Florida Department of
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3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

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Secretary

October 16, 2012

Ms. Sine Murray
Planning Manager
Office of Park Planning
Division of Recreation and Parks
Department of Environmental Protection
3900 Commonwealth Boulevard, MS 525
Tallahassee, Florida 32399-3000

RE: Bill Baggs Cape Florida State Park – Lease number 2389

Dear Ms. Murray:

The Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the Bill Baggs Cape Florida State Park land management plan. The next management plan update is due October 16, 2022.

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,

M. S. Gengenbach

Marianne S. Gengenbach
Office of Environmental Services
Division of State Lands

Bill Baggs Cape Florida State Park

APPROVED
Unit Management Plan

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Recreation and Parks
October 11, 2012

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INTRODUCTION

Bill Baggs Cape Florida State Park is located in Miami-Dade County on Key Biscayne; about seven miles southeast of the City of Miami (see Vicinity Map). The park encompasses 442 acres including the southern part of Key Biscayne, which sits between Biscayne Bay and the Atlantic Ocean. Access to the park is via the Rickenbacker Causeway and Crandon Boulevard that terminates at the park entrance (see Reference Map).

The primary features of Bill Baggs Cape Florida State Park are the historic Cape Florida lighthouse and nearly three miles of coastline, including 1.2 miles of sandy Atlantic beach. The beach and water areas are the park's main recreational attractions, and the Cape Florida lighthouse is a popular interpretive amenity for visitors. In addition, extensive restoration of the park's natural communities has made the park an asset for rare and native species in a densely developed urban area.

On March 31, 1966, the Board of Trustees of the Internal Improvement Trust Fund (Trustees) obtained title to a 100-acre property constituting the initial area of Bill Baggs Cape Florida State Park. The purchase was primarily funded through the Land and Water Conservation Fund (LWCF) program. Subsequent parcels were acquired through the Land Acquisition Trust Fund (LATF) and LWCF programs. On September 15, 1969, the Trustees conveyed management authority for the park to the Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) under Lease No. 2389. Public outdoor recreation is the designated single use of the property. There are no legislative or executive directives that constrain the use of this property (see Addendum 1).

PURPOSE AND SIGNIFICANCE OF THE PARK

The purpose of Bill Baggs Cape Florida State Park is to provide Florida residents and visitors with public beaches and natural areas for high-quality resource-based outdoor recreation and to preserve wildlife habitat in one of the most highly developed urban areas in the state.

Park Significance

- Bill Baggs Cape Florida State Park provides nearly three miles of oceanfront coastline, including more than 1.2 miles of sandy Atlantic beach, for resource-based outdoor recreation.
- The park provides public beach access, which is enjoyed by more than three-quarters of a million Florida residents and visitors annually, in urbanized southeast Florida.
- The park has undergone extensive restoration efforts over the past few decades yielding more than 300 acres of restored natural areas, including mangrove

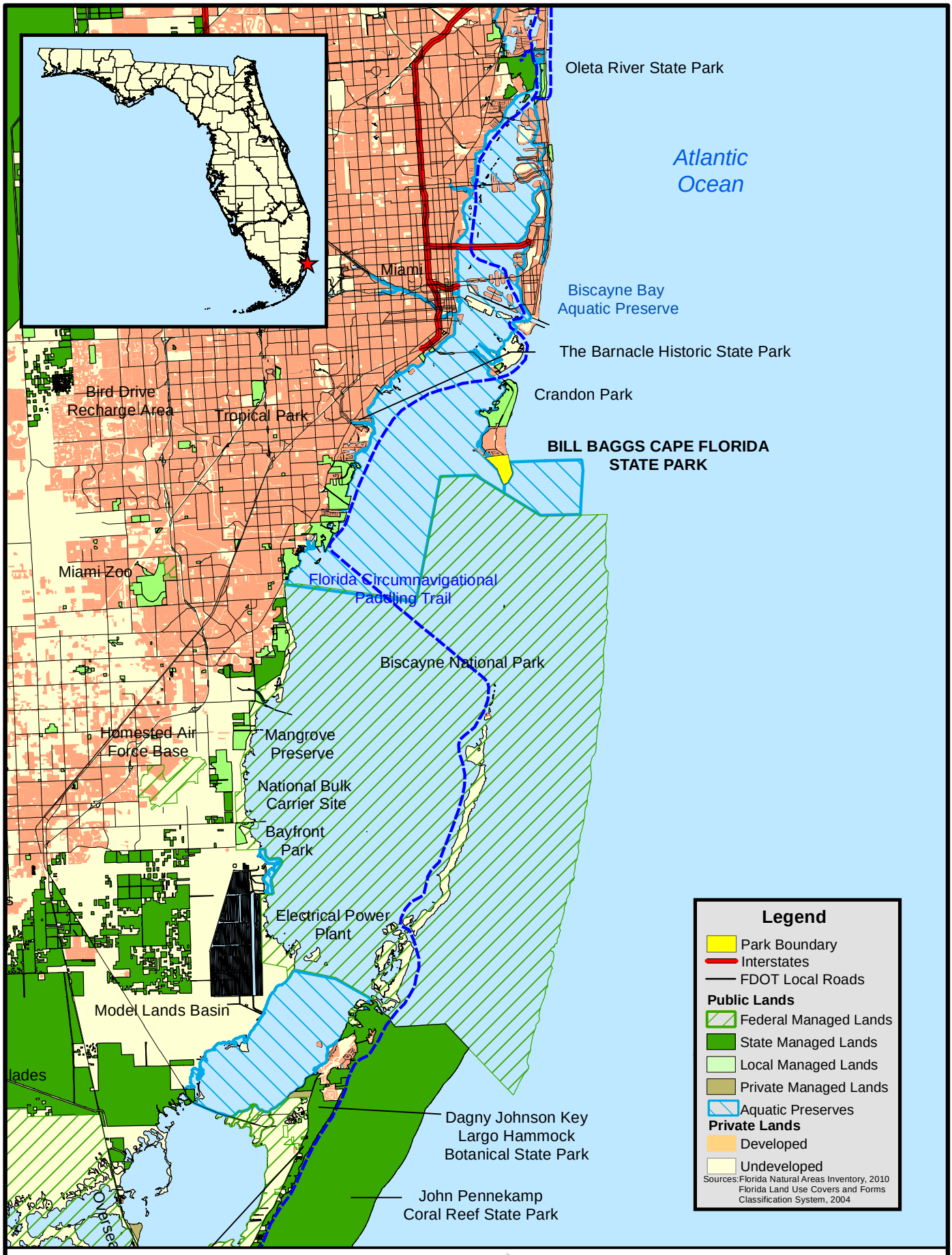
- The park protects ten types of natural communities providing habitat for many rare and endemic species, including green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*) and loggerhead (*Caretta caretta*) turtles, American crocodile (*Crocodylus acutus*), peregrine falcon (*Falco peregrinus*), piping plover *(Charadrius melodus*), statira butterfly (*Aphrissa statira*), and Florida manatee (*Trichechus manatus latirostris*).
- The park also protects multiple species of imperiled plants, such as beach jacquemontia (*Jacquemontia reclinata*), Biscayne prickly-ash (*Zanthoxylum coriaceum*) and Atlantic Coast Florida lantana (*Lantana depressa var. floridana*).
- The park protects the Cape Florida lighthouse, an early-nineteenth century lighthouse that is listed on the National Register of Historic Places, and several additional cultural resource sites dating from prehistory to the mid-twentieth century.

Bill Baggs Cape Florida State Park is classified as a state recreation area in DRP's unit classification system. In the management of a state recreation area, major emphasis is placed on maximizing the recreational potential of the unit. However, preservation of the park's natural and cultural resources remains important. Depletion of a resource by any recreational activity is not permitted. In order to realize the park's recreational potential the development of appropriate park facilities is undertaken with the goal to provide facilities that are accessible, convenient and safe, to support public recreational use or appreciation of the park's natural, aesthetic and educational attributes.

PURPOSE AND SCOPE OF THE PLAN

This plan serves as the basic statement of policy and direction for the management of Bill Baggs Cape Florida State Park as a unit of Florida's state park system. It identifies the goals, objectives, actions and criteria or standards that guide each aspect of park administration, and sets forth the specific measures that will be implemented to meet management objectives and provide balanced public utilization. The plan is intended to meet the requirements of Sections 253.034 and 259.032, Florida Statutes, Chapter 18-2, Florida Administrative Code, and is intended to be consistent with the State Lands Management Plan. With approval, this management plan will replace the March 15, 2001 approved plan.

The plan consists of three interrelated components: the Resource Management Component, the Land Use Component and the Implementation Component. The Resource Management Component provides a detailed inventory and assessment of the natural and cultural resources of the park. Resource management needs and issues are identified, and measurable management objectives are established for each of the park's management goals and resource types. This component provides guidance on the application of such measures as prescribed burning, exotic species removal, imperiled



BILL BAGGS CAPE FLORIDA STATE PARK

VICINITY MAP

BILL BAGGS CAPE FLORIDA STATE PARK

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial: 2007

REFERENCE MAP

species management, cultural resource management and restoration of natural conditions.

The Land Use Component is the recreational resource allocation plan for the park. Based on considerations such as access, population, adjacent land uses, the natural and cultural resources of the park, current public uses and existing development, measurable objectives are set to achieve the desired allocation of the physical space of the park. These objectives locate use areas, propose the types of facilities and interpretive programs, and the volume of public use to be provided.

The Implementation Component consolidates the measurable objectives and actions for each of the park's management goals. Included in this table are (1) measures that will be used to evaluate DRP's implementation progress, (2) timeframes for completing actions and objectives and (3) estimated costs to complete each action and objective.

All development and resource alteration proposed 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.

In the development of this plan, the potential of the park to accommodate secondary management purposes was analyzed. These secondary purposes were considered within the context of DRP's statutory responsibilities and the resource needs and values of the park. This analysis considered the park's natural and cultural resources, management needs, aesthetic values, visitation and visitor experience. 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.

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 park 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 (DRP) 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 granted management authority of certain sovereign submerged lands to DRP 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 affect public recreational uses.

Many operating procedures are standardized system-wide and are set by internal direction. These procedures are outlined in DRP's Operations Manual (OM) that covers such areas as personnel management, uniforms and personal appearance, training, signs, communications, fiscal procedures, interpretation, concessions, public use regulations, resource management, law enforcement, protection, safety and maintenance.

Park Management Goals

The following park goals express DRP's long-term intent in managing the state park.

1. Provide administrative support for all park functions.
2. Protect water quality and quantity in the park, restore hydrology to the extent feasible and maintain the restored condition.
3. Restore and maintain the natural communities/habitats of the park.
4. Maintain, improve or restore imperiled species populations and habitats in the park.
5. Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.
6. Protect, preserve and maintain the cultural resources of the park.
7. Provide public access and recreational opportunities in the park.
8. Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.

Management Coordination

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

The Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service (FFS), assists DRP staff in the development of wildfire emergency plans and provides the authorization required for prescribed burning. 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 the park. In addition, FFWCC aids DRP with wildlife management programs, including imperiled species management and Watchable Wildlife programs. The Florida Department of State (FDOS), Division of Historical Resources (DHR) assists staff to ensure protection of archaeological and historical sites. DEP, Office of Coastal and Aquatic Managed Areas (CAMA) aids staff in aquatic preserves management programs. DEP, Bureau of Beaches and Coastal Systems aids staff in planning and construction activities seaward of the Coastal Construction Control Line (CCCL). In addition, the Bureau of Beaches and Coastal Systems aid the staff in the development of erosion control projects.

Public Participation

DRP provided an opportunity for public input by conducting a public workshop and an Advisory Group Meeting to present the draft management plan to the public. These meetings were held on May 15th and 16th, 2012, respectively. Meeting notices were published in the Florida Administrative Weekly, April 27th, 2012, Volume 38, Issue 17, included on the Department Internet Calendar, posted in clear view at the park, and promoted locally. The purpose of the Advisory Group meeting is to provide the Advisory Group members an opportunity to discuss the draft management plan (see Addendum 2).

Other Designations

Bill Baggs Cape Florida State Park is not within an Area of Critical State Concern as defined in Section 380.05, Florida Statutes, and it is not presently under study for such designation. The park is a component of the Florida Greenways and Trails System, administered by DEP's Office of Greenways and Trails (OGT).

All waters within the park have been designated as Outstanding Florida Waters, pursuant to Chapter 62-302, Florida Administrative Code. Surface waters in this park are also classified as Class III waters by DEP. Portions of this park are within the Biscayne Bay Aquatic Preserve as designated under the Florida Aquatic Preserve Act of 1975 (Section 258.35, Florida Statutes).

RESOURCE MANAGEMENT COMPONENT

INTRODUCTION

The Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) in accordance with Chapter 258, Florida Statutes, 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 management measures expressed in this plan are consistent with DEP's overall mission in ecosystem management. Cited references are contained in Addendum 3.

DRP's philosophy of resource management is natural systems management. Primary emphasis is placed on restoring and maintaining, to the degree possible, the natural processes that shaped the structure, function and species composition of Florida's diverse natural communities as they occurred in the original domain. Single species management for imperiled species is appropriate in state parks when the maintenance, recovery or restoration of a species or population is complicated due to constraints associated with long-term restoration efforts, unnaturally high mortality or insufficient habitat. Single species management should be compatible with the maintenance and restoration of natural processes, and should not imperil other native species or seriously compromise park values.

DRP's management goal for cultural resources is to preserve sites and objects that represent Florida's cultural periods, significant historic events or persons. This goal often entails 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 can be affected by conditions and events that occur beyond park boundaries. Ecosystem management is implemented through a resource management evaluation program that assesses resource conditions, evaluates management activities and refines management actions, and reviews local comprehensive plans and development permit applications for park/ecosystem impacts.

The entire park is divided into management zones that delineate areas on the ground that are used to reference management activities (see Management Zones Map). The shape and size of each zone may be based on natural community type, burn zone, and the location of existing roads and natural fire breaks. It is important to note that all burn zones are management zones; however, not all management zones include fire-dependent natural communities. Table 1 reflects the management zones with the acres of each zone.

Table 1: Bill Baggs Cape Florida State Park Management Zones		
Management Zone	**Acreage**	**Managed with Prescribed Fire**
BBC-01	24.02	Yes
BBC-02	17.53	Yes
BBC-03	35.64	Yes
BBC-04	32.00	Yes
BBC-05	37.05	No
BBC-06	28.19	No
BBC-07	38.42	Yes
BBC-08	13.40	Yes
BBC-09	9.68	No
BBC-10	17.03	No
BBC-11	15.82	No
BBC-12	10.62	No
BBC-13	6.08	No
BBC-14	20.66	No
BBC-15	15.25	No
BBC-16	74.99	No
BBC-17	16.15	No
BBC-18	7.22	No
BBC-19	13.67	No
BBC-20	7.92	No
BBC-21	0.97	No

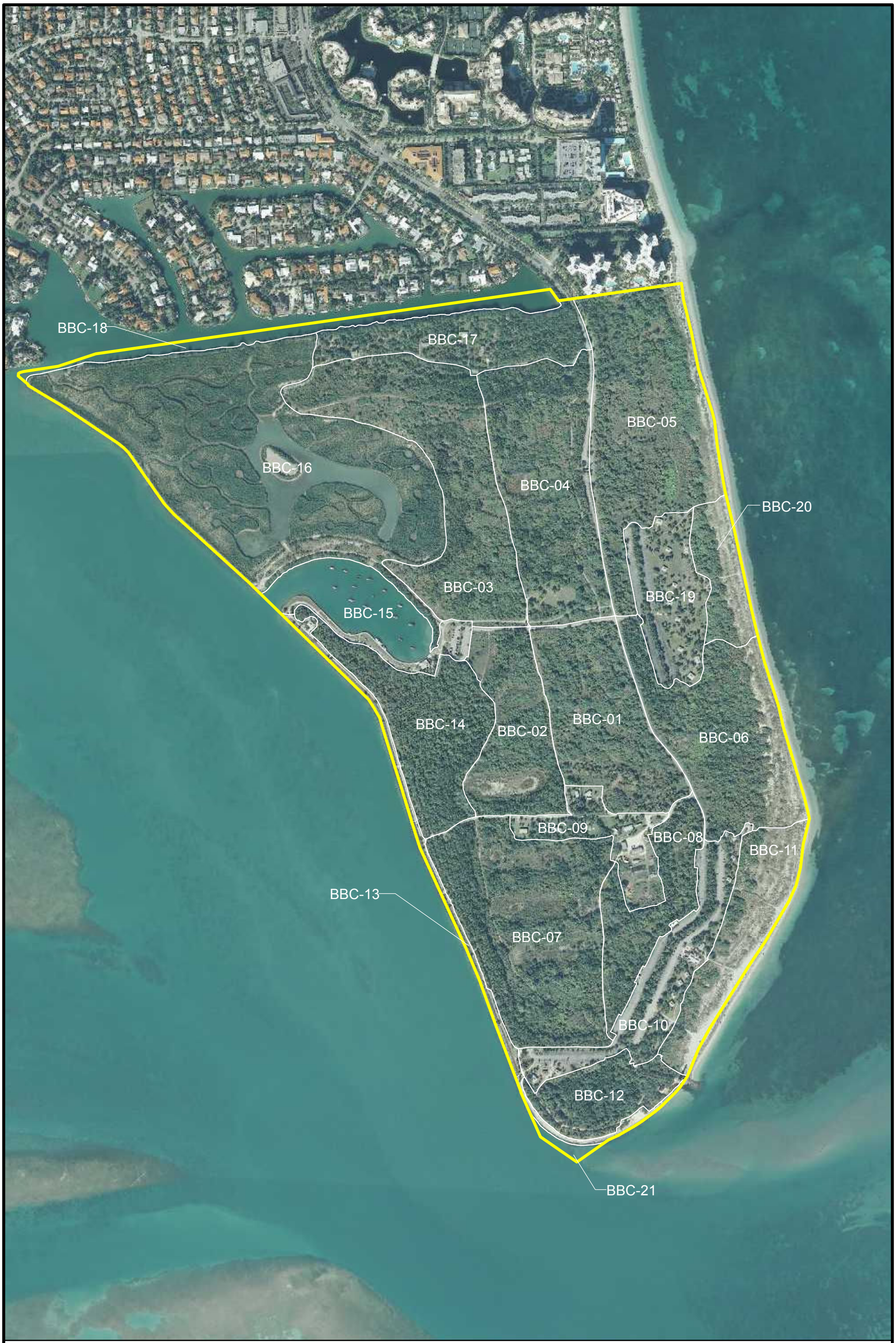
RESOURCE DESCRIPTION AND ASSESSMENT

Natural Resources

Topography

Bill Baggs Cape Florida State Park lies within the Coastal Lowlands physiographic division of Florida. Situated on the southern end of the barrier island of Key Biscayne, the site's original topography was comprised mainly of low sand ridges and swales that curved from the northeast to the southwest. On the east side, a higher, north-to-south oriented dune bordered the Atlantic shoreline, and on the southwest side, a low sand berm separated the swales from Biscayne Bay. A small natural harbor existed roughly midway along the western shoreline. To the north of the harbor was an extensive area of mangrove swamp that enclosed another low berm that paralleled the bay.

Historically, most of Cape Florida's site was below 5 feet in elevation. Only on the eastern dune did elevations exceed 5 feet and, in one small area, 10 feet (U.S. Geological Survey 1947).



BILL BAGGS CAPE FLORIDA STATE PARK

N

0 250 500 1,000 Feet

Department of Environmental Protection
Division of Recreation and Parks
Date of Aerial: 2009

MANAGEMENT ZONES MAP

In the 1920s, the primary landowners of Key Biscayne dug a 185-foot wide canal across the island from the western to eastern shorelines, separating the southern third of the island. The excavated soil was spread on either side of the waterway, elevating the land there. The canal was not maintained and, by the 1940s, siltation closed its eastern mouth (Blank 1996).

In the late 1940s, the southern end of Key Biscayne came into new ownership, and the site was heavily modified in preparation for development. The southern and western shoreline topography was drastically and permanently altered when these areas were bulkheaded, and hydraulic fill from Biscayne Bay was placed over approximately 85 percent of the site. The natural harbor was deepened and enlarged, and most of the tidal and freshwater wetlands were buried. The resulting topography was nearly level, with the elevations from the western shoreline to the eastern dune ranging between only five and eight feet. The sole low-lying area left unfilled was at the southern tip of the site, to the west of the Cape Florida lighthouse.

In the late 1960s, the land passed into state ownership and became a state park. By this time, three or more ditches had been created in the park, presumably for mosquito control. Additionally, four isolated ponds had appeared, possibly also for mosquito control. No topographic modifications were made after state acquisition until the mid-1990s, when, as part of a park-wide restoration project after Hurricane Andrew, portions of the park were excavated for partial restoration of the historic wetlands. Approximately 65 acres were excavated in the northwestern quadrant of the park to re-establish tidal wetlands; and, five long, narrow, shallow areas – totaling about 6 acres - were dug in the southwestern quadrant, to reproduce interdunal swales observed in a 1926 aerial photograph.

Geology

Key Biscayne is the southernmost of a series of sedimentary barrier islands that parallel the eastern coast of Florida. Its foundation is an underwater northward extension of ancient coral reef rock, Key Largo Limestone, which forms the islands of the Florida Keys to the south. Overlaying this bedrock is an accumulation of sand and shell fragments deposited over time by longshore currents and mounded by wind and wave action (Hoffmeister 1974).

As a barrier island, Key Biscayne was historically subject to changes in shape in response to tides, currents, storm waves and the wind. However, as with most barrier islands along Florida's Atlantic coast, human activities have interfered with the natural movement of the sand that forms this island. Attempts were made in the 1940s to halt the erosion of the southern tip of Key Biscayne with the placement of wooden groins and jetties. In 1949, the southern and western shores of Cape Florida were lined with concrete bulkheads, effectively halting any further changes in shape. Finally, in 1987, the northern and southern portions of the remaining beach at the park were

renourished with sand pumped from offshore, as part of a larger project involving the developed shoreline of Key Biscayne.

Currently, the only changes to the outline of Bill Baggs Cape Florida State Park occur along the park's Atlantic shoreline. Monitoring from the last 20 years shows that the northern and southern thirds of the beach shore are slowly accreting, while the middle third is stable or slowly eroding.

Soils

The soils of Key Biscayne are derived from marine deposits of sand and shell sediments, with more recent accumulations of organic material and marl [U.S. Department of Agriculture (USDA) 1995].

In the 1940s, before extensive fill operations happened at Cape Florida, four soil types were recognized for the southern end of Key Biscayne. Palm Beach fine sand, later reclassified as Canaveral sand, occurred in the upland areas; Coastal beach, later called Beaches, occurred in a strip along the Atlantic shoreline; Mangrove Swamp, later classified as Kesson muck, tidal, was found in the tidal swamps on the bay side of the site; and, lastly, Made land, built up from dredging, occurred along the banks of Pines Canal (USDA 1958). Made land on Key Biscayne was later classified as St. Augustine sand.

Today, only three soil types are found at Bill Baggs Cape Florida State Park (see Soils Map). St. Augustine sand now covers a much greater extent of the park and has buried the areas of Kesson muck. Beaches and Canaveral sand are still present in areas unaffected by the fill activities. Addendum 4 contains detailed descriptions of the soil types within the park.

St. Augustine sand covers the majority of the park. A mixed material that is the result of 1950 fill operations, this soil type is composed of sand, silt, marl and shell that were pumped from Biscayne Bay. An aerial photo from 1951 shows all but a 200-foot wide strip of land bordering Pines Canal, an area west of the Cape Florida Lighthouse, and the dune ridge that parallels the eastern shoreline buried by the fill. In many areas, it is 5 feet deep (Coastal Technology Corporation 1994). Because lenses of fine silt and marl occur within this soil, it drains more slowly than the historic Canaveral sand.

Beaches are the soil type found on the tide- and surf-washed Atlantic shoreline of the park. It is composed of calcium carbonate particles derived from fragments of marine animals and plants, and of quartz sand.

Canaveral sand appears in the dune ridges behind Cape Florida's beach and in a low area west of the Cape Florida Lighthouse. It may also be present in a 200-foot wide swathe along the south side of Pines Canal, where soil excavated from the canal was

BILL BAGGS CAPE FLORIDA STATE PARK

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of Aerial: 2009

SOILS MAP

deposited. It is composed of a moderately well drained sand mixture in which fine calcium carbonate (shell) fragments account for 10 percent to 25 percent of the material.

Soil erosion is largely not a problem at the park. The topography is mostly level to shallowly sloped, and almost all areas are well vegetated. The southern and western shorelines are protected by a seawall and/or stone revetments, and the shoreline along Pines Canal is largely stabilized by a fringe of mangrove vegetation. The overall beach shoreline has not receded significantly in the last 20 years of monitoring. In fact, the primary dunes along the southeastern shore have increased in size and height over the last 15 years. In order to prevent run-off eroding soil into the bay or No Name Harbor, a water retention area exists at the western end of the Area D parking lot and a stormwater drainage well is located in the middle of the harbor parking lot.

Nevertheless, potential for serious future erosion exists at Cape Florida. The park's seawall, constructed in 1949, has been exposed to high wave action from storms, most recently Hurricane Wilma in 2005. Additionally, boat traffic in the Cape Florida Channel regularly sends waves against the wall. The seawall has been repaired and reinforced a number of times in the past but it continues to weaken in various locations. Several sections are no longer connected to each other, and portions of the wall are falling towards the bay or sinking. Concrete is cracking and sloughing off the wall in some spots, and reinforcing bar is exposed (report, Coastal Systems International, Inc. 2008). At present, soil erosion along the seawall is limited to small amounts of sediment seeping through cracks or under the seawall.

Minerals

There are no known minerals of commercial value occurring at this unit.

Hydrology

Historically, water from the Biscayne aquifer upwelled in Biscayne Bay. This fresh water was probably the source of a natural spring that once existed on Key Biscayne. The spring, mentioned in the memoir of an early island inhabitant, was located among the mangroves near the present-day No Name Harbor (Blank 1996). Fresh water also occurred at least seasonally in the island's interdunal swales, when summer rains raised the water table. Potable water, however, was never abundant on Key Biscayne, and early settlers collected rainwater in cisterns, used water from wells that tapped a shallow freshwater lens or had it ferried over from the mainland (Blank 1996).

In the twentieth century, drainage of the Everglades and the canalization of southeast Florida changed the region's hydrology, and the springs that existed around and in Biscayne Bay disappeared. The fill operations of 1950 buried Cape Florida's swales, and during the next four-and-a-half decades, fresh surface water in the park occurred only in a few ditches and ponds that had been dug for mosquito control. In the 1990s,

restoration efforts were made to recreate some of the interdunal swales, and freshwater once again seasonally occurs there.

Rainfall continues to be the source of natural fresh water on Key Biscayne. Water for park use, however, is piped in from the mainland.

Saltwater also historically flowed at Cape Florida in extensive tidal wetlands that existed along the western shoreline. These wetlands were buried during the 1950 fill operations and were partially restored in the 1990s. Today, saltwater additionally occurs within the park's boundary in Pines Canal, the southern half of which the state owns, and in No Name Harbor, an artificial harbor that is the result of the enlargement of a past natural harbor.

Natural Communities

This section of the management plan describes and assesses each of the natural communities found in the state park. It also describes the desired future condition (DFC) of each natural community and identifies the actions that will be required to bring the community to its DFC. Specific management objectives and actions for natural community management, exotic species management, imperiled species management and restoration are discussed in the Resource Management Program section of this component.

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 that are similar with respect to those factors will tend to have natural communities with similar species compositions. Obvious differences in species composition can occur, however, 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. Some physical influences, such as fire frequency, may vary from FNAI's descriptions for certain natural communities in this plan.

At the point in time when the park's natural communities have reached their DFC, they are considered to be in a maintenance status and share certain basic characteristics and management requirements. These include the maintenance of the optimal fire return intervals for fire dependant communities, the maintenance control of non-native plant and animal species, the maintenance of natural hydrological functions (including historic water flows and water quality), the maintenance of proper vegetative structure that represents the natural diversity of the community, the maintenance of healthy populations of plant and wildlife species (including those that are imperiled or

endemic), and the maintenance of intact ecotones between natural communities across the landscape.

Most of the original natural communities of Cape Florida were destroyed in 1950 by pre-development site modifications. Fill pumped from Biscayne Bay was placed on approximately 85 percent of the property, and only the elevated eastern and northern shorelines, as well as a low area west of the lighthouse, were not buried. The land, left undeveloped, was subsequently invaded by Australian pine (*Casuarina equisetifolia*). By the time of state acquisition in the late 1960s, Cape Florida was dominated by an Australian pine forest. The surviving natural communities— beach dune, coastal grassland, coastal interdunal swale, coastal strand and maritime hammock— occurred in areas where the original site soils were exposed, but these communities were being encroached upon by this exotic tree, as well as other non-native plants.

These conditions continued until 1992, when Hurricane Andrew struck Cape Florida and destroyed the Australian pine forest. An extensive restoration of the park's natural communities was started in 1993, based upon historical resources including aerial photographs, plant lists by early 20th century botanists and a 1938 thesis on the flora of Key Biscayne (McAllister 1938). Presently three of the surviving natural communities, along with two others— mangrove swamp and coastal berm— continue to be restored to large areas of Cape Florida.

Two submerged natural communities, marine composite substrate and marine unconsolidated substrate, exist inside Cape Florida's boundary. One other important community, marine seagrass bed, occurs outside the park's boundary but within the park's 400-foot management zone. All these natural communities are illustrated on the Natural Communities Map.

Several types of altered landcover are also found within Cape Florida, including roads, developed areas, artificial ponds, a dredged harbor, part of a canal, and several upland areas that do not conveniently fall into current restoration plans. Many of these altered areas, whether terrestrial or aquatic, nevertheless have value for both native plants and wildlife. A list of known plants and animals occurring in the park is contained in Addendum 5.

BEACH DUNE

Desired Future Condition: A predominantly herbaceous community of coast-specialist plants on the upper beach and first dune (foredune) along sandy shores facing the open ocean. Vegetation will consist of dune-forming seaoats (*Uniola paniculata*), and other grass species such as bitter panicgrass (*Panicum amarum*) and saltmeadow cordgrass (*Spartina patens*) may be present, along with camphorweed (*Heterotheca subaxillaris*) and seacoast marsh elder (*Iva imbricata*). In the tropical portions of the peninsula, other typical species will include railroad vine (*Ipomoea pes-caprae*), baybean (*Canavalia rosea*),

beachstar (*Cyperus pedunculatus*), inkberry (*Scaevola plumieri*), and dune sunflower (*Helianthus debilis*). Occasionally shrubs such as seagrape (*Coccoloba uvifera*) and bay cedar (*Suriana maritima*) may be scattered within the herbaceous vegetation.

Description and assessment: Cape Florida's beach dune community is found along the park's Atlantic shoreline. Covering about 5.5 acres, it runs 1.2 miles from the rock jetty at the Cape Florida Lighthouse to the northern park boundary and varies in width from 20 feet to 100 feet. The height of the foredune that forms the western edge of this plant community is relatively low, changing from 2 feet in the north to 6 feet in the south. Imperiled plant species such as beachstar, sea lavender (*Argusia gnaphalodes*), burrowing four-o'clock (*Okenia hypogaea*), and inkberry grow in the beach dune. Due to its natural condition, which includes natural slopes and intact wrack lines, this community at Cape Florida provides habitat for typical wildlife species such as ghost crab (*Ocypode quadrata*), saltmarsh tiger beetle (*Cicindela marginata*), and yellow-crowned night-heron (*Nyctanassa violacea*), unlike other beaches on urban coastlines. It also forms an important nesting site for sea turtles, in recent years accounting for up to 25 percent of the loggerhead (*Caretta caretta*) nests recorded for Miami-Dade County.

Despite seasonally heavy use by park visitors, the beach dune at Cape Florida overall is in good condition. Because the beach sand is not mechanically raked and because the sea wrack lines are left intact, beach dune plants can usually spread and thrive and new species such as the imperiled burrowing four-o'clock can colonize the site. However, trash and litter regularly accumulate on the beach dune, originating from both park visitors and from ocean-dumped garbage.

General management measures: In order to keep the beach dune in the desired condition, current management methods need to be continued. People, vehicles and recreational equipment need to be kept off and away from the vegetation; wrack lines need to be left in place; litter and trash need to be picked up by hand; vehicles driven on the beach should be low-impact and used minimally; and occasionally occurring invasive exotic plants need to be removed.

COASTAL BERM

Desired Future Condition: A mixture of tropical herbs, shrubs and trees growing on a substrate of coarse, calcareous, storm-deposited sediment that forms long narrow ridges parallel to the shore. The ridges will be found in mangrove forest or further inland depending on the height of the storm surge that formed them, and they will range in height from one to ten feet. Structure and composition of the vegetation will be variable depending on height and time since the last storm event. The most stable berms may share some tree species with rockland hammocks, but generally have a greater proportion of shrubs and herbs. Tree species may include blolly (*Guapira discolor)*, gumbo limbo (*Bursera simaruba*) and poisonwood (*Metopium toxiferum*). Characteristic tall shrub and short tree species include Spanish stopper (*Eugenia foetida*), hog plum

BILL BAGGS CAPE FLORIDA STATE PARK

NATURAL COMMUNITIES MAP

(*Ximenia americana*), white indigoberry (*Randia aculeata*), seven year apple (*Genipa clusiifolia*), Florida Keys blackbead (*Pithecellobium keyense*) and saffron plum (*Sideroxylon celastrinum*). Short shrubs and herbs include mangrove spiderlily (*Hymenocallis latifolia*), limber caper (*Capparis flexuosa*), buttonsage (*Lantana involucrata*), and rougeplant (*Rivina humilis*). More seaward berms or those more recently affected by storm deposition may support a suite of plants similar to beaches, including shoreline sea purslane (*Sesuvium portulacastrum*), saltgrass (*Distichlis spicata*) and seashore dropseed (*Sporobolus virginicus*), or dense shrub thickets with buttonwood (*Conocarpus erecta*); black (*Avicennia germinans*), red (*Rhizophora mangle*), and white mangroves (*Laguncularia racemosa*); joewood (*Jacquinia keyensis*) and bushy seaside oxeye (*Borrichia frutescens*).

Description and assessment: Coastal berm once existed at Cape Florida but was buried along with surrounding mangrove vegetation during the fill operations of the early 1950s. This natural community is visible on a 1926 aerial as a long narrow feature that starts among the mangroves north of the natural harbor on the west side of the park site. It runs northwestward inside the mangrove swamp, paralleling the bay shoreline to a point outside of the present-day park. Traces of the berm's physical substrate were found and mapped during archaeological investigations at Cape Florida in the 1990s.

During the restoration of mangrove swamp at Cape Florida, a small (0.77 acre) gravel-covered island was created in the lagoon. Initially it was hoped that nesting shorebirds, least terns (*Sternula antillarum*) in particular, would be attracted to the site. Despite the use of bird decoys, the island never succeeded as a nesting location, and in the following years mangrove trees and buttonwoods germinated on the island's perimeter. The interior of the island remained largely barren except for a few shrubs such as bay cedar, bushy seaside oxeye and buttonsage. It was decided in recent years that this island had features that replicated those of a coastal berm, and in 2010, a scattering of native trees and shrubs was planted in order to initiate the formation of a shrubby thicket typical of coastal berm. The plant species chosen for this planting were based upon species seen on a coastal berm found on the northern end of Key Biscayne, at a site called West Point. Because this natural community is at an early stage of restoration, it can be said to be in fair condition. Typical plant species are still in low abundance.

General management measures: This site needs to be periodically inspected for the presence of exotic plant species. However, since this site has the potential to become a rookery for wading birds and shore birds, it should be surveyed only outside the breeding season.

COASTAL GRASSLAND

Desired Future Condition: A predominantly herbaceous community occupying the drier portions of the transition zone between the beach dune community and the communities dominated by woody species farther inland. The dune-building grasses of

the beach dune (seaoats, bitter panicgrass) will usually be present, along with a variety of other herbaceous species typically found on more stable soils, such as bluestem grasses (*Andropogon spp.*), camphorweed, and in southeast Florida, beachstar. Other species present will include beach creeper (*Ernodea littoralis*), erect pricklypear (*Opuntia stricta*) and Atlantic Coast Florida lantana (*Lantana depressa var. floridana*). Occasionally shrubs such as seagrape and bay cedar may be scattered within the herbaceous vegetation.

Description and assessment: The coastal grassland community at Cape Florida occupies about 19.5 acres and is located between the beach dune community to the east and the maritime hammock and coastal strand communities farther inland. Varying in width from 50 feet to 340 feet, it is at its widest and best condition around beach accesses #4 and #5 (see Reference Map). Several of the park's imperiled plant species, including Atlantic Coast Florida lantana, beachstar and erect prickly pear, are found in this community, partly the result of its soil and seedbank never having been buried under fill. The federally listed beach jacquemontia (*Jacquemontia reclinata*) was reintroduced in this community and is thriving. Certain wildlife species that like arid sandy areas, such as six-lined racerunner (*Cnemidophorus sexlineatus*) and seaside grasshopper (*Trimerotropsis maritima*), or that like the plants found there, such as bella moth (*Utethesia bella)*, are only found in the park's coastal grassland. Coastal grassland is considered to be imperiled by FNAI (ranked G3 and S2), and Cape Florida is one of the few localities of this community in southeast Florida.

