet State Park was held on May 25, 2006. David Sweetay represented Steve Coughlin, and Charles Williams represented Cheryl Williams. The Honorable Doug Coward, Flip Gates, Dale Armstrong, and Dennis Gates did not attend. All other appointed Advisory Group members were present. Attending staff were George Jones, Ernie Cowan, Perry Smith, Kevin Kiser and Michael Kinnison. A representative of the Marine Industries Association of the Treasure Coast, Inc. and a private citizen were also in attendance.

Summary Of Advisory Group Comments

Mayor Benton expressed his satisfaction with the plan and was pleased that cabins were not currently proposed. He suggested a small-scale campground might be appropriate at the park and could provide a revenue opportunity. He added that providing boating facilities at the park would require additional staffing to manage properly and alluded to existing enforcement problems associated with boating on the adjacent Coon Island.

Craig Mundt discussed the park as a regional resource and felt that more could be done regarding community outreach and promotion. He discussed the decline in restaurants on North Hutchinson Island and suggested that the park consider establishing food service to attract visitors and generate revenue. Staff discussed the different type of food services provided at state parks (concession versus park-operated), contracts and lease-terms and the issues that must be considered in determining the appropriate type of facility for a park.

Mr. Mundt asked if the proposed improvements to the bridge on Jack Island would be for public access. Staff clarified that the bridge would only be used for service access and that it was important to ensure quick access for public health and safety. Mr. Mundt discussed the importance of coordinating planning at Avalon State Park with county plans for trails in the area. Staff responded that the park has been in contact with the county on this issue and that exotic plants have been removed that will assist with trail development on the west side of A1A. Mr. Mundt asked if the plan included additional staffing. Staff responded that since the park acreage had not increased and no significant facilities were being proposed that no additional staffing were requested in the plan. The challenges of acquiring new positions and the roles volunteers and outsourcing funds play in meeting the operational needs of parks were also discussed.

David Sweetay expressed his approval of the plan. He suggested providing more detail on prescribed burning, such as burn unit locations and basic prescription information. Staff explained that the park had no fire type communities and that burning was conducted on a very limited scale. Staff distributed and reviewed a burn zone map, discussed the challenges of burning at the park and its importance to maintaining gopher tortoise habitat.

Charles Williams complimented staff on their management of the park and positive relationship with the surfing community. He discussed the popularity of the park as a surfing destination and recommended expanding parking to spread use north along the shoreline. Staff pointed out that those involved in surfing, including the park's visitor service provider, do an excellent job at promoting responsible behavior that helps maintain a safe, friendly environment for all users. Mayor Benton added that swimmers should be educated about dangerous conditions created by a rip current adjacent to the jetty rocks and recommended providing signage for that purpose. Mr. Williams stated that the north end of the beach is safer for swimming.

Fort Pierce Inlet State Park Advisory Group Staff Report

Jim David discussed how mosquito management practices have evolved over the years to improve restoration of mangrove ecology. He indicated that environmental conditions in the Jack Island and Ft. Pierce impoundments were improving and felt that the plan does not reflect this. He pointed out that mangroves currently cover 90-95 percent of the impoundments and that the St. Lucie County Mosquito Control District has removed all exotic plants on the dikes and wetlands of impounded areas. He indicated that the District would support more recreational use of the dikes at Jack Island and suggested holding an off-road bike race on a trial basis. He also discussed the potential for trail development on the dikes of the Ft. Pierce impoundments and the construction of platforms to enhance fishing access. He explained the importance of drawdowns to wildlife and discussed the effectiveness of this management technique in the southwest quadrant of Jack Island. Staff expressed appreciation for the scope of work conducted by the District, from debris removal and repairs from storm impacts to exotic plant control. Mr. David stated that adjacent islands still needed exotic plants removed and recommended replanting with native vegetation as opposed to sandblasting. Mr. David outlined programs aimed at bringing schoolchildren to District lands for educational purposes. Activities include hikes on impoundments, field trips to lagoons, wildlife surveys and the use of interpretive displays and exhibits, with an emphasis on teaching the importance of wetlands and the lagoon. He indicated that state parks could participate in these programs, and recommended including the idea in the plan. He suggested that additional amenities (restrooms, shelters, etc.) might be necessary in the future, if the park's participation increased the use of more remote areas of the park by groups. Mr. David indicated that, contrary to the plan, the area's sea grasses were recovering and suggested consulting with the St. John's River Water Management District to get information that is more current. He stated that the District has restored hydrology to a significant degree and that circulation within the impoundments is much better than it was historically in the marshes. Mr. David stated that the District would like to collaborate with the state to purchase land off A1A to improve access to the north end of Jack Island, which would eliminate the need to upgrade the existing pedestrian bridge. Finally, he recommended verifying the extent of the park boundary on the north end of Jack Island since the county property appraiser records the area as state land. The District is currently managing the area.

Laura Herren indicated aquatic preserve staff looks forward to strengthening partnership opportunities with the park. She suggested the plan add mapping and marking of seagrass beds, and the monitoring of habitat quality and removal of exotic vegetation in areas with moderate to dense gopher tortoise populations to the Management Needs section of the plan. In addition, she suggested that the Management Objective related to posting manatee protection zones be expanded to include seagrass protection zones. She recommended identifying guided kayak tours as an opportunity to expand park programming once the kayak launch is developed. Ms. Herren expressed concern that the use of beach umbrellas presented a potential threat to sea turtle nests, particularly since they were not marked at the park, and suggested that users be required to use a self-supporting, dome-like shade structures during turtle nesting season. She recommended the plan at least discuss the use of umbrellas in an area known to support turtle nesting along with possible alternatives to avoid accidental take. Staff clarified that very little nesting occurs within the park's main beach use area and explained that nests are not marked for fear it would encourage poaching. Staff agreed to monitor umbrella use at the park to assess the potential impact and consider alternative solutions, such as educating users to avoid conflicts, if necessary. Ms. Herren stated that planting native species as opposed to relying on natural recruitment would be more efficient for recovering areas that have had exotics removed due to the probability of a

Fort Pierce Inlet State Park Advisory Group Staff Report

large seed bank remaining in the soil. She pointed out that the plan should list Johnson's seagrass as a federally endangered and state threatened species. Ms. Herren closed by requesting that consideration be given to providing potable water at Jack Island.

John Holt expressed opposition to establishing a restaurant at the park. He stated that the focus should be on facilities promoting low-impact enjoyment of park resources to encourage visitors that appreciate nature. He recommended against establishing RV camping at the park. Ms. Herren and Mayor Benton suggested that a small-scale food service operation designed to meet visitor needs might be more appropriate. Staff discussed the challenge of balancing local desires with the fact that state parks are utilized by a broader visiting public and acknowledged the common public concern that park's may lose their unique flavor as more facilities and services are provided. Mr. Mundt responded that the management plan should be planning for the long-term needs of the park that recognizes the future demands that will be presented as growth continues in the area.

Summary Of Public Comments

Bob Davis stated that he was a long-term visitor to the park. He suggested that a small-scale (20-site) campground be added to the park. He cited Sebastian Inlet State Park as an example of a successful coastal campground and indicated that it would be a unique facility in St. Lucie County and would make a positive economic contribution to the local area.

Jane Brooks stated that she had lived within a mile of the park for over 20 years and was involved in its original purchase. She expressed support for Mr. Holt's comments and recommended against further development of facilities, including camping and food service. She stated the importance to maintain what little natural areas remain and encouraged maintaining a primary focus on removal of exotic plants, particularly within the maritime hammock. (The following written comments were also provided by Ms. Brooks). Ms. Brooks asked that attention also be paid to exotic species with the potential to become problems, including *Jasminum fluminense*, *Cupaniopsis anacardioides*, *Vitex trifolia* and *Scaevola sericea* var. *taccada*. She recommended expanding interpretive signs, exhibits and activities and installing additional nest boxes for cavity nesting birds to make up for the loss of nesting cavities due to past hurricanes. She also submitted suggested changes to the plan's bird list.

Gary Ward agreed with Mr. Mundt regarding the need to improve public outreach. He stated that more opportunities for public input were needed now that management plans were on 10-year cycles and suggested annual public meetings. He stated that the plan was insufficient to meet the long-term needs of the public and recommended additional parking to spread use along the shoreline and revenue producing opportunities such as food service. He discussed the backup of traffic at the entrance station on busy days and suggested providing a cash-only lane. Mr. Ward recommending moving away from constructing boardwalks for beach access due to their expense and vulnerability to damage from storms. He stated that the park is not doing enough on exotic plant removal and suggested enlisting the help of the St. Lucie County Mosquito Control District and convict labor. He added that water-based signage is the responsibility of the Fish and Wildlife Conservation Commission (FWC) and that the Department of Environmental Protection needs to coordinate signage needs with the FWC.

The meeting was then adjourned.

Fort Pierce Inlet State Park Advisory Group Staff Report

Staff Recommendation

Staff recommends approval of the proposed management plan for Ft. Pierce Inlet State Park as presented with the following recommendations.

Motorized Boating Access to Park. The potential for providing facilities for motorized boating access to the park have been analyzed as follows. Conditions along the Atlantic shoreline are not conducive to boating due to a high-energy shoreline and existing popularity of this area to surfers and swimmers. The Division does not have authority to make improvements along the inlet as this area is under the jurisdiction of the federal government. The shorelines of the impounded areas of the park are not an attractive destination for boaters and provide little recreational value. The only remaining option for boating access is along the Tucker Cove shoreline. Access is available to the Cove from the west, through Shorty's Slough or more directly from the Ft. Pierce Inlet via a narrow channel that runs between Coon Island and the park. At low tide, these routes become shallow with depths of less than one meter for much of their length. The Cove itself is fringed with mangroves, shallow and difficult to navigate at low tides. Seagrass distribution appears spotty, although a sample of the federally endangered Johnson's seagrass was collected on a recent site visit. The only area along the Tucker Cove shoreline where recreational and support facilities exist to support boating access is located adjacent to the channel between the park and Coon Island. This area currently experiences heavy use by the boating community. On busy days, boats align themselves along the Coon Island shoreline, extending well into the channel. It is common for people to swim and wade in the channel during these times. The channel is very narrow, particularly at low tides, and is only 75 feet from shore to shore in some places. Significant alteration of park shoreline and adjacent uplands would be necessary to provide dockage in this area and it would be difficult to do and maintain navigability and public safety at the same time. It is also not possible to provide docking capacity sufficient to accommodate the level of boating currently taking place in this area and maintain appropriate carrying capacities at the park.

It is worth noting that in addition to Coon Island, seven spoil islands within one mile of the park have been identified as favorable destinations for boating recreation by the Indian River Lagoon Spoil Island Workgroup. Two of these islands are considered suitable for active recreation and the construction of permanent facilities. All are currently utilized by boats for recreation. Providing boating access facilities at Ft. Pierce Inlet State Park would not be a significant enhancement to the recreational opportunities currently afforded boaters in the area.

For all the reasons cited above, providing facilities for boating access to the park is not recommended at this time. As discussed at the public meetings, the Division recognizes the need for boating facilities in St. Lucie County and was a cooperative partner in the establishment of the Stan Blum boat ramp, a 6-lane facility on the north causeway adjacent to the state park. The Division remains willing to work with St. Lucie County and the Aquatic Preserves to identify additional opportunities for improving the recreational boating experience on adjacent spoil islands, particularly Coon Island.

Camping. A campground is not recommended at the park. The park has a limited amount of uplands suitable for the development of a camping area. No such location is suitable in proximity to the beach so campers would have to drive to get to the water and compete for parking with

Fort Pierce Inlet State Park Advisory Group Staff Report

day use visitors. The north end of the Ft. Pierce parcel, between A1A and the impoundment, would put campsites close to the road and present an atmosphere that is not considered of state park quality.

Interpretation/Programming. Plan will discuss opportunities for improving interpretation through expanded programming and signage/kiosks.

Beach Access. The plan will recommend expanding the beach parking area to provide up to an additional 150 spaces. The design of this project will prioritize protection of the adjacent maritime hammock. An expansion of bathhouse capacity or a new bathhouse will accompany the expanded parking area as well as additional beach access routes. Alternatives to standard boardwalks will be considered when upgrading existing or establishing new beach access routes.

Jack Island Improvements. The establishment of potable water at Jack Island will be identified as a long-term need in the plan.

