Florida Department of Environmental Protection
Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

June 28, 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: Jonathan Dickinson State Park – Lease # 3628

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 Jonathan Dickinson State Park land management plan. The next management plan update is due June 28, 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,

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

MSG/ci

Jonathan Dickinson State Park

APPROVED
Unit Management Plan

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Recreation and Parks
June 15, 2012

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INTRODUCTION

Jonathan Dickinson State Park is located in Martin County and Palm Beach County (see Vicinity Map); access to the park's main entry is from Southeast Federal Highway, U.S. Route 1 (see Reference Map). In addition, significant land and water resources existing near the park are depicted on the Vicinity Map.

Jonathan Dickinson State Park was acquired on June 9, 1947. The initial purchase was from the United States of America with "Old Money." Since the initial purchase, additional parcels were acquired with Old Money, Land Acquisition Trust Fund (LATF), by donation/dedication, and through a management agreement with the South Florida Water Management District (SFWMD). Acquisition of the SFWMD portion of the park was through the Save Our Rivers acquisition program. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) and the SFWMD hold fee simple title to Jonathan Dickinson State Park.

On January 23, 1968, the Trustees conveyed its management authority of the park to the Division of Recreation and Parks (DRP) under Lease No. 3628 for a period of ninety-nine (99) years and will expire on January 23, 2067. According to this lease agreement with the Trustees, the property must be used for public outdoor recreation and related purposes.

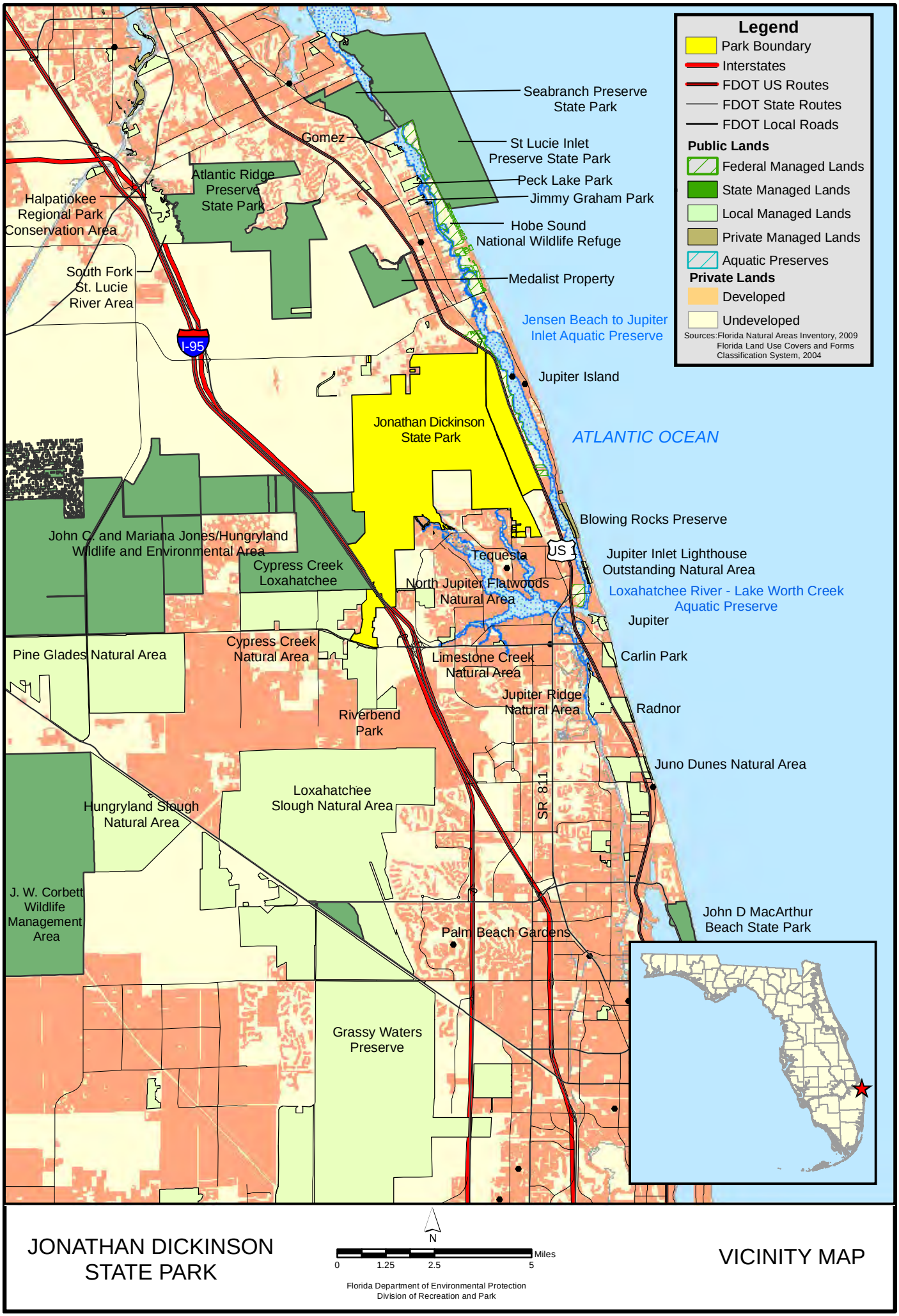
Currently the park contains approximately 11,459 acres and is designated single use for public outdoor recreation and conservation of the property. There are no legislative or executive directives that constrain the use of this property.

PURPOSE AND SIGNIFICANCE OF THE PARK

Jonathan Dickinson State Park opened in 1950. Today, the park continues to provide Florida's residents and visitors with a high-quality resource-based outdoor recreation experience in what has become a highly urbanized region of Florida.