It is hard to track the history of this community at Cape Florida, but inspection of historical aerial photographs seems to show coastal grassland bordering the park's Atlantic shoreline in some areas as far back as 1926. The northern and southern ends of the coastal grassland at Cape Florida appear to have undergone some erosion in the past, and the whole community was formerly degraded by uncontrolled pedestrian and vehicle traffic. Aerial photographs from the 1970s show up to 50 percent of this community reduced to barren sand. However, with human access to this community restricted since the 1980s, the coastal grassland has been restoring itself and has been able to recover from major natural events such as the substantial overwash from Hurricane Andrew. At the southern end of this community, the construction of a 150-foot rock jetty at the lighthouse in 1987 has stopped erosion and has allowed sand to accumulate. From the bend in the park's shoreline southwards, the beach has been moving seaward (as much as 55 feet), a new foredune up to 6 feet high has formed, and coastal grassland appears to be establishing on the stabilized sand behind the foredune. Overall, the coastal grassland at Cape Florida appears to be in good to excellent condition.

General management measures: In order to keep the coastal grassland in its desired condition, human access should continue to be restricted. The many plant species in this community are able to withstand the harsh conditions of their environment but their

wide-reaching roots are unable to tolerate repeated foot traffic. Exotic plant species such as beach naupaka (*Scaevola sericea*) need to continue to be removed as they appear.

COASTAL STRAND

Desired Future Condition: An evergreen shrub community growing on stabilized coastal dunes, often with a smooth canopy due to pruning by salt spray. Coastal strand will be an ecotonal community that generally lies between the beach dune and maritime hammock, scrub or tidal swamp communities farther inland. On broad barrier islands, it may also occur as patches of shrubs within a coastal grassland matrix. Dense saw palmetto (*Serenoa repens*) and scattered dwarf cabbage palm (*Sabal palmetto*) will be on the seaward edge of coastal strand, with taller shrubs gradually occurring inland. Tropical species will be typical, including seagrape, blolly, Florida swampprivet (*Forestiera segregata)*, myrsine (*Rapanea punctata)*, Florida Keys blackbead, buttonsage (*Lantana involucrata)*, white indigoberry and snowberry (*Chiococca alba)*.

Description and assessment: Historically, coastal strand was the dominant upland community at Cape Florida, occurring throughout the site on the well-drained sandy dune ridges. The land clearing and fill operations of 1950 destroyed almost all of this plant community. Now, only a few tiny remnants of the original coastal strand exist in narrow pieces west of the park's coastal grassland, where they are succeeding to maritime hammock.

Since Hurricane Andrew, efforts have been made to restore coastal strand to about 170 acres of the park. Initial work was started by contractors in 1995 and consisted of sparse, scattered plantings of saw palmetto mixed with a variety of other, sometimes inappropriate, native trees, shrubs and grasses. In later years, thousands more saw palmettos and grasses were planted with the assistance of numerous volunteer groups and non-profit organizations.

To date, the restoration areas do not resemble typical coastal strand. Large clusters of seagrape and buttonwood trees, along with tall strangler fig (*Ficus aurea)*, dominate many of the restoration areas. Numerous smaller trees and large shrubs are mixed with the palmettos, and the ground layer is often characterized by ruderal species such as beggarticks (*Bidens alba)* and morningglory (*Ipomeoa sp*.). Invasive exotic plants species, particularly day jessamine (*Cestrum diurnum*) and Brazilian-pepper (*Schinus terebinthifolius)*, are scattered thinly but throughout most of the restoration areas. An invasive native vine, gray nicker (*Caesalpinia bonduc)*, forms thick patches in multiple locations and is suppressing other native vegetation.

One important factor affecting the successful reestablishment of coastal strand in the park is the altered substrate. Historically this natural community grew on exposed, well-drained, nutrient-poor sand dune ridges where many plants could not grow and where others, including native hardwoods, were stunted by the harsh conditions. The

fill material present in the coastal strand restoration area differs considerably from typical substrate for this community type, allowing hardwood trees and a host of other shrubs and herbaceous plants atypical of coastal strand to thrive.

Since 2003, three contracts to remove the massive buttonwood clumps have been performed in two management zones (BBC-01, BBC-05). Additionally, several experimental prescribed burns have been conducted by DRP staff in four management zones (BBC-01, BBC-02, BBC-07, BBC-08). The resulting reduction of hardwood tree cover is promising. Monitoring of the response by herbaceous species shows yet inconclusive results.

Given the current state of its restoration, the park's coastal strand community is overall in poor condition.

General management measures: Coastal strand at Cape Florida still requires substantial restoration efforts. Buttonwood trees need mechanical removal in six of nine management zones (BBC-02, BBC-03, BBC-04, BBC-06, BBC-07, BBC-08). Other trees and shrubs need to have their coverage reduced in eight zones (BBC-01 through BBC-08), possibly with fire. Further plantings of saw palmetto and possibly grasses are needed in some areas. Exotic plant control efforts need to be maintained.

MARITIME HAMMOCK

Desired Future Condition: A coastal evergreen hardwood forest occurring in narrow bands along stabilized coastal dunes. Diverse tropical species such as gumbo limbo, false mastic (*Sideroxylon foetidissimum*), strangler fig, seagrape, poisonwood and Spanish stopper will be prevalent. Understory species may consist of myrsine, wild coffee (*Psychotria nervosa*), white indigoberry and snowberry. Very sparse or absent herbaceous groundcover will exist.

Description and assessment: At Cape Florida, maritime hammock accounts for about 78.9 acres of the park. This forest community exists naturally in some parts of the park but it is also being restored in two large areas. Maritime hammock has additionally been planted in small patches within the coastal strand restoration zones and in visual buffer strips adjacent to certain park features.

Maritime hammock occurs naturally in a strip of varying width west of the coastal grassland community. Growing on the original sand soils of the park, this hammock (the "Atlantic Hammock") has managed to survive to some degree past anthropogenic disturbances and has been restoring itself since Hurricane Andrew and the subsequent eradication of the Australian pine trees. This hammock covers about 18.6 acres and is widest and most species-rich between beach accesses #3 and #4. Bordered by an almost continuous line of seagrape trees on its eastern seaward side, it becomes more diverse going landward. Growing from Cape Florida's original seedbank, typical species are

blolly, blackbead, Spanish stopper, poisonwood and strangler fig. Plants that are more unusual include maidenberry (*Crossopetalum rhacoma*), Bahama nightshade (*Solanum bahamense*) and pineland snowberry (*Chiococca parvifolia*). Due to the nutrient-poor, well-drained soil, the trees of this hammock are slow-growing, and a closed canopy has not yet completely formed.

Maritime hammock seems to be developing spontaneously at the southern end of the park, on the well-drained sandy soils within the fenced-in area west and northwest of the Cape Florida Lighthouse. The vegetation of this area has been cleared at various times in past decades but, since the eradication of the park's Australian pine trees, a canopy of seagrape and strangler fig has been forming. Understory species such as white indigoberry and Spanish stopper have been appearing along with the park's only specimens of twining soldierbush (*Tournefortia volubilis*). Closest to the lighthouse, hammock species such as gumbo limbo, Jamaican dogwood (*Piscidia piscipula*) and the imperiled Biscayne prickly-ash (*Zanthoxylum coriaceum*) have been planted in the years following Hurricane Andrew.

As part of the park restoration efforts started in 1993, maritime hammock is being restored in two areas in the park. The largest hammock restoration area follows the park's western shoreline south of the harbor. This hammock (the "Seawall Hammock") occupies approximately 27.6 acres and is planted mostly on fill material that was pumped from Biscayne Bay in 1950. Because the fill, comprised mainly of marl, retains moisture better and is more nutrient-rich than the park's original sand soils, the trees planted in the Seawall Hammock have grown relatively quickly and tall. Consequently, this hammock has developed more of a closed canopy than the hammocks growing on sand. This hammock also has a greater number of tree species, due to continuing efforts to increase the diversity and density of plantings. Typical canopy trees are false mastic, strangler fig, gumbo limbo, buttonwood and cabbage palm. Subcanopy trees include pigeon plum (*Coccoloba diversifolia*), white stopper (*Eugenia axillaris*), myrsine, blolly and black ironwood (*Krugiodendron ferreum*). Multiple specimens of Biscayne prickly-ash have been planted in this hammock and are thriving.

Maritime hammock is also being restored in an 18.5-acre area south of Pines Canal. This hammock (the "Canal Hammock") has been planted more densely in its eastern half and less so in the remaining portion and has had no supplemental plantings since the mid-1990s. There are a few plant species growing in this area, such as blackbead, which appear to be original to the site. The soils of this hammock are mainly sandy, consisting of the material dug from the canal in the 1920s. Nevertheless, the trees of the eastern half have grown well and a closed canopy has formed. Being the part of the park that is closest to the lushly landscaped Village of Key Biscayne, this hammock is the location where a variety of exotic plant species such as Surinam cherry (*Eugenia uniflora*), carrotwood (*Cupaniopsis anacardioides*) and schefflera (*Schefflera actinophylla*) usually appear.

The maritime hammock forests at Cape Florida are at varying levels of maturity. The canopy is not closed in all areas, the tree densities are not typical for the region yet and the species composition is not comparable to nearby hammocks. Nevertheless, the hammocks are developing well, with various tree species now recruiting on their own. Certain atypical trees, such as buttonwood, will eventually drop out of the community, and others like strangler fig and gumbo limbo will become more dominant. Exotic plants pose the greatest current threat to maritime hammock, especially day jessamine, Brazilian pepper and latherleaf (*Colubrina asiatica*). However, these non-native species are only lightly to moderately impacting the park's hammock areas and, as the tree canopy fills in, they will have greater difficulty in establishing. Overall the maritime hammock areas are in good condition.

It is worth noting that even in their immature state, the hammocks at Cape Florida provide valuable habitat to a variety of animal species. The Seawall Hammock is the location of multiple sightings of unusual wildlife, such as the Cuban crescent (*Anthanassa frisia*) and hammock skipper (*Polygonus leo*) butterflies. Bird banding projects conducted within the Seawall Hammock since 2002 have documented over 75 avian species using this forest, including white-crowned pigeon (*Patagioenas leucocephala*). The Atlantic and Lighthouse hammocks have populations of common land hermit crabs (*Coenobita clypeatus*) and other invertebrates seldom seen in developed areas.

General management measures: Exotic plant species should continue to be controlled in all the maritime hammock areas of the park. The naturally occurring hammocks in the eastern and southern parts of the park should be allowed to continue to develop on their own. Due to the gene pools and seed banks of these two hammock areas, which should be considered original to the site, the native plants and soils should be disturbed as little as possible, and all necessary impacts need to be carefully thought out. Further plantings should occur in the restored hammocks as desirable species of appropriate gene stock become available.

COASTAL INTERDUNAL SWALE

Desired Future Condition: Marshes, moist grasslands, dense shrubs or damp flats in linear depressions formed between successive dune ridges. Dominant species will be variable depending on local hydrology, substrate and the age of the swale. Wetter areas will often be dominated by sawgrass (*Cladium jamaicense)* or cattail (*Typha sp*.), while shallower areas will have a diverse mixture of herbs, including bluestem grasses. Shrubby areas will often be dominated by wax myrtle (*Myrica cerifera)* and coastalplain willow (*Salix caroliniana)*. Moist grasslands may be dominated by hairawn muhly (*Muhlenbergia capillaris)*, lovegrass (*Eragrostis spp.)* and cordgrass (*Spartina spp*.) species. The community will vary from flooded to completely dry depending on rainfall, as well as on height and area of the surrounding dunes.

Description and assessment: At Cape Florida, there is a small natural coastal interdunal swale within the coastal grassland community. Covering about 0.23 acres, this swale is a moist grassland in which bushy broomsedge (*Andropogon glomeratus)*, starrush whitetop (*Rhynchospora colorata)*, and marsh fimbry (*Fimbristylis spadicea*) are typical species. With access being restricted to the area, this interdunal swale is in excellent condition and is under no threat.

Coastal interdunal swale has also been recreated within the coastal strand restoration area at Cape Florida. In 1997, five oblong areas covering a total of 6.6 acres were excavated from the fill material in the southwestern quadrant of the park. They were then planted with several herbaceous wetland plant species, including sawgrass, Gulf cordgrass (*Spartina spartinae)*, herb-of-grace (*Bacopa monnieri)*, and giant leather fern (*Acrostichum danaeifolium)*. Since that time, some of these installed species have not thrived, but many other wetland plants have volunteered. Coastalplain willow and southern cattail (*Typha domingensis*) have formed large patches but are not dominating the swales. Numerous wetland grasses [fall panicgrass (*Panicum dichotomiflorum var. bartowense*)], sedges [Canada spikerush (*Eleocharis geniculata)*, swamp flatsedge (*Cyperus ligularis*)], and forbs [sweetscent (*Pluchea odorata)*, toothcup (*Ammania latifolia*)] fill in the remaining areas. Fed by rainfall, the swales are usually dry in the winter season and flooded with up to 2 feet of water in the summer. Early in the swales' existence, open water and mud within the depressions attracted a variety of wading birds, shorebirds and ducks. Vegetation has since covered these areas, but wading birds still forage in the swales. The freshwater that seasonally collects in the swales is an important resource to a number of the park's wildlife, especially amphibians and dragonflies.

The vegetation of the five restored coastal interdunal swales is changing year by year. Prescribed fire has burned around and through parts of the swales, affecting the coverage of certain plant species but with no visible deleterious effects. The major threats to these restored swales are exotic plants such as torpedograss (*Panicum repens)*, which forms sparse patches in one swale, and day jessamine and Brazilian-pepper, which are thinly scattered in the upper margins of the swales. A somewhat more significant threat to the integrity of this community at this time is the native buttonwood. Heavily and inappropriately planted in the surrounding coastal strand area, this tree is now volunteering in the moist soil of the swales and can alter the appearance and functioning of the swales if left uncontrolled. For these reasons, the restored coastal swale areas can be said to be in good condition.

General management measures: Exotic plant species need to be controlled in the coastal interdunal swales as needed. Buttonwoods that are germinating within the restored swales need to be controlled as well, ideally while still small to minimize the impact to this still evolving community.

MANGROVE SWAMP

Desired Future Condition: Dense, low forests occurring along relatively flat, intertidal and supratidal shorelines of low wave-energy along Florida's coasts. The dominant plants will include red mangrove (occupying the deeper zones), black mangrove (occupying the middle zones), white mangrove and buttonwood (occupying the uppermost zones). The tree canopy will be typically dense with little to no understory. Where present, the understory can include seaside oxeye (*Borrichia spp.*), coinvine (*Dalbergia ecastaphyllum),* saltwort (*Batis maritima*), perennial glasswort (*Salicornia perennis*) and giant leather fern. Soils will range from saturated to inundated and vary considerably from deep mucks to fine sands but always contain high salt content limiting plant diversity.

One variant of mangrove swamp exists in isolated depressions that are inland from the coastline; this variant will often be colonized by black and white mangroves. Another variant, buttonwood forest, will be dominated by buttonwood and exists where mangrove swamp transitions to hammock.

Description and assessment: Historically, mangrove swamp covered an extensive area in the northwestern quadrant of the present-day park, and there may have been isolated mangrove areas south of the natural harbor. These wetlands were destroyed during the 1950 fill operations. At the time of Hurricane Andrew (1992), Cape Florida's only naturally occurring mangrove trees bordered Pines Canal in a narrow fringe. An additional strip of mangroves existed along the north side of No Name Harbor where they had been planted in the 1980s. There also appears to have been some buttonwood and mangrove trees in a low area west of the Cape Florida Lighthouse, but it is uncertain when and how these trees appeared, as they do not seem to appear on aerial photographs from the 1950s and 1960s.

These three patches of mangrove vegetation still exist and are thriving. The mangrove area near the lighthouse seems to be developing into a buttonwood forest, with white mangrove trees growing in and near a mosquito ditch there. Because the organic soil in this depression is barely above sea level and because the water table is often just below the surface, this area is not likely to succeed to maritime hammock, unlike the slightly more elevated and sandier surrounding areas. This low moist area is the location of two wetland plant species not seen elsewhere in the park: Virgina saltmarsh mallow (*Kosteletzkya virginica*) and the rare white spikerush (*Eleocharis albida*).

In 1999, a multi-year effort to restore extensive mangrove swamp to Cape Florida was completed. Approximately 65 acres of the park were excavated and graded into a pattern of shallow pools, flushing channels and a "lagoon." Over 300,000 young mangroves, predominantly red mangroves, but also white and black mangroves, were planted. The upland margin was planted with a variety of salt-tolerant grasses and

shrubs such as bay cedar, Christmas berry (*Lycium carolinianum*), bushy seaside oxeye and Gulf cordgrass.

Since then, a few other mangrove-associated plants have colonized the site (glasswort, saltwort), and large numbers of marine organisms have moved in, including fiddler crabs (*Uca spp.*), horseshoe crab (*Limulus polyphemus*), common blue crab (*Callinectes sapidus*), white mullet (*Mugil curema*), great barracuda (*Sphyraena barracuda*), and a host of smaller fish. Florida manatees (*Trichechus manatus*) have been seen in the channels, and an American crocodile (*Crocodylus acutus*) has used the site to forage and rest. During the early years of the restoration, over twenty kinds of wading birds and shorebirds used this area to rest and forage, including some imperiled species. Since that time, however, growing mangroves have covered the exposed mudflats, and shorebirds are less frequently seen in this community. In 2010, Florida prairie warblers (*Dendroica discolor paludicola)*, a subspecies endemic to Florida coastal areas, were discovered using the mangrove swamp.

Presently, the restored mangrove swamp is in good condition. The community continues to mature, and the planted mangroves are now 10 feet to 15 feet tall and largely impenetrable. The trees are starting to produce significant amounts of the leaf litter that is thought to be the basis for the detritus-based marine food webs, and the site is already acting as a nursery for numerous fish and crustacean species. It is only along the upland margins of this community that salt-tolerant exotic plants such as Australian pine, beach naupaka and portia tree (*Thespesia populnea*) occasionally try to establish.

General management measures: Exotic plant species need to be removed periodically from the buttonwood forest west of the lighthouse and from the margins of the restored mangrove swamp, the mangroves edging Pines Canal, and those at No Name Harbor.

Due to the number of animal species using the restoration area, the fact that it is a nursery area for various marine organisms and a nesting area for some birds, and the difficulty of effectively monitoring use of this wetland site, the public (both on foot and in watercraft) should be excluded from this area.

MARINE COMPOSITE SUBSTRATE

Desired Future Condition: Marine composite substrate will consist of a combination of natural communities including seagrass beds, consolidated substrate and unconsolidated substrate. Because composite substrate is a combination of community types, floral and faunal components from any of these communities may be found in the composite substrate habitat, so species diversity is often times greater than the surrounding habitats.

Description and assessment: Marine composite substrate occurs within the permanently submerged unshaded areas of the restored mangrove swamp. Found

mainly in the 9.5-acre "lagoon" area, this community has formed naturally and is comprised of a mixture of seagrass bed [primarily shoalweed (*Halodule wrightii*)], algal bed and a loose substrate of marl sediments and sand. With the public being excluded from this area, the marine composite substrate community is undisturbed and in good condition.

Approximately 5.8 acres (mostly unmapped) of marine composite substrate also occurs in a band along the park's bayside shoreline, where the majority of it is outside of the park's legal boundary but within the 400-foot management zone. In No Name Harbor, this band averages about 10 feet wide, and the unconsolidated substrate is silty sand. Outside of the harbor, the width of this community varies from 10 feet to 50 feet, with some areas extending out 100 feet, and the substrate is sandier. A small portion of marine composite substrate is additionally located at the western end of Pines Canal. The condition of this community in these areas has not been assessed.

General management measures: The water is shallow in most areas of the restored mangrove swamp, and boating and wading stirs up fine sediments from the bottom, affecting water clarity. For this reason, access should continue to be restricted in this area.

SEAGRASS BEDS—UNMAPPED

Desired Future Condition: Marine seagrass beds are typically characterized as expansive stands of vascular plants and are one of the most productive communities in the world. Seagrass beds occur in clear coastal waters where wave energy is moderate. The three most common species of seagrasses in Florida are turtlegrass (*Thalassia testudinum*), manateegrass (*Syringodium filiforme*) and shoalweed. *Halophila* may be intermingled with the other seagrasses, but species of this genus are considerably less common.

Seagrass beds require unconsolidated substrate in order to establish their underground biomass root structure. They are typically found in waters ranging from 20° to 30°C (68° to 86°F) and require clear water for photosynthesis. Seagrass beds do not thrive where nutrient levels are high because of increased turbidity and competition of undesirable algal species.

Description and assessment: There are no significantly sized seagrass beds within the legal boundary of Bill Baggs Cape Florida State Park. However, about 47 acres of seagrass bed are found within the 400-foot wide management zone (unmapped) that extends from the Atlantic shoreline of the park. This community generally commences within 80 feet of the mean high tide line of the beach and continues out past the 400-foot management boundary. The seagrass bed is composed primarily of turtlegrass mixed with manateegrass, with some shoalweed present near the shoreline. Open patches of unconsolidated substrate are scattered in the bed and account for less than 5 percent of

the coverage. These patches are currently concentrated around the area between boardwalks #3 and #4. Aerial photos going back to 1945 show that these patches tend to change size and location over time.

The seagrass bed is overall in an excellent state. From the shore to 300 feet out, watercraft are excluded by a line of buoys designating a swim area. Outside of this line, boat traffic is relatively infrequent – though commercial crabbers use the area seasonally - and water depths in excess of five feet protect the bottom. Closer to the shoreline and especially near the busier sections of the beach, trash originating from park visitors is present in the seagrass bed. While the trash does not directly threaten the seagrasses, it does present a hazard to the marine life of this community and is unsightly.

General management measures: The continued exclusion of watercraft from the designated swimming area should prevent prop scarring, scours and other damage to the seagrass bed. However, since boats have been seen coming to the shore to unload or pickup beachgoers, patrolling the beach by park staff and/or park patrol needs to be maintained or increased. To the extent possible, trash needs to be removed from the seagrass bed.

MARINE UNCONSOLIDATED SUBSTRATE

Desired Future Condition: Will consist of expansive open areas of relatively unvegetated subtidal, intertidal and supratidal zones. The mineral-based substrate will be composed of shell, coralgal, marl, mud and/or sand (sand beaches). Desired conditions include the absence of soil compaction, dredging activities and the accumulation of pollutants.

Description and assessment: Marine unconsolidated substrate occurs along Cape Florida's Atlantic shoreline, between the beach dune and seagrass bed communities, where it is unmapped. The substrate here is sand. The subtidal portion of this community contains infaunal organisms that are important for bottom feeding fish. The intertidal and supratidal zones are foraging areas for wintering and migrating shorebirds and for invertebrates such as the ghost crab. Like the beach dune community, the park's marine unconsolidated substrate community receives seasonally heavy recreational use from visitors. Nevertheless, this community appears to be in good to excellent condition. Vehicular traffic is minimal, and water quality is good. Trash and litter, originating from beach-goers and from ocean-carried garbage, appear to be the greatest problem. This garbage is both unsightly and a hazard to park wildlife.

Marine unconsolidated substrate also occurs off the park's southern, western and northern shorelines, within the park's legal boundary and in the 400-foot management zone. In these areas, the substrate is a mixture of marl and sand. Most of the original substrate within this section of the park's 400-foot management zone appears to have

been pumped or dredged during the 1950 fill operations. Today, water depths still mostly range between 8 feet and 16 feet, and a busy boating channel (the Cape Florida Channel) occurs here. The condition of the marine unconsolidated substrate in this area has not been assessed.

General management measures: Vehicles should continue to be used minimally in this community along the park's eastern shoreline. Trash at and above the tide-line should continue to be picked up daily. Trash below the tide line needs to be periodically removed, to the extent possible.

SPOIL AREA

Desired Future Condition: The spoil areas within the park will be managed to remove priority invasive plant species (EPPC Category I and II species). Other management measures include limited restoration efforts designed to minimize the effect of the spoil areas on adjacent natural areas. Cost-effectiveness, return on investment and consideration of other higher priority restoration projects within the park will determine the extent of restoration measures in spoil areas.

Description and assessment: The Cape Florida site has undergone multiple notable alterations in the last 100 years. The greatest was the bulkheading and fill operations of 1950, which placed hydraulically dredged material on up to 85 percent of the site. Cape Florida remained largely undeveloped in the following decades, and an Australian pine forest was starting to dominate the site when it became a state park in the late 1960s. Hurricane Andrew destroyed this non-native forest in 1992. Since then, most of the park, including the areas of altered substrate, has been undergoing a restoration of the historic natural communities. There are still some portions of the park, however, that do not conveniently fall into current restoration plans; a narrow strip of land immediately adjacent to the bayside seawall, the upland area between No Name Harbor and the restored mangrove swamp, and a mound of fill material southeast of the harbor parking lot. For lack of a better designation, these areas are called spoil areas in this plan. Nevertheless, these areas have biological value. They are vegetated with native plants and support wildlife, such as the butterflies and birds that favor early successional habitats. These areas are currently in maintenance condition.

Of special note is the spoil area just north of No Name Harbor. Characterized by a sparse herbaceous groundlayer, scattered shrubs and stunted trees, this area has four native plant species not found elsewhere in the park - pineland heliotrope (*Heliotropium polyphyllum*), pitted stripeseed (*Piriqueta caroliniana*), redgal (*Morinda royoc*) and eyebright ayenia (*Ayenia euphrasiifolia*) - and that are more typically associated with pinelands. Because of the value of naturally open grassy areas in the park, and because of the presence of the four uncommon native plants, it would not be helpful to restore this area to coastal strand or maritime hammock. At this time, this area should be allowed to develop on its own.

General management measures: Invasive exotic plant species control needs to be continued in the spoil areas.

ARTIFICIAL POND

Desired Future Condition: The artificial ponds within the park will be managed to remove priority invasive plant species (EPPC Category I and II species). Other management measures include limited restoration efforts designed to minimize the effect of the artificial ponds on adjacent natural areas. Cost-effectiveness, return on investment and consideration of other higher priority restoration projects within the park will determine the extent of restoration measures in artificial ponds.

Description and assessment: Three artificial ponds are found within the coastal strand restoration area in the north-central section of the park. The remnants of past mosquito control efforts, two are very small - less than one-twentieth of an acre in surface area - and have open water. The largest is approximately 0.78 acre and is dominated by southern cattail (*Typha domingensis*). These ponds, though shallow, generally contain freshwater year-round and so are an important resource for park wildlife. The artificial ponds are currently in maintenance condition.

General management measures: The artificial ponds need to be periodically checked for invasive exotic plant species. At this time, these features are not being considered for restoration to a natural plant community.

DEVELOPED

Desired Future Condition: The developed areas within the park will be managed to minimize the effect of the developed areas on adjacent natural areas. Priority invasive plant species (EPPC Category I and II species) will be removed from all developed areas. Other management measures include proper stormwater management and development guidelines that are compatible with prescribed fire management in adjacent natural areas.

Description and assessment: Approximately 56.8 acres of the park are considered developed. This acreage includes paved roads, trails, and parking lots; mowed picnic and recreation areas; a mowed emergency helicopter landing area; the lighthouse cultural area; park support facilities such as the administrative office/maintenance shop complex, storage sites, wastewater support structures, and a plant nursery; a support area for a 300-foot communications tower; concession buildings and associated support areas; and park staff and concessionaire residential sites.

Priority invasive exotics occasionally occur in these areas, particularly in vegetated parking lot medians and the abandoned section of the plant nursery, and are controlled. Stormwater runoff from parking lots that can threaten nearby waters is directed into

retention areas. The greatest negative impact from the developed areas to adjacent natural areas is trash and litter. Garbage ends up scattered beyond the borders of the developed areas after being accidentally dropped or deliberately discarded by people, or dragged by park wildlife. Trash such as monofilament line, plastic bags, soda cans and food containers can be a threat to park plants and animals, as well as an aesthetic problem.

A developed feature of special note is the 8,400 linear-feet of boulders that border most of the park's western and southern shorelines. These limestone rocks help support the park's failing seawall and armor some sections of shoreline. They also form the basis for a marine consolidated substrate natural community. Above the tide line, the boulders support a number of animal species typically found along Caribbean rocky shorelines, such as zebra periwinkle (*Littorina ziczac*), nerite snails (*Nerita spp.*) and West Indian fuzzy chiton (*Acanthopleura granulata*). Below the tide line, the rocks provide habitat for a wide variety of reef-dwelling organisms ranging from sponges and imperiled corals to tropical fish and crustaceans. This artificially based community is minimally threatened, with monofilament line from shoreline fishing and water-borne trash having the greatest negative impact.

General management measures: Invasive exotic plant species control needs to be continued in the developed areas. Trash and litter needs to be more frequently removed from bordering natural areas. When repairs or other changes are planned for the park's seawall, the great number of marine organisms using this habitat should be taken into consideration.

Imperiled Species

Imperiled species are those that are (1) tracked by FNAI as critically imperiled (G1, S1) or imperiled (G2, S2); or (2) listed by the U.S. Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FFWCC) or the Florida Department of Agriculture and Consumer Services (FDACS) as endangered, threatened or of special concern.

Since 1994, 15 imperiled plant species, 30 imperiled vertebrate species and ten imperiled invertebrate species have been recorded for Bill Baggs Cape Florida State Park. One rare plant species that is currently not tracked by FNAI and that is unlisted by state and federal agencies has also been found in this park.

Many of Cape Florida's imperiled plants are shrubby or herbaceous coastal species that have managed to survive where the original site soils are not buried under fill. These species include Atlantic Coast Florida lantana, shell-mound pricklypear, sea lavender, beachstar and rhacoma. In the 1990s, two plant species, Biscayne pricklyash and the federally endangered beach clustervine (*Jacquemontia reclinata*), were introduced to Cape Florida in an effort to augment their populations on Key Biscayne. Three other

imperiled species, Simpson's stopper (*Myrcianthes fragrans*), locustberry (*Byrsonima lucida*) and Chapman's sensitive plant (*Senna mexicana var. chapmanii*), were introduced to the park as part of the post-Hurricane Andrew restoration process, even though it is uncertain whether they ever occurred naturally on the island.

Of note are two small sedge species, Florida flatsedge (*Cyperus floridanus*) and white spikerush, which appear to occur naturally at Cape Florida. Florida flatsedge, ranked S1 by FNAI, is known to exist in only four conservation areas in South Florida. This diminutive plant seems to be thriving well at the park, on trails and in public use areas where mowing keeps the vegetation very short. White spikerush is a plant that occurs in the southeastern United States and presently is not tracked or listed by any government agency. However, a small population that persists at Cape Florida is the only currently recorded occurrence of this plant on public land in South Florida (Institute for Regional Conservation 2010).

With the restoration and protection of the park's natural communities, these imperiled plants are at a minimum persisting and at best flourishing. Exotic plants at Cape Florida are largely under control and at this time do not threaten the imperiled plant species. Biscayne pricklyash and beach clustervine have recently shown the first signs of natural recruitment of new plants, an event that has been seldom documented elsewhere.

Of the park's 30 imperiled vertebrate species, 25 are birds, four are marine reptiles and one is a marine mammal. Many of the imperiled bird species, such as white-crowned pigeon, brown pelican (*Pelecanus occidentalis*), the egrets and herons, use the park year-round, primarily for foraging. Some birds are seasonal, using the park for wintering [piping plover (*Charadrius melodus*), merlin (*Falco columbarius*)] or for summer foraging (least tern). Others depend upon the park as a critical rest stop during migration [peregrine falcon (*Falco peregrinus*), worm-eating warbler (*Helmitheros vermivorus*)].

Three of the park's imperiled reptiles are marine turtles. Green turtles (*Chelonia mydas*) feed in the seagrass beds offshore, and, like the leatherback (*Dermochelys coriacea*), occasionally nest on the park's beach. Loggerheads nest annually at Cape Florida, usually laying 60 to 80 nests a year. The American crocodile, the park's other imperiled reptile, has been seen several times over the years in the restored tidal wetlands and in No Name Harbor. It is not thought to nest in the park at this time.

Florida manatee is the only imperiled mammal species occurring at Cape Florida. This marine mammal is regularly seen, sometimes in small groups, foraging next to the seawall, resting in Pines Canal and No Name Harbor, and traveling in the Cape Florida Channel.

The ten imperiled invertebrates documented for Cape Florida comprise seven butterfly species and three coral species. Butterflies such as malachite (*Siproeta stelenes*) and

Florida white (*Appias drusilla*) are rarely observed. The others are more often seen but their population size can vary due to a number of non-park related factors such as weather. The three remaining imperiled invertebrates are hard corals. These corals are found on the submerged limestone boulders lining the park's seawall and tidal wetlands.

Because Cape Florida's natural resources are protected and maintained, there are no major threats to the imperiled animals within the park. Raccoons and invasive plants have the potential to be major threats, but their impacts are prevented through current management practices. The ongoing restoration of Cape Florida's diverse natural communities also is benefiting these species, despite being incomplete. The park is one of a few undeveloped coastal areas in a highly urbanized environment, and its natural habitats provide refuge for a variety of native wildlife, including those that are yet little studied as to their population status. Too small to support all the life stages of most of the listed imperiled species, Cape Florida nevertheless often provides needed habitat for critical stages of a species' life. For example, the park's beach, maintained in a natural state, dark and quiet at night, has a significantly greater density of loggerhead nesting than almost all other Miami-Dade County beaches. Dozens of species of migratory bird stop in the park every spring and fall to find food, shelter and rest.

Special management is done at Cape Florida for some of its imperiled species. Like all state parks that have nesting marine turtles, Cape Florida participates in the Statewide Nesting Beach Survey conducted by the FFWCC. Because the park's beach has concessions and is heavily used by visitors, marine turtle nests are clearly marked and circled with flagging. All located nests are additionally screened or caged for protection against raccoons.

Of note here is the potential of Cape Florida for hosting another imperiled species, the Miami blue butterfly (*Cyclargus thomasi bethunebakeri*). This butterfly is a formerly common Florida endemic that primarily occurred in South Florida coastal areas. It was documented on Key Biscayne (though not specifically in Cape Florida) until 1980 and was possibly recorded in 1990. In the last 30 years the Miami blue has all but disappeared from the state and it was listed as endangered by the FFWCC in 2003 and by the USFWS in April 2012. In March 2010, a memorandum of understanding (FWC Contract No. 09164) was executed between the FFWCC and DRP to allow Cape Florida to be used as a Miami blue release site for research purposes. At the time of this plan, no releases have yet occurred, but the memorandum is still in effect.

Table 2 contains a list of all known imperiled species within the park and identifies their status as defined by various entities. It also identifies the types of management actions that are currently being taken by DRP staff or others, and identifies the current level of monitoring effort. The codes used under the column headings for management actions

and monitoring level are defined following the table. Explanations for federal and state status as well as FNAI global and state rank are provided in Addendum 6.