Park Concession. A concession operation is considered appropriate at the park and will be added to the plan. A concession would be tailored to meet the needs of park visitors and include food service, basic beach related supplies and equipment rentals, with the potential to provide expanded recreational services (canoe/kayak tours, fishing, surfing lessons, etc.). The beach parking area is recommended as a preferred location. A final location will be selected within existing ruderal or developed areas that avoid impacts to the maritime hammock. Consideration will be given to replacing an existing bathhouse with a combined concession/bathhouse facility.

Manatee and Seagrass Protection. Plan will clarify that FWC is primary agency responsible for implementing and maintaining signage and that the Division will coordinate additional signage needs with them.

Management Needs and Objectives. Plan will be revised to ensure consistency between identified management needs and stated management objectives as they relate to mapping and marking of seagrass beds, and maintenance of gopher tortoise habitat.

Plan Addenda. Biological staff will revise addenda as necessary based on advisory group input.

Mosquito Control Impoundments. Text will be reviewed and updated to reflect current environmental conditions and impoundment management practices.

Park Boundary. Accuracy of the north boundary on Jack Island will be assessed and modified if necessary.

Addendum 2—References Cited

Fort Pierce Inlet State Park References Cited

- Coastal Planning and Engineering, Inc. 1993. Fort Pierce Inlet Management Plan. Submitted to St. Lucie County. 86pp.
- Florida Natural Areas Inventory and the Florida Department of Natural Resources. 1990. Guide to the Natural Communities of Florida. 111pp.
- Harbor Branch Consortium. 1975. Indian River Coastal Zone Study. D.K. Young (eds.). 180pp.
- United States Department of Agriculture. 1980. Soil Survey of St. Lucie County Area, Florida. In cooperation with University of Florida, Institute of Food and Agricultural Sciences and Agricultural Experiment Stations, Soil Science Dept; and Florida Department of Agriculture and Consumer Services. 183pp.
- Bureau of Economic and Business Research (BEBR), University of Florida. 2004. Florida Statistical Abstract 2004. Gainesville, Florida.
- St. Lucie County. 2001. St. Lucie County Comprehensive Plan Future Land Use Map. Ft. Pierce, Florida.
- U. S. Department of Commerce, Bureau of the Census. 2000. U. S. Census 2000.

Fort Pierce Inlet State Park References Cited

Addendum 3—Soil Descriptions

Fort Pierce Inlet State Park Soils Descriptions

(4) Arents, 0 – 5% slopes. This soil is made up of a mixture of soil dug from several areas with different kinds of soils. It is used to fill low areas above their natural ground level. In most areas, the Arents soil is made up of loose sandy mineral material and if derived from marine sites can contain shell material. This soil is a variable mixture of lenses, streaks and pockets that occur in close proximity to each other. Arents have severe limitations for cultivated plants because of periodic wetness and low fertility.

(6) Arents, organic substratum. This soil is made up of a mixture of soil dug from several areas with different kinds of soils that have been spread over muck in marshes and mangrove swamps. The slope ranges from 0 – 2%. The Arents soil is made up of loose sandy mineral material and if derived from marine sites can contain shell material. This soil is a variable mixture of lenses, streaks and pockets that occur in close proximity to each other. The water table in the Arents soil is within a depth of 50 inches for most of the year. Arents have severe limitations for cultivated plants because of periodic wetness and low fertility.

(9) Beaches. Beaches consist of narrow strips of tide washed very rapidly permeable sand along the Atlantic Coast line. Beaches are frequently mixed by waves, with firm sand near the water and drier, looser sand farther back. The soil is made up of pale brown to light gray, uncoated quartz sand grains mixed with shell fragments.

(10) Canaveral Fine Sand, 0- 5% slopes. This soil is moderately well drained to somewhat poorly drained and has a level to convex slope on low dune-like ridges. The surface layer typically is dark brown fine sand, which changes to pale brown to grayish sand with increasing depth. This soil has low water capacity and has little natural fertility.

(21) Lawnwood Sand. The sand is poorly drained and is nearly level (0 – 2% slope). The upper surface is about eight inches with black sand in the upper half and dark gray sand in the lower half. Sand particles get lighter in color as depth increases. This soil has very severe limitations for some plants because of wetness.

(35) Pompano Variant- Kaliga Variant Association. This soil is typical of very poorly drained areas in tidal mangrove swamps in the Indian River. Kaliga Variant soils are generally in the center of the swamps where organic material is thickest, and Pompano Variant soils are on the outer edges. The Pompano Variant soils make up about 65 % of the association and are covered over with about an inch of undecomposed leaves and twigs. Underneath the undecomposed materials are fine gray sands. The Kaliga Variant makes up about 25% of the association and is made up of muck with a depth of around 35 inches. Other soils make up the remaining 10%.

Fort Pierce Inlet State Park Soils Descriptions

Addendum 4—Plant And Animal List

Fort Pierce Inlet State Park Plants

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for designated species)
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FERNS

giant leather fern	<i>Acrostichum danaeifolium</i>	7,81
Boston fern	<i>Nephrolepis exaltata</i>	
golden polypody	<i>Phlebodium aureum</i>	
resurrection fern	<i>Pleopeltis polypodioides</i>	
	<i>var. michauxiana</i>	
shoestring fern	<i>Vittaria lineata</i>	

GYMNOSPERMS AND CYCADS

coontie	<i>Zamia pumila</i>	
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MONOCOTS

southern sandbur	<i>Cenchrus echinatus</i>	
sandspur	<i>Cenchrus tribuloides</i>	
day flower	<i>Commelina erecta</i>	
beach star	<i>Cyperus pedunculatu</i>	1
saltgrass	<i>Distichlis spicata</i>	
butterfly orchid	<i>Encyclia tampensis</i>	7
feather lovegrass	<i>Eragrostis amabilis</i> *	
shoalgrass	<i>Halodule wrightii</i>	
Johnson's seagrass	<i>Halophila johnsonii</i>	59
crested coralroot	<i>Hexalectris spicata</i>	9
spider lily	<i>Hymenocallis latifolia</i>	
cogon grass	<i>Imperata cylindrica</i> *	
beach grass	<i>Panicum amarum</i>	
white-top sedge	<i>Rhynchospora colorata</i>	
cabbage palm	<i>Sabal palmetto</i>	
saw palmetto	<i>Serenoa repens</i>	
greenbriar	<i>Smilax auriculata</i>	
smooth cord grass	<i>Spartina alterniflora</i>	
saltmeadow cordgrass	<i>Spartina patens</i>	
seashore dropseed grass	<i>Sporobolus virginicus</i>	
manatee grass	<i>Syringodium filiforme</i>	
turtlegrass	<i>Thalassia testudinum</i>	
common wild pine	<i>Tillandsia fasciculata</i>	7
ball moss	<i>Tillandsia recurvata</i>	
needle-leaved air plant	<i>Tillandsia setacea</i>	
Spanish moss	<i>Tillandsia usneoides</i>	
giant wild pine	<i>Tillandsia utriculata</i>	7
sea oats	<i>Uniola paniculata</i>	
Spanish bayonet	<i>Yucca aloifolia</i> *	

* Non-native Species

Fort Pierce Inlet State Park Plants

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for designated species)
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DICOTS

rosary pea	<i>Abrus precatorius</i> *	
chaff flower	<i>Alternanthera flavescens</i>	
common ragweed	<i>Ambrosia artemisiifolia</i>	
torchwood	<i>Amyris elemifera</i>	
marlberry	<i>Ardisia escallonioides</i>	
sandwort	<i>Arenaria lanuginosa</i>	
black mangrove	<i>Avicennia germinans</i>	
salt bush	<i>Baccharis halimifolia</i>	
water hyssop	<i>Bacopa monnieri</i>	
saltwort	<i>Batis maritima</i>	
Spanish needle	<i>Bidens alba</i> var. <i>radiata</i>	
samphire	<i>Blutaparon vermiculare</i>	
sea oxeye	<i>Borrichia frutescens</i>	
blueheart	<i>Buchnera americana</i>	
gumbo limbo	<i>Bursera simaruba</i>	
gray nicker-bean	<i>Caesalpinia bonduc</i>	
southern sea rocket	<i>Cakile lanceolata</i>	
beautyberry	<i>Callicarpa americana</i>	
bay-bean	<i>Canavalia rosea</i>	
scrub hickory	<i>Carya floridana</i>	
Australian pine	<i>Casuarina equisetifolia</i> *	
sugarberry	<i>Celtis laevigata</i>	
partridge pea	<i>Chamaecrista fasciculata</i>	
sand dune spurge	<i>Chamaesyce bombensis</i>	
hairy spurge	<i>Chamaesyce hirta</i>	
graceful sandmat	<i>Chamaesyce hypericifolia</i>	
hyssopleaf sandmat	<i>Chamaesyce hyssopifolia</i>	
seaside spurge	<i>Chamaesyce mesembryanthemifolia</i>	
lamb's quarters	<i>Chenopodium ambrosioides</i> *	
snowberry	<i>Chiococca alba</i>	
cocoplum	<i>Chrysobalanus icaco</i>	
stinging nettle	<i>Cnidoscolus stimulosus</i>	
seagrape	<i>Coccoloba uvifera</i>	
buttonwood	<i>Conocarpus erecta</i>	
dwarf horseweed	<i>Conyza canadensis</i> var. <i>pusilla</i>	
tickseed	<i>Coreopsis leavenworthii</i>	
rattle box	<i>Crotalaria pallida</i> *	
rattlebox	<i>Crotalaria pumila</i>	
croton	<i>Croton glandulosus</i> var. <i>glandulosus</i>	
beach croton	<i>Croton punctatus</i>	
coin vine	<i>Dalbergia ecastophyllum</i>	

* Non-native Species

Fort Pierce Inlet State Park Plants

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for designated species)
beggarweed	<i>Desmodium incanum</i>	
buttonweed	<i>Diodia virginiana</i>	
varnish leaf	<i>Dodonaea viscosa</i>	
false daisy	<i>Eclipta prostrata</i>	
fireweed	<i>Erechtites hieracifolia</i>	
southern fleabane	<i>Erigeron quercifolius</i>	
Baldwin's eryngo	<i>Eryngium baldwinii</i>	
coral bean	<i>Erythrina herbacea</i>	
white stopper	<i>Eugenia axillaris</i>	
Spanish stopper	<i>Eugenia foetida</i>	
dog fennel	<i>Eupatorium serotinum</i>	
seaside gentian	<i>Eustoma exaltatum</i>	
inkwood	<i>Exothea paniculata</i>	
strangler fig	<i>Ficus aurea</i>	
yellowtop	<i>Flaveria linearis</i>	
Florida privet	<i>Foresteria segregata</i>	
blanket flower	<i>Gaillardia pulchella</i> *	
milk-pea	<i>Galactia volubilis</i>	
bedstraw	<i>Galium hispidulum</i>	
southern gaura	<i>Gaura angustifolia</i>	
coastal muck vervain	<i>Glandularia maritima</i>	
cudweed	<i>Gnaphalium falcatum</i>	
rabbit tobacco	<i>Gnaphalium obtusifolium</i>	
globe amaranth	<i>Gomphrena serrata</i> *	
blolly	<i>Guapira discolor</i>	
toothed habenaria	<i>Habenaria floribunda</i>	
innocence	<i>Hedyotis procumbens</i>	
beach sunflower	<i>Helianthus debilis</i> var. <i>debilis</i>	
scorpion tail	<i>Heliotropium angiospermum</i>	
seaside heliotrope	<i>Heliotropium curassavicum</i>	
camphor weed	<i>Heterotheca subaxillaris</i>	
water pennywort	<i>Hydrocotyle bonariensis</i>	
moon-flower	<i>Ipomoea alba</i>	
morning glory	<i>Ipomoea indica</i> var. <i>acuminata</i>	
railroad vine	<i>Ipomoea pes-caprae</i> ssp. <i>brasiliensis</i>	
amaranth, blood leaf	<i>Iresine canescens</i>	
beach elder	<i>Iva imbricata</i>	
jasminum	<i>Jasminum fluminense</i> *	
black ironwood	<i>Krugiodendron ferreum</i>	
wild lettuce	<i>Lactuca graminifolia</i>	
white mangrove	<i>Languncularia racemosa</i>	
wild lantana	<i>Lantana involucrata</i>	
peppergrass	<i>Lepidium virginicum</i>	
gopher apple	<i>Licania michauxii</i>	

* Non-native Species

Fort Pierce Inlet State Park Plants

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for designated species)
sea lavender	<i>Limonium carolinianum</i>	
blue toadflax	<i>Linaria canadensis</i>	
bay lobelia	<i>Lobelia feayana</i>	
pineland lobelia	<i>Lobelia homophylla</i>	
Christmas berry	<i>Lycium carolinianum</i>	
marsh elder	<i>Melanthera nivea</i>	
creeping cucumber	<i>Melothria pendula</i>	
poorman's patch	<i>Mentzelia floridana</i>	
Florida Keys hempvine	<i>Mikania cordifolia</i>	
horsemint	<i>Monarda punctata</i>	
red mulberry	<i>Morus rubra</i>	
Simpson's stopper	<i>Myrcianthes fragrans</i>	7
wax myrtle	<i>Myrica cerifera</i>	
seaside evening primrose	<i>Oenothera humifusa</i>	
prickly-pear cactus	<i>Opuntia stricta</i>	1,9,81
pellitory	<i>Parietaria floridana</i>	
virginia creeper	<i>Parthenocissus quinquefolia</i>	
corky-stemmed passionflower	<i>Passiflora suberosa</i>	
redbay	<i>Persea borbonia</i> var. <i>borbonia</i>	
creeping charlie	<i>Phyla nodiflora</i>	
drummond's leafflower	<i>Phyllanthus abnormis</i>	
ground cherries	<i>Physalis walteri</i>	
pokeweed	<i>Phytolacca americana</i>	
plantain	<i>Plantago major</i> *	
marsh fleabane	<i>Pluchea odorata</i>	
wild poinsettia	<i>Poinsettia cyathophora</i>	
milkwort	<i>Polygala grandiflora</i>	
rustweed	<i>Polypremum procumbens</i>	
guava	<i>Psidium guajava</i> *	
wild coffee	<i>Psychotria nervosa</i>	
mock bishopweed	<i>Ptilimnium capillaceum</i>	
pokeweed	<i>Phytolacca pilosa</i>	
Chapman's oak	<i>Quercus chapmanii</i>	
live oak	<i>Quercus virginiana</i>	
white indigo-berry	<i>Randia aculeata</i>	
myrsine	<i>Rapanea punctata</i>	
red mangrove	<i>Rhizophora mangle</i>	
sumac	<i>Rhus copallina</i>	
castor bean	<i>Ricinus communis</i> *	
rougeberry	<i>Rivina humilis</i>	
water pimpernel	<i>Samolus ebracteatus</i>	
glasswort	<i>Salicornia bigelovii</i>	
glasswort	<i>Salicornia perennis</i>	
milkweed vine	<i>Sarcostemma clausum</i> *	

* Non-native Species

Fort Pierce Inlet State Park Plants

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for designated species)
inkberry	<i>Scaevola plumieri</i>	1
umbrella tree	<i>Schefflera actinophylla</i> *	
Brazilian pepper	<i>Schinus terebinthifolius</i> *	
gulf graytwig	<i>Schoepfia chrysophylloides</i>	
sweet broom	<i>Scoparia dulcis</i>	
butterweed	<i>Senecio glabellus</i>	
sea purslane	<i>Sesuvium portulacastrum</i>	
broomweed	<i>Sida acuta</i>	
tough buckhorn	<i>Sideroxylon tenax</i>	
paradise tree	<i>Simarouba glauca</i>	
greenbrier	<i>Smilax auriculata</i>	
pinebarren goldenrod	<i>Solidago fistulosa</i>	
spiny-leaved thistle	<i>Sonchus asper</i> *	
necklace-pod	<i>Sophora tomentosa</i>	
pencil flower	<i>Stylosanthes hamata</i>	
sea blite	<i>Suaeda linearis</i>	
dandelion	<i>Taraxacum officinale</i> *	
poison ivy	<i>Toxicodendron radicans</i>	
forked blue curls	<i>Trichostema dichotomum</i>	
frostweed	<i>Verbesina virginica</i>	
vetch	<i>Vicia acutifolia</i>	
cow-pea	<i>Vigna luteola</i>	
simpleleaf chastetree	<i>Vitex trifolia</i> *	
Calusa grape	<i>Vitis shuttleworthii</i>	
wedelia	<i>Wedelia trilobata</i> *	
Hercules club	<i>Zanthoxylum clava-herculis</i>	
wild lime	<i>Zanthoxylum fagara</i>	

Fort Pierce Inlet State Park Plants

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for designated species)
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* Non-native Species

Fort Pierce Inlet State Park Animals

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for all species)
SPONGES		
	<i>Chondrilla nucul</i>	69,71
	<i>Cliona lampa</i>	69,71
	<i>Ircinia strobilina</i>	69,71
	<i>Ircinia felix</i>	69,71
	<i>Tedania ignis</i>	69,71
COELENTERATES		
Orange fan gorgonian	<i>Lophogorgia hebes</i>	71
Colonial anemone	<i>Palythoa caribaea</i>	71
Star coral	<i>Siderastrea siderea</i>	71
Octocoral	<i>Telesto riisei</i>	71
ECHINODERMS		
Sea cucumber	<i>Holothuroidea spp.</i>	69,71
Florida sea cucumber	<i>Isostichopus badionotus</i>	69,71
Variable sea urchin	<i>Lytechinus variegatus</i>	69,71
Reef urchin	<i>Echinometra viridis</i>	69,71
Rock urchin	<i>Echinometra lucunter</i>	69,71
Pencil urchin	<i>Eucidaris tribuloides</i>	69,71
ARTHROPODS		
	<i>Menippe nodifrons</i>	69,71
	<i>Pachycheles monilifer</i>	69,71
	<i>Pachygrapsus transversus</i>	69,71
Pistol shrimp	<i>Synalpheus fritzmuelleri</i>	69,71
Fiddler crab	<i>Uca</i>	75,76
FISHES		
Bonefish	<i>Albula vulpes</i>	69,71,77
Cuban anchovy	<i>Anchoa cubana</i>	69,71,77
Striped anchovy	<i>Anchoa hepsetus</i>	69,71,77
Bigeye anchovy	<i>Anchoa lamprotaenia</i>	69,71,77
Bay anchovy	<i>Anchoa mitchilli</i>	69,71,77
	<i>Anchoa nasuta</i>	69,71,77
Sheepshead	<i>Archosargus probatocephalus</i>	69,71,77
Silver perch	<i>Bairdiella chrysoura</i>	69,71,77
Yellowfin menhaden	<i>Brevoortia smithi</i>	69,71,77
Common snook	<i>Centropomus undecimalis</i>	69,71,77

* Non-native Species

Fort Pierce Inlet State Park Animals

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for all species)
Spotted seatrout	<i>Cynoscion nebulosus</i>	69,71,77
Pompano	<i>Diapterus olisthostomus</i>	69,71,77
Ladyfish	<i>Elops saurus</i>	69,71,77
Spotfin mojarra	<i>Eucinostomus argenteus</i>	69,71,77
Silver jenny	<i>Eucinostomus gula</i>	69,71,77
Gulf killifish	<i>Fundulus grandis</i>	69,71,77
Longnose killifish	<i>Fundulus similis</i>	69,71,77
Code goby	<i>Gobiosoma robustum</i>	69,71,77
Sailors choice	<i>Haemulon parrai</i>	69,71,77
	<i>Harengula pensacolae</i>	69,71,77
Pinfish	<i>Lagodon rhomboides</i>	69,71,77
Spot	<i>Leiostomus xanthurus</i>	69,71,77
Mutton snapper	<i>Lutjanus analis</i>	69,71,77
Gray snapper	<i>Lutjanus griseus</i>	69,71,77
Lane snapper	<i>Lutjanus synagris</i>	69,71,77
Rough silverside	<i>Membras martinica</i>	69,71,77
Inland silverside	<i>Menidia beryllina</i>	69,71,77
Planehead filefish	<i>Monacanthus hispidus</i>	69,71,77
White mullet	<i>Mugil curema</i>	69,71,77
Striped mullet	<i>Mugil cephalus</i>	69,71,77
Atlantic thread herring	<i>Opisthonema oglinum</i>	69,71,77
Pigfish	<i>Orthopristis chrysoptera</i>	69,71,77
Sardine	<i>Sardinella anchovia</i>	69,71,77
Great barracuda	<i>Sphyrnaena barracuda</i>	69,71,77
Tumucu	<i>Strongylura timucu</i>	69,71,77
Chain pipefish	<i>Syngnathus louisianae</i>	69,71,77
Permit	<i>Trachinotus falcatus</i>	69,71,77
AMPHIBIANS		
Southern Toad	<i>Bufo terrestris</i>	7,81
Green Tree Frog	<i>Hyla cinerea</i>	7,81
REPTILES		
Green Turtle	<i>Chelonia mydas</i>	1,71,77
Loggerhead	<i>Caretta caretta</i>	1,71,77
Leatherback	<i>Dermochelys coriacea</i>	1,77
Gopher Tortoise	<i>Gopherus polyphemus</i>	1,9,81
Florida East Coast Terrapin	<i>Malaclemys terrapin tequesta</i>	71,76
Florida Box Turtle	<i>Terrapene carolina bauri</i>	7
Green Anole	<i>Anolis carolinensis</i>	1,7,9
Six-lined Racerunner	<i>Cnemidophorus sexlineatus</i>	1,9
Southeastern Five-Lined Skink	<i>Eumeces inexpectatus</i>	7,9

* Non-native Species

Fort Pierce Inlet State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (for all species)
Ground Skink	<i>Scincella lateralis</i>	7,9
Southern Black Racer	<i>Coluber constrictor priapus</i>	7,9
Southern Ring-necked Snake	<i>Diadophis punctatus punctatus</i>	7
Red Rat Snake	<i>Elaphe guttata guttata</i>	7,9
Eastern Coachwhip	<i>Masticophis flagellum flagellum</i>	1,7,9
Rough Green Snake	<i>Opheodrys aestivus</i>	7
Dusky Pigmy Rattlesnake	<i>Sistrurus miliarius barbouri</i>	7
Eastern Garter Snake	<i>Thamnophis sirtalis sirtalis</i>	7,9

BIRDS

Common Loon	<i>Gavia immer</i>	71,77
Red-throated Loon	<i>Gavia stellata</i>	71,77
Pied-billed Grebe	<i>Podilymbus podiceps</i>	71,76
Brown Pelican	<i>Pelecanus occidentalis</i>	71, 76,77
Brown Booby	<i>Sula leucogaster</i>	77
Northern Gannet	<i>Morus bassanus</i>	77
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	71,76
Anhinga	<i>Anhinga anhinga</i>	71,77
Magnificent Frigatebird	<i>Fregata magnificens</i>	71,77
Great Blue Heron	<i>Ardea herodias</i>	71,76
Green Heron	<i>Butorides virescens</i>	71,76
Little Blue Heron	<i>Egretta caerulea</i>	71,76
Tricolored Heron	<i>Egretta tricolor</i>	71,76
Yellow-crowned Night Heron	<i>Nyctanassa violacea</i>	71,76
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	71,76
Cattle Egret	<i>Bubulcus ibis</i>	81,82
Reddish Egret	<i>Egretta rufescens</i>	71,76
Great Egret	<i>Ardea alba</i>	71,76
Snowy Egret	<i>Egretta thula</i>	71,76
Wood Stork	<i>Mycteria americana</i>	71,76
White Ibis	<i>Eudocimus albus</i>	71,76
Roseate Spoonbill	<i>Ajaia ajaja</i>	71,76
Mottled Duck	<i>Anas fulvigula</i>	71,76
Pintail	<i>Anas acuta</i>	71,76
Blue-winged Teal	<i>Anas discors</i>	71,76
Mallard	<i>Anas platyrhynchos</i>	71,76
Black Duck	<i>Anas rubripes</i>	71,76
American Wigeon	<i>Anas americana</i>	71,76
Gadwall	<i>Anas strepera</i>	71,76
Wood Duck	<i>Aix sponsa</i>	76
Ring-necked Duck	<i>Aythya collaris</i>	76
Lesser Scaup	<i>Aythya affinis</i>	71,76
Red-breasted Merganser	<i>Mergus serrator</i>	71,76