Table 2: Imperiled Species Inventory						
Common and *Scientific* Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWCC	**USFWS**	**FDACS**	**FNAI**		
PLANTS						
Sea lavender *Argusia gnaphalodes*			LE	G4, S3	2, 10	Tier 1
Locustberry (cult.) *Byrsonima lucida*			LT	G4G5, S3	2	Tier 1
Silver palm (cult.?) *Coccothrinax argentata*			LT	G4, S3	2	Tier 1
Maidenberry; Rhacoma *Crossopetalum rhacoma*			LT	G5, S3	2	Tier 1
Florida flatsedge *Cyperus floridanus*			LE	G3, S1	2, 7?	Tier 1
Beach jacquemontia; Beach clustervine *Jacquemontia reclinata*		LE	LE	G1, S1	2, 10	Tier 4
Atlantic Coast Florida lantana *Lantana depressa var. floridana*			LE	G2T1, S1	2, 10	Tier 1
Simpson's stopper (cult.) *Myrcianthes fragrans*			LT		2	Tier 1
Burrowing four-o'clock *Okenia hypogaea*			LE	G3?, S2	2, 10	Tier 1
Shell-mound pricklypear *Opuntia keyense (O. stricta)*			LT		2, 10	Tier 1
Keys' blackbead *Pithecellobium keyense*			LT		2	Tier 1
Beachstar *Remirea maritima (Cyperus pedunculatus)*			LE	G3?, S2	2, 10	Tier 1
Inkberry *Scaevola plumieri*			LT		2, 10	Tier 1
Chapman's sensitive plant (cult.) *Senna mexicana*			LT		2	Tier 1
Biscayne prickly ash *Zanthoxylum coriaceum*			LE	G4?, S1	2	Tier 4
INVERTEBRATES						

Table 2: Imperiled Species Inventory						
Common and *Scientific* Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWCC	**USFWS**	**FDACS**	**FNAI**		
Cuban crescent *Anthanassa frisia*				G5, S1		Tier 2
Statira *Aphrissa statira*				G5, S2S3		Tier 2
Florida white *Appias drusilla*				G5, S2S3		Tier 2
Atala *Eumaeus atala*				G4, S2		Tier 2
Tropical buckeye *Junonia genoveva*				G5, S1		Tier 2
Malachite *Siproeta stelenes*				G5, S2S3		Tier 2
Martial scrub-hairstreak *Strymon martialis*				G4G5, S2S3		Tier 2
Large grooved brain coral *Colpophyllia natans*				G3G4, S2		Tier 1
Knobby brain coral *Diploria clivosa*				G4G5, S2		Tier 1
Massive starlet coral *Siderastrea siderea*				G4, S2		Tier 1
REPTILES						
Loggerhead *Caretta caretta*	LT	LT		G3,S3	10	Tier 5
Green turtle *Chelonia mydas*	LE	LE		G3, S2	10	Tier 5
American crocodile *Crocodylus acutus*	LE	LT		G2, S2		Tier 1
Leatherback *Dermochelys coriacea*	LE	LE		G2, S2	10	Tier 5
BIRDS						
Limpkin *Aramus guarauna*	LS			G5, S3		Tier 1
Great white heron *Ardea herodias occidentalis*				G5T2, S2		Tier 1
Florida burrowing owl *Athene cunicularia floridana*	LS			G4T3, S3		Tier 1
Short-tailed hawk *Buteo brachyurus*				G4G5, S1		Tier 1

Table 2: Imperiled Species Inventory						
Common and *Scientific* Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWCC	**USFWS**	**FDACS**	**FNAI**		
Piping plover *Charadrius melodus*	LT	LT		G3, S2		Tier 1
Wilson's plover *Charadrius wilsonia*				G5, S2		Tier 1
Little blue heron *Egretta caerulea*	LS			G5, S4		Tier 1
Reddish egret *Egretta rufescens*	LS			G4, S2		Tier 1
Snowy egret *Egretta thula*	LS			G5, S3		Tier 1
Tricolored heron *Egretta tricolor*	LS			G5, S4		Tier 1
Swallow-tailed kite *Elanoides forficatus*				G5, S2		Tier 1
White ibis *Eudocimus albus*	LS			G5, S4		Tier 1
Merlin *Falco columbarius*				G5, S2		Tier 1
Peregrine falcon *Falco peregrinus*	LE			G4, S2		Tier 1
Magnificent frigatebird *Fregata magnificens*				G5, S1		Tier 1
Worm-eating Warbler *Helmitheros vermivorus*				G5, S1		Tier 2
White-crowned pigeon *Patagioenas leucocephala*	LT			G3, S3		Tier 1
Brown pelican *Pelecanus occidentalis*	LS			G4, S3		Tier 1
American avocet *Recurvirostra americana*				G5, S2		Tier 1
Black skimmer *Rhynchops niger*	LS			G5, S3		Tier 1
Louisiana waterthrush *Seiurus motacilla*				G5, S2		Tier 2
American redstart *Setophaga ruticilla*				G5, S2		Tier 2
Least tern *Sterna antillarum*	LT			G4, S3		Tier 1

Table 2: Imperiled Species Inventory						
Common and *Scientific* Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWCC	**USFWS**	**FDACS**	**FNAI**		
Gull-billed tern *Sterna nilotica*				G5, S2		Tier 1
Sandwich tern *Sterna sandvicensis*				G5, S2		Tier 1
MAMMALS						
Florida manatee *Trichechus manatus latirostris*	LE	LE		G2, S2	13?	Tier 1

Management Actions:

1 Prescribed Fire
2 Exotic Plant Removal
3 Population Translocation/Augmentation/Restocking
4 Hydrological Maintenance/Restoration
5 Nest Boxes/Artificial Cavities
6 Hardwood Removal
7 Mechanical Treatment
8 Predator Control
9 Erosion Control
10 Protection from visitor impacts (establish buffers)/law enforcement
11 Decoys (shorebirds)
12 Vegetation planting
13 Outreach and Education

Other Monitoring Level:

Tier 1. Non-Targeted Observation/Documentation: includes documentation of species presence through casual/passive observation during routine park activities (i.e., not conducting species-specific searches). Documentation may be in the form of *Wildlife Observation Forms*, or other district specific methods used to communicate observations.

Tier 2. Targeted Presence/Absence: includes monitoring methods/activities that are specifically intended to document presence/absence of a particular species or suite of species.

Tier 3. Population Estimate/Index: an approximation of the true population size or population index based on a widely accepted method of sampling.

Tier 4. Population Census: A complete count of an entire population with demographic analysis, including mortality, reproduction, emigration, and immigration.

Tier 5. Other: may include habitat assessments for a particular species or suite of species or any other specific methods used as indicators to gather information about a particular species.

Detailed management goals, objectives and actions for imperiled species in this park are discussed in the Resource Management Program section of this component and the Implementation Component of this plan.

Exotic Species

Exotic species are plants or animals not native to Florida. Invasive exotic species are able to out-compete, displace or destroy native species and their habitats, often because they have been released from the natural controls of their native range, such as diseases, predatory insects, etc. If left unchecked, invasive exotic plants and animals alter the character, productivity and conservation values of the natural areas they invade.

In the time since Hurricane Andrew struck the park in 1992, Cape Florida has gone from more than 90 percent exotic plant coverage to less than seven percent. Australian pine trees once dominated the park, but now this species is rarely seen, with new trees only occasionally sprouting in tidal wrack lines. Numerous other non-native plant species continue to occur in the park, however, and new ones occasionally appear. From 1994 to the present, over 120 exotic plant species have been recorded for Cape Florida. Thirty of those presently found at the park are Category I or II invasive exotics. Most of the invasives occur as thinly scattered plants or clumps throughout the park. Some, such as Santa Maria (*Calophyllum antillanum*), carrotwood, and guava (*Psidium guajava*), are only sporadically found as new saplings. Four invasive species, on the other hand, are currently a serious threat to the park: Brazilian pepper, day jessamine, lather leaf and beach naupaka. All four are large, fast-growing woody plants and three are prolific seeders. Five other invasive species are less serious but are a persistent problem: castor bean (*Ricinus communis*), creeping oxeye (*Sphagneticola trilobata)*, bowstring hemp (*Sansevieria hyacinthoides*), air-potato (*Dioscorea bulbifera)* and Senegal date palm (*Phoenix reclinata*). These species are less widespread but are difficult to eradicate.

Exotic plant control efforts at Cape Florida are continual, but the degree of effort varies with available labor resources. Few park staff can regularly devote time to exotic plant removal. Volunteers are used when possible, but their limited number, skills and training restricts their usefulness. Contract labor has been used in the past but is expensive. Despite this, over 250 acres of exotic plants have been treated between 2001 and 2009, and by July 2010, 59 percent of the park's acreage was in maintenance condition. Monitoring exotic plant infestations in the past has been informal but is now done systematically every year through DRP's Invasive Exotic Plant Database.

Control is also done for one native plant at Cape Florida. Gray nicker (*Caesalpinia bonduc*) is a spiny woody vine that can become invasive under certain conditions, rapidly covering large areas and smothering vegetation. Due to past site disturbances, this plant is a problem in several areas of the park and so it is cut back or removed as circumstances allow.

Table 3 contains a list of the Florida Exotic Pest Plant Council (FLEPPC) Category I and II invasive, exotic plant species found within the park (FLEPPC 2011). The table also identifies relative distribution for each species and the management zones in which they are known to occur. An explanation of the codes is provided following the table. For an inventory of all exotic species found within the park, see Addendum 5.

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species

Common and *Scientific* Name	**FLEPPC Category**	**Distribution**	**Management Zone (s)**
PLANTS			
Santa Maria *Calophyllum antillarum*	I	0	BBC-06, BBC-11, BBC-20
Australian pine *Casuarina equisetifolia*	I	0	BBC-04, BBC-05, BBC-06, BBC-11, BBC-20
		1	BBC-03, BBC-13, BBC-16
Lather leaf *Colubrina asiatica*	I	1	BBC-7, BBC-20
		2	BBC-03, BBC-04, BBC-5, BBC-06, BBC-11, BBC-12, BBC-14, BBC-17
Carrotwood *Cupaniopsis anacardioides*	I	0	BBC-03, BBC-04, BBC-12
		1	BBC-07
		2	BBC-17
Air-potato *Dioscorea bulbifera*	I	1	BBC-01
Surinam cherry *Eugenia uniflora*	I	1	BBC-05
		2	BBC-03, BBC-04, BBC-17
Natal grass *Melinus repens* (*Rhynchelytrum repens*)	I	2	BBC-05, BBC-06, BBC-11, BBC-20
Asian sword fern *Nephrolepis brownii* (*N. multiflora*)	I	2	BBC-07
Burma reed *Neyraudia reynaudiana*	I	2	BBC-01, BBC-02, BBC-04, BBC-06, BBC-08, BBC-09. BBC-14, BBC-16

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and *Scientific* Name	**FLEPPC Category**	**Distribution**	**Management Zone (s)**
		3	BBC-07
Torpedograss *Panicum repens*	I	2	BBC-02
Wart fern *Phymatosorus scolopendria*	I	1	BBC-11
Guava *Psidium guajava*	I	0	BBC-06, BBC-10
Beach naupaka *Scaevola taccada* (*S. sericea*)	I	0	BBC-12, BBC-13
		2	BBC-03, BBC-05, BBC-11, BBC-014, BBC-16, BBC-20
		3	BBC-06
Schefflera *Schefflera actinophylla*	I	0	BBC-05, BBC-17
		2	BBC-03, BBC-04
Brazilian Pepper *Schinus terebinthifolius*	I	2	BBC-01, BBC-02, BBC-03, BBC-04, BBC-05, BBC-06, BBC-07, BBC-08, BBC-09, BBC-10, BBC-11, BBC-12, BBC-14, BBC-17, BBC-20
Seaside Mahoe *Thespesia populnea*	I	1	BBC-12, BBC-16, BBC-17
Sisal hemp (cult.) *Agave sisalana*	II	2	BBC-12
Day jessamine; Day-blooming jasmine *Cestrum diurnum*	II	1	BBC-16
		2	BBC-01, BBC-02, BBC-03, BBC-04, BBC-05, BBC-06, BBC-07, BBC-08, BBC-09, BBC-10, BBC-11, BBC-12, BBC-14, BBC-17, BBC-19, BBC-20
Coconut palm *Cocos nucifera*	II	1	BBC-04
		2	BBC-05, BBC-06, BBC-07, BBC-08. BBC-09, BBC-11, BBC-12, BBC-13, BBC-17,
Durban crowfootgrass *Dactyloctenium aegyptium*	II	2	BBC-02, BBC-10, BBC-13
Life plant *Kalanchoe pinnata*	II	1	BBC-09
		2	BBC-01, BBC-17
Senegal date palm *Phoenix reclinata*	II	1	BBC-05, BBC-16
		2	BBC-03, BBC-04, BBC-11, BBC-12, BBC-14, BBC-17

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and *Scientific* Name	**FLEPPC Category**	**Distribution**	**Management Zone (s)**
Chinese brake fern *Pteris vittata*	II	1	BBC-03
		2	BBC-09
Castor bean *Ricinus communis*	II	2	BBC-01, BBC-07, BBC-08, BBC-09, BBC-12
Green shrimp plant *Ruellia blechum* (*Blechum pyramidatum*	II	2	BBC-07, BBC-14
Bowstring hemp *Sansevieria hyacinthoides*	II	2	BBC-01, BBC-03, BBC-09, BBC-17
Creeping oxeye; Wedelia *Sphagneticola trilobata*	II	1	BBC-10
		2	BBC-05, BBC-08, BBC-12, BBC-13, BBC-19
		3	BBC-07, BBC-09
Oyster Plant *Tradescantia spathacea*	II	2	BBC-01, BBC-03, BBC-04, BBC-17
Puncture vine *Tribulus cistoides*	II	2	BBC-07, BBC-10, BBC-11, BBC-19
Washington fan palm *Washingtonia robusta*	II	0	BBC-03
		1	BBC-09

Distribution Categories:

0 No current infestation: All known sites have been treated and no plants are currently evident.

1 Single plant or clump: One individual plant or one small clump of a single species.

2 Scattered plants or clumps: Multiple individual plants or small clumps of a single species scattered within the gross area infested.

3 Scattered dense patches: Dense patches of a single species scattered within the gross area infested.

4 Dominant cover: Multiple plants or clumps of a single species that occupy a majority of the gross area infested.

5 Dense monoculture: Generally, a dense stand of a single dominant species that not only occupies more than a majority of the gross area infested, but also covers/excludes other plants.

6 Linearly scattered: Plants or clumps of a single species generally scattered along a linear feature, such as a road, trail, property line, ditch, ridge, slough, etc. within the gross area infested.

Exotic animal species include non-native wildlife species, free ranging domesticated pets or livestock and feral animals. Because of the negative impacts to natural systems attributed to exotic animals, DRP actively removes exotic animals from state parks, with priority being given to those species causing the ecological damage.

In some cases, native wildlife may also pose management problems or nuisances within state parks. A nuisance animal is an individual native animal whose presence or activities create special management problems. Examples of animal species from which nuisance cases may arise include raccoons, gray squirrels, venomous snakes and alligators. Nuisance animals are dealt with on a case-by-case basis.

Since 1994, there have been over 40 non-native animal species recorded within Bill Baggs Cape Florida State Park. Some of these species were found as occasional specimens [Russian tortoise (*Testudo horsfieldii*), boa (*Boa constrictor*), cockatiel (*Nymphicus hollandicus*), domestic rabbit (*Oryctolagus cuniculus*)] and were the result of pets being left in the park or escaping their owners. These animals were captured when possible and removed from the park. Those that could not be caught were usually not seen to stay long in the park; they either flew away or failed to survive and were not a management problem. Many more of Cape Florida's documented exotic animals are species that are the result of the park being within a subtropical urban environment with major commercial ports of entry. Numerous non-native animals have been accidentally or deliberately introduced into the region and have subsequently thrived.

At Cape Florida, the established exotic species include invertebrates (insects, snails, spiders), reptiles and amphibians [tropical house gecko (*Hemidactylus mabouia*), greenhouse frog (*Eleutherodactylus planirostris*)], and pan-tropical pest species [black rat (*Rattus rattus*)]. Due to their pervasiveness, number and/or small size, most of these species cannot be practically managed; environmentally safe and effective control techniques that can be used park-wide do not currently exist for them. Even if Cape Florida could be rid of any of these particular exotics, more would soon recolonize from nearby developed areas. Only the two largest non-native lizards appear to be controllable at this time: green iguana (*Iguana iguana*) and black spiny-tailed iguana (*Ctenosaura similis*). Since 2001, various successful techniques have been developed and used at Cape Florida to capture and remove these two species. A third exotic species, Cuban treefrog (*Osteopilus septentrionalis*), is now being considered for management. Recent studies have shown this amphibian to have serious negative impacts on various native animal species, and relatively simple techniques can be used to capture and control it.

Since 2001, there has been a consistent effort to remove non-native animals from Cape Florida. Select staff members and/or volunteers usually spend several hours each week capturing green and spiny-tailed iguanas. Other exotic species are removed opportunistically when they are encountered and able to be caught. Since the park's last

management plan, over 2,400 individual animals of 25 non-native species have been removed; 94 percent of these have been green (2,128) and black spiny-tailed (136) iguanas.

The only native animal that is a nuisance species at Cape Florida is the raccoon (*Procyon lotor*). This animal has no natural predators at the park, and in the past easy access to garbage (including restaurant waste) and visitor handouts led to an unnaturally high raccoon population. This in turn led to raccoons routinely harassing visitors for food and creating a safety hazard from animal contact and food contamination. In recent years, access to garbage by raccoons has been greatly curtailed by using trash compactors instead of dumpsters and by emptying garbage cans at the end of each day. However, the issue of visitors feeding wildlife has been harder to control. Periodically, raccoons that have learned to approach people to beg or to steal food must be removed from the park.

Detailed management goals, objectives and actions for management of invasive exotic plants and exotic and nuisance animals are discussed in the Resource Management Program section of this component.

Special Natural Features

Cape Florida State Park has one of the few natural "non-groomed" beaches left along a highly developed coastline. The beach is additionally backed by one of the rare examples of coastal grassland along Florida's southeast coast. As a result, these two communities harbor several imperiled plant species and a number of plant and animal species seldom seen elsewhere in the region.

The park is also literally an island of native terrestrial habitats surrounded by development and as such is an important refuge for native plant and animal species. Being on the southern end of a barrier island, Cape Florida is a critical stopover for migratory birds and forms part of the Biscayne Bay Important Bird Area, as designated by Audubon of Florida.

Cultural Resources

This section addresses the cultural resources present in the park that may include archaeological sites, historic buildings and structures, cultural landscapes and collections. The Florida Department of State (FDOS) maintains the master inventory of such resources through the Florida Master Site File (FMSF). State law requires that all state agencies locate, inventory and evaluate cultural resources that appear to be eligible for listing in the National Register of Historic Places. Addendum 7 contains the FDOS, Division of Historical Resources (DHR) management procedures for archaeological and historical sites and properties on state-owned or controlled properties; the criteria used for evaluating eligibility for listing in the National Register of Historic Places, and the Secretary of Interior's definitions for the various preservation treatments (restoration,

rehabilitation, stabilization and preservation). For the purposes of this plan, significant archaeological site, significant structure and significant landscape means those cultural resources listed or eligible for listing in the National Register of Historic Places. The terms archaeological site, historic structure or historic landscape refer to all resources that will become 50 years old during the term of this plan.

Condition Assessment

Evaluating the condition of cultural resources is accomplished using a three-part evaluation scale, expressed as good, fair and poor. These terms describe the present condition, rather than comparing what exists to the ideal condition. 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 assessment is usually a cause for concern. Poor describes 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 is needed to reestablish physical stability.

Level of Significance

Applying the criteria for listing in the National Register of Historic Places involves the use of contexts as well as an evaluation of integrity of the site. A cultural resource's significance derives from its historical, architectural, ethnographic or archaeological context. Evaluation of cultural resources will result in a designation of NRL (National Register or National Landmark Listed or located in an NR district), NR (National Register eligible), NE (not evaluated) or NS (not significant) as indicated in the table at the end of this section.

There are no criteria for use in determining the significance of collections or archival material. Usually, significance of a collection is based on what or whom it may represent. For instance, a collection of furniture from a single family and a particular era in connection with a significant historic site would be considered highly significant. In the same way, a high quality collection of artifacts from a significant archaeological site would be of important significance. A large herbarium collected from a specific park over many decades could be valuable to resource management efforts. Archival records are most significant as a research source. Any records depicting critical events in the park's history, including construction and resource management efforts, would all be significant.

Prehistoric and Historic Archaeological Sites

Desired future condition: All significant archaeological sites within the park that represent Florida's cultural periods or significant historic events or persons are

preserved in good condition in perpetuity, protected from physical threats and interpreted to the public.

Description: Key Biscayne, of which Bill Baggs Cape Florida State Park makes up a significant portion, has an extensive history of both aboriginal and European/American use. Accordingly, there are currently thirteen archaeological sites within the park that are listed in the FMSF**.** Seven are prehistoric sites, of which four can be dated to the Glades period (1000 B.C. – A.D. 1700); four represent American history of the 19th century, and two date from the mid-20th century.

The first two archaeological sites listed for the park, Cape Florida (8DA00003) and Biscayne Key Mound (8DA00004), are situated at the southern end of the park. Briefly mentioned in a journal article in 1944 by John Goggin (Tequesta 4:13-35), the sites are not precisely located.

Cape Florida (8DA00003) is listed as a midden and was presumed by Goggin to be an Indian settlement site. Goggin also thought that the site had been largely lost to beach erosion. In 1994, Robert Carr reported that pottery shards collected in the 1960s and 1980s in the general vicinity of the lighthouse dated to the Glades III period (A.D. 1200 – A.D. 1750). They also suggested that the prehistoric site had not been completely washed away.

Biscayne Key Mound (8DA00004) is a "sand burial mound" reported by Goggin to be a short distance north of the lighthouse. Goggin never actually saw the mound and later investigations failed to locate it, as well. It is currently unknown whether this site is still existent or whether it has been destroyed by beach erosion.

The park's third prehistoric site, Cape Florida Midden (8DA02143), is a black dirt and shell midden that was located by archaeologist Robert Carr in 1984. It is situated at the southern end of the park, within the generalized location of site 8DA0003, in an area not covered by fill. Pottery found during further investigations in 1994 indicates that this site dates from the Glades III period.

Pines Canal Site (8DA05255) was also found during Carr's 1984 survey and was later investigated in 1994. Situated at the northern end of the park, this site is partially cut by Pines Canal, and the remaining portion is covered by fill. Shell and faunal remains suggest that this site is a prehistoric extractive/resource procurement station.

The next two prehistoric sites, No Name Harbor I (8DA06446) and No Name Harbor II (8DA06447), were discovered in 1996 during archaeological monitoring of excavations conducted for Cape Florida's tidal wetlands restoration. They are located in the northwestern section of the park, where a berm once existed among mangroves. The first of these two sites, No Name Harbor I, is thought to be a prehistoric habitation area

and a prehistoric gravesite. The second site, No Name Harbor II, is a midden that is thought to indicate a campsite or a food procurement area. Through radiocarbon testing of shell remains, these sites have been dated to the Glades II-Glades III periods (A.D. 750 – A.D. 1750). These sites represent the oldest prehistoric sites recorded for Key Biscayne (Zamanillo 1997).

The final prehistoric site found thus far at Cape Florida, No Name Harbor III (8DA06448), was recorded in 1998. Discovered during archaeological monitoring of trench work for utility lines, this site is east and south of No Name Harbor. This site, reported as a midden, is also assumed to be a campsite or food procurement area.

The next four archaeological sites listed for Cape Florida represent American history of the 19th century.

The first of these sites, Fort Bankhead (8DA00409), was recorded by Carr in 1971. This site name was based upon Seminole War Period artifacts found near the Cape Florida lighthouse, a known location of military encampments in the 19th century. Later investigations during 1983-1984 recovered more military artifacts attributable to the Second Seminole War but uncovered no feature or structure built during that war. This site designation subsequently was not used by Carr when it was determined that Cape Florida Midden (8DA02143) and Lightkeeper's House and Foundations (8DA03296) encompassed it.

The site called Lightkeeper's House and Foundations (8DA03296) was discovered by Carr during his 1983-1984 survey and investigations. The site contains the buried brick and limestone foundations of a rectangular building that is believed to be the first dwelling built for the lighthouse keepers in 1825. The full extent of this site has not been determined but the known features are located on the west side of the replica keeper's dwelling. The site probably extends below the replica house, kitchen and cistern.

The 1855 U.S. Coast Survey Key Biscayne Base (8DA06764) site consists of five granite survey monuments of a baseline established on Key Biscayne in 1855. This survey baseline, along with a Cape Sable baseline, was used as the foundation for creating the first truly accurate maps of the coastline and reefs of the Florida Keys (Ricisak and Riggs 2000). Two of the monuments are within Cape Florida State Park. One is an intact "milepost" located in the middle of the park, just southwest of the parking lot in Picnic Area A. Found by J. Ricisak and T. L. Riggs in 2000, it consists of a two-and-a-half foot long granite monument buried under almost five feet of fill material. The second monument is a portion of the "South Base." Most of this monument's components rest underwater a few hundred feet southeast of the park, the result of erosion of the island's tip. However, in 1988, the obelisk-shaped capstone was retrieved and placed on land near the Cape Florida lighthouse (Conner 1989).

The last 19th century site at the park is Cape House (8DA11738). This site is the former location of a winter home constructed near the southern tip of Key Biscayne in the 1890s by Waters Davis. Ralph M. Munroe who built and owned The Barnacle (a historic house now within The Barnacle Historic State Park) assisted in the design and construction of the Cape House. The house and its land were later owned by industrialist James Deering who built Villa Vizcaya. The house eventually fell into disuse and it burned down in 1957 (Blank 1996, p. 170). Though no artifacts or structures are known to have been recorded for this site, its location, just inside the southern seawall of the park, is known from 1926 and 1952 aerial photography.

The last two archaeological sites for Cape Florida State Park are from the 20th century, and both are survey monuments located near the lighthouse. The first, Cape Florida DCBE-28 Survey Monument (8DA11737), is a bronze disk set into the top of the seawall, approximately 100 feet southwest of the lighthouse. It was placed in 1967 by the U.S. Corps of Engineers as a benchmark for coastal surveying (NOAA NGS 2002). The second monument, Cape Florida X-313 Survey Monument (8DA11736), is a bronze disk set into the top of a concrete-filled iron pipe, about 21 feet northwest of the replica lighthouse keeper's kitchen and slightly below grade. Also a benchmark, this monument was placed in 1970 by the U.S. Coast and Geodetic Survey (NOAA NGS 2002) on top of an older monument, Cape Florida Bench Mark No. 4, that was established in 1908 (unpublished report, T.L. Riggs 2002). At the time of this plan, neither of these sites has been evaluated for historical significance.

Condition Assessment: The archaeological sites at Cape Florida vary in condition from good to fair. Ten are in good condition (see Table 3), primarily because they are not currently subject to erosion nor are currently threatened by human activities such as excavation or looting. Some of these sites are buried beneath fill (e.g., No Name Harbor III, Cape House) and others are of durable material (the granite and bronze survey monuments).

Three of the sites are considered to be in fair condition, primarily due to erosion, even though they cannot be visibly assessed. The Pines Canal site, whose exact location is not presently known, has one side exposed by the canal, and minor deterioration may be occurring there. The No Name Harbor I and II sites are below water within the restored tidal wetlands and are not accessible due to mangrove vegetation. These two sites are subject to tidal flow and could possibly be eroding.

Level of Significance: Of the 13 recorded archaeological sites at the park, ten are considered potentially eligible for the National Register of Historic Places under Criterion D: Information potential. The eight prehistoric sites: Cape Florida (8DA00003), Biscayne Key Mound (8DA00004), Fort Bankhead (8DA00409), Cape Florida Midden (8DA02143), Pines Canal Site (8DA05255), No Name Harbor I (8DA06446), No Name Harbor II (8DA06447) and No Name Harbor III (8DA06448) are considered significant

for their potential to provide insight as to prehistoric lifeways on Key Biscayne. The Lightkeeper's House and Foundation (8DA03296), which encompasses building remains formerly identified as Fort Bankhead (8DA00409), is considered significant as the probable site of the first Cape Florida lightkeeper's house built in 1825 and destroyed by fire during a Seminole attack in 1836. The significance of the 1855 U.S. Coast Survey Key Biscayne Base (8DA06764) is that 1855 United States Coast Survey served as the basis for mapping the Florida Keys and coastline. The 1970 U.S. Coast and Geodetic Survey Marker/1908 Cape Florida Bench Mark No. 4 (8DA11736), the 1967 Corps of Engineers Survey Marker (8DA11737) and the Cape House (8DA11738) have not been evaluated for significance.

General management measures: Preservation to the extent possible is the treatment being applied to all archaeological sites at Cape Florida. Preservation includes protection from damage from resource management, natural causes, construction or human damage including looting. Of the three sites considered to be in fair condition, little can practically be done for the No Name Harbor I and II sites. Since the condition of the Pines Canal site is speculative, the site needs to be located and its actual condition needs to be assessed.

Historic Structures

Desired future condition: All significant historic structures and landscapes that represent Florida's cultural periods or significant historic events or persons are preserved in good condition in perpetuity, protected from physical threats and interpreted to the public.

Description: Seven historic structures within Bill Baggs Cape Florida State Park are currently recorded in the FMSF. The Cape Florida Lighthouse (8DA00153) and the park's Seawall (8DA11789) are both greater than 50 years of age. The remaining five structures are park buildings that will become 50 years old during this plan period.

The original Cape Florida Lighthouse (8DA00153) was built in 1825 to mark the northern end of the Florida reefs. It was one of the first commissioned by Congress after Florida's annexation as a territory of the United States in 1821 (Bender 1989). This tower was substantially damaged during a Seminole Indian attack in 1836, and the present tower was constructed in 1846. It was increased in height in 1855 to its current 95 feet. The Cape Florida light was decommissioned in 1878, and the lighthouse subsequently fell into neglect and disrepair for the next 80 years. In 1966, the lighthouse was purchased by the State of Florida as part of the Cape Florida property. Major repairs were done to the tower, and in 1978, the Cape Florida Lighthouse was re-lit for use as a navigational aid. In 1995, a substantial restoration of the lighthouse structure was done, to bring it to the historic period of 1855.

At this time, the Cape Florida Lighthouse is one of the oldest standing structures in South Florida (Bender 1989). It is on the National Register of Historic Places.

The Seawall (8DA11789) at Cape Florida stretches southwest from the lighthouse, around the southern tip of the island, and up the western shoreline to Pines Canal. It was constructed in 1949/1950 and hydraulic fill was pumped behind it in order to protect and elevate the Cape Florida site for proposed development (Blank 1996). Since its initial construction, large portions of the seawall have failed and been repaired and/or replaced. Major repairs were last done in 1996.

Five park structures will become 50 years of age or more during this plan period and consequently have been assigned FMSF numbers. These structures are the park Administration Office, two restroom buildings (Comfort Station 1 and Comfort Station 2), the replica Lighthouse Keeper's Cottage, and the replica lighthouse keeper's Kitchen. The Administration Office (8DA11760; property item #BL011016) was built in 1968 as a maintenance shop building. It was modified in the 1970s to be an office. The park's two oldest restroom buildings Comfort Station 1 (8DA11762; property item #BL011017) and Comfort Station 2 (8DA11761; property item #BL011019) were also built in 1968.

The replica Lighthouse Keeper's Cottage with its cistern (8DA11766; property item #BL011084) and the replica Kitchen (8DA11767; property item #BL011085) were built in 1970. They are intended to act as a museum where park visitors can see a representation of the lighthouse keepers' life and are furnished with period furniture and antique items. However, these structures are not true copies (in design or construction) of the two Cape Florida lighthouse keeper dwellings that were built in 1825 and 1846. These buildings are also not operational as replicas of 19th century-type structures, e.g., the fireplaces, chimneys, and cistern are not functional.

Condition Assessment: The Cape Florida Lighthouse is currently in good condition. The structure was substantially restored in 1995/1996 as a joint project of DRP and the Dade Heritage Trust, at a cost of $1,000,000. Restoration work included repair of the brick masonry and recoating of the interior and exterior walls with historically accurate lime plaster; replacement of the wrought-iron windows and cast-iron staircase; and complete replacement of the watchroom /lens room section. The walls, both interior and exterior, have been recoated twice since the restoration, with the most recent treatment occurring in 2008/2009. The metalwork was also cleaned and repainted in 2008.

The Seawall is in fair condition. It has sustained damage not only due to boat wakes, routine wave-action and tidal currents but also due to storm-generated waves, most recently during Hurricane Wilma in 2005. Notably, some sections of the seawall are rotating outward or are being undermined, the concrete in many areas is cracked

and/or spalling, and the metal reinforcement is often exposed and rusting (Coastal Systems International 2008).

The Administration Office, the Lighthouse Keeper's Cottage and the Kitchen are currently in good condition. The two Comfort Stations are in fair condition due to aging and poorly maintained plumbing, electrical wiring and fixtures.

Level of Significance: Only one of the seven recorded historic structures in the park is considered significant under National Register of Historic Places' criteria. The Cape Florida Lighthouse (8DA00153) is listed on the National Register as an important component in a series of navigational aids along the eastern coast of the United States and is considered significant in the areas of navigation, transportation, commerce, engineering and architecture.

The Lighthouse Keeper's Cottage (8DA11766) and Kitchen (8DA11767) are modern buildings designed for interpretive purposes to resemble similar types of structures at other lighthouses and are not reconstructed buildings based on original plans or archaeological evidence. Therefore, neither of these structures is considered significant, as they have no historical relationship to the Cape Florida Lighthouse (8DA00153). Although the Seawall (8DA11789) is over 50 years of age, it is not considered significant due to alterations by both natural forces and man-made construction that have resulted in the loss of integrity in terms of original materials and design. The Administrative Office (8DA11760) was once a standard park shop building and has lost its original design integrity through a series of exterior alterations designed to make the building function more effectively as an office building. The building is not considered significant by National Register standards due to the alterations. Comfort Station 1 (8DA11792) and Comfort Station 2 (8DA11761) are standard concrete public restroom facilities and not considered potentially eligible for the National Register due to their lack of distinction in terms of individual design and association with other park structures.

General management measures: The Cape Florida Lighthouse is in its desired future condition. The only identifiable threat to the lighthouse at this time is weathering, either normal or storm-related. In order to maintain the lighthouse in good condition, the interior and exterior walls need to be periodically whitewashed and the parge coating repaired as needed. The metalwork needs to be regularly spot-treated for rust, and larger worn areas need to be stripped and repainted as they occur. Ideally, a plan for the routine monitoring and maintenance of the Cape Florida Lighthouse should be devised and implemented.

Collections

Desired future condition: All historic, natural history and archaeological objects within the park that represent Florida's cultural periods, significant historic events or persons,

or natural history specimens are preserved in good condition in perpetuity, protected from physical threats and interpreted to the public.

Description: There are three collections of cultural objects at Cape Florida.
The first collection consists of a variety of items that furnish the replica lighthouse keeper's dwelling and kitchen. Most of these objects are antiques and were obtained from several sources. They include 19 items on loan from the Museum of Florida History in Tallahassee (chairs, rugs, trunks and a bed), 10 items purchased by DRP (two beds, a cabinet and a desk), donations (books, an Abaco Bahamas dinghy), and a set of smaller, uninventoried objects of unknown origin (a picture frame, a mirror and brush set and an oil lamp). The collection also includes some contemporary items, such as crab traps and rocking chairs.

The second park collection consists of an informal assemblage of metal parts from the Cape Florida Lighthouse. These parts were discarded during the 1995 restoration of the lighthouse and were put on open-air display at the entrance to the lighthouse grounds in 2009. They include cast iron pieces that date from 1855 (such as the structural supports to the watchroom floor) and steel pieces that date from the 1967 restoration of the lighthouse (the lens room, dome and ventilator).

The third collection of cultural objects at Cape Florida is made up of archival material at the park's administrative office. This material consists of documents (some original, some copies), photographs and slides pertaining to the park's development and history and its cultural and natural resources. This material occupies approximately six cubic feet.

Condition Assessment: The collection of furnishings at the replica lighthouse keeper's dwelling is in fair to good condition. Many of the antique items were originally received in worn condition and remain so. However, some objects have suffered slight to noticeable damage from insects or rodents since their acquisition, and some metal items have light rust. Two objects on loan are broken (a chair and a lamp) from unknown causes. Additionally, a few of the smaller purchased items have gone missing over the years. Since the last park management plan, the dwelling has had slight alterations for better rodent exclusion and has been treated for wood-damaging insects once. There is a climate control system for both the dwelling and kitchen but it is used primarily for visitor comfort.

The collection of metal lighthouse parts is in good condition. The parts were put on display relatively recently and have been treated and painted to prevent rust.

Cape Florida's archival collection is generally in good condition but could benefit from better storage options. Some items such as photographs and older paper documents are worn around the edges, yellowing or fading. Some information is in outdated media

such as slides or computer diskettes. The collection is also not well defined nor well organized at this time.

Level of Significance: Criteria do not exist which help in the evaluation of the significance of collections or archival material. Usually, significance of a collection is based on what or whom it may represent. For instance, a collection of furniture from a single family and a particular era in connection with a significant historic site would be considered highly significant. In the same way, a high-quality collection of artifacts from a significant archaeological site would be of important significance. A large herbarium collected from a specific park over many decades could be valuable to resource management efforts. Archival records are most significant as a research source. Any records depicting critical events in the park's history, including construction and resource management efforts, would all be significant.

None of the items that are on display in the lighthouse keeper's dwelling and kitchen is associated with the original lighthouse or its related structures. They are intended to be representative of typical 19th century furnishings. Some of the displayed metal lighthouse parts are original, but their function serves more for interpretation and education about lighthouse construction. The park's archival collection is significant in that it documents the development of the park, the restoration of its natural and cultural resources, and the park's role within the Florida Park Service.

General management measures: At this time, there is no comprehensive catalog of objects for any of these collections, no park collections management plan and no park Scope of Collections Statement. Care of the dwelling and kitchen furnishings collection consists of periodic dusting.

Detailed management goals, objectives and actions for the management of cultural resources in this park are discussed in the Cultural Resource Management Program section of this component. Table 4 contains the name, reference number, culture or period, and brief description of all the cultural sites within the park that are listed in the Florida Master Site File. The table also summarizes each site's level of significance, existing condition and recommended management treatment. An explanation of the codes is provided following the table.

Table 4: Cultural Sites Listed in the Florida Master Site File						
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**	**Management Zone**
Cape Florida 8DA00003	Prehistoric	Archaeological Site	NR	G	P	BBC-12, BBC-13
Biscayne Key Mound 8DA00004	Prehistoric	Archaeological Site	NR	NE	P	BBC-11?
Cape Florida Lighthouse 8DA00153	19th Century (1825)	Historic Structure	NRL	G	P	BBC-12
Fort Bankhead 8DA00409	19th Century (1836-1840s)	Archaeological Site	NR	G	P	BBC-12, BBC-13
Cape Florida Midden 8DA02143	Prehistoric/ Glades III (A.D. 1000-1700)	Archaeological Site	NR	G	P	BBC-12
Lightkeeper's House and Foundations 8DA03296	19th Century (1821-1899)	Archaeological Site	NR	G	P	BBC-12
Pines Canal Site 8DA05255	Prehistoric	Archaeological Site	NR	F	P	BBC-17, BBC-18
No Name Harbor I 8DA06446	Prehistoric/ Glades IIc-Glades IIIa	Archaeological Site	NR	F	P	BBC-16
No Name Harbor II 8DA06447	Prehistoric/ Glades III	Archaeological Site	NR	F	P	BBC-16
No Name Harbor III 8DA06448	Prehistoric/ Glades (1000 B.C.-A.D. 1700)	Archaeological Site	NR	G	P	BBC-02, BBC-14, BBC-15
1855 U.S. Coast Survey Key Biscayne Base 8DA06764	19th Century (1855)	Archaeological Site	NR	G	P	BBC-06, BBC-12
1970 U.S. Coast and Geodetic Survey Marker/1908 Cape Florida Bench Mark No. 4 8DA11736	20th Century	Archaeological Site	NE	G	P	BBC-12

Table 4: Cultural Sites Listed in the Florida Master Site File						
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**	**Management Zone**
1967 Corps of Engineers Survey Marker 8DA11737	20th Century	Archaeological Site	NE	G	P	BBC-13
Cape House Site 8DA11738	19th Century	Archaeological Site	NE	G	P	BBC-12, BBC-13
Administration Office 8DA11760	20th Century	Historic Structure	NS	G	N/A	BBC-09
Comfort Station 2 8DA11761	20th Century	Historic Structure	NS	F	N/A	BBC-07
Comfort Station 1 8DA11762	20th Century	Historic Structure	NS	F	N/A	BBC-10
Lighthouse Keeper's Cottage 8DA11766	20th Century	Historic Structure	NS	G	N/A	BBC-12
Kitchen 8DA11767	20th Century	Historic Structure	NS	G	N/A	BBC-12
Seawall 8DA11789	20th Century	Historic Structure	NS	F	N/A	BBC-13, BBC-15, BBC-16

Significance:

NRL National Register listed
NR National Register eligible
NE Not evaluated
NS Not significant

Condition:

G Good
F Fair
P Poor
NA Not accessible
NE Not evaluated

Recommended Treatment:

RS Restoration
RH Rehabilitation
ST Stabilization

P Preservation
R Removal
N/A Not applicable

RESOURCE MANAGEMENT PROGRAM

Management Goals, Objectives and Actions

Measurable objectives and actions have been identified for each of DRP's management goals for Bill Baggs Cape Florida State Park. Please refer to the Implementation Schedule and Cost Estimates in the Implementation Component of this plan for a consolidated spreadsheet of the recommended actions, measures of progress, target year for completion and estimated costs to fulfill the management goals and objectives of this park.