Fort Pierce Inlet State Park Animals

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for all species)
Turkey Vulture	<i>Cathartes aura</i>	Throughout
Black Vulture	<i>Coragyps atratus</i>	Throughout
Cooper's Hawk	<i>Accipiter cooperii</i>	1,7,9
Red-shouldered Hawk	<i>Buteo lineatus</i>	1,7,9
Red-tailed Hawk	<i>Buteo jamaicensis</i>	1,7,9
Northern Harrier	<i>Circus cyaneus</i>	1,9,76
Osprey	<i>Pandion haliaetus</i>	71,76
Merlin	<i>Falco columbarius</i>	1,7,9
American Kestrel	<i>Falco sparverius</i>	1,7,9
Peregrine Falcon	<i>Falco peregrinus</i>	1,7,9
Great Horned Owl	<i>Bubo virginianus</i>	1,7,9
Eastern Screech Owl	<i>Otus osio</i>	1,7,9
Barred Owl	<i>Strix varia</i>	1,7,9
American Oystercatcher	<i>Haematopus palliatus</i>	1,77
Semipalmated Plover	<i>Charadrius semipalmatus</i>	1,77
Wilson's Plover	<i>Charadrius wilsonia</i>	1,77
Black-bellied Plover	<i>Pluvialis squatarola</i>	1,77
Ruddy Turnstone	<i>Arenaria interpres</i>	1,77
Killdeer	<i>Charadrius vociferus</i>	1,77
Spotted Sandpiper	<i>Actitis macularia</i>	1,77
Willet	<i>Catoptrophorus semipalmatus</i>	1,77
Greater Yellowlegs	<i>Tringa melanoleuca</i>	1,76,77
Lesser Yellowlegs	<i>Tringa flavipes</i>	1,76,77
Least Sandpiper	<i>Calidris minutilla</i>	1,77
Red Knot	<i>Calidris canutus</i>	1,77
Dunlin	<i>Calidris alpina</i>	1,77
Short-billed Dowitcher	<i>Limnodromus griseus</i>	1,76,77
Western Sandpiper	<i>Calidris mauri</i>	1,77
Sanderling	<i>Calidris alba</i>	1,77
Black-necked Stilt	<i>Himantopus mexicanus</i>	1,77
Clapper Rail	<i>Rallus longirostris</i>	76
Sora	<i>Porzana carolina</i>	76
American Coot	<i>Fulica americana</i>	71,76
Great Black-backed Gull	<i>Larus marinus</i>	1,71,77
Herring Gull	<i>Larus argentatus</i>	1,71,77
Ring-billed Gull	<i>Larus delawarensis</i>	1,71,77
Laughing Gull	<i>Larus atricilla</i>	1,71,77
Caspian Tern	<i>Sterna caspia</i>	1,71,77
Forster's Tern	<i>Sterna forsteri</i>	1,71,77
Least Tern	<i>Sterna antillarum</i>	1,71,77
Royal Tern	<i>Sterna maxima</i>	1,71,77
Sandwich Tern	<i>Sterna sandvicensis</i>	1,71,77
Black Skimmer	<i>Rynchops niger</i>	1,71,77
Mourning Dove	<i>Zenaida macroura</i>	1,81

* Non-native Species

Fort Pierce Inlet State Park Animals

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for all species)
Common Ground Dove	<i>Columbina passerina</i>	1,81
Tree Swallow	<i>Iridoprocne bicolor</i>	1,81
Barn Swallow	<i>Hirundo rustica</i>	1,81
Purple Martin	<i>Progne subis</i>	1,81
Chimney Swift	<i>Chaetura pelagica</i>	1,81
Belted Kingfisher	<i>Megaceryle alcyon</i>	71,76
Common Flicker	<i>Colaptes auratus</i>	Throughout uplands
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Throughout uplands
Red-bellied Woodpecker	<i>Centurus carolinus</i>	Throughout uplands
Hairy Woodpecker	<i>Picoides villosus</i>	Throughout uplands
Downy Woodpecker	<i>Dendrocopus pubescens</i>	Throughout uplands
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	Throughout uplands
Eastern Kingbird	<i>Tyrannus tyrannus</i>	Throughout uplands
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	Throughout uplands
Eastern Phoebe	<i>Sayornis phoebe</i>	Throughout uplands
Blue Jay	<i>Cyanocitta cristata</i>	Throughout uplands
Fish Crow	<i>Corvus ossifragus</i>	Throughout uplands
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Throughout uplands
House Wren	<i>Troglodytes aedon</i>	Throughout uplands
Carolina Wren	<i>Thryothorus ludovicianus</i>	Throughout uplands
Northern Mockingbird	<i>Mimus polyglottos</i>	Throughout uplands
Gray Catbird	<i>Dumetella carolinensis</i>	Throughout uplands
Brown Thrasher	<i>Toxostoma rufum</i>	Throughout uplands
American Robin	<i>Turdus migratorius</i>	Throughout uplands
Chuck-Will's Widow	<i>Caprimulgus carolinensis</i>	Throughout uplands
Whip-poor-will	<i>Caprimulgus vociferus</i>	Throughout uplands
Common Nighthawk	<i>Chordeiles minor</i>	Throughout uplands
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	Throughout uplands
European Starling	<i>Sturnus vulgaris</i>	Throughout uplands
White-eyed Vireo	<i>Vireo griseus</i>	Throughout uplands
Red-eyed Vireo	<i>Vireo olivaceus</i>	Throughout uplands
Black-and-white Warbler	<i>Mniotilta varia</i>	Throughout uplands
Northern Parula	<i>Parula americana</i>	Throughout uplands
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	Throughout uplands
Yellow-rumped Warbler	<i>Dendroica coronata</i>	Throughout uplands
Prairie Warbler	<i>Dendroica discolor</i>	Throughout uplands
Yellow-throated Warbler	<i>Dendroica dominica</i>	Throughout uplands
Pine Warbler	<i>Dendroica pinus</i>	Throughout uplands
Palm Warbler	<i>Dendroica palmarum</i>	Throughout uplands
Blackpoll Warbler	<i>Dendroica striata</i>	Throughout uplands
Cape May Warbler	<i>Dendroica tigrina</i>	Throughout uplands
Common Yellowthroat	<i>Geothlypis trichas</i>	Throughout uplands
Ovenbird	<i>Dendroica caerulescens</i>	Throughout uplands
American Redstart	<i>Setophaya ruticilla</i>	Throughout uplands

Fort Pierce Inlet State Park Animals

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for all species)
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Throughout uplands
Common Grackle	<i>Quiscalus quiscula</i>	Throughout uplands
Scarlet Tanager	<i>Piragana olivacea</i>	Throughout uplands
Summer Tanager	<i>Piranga rubra</i>	Throughout uplands
Northern Cardinal	<i>Cardinalis cardinalis</i>	Throughout uplands
Savannah Sparrow	<i>Passerculus sandwichensis</i>	Throughout uplands
Song Sparrow	<i>Melospiza melodia</i>	Throughout uplands
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Throughout uplands
Bobwhite Quail	<i>Colinus virginianus</i>	Throughout uplands

MAMMALS

Eastern Cottontail	<i>Sylvilagus floridanus</i>	1,7,9,81
Marsh Rabbit	<i>Sylvilagus palustris</i>	1,7,9,81,76
Raccoon	<i>Procyon lotor</i>	1,7,9,81,76
Opossum	<i>Didelphis marsupialis</i>	1,7,9,81
Eastern Mole	<i>Scalopus aquaticus</i>	7,9,81
Cotton Mouse	<i>Peromyscus gossypinus</i>	1,9
Cotton Rat	<i>Sigmodon hispidus</i>	1,7,9
West Indian Manatee	<i>Trichechus manatus</i>	71
Gray Squirrel	<i>Sciurus carolinensis</i>	7,9
Gray Fox	<i>Urocyon cinereoargenteus</i>	1,7,9,81
Bobcat	<i>Lynx rufus</i>	1,7,9,81
Atlantic Bottlenose Dolphin	<i>Tursiops truncatus</i>	71,77

Habitat Codes

Terrestrial

1. Beach Dune
2. Bluff
3. Coastal Berm
4. Coastal Rock Barren
5. Coastal Strand
6. Dry Prairie
7. Maritime Hammock
8. Mesic Flatwoods
9. Mesic Hammock
10. Coastal Grasslands
11. Pine Rockland
12. Prairie Hammock
13. Rockland Hammock
14. Sandhill
15. Scrub
16. Scrubby Flatwoods
17. Shell Mound
18. Sinkhole
19. Slope Forest
20. Upland Glade
21. Upland Hardwood Forest
22. Upland Mixed Forest
23. Upland Pine Forest
24. Xeric Hammock

Palustrine

25. Basin Marsh
26. Basin Swamp
27. Baygall
28. Bog
29. Bottomland Forest
30. Coastal Interdunal Swale
31. Depression Marsh
32. Dome
33. Floodplain Forest
34. Floodplain Marsh
35. Floodplain Swamp
36. Freshwater Tidal Swamp
37. Hydric Hammock
38. Marl Prairie
39. Seepage Slope
40. Slough
41. Strand Swamp
42. Swale
43. Wet Flatwoods
44. Wet Prairie

Lacustrine

45. Clastic Upland Lake
46. Coastal Dune Lake
47. Coastal Rockland Lake

Lacustrine

48. Flatwood/Prairie Lake
49. Marsh Lake
50. River Floodplain Lake
51. Sandhill Upland Lake
52. Sinkhole Lake
53. Swamp Lake

Riverine

54. Alluvial Stream
55. Blackwater Stream
56. Seepage Stream
57. Spring-Run Stream

Estuarine

58. Estuarine Algal Bed
59. Estuarine Composite Substrate
60. Estuarine Consolidated Substrate
61. Estuarine Coral Reef
62. Estuarine Grass Bed
63. Estuarine Mollusk Reef
64. Estuarine Octocoral Bed
65. Estuarine Sponge Bed
66. Estuarine Tidal Marsh
67. Estuarine Tidal Swamp
68. Estuarine Unconsolidated Substrate
69. Estuarine Worm Reef

Marine

70. Marine Algal Bed
71. Marine Composite Substrate
72. Marine Consolidated Substrate
73. Marine Coral Reef
74. Marine Grass Bed
75. Marine Mollusk Reef
76. Marine Octocoral Bed
77. Marine Sponge Bed
78. Marine Tidal Marsh
79. Marine Tidal Swamp
80. Marine Unconsolidated Substrate
81. Marine Worm Reef

Subterranean

82. Aquatic Cave
83. Terrestrial Cave

Miscellaneous

84. Ruderal
85. Developed
- MTC** Many Types of Communities
- OF** Over Flying

Habitat Codes

Addendum 5—Designated Species List

Rank Explanations For FNAI Global Rank, FNAI State Rank, Federal Status And State Status

The Nature Conservancy and the Natural Heritage Program Network (of which FNAI is a part) define an element as any exemplary or rare component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature. An element occurrence (EO) is a single extant habitat that sustains or otherwise contributes to the survival of a population or a distinct, self-sustaining example of a particular element.

Using a ranking system developed by The Nature Conservancy and the Natural Heritage Program Network, the Florida Natural Areas Inventory assigns two ranks to each element. The global rank is based on an element's worldwide status; the state rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of Element occurrences, estimated abundance (number of individuals for species; area for natural communities), range, estimated adequately protected EOs, relative threat of destruction, and ecological fragility.

Federal and State status information is from the U.S. Fish and Wildlife Service; and the Florida Game and Freshwater Fish Commission (animals), and the Florida Department of Agriculture and Consumer Services (plants), respectively.

FNAI GLOBAL RANK DEFINITIONS

- G1 = Critically imperiled globally 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.
- G2 = Imperiled globally 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.
- G3 = 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 of other factors.
- G4 = apparently secure globally (may be rare in parts of range)
- G5 = demonstrably secure globally
- GH = of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
- GX = believed to be extinct throughout range
- GXC = extirpated from the wild but still known from captivity or cultivation
- G#? = tentative rank (e.g., G2?)
- G#G# = range of rank; insufficient data to assign specific global rank (e.g., G2G3)
- G#T# = rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)
- G#Q = rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
- G#T#Q = same as above, but validity as subspecies or variety is questioned.
- GU = due to lack of information, no rank or range can be assigned (e.g., GUT2).
- G? = not yet ranked (temporary)
- S1 = Critically imperiled in Florida 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.
- S2 = Imperiled in Florida 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.
- S3 = 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 of other factors.
- S4 = apparently secure in Florida (may be rare in parts of range)
- S5 = demonstrably secure in Florida
- SH = of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
- SX = believed to be extinct throughout range
- SA = accidental in Florida, i.e., not part of the established biota
- SE = an exotic species established in Florida may be native elsewhere in North America
- SN = regularly occurring, but widely and unreliably distributed; sites for conservation hard to determine
- SU = due to lack of information, no rank or range can be assigned (e.g., SUT2).
- S? = not yet ranked (temporary)
- N = Not currently listed, nor currently being considered for listing, by state or federal agencies.