While DRP utilizes the ten-year management plan to serve as the basic statement of policy and future direction for each park, a number of annual work plans provide more specific guidance for DRP staff to accomplish many of the resource management goals and objectives of the park. Where such detailed planning is appropriate to the character and scale of the park's natural resources, annual work plans are developed for prescribed fire management, exotic plant management and imperiled species management. Annual or longer- term work plans are developed for natural community restoration and hydrological restoration. The work plans provide DRP with crucial flexibility in its efforts to generate and implement adaptive resource management practices in the state park system.

The work plans are reviewed and updated annually. Through this process, DRP's resource management strategies are systematically evaluated to determine their effectiveness. The process and the information collected is used to refine techniques, methodologies and strategies, and ensures that each park's prescribed management actions are monitored and reported as required by Chapters 253.034 and 259.037, Florida Statutes.

The goals, objectives and actions identified in this management plan will serve as the basis for developing annual work plans for the park. Since the plan is based on conditions that exist at the time the plan is developed, the annual work plans will provide the flexibility needed to adapt to future conditions as they change during the ten-year management planning cycle. As the park's annual work plans are implemented through the ten-year cycle, it may become necessary to adjust the management plan's priority schedules and cost estimates to reflect these changing conditions.

Natural Resource Management

Hydrological Management

Goal: Protect water quality and quantity in the park, restore hydrology to the extent feasible and maintain the restored condition.

The natural hydrology of most state parks has been impaired prior to acquisition to one degree or another. Florida's native habitats are precisely adapted to natural drainage patterns and seasonal water level fluctuations, and variations in these factors frequently determine the types of natural communities that occur on a particular site. Even minor changes to natural hydrology can result in the loss of plant and animal species from a landscape. Restoring state park lands to original natural conditions often depends on returning natural hydrological processes and conditions to the park. This is done primarily by filling or plugging ditches, removing obstructions to surface water "sheet flow," installing culverts or low-water crossings on roads, and installing water control structures to manage water levels.

Cape Florida's natural habitats depend hydrologically on either rainfall or tidal flooding. Because both tidal (mangrove swamp) and freshwater (coastal interdunal swale) wetlands have been restored to the park to the extent feasible, there are no further restoration needs. There are some remnants of past mosquito ditching efforts, but the three small artificial ponds in the northern half of the park and the shallow ditch west of the lighthouse provide valuable freshwater for wildlife. The ditch additionally is within an archaeologically sensitive area that should not have any further ground disturbance.

Objective: Test water quality in tidally submerged areas.

Water quality is potentially an issue only for the tidally submerged portions of the park. The park controls its stormwater runoff, and almost all of the park's buildings and facilities are connected to the county sewer system. There exists a free pump-out station at No Name Harbor for boat wastewater. This leaves only other boat contaminants (bilge water, engine leaks) and runoff from developed areas outside the park as potential sources of water pollution. At this time, there are no visible water pollution issues affecting the park's resources, but preliminary testing could verify this situation. The water in the park's designated swimming area along the beach is sampled weekly for bacteria by the State Department of Health. The results of the Florida Healthy Beaches Program are usually good, and it is very rare that a heath advisory or warning is issued for Cape Florida.

Natural Communities Management

Goal: Restore and maintain the natural communities/habitats of the park.

As discussed above, DRP practices natural systems management. In most cases, this entails returning fire to its natural role in fire-dependent natural communities. Other methods to implement this goal include large-scale restoration projects as well as

smaller-scale natural communities improvements. Following are the natural community management objectives and actions recommended for the state park.

Prescribed Fire Management: Prescribed fire is used to mimic natural lightning-set fires, which are one of the primary natural forces that shaped Florida's ecosystem. Prescribed burning increases the abundance and health of many wildlife species. A large number of Florida's imperiled species of plants and animals are dependent on periodic fire for their continued existence. Fire-dependent natural communities gradually accumulate flammable vegetation; therefore, prescribed fire reduces wildfire hazards by reducing these wild land fuels.

All prescribed burns in the Florida state park system are conducted with authorization from the Department of Agriculture and Consumer Services, Florida Forest Service (FFS). Wildfire suppression activities in the park are coordinated with the FFS.

Cape Florida does not have any fire-dependent natural communities. Fire is naturally rare in beach dune and coastal grassland, and there is little information on natural fire frequency in coastal strand (FNAI 2010). Nevertheless, in an attempt to restore coastal strand, the park has been using prescribed fire since 2004. It is hoped that fire will assist in reducing the density of hardwood and ruderal plant species and encourage the growth of saw palmetto and graminoid species in areas designated for coastal strand restoration. Initial results show some promise in hardwood reduction. However, further prescribed burns are needed to determine the usefulness of this method.

Objective: Within ten years, have 129 acres of the park maintained within the optimum fire return interval.

The park will continue to use prescribed fire as an experimental tool to restore coastal strand to the park.

Table 5 contains a list of natural communities found within the park that have been targeted for experimentation with prescribed fire, their associated acreage and optimal fire return interval, and the annual average target for acres to be burned.

Table 5: Prescribed Fire Management

Natural Community	Acres	Optimal Fire Return Interval (Years)
Coastal Strand	129	3
Annual Target Acreage*	38-52	

*Annual Target Acreage Range is based on the fire return interval assigned to each burn zone. Each burn zone may include multiple natural communities.

The park is partitioned into management zones, and burn prescriptions are implemented on the prescribed burn cycle for each zone. The park's burn plan is updated annually because fire management is a dynamic process. To provide adaptive responses to changing conditions, fire management requires careful planning based on annual and very specific burn objectives. Each annual burn plan is developed to support and implement the broader objectives and actions outlined in this ten-year management plan.

At this time, six management zones containing coastal strand have been targeted for experimentation with prescribed fire: zones BBC-01 through BBC-04, zone BBC-07 and zone BBC-08. The zones range in size from 17 to 38 acres and total 161 acres in all. Within these zones, there are 129 acres of coastal strand. Each zone has well defined firebreaks, none touch on the park's boundary and mowed lines are required only in the three zones that abut park residence areas. Since Cape Florida is bordered by water along all but 950 feet of its boundary, the chance of fire escaping out of the park is minimal. However, with a village of more than 10,000 residents immediately to the north of the park, smoke management is an important issue. To date, zone BBC-02 has been burned twice and zones BBC-01 and BBC-07 have been burned once. Monitoring transects have been placed in zones BBC-01 and BBC-02. Plans are to burn two different zones each year, on a three-year rotation.

In order to track fire management activities, DRP maintains a statewide burn database. The database allows staff to track various aspects of each park's fire management program including individual burn zone histories and fire return intervals, staff training/ experience, backlog, if burn objectives have been met, etc. The database is also used for annual burn planning which allows DRP to document fire management goals and objectives on an annual basis. Each quarter, the database is updated and reports are produced that track progress towards meeting annual burn objectives.

Natural Communities Restoration: In some cases, the reintroduction and maintenance of natural processes is not enough to reach the natural community desired future conditions in the park, and active restoration programs are required. Restoration of altered natural communities to healthy, fully functioning natural landscapes often requires substantial efforts that include mechanical treatment of vegetation or soils and reintroduction or augmentation of native plants and animals. For the purposes of this management plan, restoration is defined as the process of assisting the recovery and natural functioning of degraded natural communities to desired future condition, including the re-establishment of biodiversity, ecological processes, vegetation structure and physical characters.

Examples that would qualify as natural communities' restoration, requiring annual restoration plans, include large mitigation projects, large-scale hardwood removal and timbering activities, roller-chopping and other large-scale vegetative modifications. The

key concept is that restoration projects will go beyond management activities routinely done as standard operating procedures, such as routine mowing, the reintroduction of fire as a natural process, spot treatments of exotic plants, small-scale vegetation management and so forth.

Following are the natural community restoration and maintenance actions recommended to create the desired future conditions in the coastal strand community at Bill Baggs Cape Florida State Park.

Objective: Continue natural community restoration activities on 170 acres of coastal strand community.

Sixteen years after restoration work started on all of Cape Florida's natural communities (in the aftermath of Hurricane Andrew), coastal strand is the only natural community that still requires substantial restoration action. The reasons for this are multiple. Coastal strand is the most extensive community that is being restored, representing almost 50 percent of the park's upland acreage. Initial post-Hurricane Andrew plantings were sparse and contained a relatively small proportion of the typical strand species, saw palmetto. The altered substrate has allowed planted trees and woody shrubs to grow unusually quickly and large, especially seagrape and buttonwood, and to become unnaturally dominant. A large number of ruderal herbaceous species have continued to dominate the groundlayer at the expense of graminoid species, possibly due to excess nutrients left in the soil from the former Australian pine forest. And, finally, later saw palmetto plantings have had mixed success, due to a number of variables that have included substrate, weather, ability to water, available labor resources and plant competition.

In order for coastal strand restoration to continue, three main actions need to be sustained. First is the use of prescribed fire as an experimental tool to reduce hardwood cover and possibly to control broadleaf ruderals. Second is the removal of buttonwood trees, which appear to be unaffected by fire. Third is the augmentation in cover of saw palmetto and graminoids through planting, direct seeding or other effective means.

Eight management zones (zones BBC-01 through BBC-08) contain areas designated for coastal strand restoration. To date, prescribed fire has been used experimentally in three zones to reduce the density of hardwood and ruderal plant species and to increase the coverage of saw palmetto and graminoid species. Initial results show that the coverage of most hardwoods and especially seagrape can be effectively reduced with fire; the results in the ground layer are still inconclusive. The use of prescribed fire should continue in the three initial zones (BBC-01, BBC-02 and BBC-07) and should be added in zones BBC-08, BBC-03 and BBC-04, so that two zones a year can be burned on a three-year rotation. Monitoring the effects of fire should continue. Since zones BBC-05 and BBC-06 may be more technically difficult to burn, prescribed fire should not be applied in these two zones until a clear advantage for its use can be demonstrated.

Buttonwood is a hardwood native tree that has not yet been significantly impacted by prescribed fire. Because this species is inappropriate for coastal strand (except in ecotones bordering mangrove swamps) and because it is currently found in the park in large, tall clumps that affect the growth of desirable coastal strand species, it needs to be removed from strand restoration areas. Due to the size of the trees, physical removal of buttonwood from strand areas is very time- and labor-consuming if done in-house and is expensive if done by contracted labor with specialized heavy equipment. Treating the trees with herbicide and leaving them standing is a possible alternative. However, the soil in the strand restoration areas already has excess nutrients, and decaying trees will add organic matter. Standing snags will also attract perching birds, whose seed-bearing excretions will increase the number of non-desirable tree and shrub species below the dead trees. Two contracts to remove buttonwood have already been performed in zones BBC-01 and BBC-05, one with the assistance of grant funds from the USFWS. This has resulted in the removal of approximately 10 acres of buttonwoods. Efforts need to be made to pursue funding for further buttonwood removal, and in the meantime, removal work by park staff should continue.

Since the initial post-hurricane plantings, several thousand more saw palmetto plants and a lesser number of native grasses have been planted in six management zones. There has been variable success with these plantings. In some areas, notably those having the altered fill substrate, a portion of the palmetto plants have taken and are growing well. In other areas, especially those with well-drained sand substrate, most of the planted palmettos have had difficulty surviving. Part of the problem in establishing saw palmetto has been the difficulty in re-watering the plants after their installation. Irrigation systems are not practical or efficient on a large scale, and the use of piped-in water is expensive. Water trucks have access problems and are time consuming to use. Thus far, summer rainfall has usually been depended upon to water newly installed plants after their first and only hand-watering. Rainfall patterns can be variable, however, and extended periods of no rain have caused plant mortality. Direct competition from existing plants has also affected the survival of new saw palmettos. Saw palmettos thrive best in direct sunshine, and some plant mortality has been caused by shading from quick-growing hardwoods or, more often, from a dense ground layer of herbaceous ruderal plants. Finally, palmetto mortality at times has been caused by the over-reliance on volunteer labor. In an attempt to get significant numbers of saw palmetto planted, many past plantings occurred when large numbers of volunteers were available. The skill level of the volunteers, the optimum time of year to be planting, and the possibility of adequate follow-up plant care were usually secondary considerations.

For coastal strand restoration to continue, the cover of saw palmetto and graminoids needs to increase. Direct planting of saw palmetto and grasses is effective but has not always been done efficiently in terms of labor or cost at the park. A more realistic

approach at this time is to concentrate on planting smaller areas annually, so that increased time and labor can be applied to a particular location. This would require more park staff time and/or increased outsourcing funds. Another approach is to experiment with the use of direct seeding of palmetto and native grass seed. For this method to work, the problem of excessive ruderal plants would have to be addressed, possibly using selective herbicides. Other methods of augmenting desired plant cover may exist and need to be researched.

Natural Communities Improvement: Improvements are similar to restoration but on a smaller, less intense scale. This typically includes small-scale vegetative management activities or minor habitat manipulation. Following are the natural community and habitat improvement actions recommended at the park.

Objective: Conduct natural community improvement activities on seven acres of interdunal swale community.

Buttonwood was overplanted at Cape Florida during the initial post-Hurricane Andrew restoration efforts; it was also often planted in inappropriate locations. While this tree is unable to propagate in the dry upland communities of the park, it can reproduce in the moister soils of the interdunal swales. Consequently, buttonwood trees are now growing in the restored swales and are threatening to alter the characteristics of this natural community. Existing buttonwood trees need to be removed from the interdunal swales in a way that minimizes negative impacts to this community, and new trees need to be periodically surveyed for and controlled.

Objective: Conduct natural community improvement activities on 40 acres of maritime hammock community.

The restored maritime hammocks along the seawall and along Pines Canal still have areas of open canopy and are lacking some desirable native plant species. In order to increase plant density and diversity, further plantings should occur in these areas as appropriate plants become available. Desirable gene stock for these plants would be plants whose seed source is from hammocks and other natural areas as close to the park as possible.

Imperiled Species Management

Goal: Maintain, improve or restore imperiled species populations and habitats in the park.

DRP strives to maintain healthy populations of imperiled plant and animal species primarily by implementing effective management of natural systems. Single species management is appropriate in state parks when the maintenance, recovery or restoration of a species or population is complicated due to constraints associated with long-term restoration efforts, unnaturally high mortality or insufficient habitat. Single species management should be compatible with the maintenance and restoration of

natural processes, and should not imperil other native species or seriously compromise park values.

In the preparation of this management plan, DRP staff consulted with staff of the FFWCC's Imperiled Species Management or that agency's Regional Biologist and other appropriate federal, state and local agencies for assistance in developing imperiled animal species management objectives and actions. Likewise, for imperiled plant species, DRP staff consulted with FDACS. Data collected by the FFWCC, USFWS, FDACS and FNAI as part of their ongoing research and monitoring programs will be reviewed by park staff periodically to inform management of decisions that may have an impact on imperiled species at the park.

Ongoing inventory and monitoring of imperiled species in the state park system is necessary to meet DRP's mission. Long-term monitoring is also essential to ensure the effectiveness of resource management programs. Monitoring efforts must be prioritized so that the data collected provides information that can be used to improve or confirm the effectiveness of management actions on conservation priorities. Monitoring intensity must at least be at a level that provides the minimum data needed to make informed decisions to meet conservation goals. Not all imperiled species require intensive monitoring efforts on a regular interval. Priority must be given to those species that can provide valuable data to guide adaptive management practices. Those species selected for specific management action and those that will provide management guidance through regular monitoring are addressed in the objectives below.

Objective: Update baseline imperiled species occurrence inventory lists for plants and animals, as needed.

With the ongoing restoration of Cape Florida's natural communities, new imperiled species may continue to colonize or recolonize the park. Passive/casual observations of imperiled species recorded for the park will continue to be reported using Wildlife Observation Forms or other district specific methods. Park and DRP staff will develop partnerships with other agencies and academic institutions as necessary to assist with updates of inventory lists for additional imperiled species.

Objective: Monitor and document two suites of selected imperiled animal species in the park.

All sea turtle species are listed as imperiled by both state and federal agencies. The sea turtles that nest on Cape Florida's beach have had their nesting activity monitored every year by park staff since 1980 and will continue to do so. Park staff also monitors all nest productivity, though the park is not one of the Florida index beach sites. This Tier 5 monitoring follows the protocols of the FFWCC Sea Turtle Conservation Guidelines and is reported annually.

Butterfly species are monitored at Cape Florida, as well. Since 2002, butterfly counts that follow the protocols of the North American Butterfly Association (NABA) have been conducted quarterly by park staff and volunteers. These surveys have documented seven species of imperiled butterfly at Cape Florida, as well as a high diversity of non-imperiled species. These counts should continue as they help provide an indication of the overall health of the park. The results of the counts are reported to NABA where they are entered into a national database, as well as to FNAI.

Objective: Monitor and document eight selected imperiled plant species in the park.

There are seven plant species at Cape Florida that are listed as endangered by FDACS; six of these are also ranked S1 or S2 by FNAI. There is additionally one species (white spikerush) not currently listed by state or federal agencies or by FNAI but that is considered extremely rare by the Institute for Regional Conservation. All eight of these species warrant annual Tier 2 monitoring, which documents presence or absence, at a minimum.

Beach jacquemontia is the only species that is additionally ranked G1 by FNAI and listed as endangered by the USDA. Plants reintroduced to the park's beach dune and coastal grassland communities in 2001 by Fairchild Tropical Botanic Garden (FTBG) have been monitored regularly since then and will continue to be monitored yearly by Garden staff at a Tier 4 level.

Biscayne pricklyash is another species being studied by FTBG due to its rarity, though not at Cape Florida. Plants reintroduced to the park have been monitored by park staff at a Tier 4 level and will continue to be monitored yearly for survival and recruitment.

Exotic Species Management

Goal: Remove exotic and invasive plants and animals from the park and conduct needed maintenance control.

DRP actively removes invasive exotic species from state parks, with priority being given to those causing the ecological damage. Removal techniques may include mechanical treatment, herbicides or biocontrol agents.

Objective: Annually treat 11 infested acres of exotic plant species in the park.

Recent efforts have been made by park management to increase the number of hours that park staff spend on exotic plant control. With the additional hours, it is expected that on average 11 infested acres of exotic plants can be treated each year, either by hand-pulling or with herbicides. Control work should concentrate on the nine most invasive species previously listed in the Resource Description and Assessment section of this plan. However, if a new invasive plant species is discovered at the park, attempts should be made to eradicate it before it gains a substantial foothold.

As of July 2010, approximately 55 percent of the park's acreage was in maintenance condition. These acres should be surveyed and treated for exotics every year, ideally, and no less frequently than every two years. The major aim should be to not lose the percentage of acres in this condition, while striving to increase the percentage. In order to determine the status of infestations, park-wide monitoring for all exotic plants should be conducted annually, using the survey methods devised for the Invasive Exotic Plant Database.

Objective: Implement control measures on three exotic animal species in the park.

Green iguanas and black spiny-tailed iguanas will continue to be controlled at Cape Florida. It is realized that total eradication of these two species at Cape Florida is not likely. Nevertheless, keeping their numbers reduced as much as possible will minimize their impacts on native species and ecosystems.

Auditory surveys have shown that Cuban treefrogs now exist throughout most of Cape Florida. Since this invasive species is known to impact several native animal species and since relatively simple methods for its capture exist, this species will be controlled to the extent feasible at the park.

Special Management Considerations

Timber Management Analysis

A timber management analysis was not conducted for this park since its total acreage is below the 1,000-acre threshold established by statute. Timber management will be re-evaluated during the next revision of this management plan.

Coastal/Beach Management

DRP manages over 100 miles of sandy beach, which represents one-eighth of Florida's total sandy beach shoreline. Approximately one-quarter of Florida's state parks are beach-oriented parks and account for more than 60 percent of statewide park visitation. The management and maintenance of beaches and their associated systems and processes is complicated by the presence of inlets and various structures (jetties, groins, breakwaters) all along the coast. As a result, beach restoration and nourishment have become increasingly necessary and costly procedures for protecting valuable infrastructure. All of these practices affect beaches for long distances on either side of a particular project. DRP staff needs to be aware of and participate in the planning, design and implementation of these projects to ensure that park resources and recreational use are adequately considered and protected.

Cape Florida State Park is located on the southern third of a barrier island, and historically beach occurred on both the ocean-facing and bayside shorelines of the site. From the 1800s onward, the tip of the island was eroding, and in 1950, the western and southern shorelines of the future park were armored with a seawall and elevated with

fill by the property's owners. This left beach on the Atlantic side of the site only, and when the state acquired Cape Florida in the 1960s, there was 1.2 miles of beach stretching northward from the Cape Florida Lighthouse to the north park boundary. In 1987, a 100-foot rock terminal groin (the "jetty") was placed at the seawall's terminus near the lighthouse, and portions of the beach at the park's northern and southern ends were renourished as part of a larger federal project on Key Biscayne.

Cape Florida's beach has always been the primary draw for visitors to the park. Yearly park visitation has averaged around 800,000 in the last ten years, and on busy summer weekends, the beach can receive thousands of visitors. Despite this volume of visitation, the environmental processes that help prevent beach erosion are able to occur. Sea wrack lines are left in place; sand-holding beach vegetation is protected from people and equipment; mechanical beach grooming, which loosens sand, is not done; and motorized vehicle usage, which can displace sand, is minimized and restricted to lightweight vehicles used only by park staff and not the public.

Beach erosion measurements have been taken by park staff since the mid-1980s, and monthly measurements have been taken at eight points since the mid-1990s. Measurements that are more detailed are also taken annually by state and county agencies. Since 1987, there have been no recommendations for beach renourishment. While the middle section of the beach has been slightly receding, the northern and southern sections have been slightly to significantly accreting. Additionally, primary dunes of a significant size for the park have been forming along southeasterly-oriented portion of the beach since 1992. Nevertheless, most of the park's beach has been given a Critically Eroded status, as have almost all the regional beaches (DEP's Bureau of Beaches and Coastal Systems 2008). This designation is partly because the park's shoreline is artificially stabilized by the seawall and jetty.

Cape Florida's non-beach shoreline is approximately 2.9 miles long. About 2.2 miles of this consists of the park's southern and western shores, which are armored by a seawall and/or rock revetment. The last hurricane to impact Cape Florida, Hurricane Wilma in 2005, did Level 3 damage ("significant destruction requiring reconstruction") to portions of the seawall (DEP's Bureau of Beaches and Coastal Systems 2005). Though at this time there is no significant erosion occurring, there are sections of the seawall that are in poor to serious condition (Coastal Systems International 2008) and the threat of shoreline damage exists. Funding needs for seawall repair has been placed on DRP's Park Project Management and Tracking System and outside funding sources should be pursued, as well. In the meantime, the condition of the seawall, especially in areas of poor condition should be monitored for further deterioration.

Cape Florida's remaining 0.7 miles of non-beach shoreline is formed by the southern bank of Pines Canal, which is lined with mangroves. Because there is relatively little

boat traffic in the canal and because it is an "Idle Speed/No Wake" manatee protection zone, erosion does not appear to be a problem along this shoreline.

Arthropod Control Plan

All DRP lands are designated as "environmentally sensitive and biologically highly productive" in accordance with Ch. 388 and Ch. 388.4111 Florida Statutes. If a local mosquito control district proposes a treatment plan, DRP works with the local mosquito control district to achieve consensus. By policy of DEP since 1987, aerial adulticiding is not allowed, but larviciding and ground adulticiding (truck spraying in public use areas) is typically allowed. DRP does not authorize new physical alterations of marshes through ditching or water control structures. Mosquito control plans temporarily may be set aside under declared threats to public or animal health, or during a Governor's Emergency Proclamation.

Additional Considerations

The Trustees have granted management authority of certain sovereign submerged lands to DRP under Management Agreement MA 68-086 (as amended January 19, 1988). About 124 acres of sovereign submerged land fall into the 400-foot management zone that extends out from Cape Florida's shoreline. This acreage does not include No Name Harbor or the southern half of Pines Canal, both of which are within the park's boundary. The majority of this submerged land is within the Biscayne Bay Aquatic Preserve, with the exception being an approximate 15 acres bordering the northern end of the park's beach. Both seagrass bed and unconsolidated substrate are found in the 400-foot zone and are discussed under the Natural Communities section of this plan. The bay portion of the 400-foot management zone is also part of the manatee protection zone. Boats are routinely seen to speed through this area, despite signage at four locations along the park's shoreline and on each of the park's eight fishing platforms.

Management of Bill Baggs Cape Florida State Park includes certain management activities within the 400-foot buffer zone of sovereign submerged lands, which extends waterward from the mean high water, or ordinary high water line, or from the edge of emergent vegetation. These activities are carried out for increased protection of the park's natural resources and for the safety of park visitors. Management actions occurring within the buffer zone include maintaining a line of buoys that delineate the swimming area, excluding watercraft from the designated swimming area, patrolling for boats and watercraft too close to the park's beaches, and removal of trash, litter, and other debris. A detailed description of these management actions is included in the Natural Communities section of this plan.

One feature of note in the 400-foot management zone is the artificial reef unintentionally created by the submerged boulders along the park's western and southern shorelines. The rocks that support the seawall or that form the jetty and revetment offer a solid substrate for numerous encrusting marine organisms, including

sponges, tunicates, and three imperiled species of coral. Many reef fish and crustaceans take refuge among the boulders, and divers from boats anchored just off the seawall often hunt spiny lobster (*Panulirus argus*) among the rocks during the Spiny Lobster Sport Season.

Cultural Resource Management

Cultural Resource Management

Cultural resources are individually unique and collectively very challenging for the public land manager whose goal is to preserve and protect them in perpetuity. DRP is implementing the following goals, objectives and actions, as funding becomes available, to preserve the cultural resources found in Bill Baggs Cape Florida State Park.

Goal: Protect, preserve and maintain the cultural resources of the park.

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. All activities related to land clearing, ground disturbing activities, major repairs or additions to historic structures listed or eligible for listing in the National Register of Historic Places and collections care must be submitted to the Florida Department of State, Division of Historical Resources (DHR) for review and comment prior to undertaking the proposed project. Recommendations may include, but are not limited to concurrence with the project as submitted, pre-testing of the project site by a certified archaeological monitor, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effect. In addition, any demolition or substantial alteration to any historic structure or resource must be submitted to DHR for consultation and DRP must demonstrate that there is no feasible alternative to removal and must provide a strategy for documentation or salvage of the resource. Florida law further requires that DRP consider the reuse of historic buildings in the park in lieu of new construction and must undertake a cost comparison of new development versus rehabilitation of a building before electing to construct a new or replacement building. This comparison must be accomplished with the assistance of DHR.

Objective: Assess and evaluate five of 23 recorded cultural resources in the park.

Of the 13 known archaeological sites at Cape Florida, four need to be evaluated at this time. The exact location of the Pines Canal Site (8DA05255) needs to be determined and its condition, especially in regards to erosion, needs to be assessed by an archaeological expert. The Cape House Site (8DA11738), which is very close to the park's seawall and may be close to the surface, needs to be assessed for possible threats from future seawall repairs. The two survey markers, 1970 U.S. Coast and Geodetic Survey Marker/1908 Cape Florida Bench Mark No. 4 (8DA11736) and 1967 Corps of Engineers Survey Marker (8DA11737), need to be evaluated for their cultural significance. Assessment of

the park's cultural resources should include a survey of archaeological site boundaries using GPS.

As an additional item for consideration, the Cape Florida Lighthouse was the subject of a Historic Structures Report produced in 1989. Because the lighthouse was completely restored in 1995, this report may need to be updated.

Objective: Compile reliable documentation for all recorded historic and archaeological resources.

All of Cape Florida's known cultural sites currently have a Florida Master Site File. These sites need to be monitored for threats (animal and plant damage, erosion, potential for looting, etc.) at least once during the period of this plan, and the site files updated. A determination should be made as to whether the 14 sites that are considered culturally significant need to be monitored more frequently.

All the park's known archaeological sites have had some level of investigation in the past 30 years, with the exception of the Cape House Site (8DA11738). Funding and assistance from trained experts should be pursued to be able to conduct a Level 1 archaeological survey of this site.

A high number of archaeological sites have already been found at Cape Florida, and there is a likelihood that more sites exist. A predictive model that indicates the probability of additional archaeological sites at the park needs to be developed. This model will help determine if further Level 1 archaeological surveys are needed at Cape Florida. As additional sites are discovered, they will be documented, recorded in the FMSF and monitored appropriately. Prior to construction, Level 1 archaeological surveys should also be conducted at the location of the proposed lighthouse restroom and along the proposed multi-use path extension, as discussed in the Land Use Component.

A Scope of Collections statement is needed for Cape Florida. Since there is no Scope of Collections statement for the park at present, one needs to be developed and adopted. A collections management plan needs to be developed as well. After this guide has been completed and approved, two of the park's collections of cultural objects (the collection of furnishings at the replica lighthouse keeper's dwelling and kitchen and the park's archival collection) need to be inventoried and their condition assessed.

Objective: Bring one of 23 recorded cultural resources into good condition.

Of the 11 culturally significant resources at Cape Florida, only three are considered not in good condition, due to possible erosion. No Name Harbor I (8DA06446) and No Name Harbor II (8DA06447) are submerged sites within the tidal wetlands and little can practically be done for them at this time. The Pines Canal Site (8DA05255) is thought to

be accessible and, when located and assessed, it should be brought into good condition, if necessary.

The Cape Florida Lighthouse (8DA00153) has been maintained since its 1995 restoration and is currently in good condition. However, a cyclical maintenance program for this historic structure does not currently exist. Given that the lighthouse is subject to heavy visitation, the development of such a program with input from historic preservation experts would help ensure that it stay in this condition.

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 located in the Implementation Component of this management plan.

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 are being managed for the purposes for which they were acquired and in accordance with their approved land management plans.

At less than 1,000 total acres, Bill Baggs Cape Florida State Park does not meet the size threshold for the land management review (LMR) requirement.

LAND USE COMPONENT

INTRODUCTION

Land use planning and park development decisions for the state park system are based on the dual responsibilities of the Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP). 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, DRP's 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.

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, regional demographics, adjacent land uses and park interaction with other facilities.

Bill Baggs Cape Florida State Park is located on the southeast coast of Miami-Dade County, at the southern tip of the island of Key Biscayne. The park is surrounded by water except for the northern boundary, which is shared by the Village of Key Biscayne. Adjacent water bodies include Biscayne Bay and the Cape Florida Channel to the west and the Atlantic Ocean to the south and east. Rickenbacker Causeway/Crandon Boulevard bisects the island and is the only entrance road into the park, as well as the designated hurricane evacuation route for the island. The park is served by one transit route, MetroBus Route B, which provides service from Key Biscayne to the Miami Metrorail via the Brickell Station (Miami-Dade County 2012).

The population of Miami-Dade County is predominantly young, working class and culturally diverse. According to U.S. Census Data, just over half of county residents are foreign born. A significant majority, more than sixty percent, of residents identify as Hispanic or Latino, while one-fifth identify as black and one-fifth as non-Hispanic white. Furthermore, more than half of the population is under the age of 40, and only one-fifth is over the age of 60. Nearly two-thirds of the population is of working age (16 to 65) (U.S. Census Bureau 2009). In 2008, the per capita personal income for Miami-Dade County was $35,887, slightly lower than the statewide average of $39,064 (U.S. Bureau of Economic Analysis 2010). The diversity of the county population is reflected in the diversity of users served by the park and the variety of recreation activities offered.

The park is located in the Southeast Vacation Region, which includes Broward, Miami-Dade, Monroe, and Palm Beach counties (Visit Florida! 2010). According to the 2009 Florida Visitor Survey, this is the second most popular region in the state, attracting nearly one-fifth of the total travelers to and within Florida. Of the estimated 14.6 million people who visited this region in 2009, more than 80 percent traveled for leisure. The survey identified visiting the waterfront and shopping as the top activities for the visitors to the region. Visitors to the Southeast Vacation Region reported the highest average expenditures per person per day, approximately $170, and the highest percentage of visitors traveling by air (69 percent) (Visit Florida! 2010). Visitors reported an average stay of 4.6 nights and nearly half reported household incomes over $100,000 (Visit Florida! 2010).

Many opportunities for resource-based outdoor recreation exist within a few miles of the park. Biscayne National Park is located just south of the park in Biscayne Bay. The national park provides opportunities for wildlife viewing and nature study, picnicking, walking, guided tours, motorized and non-motorized boating, fishing and lobstering, camping, snorkeling and SCUBA diving. The national park also plans to open the Maritime Heritage Trail, an underwater archaeological trail that includes six shipwreck sites from the late nineteenth to mid-twentieth centuries. Two other state parks, The Barnacle Historic State Park and Oleta River State Park, are located within fifteen miles of the park boundary and located in urban areas of inland Miami-Dade County. The Barnacle Historic State Park offers picnicking, guided historic and interpretive tours, wildlife observation, weddings and special events. Oleta River State Park offers more than fifteen miles of paved and unpaved cycling trails; full-facility, primitive and group camping; primitive cabins; hiking trails; picnicking; canoeing and kayaking; and saltwater beach activities, including fishing, swimming and sunbathing. A concessionaire at the park offers food and canoe, kayak and bicycle rentals. The alternative route of the Florida Circumnavigational Saltwater Paddling Trail runs along the park's east coast. The trail provides opportunities for saltwater paddling and is accessible from the kayak launch area.

Two historic estates, Vizcaya Museum and Gardens and Deering Estate, are located in close proximity to the park. Both estates are managed by Miami-Dade County, and each estate includes an historic home and grounds, numerous historical collections, and significant natural areas. Vizcaya Museum and Gardens also includes an ornamental garden. Both estates offer guided tours, weddings and events, and opportunities for wildlife observation. Deering Estate provides additional programs for research and study of the park's rare natural areas.

Fairchild Tropical Botanical Garden and Montgomery Botanical Center are located within ten miles of the park. Each offers extensive collections of rare and endemic plants, as well as guided walking and tram tours, educational and research programs, and events promoting native plant conservation.

Several municipal parks and preserves offering resource-based recreation activities, including Tropical Park and A.D. "Doug" Barnes Park, are located within a few miles of the state park. Typically, these parks provide picnicking facilities, shared-use trails, and water-based activities, such as fishing, boating, paddling or beach activities. Many municipal parks near Bill Baggs Cape Florida State Park also offer educational programs, guided tours and equestrian trails. Crandon Park, located just north of the Village of Key Biscayne, offers shared-use trails, self-guided walking tours, and guided tram tours through the park's natural areas, which include beaches, dunes, and hammocks. Crandon Park also provides opportunities for saltwater beach activities.

Existing Use of Adjacent Lands

Adjacent lots north of the park and west of the causeway are generally upscale low- to medium-density residential properties. The area east of the causeway is predominately high-density condominium and resort development, including several large developments of regional impact (DRI). There are also several high-density commercial shopping centers located along the main boulevard in the Village of Key Biscayne. The City of Miami is located across the Intracoastal Waterway (ICW) directly west of the unit and is one of the most densely urbanized areas of Florida. Nearby population centers include Miami, Hialeah and Fort Lauderdale. In 2008, more than 4.3 million people resided within 50 miles of the park boundary (U.S. Census Bureau 2009). Despite the number of resource-based outdoor recreational opportunities offered in the area, visitor demand for park facilities is extremely high. On weekends, the park is often filled to capacity.

Planned Use of Adjacent Lands

Out of Florida's 67 counties, Miami-Dade ranks first and fourth in total population and population density, respectively (BEBR 2010). More than 2.5 million people lived in the county in 2009, accounting for nearly 14 percent of the statewide population (U.S. Census Bureau 2010). Census information indicates that between 2000 and 2009, the population of Miami-Dade grew by approximately 11 percent (U.S. Census Bureau

2010). This rate is slower than the statewide average of 16 percent during the same period, but congruent with medium to high population projection estimates (BEBR 2010). If the county continues to grow at the current rate, the population will exceed three million by the year 2030 (BEBR 2010).

The population of the Village of Key Biscayne grew by a rate of nearly ten percent between 2000 and 2008 (BEBR 2010). The Village is very densely populated; over 15,000 residents live within approximately one and a half square miles of land area. Furthermore, the Village has reached maximum development potential; thus, any potential development will occur as infill.