LEGAL STATUS

FEDERAL (Listed by the U. S. Fish and Wildlife Service - USFWS)

- LE = Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species that is in danger of extinction throughout all or a significant portion of its range.
- PE = Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.
- LT = Listed as Threatened Species. Defined as any species that is likely to become an endangered species within the near future throughout all or a significant portion of its range.
- PT = Proposed for listing as Threatened Species.
- C = Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants. Defined as those species for which the USFWS currently has on file sufficient information on biological vulnerability and threats to support proposing to list the species as endangered or threatened.
- E(S/A) = Endangered due to similarity of appearance.
- T(S/A) = Threatened due to similarity of appearance.

STATE

Animals (Listed by the Florida Fish and Wildlife Conservation Commission - FFWCC)

- LE = Listed as Endangered Species by the FFWCC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future.
- LT = Listed as Threatened Species by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
- LS = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species.

Plants (Listed by the Florida Department of Agriculture and Consumer Services - FDACS)

- LE = Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.
- LT = Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered.

Fort Pierce Inlet State Park Plants

Common Name/ <i>Scientific Name</i>	<u>Designated Species Status</u>		
	FDACS	USFWS	FNAI
Beach star <i>Cyperus pedunculatus</i>	LE		
Johnson's seagrass <i>Halophila johnsonii</i>		LT	
Crested coralroot <i>Hexalectris spicata</i>	LE		
Simpson's stopper <i>Myrcianthes fragrans</i>	LT		
Prickly pear cactus <i>Opuntia stricta</i>	LT		
Inkberry <i>Scaevola plumieri</i>	LT		
Common wild pine <i>Tillandsia fasciculata</i>	LE		
Giant wild pine <i>Tillandsia utriculata</i>	LE		

Fort Pierce Inlet State Park Plants

Common Name/ <i>Scientific Name</i>	<u>Designated Species Status</u>		
	FDACS	USFWS	FNAI

Fort Pierce Inlet State Park Animals

Common Name/ Scientific Name	<u>Designated Species Status</u>		
	FFWCC	USFWS	FNAI
FISH			
Common snook <i>Centropomus undecimalis</i>	LS		
REPTILES			
Atlantic loggerhead turtle <i>Caretta caretta</i>	LT	LT	G3, S3
Atlantic green turtle <i>Chelonia mydas mydas</i>	LE	LE	G3, S2
Leatherback turtle <i>Dermochelys coriacea</i>	LE	LE	G3, S2
Eastern indigo snake <i>Drymarchon corais couperi</i>	LT	LT	
Gopher tortoise <i>Gopherus polyphemus</i>	LS		G3, S3
BIRDS			
Roseate Spoonbill <i>Ajaia Ajaja</i>	LS		G5, S2, S3
Great Egret <i>Ardea alba</i>			G5, S4
Piping Plover <i>Charadrius melodus</i>	LT	LT	G3, S2
Little Blue Heron <i>Egretta caerulea</i>	LS		G5, S4
Reddish Egret <i>Egretta rufescens</i>	LS		G4, S2
Snowy Egret <i>Egretta thula</i>	LS		G5, S4
Tricolored Heron <i>Egretta tricolor</i>	LS		G5, S4
White Ibis <i>Eudocimus albus</i>	LS		G5, S4
Merlin <i>Falco columbarius</i>			G4, SU
American Oystercatcher <i>Haematopus palliatus</i>	LS		G5, S3

Fort Pierce Inlet State Park Animals

Common Name/ <i>Scientific Name</i>	<u>Designated Species Status</u>		
	FFWCC	USFWS	FNAI
Wood Stork <i>Mycteria americana</i>	LE	LE	G4, S2
Osprey <i>Pandion haliaetus</i>			G5, S3, S4
Brown Pelican <i>Pelecanus occidentalis</i>	LS		G4,S3
Black Skimmer <i>Rynchops niger</i>	LS		G5, S3
American Redstart <i>Setophaga ruticilla</i>			G5, S3
Least Tern <i>Sterna antillarum</i>	LT		G4, S3
Royal Tern <i>Sterna maxima</i>			G5, S3

MAMMALS

West Indian (=Florida) manatee <i>Trichechus manatus</i>	LE	LE	G2, S2?
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Addendum 6—Priority Schedule And Cost Estimates

Fort Pierce Inlet State Park Schedule and Cost Estimates

Estimates are developed for the funding and staff resources needed to implement the management plan based on goals, objectives and priority management activities. Funding priorities for all state park management and development activities are reviewed each year as part of the Division’s legislative budget process. The Division prepares an annual legislative budget request based on the priorities established for the entire state park system. The Division also aggressively pursues a wide range of other funds and staffing resources, such as grants, volunteers, and partnerships with agencies, local governments and the private sector for supplementing normal legislative appropriations to address unmet needs. The ability of the Division to implement the specific goals, objectives and priority actions identified in this plan will be determined by the availability of funding resources for these purposes.

Resource Management

1. Continue the removal of exotic vegetation. Estimated Cost: \$50,000
2. Pilot hammock restoration project on spoil areas and monitoring. Estimated Cost: \$50,000-100,000
3. Redefine park’s offshore boundaries (after it is determined what offshore areas are in the park). Estimated Cost: \$20,000
4. Survey of park waters to establish extent and quality of different marine habitats. Estimated Cost: \$5,000
5. Conduct a Level I archaeological survey to determine the identity, location and extent of any unrecorded prehistoric or historic archaeological sites. Estimated Cost: \$10,000
6. Repair replace boundary fencing. Estimated Cost: \$5,000 (for materials only)
7. Rework Hammock Trail (including rewrite of guided walk). Estimated Cost: \$1,500

Capital Improvements

Development Area or Facilities	Estimated Cost
Canoe/kayak Access	\$52,500.00
Beach Use Area	\$695,000.00
Interpretive Facilities	\$36,000.00
Support Facilities	\$667,500.00
Trails	\$15,375.00
Picnic Facilities	\$108,000.00

Total Cost with Contingency:\$1,882,250.00

Fort Pierce Inlet State Park Schedule and Cost Estimates

ADDITIONAL INFORMATION

FNAI Descriptions

DHR Cultural Management Statement

Descriptions Of Natural Communities Developed By FNAI

This summary presents the hierarchical classification and brief descriptions of 82 Natural Communities developed by Florida Natural Areas Inventory and identified as collectively constituting the original, natural biological associations of Florida.

A Natural Community is defined as a distinct and recurring assemblage of populations of plants, animals, fungi and microorganisms naturally associated with each other and their physical environment. For more complete descriptions, see Guide to the Natural Communities of Florida, available from Florida Department of Natural Resources.

The levels of the hierarchy are:

Natural Community Category - defined by hydrology and vegetation.

Natural Community Groups - defined by landform, substrate, and vegetation.

Natural Community Type - defined by landform and substrate; soil moisture condition; climate; fire; and characteristic vegetation.

TERRESTRIAL COMMUNITIES

XERIC UPLANDS
COASTAL UPLANDS
MESIC UPLANDS
ROCKLANDS
MESIC FLATLANDS

PALUSTRINE COMMUNITIES

WET FLATLANDS
SEEPAGE WETLANDS
FLOODPLAIN WETLANDS
BASIN WETLANDS

LACUSTRINE COMMUNITIES

RIVERINE COMMUNITIES

SUBTERRANEAN COMMUNITIES

MARINE/ESTUARINE COMMUNITIES

Definitions of Terms Used in Natural Community Descriptions

TERRESTRIAL - Upland habitats dominated by plants which are not adapted to anaerobic soil conditions imposed by saturation or inundation for more than 10% of the growing season.

XERIC UPLANDS - very dry, deep, well-drained hills of sand with xeric-adapted vegetation.

Sandhill - upland with deep sand substrate; xeric; temperate; frequent fire (2-5 years); longleaf pine and/or turkey oak with wiregrass understory.

Scrub - old dune with deep fine sand substrate; xeric; temperate or subtropical; occasional or rare fire (20 - 80 years); sand pine and/or scrub oaks and/or rosemary and lichens.

Xeric Hammock - upland with deep sand substrate; xeric-mesic; temperate or subtropical; rare or no fire; live oak and/or sand live oak and/or laurel oak and/or other oaks, sparkleberry, saw palmetto.

COASTAL UPLANDS - substrate and vegetation influenced primarily by such coastal (maritime) processes as erosion, deposition, salt spray, and storms.

Beach Dune - active coastal dune with sand substrate; xeric; temperate or subtropical; occasional or rare fire; sea oats and/or mixed salt-spray tolerant grasses and herbs.

Coastal Berm - old bar or storm debris with sand/shell substrate; xeric-mesic; subtropical or temperate; rare or no fire; buttonwood, mangroves, and/or mixed halophytic herbs and/or shrubs and trees.

Descriptions Of Natural Communities Developed By FNAI

Coastal Grassland - coastal flatland with sand substrate; xeric-mesic; subtropical or temperate; occasional fire; grasses, herbs, and shrubs with or without slash pine and/or cabbage palm.

Coastal Rock Barren - flatland with exposed limestone substrate; xeric; subtropical; no fire; algae, mixed halophytic herbs and grasses, and/or cacti and stunted shrubs and trees.

Coastal Strand - stabilized coastal dune with sand substrate; xeric; subtropical or temperate; occasional or rare fire; dense saw palmetto and/or seagrape and/or mixed stunted shrubs, yucca, and cacti.

Maritime Hammock - stabilized coastal dune with sand substrate; xeric-mesic; subtropical or temperate; rare or no fire; mixed hardwoods and/or live oak.

Shell Mound - Indian midden with shell substrate; xeric-mesic; subtropical or temperate; rare or no fire; mixed hardwoods.

MESIC UPLANDS - dry to moist hills of sand with varying amounts of clay, silt or organic material; diverse mixture of broadleaved and needleleaved temperate woody species.

Bluff - steep slope with rock, sand, and/or clay substrate; hydric-xeric; temperate; sparse grasses, herbs and shrubs.

Slope Forest - steep slope on bluff or in sheltered ravine; sand/clay substrate; mesic-hydric; temperate; rare or no fire; magnolia, beech, spruce pine, Shumard oak, Florida maple, mixed hardwoods.

Upland Glade - upland with calcareous rock and/or clay substrate; hydric-xeric; temperate; sparse mixed grasses and herbs with occasional stunted trees and shrubs, e.g., eastern red cedar.

Upland Hardwood Forest - upland with sand/clay and/or calcareous substrate; mesic; temperate; rare or no fire; spruce pine, magnolia, beech, pignut hickory, white oak, and mixed hardwoods.

Upland Mixed Forest - upland with sand/clay substrate; mesic; temperate; rare or no fire; loblolly pine and/or shortleaf pine and/or laurel oak and/or magnolia and spruce pine and/or mixed hardwoods.

Upland Pine Forest - upland with sand/clay substrate; mesic-xeric; temperate; frequent or occasional fire; longleaf pine and/or loblolly pine and/or shortleaf pine, southern red oak, wiregrass.

ROCKLANDS - low, generally flat limestone outcrops with tropical vegetation; or limestone exposed through karst activities with tropical or temperate vegetation.

Pine Rockland - flatland with exposed limestone substrate; mesic-xeric; subtropical; frequent fire; south Florida slash pine, palms and/or hardwoods, and mixed grasses and herbs.

Rockland Hammock - flatland with limestone substrate; mesic; subtropical; rare or no fire; mixed tropical hardwoods, often with live oak.

Sinkhole - karst feature with steep limestone walls; mesic-hydric; subtropical or temperate; no fire; ferns, herbs, shrubs, and hardwoods.

MESIC FLATLANDS - flat, moderately well-drained sandy substrates with admixture of organic material, often with a hard pan.

Dry Prairie - flatland with sand substrate; mesic-xeric; subtropical or temperate; annual or frequent fire; wiregrass, saw palmetto, and mixed grasses and herbs.