Prior to the last update of the park's unit management plan, the Village of Key Biscayne identified 20 acres of state park land for annexation in its comprehensive plan (Village of Key Biscayne Council 1994). The proposed annexation area was identified for the development of municipal recreation facilities. This was in response to the Village's deficient level-of-service for recreation and open space. On several occasions since that time, the Village of Key Biscayne and DRP have discussed the Village's requests for conversion of state park lands for user-based recreational facilities to meet the local demand. Historically, DRP has opposed the action for two reasons. First, the purpose of acquisition and management of land in the state park system is to provide resource protection, restoration, and resource-based outdoor recreation, rather than user-based outdoor recreation as proposed by the Village. Second, the remarkable success of natural community restoration efforts at the state park following Hurricane Andrew has created extremely valuable native habitat and a natural landscape for resource-based recreational activities.

Since 2001, the Village has attempted to resolve the shortage of user-based recreational facilities for local residents without the annexation and/or conversion of state park lands. A large multi-use park, the Village Green, was developed in the town center, and all references to annexation of land within Bill Baggs Cape Florida State Park have been removed from the Village's comprehensive plan (Village of Key Biscayne Council 2008). Furthermore, in 2010, the Village of Key Biscayne passed a municipal ordinance (Ordinance 2010-12) forming the Land Acquisition Committee (LAC). Stated goals of the LAC include "the identification of lands within the incorporated Village boundary to be acquired for park and recreation purposes" (Ordinance 2010-12).

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

Five natural communities are represented on the park's uplands, providing diverse wildlife habitat and wide-ranging natural experiences for park visitors. The land area at Bill Baggs Cape Florida State Park has two extraordinary qualities that set it aside from other state parks. First, it protects a large tract of contiguous wildlife habitat in one of the most urbanized areas of the state, providing significant natural area for recreational activities, including cycling, walking, hiking, fishing, camping, wildlife viewing and saltwater beach activities. Second, it illustrates what is possible through ongoing coordinated restoration and preservation. The presence and health of the park's upland natural communities are largely due to restoration efforts conducted by DRP in cooperation with other agencies and volunteers. When it was acquired, the park was disturbed area that had been artificially filled in preparation for development and subsequently colonized by non-native plants. Over time, restoration projects and other events such as Hurricane Andrew, have dramatically changed the landscape at the park bringing the land back to a natural state. The journey of these communities from natural, to disturbed, and then restored provides an exceptional interpretive opportunity for park visitors.

Water Area

Several water areas within the park boundary enhance the resource-based recreation activities provided at the park. The mangrove wetlands located in the northwest quadrant of the park provide important habitat for wading birds and other creatures, including mollusks, crustaceans and fish. The mangrove area also provides visitors with natural areas for wildlife observation. Set a distance away from the park's popular beaches, the mangrove wetlands offer visitors a tranquil place for wildlife observation, relaxation, nature study and other activities, such as geo-seeking. The area is accessible by the park's hiking trails and features two waters-edge overlook points. No Name Harbor is located just south of the mangrove wetland, and it offer opportunities for boat docking, boat camping, canoe and kayak launching and wildlife observation. Five coastal interdunal swales are located in the southwest quadrant of the park. The swales were created as part of the park's restoration and have developed into flourishing natural habitat for wetland birds, amphibians and other freshwater-dependent organisms. The park's hiking trail provides visitors with access to the western edge of each swale for wildlife observation and nature study.

Shoreline

The park has more than three and a half miles of shoreline, which includes mangroves, armored shoreline and beach. Armored shoreline exists along the Cape Florida Channel, from the lighthouse jetty into No Name Harbor. The area provides visitors with a view of the Miami skyline, while platforms along the armored shoreline provide opportunities for shoreline fishing. Within No Name Harbor, visitors can dock their boats at the seawall, allowing them to enjoy amenities within the park. The seawall also provides a place where visitors can walk along the waterside.

More than one mile of the park's shoreline consists of Atlantic Ocean beach. The park's beach is the primary attraction for park visitors. Seven beach boardwalks guide visitors from parking areas to the beach with minimal impact to natural areas. Once on the beach, visitors can enjoy many activities, including sunbathing, swimming and other activities. Beach chairs and umbrellas are available for rent from the park's concessionaire. Launching of canoes and kayaks from the beach is permitted just north of Picnic Area A. A line of buoys, located 300 feet offshore from the park's beach, is maintained by park staff to delineate the designated swimming area for the safety and enjoyment of park patrons.

Natural Scenery

Views of the Atlantic Ocean, Biscayne Bay, the Cape Florida Lighthouse and restored native plant communities are exceptional visual resources at the park. The fishing platforms, seawall and beach offer scenic views out into the water, providing visitors an ideal vantage point for enjoying sunsets and other scenery. In addition, the Cape Florida Lighthouse allows visitors to get a panoramic view of the surrounding area from a height of nearly 95 feet.

High-rise condominium buildings just north of the park boundary and a 300-foot communication tower constructed in the park's shop and administrative compound are the major visual intrusions that can be seen in the park. Additional information about the communication tower is provided under "Other Uses."

Significant Wildlife Habitat

Over the past few decades, the park's natural areas have undergone substantial restoration. Today, restored natural areas are closely monitored by park and district staff, and efforts are made to maintain these areas in good condition. This vigilance, coupled with the scarcity of natural habitat in urbanized southeast Florida, make natural areas within the park vital to a large number of native species. Since metropolitan Miami-Dade County retains only a small fraction of the native habitat and wildlife populations that existed here at one time, natural communities and waterbodies in and around the park have tremendous value for a variety of listed wildlife species. Biscayne Bay, due west of the park, has been identified as critical

habitat for the Florida manatee (USFWS 2000), and the eastern beaches of Key Biscayne are an active nesting area for sea turtles.

The park's value to native wildlife also provides important interpretive opportunities for visitors. Allowing visitors to learn about and view species in their native habitats could increase awareness of these unique organisms, educating visitors about potential impacts and the importance of species preservation. Programs and facilities that support nature study, educate visitors about native wildlife, and interpret the natural community restoration projects that have transformed the park could enhance the visitor experience.

Archaeological and Historical Features

Close to 3,000 years of human history have been documented within the park's boundary. Seven prehistoric sites, dated as far back as the Glades period (1000 B.C. – A.D. 1750), are located in the park, including middens, burial mounds and habitation sites. Several prehistoric sites have been compromised by beach erosion and ground disturbing activities, such as took place in the 1950s. Most of these sites are protected from public access due to potential threats of looting and vandalism; however, management of these valuable resources as part of the park is important. Due to the makeup and condition of these sites, public access is not recommended or necessary in order to interpret the park's prehistoric past. Interpretive elements or programming that present the long history of human activity at Cape Florida would serve to enrich visitor experience without requiring public access to these sensitive sites.

Arguably, archaeological and historical sites around and including the Cape Florida lighthouse bring the greatest interpretive value to the public. The proximity of these sites essentially creates an interpretive district within the park. These features help visitors to develop a complete picture of the park's history and significance. Two of the park's defining elements, the Cape Florida lighthouse and the replica lighthouse keeper's dwelling museum, which includes the replica residence, kitchen and cistern, allow visitors to step into an historical setting, giving the impression they are observing Cape Florida history firsthand. Continued public access to these popular resources is recommended.

Assessment of Use

All legal boundaries, significant natural features, structures, facilities, roads and trails existing in the unit are delineated on the base map (see Base Map). Specific uses made of the unit are briefly described in the following sections.

Past Uses

Cape Florida has a long history of human use, as evidenced by the prehistoric sites, the Cape Florida Lighthouse, the site of the Seminole War-era Fort Bankhead and a coconut plantation that was located in the south-central portion of the property. Before state acquisition, the property was in private ownership and planned for single- and multi-

family residential development. Pursuant to that development, bulkhead construction and hydraulic fill activities, including the construction of No Name Harbor, were carried out in the 1950s, significantly altering the natural landscape. Once acquired by the state, the park underwent massive restoration in order to reestablish the natural ecosystems and communities that once occurred. Today many large-scale natural community restoration projects have been completed, and many of the park's natural areas are in or nearing maintenance condition.

Future Land Use and Zoning

DRP works with local governments to establish designations that provide both consistency between comprehensive plans and zoning codes and permit typical state park uses and facilities necessary for the provision of resource-based recreation opportunities.

According to the county land use map, the park property is designated as "Parks and Recreation" (Miami-Dade County 2010). No conflicts are expected between this land use and potential development consistent with a state park. The park is in a "GU - Interim District" zoning area, which conforms roughly to the park boundary (Miami-Dade County 1992). Zoning regulations within a "GU – Interim District" should be consistent with the current "classification of usage" or established "trend of development" (Miami-Dade County 2010, Sec 33-196A). Since the park encompasses the zoning district, no conflicts are expected for future development or land uses consistent with a state park.

Current Recreational Use and Visitor Programs

The park provides opportunities for a wide array of terrestrial and water-based outdoor recreation activities; however, beach recreation, picnicking and fishing are the park's most popular public uses. Common recreational activities at the beach include swimming, sunbathing and kayaking. An area of the beach allows for canoe and kayak launching. Recreation facilities adjacent to the beach include picnicking areas and a playground. Fishing platforms along Biscayne Bay are popular spots for shoreline fishing. Other activities at the park include hiking on the nature trails and walking or cycling on the paved multi-use paths. Visitors can boat into the park and tie to the seawall in No Name Harbor. Overnight accommodations at the park include a primitive camping area for designated youth groups and boat camping on No Name Harbor. Recreational trails and interpretive areas occur throughout the park's many restored natural communities, providing opportunities for wildlife viewing and nature study.

The park's concessionaire offers two restaurants, one on No Name Harbor and one at the southernmost beach area, and item rentals, including beach chairs and umbrellas; bicycles, tricycles, tandems, and quad bikes; kayaks; and hydro-bikes. Concessions at the park cater to many different user groups and are a popular attraction for visitors.

BILL BAGGS CAPE FLORIDA STATE PARK

BASE MAP

Several of the park's cultural resources feature interpretive displays and elements. These elements, along with the park's historic lighthouse and museum, enhance the visitor experience. In addition, the park offers ranger-guided tours through the Cape Florida Lighthouse and replica lightkeeper's residence.

The 2009 Florida Visitor Survey indicates that waterfront activities and shopping preferred amenities for area visitors (Visit Florida! 2010). The range of water activities offered and the proximity to other land uses, including shopping and the park's concessions, add to the park's attractiveness as a regional destination.

According to DRP data, in fiscal year (FY) 2010/2011, approximately 715,865 people visited the park, representing 15 percent of total visitors to the park system district. The average annual visitation for the park for the past five fiscal years is approximately 813,000 visitors per year. Over the past five fiscal years, attendance at the park has generated approximately $172 million for the local economy. In the last year alone, park visitors contributed approximately $34.4 million, generating $2.1 million in sales tax revenue and approximately 634 jobs. (FDEP DRP 2011)

Other Uses

In 1992, a communication tower was erected in the park maintenance compound by the State of Florida Department of General Services, precursor to the Department of Management Services (DMS), as part of a network of facilities supporting an integrated law enforcement communications network.

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.

At Bill Baggs Cape Florida State Park, the beach dune, coastal grassland, tidal wetlands, interdunal swale ponds and maritime hammock communities, and the area between No Name Harbor and the tidal wetlands, have been designated as protected zones as delineated on the Conceptual Land Use Plan.

Existing Facilities

Recreation Facilities

Recreational facilities are concentrated in four main areas: the beach area, lighthouse area, fishing and south parking area, and No Name Harbor. The beach area is divided into two subareas: Area A, located just south of the entrance station, and Areas B and C,

which are adjacent to the lighthouse. Facilities in the beach areas include picnic pavilions, grills, a playground, beach boardwalks and a concession building. The lighthouse interpretive area contains interpretive exhibits, including the Cape Florida Lighthouse and the replica lightkeeper's residence and museum. The fishing and south parking area features picnic pavilions and several fishing platforms. No Name Harbor contains a picnic pavilion, concession building and seawall.

Support Facilities

Support facilities are concentrated in two main areas: the park entrance and the shop and office area, located in the center of the park. The park entrance area contains an entrance station, ticket booth and residences. The shop and office area includes residences, park office, shop, shed, storage buildings, emergency heliport pad, plant nursery and shade house. Additional support facilities are located in the recreation areas. Facilities in the beach areas include bathhouses and parking. The fishing and south parking area includes a restroom and parking area. No Name Harbor contains a pump-out station, restroom, laundry room and parking area. An inventory of existing recreation and support facilities is included below.

Roads
Park drive (1.5 miles)
Service roads (3.2 miles)

Entrance Area
Entrance station
Ticket booth
Residences (4)

Shop and Administration Area
Office
Shop
Equipment shelter
Flammable storage building
Plant nursery and shade house
Residences (5)
Emergency heliport pad

Beach Area A
Picnic pavilions (9)
Playground
Dune boardwalks (3)
Interpretive kiosk
Beach bathhouses (2)
Parking (445 spaces)

Beach Areas B and C
Picnic pavilions (7)
Concession (food, facility rentals)
Interpretive kiosk
Dune boardwalks (4)
Beach bathhouse (2)
Parking (552 spaces)

Lighthouse Interpretive Area
Cape Florida lighthouse
Lighthouse keeper's dwelling and museum (includes replica residence, kitchen and cistern)
Interpretive exhibits

Fishing and South Parking Area
Picnic pavilions (2)
Fishing platforms (8)
Interpretive exhibits
Restrooms (2)
Parking (102 spaces)

No Name Harbor
Picnic pavilion with restroom
Concession (food)
Seawall (1,505 linear feet)
Pump-out station
Laundry room
Parking (78 spaces)

Other Recreational Facilities
Multi-use path (1.25 miles)
Hiking trails (1.74 miles)
Primitive group camp

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.

The conceptual land use plan described here is the long-term, optimal development plan for the park, based on current conditions and knowledge of the park's resources, landscape and social setting. The development plan will be reassessed during the next update of the park management plan and modified to address new conditions, as needed.

During the development of the management plan, DRP assessed potential impacts of proposed uses or development on the park resources and applied that analysis to decisions on the future physical plan of the park as well as the scale and character of proposed development. Potential impacts are more thoroughly identified and assessed as part of the site planning process once funding is available for facility development. At that stage, design elements (such as existing topography and vegetation, sewage disposal and stormwater management) and design constraints (such as imperiled species or cultural site locations) are more thoroughly investigated. Municipal sewer connections, 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.

Potential Uses

Public Access and Recreational Opportunities

Goal: Provide public access and recreational opportunities in the park.

The existing recreational activities and programs of this state park are appropriate to the natural and cultural resources contained in the park and should be continued. Improved activities and programs are also recommended and discussed below.

Objective: Maintain the park's current recreational carrying capacity of 6,934 users per day.

Beach recreation, fishing, hiking and bicycling, boating, picnicking, interpretation of historical and natural resources, boat camping, primitive group camping and nature appreciation are recreational activities suited to the resources at Bill Baggs Cape Florida State Park and should be continued.

Objective: Expand the park's recreational carrying capacity by 100 users per day.

Several improvements are proposed to improve the quality of visitor experience offered at the park; however, only the proposed multi-use path extension will increase the carrying capacity at the park. The proposed paths will approximately double the paved multi-use trail facilities within the park.

Objective: Continue to provide the current repertoire of three interpretive, educational and recreational programs on a regular basis.

Currently the park offers ranger-guided interpretive tours of the historic Cape Florida Lighthouse. The tour discusses the historic significance of the lighthouse and the restoration projects that have been completed. Two additional programs are offered by special request: an educational dune vegetation presentation and a youth group educational and interpretive program. The youth group program discusses the overall history of the park and its natural and cultural resources. The program is generally offered to youth and scouting groups that visit the primitive group camp facility.

Objective: Develop two new interpretive, educational and recreational programs.

This plan recommends expansion of the park's interpretive programs to include two additional content themes. Additional programs could include watchable wildlife opportunities or focus on the past, future, and ongoing environmental restoration projects that have occurred at the park. Other content themes could stress connections to other managed areas and present regional conservation issues and topics, like major migratory routes including The Atlantic Flyway. A system of interpretive exhibits should be installed along the nature trail in the mangrove restoration area that provides information on the restoration efforts that have taken place. Other signs could identify plants, birds and other wildlife that park visitors are likely to observe in restored areas.

BILL BAGGS CAPE FLORIDA STATE PARK

CONCEPTUAL LAND USE PLAN

This plan recommends six additional interpretive signs and one interpretive kiosk be installed throughout the park.

Proposed Facilities

Capital Facilities and Infrastructure

Goal: Develop and maintain the capital facilities and infrastructure necessary to implement the recommendations of the management plan.

The existing facilities of this state park are appropriate to the natural and cultural resources contained in the park and should be maintained. New construction, as discussed further below, is recommended to improve the quality and safety of the recreational opportunities that visitors enjoy while in the park, to improve the protection of park resources, and to streamline the efficiency of park operations. The following is a summary of facility improvements that are needed to implement the conceptual land use plan for Bill Baggs Cape Florida State Park.

One infrastructure improvement is needed within the park. The seawall around the southwest coast of the park and in No Name Harbor is in need of repair and improvement. A study of the seawall was completed in 2005 that assessed its condition and determined needed repairs.

New development and facility improvements are proposed to enhance public recreation at the park, including extending the multi-use path, adding facilities at the group camp, adding a restroom near the lighthouse, and adding interpretive signage around the mangrove restoration area and throughout the park.

Objective: Maintain all public and support facilities in the park.

All capital facilities, trails and roads within the park will be kept in proper condition through the daily or regular work of park staff and/or contracted help.

Objective: Improve/repair five existing facilities.

Major repair projects for park facilities may be accomplished within the ten-year term of this management plan, if funding is made available. These include the modification of existing park facilities to bring them into compliance with the Americans with Disabilities Act (a top priority for all facilities maintained by DRP). The following discussion of other recommended improvements and repairs are organized by use area within the park.

Seawall Repairs: An evaluation of the seawall within No Name Harbor and along the Cape Florida Channel was conducted following Hurricane Wilma. Due to the scope of the project, repair priorities were categorized into three phases. The first phase includes the seawall at the north side of the mouth of No Name Harbor. The second and third phases address sections of the seawall that have been identified as being in "poor" or "fair" condition, respectively. As the repairs are completed for each phase, efforts

should be made to improve mooring conditions and soften the lip of the existing seawall. These improvements will improve integrity of the seawall and improve the safety and experience of visitors mooring to the seawall. Due to limited internal funding, DRP staff should try to pursue outside funding for completion of needed seawall repairs. Seawall repairs are described in detail in the "Coastal/Beach Management" section of the Resource Management Component.

Lighthouse Restroom: A restroom facility is needed in the lighthouse interpretive area. The proposed restroom should be, at minimum, a medium facility in order to accommodate the volume of visitor traffic occurring in this area of the park. The facility should be located approximately between the Lighthouse Interpretive Area and Beach Access #7. Special care should be taken when planning the new facility to minimize removal of vegetation and prevent intrusion into scenic views.

Auxiliary Parking Area at No Name Harbor: During peak seasons, demand for parking at No Name Harbor exceeds the capacity of the existing parking area. Because the existing paved area is sufficient to meet parking needs most of the year, additional permanent parking is not recommended at this time. Instead, this plan recommends an unpaved auxiliary parking area adjacent to the existing parking lot. The auxiliary parking area will be open and maintained as a visitor parking area when additional parking capacity is needed. Care will be taken to ensure that ADA requirements regarding the ratio of accessible spaces are maintained with the addition of the auxiliary parking area.

The location of the proposed parking area is identified within an area of the park's coastal strand community. The location is suitable for development of an unimproved parking area due to its flat topography, proximity to existing parking, and direct access to Harbor Road. This portion of the coastal strand community was previously designated for restoration, but is currently in poor condition, as described in the Natural Communities section of the Resource Management Component. Viable plants and trees that are removed from this area should be transplanted elsewhere in the park. If demand increases to the degree where additional permanent parking is needed, stabilization or improvement of the auxiliary lot may be explored; however, this is not anticipated to be necessary during the tenure of this plan.

Volunteer Sites: Additional volunteer RV sites are needed in the park's shop and administrative area. Two sites are proposed at this time; however, additional sites may be added as needed, if space in this area allows.

Primitive Group Camp: Two facilities are proposed to enhance the park's primitive group camp: a small bathhouse and screened picnic shelter. Currently, visitors to the group camp use the bathhouse at the day-use beach area. The proposed shelter would provide a covered activity space for campers, as well as protection from inclement

weather. The buildings should be accessible and sited to minimize tree clearing and discourage unauthorized use. These amenities could improve the recreational experience for campers, particularly those needing accessible facilities.

Objective: Construct 1.75 miles of paved trails.

Multi-use Path Extension: An extension to the existing multi-use path is proposed at the park. The extended path should be located on the east side of the main park drive, spanning from the park entrance to the southern beach parking area. This alignment will connect the beach recreation areas while avoiding disturbances to the restored coastal strand community located west of the road. The path would cross the park drive at two highly visible locations: just north of Harbor Road and just north of Picnic Area B. Each crossing point should include safe crossing facilities, such as pavement markings, raised crossings and/or warning signage. The intersection north of Harbor Road would connect to the existing paved path. A second connection to the bayside paved trail would occur at the southern end of the path extension, creating an approximate three-mile paved loop trail, as shown on the Conceptual Land Use Plan. In addition, the new path would be extended as paved on-road bicycle lanes at the park entrance, providing a safe route for bicyclists and pedestrians leaving and entering the park. Signage, such as "Share the path" or "Cyclists yield to pedestrians," should be installed along the extended path to educate visitors about path etiquette.

Facilities Development

Preliminary cost estimates for these recommended facilities and improvements are provided in the Implementation Component of this plan. These cost estimates are based on the most cost-effective construction standards available at this time. The preliminary estimates are provided to assist DRP in budgeting future park improvements, and may be revised as more information is collected through the planning and design processes. New facilities and improvements to existing facilities recommended by the plan include:

Western Seawall
Seawall repairs (Phases II and III)

No Name Harbor
Seawall repairs (Phase I)
Auxiliary parking area

Multi-use Path Extension
Paved path (1.25 miles)
Paved shoulder (0.5 miles)
Safe crossings (2)
Path etiquette signage

Shop and Administration Area
Volunteer RV sites (2)

Lighthouse Interpretive Area
Restroom (medium or larger)

Primitive Group Camp
Screened picnic shelter
Bathhouse (1 small)

Other facilities
Interpretive signs (6) and kiosk (1)

Existing Use and Recreational Carrying Capacity

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. The carrying capacity of a unit is determined by identifying the land and water requirements for each recreation activity at the unit, and then applying these requirements to the unit's land and water base. Next, guidelines are applied which estimate the physical capacity of the unit's natural communities to withstand recreational uses without significant degradation. This analysis identifies a range within which the carrying capacity most appropriate to the specific activity, the activity site and the unit's classification is selected (see Table 6).

Table 6: Existing Use and Recreational Carrying Capacity

	Existing Capacity*		Proposed Additional Capacity		Estimated Recreational Capacity	
Activity/Facility	**One Time**	**Daily**	**One Time**	**Daily**	**One Time**	**Daily**
Beach Use and Picnicking	3,000	6,000			3,000	6,000
Canoeing and Kayaking	30	60			30	60
No Name Harbor**						
Boating Day-use	144	288			144	288
Boating Overnight	56	56			56	56
Trails						
Nature Trail	20	80			20	80
Paved Multi-use	25	100	25	100	50	200
Primitive group camp	50	50			50	50
Shoreline fishing	50	100			50	100
Lighthouse interpretive area visitation	50	200			50	200
TOTAL	**3,425**	**6,934**	**25**	**100**	**3,450**	**7,034**

*Existing capacity has been revised from the 2001 approved plan to better follow DRP carrying capacity guidelines.
**Standard DRP carrying capacity guidelines were not applied to No Name Harbor, which represents a unique use area in the Florida State Park System.

The recreational carrying capacity for this park is a preliminary estimate of the number of users the unit could accommodate after the current conceptual development program has been implemented. When developed, the proposed new facilities would approximately increase the unit's carrying capacity as shown in Table 6.

Optimum Boundary

The optimum boundary map reflects lands that have been identified as desirable for direct management by DRP as part of the state park. These parcels may include public as well as privately owned lands that improve the continuity of existing parklands, provide the most efficient boundary configuration, improve access to the park, provide additional natural and cultural resource protection or allow for future expansion of recreational activities. The map also identifies lands that are potentially surplus to the management needs of DRP. As additional needs are identified through park use, development, or research, and changes to land use on adjacent private property occurs, modification of the park's optimum boundary may be necessary.

Identification of parcels on the optimum boundary map is intended solely for planning purposes. It is not to be used in connection with any regulatory purposes. Any party or governmental entity should not use a property's identification on the optimum boundary map to reduce or restrict the lawful rights of private landowners. Identification on the map does not empower or suggest that any government entity should impose additional or more restrictive environmental land use or zoning regulations. Identification should not be used as the basis for permit denial or the imposition of permit conditions.

An area of sovereign submerged land is identified within the park's optimum boundary. For the protection of visitor safety and management of natural resources, it is recommended that the park boundary be extended to include the designated swimming area and the submerged area just off the seawall. On the Atlantic beach side, from the northern boundary to the lighthouse jetty, the park boundary should extend out 300 feet to encompass the defined swimming area. On the west side, from the lighthouse jetty to the center of Pines Canal, the park boundary should extend out 100 feet from the edge of the seawall.

At this time, no lands are deemed surplus to the needs of the park.

BILL BAGGS CAPE FLORIDA
STATE PARK

OPTIMUM BOUNDARY
MAP

IMPLEMENTATION COMPONENT

The resource management and land use components of this management plan provide a thorough inventory of the park's natural, cultural and recreational resources. They outline the park's management needs and problems, and recommend both short and long-term objectives and actions to meet those needs. The implementation component addresses the administrative goal for the park and reports on the Division of Recreation and Parks' (DRP) progress toward achieving resource management, operational and capital improvement goals and objectives since approval of the previous management plan for this park. This component also compiles the management goals, objectives and actions expressed in the separate parts of this management plan for easy review. Estimated costs for the ten-year period of this plan are provided for each action and objective, and the costs are summarized under standard categories of land management activities.

MANAGEMENT PROGRESS

Since the approval of the last management plan for Bill Baggs Cape Florida State Park in 2001, significant work has been accomplished and progress made towards meeting DRP's management objectives for the park. These accomplishments fall within four of the five general categories that encompass the mission of the park and DRP.

Park Administration and Operations

Since 2001, the park has continued to actively work with schools, organizations and members of the public who wish to volunteer their services. To date, over 50,000 hours of labor have been contributed to the park. Individual volunteers have been lighthouse docents, have assisted with park maintenance, and have helped in resource management, especially in wildlife monitoring and exotic species control. Numerous volunteer groups, including school classes, Scout troops, businesses and social clubs, have helped with beach and park clean-ups, tree plantings and exotic plant control. The park's citizens' support organization (CSO), The Friends of Cape Florida, Inc., has been in existence since 1999. Since 2003 it has provided funding for a wide range of equipment and services, from native plants and supplies for the park's plant nursery and wildlife projects, to equipment trailers and utility vehicles, to bus services for students. The CSO has also hosted park tours for youth groups and sponsored volunteer appreciation events.

Resource Management

Natural Resources

During the last ten years, the efforts that started in the 1990s to restore the native plant communities of Cape Florida have continued.

- More than 25,000 native grasses, shrubs, and trees have been planted in five different plant communities, through the use of volunteers and park staff.
- Through a partnership with Fairchild Tropical Botanic Garden, two imperiled plant species have been successfully reintroduced to the park.

- Exotic and invasive plant control efforts continued, with over 250 acres of exotic plants removed between fiscal year 2001 and fiscal year 2009.
- A prescribed burn program for coastal strand was initiated in an experimental effort to help restore this plant community. Three burns were conducted between 2007 and 2010.
- The genome of the park's imperiled Atlantic Coast Florida lantana populations was studied by staff at Fairchild Tropical Botanic Garden, in order to determine how much hybridization has occurred with the non-native Shrubverbena (*Lantana camara*).
- Sea turtle nests have been closely monitored and protected each summer, with the result that the park accounts for a significant portion (up to 24 percent) of the county's recorded nests, despite heavy beach use by visitors.
- Ten manatee zone signs have been placed along the park's bayside shoreline, and an informational panel about manatee zones has been installed at No Name Harbor.
- Exotic animals continued to be removed from the park, with over 2,800 non-native animals of 25 species removed. Particular emphasis was place on the large exotic lizards, with green and spiny-tailed iguanas accounting for 81 percent of the total.
- The average annual number of nuisance raccoon removals was reduced by 80 percent between the 2001-2005 and 2006-2010 periods through better control of park garbage.
- Wildlife monitoring and surveys were regularly conducted, resulting in dozens of species being added to the park's wildlife list, especially in the bird, insect and mollusk categories and including several imperiled species.

Cultural Resources

- Maintenance on the historic Cape Florida lighthouse has been performed twice since 2001. The entire structure was repainted in 2003, and the tower was recoated with historically-accurate parge and the entire structure painted in 2008.

Recreation and Visitor Services

- Since 2001, visitor access to the lighthouse interpretive area has been increased to eight hours a day, seven days a week. Additional staffing hours has allowed visitor access to the Cape Florida lighthouse and keeper's dwelling museum to increase, as well.

Park Facilities

Numerous park facility improvements have occurred since the approval of the park's last management plan:

- At No Name Harbor, a picnic pavilion with attached restrooms has been constructed, an 1,100-foot ADA-accessible concrete sidewalk leading to the

pavilion has been built, and 1,000 feet of the harbor seawall has been bordered with a concrete walkway and mooring cleats have been added.

- At the group camp site, ten tent platforms, an information kiosk and a fire ring have been built, water service has been added, and an amphitheater area for interpretive programs has been constructed.
- The main entrance to the lighthouse interpretive area has been substantially improved with a new fencing, benches, a shade canopy, interpretive panels, and a display of historic lighthouse parts. The back entrance to the area has had a new fence and walk-through gate added, improving visitor access.
- The entrances to the two park restaurants have been improved with landscaping and decorative walkways.
- The wooden boardwalk at Beach Access #1 has been replaced with recycled plastic lumber.
- A nature trail that leads to an overlook with views of the park's mangrove forest and lagoon has been created north of the harbor.
- Nine panels that interpret Cape Florida's natural resources and history, including five ADA-accessible panels that incorporate sound and touch, have been installed at various park locations.
- The park restroom with the greatest use has been remodeled to bring it to ADA standards.
- Watercraft-exclusion buoys demarcating the park's swimming area have been placed along the entire length of the park's beach and a beach-front kayak launch/landing and channel created.
- The four park residences that border Pines Canal have been connected to the park's sewer system.
- Seven water submeters have been added to the park's waterline network, allowing for better leak detection, increased water conservation and lower water bills.

MANAGEMENT PLAN IMPLEMENTATION

This management plan is written for a timeframe of ten years, as required by Section 253.034 Florida Statutes. The Ten-Year Implementation Schedule and Cost Estimates (Table 7) summarizes the management goals, objectives and actions that are recommended for implementation over this period, and beyond. Measures are identified for assessing progress toward completing each objective and action. A timeframe for completing each objective and action is provided. Preliminary cost estimates for each action are provided and the estimated total costs to complete each objective are computed. Finally, all costs are consolidated under the following five standard land management categories: Resource Management, Administration and Support, Capital Improvements, Recreation Visitor Services and Law Enforcement.

Many of the actions identified in the plan can be implemented using existing staff and funding. However, a number of continuing activities and new activities with

measurable quantity targets and projected completion dates are identified that cannot be completed during the life of this plan unless additional resources for these purposes are provided. The plan's recommended actions, timeframes and cost estimates will guide DRP's planning and budgeting activities over the period of this plan. It must be noted that these recommendations are based on the information that exists at the time the plan was prepared. A high degree of adaptability and flexibility must be built into this process to ensure that DRP can adjust to changes in the availability of funds, improved understanding of the park's natural and cultural resources, and changes in statewide land management issues, priorities and policies.

Statewide priorities for all aspects of land management are evaluated each year as part of the process for developing DRP's annual legislative budget requests. When preparing these annual requests, DRP considers the needs and priorities of the entire state park system and the projected availability of funding from all sources during the upcoming fiscal year. In addition to annual legislative appropriations, DRP pursues supplemental sources of funds and staff resources wherever possible, including grants, volunteers and partnerships with other entities. DRP's ability to accomplish the specific actions identified in the plan will be determined largely by the availability of funds and staff for these purposes, which may vary from year to year. Consequently, the target schedules and estimated costs identified in Table 7 may need to be adjusted during the ten-year management planning cycle.

Table 7
Bill Baggs Cape Florida State Park Ten-Year Implementation Schedule and Cost Estimates

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal I: Provide administrative support for all park functions.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Continue day-to-day administrative support at current levels.**	Administrative support ongoing	C	**$510,000**
Objective B	**Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.**	Administrative support expanded	C	**$7,400**
Goal II: Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Test water quality in tidally submerged areas.**	Testing conducted	C	**$4,400**
Goal III: Restore and maintain the natural communities/habitats of the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Within 10 years, have 129 acres of the park maintained within the optimum fire return interval.**	# Acres within fire return interval target	LT	**$56,500**
Action 1	Update annual burn plan.	Plan updated	C	$16,000
Action 2	Restore ecosystem function, structure and processes to coastal strand communities by burning between 38-52 acres annually, as identified by the annual burn plan.	Average # acres burned annually	C	$26,000
Action 3	Continue to monitor the effects of experimental use of prescribed fire in natural community restoration.	Monitoring ongoing	C	$14,500
Objective B	**Continue natural community restoration activities on 170 acres of coastal strand community.**	# Acres restored or with restoration underway	UFN	**$309,900**
Action 1	Update site specific restoration plan.	Plan developed/updated	ST	$1,700
Action 2	Continue to implement restoration plan through the continued removal of buttonwood trees.	# Acres with restoration underway	UFN	$150,000
Action 3	Continue to implement restoration plan through augmentation of saw palmetto and graminoid cover.	# Acres with restoration underway	LT	$150,000
Action 4	Continue efforts to pursue funding for buttonwood tree removal.	Funding acquired	LT	$8,200
Objective C	**Conduct natural community improvement activities on 7 acres of interdunal swale community.**	# Acres improved or with improvements underway	LT	**$8,200**
Action 1	Develop and implement plan for buttonwood removal in interdunal swales.	Plan implemented	ST	$2,200
Action 2	Develop and implement protocol for survey and control of new buttonwood trees.	Protocols implemented	C	$6,000
Objective D	**Conduct natural community improvement activities on 40 acres of maritime hammock community.**	# Acres improved or with improvements underway	LT	**$14,500**
Action 1	Continue to locate and transplant desirable native plant species into areas of maritime hammock.	# Acres planted	LT	$14,500

* 2011 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal IV: Maintain, improve or restore imperiled species populations and habitats in the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Update baseline imperiled species occurrence inventory lists for plants and animals, as needed.**	List updated	C	**$26,200**
Action 1	Continue to implement protocols for documenting the observation of imperiled species in the park.	Protocols implemented	C	$9,800
Action 2	Develop and maintain partnerships with other agencies and academic institutions regarding observation and documentation of imperiled species in the park, as opportunities arise.	# Partnerships underway	C	$16,400
Objective B	**Monitor and document 2 suites of selected imperiled animal species in the park.**	# Species monitored	C	**$151,500**
Action 1	Continue to implement monitoring protocols for sea turtle species.	# Species monitored	C	$140,000
Action 2	Continue to implement monitoring protocols for butterfly species.	# Species monitored	C	$11,500
Objective C	**Monitor and document 8 selected imperiled plant species in the park.**	# Species monitored	C	**$32,300**
Action 1	Develop monitoring protocols for 6 selected imperiled plant species including sea lavender, Florida flatsedge, Atlantic Coast Florida lantana, burrowing four-o-clock, beachstar and white spikerush.	# Protocols developed	ST	$300
Action 2	Implement monitoring protocols for 8 including those listed in Action 1 above, beach Jacquemontia and Biscayne pricklyash.	# Species monitored	C	$32,000

Goal V: Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Annually treat 11 infested acres of exotic plant species in the park.**	# Acres treated	C	**$216,000**
Action 1	Annually update exotic plant management work plan.	Plan updated	C	$16,000
Action 2	Implement annual work plan by treating 11 infested acres in the park annually and continuing maintenance and follow-up treatments, as needed.	Plan implemented	C	$200,000
Objective B	**Implement control measures on 3 exotic and nuisance animal species in the park.**	# Species for which control measures implemented	C	**$107,000**
Action 1	Continue capture and removal of green iguanas and black spiny-tailed iguanas.	# Animals removed	C	$78,000
Action 2	Develop and implement control measures for Cuban treefrogs.	Measures implemented	LT	$29,000

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UFN = currently unfunded need

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Goal VI: Protect, preserve and maintain the cultural resources of the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	**Assess and evaluate 5 of 23 recorded cultural resources in the park.**	Documentation complete	LT	**$35,400**
Action 1	Complete 4 assessments/evaluations of archaeological sites and prioritize preservation and stabilization projects.	Assessments complete	ST	$400
Action 2	Update 1 Historic Structures Reports (HSR's) for historic buildings and cultural landscape. Prioritize stabilization, restoration and rehabilitation projects.	Reports and priority lists completed	UFN	$15,000
Action 3	Complete a survey of all archaeological resources in the park that includes GPS plotting of site boundaries.	Survey completed	UFN	$20,000
Objective B	**Compile reliable documentation for all recorded historic and archaeological sites.**	Documentation complete	LT	**$24,300**
Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.	# Sites recorded or updated	ST	$300
Action 2	Complete a predictive model for high, medium and low probability of locating archaeological sites within the park.	Probability Map completed	LT	$6,400
Action 3	Conduct Level 1 archaeological survey for 3 priority areas, including the Cape House Site, proposed restroom and proposed multi-use path extension.	Survey completed	LT	$3,000
Action 4	Develop and adopt a Scope of Collections Statement.	Document completed	ST	$2,200
Action 5	Assess/evaluate park collections, and implement a collections management plan.	Plan implemented	LT	$5,200
Action 6	Conduct oral history interviews.	Interviews complete	LT	$3,500
Action 7	Compile a park administrative history.	Report completed	LT	$3,700
Objective C	**Bring 1 of 23 recorded cultural resources into good condition.**	# Sites in good condition	LT	**$173,000**
Action 1	Design and implement regular monitoring programs for 14 cultural sites.	# Sites monitored	ST	$3,000
Action 2	Create and implement a cyclical maintenance program for each cultural resource, including the Cape Florida Lighthouse.	Programs implemented	ST	$170,000

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NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal VII: Provide public access and recreational opportunities in the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Maintain the park's current recreational carrying capacity of 6,934 users per day.**	# Recreation/visitor	C	**$5,920,000**
Objective B	**Expand the park's recreational carrying capacity by 100 users per day.**	# Recreation/visitor	UFN	**$86,000**
Action 1	Develop 1.25 miles of new multi-use path opportunities.	# Recreation/visitor opportunities per day	UFN	$86,000
Objective C	**Continue to provide the current repertoire of 1 interpretive, educational and recreational programs on a regular basis.**	# Interpretive/education programs	C	**$180,000**
Objective D	**Develop 2 new interpretive, educational and/or recreational programs.**	# Interpretive/education programs	LT	**$29,500**
Action 1	Develop and implement 2 additional interpretive programs as identified in the Land Use Component.	Facilities complete	LT	$10,300
Action 2	Install 6 interpretive signs and one interpretive kiosk throughout the park.	Facilities complete	LT	$19,200
Goal VIII: Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Maintain all public and support facilities in the park.**	Facilities maintained	C	**$2,040,000**
Objective B	**Expand maintenance activities as existing facilities are improved and new facilities are developed.**	Facilities maintained	C	**$30,000**
Objective C	**Continue to implement the park's transition plan to ensure facilities are accessible in accordance with the American with Disabilities Act of 1990.**	Plan implemented	C	**$720,000**
Objective D	**Improve and/or repair 5 existing facilites as identified in the Land Use Component.**	# Facilities/Miles of Trail/Miles of Road	UFN	**$1,878,500**
Objective E	**Construct 1.75 miles of paved trails as identified in the Land Use Component.**	# Facilities/Miles of Trail/Miles of Road	UFN	**$173,000**

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UFN = currently unfunded need

Table 7
Bill Baggs Cape Florida State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 5 of 5

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Summary of Estimated Costs

Management Categories	Total Estimated Cost* (10-years)		
Resource Management	$1,159,200		
Administration and Support	$517,400		
Capital Improvements	$2,771,500		
Recreation Visitor Services	$8,285,500		
Law Enforcement Activities**	**Law enforcement activities in Florida State Parks are conducted by the DEP Division of Law Enforcement and by local law enforcement agencies.		

* 2011 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Addendum 1—Acquisition History

Purpose of Acquisition:

The Board of Trustees of the Internal Improvement Trust Fund (Trustees) of the State of Florida purchased the initial area of Bill Baggs Cape Florida State Park for the use and benefit of the Outdoor Recreational Development Council of the State of Florida.

Sequence of Acquisition:

On March 31, 1966, the Trustees obtained title to a 100-acre property that constituted the initial area of Bill Baggs Cape Florida State Park. This property was purchased from Elena Santeiro Garcia for a sum of $2,500,000. The purchase was primarily funded through the Land and Water Conservation Fund (LWCF) program. Subsequent to the initial purchase, the Trustees acquired several individual parcels under Land Acquisition Trust Fund (LATF) and LWCF programs adding them to Bill Baggs Cape Florida State Park. The current area of the park is 442.29 acres.

Title Interest:

The Trustees hold fee simple title interest in Bill Baggs Cape Florida State Park.

Lease Agreement:

On September 15, 1969, the Trustees conveyed management authority for Bill Baggs Cape Florida State Park to the Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) under Lease No. 2389. This lease is a 99-year-term lease, and it will expire on September 14, 2068.

According to Lease No. 2389, the DRP manages Bill Baggs Cape Florida State Park for the purpose of preserving, developing, operating and maintaining the property for outdoor recreational, park, conservation and related purposes.

Special Conditions on Use:

Bill Baggs Cape Florida State Park is designated single-use to provide resource-based public outdoor recreation and other park related uses. Uses such as water resource development projects, water supply projects, stormwater management projects, and 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:

The DRP's lease from the Trustees stipulates that all the property be used for public outdoor recreation and related purposes. The following is a list of outstanding rights, reservations and encumbrances that apply to Bill Baggs Cape Florida State Park.

Instrument:	Sublease Agreement (Sublease No. 2389-01)
Instrument Holder:	State of Florida Department of General Services
Beginning Date:	January 1, 1990
Ending Date:	December 31, 2040
Outstanding Rights, Uses, Etc.:	This sublease allows the State of Florida Department General Services to install, maintain and utilize a radio tower and equipment shelter on a portion Bill Baggs Cape Florida State Park.

Instrument:	Warranty Deed
Instrument Holder:	Elena Santeiro Garcia
Beginning Date:	March 17, 1969
Ending Date:	There is no specific ending date given.
Outstanding Rights, Uses, Etc.:	This warranty deed is subject to a 120-foot road right of way reservation in favor of Elena Santeiro Garcia dated March 31, 1966, recorded in official records book 5004 at page 139 of the public records of Miami-Dade County, Florida, across the South 100 acres of Tract 1 Canoga Properties as well as any dedication of the 185 feet waterway referred to in parcel A.

Addendum 2—Advisory Group Members and Report

Bill Baggs Cape Florida State Park Advisory Group Members

Local Government Representatives

The Honorable Carlos A. Gimenez
Mayor, Miami-Dade County
Office of the Mayor
Stephen P. Clark Center
111 Northwest 1st Street, Ste 2900
Miami, Florida 33128

The Honorable Franklin Caplan
Mayor, Village of Key Biscayne
Village of Key Biscayne Village Hall
88 West McIntyre Street
Key Biscayne, Florida 33149

The Honorable Tomás P. Regalado
Mayor, City of Miami
3500 Pan American Drive
Miami, Florida 33133

Agency Representatives

David Foster, Park Manager
Bill Baggs Cape Florida State Park
1200 South Crandon Boulevard
Key Biscayne, Florida 33149

S. Cooper McMillan, Chairman
South Dade Soil and Water Conservation District
1450 North Krome Avenue, Suite 104
Florida City , Florida 33034

Pamela Sweeney, Manager
Biscayne Bay Aquatic Preserve
1277 79th Street Causeway
Miami, Florida 33138

Gary Milano, Coordinator
Coastal Habitat Restoration Program
Restoration & Enhancement Section
Miami-Dade Department of Environmental Resources Management
701 Southwest 1st Court
Miami, Florida 33136

Ricardo Zambrano, Regional Non-Game Biologist
Florida Fish and Wildlife Conservation Commission (FFWCC), South Region
8535 Northlake Boulevard
West Palm Beach, Florida 33412

Mark Torok, Senior Forester / Urban Forestry Specialist
Everglades District
Florida Forest Service
3315 S.W. College Ave.
Davie, Florida 33314

Environmental and Conservation Representatives

George Gann, Executive Director
Institute for Regional Conservation
22601 Southwest 152nd Avenue
Miami, Florida 33170

Laura Reynolds, Executive Director
Tropical Audubon Society
5530 Sunset Drive
Miami, Florida 33143

Bertram “Chico” Goldsmith, President
Dade Heritage Trust
190 Southeast 12th Terrace
Miami, Florida 33131

Robert S. Carr, Executive Director
Archaeological and Historical Conservancy, Inc.
4800 Southwest 64th Avenue, Ste 107
Davie, Florida 33314

Recreational User Representatives

Robin Diaz
Birding Representative
200 Ocean Lane Drive #PB-1
Key Biscayne, Florida 33149

Ricou Browning
Boater Advocate / Longtime Park Visitor
4080 Careywood Drive
Melbourne, Florida 32934

Bill Baggs Cape Florida State Park Advisory Group Members

Adjacent Landowner
Anthony Ottavio, President
Towers of Key Biscayne
Board of Directors
1211 Crandon Boulevard
Key Biscayne, Florida 33149

Citizen Support Organization Representatives
Teodoro "Ted" Rodriguez, President
The Friends of Cape Florida
7260 Southwest 138th Court
Miami, Florida 33183-3138

The Advisory Group meeting to review the proposed land management plan for Bill Baggs Cape Florida State Park was held at The Boater's Grill on Wednesday, May 16, 2012.

Lindsay Nester represented Ricardo Zambrano. John C. Gilbert represented Mayor Caplan. Gary Lewis represented Mark Torok. L.T. Sonny Clayton represented S. Cooper McMillan. Maria Nardi represented Mayor Gimenez. Stephanie Cornejo represented Laura Reynolds. Mayor Regalado (City of Miami), George Gann (Institute for Regional Conservation), Bertram Goldsmith (Dade Heritage Trust), Robert S. Carr (Archaeological and Historical Conservancy, Inc.), Robin Diaz (recreational birding representative), Ricou Browning (recreational boating advocate), and Anthony Ottavio (Towers of Key Biscayne) were not in attendance. All other appointed Advisory Group members were present, as well as Frank Balzebre (Miami-Dade County) and Don Sackrider (public). Attending staff were Paul Rice, Ernie Cowan, David Foster, Elizabeth Golden, and Amber Raynsford.

Ms. Raynsford began the meeting by explaining the purpose of the Advisory Group and reviewing the meeting agenda. She provided a brief overview of the Division of Recreation and Parks' (DRP) planning process and summarized comments received during the previous evening's public workshop. She then asked each member of the advisory group to express his or her comments on the draft plan.

Summary of Advisory Group Comments

Ms. Nester (Florida Fish and Wildlife Commission) commended the park on its iguana removal program. She asked if the park had black nesting stilts and requested that, if they were present, their activities be entered in the online nesting database. Ms. Nester stated that nesting terns are present at Crandon Park and, therefore, may be present at the park. She stated that the Memorandum of Understanding for the Miami blue butterfly is still in effect and requested that Miami blue be mentioned in the plan.

Mr. Gilbert (Village of Key Biscayne) thanked Ms. Raynsford for the summary of comments received at the public workshop and stated that he will not reiterate the recreational fields issue. Mr. Gilbert agreed with public comments regarding traffic on Crandon Boulevard, and explained that vehicles should be turned around before reaching the park entrance when the park is closed or full. He explained that the Village is willing to coordinate with FDOT and DRP to resolve traffic issues. He suggested signage to educate visitors on traffic conditions and park closures. He thanked DRP for the opportunity to comment on the draft plan.

Mr. Lewis (Florida Forest Service) explained that he deals with prescribed burning in Miami-Dade County. He described prescribed burning as an important tool for maintaining and improving the park's natural communities. He stated that he has

attended prescribed burns at the park previously, and he commended park staff on the prescribed burn program.

Mr. Clayton (Soil and Water Conservation District) expressed support of the draft plan. He added that any additional concerns would be sent as written comments following the Advisory Group meeting.

Ms. Nardi (Miami-Dade County) commended the draft plan and said that recommendations for future protection and preservation of park resources were well placed and well stated. Ms. Nardi explained that the City of Miami has a plan for active recreational fields on Virginia Key and recommended they be contacted to speak on the timeline of those facilities. Ms. Nardi commended the plan's discussion of enhancing cultural buildings and sites. She stressed the importance of allowing buildings to be developed with the cultural history of the site. She added that buildings should keep in the character of the place. Ms. Nardi commended the multi-use trail expansion. She recommended collaboration between city, county, and state parks on a common language for interpretive signage. She expressed a need to establish the regional context of the park, stating that onsite signage should emphasize and establish regional connections for educational purposes.

Mr. Milano (Miami-Dade County Department of Environmental Resources Management) noted his work with the park since the 1980s and his participation in restoration efforts starting in the 1990s. Mr. Milano commended the completeness of the draft plan. He agreed with Ms. Nardi regarding developing regional connections to adjacent managed areas. He suggested a boat tour concession that connected the park with nearby Biscayne National Park, Biscayne Bay Aquatic Preserve, and Stiltsville. Mr. Milano explained that he has worked with City of Miami regarding the planned park on Virginia Key. He explained that Virginia Key has 115 acres identified for development of recreational fields, but that development is delayed due to issues with the landfill site. He said that the Virginia Key landfill is leaching into the water and that work needs to be done politically to clean up the landfill and obtain an environmental impact assessment. Mr. Milano said that he has worked with Mr. Rice, Ms. Golden, and other DRP staff; commending the park on past and ongoing restoration efforts. He commended Ms. Golden on her long tenure with park, adding that her consistent knowledge is an asset to the park. He emphasized the need for state parks and testified to the extent of successful restoration at the park. Mr. Milano commented on written comments submitted by Ms. Diaz regarding freshwater ponds. He offered his support of Ms. Golden's recommendation and agreed that restoration is possible; adding that outside funding may be available to complete these projects. Mr. Milano expressed gratitude for the Advisory Group process and thanked DRP for the opportunity to comment on the draft plan.

Ms. Cornejo (Tropical Audubon Society) expressed concerns about local advertisement of the plan review process, explaining that the park is of regional significance and,

therefore, such events should be advertised regionally. She stated that the proposed auxiliary parking area does not support birds that use the area currently. Ms. Cornejo added that expanded rental facilities for bikes might alleviate the need for additional parking. She suggested exploring transit improvements as a means to influence visitor behavior away from driving to the park, which may also decrease the need for additional parking. Ms. Cornejo stated that providing openspace and natural areas is of equal importance to recreational fields, and that the park needs to be protected for the openspace and significant natural areas that it provides. She added that additional concerns would be sent as written comments following the Advisory Group meeting.

Ms. Sweeney (Biscayne Bay Aquatic Preserve) explained that the aquatic preserve has worked closely with park staff to educate people about shared issues. She commended the Vicinity Map for showing the park in context with adjacent and regional managed areas. She explained that the aquatic preserve is managed by CAMA and advocated for exploring resource sharing between CAMA and DRP, such as staff training. Ms. Sweeney expressed the importance of emphasizing resource protection while dealing with key issues that the park faces with the current and expanded boundary, such as vessel groundings, coordination with the Village of Key Biscayne, and onsite film projects. She added that, as law enforcement and DEP police merge, additional resources may become available for these and other issues, such as illegal harvesting. Ms. Sweeney stated the importance of continued coordination on workshops for staff, regarding topics like illegal harvesting and interpretation. Ms. Sweeney spoke in support of extending the park boundary to include additional submerged areas. She explained that CAMA and DRP would collaborate on protection of this area. Ms. Sweeney agreed with Ms. Nardi's comment on collaborated interpretation and establishing regional connections, adding that the aquatic preserve could support these efforts through funding and other means. Ms. Sweeney agreed with Mr. Milano's comments about restoring freshwater ponds, adding that this effort will complement regional species protection. Ms. Sweeney spoke in support of seawall protection and suggested that the habitat value of the restored seawall be explored. Regarding the mention of geocaching in the draft plan, Ms. Sweeney stated that the park should manage this activity to ensure ongoing resource protection. Ms. Sweeney also stated that the aquatic preserve could help with monitoring efforts discussed in the draft plan, particularly regarding fallen monuments. She added that mosquito control activities should be coordinated with the aquatic preserve. Ms. Sweeney expressed love for the park, and she commended Ms. Golden, Mr. Foster, park staff, and the draft plan.

Mr. Rodriguez (Friends of Bill Baggs Cape Florida State Park) explained that his main concern is for wildlife protection, especially regarding exotic removal. He stated that he has worked alongside Ms. Golden, and that he would like to see more emphasis put on removal of exotics, particularly iguanas. Mr. Rodriguez commended DRP on the draft plan.

Mr. Foster (Bill Baggs Cape Florida State Park) thanked the Advisory Group members for their participation, time, and review of the draft plan. He encouraged members to visit the park following the meeting and reiterated his gratitude for their ongoing support of the park.

Summary of Written Comments

Ms. Diaz (recreational birding representative) was not able to attend the advisory group meeting, but did submit written comments regarding the draft plan (see attached). Ms. Diaz commended the draft plan and thanked DRP for the opportunity to comment. Ms. Diaz explained her participation in bird monitoring at the park and stressed the park's importance to many bird species. Ms. Diaz opposed additional concessions and discouraged expanding multi-use activities for raising revenue. She commended the park on leaving wrack lines in place. She encouraged additional funding for exotic removal. Ms. Diaz stressed the importance of preserving the state park boundary and preventing annexation into the Village of Key Biscayne. She stated the need for signage and staff presence to discourage unsafe behaviors on shared-use paths. Ms. Diaz noted that birds have been observed in the proposed auxiliary parking area and expressed concerns about diminished habitat for ground birds. Ms. Diaz stated that the species list in the plan omits several birds observed previously in the park. Ms. Diaz questioned the feasibility of restoring the freshwater ponds.

Mr. Browning (boating advocate) was not able to attend the advisory group meeting, but did submit written comments regarding the draft plan (see attached). Mr. Browning commended the draft plan, stating that he saw no issues regarding recreational boating. Mr. Browning suggested placing pilings along the seawall as a buffer for larger boats.

Mr. Goldsmith (Dade Heritage Trust) was not able to attend the advisory group meeting. Becky Roper Matkov provided phone comments on behalf of Dade Heritage Trust. Ms. Matkov spoke about the importance of the Cape Florida lighthouse to the park and the region. She encouraged continued protection of the lighthouse and advocated for increased access to the lighthouse. Ms. Matkov spoke in favor of the lighthouse as focal point in the park.

Mr. Robert S. Carr (Archaeological and Historical Conservancy, Inc.) was not able to attend the advisory group meeting, but did submit written comments regarding the draft plan (see attached). Mr. Carr stated that unrecorded archaeological resources were likely present at the park, adding the need for a comprehensive survey with GPS plotting. Mr. Carr suggested the following changes to the cultural resource objectives:

- Objective B: Compile reliable documentation for all recorded and unrecorded historic and archaeological sites.
- Action 1: Ensure all known and unknown sites are recorded or updated in the Florida Master Site File.

Mr. Carr recommended adding the following action regarding cultural resources:

- Action B: Complete a GPS boundary site of all archaeological resources in the park.

Mr. Carr noted that the proposed lighthouse restroom should avoid impacts to underground archaeological resources. He recommended Phase I assessments of the proposed restroom site and the proposed paved path alignment prior to construction. Mr. Carr thanked DRP for the opportunity to participate in the Advisory Group process.

Ms. Reynolds (Tropical Audubon Society) was not able to attend the advisory group meeting, but did submit written comments in addition to those provided by Ms. Cornejo (see attached). Ms. Reynolds expressed general support for the draft plan. She opposed development of the proposed auxiliary parking area and adding paved surfaces for the multi-use path extension. She recommended that several additional items be addressed in the plan including interpretation of the Atlantic Flyway; transit improvements or other alternatives, such as bicycle rickshaws or centrally-located bike rentals; and reintroduction of the Miami blue butterfly. Ms. Reynolds also voiced opposition to the proposal for ball fields that was received at the public workshop.

Summary of Public Comments

Mr. Balzebre (Miami-Dade County) explained that he will recall the Advisory Group comments and experience for Mayor Gimenez's office, and he expressed support for Ms. Nardi who provided comments on behalf of Miami-Dade County.

Mr. Sackrider (public) explained that he has been a resident of Key Biscayne since 1957 and that he swims and walks in the park everyday. He expressed concerns for the safety of pedestrians using the shoulders of the park drive. He explained that the curvature of the road creates limited sight distances, making it dangerous for vehicles passing pedestrians. He stated that improved facilities are needed to protect pedestrians. Ms. Raynsford described the multi-use trail improvements proposed in the draft plan and explained how they would benefit pedestrians. Mr. Sackrider said that he hopes the multi-use path improvements will be implemented in his lifetime.

Staff Recommendations

The staff recommends approval of the proposed management plan for Bill Baggs Cape Florida State Park as presented, with the following significant changes:

- The Miami blue butterfly will be mentioned in the Imperiled Species discussion, and staff will continue communication with FFWCC regarding reintroduction.
- The species list will be reviewed for completeness and additional bird species will be added as appropriate.
- Action statements for a GPS survey and Phase I assessments will be added to the Cultural Resource section of the Resource Management Program.

- Regional issues and The Atlantic Flyway will be added to the interpretive programs discussion as possible content themes.
- Transit connections will be noted in the External Conditions discussion.

Two advisory group members expressed concerns about the proposed auxiliary parking area. DRP supports the auxiliary parking area as a low-impact solution to the recurring problem of limited parking near the harbor. Currently, visitors attempt to use the proposed area and other unpaved areas for overflow parking during peak times at the harbor use area. In order to control the extent of environmental impact, the plan designates 0.12 acres for overflow parking when demand for parking near the harbor exceeds the capacity of the existing parking facilities. The park's biologist has determined that this area has little habitat value and the plan includes relocating viable plants and trees from this area to other areas of the park.

An additional concern was voiced about the multi-use path extension. The proposed multi-use path extension is needed for the safety of path users. The current path, which is aligned along the west side the park drive only, increases the likelihood of conflicts by encouraging two-way traffic on the path and forcing cyclists and pedestrians onto the park drive. The primary objective of the proposed path extension is to provide safe conditions for path users. This project will also enhance recreational opportunities by completing a shared-use loop trail. Best management practices will be implemented in design and construction of path facilities; impervious pavement will be considered.

In concurrence with the 2001 approved management plan for Bill Baggs Cape Florida State Park, DRP does not recommend the addition of user-based recreation facilities, such as ball fields, to the state park. Therefore, this plan does not include a proposal for such facilities.

Notes on Composition of the Advisory Group

Florida Statutes Chapter 259.032 Paragraph 10(b) establishes a requirement that all state land management plans for properties greater than 160 acres will be reviewed by an advisory group:

"Individual management plans required by s. 253.034(5), for parcels over 160 acres, shall be developed with input from an advisory group. Members of this advisory group shall include, at a minimum, representatives of the lead land managing agency, co-managing entities, local private property owners, the appropriate soil and water conservation district, a local conservation organization, and a local elected official."

Advisory groups that are composed in compliance with these requirements complete the review of State park management plans. Additional members may be appointed to the groups, such as a representative of the park's Citizen Support Organization (if one exists), representatives of the recreational activities that exist in or are planned for the

park, or representatives of any agency with an ownership interest in the property. Special issues or conditions that require a broader representation for adequate review of the management plan may require the appointment of additional members. DRP's intent in making these appointments is to create a group that represents a balanced cross-section of the park's stakeholders. Decisions on appointments are made on a case-by-case basis by DRP staff.

May 14, 2012

To Whom It May Concern:

I wish to thank the Florida Department of Environmental Protection for inviting my comments on the draft management plan for Bill Baggs Cape Florida State Park. Thank you for allowing me to send my comments via email.

I am a recreational park user and since 1996, my visits average 4-5 times per week from August through May. Through the years, my observations of the constantly changing habitats have been most interesting. As one of the founders of the fall bird banding station in the park from 2002 until present, I've especially enjoyed many opportunities to observe the maritime hammock, its growth and contribution to wildlife in the park. Since 1998 I've led bird walks in BBCFSP for Tropical Audubon Society and it has been a rewarding experience to share the park's natural resources with walk participants. The park's unique location, not only at the southern tip of a barrier island, but also its proximity to the Bahamas and the Caribbean, makes it attractive to vagrant birds. This, in turn, attracts bird watchers from all over the world. I don't know how the "gate revenue" works, but it would be wonderful if some of these fees revert directly back to the park!

The management plan is comprehensive, concise and easy to read and there are very few areas that I can comment upon.

General Comments:

- Though the park is a state recreation area, I hope that no other concession facilities will be allowed.
- I hope that multi-use activities will not be increased in order to raise revenue and that the park is able to charge maximum rates for private short-term usage such as movie shoots.
- As a resident with direct access to Key Biscayne beaches, I see that the park policy of leaving wrack lines in place and not raking the beach is clearly positive management. The groomed beaches north of BBCFSP are in constant flux and erode quickly with minimal weather impact.
- I would like to see more funding available for invasive exotic plant removal.
- Though the Village of Key Biscayne removed references to park land annexation from its comprehensive plan, I strongly urge all agencies involved with preserving this state park to prevent future exploration of any annexation proposals.
- I believe that expanding the park's recreational carrying capacity by 100 users per day via proposed multi-use path extension must be tempered with generous signage that limits certain bicycle activities. Increasingly, bicyclists use the existing paved path for high-speed exercise, many times with 2-3 bicyclists spread across the path. I witness many flagrant violations of "path etiquette" so I hope that rangers can be vigilant and able to reprimand those not adhering to the signage rules.

Comments Regarding Birds:

- Though there may be a need for a proposed auxiliary parking area east of the existing No Name Harbor parking area during peak seasons, I would like to point out that this particular small area hosts numerous ground birds in winter. These birds are Painted Buntings (I have counted as many as 17 birds in this small area), Indigo Buntings, Gray Catbirds, Common Yellowthroats, Palm Warblers and some sparrows.
- Over the years, much of the habitat for ground birds has been rendered useless by the thick cover of gray nicker and morning glory vines. I've observed that buntings, sparrows and warblers no longer use a large open area along the southern section of the Nature Trail. Another section that is now too dense for these birds is an area along the northeastern part of the Nature Trail. These areas traditionally hosted many wintering passerines, including uncommon species like Bell's Vireo.
- Ten years of fall banding data prove that BBCFSP is an important stop-off point for migrating birds to rest and feed in order to continue to West Indian islands, South America and the Caribbean slope of Central America. The fruits and insects available in the park become part of a successful migration. Management that sustains and promotes these habitats is essential.
- My personal park bird list since 1996 exceeds that within the plan, especially birds that were observed during storms.
- I am curious (but have no opinion) about the feasibility of restoring the 5 freshwater ponds along the dirt Nature Trail. These ponds were actively used by wading birds, shorebirds, ducks and rails during the late 1990's and until 2004.

Bill Baggs Cape Florida State Park is a wonderful recreational area but more important, it is a unique and special wildlife resource. Its natural communities are essential for spring and fall bird migration, as well as important areas for wintering and breeding birds. I hope that my comments regarding the management plan are helpful.

With best regards,

Robin Diaz

Key Biscayne, FL

Raynsford, Amber

From: RICOU [redacted]
Sent: Wednesday, May 23, 2012 10:55 AM
To: Raynsford, Amber
Subject: Advisory Draft Review

Hi Amber,
I have reviewed the Management Draft. It seems well thought out and logical.
As a boater I do not see any problem with it.
A suggestion as to the seawall in No Name Harbor; to protect it from larger vessels you can place pilings around the wall as a buffer.
Obviously this this would be costly and would need additional funds. If it is possible it could extend the life of the seawall.

Kind regards,
Ricou Browning

Archaeological and Historical Conservancy, Inc.
4800 S.W 64th Ave, Suite 107 Davie, FL 33314
Phone: 954-792-9776 Fax: 954-792-9954
Email: archlgcl@bellsouth.net Web: www.flarchaeology.com

May 21, 2012

Amber Raynesford, Associate ASLA
Park Planner
Division of Recreation & Parks, Office of Park Planning
3900 Commonwealth Blvd, MS525
Tallahassee, Fl. 32399-3000

Re: Bill Baggs Cape Florida State Park Advisory Group Draft Unit Management Plan-Cultural Resources.

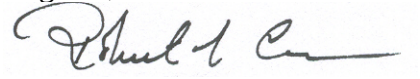
Dear Ms. Raynesford,

I have reviewed the draft management plan in regard to the cultural resources.
Overall, Bill Baggs Park likely has a more complete inventory of cultural resources than most other State parks, however , it is likely that other unrecorded archaeological resources exist. Despite several extensive phase I surveys, no truly comprehensive survey has been conducted, particularly one that identifies the specific site boundaries using GPS plotting.

I would suggest that you augment Goal VI, Objective B, Action 1 language and content as follows:
Objective B- Compile reliable documentation for all recovered and unrecorded historic and archaeological sites.
Action 1: Ensure all known and unknown sites are recorded or updated in the Florida Master Site File.
Consider adding to Action B: Complete a GPS boundary site of all archaeological resources in the park.(I know at present, there are no funds for conducting this task.)

The proposed lighthouse restroom (page 94) should avoid impacting any archaeological resources, and a phase I assessment may be needed prior to siting the facility. Likewise, a phase I assessment should be conducted of the proposed 1.75 miles of paved trails(Page 95).
Thank you for the opportunity to serve on this committee.

Regards,



Robert S Carr

Tropical Audubon Society

The Voice of Conservation in South Florida

June 15, 2012

Ms. Amber Raynsford
Park Planner
Florida Department of Environmental Protection
3900 Commonwealth Blvd., MS 525
Tallahassee, FL 32399-3000

Re: Comments on the Advisory Group Draft Unit Management Plan for Bill Baggs Cape Florida State Park dated April 20, 2012 ("the Plan")

Dear Ms. Raynsford:

We are writing to express our general support of the April 20, 2012 draft of the Plan for Bill Baggs Cape Florida State Park. There are certain aspects of the Plan to which we object including the proposed auxiliary parking area adjacent to the existing parking lot at No Name Harbor and the extension of the paved multi-use trail facilities.

While we recognize the need to balance the multi-use recreation areas with the principle mission of the Park, the Division must remain loyal to the statutory policy of "the [Division] to promote the state park system for the use, enjoyment, and benefit of the people of Florida and visitors to. . . 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." *The Plan*, 8 (April 20, 2012).

Objections to the Plan

We oppose the creation of an unpaved auxiliary parking area. This opposition is based upon the diminishment of the existing ecosystem resulting in the removal of vegetation from the coastal strand community and replacing it with a monoculture subject to periodic disturbance. Due to the lack of natural habitat available in Miami-Dade County, the natural areas in Bill Baggs are crucial to the existence of native wildlife. Bill Baggs serves as a critical stop-over habitat for millions of migratory and resident birds along the Atlantic Flyway. Finally, we note that the "need" for auxiliary parking area may be based on nothing more than an episodic demand.

Additionally, we object to the addition of impermeable surfaces that would result from expansion of the paved multi-use trail facilities. It is our belief that the current trails are sufficient to support at least 100 more users per day. We suspect that the perceived need to expand the subject trail is derived from the unregulated

speed of bicyclists on the trail. Regulation of the trail by posting and enforcing pedestrian friendly speeds will facilitate additional traffic on the existing trails. See Table 7, of the Plan, the trail extension is estimated to cost $86,000. *Id.* at 106. The implementation of bicycle regulations would eliminate the need to expand the trail and allow for these funds to be allocated to other projects. If expansion of the trail is deemed necessary, we would support the expansion of the trail if permeable surfaces that do not constrain the natural flow of groundwater are used.

Omissions from the Plan

In addition to the aforementioned objections, there are several "missed opportunities" that have not been addressed in the Plan.

We believe that the lack of signage indicating the important role the Park plays to the Atlantic Flyway is a missed opportunity to attract more visitors. The Atlantic Flyway is a migratory path that extends from South America to Canada, and accommodates hundreds of species of birds and millions of individuals during any single migration season. Our members have documented the critical park space that this area offers to birds and other wildlife. *Id.* at A5-21. Bill Baggs proves to be a valuable stop-over for as many as two hundred forty two species of birds. *Id.* The unique international demographic of Miami provides the opportunity to bolster environmental awareness by educating the public about the origins of the migratory bird population. We recommend incorporating signs in the park indicating the species of birds that visit the park and where the birds have migrated from. Many Miami residents hail from South American and European countries. Knowledge that bird populations from their home countries visit the park may provide inspiration to become more involved in conservation efforts.

We recommend that the Plan include transit improvements to decrease the need for motor vehicle use in the Park. Similarly, the Park should include rental bicycle facilities in the central section, as they have in the south area. As an incentive to rent bicycles the Park could offer a discounted rate for bikers and a raised rate for cars. Another alternative would be allowing rickshaws, like those already in use in Coconut Grove, to provide alternative shuttle service from public transit locations to No Name Harbor. Currently, there is no information in the "Getting Here" portion of their website with respect to public transportation options. Increased awareness about alternatives may alleviate the proposed need for additional parking. We would like to offer our assistance in collaborating on additional ideas that best serve both the community and environmental interests.

Furthermore, the Plan fails to include a strategy to bolster the sustainability of native species, specifically the federally-endangered Miami Blue (butterfly). The continued urbanization of south Florida has all but eliminated viable habitat for the Miami Blue. In addition to urban sprawl, the repeated assault on the environment through the use of toxic chemicals in order to curtail the mosquito population has adversely affected the Miami Blue population. As a result the Miami Blue, which was once abundant and widespread along coastal south Florida, has become one of the rarest insect species in North America. On April 6, 2012, the U.S. Fish and Wildlife Service officially listed the Miami Blue as an endangered species under the Endangered Species Act.

Several governmental and nongovernmental organizations believe Bill Baggs may be an ideal location to establish colonies of the Miami Blue for repopulation of the species. As you may be aware, Florida Fish and Wildlife Conservation Commission memorandum regarding the release and study of the Miami Blue in Bill Baggs, the Miami Blue "is within the historic range of the Miami Blue Butterfly and has appropriate larval food plants, nectar plants, and generally compatible habitat management programs to support the survival of Miami Blue Butterflies." FWC Contract No. 09164 (March 22, 2010).

While an agreement between the Florida Fish and Wildlife conservation Commission and the Department of Environmental Protection Division of Recreation and Parks has been made, the agreement was not mentioned in the Plan.

Response to Public Comment

While not part of the Plan, this issue has been presented as public comment and we would like to express our fundamental opposition to the proposal made at the public meetings on May 15th and 16th for ball-fields to be developed at Bill Baggs.

Bill Baggs is intended "for high-quality resource-based outdoor recreation and to preserve wildlife habitat in one of the most highly developed urban areas in the state." *The Plan*, 1 (April 20, 2012). Pursuant to Florida law, lands acquired through the Land Acquisition Trust Fund are intended "[t]o provide areas, including recreational trails, for natural resource based recreation and other outdoor recreation on any part of any site compatible with conservation purposes." Fla. Stat. § 259.032 (3)(g) (2009). Florida law goes on to state that lands under this category shall be "[m]anaged for public outdoor recreation which is compatible with the conservation and protection of public lands. Such management may include, but not be limited to, the following public recreational uses: fishing, hunting, camping, bicycling, hiking, nature study, swimming, boating, canoeing, horseback riding, diving, model hobbyist activities, birding, sailing, jogging, and other related outdoor activities compatible with the purposes for which the lands were acquired." *Id.* at (9)(b). Per the approved management plan in effect, "[t]he conversion of portions of the park to developed facilities such as ball-fields would significantly detract from its value to wildlife and park visitors. The Division will continue its opposition to suggestions that user-based recreation facilities should be located at the park." *Bill Baggs Cape Fla. State Park Unit Mgmt. Plan*, 29 (March 15, 2001).

A ball-field would encroach on the natural areas within the park that are vital to a large number of native species. Bill Baggs has been a critical migratory stop for songbirds, has the highest density of nesting sea turtles in Miami-Dade County, and is the potential relocation site for the Miami Blue. Throughout the year, over 50 butterfly species and 170 bird species may be seen at the Park. The peregrine falcon, piping plover and American crocodile regularly take refuge at the Park. Additionally, the Park is home to fifteen imperiled plant species, thirty imperiled vertebrate species, four imperiled marine reptile or mammal species, and ten imperiled invertebrates.

A ball-field would be inconsistent with the conservation and protection of public lands and does not promote the intended purpose for the state's acquisition of the land. We concede that the introduction of a ball-field complies with the Plan's Park Management Goal number eight. *The Plan*, 9 (April 20,

2012). However, a ball-field proves to be inconsistent with the Park Management Goals two through six. *Id.* The clearing, development, and operation of ball-fields would create unacceptable impacts to the Park's natural resources and to a number of federal and state-listed plants and animals that use the Park, including sea turtles, least terns, piping plovers, a variety of hawks and other birds. In kind, the operation of the proposed facilities would also greatly increase traffic congestion on the park roads and detract from the quality of the recreational experience provided to other state park visitors.

Finally, we believe that the development of a ball-field is incompatible with the purposes for which the lands were acquired. Florida statute indicates that the lands are intended for "resource based recreation", but a ball-field is classified as "user-based recreation." The Division has previously recognized that a ball-field is categorized as a user-based recreation facility as opposed to an approved resource related recreation facility. We respectfully request that the Division maintain its opposition to user-based recreation being located at the Park.

* * * *

We thank you for your consideration of this critical matter and implore the District to move forward quickly to guarantee that the natural areas in Bill Baggs Cape Florida State Park are adequately preserved in order to protect the native species and ensure the health and welfare of the public who enjoy the Park.

Sincerely,

Laura Reynolds

Laura Reynolds
Executive Director

Cc: Members of the Miami-Dade County Board of County Commissioners
Office of the Mayor, Carlos A. Gimenez, Miami-Dade County
The Honorable Franklin Caplan, Mayor of the Village of Key Biscayne
Craig Grossenbacher, PERA
Lee N. Hefty, PERA
Representative Luis R. Garcia, Jr.
Senator Gwen Margolis

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Addendum 4—Soil Descriptions

(39) Beaches - This map unit consists of nearly level to sloping, narrow strips of tide- and surf-washed sandy material and shell fragments along the shoreline of the Atlantic Ocean. It commonly is a mixture of moderately alkaline sandy material and fine shell fragments.