Mesic Flatwoods - flatland with sand substrate; mesic; subtropical or temperate; frequent fire; slash pine and/or longleaf pine with saw palmetto, gallberry and/or wiregrass or cutthroat grass understory.

Descriptions Of Natural Communities Developed By FNAI

Prairie Hammock - flatland with sand/organic soil over marl or limestone substrate; mesic; subtropical; occasional or rare fire; live oak and/or cabbage palm.

Scrubby Flatwoods - flatland with sand substrate; xeric-mesic; subtropical or temperate; occasional fire; longleaf pine or slash pine with scrub oaks and wiregrass understory.

PALUSTRINE - Wetlands dominated by plants adapted to anaerobic substrate conditions imposed by substrate saturation or inundation during 10% or more of the growing season. Includes non-tidal wetlands; tidal wetlands with ocean derived salinities less than 0.5 ppt and dominance by salt-intolerant species; small (less than 8 ha), shallow (less than 2 m deep at low water) water bodies without wave-formed or bedrock shoreline; and inland brackish or saline wetlands.

WET FLATLANDS - flat, poorly drained sand, marl or limestone substrates.

Hydric Hammock - lowland with sand/clay/organic soil, often over limestone; mesic-hydric; subtropical or temperate; rare or no fire; water oak, cabbage palm, red cedar, red maple, bays, hackberry, hornbeam, blackgum, needle palm, and mixed hardwoods.

Marl Prairie - flatland with marl over limestone substrate; seasonally inundated; tropical; frequent to no fire; sawgrass, spikerush, and/or mixed grasses, sometimes with dwarf cypress.

Wet Flatwoods - flatland with sand substrate; seasonally inundated; subtropical or temperate; frequent fire; vegetation characterized by slash pine or pond pine and/or cabbage palm with mixed grasses and herbs.

Wet Prairie - flatland with sand substrate; seasonally inundated; subtropical or temperate; annual or frequent fire; maidencane, beakrush, spikerush, wiregrass, pitcher plants, St. John's wort, mixed herbs.

SEEPAGE WETLANDS - sloped or flat sands or peat with high moisture levels maintained by downslope seepage; wetland and mesic woody and/or herbaceous vegetation.

Baygall - wetland with peat substrate at base of slope; maintained by downslope seepage, usually saturated and occasionally inundated; subtropical or temperate; rare or no fire; bays and/or dahoon holly and/or red maple and/or mixed hardwoods.

Seepage Slope - wetland on or at base of slope with organic/sand substrate; maintained by downslope seepage, usually saturated but rarely inundated; subtropical or temperate; frequent or occasional fire; sphagnum moss, mixed grasses and herbs or mixed hydrophytic shrubs.

FLOODPLAIN WETLANDS - flat, alluvial sand or peat substrates associated with flowing water courses and subjected to flooding but not permanent inundation; wetland or mesic woody and herbaceous vegetation.

Bottomland Forest - flatland with sand/clay/organic substrate; occasionally inundated; temperate; rare or no fire; water oak, red maple, beech, magnolia, tuliptree, sweetgum, bays, cabbage palm, and mixed hardwoods.

Floodplain Forest - floodplain with alluvial substrate of sand, silt, clay or organic soil; seasonally inundated; temperate; rare or no fire; diamondleaf oak, overcup oak, water oak, swamp chestnut oak, blue palmetto, cane, and mixed hardwoods.

Floodplain Marsh - floodplain with organic/sand/alluvial substrate; seasonally inundated; subtropical; frequent or occasional fire; maidencane, pickerelweed, sagittaria spp., buttonbush, and mixed emergents.

Floodplain Swamp - floodplain with organic/alluvial substrate; usually inundated; subtropical or

Descriptions Of Natural Communities Developed By FNAI

temperate; rare or no fire; vegetation characterized by cypress, tupelo, black gum, and/or pop ash.

Freshwater Tidal Swamp - river mouth wetland, organic soil with extensive root mat; inundated with freshwater in response to tidal cycles; rare or no fire; cypress, bays, cabbage palm, gums and/or cedars.

Slough - broad, shallow channel with peat over mineral substrate; seasonally inundated, flowing water; subtropical; occasional or rare fire; pop ash and/or pond apple or water lily.

Strand Swamp - broad, shallow channel with peat over mineral substrate; seasonally inundated, flowing water; subtropical; occasional or rare fire; cypress and/or willow.

Swale - broad, shallow channel with sand/peat substrate; seasonally inundated, flowing water; subtropical or temperate; frequent or occasional fire; sawgrass, maidencane, pickerelweed, and/or mixed emergents.

BASIN WETLANDS - shallow, closed basin with outlet usually only in time of high water; peat or sand substrate, usually inundated; wetland woody and/or herbaceous vegetation.

Basin Marsh - large basin with peat substrate; seasonally inundated; temperate or subtropical; frequent fire; sawgrass and/or cattail and/or buttonbush and/or mixed emergents.

Basin Swamp - large basin with peat substrate; seasonally inundated, still water; subtropical or temperate; occasional or rare fire; vegetation characterized by cypress, blackgum, bays and/or mixed hardwoods.

Bog - wetland on deep peat substrate; moisture held by sphagnum mosses, soil usually saturated, occasionally inundated; subtropical or temperate; rare fire; sphagnum moss and titi and/or bays and/or dahoon holly, and/or mixed hydrophytic shrubs.

Coastal Interdunal Swale - long narrow depression wetlands in sand/peat-sand substrate; seasonally inundated, fresh to brackish, still water; temperate; rare fire; graminoids and mixed wetland forbs.

Depression Marsh - small rounded depression in sand substrate with peat accumulating toward center; seasonally inundated, still water; subtropical or temperate; frequent or occasional fire; maidencane, fire flag, pickerelweed, and mixed emergents, may be in concentric bands.

Dome Swamp - rounded depression in sand/limestone substrate with peat accumulating toward center; seasonally inundated, still water; subtropical or temperate; occasional or rare fire; cypress, blackgum, or bays, often tallest in center.

LACUSTRINE - Non-flowing wetlands of natural depressions lacking persistent emergent vegetation except around the perimeter.

Clastic Upland Lake - generally irregular basin in clay uplands; predominantly with inflows, frequently without surface outflow; clay or organic substrate; colored, acidic, soft water with low mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

Coastal Dune Lake - basin or lagoon influenced by recent coastal processes; predominantly sand substrate with some organic matter; salinity variable among and within lakes, and subject to saltwater intrusion and storm surges; slightly acidic, hard water with high mineral content (sodium, chloride).

Coastal Rockland Lake - shallow basin influence by recent coastal processes; predominantly barren oolitic or Miami limestone substrate; salinity variable among and within lakes, and subject to saltwater intrusion, storm surges and evaporation (because of shallowness); slightly alkaline, hard water with high mineral content (sodium, chloride).

Descriptions Of Natural Communities Developed By FNAI

Flatwoods/Prairie Lake - generally shallow basin in flatlands with high water table; frequently with a broad littoral zone; still water or flow-through; sand or peat substrate; variable water chemistry, but characteristically colored to clear, acidic to slightly alkaline, soft to moderately hard water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

Marsh lake - generally shallow, open water area within wide expanses of freshwater marsh; still water or flow-through; peat, sand or clay substrate; occurs in most physiographic regions; variable water chemistry, but characteristically highly colored, acidic, soft water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

River Floodplain Lake - meander scar, backwater, or larger flow-through body within major river floodplains; sand, alluvial or organic substrate; colored, alkaline or slightly acidic, hard or moderately hard water with high mineral content (sulfate, sodium, chloride, calcium, magnesium); mesotrophic to eutrophic.

Sandhill Upland Lake - generally rounded solution depression in deep sandy uplands or sandy uplands shallowly underlain by limestone; predominantly without surface inflows/outflows; typically sand substrate with organic accumulations toward middle; clear, acidic moderately soft water with varying mineral content; ultra-oligotrophic to mesotrophic.

Sinkhole Lake - typically deep, funnel-shaped depression in limestone base; occurs in most physiographic regions; predominantly without surface inflows/outflows, but frequently with connection to the aquifer; clear, alkaline, hard water with high mineral content (calcium, bicarbonate, magnesium).

Swamp Lake - generally shallow, open water area within basin swamps; still water or flow-through; peat, sand or clay substrate; occurs in most physiographic regions; variable water chemistry, but characteristically highly colored, acidic, soft water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

RIVERINE - Natural, flowing waters from their source to the downstream limits of tidal influence and bounded by channel banks.

Alluvial Stream - lower perennial or intermittent/seasonal watercourse characterized by turbid water with suspended silt, clay, sand and small gravel; generally with a distinct, sediment-derived (alluvial) floodplain and a sandy, elevated natural levee just inland from the bank.

Blackwater Stream - perennial or intermittent/seasonal watercourse characterized by tea-colored water with a high content of particulate and dissolved organic matter derived from drainage through swamps and marshes; generally lacking an alluvial floodplain.

Seepage Stream - upper perennial or intermittent/seasonal watercourse characterized by clear to lightly colored water derived from shallow groundwater seepage.

Spring-run Stream - perennial watercourse with deep aquifer headwaters and characterized by clear water, circumneutral pH and, frequently, a solid limestone bottom.

SUBTERRANEAN - Twilight, middle and deep zones of natural chambers overlain by the earth's crust and characterized by climatic stability and assemblages of troglonec, troglophilic, and troglotic organisms.

Aquatic Cave - cavernicolous area permanently or periodically submerged; often characterized by troglotic crustaceans and salamanders; includes high energy systems which receive large quantities of organic detritus and low energy systems.

Terrestrial Cave - cavernicolous area lacking standing water; often characterized by bats, such as *Myotis* spp., and other terrestrial vertebrates and invertebrates; includes interstitial areas above standing water such as fissures in the ceiling of caves.

MARINE/ESTUARINE (The distinction between the Marine and Estuarine Natural Communities is often subtle, and the natural communities types found under these two community categories have the same descriptions. For these reasons they have been grouped together.) - Subtidal, intertidal and supratidal zones of the sea, landward to the point at which seawater becomes significantly diluted with freshwater inflow from the land.

Consolidated Substrate - expansive subtidal, intertidal and supratidal area composed primarily of nonliving compacted or coherent and relatively hard, naturally formed mass of mineral matter (e.g., coquina limerock and relic reefs); octocorals, sponges, stony corals, nondrift macrophytic algae, blue-green mat-forming algae and seagrasses sparse, if present.

Unconsolidated Substrate - expansive subtidal, intertidal and supratidal area composed primarily of loose mineral matter (e.g., coralgall, gravel, marl, mud, sand and shell); octocorals, sponges, stony corals, nondrift macrophytic algae, blue-green mat-forming algae and seagrasses sparse, if present.

Octocoral Bed - expansive subtidal area occupied primarily by living sessile organisms of the Class Anthozoa, Subclass Octocorallia (e.g., soft corals, horny corals, sea fans, sea whips, and sea pens); sponges, stony corals, nondrift macrophytic algae and seagrasses sparse, if present.

Sponge Bed - expansive subtidal area occupied primarily by living sessile organisms of the Phylum Porifera (e.g., sheepswool sponge, Florida loggerhead sponge and branching candle sponge); octocorals, stony corals, nondrift macrophytic algae and seagrasses sparse, if present.

Coral Reef - expansive subtidal area with elevational gradient or relief and occupied primarily by living sessile organisms of the Class Hydrozoa (e.g., fire corals and hydrocorals) and Class Anthozoa, Subclass Scleractinia (e.g., stony corals and black corals); includes deepwater bank reefs, fringing barrier reefs, outer bank reefs and patch reefs, some of which may contain distinct zones of assorted macrophytes, octocorals, & sponges.

Mollusk Reef - substantial subtidal or intertidal area with relief from concentrations of sessile organisms of the Phylum Mollusca, Class Bivalvia (e.g., molluscs, oysters, & worm shells); octocorals, sponges, stony corals, macrophytic algae and seagrasses sparse, if present.

Worm Reef - substantial subtidal or intertidal area with relief from concentrations of sessile, tubicolous organisms of the Phylum Annelida, Class Polychaeta (e.g., chaetopterids and sabellarids); octocorals, sponges, stony corals, macrophytic algae and seagrasses sparse, if present.

Algal Bed - expansive subtidal, intertidal or supratidal area, occupied primarily by attached thallophytic or mat-forming prokaryotic algae (e.g., halimeda, blue-green algae); octocorals, sponges, stony corals and seagrasses sparse, if present.

Grass Bed - expansive subtidal or intertidal area, occupied primarily by rooted vascular macrophytes, (e.g., shoal grass, halophila, widgeon grass, manatee grass and turtle grass); may include various epiphytes and epifauna; octocorals, sponges, stony corals, and attached macrophytic algae sparse, if present.

Composite Substrate - expansive subtidal, intertidal, or supratidal area, occupied primarily by Natural Community elements from more than one Natural Community category (e.g., Grass Bed and Algal Bed species; Octocoral and Algal Bed species); includes both patchy and evenly distributed occurrences.

Descriptions Of Natural Communities Developed By FNAI

Tidal Marsh - expansive intertidal or supratidal area occupied primarily by rooted, emergent vascular macrophytes (e.g., cord grass, needlerush, saw grass, saltwort, saltgrass and glasswort); may include various epiphytes and epifauna.

Tidal Swamp - expansive intertidal and supratidal area occupied primarily by woody vascular macrophytes (e.g., black mangrove, buttonwood, red mangrove, and white mangrove); may include various epiphytes and epifauna.

DEFINITIONS OF TERMS Terrestrial and Palustrine Natural Communities

Physiography

Upland - high area in region with significant topographic relief; generally undulating

Lowland - low area in region with or without significant topographic relief; generally flat to gently sloping

Flatland - generally level area in region without significant topographic relief; flat to gently sloping

Basin - large, relatively level lowland with slopes confined to the perimeter or isolated interior locations

Depression - small depression with sloping sides, deepest in center and progressively shallower towards the perimeter

Floodplain - lowland adjacent to a stream; topography influenced by recent fluvial processes

Bottomland - lowland not on active floodplain; sand/clay/organic substrate

Hydrology

occasionally inundated - surface water present only after heavy rains and/or during flood stages

seasonally inundated - surface water present during wet season and flood periods

usually inundated - surface water present except during droughts

Climatic Affinity of the Flora

tropical - community generally occurs in practically frost-free areas

subtropical - community generally occurs in areas that experience occasional frost, but where freezing temperatures are not frequent enough to cause true winter dormancy

temperate - community generally occurs in areas that freeze often enough that vegetation goes into winter dormancy

Fire

annual fire - burns about every 1-2 years

frequent fire - burns about every 3-7 years

occasional fire - burns about every 8-25 years

rare fire - burns about every 26-100 years

no fire - community develops only when site goes more than 100 years without burning

LATIN NAMES OF PLANTS MENTIONED IN NATURAL COMMUNITY DESCRIPTIONS

anise - *Illicium floridanum*
bays:
 swamp bay - *Persea palustris*
 gordonia - *Gordonia lasianthus*
 sweetbay - *Magnolia virginiana*
beakrush - *Rhynchospora* spp.
beech - *Fagus grandifolia*
blackgum - *Nyssa biflora*
blue palmetto - *Sabal minor*
bluestem - *Andropogon* spp.
buttonbush - *Cephalanthus occidentalis*
cabbage palm - *Sabal palmetto*
cacti - *Opuntia* and *Harrisia* spp.,
 predominantly *stricta* and *pentagonus*
cane - *Arundinaria gigantea* or *A. tecta*
cattail - *Typha* spp.
cedars:
 red cedar - *Juniperus silicicola*
 white cedar - *Chamaecyparis thyooides* or
 C. henryi
cladonia - *Cladonia* spp.
cypress - *Taxodium distichum*
dahoon holly - *Ilex cassine*
diamondleaf oak - *Quercus laurifolia*
fire flag - *Thalia geniculata*
Florida maple - *Acer barbatum*
gallberry - *Ilex glabra*
gums:
 tupelo - *Nyssa aquatica*
 blackgum - *Nyssa biflora*
 Ogeechee gum - *Nyssa ogeche*
hackberry - *Celtis laevigata*
hornbeam - *Carpinus caroliniana*
laurel oak - *Quercus hemisphaerica*
live oak - *Quercus virginiana*
loblolly pine - *Pinus taeda*
longleaf pine - *Pinus palustris*
magnolia - *Magnolia grandiflora*
maidencane - *Panicum hemitomom*
needle palm - *Rhapidophyllum hystrix*
overcup oak - *Quercus lyrata*
pickerel weed - *Pontederia cordata* or *P. lanceolata*
pignut hickory - *Carya glabra*
pop ash - *Fraxinus caroliniana*
pond apple - *Annona glabra*
pond pine - *Pinus serotina*
pyramid magnolia - *Magnolia pyramidata*
railroad vine - *Ipomoea pes-caprae*
red cedar - *Juniperus silicicola*
red maple - *Acer rubrum*
red oak - *Quercus falcata*
rosemary - *Ceratiola ericoides*
sagittaria - *Sagittaria lancifolia*
sand pine - *Pinus clausa*
saw palmetto - *Serenoa repens*
sawgrass - *Cladium jamaicensis*
scrub oaks - *Quercus geminata*, *Q. chapmanii*, *Q. myrtifolia*, *Q. inopina*
sea oats - *Uniola paniculata*
seagrape - *Coccoloba uvifera*
shortleaf pine - *Pinus echinata*
Shumard oak - *Quercus shumardii*
slash pine - *Pinus elliotii*
sphagnum moss - *Sphagnum* spp.
spikerush - *Eleocharis* spp.
spruce pine - *Pinus glabra*
St. John's wort - *Hypericum* spp.
swamp chestnut oak - *Quercus prinus*
sweetgum - *Liquidambar styraciflua*
titi - *Cyrilla racemiflora*, and *Cliftonia monophylla*
tuliptree - *Liriodendron tulipifera*
tupelo - *Nyssa aquatica*
turkey oak - *Quercus laevis*
water oak - *Quercus nigra*
waterlily - *Nymphaea odorata*
white cedar - *Chamaecyparis thyooides*
white oak - *Quercus alba*
willow - *Salix caroliniana*
yucca - *Yucca aloifolia*

**Management Procedures For Archaeological And Historical Sites And Properties
On State -- Owned Or Controlled Lands
(Revised August, 1995)**

A. GENERAL DISCUSSION

Archaeological and historic sites are defined collectively in 267.021(3), F.S., as "historic properties" or "historic resources." They have several essential characteristics that must be recognized in a management program.

First of all, they are a finite and non-renewable resource. Once destroyed, presently existing resources, including buildings, other structures, shipwreck remains, archaeological sites and other objects of antiquity, cannot be renewed or revived. Today, sites in the State of Florida are being destroyed by all kinds of land development, inappropriate land management practices, erosion, looting, and to a minor extent even by well-intentioned professional scientific research (e.g., archaeological excavation). Measures must be taken to ensure that some of these resources will be preserved for future study and appreciation.

Secondly, sites are unique because individually they represent the tangible remains of events that occurred at a specific time and place.

Thirdly, while sites uniquely reflect localized events, these events and the origin of particular sites are related to conditions and events in other times and places. Sites can be understood properly only in relation to their natural surroundings and the activities of inhabitants of other sites. Managers must be aware of this "systemic" character of historic and archaeological sites. Also, it should be recognized that archaeological sites are time capsules for more than cultural history; they preserve traces of past biotic communities, climate, and other elements of the environment that may be of interest to other scientific disciplines.

Finally, the significance of sites, particularly archaeological ones, derives not only from the individual artifacts within them, but equally from the spatial arrangement of those artifacts in both horizontal and vertical planes. When archaeologists excavate, they recover, not merely objects, but also a record of the positions of these objects in relation to one another and their containing matrix (e.g., soil strata). Much information is sacrificed if the so-called "context" of archaeological objects is destroyed or not recovered, and this is what archaeologists are most concerned about when a site is threatened with destruction or damage. The artifacts themselves can be recovered even after a site is heavily disturbed, but the context -- the vertical and horizontal relationships -- cannot. Historic structures also contain a wealth of cultural (socio-economic) data that can be lost if historically sensitive maintenance, restoration or rehabilitation procedures are not implemented, or if they are demolished or extensively altered without appropriate documentation. Lastly, it should not be forgotten that historic structures often have associated potentially significant historic archaeological features that must be considered in land management decisions.

B. STATUTORY AUTHORITY

Chapter 253, Florida Statutes ("State Lands") directs the preparation of "single-use" or "multiple-use" land management plans for all state-owned lands and state-owned sovereignty submerged lands. In this document, 253.034(4), F.S., specifically requires that "all management plans, whether for single-use or multiple-use properties, shall specifically describe how the managing agency plans to identify, locate, protect and preserve, or otherwise use fragile non-renewable resources, such as archaeological and historic sites, as well as other fragile resources..."

Chapter 267, Florida Statutes is the primary historic preservation authority of the state. The importance of protecting and interpreting archaeological and historic sites is recognized in 267.061(1)(a), F.S.:The rich and unique heritage of historic properties in this state, representing more than 10,000 years of human presence, is an important legacy to be valued and conserved for present and future generations.

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The destruction of these nonrenewable historic resources will engender a significant loss to the state's quality of life, economy, and cultural environment. It is therefore declared to be state policy to:

1. Provide leadership in the preservation of the state's historic resources; [and]
2. Administer state-owned or state-controlled historic resources in a spirit of stewardship and trusteeship;...

Responsibilities of the Division of Historical Resources in the Department of State pursuant to 267.061(3), F.S., include the following:

1. Cooperate with federal and state agencies, local Governments, and private organizations and individuals to direct and conduct a comprehensive statewide survey of historic resources and to maintain an inventory of such responses.
2. Develop a comprehensive statewide historic preservation plan.
3. Identify and nominate eligible properties to the National Register of Historic Places and otherwise administer applications for listing properties in the National Register of Historic Places.
4. Cooperate with federal and state agencies, local governments, and organizations and individuals to ensure that historic resources are taken into consideration at all levels of planning and development.
5. Advise and assist, as appropriate, federal and state agencies and local governments in carrying out their historic preservation responsibilities and programs.
6. Carry out on behalf of the state the programs of the National Historic Preservation Act of 1966, as amended, and to establish, maintain, and administer a state historic preservation program meeting the requirements of an approved program and fulfilling the responsibilities of state historic preservation programs as provided in subsection 101(b) of that act.
7. Take such other actions necessary or appropriate to locate, acquire, protect, preserve, operate, interpret, and promote the location, acquisition, protection, preservation, operation, and interpretation of historic resources to foster an appreciation of Florida history and culture. Prior to the acquisition, preservation, interpretation, or operation of a historic property by a state agency, the Division shall be provided a reasonable opportunity to review and comment on the proposed undertaking and shall determine that there exists historic authenticity and a feasible means of providing for the preservation, interpretation and operation of such property.
8. Establish professional standards for the preservation, exclusive of acquisition, of historic resources in state ownership or control.
9. Establish guidelines for state agency responsibilities under subsection (2).

Responsibilities of other state agencies of the executive branch, pursuant to 267.061(2), F.S., include:

1. Each state agency of the executive branch having direct or indirect jurisdiction over a proposed state or state-assisted undertaking shall, in accordance with state policy and prior to the approval of expenditure of any state funds on the undertaking, consider the effect of the undertaking on any historic property that is included in, or eligible for inclusion in, the National Register of Historic Places. Each such agency shall afford the division a reasonable opportunity to comment with regard to such an undertaking.
2. Each state agency of the executive branch shall initiate measures in consultation with the division to assure that where, as a result of state action or assistance carried out by such agency, a historic property is to be demolished or substantially altered in a way that adversely affects the character, form, integrity, or other qualities that contribute to [the] historical, architectural, or archaeological value of the property, timely steps are taken to determine that no feasible and prudent alternative to the proposed demolition or alteration exists, and, where no such alternative is determined to exist, to assure that timely steps are taken either to avoid or mitigate the adverse effects, or to undertake an appropriate archaeological salvage excavation or other recovery action to document the property as it existed prior to demolition or alteration.