The beaches are less than 100 to 300 feet wide. As much as half of the beach area may be flooded daily during high tides, and all of it can be flooded by storm tides. Most of the beaches have a uniform gentle slope that extends to the edge of the water, although the shape and gradient of the slope can change with every storm.

This map unit generally supports no vegetation, although some clumps of sea oats, railroad vine, and other salt-tolerant plants are near some of the inland edges.

Depth to the water table varies considerably, commonly ranging from 0 to 6 feet, depending on distance from the shore, elevation of the beach, and the tides.

This map unit can be used only as recreational areas and wildlife habitat. Severe erosion is often a problem during severe storms. Because they have great esthetic value, the beaches are an important part of the coastline.

No capability classification is assigned.

(45) Canaveral sand - This very deep, nearly level or gently sloping, moderately well drained soil is on low, dunelike ridges. Individual areas are long and narrow and range from 10 to 200 acres in size. Slopes are dominantly less than 3 percent but range to 5 percent.

On 95 percent of the acreage mapped as Canaveral sand, Canaveral and similar soils make up 99 to 100 percent of the mapped areas.

Typically, the surface layer is dark grayish brown sand about 4 inches thick. About 10 percent of this layer is sand-sized shell fragments. The next 46 inches is pale brown sand in which the content of sand-sized shell fragments is about 20 percent. The lower 30 inches is gray sand in which the content of sand-sized shell fragments is about 25 percent.

Included in mapping are soils that are similar to Canaveral sand, but are better drained.

Dissimilar soils that are included with this soil in mapping occur as small areas of poorly drained soils that have a black surface layer. These soils make up about 1 percent of the map unit.

During most years the water table in the Canaveral soil is at a depth of 24 to 36 inches for 2 to 4 months and is at a depth of 36 to 60 inches for the rest of the year. It is at a depth of 12 to 24 inches after periods of heavy rainfall. Permeability is very rapid.

The natural vegetation consists of sand live oak, cabbage-palm, and scattered saw palmetto. Exotic tree species, including Australian pine and Brazilian pepper, have become established in some areas.

This soil in not suited to cultivated crops or improved pasture. A low available water capacity and low natural fertility severely reduce the variety of grasses that can be grown on the soil.This soil is poorly suited to the production of citrus, mangos, and avocados. The suitability for these crops is fair, however, if intensive management measures, including irrigation and regular applications of fertilizer, are applied. A close-growing crop between the trees helps to control soil blowing.

This soil is not used as rangeland or forest land. It is in the South Florida Coastal Strand ecological plant community.

This soil is severely limited as a site for buildings, sanitary facilities, and recreational development because of the wetness. Extensive water-control measures and large amounts of suitable fill material are needed to overcome this limitation. The sandy surface layer should be stabilized in areas used for recreational purposes. Water-control measures are needed. Sealing or lining trench sanitary landfills and sewage lagoons with impervious soil material helps to prevent seepage. The sides of shallow excavations should be shored. Because of the droughtiness of the soil, native plants should be selected for landscaping.

The capability subclass is VIs.

(**47) St. Augustine sand** - This deep, nearly level, somewhat poorly drained soil is on Key Biscayne. Individual areas range from 20 to 400 acres in size. Slopes are smooth and less than 2 percent.

On 95 percent of the acreage mapped as St. Augustine sand, St. Augustine and similar soils make up 85 to 99 percent of the mapped areas.

Typically, the surface layer is dark brown sand about 3 inches thick. Below this is 48 inches of gray and light gray sand that has common fine lenses of gray marl in the lower 22 inches. The subsoil is gray and light gray sand about 29 inches thick. It has few fine lenses of gray marl in the upper 6 inches.

Included in mapping are soils that are similar to St. Augustine sand but do not have pockets of loamy material or marl, have a thin or weakly pronounced organic layer at a

depth of more than 60 inches, have pockets of organic material or shell fragments, or are poorly drained.

Dissimilar soils that are included with this soil in mapping occur as small areas of poorly drained soils that have a dark surface layer. These soils are in the lower positions on the landscape. They make up less than 10 percent of most mapped areas.

In most years the water table in the St. Augustine soil is at a depth of 18 to 36 inches for 2 to 6 months. In some areas daily tides influence the water table, depending on the amount of fill material. Permeability is moderately rapid.

Most of the acreage supports Australian pine and weedy grasses. Some areas have been developed for urban uses.

This soil is not used for cropland, improved pasture, citrus, ornamental plants, or pine trees. It consists of mixed soil material used as fill in low tidal areas. The fill improves the suitability of the low areas for building site development and other urban uses. The suitability of this soil for urban uses is only fair because of brief periods of wetness. The soil is severely limited as a site texture. Onsite investigation is needed to determine the suitability for any use.

The capability subclass is VIIs.

Addendum 5—Plant and Animal List

Bill Baggs Cape Florida State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)

PTERIDOPHYTES

Giant leather fern .....*Acrostichum danaeifolium*
Maidenhair pineland fern.....A*nemia adiantifolia*
Asian sword fern.....*Nephrolepis multiflora**
Golden polypody .....*Phlebodium aureum*
Whisk fern.....*Psilotum nudum*
Tailed bracken .....*Pteridium aquilinum ssp. pseudocaudatum*
Chinese ladder brake.....*Pteris vittata **
Widespread maiden fern .....*Thelypteris kunthii*

GYMNOSPERMS

South Florida slash pine.....*Pinus elliottii var. densa*
Coontie.....*Zamia pumila*

ANGIOSPERMS

Monocots

Everglades palm.....*Acoelorraphe wrightii*
Century plant.....*Agave americana**
Sisal hemp .....*Agave sisalina**
Bushy bluestem .....*Andropogon glomeratus var. pumilus*
Hillsboro threeawn .....*Aristida purpurescens var. tenuispica*
Sprenger's asparagus-fern .....*Asparagus densiflorus**
Crested saltbush.....*Atriplex pentandra*
Pitted beardgrass.....*Bothriochloa pertusa**
Caladium species .....*Caladium sp.**
Southern sandbur.....*Cenchrus echinatus*
Coastal sandbur.....*Cenchrus incertus*
Sawgrass.....*Cladium jamaicense*
Florida silver palm.....*Coccothrinax argentata*..... MAH
Coconut palm .....*Cocos nucifera **
Common dayflower.....*Commelina diffusa var. diffusa*
Whitemouth dayflower.....*Commelina erecta*
Milk-and-wine-lily .....*Crinum zeylanicum**
Bermudagrass.....*Cynodon dactylon**
Poorland flatsedge .....*Cyperus compressus*
Baldwin's flatsedge .....*Cyperus croceus*

*** Non-native Species**

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Yellow nutgrass	*Cyperus esculentus**	
Florida flatsedge	*Cyperus floridanus*	CS, DV, MAH, RD
Umbrella plant	*Cyperus involucratus**	
Swamp flatsedge	*Cyperus ligularis*	
Fragrant flatsedge	*Cyperus odoratus*	
Beachstar	*Cyperus pedunculatus*	BD, CG
Manyspike flatsedge	*Cyperus polystachyos var. texensis*	
Nutgrass	*Cyperus rotundus**	
Tropical flatsedge	*Cyperus surinamensis*	
Durban crowfootgrass	*Dactyloctenium aegyptium**	
Cypress witchgrass	*Dicanthelium dichotomum*	
Southern crabgrass	*Digitaria ciliaris*	
Air-potato	*Dioscorea bulbifera**	
Coast cockspur	*Echinochloa walteri.*	
White spikerush	*Eleocharis albida*	
Gulf Coast spikerush	*Eleocharis cellulosa*	
Canada spikerush	*Eleocharis geniculata*	
Knotted spikerush	*Eleocharis interstincta*	
Goosegrass	*Eleusine indica**	
Golden pothos	*Epipremnum pinnatum**	
Gophertail lovegrass	*Eragrostis ciliaris**	
Elliott lovegrass	*Eragrostis elliottii*	
Orchid species	*Eulophia graminea**	
Pinewoods fingergrass	*Eustachys petraea*	
Hurricanegrass	*Fimbristylis cymosa*	
Marsh fimry	*Fimbristylis spadicea*	
Shoalweed	*Halodule wrightii*	
Mangrove spiderlily	*Hymenocallis latifolia*	
Shortleaf spikesedge	*Kyllinga brevifolia*	
Italian ryegrass	*Lolium perenne**	
Muhlygrass	*Muhlenbergia capillaris*	
Banana	*Musa sp.**	
Southern waternymph	*Najas guadalupensis*	
Monk orchid	*Oeceoclades maculata**	
Bitter panicgrass	*Panicum amarum*	
Fall panicgrass	*Panicum dichotomiflorum var. bartowense*	
Guineagrass	*Panicum maximum**	
Torpedograss	*Panicum repens**	
Blue paspalum	*Paspalum caespitosum*	
Bahiagrass	*Paspalum notatum**	

*** Non-native Species**

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Thin paspalum	*Paspalum setaceum var. ciliatifolium*	
Vaseygrass	*Paspalum urvillei**	
Seashore paspalum	*Paspalum vaginatum*	
Napiergrass	*Pennisetum purpureum **	
Senegal date palm	*Phoenix reclinata**	
Date palm	*Phoenix dactylifera**	
Solitaire palm	*Ptychosperma elegans**	
Natalgrass	*Rhynchelytrum repens **	
Starrush whitetop	*Rhynchospora colorata*	
Spreading beaksedge	*Rhynchospora divergens*	
Southern beaksedge	*Rhynchospora microcarpa*	
Fragrant beaksedge	*Rhynchospora odorata*	
Itchgrass	*Rottboellia cochinchinensis**	
Cabbage palm	*Sabal palmetto*	
Arrowhead species	*Sagittaria graminea*	
Bowstring hemp	*Sansevieria hyacinthoides**	
Wire bluestem	*Schizachyrium gracile*	
Saw palmetto	*Serenoa repens*	
Coral foxtail	*Setaria macrosperma*	
Knotroot foxtail	*Setaria parviflora*	
Earleaf greenbrier	*Smilax auriculata*	
Saw greenbrier	*Smilax bona-nox*	
Bristly greenbrier	*Smilax tamnoides*	
Johnsongrass	*Sorghum halepense**	
Saltmeadow cordgrass	*Spartina patens*	
Gulf cordgrass	*Spartina spartinae*	
Coral dropseed	*Sporobolus domingensis*	
Smutgrass	*Sporobolus indicus var. indicus**	
West Indian dropseed	*Sporobolus indicus var. pyramidalis**	
Seashore dropseed	*Sporobolus virginicus*	
St. Augustinegrass	*Stenotaphrum secundatum*	
American evergreen	*Syngonium podophyllum**	
Manateegrass	*Syringodium filiforme*	
Turtlegrass	*Thalassia testudinum*	
Ballmoss	*Tillandsia recurvata*	
Southern needleleaf	*Tillandsia setacea*	
Spanish moss	*Tillandsia usneoides*	
Oyster-plant	*Tradescantia spathacea**	
Gentian noddingcaps	*Triphora gentianoides*	
Eastern gamagrass	*Tripsacum dactyloides*	

*** Non-native Species**

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Southern cattail	*Typha domingensis*	
Seaoats	*Uniola paniculata*	
Dominican signalgrass	*Urochloa adsperma*	
Paragrass	*Urochloa mutica**	
Tropical signalgrass	*Urochloa subquadripara**	
Washington fan palm	*Washingtonia robusta**	
Spanish bayonette	*Yucca aloifolia*	
Lawn orchid	*Zeuxine strateumatica**	
Mascarenegrass	*Zoysia matrella var. tenuifolia**	
Dicots		
Sweet acacia	*Acacia farnesiana*	
Yellow joyweed	*Alternanthera flavescens*	
Seaside joyweed	*Alternanthera maritima*	
Common ragweed	*Ambrosia artemesiifolia*	
Coastal ragweed	*Ambrosia hispida*	
Toothcup	*Ammania latifolia*	
Pepper vine	*Ampelopsis arborea*	
Cashewnut	*Anacardium occidentale**	
Pond apple	*Annona glabra*	
Soursop	*Annona muricata**	
Sugar apple	*Annona squamosa**	
Marlberry	*Ardisia escallonioides*	
Mexican pricklypoppy	*Argemone mexicana*	
Sea lavender	*Argusia gnaphalodes*	BD, CG
Scarlet milkweed	*Asclepias curassavica**	
Rice buttonaster	*Aster dumosus*	
Annual saltmarsh aster	*Aster subulatus*	
Crested saltbush	*Atriplex pentandra*	
Black mangrove	*Avicennia germinans*	
Eyebright ayenia	*Ayenia euphrasiifolia*	
Silverling	*Baccharis glomeruliflora*	
Groundsel tree	*Baccharis halimifolia*	
Herb-of-grace	*Bacopa monnieri*	
Saltwort	*Batis maritima*	
Beggarticks	*Bidens alba var. radiata*	
Browne's blechum	*Blechum pyramidatum**	
Samphire	*Blutaparon vermiculare*	
Bog hemp	*Boehmeria cylindrica*	
Red spiderling	*Boerhavia diffusa*	

*** Non-native Species**

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Bushy seaside oxeye	*Borrichia frutescens*	
Bahama strongbark	*Bourreria succulenta*	
American bluehearts	*Buchnera americana*	
Black-olive "Shady Lady" hybrid	*Bucida buceras x spinosa**	
Gumbo-limbo	*Bursera simaruba*	
Long Key locustberry	*Byrsonima lucida*	CS
Gray nicker	*Caesalpinia bonduc*	
Coastal searocket	*Cakile lanceolata*	
American beautyberry	*Callicarpa americana*	
Santa Maria	*Calophyllum antillanum**	
Straggler daisy	*Calyptocarpus vialis**	
Spicewood	*Calyptranthes pallens*	
Baybean	*Canavalia rosea*	
Jamaican capertree	*Capparis cynophallophora*	
Limber caper	*Capparis flexuosa*	
Goatweed	*Capraria biflora*	
Balloon vine	*Cardiospermum microcarpum*	
Papaya	*Carica papaya**	
Love vine	*Cassytha filiformis*	
Australian-pine	*Casuarina equisetifolia**	
Madagascar periwinkle	*Catharanthus roseus**	
Spadeleaf	*Centella asiatica*	
Day jessamine	*Cestrum diurnum**	
Chamaecrista species	*Chamaecrista nictitans var. aspera*	
Limestone sandmat	*Chamaesyce blodgettii*	
Dixie sandmat	*Chamaesyce bombensis*	
Pillpod sandmat	*Chamaesyce hirta*	
Graceful sandmat	*Chamaesyce hypericifolia*	
Hyssopleaf sandmat	*Chamaesyce hyssopifolia*	
Roadside sandmat	*Chamaesyce lasiocarpa*	
Coast beach sandmat	*Chamaesyce mesembryanthemifolia*	
Florida hammock sandmat	*Chamaesyce opthalmica*	
Prostrate sandmat	*Chamaesyce prostrata*	
Gulf sandmat	*Chamaesyce thymifolia*	
Mexican tea	*Chenopodium ambrosioides**	
Common snowberry	*Chiococca alba*	
Pineland snowberry	*Chiococca parvifolia*	
Jack-in-the-bush	*Chromolaena odorata*	
Coco plum	*Chrysobalanus icaco*	
Satinleaf	*Chrysophyllum oliviforme*	

*** Non-native Species**

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Possum grape	*Cissus verticillata*	
Florida fiddlewood	*Citharexylum spinosum*	
Key lime	*Citrus aurantifolia**	
Pitchapple	*Clusia rosea**	
Tread-softly	*Cnidoscolus stimulosus*	
Pigeon plum	*Coccoloba diversifolia*	
Seagrape	*Coccoloba uvifera*	
Greenheart	*Colubrina arborescens*	
Latherleaf	*Colubrina asiatica**	
Buttonwood	*Conocarpus erecta*	
Blue mistflower	*Conoclinium coelestinum*	
Dwarf Canadian horseweed	*Conyza canadensis var. pusilla*	
Largeleaf geigertree	*Cordia sebestena**	
Maidenberry	*Crossopetalum rhacoma*	CS, MAH
Shakeshake	*Crotolaria incana**	
Smooth rattlebox	*Crotolaria pallida**	
Low rattlebox	*Crotolaria pumila*	
Rabbitbells	*Crotolaria rotundifolia*	
Coastal croton	*Croton glandulosus var. floridanus*	
Gulf croton	*Croton punctatus*	
Carrotwood	*Cupaniopsis anacardioides**	
Fiveangled dodder	*Cuscuta pentagona*	
Gulf coast swallowwort	*Cynanchum angustifolium*	
Coinvine	*Dalbergia ecastaphyllum*	
Wild tantan	*Desmanthus virgatus*	
Desmodium species	*Desmodium incanum*	
Dixie ticktrefoil	*Desmodium tortuosum**	
Threeflower ticktrefoil	*Desmodium triflorum**	
Carolina ponyfoot	*Dichondra caroliniensis*	
Sixangle foldwing	*Dicliptera sexangularis*	
Varnishleaf	*Dodonea viscosa*	
West Indian chickweed	*Drymaria cordata*	
Devil's-potato	*Echites umbellata*	
False daisy	*Eclipta prostrata*	
Florida tasselflower	*Emilia fosbergii**	
Lilac tasselflower	*Emilia sonchifolia**	
Fireweed	*Erechtites hieracifolia*	
Oakleaf fleabane	*Erigeron quercifolius*	
Black torch	*Erithalis fruticosa*	
Beach creeper	*Ernodea littoralis var. littoralis*	

* Non-native Species

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Baldwin's eryngo	*Eryngium baldwinii*	
Coralbean	*Erythrina herbacea*	
White stopper	*Eugenia axillaris*	
Spanish stopper	*Eugenia foetida*	
Surinam-cherry	*Eugenia uniflora**	
Dog-fennel	*Eupatorium capillifolium*	
Lateflowering thoroughwort	*Eupatorium serotinum*	
Grassleaf spurge	*Euphorbia graminea**	
Sanddune spurge	*Euphorbia trichotoma*	
Marshgentian	*Eustoma exaltatum*	
Inkwood; butterbough	*Exothea paniculata*	
Hairy crabweed	*Fatoua villosa**	
Council tree	*Ficus altissima**	
Strangler fig	*Ficus aurea*	
Weeping fig	*Ficus benjamina**	
Wild banyan tree; shortleaf fig	*Ficus citrifolia*	
Narrowleaf yellowtops	*Flaveria linearis*	
Clustered yellowtops	*Flaveria trinervia*	
Florida swampprivet	*Forestiera segregata*	
Downy milkpea	*Galactia volubilis*	
Southern beeblossom	*Gaura angustifolia*	
Sevenyear apple	*Genipa clusiifolia*	
Carolina cranesbill	*Geranium carolinianum*	
Globe amaranth	*Gomphrena serrata**	
Narrow-leaved blolly	*Guapira discolor var. longifolia*	
Crabwood	*Gymnanthess lucida*	
Firebush	*Hamelia patens*	
Flattop mille graines	*Hedyotis corymbosa**	
East Coast dune sunflower	*Helianthus debilis subsp. debilis*	
Scorpionstail	*Heliotropium angiospermum*	
Seaside heliotrope	*Heliotropium curassavicum*	
Pineland heliotrope	*Heliotropium polyphyllum*	
Bladdermallow	*Herissantia crispa*	
Camphorweed	*Heterotheca subaxillaris*	
Sea hibiscus	*Hibiscus tiliaceus**	
Whorled marshpennywort	*Hydrocotyle verticillata*	
Indigofera species	*Indigofera suffruticosa**	
Moonflowers	*Ipomoea alba*	
Scarlet creeper	*Ipomoea hederifolia*	
Beach morningglory	*Ipomoea imperati*	

*** Non-native Species**

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Oceanblue morningglory	*Ipomoea indica var. acuminata*	
Railroad vine	*Ipomoea pes-caprae*	
Littlebell	*Ipomoea triloba**	
Heavenlyblue morningglory	*Ipomoea violacea*	
Bloodleaf	*Iresine diffusa*	
Seacoast marshelder	*Iva imbricata*	
Beach clustervine	*Jacquemontia reclinata*	CG
Devil's backbone	*Kalanchoe daigremontiana**	
Life plant	*Kalanchoe pinnata**	
Florida Keys thoroughwort	*Koanophyllon villosum*	
Virginia Saltmarsh mallow	*Kosteletzkya virginica*	
Black ironwood	*Krugiodendron ferreum*	
White mangrove	*Laguncularia racemosa*	
Lantana hybrid	*Lantana camara X L. depressa var. floridana**	
Florida shrubverbena	*Lantana depressa var. floridan*a	CG, CS, MAH
Wild Sage; buttonsage	*Lantana involucrata*	
Virginia pepperweed	*Lepidium virginicum*	
Mexican primrosewillow	*Ludwigia octovalvis*	
Creeping primrosewillow	*Ludwigea repens*	
Christmasberry	*Lycium carolinianum*	
Coastalplain staggerbush	*Lyonia fruticosa*	
Wild bushbean	*Macroptilium lathyroides**	
False mallow	*Malvastrum corchorifolium*	
Melaleuca; Cajeput	*Melaleuca quinquenervia**	
Snow squarestem	*Melanthera nivea*	
Spanish lime	*Melicoccus bijugatus**	
Creeping cucumber	*Melothria pendula*	
Poorman's patch	*Mentzelia floridana*	
Poisonwood	*Metopium toxiferum*	
Climbing hempvine	*Mikania scandens*	
Indian cherry	*Mimusops elengi**	
Four-o'clock	*Mirabilis jalapa**	
Balsampear	*Momordica charantia**	
Redgal; Cheese plant	*Morinda royoc*	
Red mulberry	*Morus rubra*	
Simpson's stopper; Twinberry	*Myrcianthes fragrans*	CS, MAH
Wax myrtle	*Myrica cerifera*	
Madagascar olive	*Noronhia emarginata**	
Lancewood	*Ocotea coriacea*	
Seabeach eveningprimrose	*Oenothera humifusa*	

* Non-native Species

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Cutleaf eveningprimrose	*Oenothera laciniata*	
Beach peanut	*Okenia hypogaea*	BD, CG
Cochineal cactus	*Opuntia cochenillifera**	
Pricklypear	*Opuntia humifusa*	
Erect pricklypear	*Opuntia stricta*	CG
Common yellow woodsorrel	*Oxalis corniculata*	
Florida pellitory	*Parietaria floridana*	
Virginia creeper	*Parthenocissus quinquefolia*	
Corky-stemmed passionflower	*Passiflora suberosa*	
Sanddune cinchweed	*Pectis glaucescens*	
Spreading cinchweed	*Pectis prostrata*	
Red bay	*Persea borbonia var. borbonia*	
Creeping-charlie; Capeweed	*Phyla nodiflora*	
Drummond's leafflower	*Phyllanthus abnormis*	
Gale-of-wind	*Phyllanthus amarus**	
Rock Carolina leafflower	*Phyllanthus carolinensis ssp. saxicola*	
Mascarene Island leafflower	*Phyllanthus tenellus**	
Cutleaf groundcherry	*Physalis angulata*	
Walter’s groundcherry	*Physalis walteri*	
American pokeweed	*Phytolacca americana*	
Caribbean clearweed	*Pilea herniarioides*	
Artillery plant	*Pilea microphylla*	
Piper species	*Piper aduncum**	
Piriqueta; Pitted stripeseed	*Piriqueta caroliniana*	
Jamaican dogwood	*Piscidia piscipula*	
Florida Keys blackbead	*Pithecellobium keyense*	CB, CS, MAH
Catclaw blackbead	*Pithecellobium unguis-cati*	
Cure-for-all	*Pluchea carolinensis*	
Sweetscent	*Pluchea odorata*	
Rosy camphorweed	*Pluchea rosea*	
Doctorbush; Native plumbago	*Plumbago scandens*	
Paintedleaf	*Poinsettia cyathophora*	
Fiddler's spurge	*Poinsettia heterophylla*	
Showy milkwort	*Polygala grandiflora*	
Dotted smartweed	*Polygonum punctatum*	
Rustweed	*Polypremum procumbens*	
Little hogweed	*Portulaca oleracea*	
Guava	*Psidium guajava**	
Wild coffee	*Psychotria nervosa*	
Mock bishopsweed	*Ptilimnium capillaceum*	

*** Non-native Species**

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Live oak	*Quercus virginiana*	
White indigoberry	*Randia aculeata*	
Myrsine	*Rapanea punctata*	
Darling plum	*Reynosia septentrionalis*	
Red mangrove	*Rhizophora mangle*	
Winged sumac	*Rhus copallinum*	
Least snoutbean	*Rhynchosia minima*	
Largeflower Mexican clover	*Richardia grandiflora**	
Castorbean	*Ricinus communis**	
Rougeplant	*Rivina humilis*	
Southern dewberry	*Rubus trivialis*	
Hairyflower wild petunia	*Ruellia ciliatiflora**	
Perennial glasswort	*Salicornia perennis*	
Coastal Plain willow	*Salix caroliniana*	
Prickly Russian thistle	*Salsola kali ssp. pontica**	
West Indian sage	*Salvia occidentalis*	
Littlewoman	*Salvia serotina*	
Elderberry	*Sambucus canadensis*	
Water pimpernel	*Samolus ebracteatus*	
Pineland pimpernel	*Samolus valerandi ssp. parviflorus*	
Soapberry	*Sapindus saponaria*	
White twinevine	*Sarcostemma clausum*	
Inkberry	*Scaevola plumieri*	BD, CG
Beach naupaka	*Scaevola sericea**	
Australian umbrella tree	*Schefflera actinophylla**	
Brazilian-pepper	*Schinus terebinthifolius**	
Butterweed	*Senecia glabellus*	
Privet wild sensitive plant	*Senna ligustrina*	
Chapman's wild sensitive plant	*Senna mexicana var. chapmanii*	CS
Sicklepod	*Senna obtusifolia*	
Septicweed	*Senna occidentalis*	
Danglepod	*Sesbania herbacea*	
Shoreline seapurslane	*Sesuvium portulacastrum*	
Common wireweed	*Sida acuta*	
Cuban jute	*Sida rhombifolia*	
False mastic	*Sideroxylon foetidissimum*	
Willow bustic	*Sideroxylon salicifolium*	
Paradise tree	*Simarouba glauca*	
American black nightshade	*Solanum americanum*	
Bahama nightshade	*Solanum bahamense*	

*** Non-native Species**

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Giant goldenrod	*Solidago gigantea*	
Seaside goldenrod	*Solidago sempervirens*	
Spiny sowthistle	*Sonchus asper**	
Common sowthistle	*Sonchus oleraceus**	
Yellow necklacepod variety	*Sophora tomentosa var. occidentalis**	
Yellow necklacepod variety	*Sophora tomentosa var. truncata*	
Woodland false buttonweed	*Spermacoce assurgens*	
Shrubby false buttonweed	*Spermacoce verticillata**	
Creeping oxeye	*Sphagneticola trilobata(= Wedelia trilobata)**	
West Indian pinkroot	*Spigelia anthelmia*	
Blue porterweed	*Stachytarpheta jamaicensis*	
Pencilflower	*Stylosanthes hamata*	
Bay-cedar	*Suriana maritima*	
West Indian mahogany	*Swietenia mahagoni* (cult.)	
White cedar	*Tabebuia heterophylla**	
West Indian almond	*Terminalia catappa**	
Portia tree	*Thespesia populnea**	
Twining soldierbush	*Tournefortia volubilis*	
Poison ivy	*Toxicodendron radicans*	
Florida trema; Nettletree	*Trema micrantha*	
Desert horsepurslane	*Trianthema portulacastrum*	
Puncture vine; Burrnut	*Tribulus cistoides**	
Forked bluecurls	*Trichostema dichotomum*	
Coatbuttons	*Tridax procumbens**	
Burweed; Sacramento burrbark	*Triumfetta semitriloba**	
Yellow alder	*Turnera ulmifolia**	
Caesarweed	*Urena lobata*	
Purpletop vervain	*Verbena bonariensis**	
Harsh vervain	*Verbena scabra*	
White crownbeard	*Verbesina virginica*	
Little ironweed	*Vernonia cinerea**	
Hairypod cowpea	*Vigna luteola*	
Florida grape	*Vitis cinerea var. floridana*	
Muscadine grape	*Vitis rotundifolia*	
Sleepy morning	*Waltheria indica*	
Hog-plum; tallowwood	*Ximenia americana*	
Oriental false hawksbeard	*Youngia japonica**	
Biscayne prickly-ash	*Zanthoxylum coriaceum*	MAH
Wild-lime	*Zanthoxylum fagara*	

*** Non-native Species**

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**

SPONGES

Chickenliver sponge	*Chondrilla nucula*	MCNS
Red sponge	*Haliclona rubens*	MCNS
Green sponge	*Haliclona viridis*	MCNS
Vase sponge	*Ircinia sp.*	MCNS
Round black sponge	*Ircinia strobilina*	MCNS
Loggerhead sponge	*Spheciospongia vesparium*	MCNS
Fire sponge	*Tedania ignis*	MCNS
Orange sponge	*Ulosa sp*	MCNS

HYDROZOANS

Portuguese man-of-war	*Physalia physalis*	
By-the-wind sailor	*Velella velella*	

JELLYFISH

Upside-down jellyfish	*Cassiopeia xamachana*	MS

CORALS

Corkscrew anemone	*Bartholomea annulata*	MCNS
Ivory tube coral	*Cladocora arbuscula*	MCNS
Large grooved brain coral	*Colpophyllia natans*	MCNS
Domed star coral	*Dichocoenia stokesii*	MCNS
Knobby brain coral	*Diploria clivosa*	MCNS
Golfball coral	*Favia fragum*	MCNS
Common rose coral	*Manicina areolata*	MCNS
Encrusting stinging coral	*Millepora alcicornis*	MCNS
Ivory bush coral	*Oculina diffusa*	MCNS
Sea rod species	*Plexaura sp*	MCNS
Yellow porites	*Porites astreoides*	MCNS
Stony coral species	*Porites divercata*	MCNS
Small finger coral	*Porites furcata*	MCNS
Massive starlet coral	*Siderastrea siderea*	MCNS
Smooth star coral	*Solenastrea bournoni*	MCNS

FLATWORMS

Land planarian sp.*	*Bipalium kewense*	DV

*** Non-native Species**

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**

CHITONS

West Indian fuzzy chiton	*Acanthopleura granulata*	MCNS

GASTROPODS

Spotted sea hare	*Aplysia dactylomela*	MSGB
Star snail species	*Astraea sp*	MCNS
Black horn snail	*Batillaria minima*	MS
Asian tramp snail	*Bradybaena similaris**	MAH
Gray peanut-snail	*Cerion incanum*	CG, RD
Dominican forest snail	*Drymaeus dominicus*	MAH
Multilined tree snail	*Drymaeus multilineatus*	CS, DV, MAH, RD
False prickly winkle	*Echininus nodulosus*	MCNS
Rosy predator snail	*Euglandina rosea*	CS, RD, DV
Rainbow drop	*Helicina clappi*	CS, MAH
Seagrape snail	*Hemitrochus varians*	CS, CG, RD
Mangrove periwinkle	*Littorina angulifera*	MS
Zebra periwinkle	*Littorina ziczac*	MCNS
Coffeebean snail	*Melampus coffeus*	MS
Melania species	*Melanoides tuberculata* or *turricula**	CIS
Bleedingtooth nerite	*Nerita peloronta*	MCNS
Checkered nerite	*Nerita tesselata*	MCNS
Southern flatcoil	*Polygyra cereolus*	MTC
Vagrant scrub snail	*Praticolella griseola**	CS, MAH
Milk conch	*Strombus costatus*	MSGB
Queen conch	*Strombus gigas*	MSGB
Hawkwing conch	*Strombus raninus*	MSGB
Miniature awl snail	*Subulina octona**	MAH
Ambersnail species	*Succinea avara*	CS, RD
Ambersnail	*Succinea luteola floridana*	CS, RD
Knobby periwinkle	*Tectarius muricatus*	MCNS
Rock shell sp.	*Thais rustica* or *deltoidea*	MCNS
Slug species	*Veronicella floridana*	DV
Garden zachrysia	*Zachrysia provisoria**	MTC

BIVALVES

Scorched mussel	*Hormomya exusta*	MCNS
Flat tree-oyster	*Isognomon alatus*	MCNS, MS

*** Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Purse-oyster species	*Isognomon sp.*	MCNS, MS
Pen shell	*Pinna carnea*	MSGB
CEPHALOPODS		
Atlantic pygmy octopus	*Octopus joubini*	MSGB
SEGMENTED WORMS		
Sludge worm	*Tubifex tubifex*	CIS
CRUSTACEANS		
Mangrove crab	*Aratus pisonii*	MS
Shamefaced crab species	*Calappa sp.*	MS
Common blue crab	*Callinectes sapidus*	MCPS, MS
Great land crab	*Cardisoma guanhumi*	MS
Green-striped hermit crab	*Clibanarius vittatus*	MCPS, MS
Common land hermit crab	*Coenobita clypeatus*	MAH
Land crab species	*Gecarcinus sp.*	MS
Southern spider crab	*Libinia dubia*	MCPS, MS
Horseshoe crab	*Limulus polyphemus*	MCPS, MS
Stone crab	*Menippe mercenaria*	MCPS
Ghost crab	*Ocypode quadrata*	BD
Banded dwarf hermit crab	*Pagurus annulipes*	MCPS, MS
Shrimp species	*Palaemonetes sp.*	MCPS, MS
Spiny lobster	*Panulirus argus*	MCNS
Spotted spiny lobster	*Panulirus guttatus*	MCNS
Smooth porcelain crab	*Petrolisthes politus*	MCPS
Marsh crab species	*Sesarma (cinereum?)*	MS
Burger's fiddler crab	*Uca burgersi*	MS
Dwarf fiddler crab	*Uca leptodactyla*	MS
Sand fiddler crab	*Uca pugilator*	MS
Caribbean fiddler crab	*Uca rapax*	MS
Ive's fiddler crab	*Uca speciosa*	MS
DRAGONFLIES		
Common green darner	*Anax junius*	AP, CIS
Red pennant	*Brachymesia furcata*	AP, CIS

*** Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Four-spotted pennant	*Brachymesia gravida*	AP, CIS
Halloween pennant	*Celithemus eponina*	AP, CIS
Eastern pondhawk	*Erythemis simplicicollis*	AP, CIS
Great pondhawk	*Erythemis vesiculosa*	AP, CIS
Band-winged dragonlet	*Erythrodiplax umbrata*	AP, CIS
Twilight darner	*Gynacantha nervosa*	AP, CIS
Needham's skimmer	*Libellula needhami*	AP, CIS
Marl pennant	*Macrodiplax balteata*	AP, CIS
Roseate skimmer	*Orthemis ferruginea*	AP, CIS
Blue dasher	*Pachydiplax longipennis*	AP, CIS
Wandering glider	*Pantala flavescens*	AP, CIS
Violet-masked glider	*Tramea carolina*	AP, CIS
Glider species	*Tramea sp.*	AP, CIS
Phantom darner	*Triacanthagyna trifida*	AP, CIS
GRASSHOPPERS, CRICKETS AND KATYDIDS		
Linear-winged grasshopper	*Aptenopedes sphenarioides*	CIS, CS, RD
Tropical house cricket	*Gryllodes sigillatus**	DV
Cattail toothpick grasshopper	*Leptysma marginocollis*	CIS
Spotted-winged grasshopper	*Orphulella pelidna*	CG, CIS, CS, RD
Eastern lubber grasshopper	*Romalea guttata*	MTC
American grasshopper	*Schistocerca americana*	CS, RD
Seaside grasshopper	*Trimerotropsis maritima*	BD, CG
MANTIDS		
Carolina mantid	*Stagmomantis carolina*	CIS, CS, RD, DV
STICK INSECTS		
Two-striped walkingstick	*Anisomorpha buprestoides*	CG, CIS, CS, RD, DV
TRUE BUGS, CICADAS, HOPPERS AND KIN		
Seaside cicada	*Diceroprocta viridifascia*	CS, MAH
Large milkweed bug	*Oncopeltus fasciatus*	CS, RD
Lobate lac scale	*Paratachardina pseudolobata**	CS, RD, DV
Thorn bug	*Umbonia crassicornis*	CS
Milkweed assassin bug	*Zelus longipes*	CS, RD

*** Non-native Species**

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**

ANTLIONS, LACEWINGS AND OWLFLIES

Antlion sp.	*Myrmeleon sp.*	CS, DV, RD

BEETLES

Cottonwood leaf beetle	*Chrysomela scripta*	CIS
Saltmarsh tiger beetle	*Cicindela marginata*	BD
Diaprepes root weevil	*Diaprepes abbreviatus**	CS, RD
Ivory-marked beetle	*Eburia quadrigeminata*	MAH
Click beetle species	*Lanelator sallei*	CG, BD
Dung beetle species	*Phanaeus igneus*	MAH
Click beetle species	*Pyrophorus sp.*	CS, MAH, RD
Hardwood stump borer	*Stenodontes dasytomus*	CS, MAH

FLIES

Botfly species	*Cuterebra sp.*	CS, RD
Small-footed fly species	*Micropezidae sp.*	MTC
Black saltmarsh mosquito	*Ochlerotatus taeniorhynchus*	MS