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3. In consultation with the division [of Historical Resources], each state agency of the executive branch shall establish a program to locate, inventory, and evaluate all historic properties under the agency's ownership or control that appear to qualify for the National Register. Each such agency shall exercise caution to assure that any such historic property is not inadvertently transferred, sold, demolished, substantially altered, or allowed to deteriorate significantly.
4. Each state agency of the executive branch shall assume responsibility for the preservation of historic resources that are owned or controlled by such agency. Prior to acquiring, constructing, or leasing buildings for the purpose of carrying out agency responsibilities, the agency shall use, to the maximum extent feasible, historic properties available to the agency. Each agency shall undertake, consistent with preservation of such properties, the mission of the agency, and the professional standards established pursuant to paragraph (3)(k), any preservation actions necessary to carry out the intent of this paragraph.
5. Each state agency of the executive branch, in seeking to acquire additional space through new construction or lease, shall give preference to the acquisition or use of historic properties when such acquisition or use is determined to be feasible and prudent compared with available alternatives. The acquisition or use of historic properties is considered feasible and prudent if the cost of purchase or lease, the cost of rehabilitation, remodeling, or altering the building to meet compliance standards and the agency's needs, and the projected costs of maintaining the building and providing utilities and other services is less than or equal to the same costs for available alternatives. The agency shall request the division to assist in determining if the acquisition or use of a historic property is feasible and prudent. Within 60 days after making a determination that additional space is needed, the agency shall request the division to assist in identifying buildings within the appropriate geographic area that are historic properties suitable for acquisition or lease by the agency, whether or not such properties are in need of repair, alteration, or addition.
6. Consistent with the agency's mission and authority, all state agencies of the executive branch shall carry out agency programs and projects, including those under which any state assistance is provided, in a manner which is generally sensitive to the preservation of historic properties and shall give consideration to programs and projects which will further the purposes of this section.

Section 267.12 authorizes the Division to establish procedures for the granting of research permits for archaeological and historic site survey or excavation on state-owned or controlled lands, while Section 267.13 establishes penalties for the conduct of such work without first obtaining written permission from the Division of Historical Resources. The Rules of the Department of State, Division of Historical Resources, for research permits for archaeological sites of significance are contained in Chapter 1A-32, F.A.C.

Another Florida Statute affecting land management decisions is Chapter 872, F.S. Section 872.02, F.S., pertains to marked grave sites, regardless of age. Many state-owned properties contain old family and other cemeteries with tombstones, crypts, etc. Section 872.05, F.S., pertains to unmarked human burial sites, including prehistoric and historic Indian burial sites. Unauthorized disturbance of both marked and unmarked human burial site is a felony.

C. MANAGEMENT POLICY

The choice of a management policy for archaeological and historic sites within state-owned or controlled land obviously depends upon a detailed evaluation of the characteristics and conditions of the individual sites and groups of sites within those tracts. This includes an interpretation of the significance (or potential significance) of these sites, in terms of social and political factors, as well as environmental factors. Furthermore, for historic structures architectural significance must be considered, as well as any associated historic landscapes.

Sites on privately owned lands are especially vulnerable to destruction, since often times the economic

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incentives for preservation are low compared to other uses of the land areas involved. Hence, sites in public ownership have a magnified importance, since they are the ones with the best chance of survival over the long run. This is particularly true of sites that are state-owned or controlled, where the basis of management is to provide for land uses that are minimally destructive of resource values.

It should be noted that while many archaeological and historical sites are already recorded within state--owned or controlled--lands, the majority of the uplands areas and nearly all of the inundated areas have not been surveyed to locate and assess the significance of such resources. The known sites are, thus, only an incomplete sample of the actual resources - i.e., the number, density, distribution, age, character and condition of archaeological and historic sites - on these tracts. Unfortunately, the lack of specific knowledge of the actual resources prevents formulation of any sort of detailed management or use plan involving decisions about the relative historic value of individual sites. For this reason, a generalized policy of conservation is recommended until the resources have been better addressed.

The generalized management policy recommended by the Division of Historical Resources includes the following:

1. State land managers shall coordinate all planned activities involving known archaeological or historic sites or potential site areas closely with the Division of Historical Resources in order to prevent any kind of disturbance to significant archaeological or historic sites that may exist on the tract. Under 267.061(1)(b), F.S., the Division of Historical Resources is vested with title to archaeological and historic resources abandoned on state lands and is responsible for administration and protection of such resources. The Division will cooperate with the land manager in the management of these resources. Furthermore, provisions of 267.061(2) and 267.13, F.S., combined with those in 267.061(3) and 253.034(4), F.S., require that other managing (or permitting) agencies coordinate their plans with the Division of Historical Resources at a sufficiently early stage to preclude inadvertent damage or destruction to known or potentially occurring, presently unknown archaeological and historic sites. The provisions pertaining to human burial sites must also be followed by state land managers when such remains are known or suspected to be present (see 872.02 and 872.05, F.S., and 1A-44, F.A.C.)
2. Since the actual resources are so poorly known, the potential impact of the managing agency's activities on historic archaeological sites may not be immediately apparent. Special field survey for such sites may be required to identify the potential endangerment as a result of particular management or permitting activities. The Division may perform surveys, as its resources permit, to aid the planning of other state agencies in their management activities, but outside archaeological consultants may have to be retained by the managing agency. This would be especially necessary in the cases of activities contemplating ground disturbance over large areas and unexpected occurrences. It should be noted, however, that in most instances Division staff's knowledge of known and expected site distribution is such that actual field surveys may not be necessary, and the project may be reviewed by submitting a project location map (preferably a 7.5 minute U.S.G.S. Quadrangle map or portion thereof) and project descriptive data, including detailed construction plans. To avoid delays, Division staff should be contacted to discuss specific project documentation review needs.
3. In the case of known significant sites, which may be affected by proposed project activities, the managing agency will generally be expected to alter proposed management or development plans, as necessary, or else make special provisions to minimize or mitigate damage to such sites.
4. If in the course of management activities, or as a result of development or the permitting of dredge activities (see 403.918(2)(6)a, F.S.), it is determined that valuable historic or archaeological sites will be damaged or destroyed, the Division reserves the right, pursuant to 267.061(1)(b), F.S., to require salvage measures to mitigate the destructive impact of such activities to such sites. Such salvage measures would be accomplished before the Division would grant permission for destruction of the affected site areas. The funding needed to implement salvage measures would be the responsibility

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of the managing agency planning the site destructive activity. Mitigation of historic structures at a minimum involves the preparation of measured drawings and documentary photographs. Mitigation of archaeological resources involves the excavation, analysis and reporting of the project findings and must be planned to occur sufficiently in advance to avoid project construction delays. If these services are to be contracted by the state agency, the selected consultant will need to obtain an Archaeological Research Permit from the Division of Historical Resources, Bureau of Archaeological Research (see 267.12, F.S. and Rules 1A-32 and 1A-46 F.A.C.).

5. For the near future, excavation of non-endangered (i.e., sites not being lost to erosion or development) archaeological site is discouraged. There are many endangered sites in Florida (on both private and public lands) in need of excavation because of the threat of development or other factors. Those within state-owned or controlled lands should be left undisturbed for the present - with particular attention devoted to preventing site looting by "treasure hunters". On the other hand, the archaeological and historic survey of these tracts is encouraged in order to build an inventory of the resources present, and to assess their scientific research potential and historic or architectural significance.
6. The cooperation of land managers in reporting sites to the Division that their field personnel may discover is encouraged. The Division will help inform field personnel from other resource managing agencies about the characteristics and appearance of sites. The Division has initiated a cultural resource management training program to help accomplish this. Upon request the Division will also provide to other agencies archaeological and historical summaries of the known and potentially occurring resources so that information may be incorporated into management plans and public awareness programs (See Management Implementation).
7. Any discovery of instances of looting or unauthorized destruction of sites must be reported to the agent for the Board of Trustees of the Internal Improvement Trust Fund and the Division so that appropriate action may be initiated. When human burial sites are involved, the provisions of 872.02 and 872.05, F. S. and Rule 1A-44, F.A.C., as applicable, must also be followed. Any state agent with law enforcement authority observing individuals or groups clearly and incontrovertibly vandalizing, looting or destroying archaeological or historic sites within state-owned or controlled lands without demonstrable permission from the Division will make arrests and detain those individuals or groups under the provisions of 267.13, 901.15, and 901.21, F.S., and related statutory authority pertaining to such illegal activities on state-owned or controlled lands. County Sheriffs' officers are urged to assist in efforts to stop and/or prevent site looting and destruction.

In addition to the above management policy for archaeological and historic sites on state-owned land, special attention shall be given to those properties listed in the National Register of Historic Places and other significant buildings. The Division recommends that the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (Revised 1990) be followed for such sites.

The following general standards apply to all treatments undertaken on historically significant properties.

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alterations of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.

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6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archaeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired. (see Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings [Revised 1990]).

Divisions of Historical Resources staff are available for technical assistance for any of the above listed topics. It is encouraged that such assistance be sought as early as possible in the project planning.

D. MANAGEMENT IMPLEMENTATION

As noted earlier, 253.034(4), F.S., states that "all management plans, whether for single-use or multiple-use properties, shall specifically describe how the managing agency plans to identify, locate, protect and preserve, or otherwise use fragile non-renewable resources, such as archaeological and historic sites..." The following guidelines should help to fulfill that requirement.

1. All land managing agencies should contact the Division and send U.S.G.S. 7.5 minute quadrangle maps outlining the boundaries of their various properties.
2. The Division will in turn identify site locations on those maps and provide descriptions for known archaeological and historical sites to the managing agency.
3. Further, the Division may also identify on the maps areas of high archaeological and historic site location probability within the subject tract. These are only probability zones, and sites may be found outside of these areas. Therefore, actual ground inspections of project areas may still be necessary.
4. The Division will send archaeological field recording forms and historic structure field recording forms to representatives of the agency to facilitate the recording of information on such resources.
5. Land managers will update information on recorded sites and properties.
6. Land managers will supply the Division with new information as it becomes available on previously unrecorded sites that their staff locate. The following details the kind of information the Division wishes to obtain for any new sites or structures that the land managers may report:

A. Historic Sites

- (1) Type of structure (dwelling, church, factory, etc.).
- (2) Known or estimated age or construction date for each structure and addition.
- (3) Location of building (identify location on a map of the property, and building placement, i.e., detached, row, etc.).
- (4) General Characteristics: (include photographs if possible) overall shape of plan (rectangle, "L" "T" "H" "U", etc.); number of stories; number of vertical divisions of bays; construction materials (brick, frame, stone, etc.); wall finish (kind of bond, coursing, shingle, etc.); roof

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shape.

- (5)** Specific features including location, number and appearance of:
 - (a)** Important decorative elements;
 - (b)** Interior features contributing to the character of the building;
 - (c)** Number, type, and location of outbuildings, as well as date(s) of construction;
 - (d)** Notation if property has been moved;
 - (e)** Notation of known alterations to building.

B. Archaeological Sites

- (1)** Site location (written narrative and mapped location).
 - (2)** Cultural affiliation and period.
 - (3)** Site type (midden, burial mound, artifact scatter, building rubble, etc.).
 - (4)** Threats to site (deterioration, vandalism, etc.).
 - (5)** Site size (acreage, square meters, etc.).
 - (6)** Artifacts observed on ground surface (pottery, bone, glass, etc.).
 - (7)** Description of surrounding environment.
- 7.** No land disturbing activities should be undertaken in areas of known archaeological or historic sites or areas of high site probability without prior review by the Division early in the project planning.
 - 8.** Ground disturbing activities may proceed elsewhere but land managers should stop disturbance in the immediate vicinity of artifact finds and notifies the Division if previously unknown archaeological or historic remains are uncovered. The provisions of Chapter 872, F.S., must be followed when human remains are encountered.
 - 9.** Excavation and collection of archaeological and historic sites on state lands without a permit from the Division are a violation of state law and shall be reported to a law enforcement officer. The use of metal detectors to search for historic artifacts shall be prohibited on state lands except when authorized in a 1A-32, F.A.C., research permit from the Division.
 - 10.** Interpretation and visitation which will increase public understanding and enjoyment of archaeological and historic sites without site destruction or vandalism is strongly encouraged.
 - 11.** Development of interpretive programs including trails, signage, kiosks, and exhibits is encouraged and should be coordinated with the Division.
 - 12.** Artifacts found or collected on state lands are by law the property of the Division. Land managers shall contact the Division whenever such material is found so that arrangements may be made for recording and conservation. This material, if taken to Tallahassee, can be returned for public display on a long term loan.

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E. ADMINISTERING AGENCY

Questions relating to the treatment of archaeological and historic resources on state lands may be directed to:

Compliance Review Section
Bureau of Historic Preservation
Division of Historical Resources
R.A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Contact Person

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