BUTTERFLIES AND MOTHS

Butterflies and skippers

Gulf fritillary	*Agraulis vanillae*	CS, MAH, RD
White peacock	*Anartia iatrophe*	CIS, CS, RD
Cuban crescent	*Anthanassa frisia*	CS, MAH
Statira sulphur	*Aphrissa statira*	CG, CS
Florida white	*Appias drusilla*	CS
Monk skipper	*Asbolis capucinus*	DV, CS, RD
Great southern white	*Ascia monuste*	CS, CIS, RD
Sachem	*Atalopedes campestris*	CS, CIS, RD
Polydamas swallowtail	*Battus polydamas*	CS, RD
Brazilian skipper	*Calpodes ethlius*	CS, RD
Southern skipperling	*Copaeodes minima*	CIS, CS, RD, DV
Soldier	*Danaus eresimus*	CS, CIS, RD
Queen	*Danaus gilippus*	CS, CIS, RD, BD
Monarch	*Danaus plexippus*	CS, RD
Julia heliconian	*Dryas iulia largo*	CS, MAH, RD
Fulvous hairstreak	*Electrostrymon angelia*	CS, MAH, RD

* Non-native Species

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Horace's duskywing	*Erynnis horatius*	CS, DV, RD
Atala	*Eumaeus atala*	CS, MH
Variegated fritillary	*Euptoieta claudia*	CS, RD
Barred yellow	*Eurema daira*	CS, DV, RD
Little yellow	*Eurema lisa*	CS, DV, RD
Sleepy orange	*Eurema nicippe*	CS, DV, RD
Zebra heliconian	*Heliconius charitonius*	CS, MAH, RD
Ceraunus blue	*Hemiargus ceraunus*	CS, RD
Fiery skipper	*Hylephila phyleus*	CS, DV, RD
Common buckeye	*Junonia coenia*	CS, RD
Mangrove buckeye	*Junonia evarete*	MS, CS
Tropical buckeye	*Junonia genoveva*	CS
Lyside sulphur	*Kricogonia lyside*	CS, RD
Cassius blue	*Leptotes cassius*	CS, MAH, RD
Clouded skipper	*Lerema accius*	CS, RD
Eufala skipper	*Lerodea eufala*	CS, RD
Viceroy	*Limenitis archippus*	CIS
Ruddy daggerwing	*Marpesia petreus*	CS, MAH
Dainty sulphur	*Nathalis iole*	CS, RD
Ocola skipper	*Panoquina ocola*	CIS, CS, RD
Obscure skipper	*Panoquina panoquinoides*	CIS, CS, RD
Black swallowtail	*Papilio polyxenes*	CIS
Giant swallowtail	*Papilio cresphontes*	CIS, MAH
Mangrove skipper	*Phocides pigmalion*	MS, CS
Cloudless sulphur	*Phoebis sennae*	CS, RD
Orange-barred sulphur	*Phoebis philea*	CS, RD
Large orange sulphur	*Phoebis agarithe*	CS, MAH
Phaon crescent	*Phyciodes phaon*	CIS, CS, RD, DV
Pearl crescent	*Phyciodes tharos*	CIS, CS, RD
Baracoa skipper	*Polites baracoa*	CIS, CS, DV, RD
Whirlabout	*Polites vibex*	CIS, CS, DV, RD
Hammock skipper	*Polygonus leo*	CS, MAH
Checkered white	*Pontia protodice*	BD, DV, RD
Tropical checkered skipper	*Pyrgus oileus*	CS, DV, RD
Malachite	*Siproeta stelenes*	CS
Mallow scrub-hairstreak	*Strymon istapa (=columella)*	CS, RD
Martial scrub-hairstreak	*Strymon martialis*	BD, CG, CS
Gray hairstreak	*Strymon melinus*	CG, CS, RD
Dorantes longtail	*Urbanus dorantes*	CS, RD
Long-tailed skipper	*Urbanus proteus*	CS, RD

***** **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Red admiral	*Vanessa atalanta*	CIS, CS, RD
Painted lady	*Vanessa cardui*	CS, RD
American lady	*Vanessa virginiensis*	CIS, RD

Moths

Titan sphinx moth	*Aellopos titan*	CS
Pink-spotted Hawk Moth	*Agrius cingulatus*	CS, DV, MAH, RD
Black witch moth	*Ascalapha odorata*	CS, MAH, RD
Florida io moth	*Automeris io lilith*	CS, MAH
Faithful beauty	*Composia fidelissima*	CG
Melonworm moth	*Diaphania hyalinata*	CS, RD
Giant leopard moth	*Ecpantheria scribonia*	CS, MAH, RD
Mournful sphinx moth	*Enyo lugubris*	CS, MAH
Ello sphinx moth	*Erinnyis ello*	CS, RD
Gaudy sphinx moth	*Eumorpha labruscae*	CS, MAH
Edwards' wasp moth	*Lymire edwardsii*	CS, DV, MAH
Carolina sphinx moth	*Manduca sexta*	CS, RD
Puss moth	*Megalopyge opercularis*	CS, DV, MAH
White-tipped black moth	*Melanchroia chephise*	CS, RD
Fig sphinx moth	*Pachylia ficus*	CS, DV, MAH
Saddleback caterpillar moth	*Sibine stimulea*	CS, MAH
Polka-dot wasp moth	*Syntomeida epilais*	CG
Bella moth	*Utethesia bella*	CG
Tersa sphinx moth	*Xylophanes tersa*	CS, RD

ANTS, BEES AND WASPS

Honey bee	*Apis mellifera**	CS, RD, DV
Florida carpenter ant	*Camponotus floridanus*	MTC
Pyramid ant species	*Dorymyrmex sp. (bureni? bossutus?)*	CG, CS, RD, DV
Bicolored trailing ant	*Monomorium floricola**	DV
Crazy ant	*Paratrechina longicornis**	RD, DV
Elongate twig ant	*Pseudomyrmex gracilis**	CS, MAH
Red imported fire ant	*Solenopsis invicta**	MTC
Ghost ant	*Tapinoma melanocephalum**	DV

SPIDERS

Silver argiope	*Argiope argentata*	CS, RD
Black-and-yellow argiope	*Argiope aurantia*	CS, RD

*** Non-native Species**

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Dewdrop spider species	*Argyrodes nephilae*	MAH
Tropical orb-weaver	*Eriophora ravilla*	CS, RD
Spiny orb-weaver	*Gasteracantha cancriformis*	CS, RD
Giant crab spider	*Heteropoda venatoria**	DV
Brown widow	*Latrodectus geometricus**	DV
Southern black widow	*Latrodectus mactans*	DV
Orchard orb-weaver	*Leucauge venusta*	CIS, MAH, MS
Golden silk orbweaver	*Nephila clavipes*	MAH
Regal jumping spider	*Phidippus regius*	CS, RD
Harvestman species	*Vonones ornata*	MAH, DV
WHIPSCORPIONS		
Spotted tailless whipscorpion	*Phrynus marginemaculata*	MAH
TICKS AND MITES		
Harvest mite species	*Trombicula sp.*	CS, RD
SEA URCHINS, SAND DOLLARS		
Sea biscuit	*Clypeaster rosaceus*	MSGB
TUNICATES		
Black tunicate	*Ascidia nigra*	MCNS
SHARKS, RAYS		
Southern stingray	*Dasyatis americana*	MCPS, MUS
Nurse shark	*Ginglymostoma cirratum*	MCPS
Yellow stingray	*Urolophus jamaicensis*	MSGB, MUS
BONY FISHES		
Sergeant major	*Abudefduf saxatilis*	MCNS
Porkfish	*Anisotremus virginicus*	MCNS
Common snook	*Centropomus undecimalis*	MUS
Mojarra species	*Eucinostomus sp.*	MCPS
Killifish species	*Fundulus sp.*	MCPS
Mosquitofish	*Gambusia holbrooki*	AP

*** Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Green moray	*Gymnothorax funebris*	MCNS
Bluestriped grunt	*Haemulon sciurus*	MCNS
Grunt species	*Haemulon spp.*	MCNS
Spotted trunkfish	*Lactophrys bicaudalis*	MCNS
Schoolmaster	*Lutjanus apodus*	MCNS
Mangrove snapper	*Lutjanus griseus*	MCPS
Tarpon	*Megalops atlanticus*	MUS
Silversides species	*Menidia sp.*	MCPS
White mullet	*Mugil curema*	MCPS
Angelfish species	*Pomacanthus sp.*	MCNS
Blue parrotfish	*Scarus coeruleus*	MCNS
Princess parrotfish	*Scarus taeniopterus*	MCNS
Great barrucuda	*Sphyraena barracuda*	MCPS
Dusky damselfish	*Stegastes fuscus*	MCNS
Cocoa damselfish	*Stegastes variabilis*	MCNS
Atlantic needlefish	*Strongylura marina*	MCPS
Redfin needlefish	*Strongylura notata*	MCPS

AMPHIBIANS

Frogs and Toads

Southern toad	*Bufo terrestris*	CS, CIS
Greenhouse frog	*Eleutherodactylus planirostris* *	MTC
Eastern narrow-mouthed toad	*Gastrophryne carolinensis*	CIS, DV
Squirrel treefrog	*Hyla squirella*	CIS, CS, MAH
Cuban treefrog	*Osteopilus septentrionalis**	MTC
Southern leopard frog	*Rana sphenocephala*	CIS

REPTILES

Crocodilians

American crocodile	*Crocodylus acutus*	MS

Turtles and tortoises

Loggerhead turtle	*Caretta caretta*	BD
Green turtle	*Chelonia mydas*	BD
Leatherback turtle	*Dermochelys coriacea*	BD
Gopher tortoise	*Gopherus polyphemus*	CS, DV
False map turtle	*Graptemys pseudogeographica**	
Florida mud turtle	*Kinosternon subrubrum steindachneri*	MS

* Non-native Species

Common Name	*Scientific Name*	**Primary Habitat Codes (for imperiled species)**
Florida red-bellied turtle	*Pseudemys nelsoni*	AP
Florida box turtle	*Terrapene carolina bauri*	CS, MAH
Russian tortoise	*Testudo horsfieldii**	
Red-eared slider	*Trachemys scripta elegans**	AP
Yellow-bellied slider	*Trachemys scripta scripta**	AP
Florida softshell turtle	*Trionyx ferox*	AP
Lizards		
Giant ameiva	*Ameiva ameiva**	DV, MAH
Green anole	*Anolis carolinensis*	CS, DV, MAH, RD
Bark anole	*Anolis distichus**	DV, MAH
Knight anole	*Anolis equestris equestris**	MAH
Cuban green anole	*Anolis porcatus**	CS, DV, MAH, RD
Brown anole	*Anolis sagrei**	MTC
Northern brown basilisk	*Basiliscus vittatus**	MAH
Six-lined racerunner	*Cnemidophorus sexlineatus sexlineatus*	CG
Black spiny-tailed iguana	*Ctenosaura similis**	CS, DV
Southeastern five-lined skink	*Eumeces inexpectatus*	CS, DV, MAH, RD
Tropical house gecko	*Hemidactylus mabouia**	MTC
Great green iguana	*Iguana iguana**	CS, DV, MAH, MS, RD
Florida reef gecko	*Sphaerodactylus notatus*	MAH
Savanna monitor	*Varanus exanthematicus**	
Snakes		
Boa constrictor	*Boa constrictor**	
Everglades racer	*Coluber constrictor paludicola*	MTC
Southern ringneck snake	*Diadophis punctatus punctatus*	MTC
Corn snake	*Elaphe guttata guttata*	MTC
Yellow rat snake	*Elaphe obsoleta quadrivittata*	MTC
Scarlet kingsnake	*Lampropeltis triangulum elapsoides*	CS
Brahminy blind snake	*Ramphotyphlops braminus**	MAH, DV
Florida brown snake	*Storeria dekayi victa*	CS
Peninsula (Florida) ribbon snake	*Thamnophis sauritus sackenii*	DV
BIRDS		
Geese		
Canada goose	*Branta canadensis*	OF

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Ducks		
Blue-winged teal	*Anas discors*	CIS
Ring-necked duck	*Aythya collaris*	CIS
Muscovy duck	*Cairina moschata**	DV
Red-breasted merganser	*Mergus serrator*	CIS
Loons		
Common loon	*Gavia immer*	MSGB
Grebes		
Horned grege	*Podiceps auritus*	MCPS
Pied-billed grebe	*Podilymbus podiceps*	CIS
Sulids		
Northern gannet	*Morus bassanus*	OF
Pelicans		
Brown pelican	*Pelecanus occidentalis*	OF
Cormorants		
Double-crested cormorant	*Phalacrocorax auritus*	MS, OF
Great cormorant	*Phalacrocorax carbo*	DV
Darters		
Anhinga	*Anhinga anhinga*	OF
Frigatebirds		
Magnificent frigatebird	*Fregata magnificens*	OF
Bitterns and Herons		
Great egret	*Ardea alba*	CIS,DV, MS
Great blue heron	*Ardea herodias herodias*	AP,CIS, MS
Great white heron	*Ardea herodias occidentalis*	MS
Cattle egret	*Bubulcus ibis*	RD, DV
Green heron	*Butorides virescens*	AP, CIS
Little blue heron	*Egretta caerulea*	AP, CIS, MS
Reddish egret	*Egretta rufescens*	BD
Snowy egret	*Egretta thula*	CIS
Tricolored heron	*Egretta tricolor*	CIS, MS
Least bittern	*Ixobrychus exilis*	CIS
Black-crowned night-heron	*Nycticorax nycticorax*	MS

*** Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Yellow-crowned night-heron	*Nyctanassa violacea*	BD, MS
Ibises and Spoonbills		
Roseate Spoonbill	*Ajaia ajaja*	OF
White ibis	*Eudocimus albus*	CIS, MH, MS, DV
Storks		
Wood stork	*Mycteria americana*	OF
Vultures		
Turkey vulture	*Cathartes aura*	OF
Black vulture	*Coragyps atratus*	OF
Ospreys		
Osprey	*Pandion haliaetus*	MS, MAH
Hawks, Eagles and Kites		
Cooper's hawk	*Accipiter cooperii*	CS, MAH
Sharp-shinned hawk	*Accipiter striatus*	MAH
Short-tailed hawk	*Buteo brachyurus*	OF
Red-tailed hawk	*Buteo jamaicensis*	OF
Red-shouldered hawk	*Buteo lineatus*	CS, RD
Broad-winged hawk	*Buteo platypterus*	CS, RD
Swainson's hawk	*Buteo swainsoni*	OF
Northern harrier	*Circus cyaneus*	CIS
Swallow-tailed kite	*Elanoides forficatus*	OF
Mississippi kite	*Ictinia mississippiensis*	OF
Falcons		
Merlin	*Falco columbarius*	CS, RD, DV
Peregrine falcon	*Falco peregrinus*	MTC
American kestrel	*Falco sparverius*	CS, RD, DV
Rails and Coots		
American coot	*Fulica americana*	CIS
Common moorhen	*Gallinula chloropus*	CIS
Purple gallinule	*Porphyrula martinica*	CIS
Sora	*Porzana carolina*	CIS
King rail	*Rallus elegans*	CIS

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Limpkin		
Limpkin	*Aramus guarauna*	CIS, MH
Cranes		
Sandhill crane	*Grus canadensis*	OF
Plovers		
Piping plover	*Charadrius melodus*	BD
Semipalmated plover	*Charadrius semipalmatus*	BD
Killdeer	*Charadrius vociferus*	RD
Wilson's plover	*Charadrius wilsonia*	BD
Black-bellied Plover	*Pluvialis squatarola*	BD
Recurvirostrids		
Black-necked stilt	*Himantopus mexicanus*	BD, CIS
American avocet	*Recurvirostra americana*	BD
Snipes and Sandpipers		
Spotted sandpiper	*Actitis macularius*	MS
Ruddy turnstone	*Arenaria interpres*	BD
Sanderling	*Calidris alba*	BD
Dunlin	*Calidris alpina*	BD
Western sandpiper	*Calidris mauri*	BD
Pectoral sandpiper	*Calidris melanotos*	BD
Least sandpiper	*Calidris minutilla*	BD
Semipalmated sandpiper	*Calidris pusilla*	BD
Wilson's snipe	*Gallinago delicata*	CIS, RD
Short-billed dowitcher	*Limnodromus griseus*	CIS
Whimbrel	*Numenius phaeopus*	BD
Lesser yellowlegs	*Tringa flavipes*	CIS
Greater yellowlegs	*Tringa melanoleuca*	CIS
Willet	*Tringa semipalmata*	BD
Solitary sandpiper	*Tringa solitaria*	BD
Gulls and Terns		
Brown noddy	*Anous stolidus*	OF
Bonaparte's gull	*Chroicocephalus philadelphia*	CIS
Gull-billed tern	*Gelochelidon nilotica*	CIS
Caspian tern	*Hydroprogne caspia*	MS
Laughing gull	*Leucophaeus atricilla*	BD

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Herring gull	*Larus argentatus*	BD
Ring-billed gull	*Larus delawarensis*	BD
Lesser black-backed gull	*Larus fuscus*	BD
Great black-backed gull	*Larus marinus*	BD
Gull-billed tern	*Gelochelidon nilotica*	CIS
Caspian tern	*Hydroprogne caspia*	MS
Sooty tern	*Onychoprion fuscatus*	OF
Black skimmer	*Rynchops niger*	MS
Least tern	*Sternula antillarum*	MUS
Common tern	*Sterna hirundo*	BD
Forster's tern	*Sterna forsteri*	OF
Royal tern	*Thalasseus maximus*	OF
Sandwich tern	*Thalasseus sandvicensis*	OF
Doves		
Rock pigeon	*Columba livia**	DV
Common ground-dove	*Columbina passerina*	CS, RD
Key West quail-dove	*Geotrygon chrysia*	MAH
White-crowned pigeon	*Patagioenas leucocephala*	MAH
Eurasian collared dove	*Streptopelia decaocto**	DV
White-winged dove	*Zenaida asiatica**	DV
Zenaida dove	*Zenaida aurita*	MAH
Mourning dove	*Zenaida macroura*	CS, RD, DV
Parrots and Parakeets		
Blue-and-yellow macaw	*Ara ararauna**	OF
Monk parakeet	*Myiopsitta monachus**	DV
Cockatiel	*Nymphicus hollandicus**	DV
Cuckoos		
Yellow-billed cuckoo	*Coccyzus americanus*	CS, DV, MAH
Black-billed cuckoo	*Coccyzus erythropthalmus*	MAH
Mangrove cuckoo	*Coccyzus minor*	MAH
Smooth-billed ani	*Crotophaga ani*	CS
Owls		
Burrowing owl	*Athene cunicularia*	CG
Great horned owl	*Bubo virginianus*	CS, MAH
Eastern screech-owl	*Megascops asio*	DV, MAH
Barn owl	*Tyto alba*	DV

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Goatsuckers		
Chuck-will's-widow	*Caprimulgus carolinensis*	MAH
Whip-poor-will	*Caprimulgus vociferus*	MAH
Common nighthawk	*Chordeiles minor*	RD
Swifts		
Chimney swift	*Chaetura pelagica*	OF
Hummingbirds		
Ruby-throated hummingbird	*Archilochus colubris*	CS, DV
Kingfishers		
Belted kingfisher	*Megaceryle alcyon*	MS
Woodpeckers		
Pileated woodpecker	*Dryocopus pileatus*	MAH
Red-bellied woodpecker	*Melanerpes carolinus*	CS, MAH, DV
Downy woodpecker	*Picoides pubescens*	CS, DV
Yellow-bellied sapsucker	*Sphyrapicus varius*	MAH, DV
Flycatchers and Kingbirds		
Olive-sided flycatcher	*Contopus cooperi*	MAH
Eastern wood-Pewee	*Contopus virens*	MAH
Alder flycatcher	*Empidonax alnorum*	MAH
Yellow-bellied flycatcher	*Empidonax flaviventris*	MAH
Least flycatcher	*Empidonax minimus*	MAH
Willow flycatcher	*Empidonax traillii*	MAH
Acadian flycatcher	*Empidonax virescens*	MAH
Great-crested fycatcher	*Myiarchus crinitus*	CS, RD, MAH
La Sagra's flycatcher	*Myiarchus sagrae*	CS, RD, MAH
Sulphur-bellied flycatcher	*Myiodynastes luteiventris*	MAH
Eastern phoebe	*Sayornis phoebe*	CS, RD, DV
Gray kingbird	*Tyrannus dominicensis*	CS, RD, DV
Scissor-tailed flycatcher	*Tyrannus forficatus*	CS, RD, DV
Eastern kingbird	*Tyrannus tyrannus*	CS, RD, DV
Western kingbird	*Tyrannus verticalis*	CS, RD
Shrikes		
Loggerhead shrike	*Lanius ludovicianus*	CS, RD, DV

*** Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Vireos		
Black-whiskered vireo	*Vireo altiloquus*	MS, MAH
Bell's vireo	*Vireo bellii*	CS
Thick-billed vireo	*Vireo crassirostris*	CS, MAH
Yellow-throated vireo	*Vireo flavifrons*	CS, MAH
White-eyed vireo	*Vireo griseus*	CS, MAH
Red-eyed vireo	*Vireo olivaceus*	CS, MAH
Philadelphia vireo	*Vireo philadelphicus*	CS
Blue-headed vireo	*Vireo solitarius*	CS, MAH
Jays and Crows		
Fish crow	*Corvus ossifragus*	BD, DV
Blue jay	*Cyanocitta cristata*	CS, RD, DV
Swallows and Martins		
Barn swallow	*Hirundo rustica*	BD
Cliff swallow	*Petrochelidon pyrrhonota*	OF
Cave swallow	*Petrochelidon fulva*	OF
Purple martin	*Progne subis*	OF
Bank swallow	*Riparia riparia*	OF
Northern rough-winged swallow	*Stelgidopteryx serripennis*	OF
Tree swallow	*Tachycineta bicolor*	OF
Wrens		
Marsh wren	*Cistothorus palustris*	CIS
Carolina wren	*Thryothorus ludovicianus*	MAH
House wren	*Troglodytes aedon*	CS, RD
Kinglets		
Ruby-crowned kinglet	*Regulus calendula*	MAH
Gnatcatchers		
Blue-gray gnatcatcher	*Polioptila caerulea*	CS, MAH, RD, DV
Thrushes		
Bicknell's thrush	*Catharus bicknelli*	MAH
Veery	*Catharus fuscescens*	MAH
Hermit thrush	*Catharus guttatus*	MAH
Gray-cheeked thrush	*Catharus minimus*	MAH
Swainson's thrush	*Catharus ustulatus*	MAH

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Wood thrush	*Hylocichla mustelina*	MAH
Northern wheatear	*Oenanthe oenanthe*	RD
American robin	*Turdus migratorius*	CS
Thrashers		
Gray catbird	*Dumetella carolinensis*	CS, MAH, RD
Bahama mockingbird	*Mimus gundlachii*	CS
Northern mockingbird	*Mimus polyglottos*	CS, RD, DV
Brown thrasher	*Toxostoma rufum*	CS
Starlings		
Glossy-starling species	*Lamprotornis sp.**	MAH
European starling	*Sturnus vulgaris**	DV
Waxwings		
Cedar waxwing	*Bombycilla cedrorum*	CS, DV, MAH
Warblers		
Black-throated blue warbler	*Dendroica caerulescens*	CS, DV, MAH
Bay-breasted warbler	*Dendroica castanea*	MAH
Cerulean warbler	*Dendroica cerulean*	MAH
Yellow-rumped warbler	*Dendroica coronata*	CS, DV, MAH
Prairie warbler	*Dendroica discolor*	CS, DV, MAH
Florida prairie warber	*Dendroica discolor paludicola*	MS
Yellow-throated warbler	*Dendroica dominica*	CS, DV, MAH
Blackburnian warbler	*Dendroica fusca*	MAH
Magnolia warbler	*Dendroica magnolia*	CS, DV, MAH
Black-throated gray warbler	*Dendroica nigrescens*	MAH
Palm warbler	*Dendroica palmarum*	CS, DV, RD
Chestnut-sided warbler	*Dendroica pensylvanica*	MAH
Yellow warbler	*Dendroica petechia*	CS, DV, MAH
Pine warbler	*Dendroica pinus*	CS, DV, MAH
Blackpoll warbler	*Dendroica striata*	CS, DV, MAH
Cape May warbler	*Dendroica tigrina*	CS, DV, MAH
Townsend's warbler	*Dendroica townsendi*	MAH
Black-throated green warbler	*Dendroica virens*	MAH
Common yellowthroat	*Geothlypis trichas*	CIS, CS, MAH
Worm-eating warbler	*Helmitheros vermivorus*	MAH
Yellow-breasted chat	*Icteria virens*	CS, DV, MAH
Swainson's warbler	*Limnothlypis swainsonii*	MAH

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Black-and-white warbler	*Mniotilta varia*	CS, DV, MAH
Connecticut warbler	*Oporornis agilis*	MAH
Kentucky warbler	*Oporornis formosus*	MAH
Mourning warbler	*Oporornis philadelphia*	MAH
MacGillivray's warbler	*Oporornis tolmiei*	MAH
Northern parula	*Parula americana*	CS, DV, MAH
Prothonotary warbler	*Protonotaria citrea*	CS, DV, MAH
Ovenbird	*Seiurus aurocapilla*	MAH
Louisiana waterthrush	*Seiurus motacilla*	MAH
Northern waterthrush	*Seiurus noveboracensis*	MS, MAH
American redstart	*Setophaga ruticilla*	MAH
Orange-crowned warbler	*Vermivora celata*	CS, DV, MAH
Golden-winged warbler	*Vermivora chrysoptera*	MAH
Tennessee warbler	*Vermivora peregrina*	MAH
Blue-winged warbler	*Vermivora pinus*	MAH
Nashville warbler	*Vermivora ruficapilla*	MAH
Canada warbler	*Wilsonia canadensis*	MAH
Hooded warbler	*Wilsonia citrina*	MAH
Wilson's warbler	*Wilsonia pusilla*	MAH
Bananaquits		
Bananaquit	*Coereba flaveola*	MAH
Spindalis		
Western spindalis	*Spindalis zena*	DV
Sparrows		
Seaside sparrow (Atlantic race)	*Ammodramus maritimus*	MAH
Nelson's sharp-tailed sparrow	*Ammodramus nelsoni*	CIS, CS
Grasshopper sparrow	*Ammodramus savannarum*	CIS, CS
Lark sparrow	*Chondestes grammacus*	DV
Lincoln's sparrow	*Melospiza lincolnii*	CIS, CS
Savannah sparrow	*Passerculus sandwichensis*	CIS, CS
Chipping sparrow	*Spizella passerina*	CIS, CS
Clay-colored sparrow	*Spizella pallida*	CIS, CS
White-throated sparrow	*Zonotrichia albicollis*	CIS, CS
White-crowned sparrow	*Zonotrichia leucophrys*	CIS, CS
Cardinals, Tanagers, Grosbeaks, and Buntings		
Northern cardinal	*Cardinalis cardinalis*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Blue grosbeak	*Guiraca caerulea*	MAH
Painted bunting	*Passerina ciris*	CS, MAH, RD
Indigo bunting	*Passerina cyanea*	CS, MAH, RD
Rose-breasted grosbeak	*Pheucticus ludovicianus*	DV, MAH
Western tanager	*Piranga ludoviciana*	DV, MAH
Scarlet tanager	*Piranga olivacea*	MAH
Summer tanager	*Piranga rubra*	MAH
Dickcissel	*Spiza americana*	CS
Meadowlarks, Blackbirds and Orioles		
Red-winged blackbird	*Agelaius phoeniceus*	CIS, MS, RD
Bobolink	*Dolichonyx oryzivorus*	DV, RD
Bullock's Oriole	*Icterus bullockii*	MAH
Baltimore oriole	*Icterus galbula*	DV, MAH
Orchard oriole	*Icterus spurius*	MAH
Brown-headed cowbird	*Molothrus ater*	CS
Shiny cowbird	*Molothrus bonariensis*	CS
Boat-tailed grackle	*Quiscalus major*	BD
Common grackle	*Quiscalus quiscula*	MTC
Finches		
House finch	*Carpodacus mexicanus*	CS
Pine siskin	*Spinus pinus*	OF
American goldfinch	*Spinus tristis*	CS, MAH
Old World Sparrows		
House sparrow	*Passer domesticus**	DV

MAMMALS

Didelphids		
Virginia opossum	*Didelphis virginiana*	CS, DV, MAH
Bats		
Unidentified bat species		OF
Lagomorphs		
Domestic rabbit	*Oryctolagus cuniculus**	
Marsh rabbit	*Sylvilagus palustris*	MTC

* Non-native Species

Bill Baggs Cape Florida State Park Animals

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Rodents		
Black rat	*Rattus rattus**	MTC
Eastern gray squirrel	*Sciurus carolinensis*	DV, MAH
Carnivores		
Domestic cat	*Felis catus* *	MTC
Raccoon	*Procyon lotor*	MTC
Gray fox	*Urocyon cinereoargenteus*	MAH
Sirens		
Florida manatee	*Trichechus manatus*	MUS
Cetaceans		
Bottle-nosed dolphin	*Tursiops truncatus*	MUS

* Non-native Species

Bill Baggs Cape Florida State Park Animals

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)

* Non-native Species

TERRESTRIAL

Beach Dune ..... BD
Coastal Berm ..... CB
Coastal Grassland ..... CG
Coastal Strand ..... CS
Dry Prairie ..... DP
Keys Cactus Barren ..... KCB
Limestone Outcrop ..... LO
Maritime Hammock ..... MAH
Mesic Flatwoods ..... MF
Mesic Hammock ..... MEH
Pine Rockland ..... PR
Rockland Hammock ..... RH
Sandhill ..... SH
Scrub ..... SC
Scrubby Flatwoods ..... SCF
Shell Mound ..... SHM
Sinkhole ..... SK
Slope Forest ..... SPF
Upland Glade ..... UG
Upland Hardwood Forest ..... UHF
Upland Mixed Woodland ..... UMW
Upland Pine ..... UP
Wet Flatwoods ..... WF
Xeric Hammock ..... XH

PALUSTRINE

Alluvial Forest ..... AF
Basin Marsh ..... BM
Basin Swamp ..... BS
Baygall ..... BG
Bottomland Forest ..... BF
Coastal Interdunal Swale ..... CIS
Depression Marsh ..... DM
Dome Swamp ..... DS
Floodplain Marsh ..... FM
Floodplain Swamp ..... FS
Glades Marsh ..... GM
Hydric Hammock ..... HH
Keys Tidal Rock Barren ..... KTRB
Mangrove Swamp ..... MS

Marl Prairie ..... MP
Salt Marsh ..... SAM
Seepage Slope ..... SSL
Shrub Bog ..... SHB
Slough ..... SLO
Slough Marsh ..... SLM
Strand Swamp ..... STS
Wet Prairie ..... WP

LACUSTRINE

Clastic Upland Lake ..... CULK
Coastal Dune Lake ..... CDLK
Coastal Rockland Lake ..... CRLK
Flatwoods / Prairie ..... FPLK
Marsh Lake ..... MLK
River Floodplain Lake ..... RFLK
Sandhill Upland Lake ..... SULK
Sinkhole Lake ..... SKLK
Swamp Lake ..... SWLK

RIVERINE

Alluvial Stream ..... AST
Blackwater Stream ..... BST
Seepage Stream ..... SST
Spring-run Stream ..... SRST

SUBTERRANEAN

Aquatic Cave ..... ACV
Terrestrial Cave ..... TCV

ESTUARINE

Algal Bed ..... EAB
Composite Substrate ..... ECPS
Consolidated Substrate ..... ECNS
Coral Reef ..... ECR
Mollusk Reef ..... EMR
Octocoral Bed ..... EOB
Seagrass Bed ..... ESGB
Sponge Bed ..... ESPB

Unconsolidated Substrate ..... EUS
Worm Reef ..... EWR

MARINE

Algal Bed ..... MAB
Composite Substrate ..... MCPS
Consolidated Substrate ..... MCNS
Coral Reef ..... MCR
Mollusk Reef ..... MMR
Octocoral Bed ..... MOB
Seagrass Bed ..... MSGB
Sponge Bed ..... MSPB
Unconsolidated Substrate ..... MUS
Worm Reef ..... MWR

ALTERED LANDCOVER TYPES

Abandoned field ..... ABF
Abandoned pasture ..... ABP
Agriculture ..... AG
Canal / ditch ..... CD
Clearcut pine plantation ..... CPP
Clearing CL
Developed ..... DV
Impoundment / artificial pond ..... IAP
Invasive exotic monoculture ..... IEM
Pasture - improved ..... PI
Pasture - semi-improved ..... PSI
Pine plantation ..... PP
Road ..... RD
Spoil area ..... SA
Successional hardwood forest ..... SHF
Utility corridor ..... UC

MISCELLANEOUS

Many Types of Communities ..... MTC
Overflying ..... OF

Addendum 6—Imperiled Species Ranking Definitions

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 fabricated 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 or 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 or 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 therefore is destined or very likely to become an endangered species within the near 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 that, in the near 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.

Addendum 7—Cultural Information

These procedures apply to state agencies, local governments and non-profits that manage state-owned properties.

A. General Discussion

Historic resources are both archaeological sites and historic structures. Per Chapter 267, Florida Statutes, "Historic property" or "historic resource" means any prehistoric district, site, building, object, or other real or personal property of historical, architectural or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state."

B. Agency Responsibilities

Per State Policy relative to historic properties, state agencies of the executive branch must allow the Division of Historical Resources (Division) the opportunity to comment on any undertakings, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the project, permit, grant, etc.

State agencies shall preserve the historic resources that are owned or controlled by the agency.

Regarding proposed demolition or substantial alterations of historic properties, consultation with the Division must occur, and alternatives to demolition must be considered.

State agencies must consult with Division to establish a program to location, inventory and evaluate all historic properties under ownership or controlled by the agency.

C. Statutory Authority

Statutory Authority and more in depth information can be found in the following:

Chapter 253, F.S. – State Lands

Chapter 267, F.S. – Historical Resources

Chapter 872, F.S. – Offenses Concerning Dead Bodies and Graves

Other helpful citations and references:

Chapter 1A-32, F.A.C. – Archaeological Research

Other helpful citations and references:

Chapter 1A-44, F.A.C. – Procedures for Reporting and Determining Jurisdiction Over Unmarked Human Burials

Chapter 1A-46, F.A C. – Archaeological and Historical Report Standards and Guidelines

The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings

D. Management Implementation

Even though the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual. Specific information regarding individual projects must be submitted to the Division for review and recommendations.

Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. Recommendations may include, but are not limited to: approval of the project as submitted, pre-testing of the project site by a certified archaeological monitor, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions, exterior alteration or related new construction regarding historic structures must also be submitted to the Division of Historical Resources for review and comment by the Division's architects. Projects involving structures fifty years of age or older, must be submitted to this agency for a significance determination**.** In rare cases, structures under fifty years of age may be deemed historically significant. These must be evaluated on a case-by-case basis.

Adverse impacts to significant sites, either archaeological sites or historic buildings, must be avoided. Furthermore, managers of state property should prepare for locating and evaluating historic resources, both archaeological sites and historic structures.

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, the following information, at a minimum, must be submitted for comments and recommendations.

Project Description – A detailed description of the proposed project including all related activities. For land clearing or ground disturbing activities, the depth and extent of the disturbance, use of heavy equipment, location of lay down yard, etc. For historic structures, specific details regarding rehabilitation, demolition, etc.

Project Location – The exact location of the project indicated on a USGS Quadrangle map, is preferable. A management base map may be acceptable. Aerial photos indicating the exact project area as supplemental information are helpful.

Photographs – Photographs of the project area are always useful. Photographs of structures are required.

Description of Project Area – Note the acreage of the project; describe the present condition of project area, and any past land uses or disturbances.

Description of Structures – Describe the condition and setting of each building within project area if approximately fifty years of age or older.

Recorded Archaeological Sites or Historic Structures – Provide Florida Master Site File numbers for all recorded historic resources within or adjacent to the project area. This information should be in the current management plan; however, it can be obtained by contacting the Florida Master Site File at (850) 245-6440 or Suncom 205-6440.

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

Susan M. Harp
Historic Preservation Planner
Division of Historical Resources
Bureau of Historic Preservation
Compliance and Review Section
R. A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

Phone: (850) 245-6333
Fax: (850) 245-6438

Eligibility Criteria for National Register of Historic Places

The criteria to be used for evaluating eligibility for listing in the National Register of Historic Places are as follows:

1) Districts, sites, buildings, structures, and objects may be considered to have significance in American history, architecture, archaeology, engineering, and/or culture if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- **a)** are associated with events that have made a significant contribution to the broad patterns of our history; and/or
- **b)** are associated with the lives of persons significant in our past; and/or
- **c)** embody the distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and/or
- **d)** have yielded, or may be likely to yield, information important in prehistory or history.

2) Ordinarily cemeteries, birthplaces, or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved significance within the past 50 years shall not be considered eligible for the *National Register*. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

- **a)** a religious property deriving its primary significance from architectural or artistic distinction or historical importance; or
- **b)** a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
- **c)** a birthplace or grave of an historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or
- **d)** a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, distinctive design features, or association with historic events; or

e) a reconstructed building, when it is accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and no other building or structure with the same association has survived; or a property primarily commemorative in intent, if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

f) a property achieving significance within the past 50 years, if it is of exceptional importance.

Preservation Treatments as Defined by Secretary of Interior's Standards and Guidelines

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations and additions while preserving those portions or features that convey its historical, cultural or architectural values.

Stabilization is defined as the act or process of applying measures designed to reestablish a weather resistant enclosure and the structural stability of an unsafe or deteriorated property while maintaining the essential form as it exists at present.

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.