The purpose for acquiring the park was to protect, develop, operate and maintain the property for public outdoor recreation, conservation, historic and related purposes. In addition, the SFWMD management agreement with the Department of Environmental Protection (Department) stipulates that the purpose of the agreement is to promote the restoration, protection and enhancement of the water resources and related environmental values of the Loxahatchee National Wild and Scenic River.

Some examples of the significance of Jonathan Dickinson State Park, include, but are not limited to the following:


Legend
Park Boundary
Interstates
FDOT US Routes
FDOT State Routes
FDOT Local Roads
Public Lands
Federal Managed Lands
State Managed Lands
Local Managed Lands
Private Managed Lands
Aquatic Preserves
Private Lands
Developed
Undeveloped
Sources: Florida Natural Areas Inventory, 2009
Florida Land Use Covers and Forms Classification System, 2004
Seabranch Preserve State Park
Gomez
St Lucie Inlet Preserve State Park
Atlantic Ridge Preserve State Park
Peck Lake Park
Jimmy Graham Park
Halpatiokee Regional Park Conservation Area
Hobe Sound National Wildlife Refuge
South Fork St. Lucie River Area
Medalist Property
Jensen Beach to Jupiter Inlet Aquatic Preserve
I-95
Jupiter Island
Jonathan Dickinson State Park
ATLANTIC OCEAN
Blowing Rocks Preserve
John C. and Mariana Jones/Hungryland Wildlife and Environmental Area
Cypress Creek Loxahatchee
Tequesta
US 1
Jupiter Inlet Lighthouse Outstanding Natural Area
North Jupiter Flatwoods Natural Area
Loxahatchee River - Lake Worth Creek Aquatic Preserve
Jupiter
Pine Glades Natural Area
Cypress Creek Natural Area
Limestone Creek Natural Area
Carlin Park
Jupiter Ridge Natural Area
Radnor
Riverbend Park
Juno Dunes Natural Area
Loxahatchee Slough Natural Area
SR 811
Hungryland Slough Natural Area
J. W. Corbett Wildlife Management Area
John D MacArthur Beach State Park
Palm Beach Gardens
Grassy Waters Preserve
JONATHAN DICKINSON STATE PARK
N
0
1.25
2.5
5
Miles
Florida Department of Environmental Protection
Division of Recreation and Park
VICINITY MAP

BRIDGE RD

FPS BUREAU OF PARK OPERATIONS
DISTRICT FIVE
HEADQUARTERS

HOBE SOUND

ATLANTIC OCEAN

JENKINS CANAL

FORMER STOP CAMP

OBSERVATION TOWER

PRIMITIVE GROUP CAMP

TRAILHEAD

PARK ENTRANCE

EQUESTRIAN CAMPGROUND

KITCHING CREEK

WILSON CREEK

FEC - RAILWAY

SHOP

PINE GROVE CAMPGROUND

RIVER DAY USE AREA

CABIN AREA

EDUCATION CENTER

RIVER CAMPGROUND

BOAT RAMP

HOBE GROVE DITCH

1

SE COUNTY LINE RD

MOONSHINE CREEK

LOXAHATCHEE RIVER PADDLING TRAIL

95

CYPRESS CREEK

TRAPPER NELSON SITE

FL TURNPIKE

LOXAHATCHEE RIVER

NORTHWEST FORK

NORTH FORK

LOXAHATCHEE RIVER RD

MARTIN COUNTY

PALM BEACH COUNTY

LOXAHATCHEE RIVER

SOUTHWEST FORK

W INDIANTOWN RD

C 18 CANAL

RIVERBEND PARK (PALM BEACH COUNTY)

C 17 CANAL

Legend

- PARK BOUNDARY
- WILDERNESS PRESERVE
- AQUATIC PRESERVES
- LOXAHATCHEE WSR
- FLORIDA TRAIL
- FLORIDA CIRCUMNAVIGATIONAL PADDLING TRAIL
- MARTIN COUNTY BLUEWAYS

N

0 0.25 0.5 1 Miles

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

JONATHAN DICKINSON STATE PARK

REFERENCE MAP

The park protects one of Southeast Florida's largest contiguous areas of natural habitat; representing a diverse mosaic of 16 natural communities, including rare coastal sandhill upland lakes and scrub.

The park protects most of the Loxahatchee National Wild and Scenic River corridor, Florida's first federally designated river. The protected portions of the river are free flowing essentially primitive and offer residents and visitors the opportunity to experience one of the remaining outstanding blackwater rivers in the state.

The park protects significant historical features including the Trapper Nelson Zoo Historic District, a National Register site; the World War II remnants of Camp Murphy, a radar operations training base used by the United States Army during the formative years of the technology; and numerous prehistoric and historic archeological sites.

The park provides important access to high-quality resource-based recreation including paddling, boating, fishing, swimming, hiking, camping, horseback riding and cycling within one of the most populated regions of the Southeastern United States.

Jonathan Dickinson State Park is classified as a state park in the DRP's unit classification system. In the management of a state park, a balance is sought between the goals of maintaining and enhancing natural conditions and providing various recreational opportunities. Natural resource management activities are aimed at management of natural systems. Development in the park is directed toward providing public access to and within the park, and to providing recreational facilities, in a reasonable balance, that are both convenient and safe. Program emphasis is on interpretation on 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 Jonathan Dickinson 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. Upon approval, this management plan will replace the February 3, 2000 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 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 and propose the types of facilities and 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. An implementation schedule and cost estimates are included for each objective and action. Included in this table are (1) measures that will be used to evaluate the 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 the DRP's statutory responsibilities and the resource needs and values of the park. This analysis considered the park natural and cultural resources, management needs, aesthetic values, visitation and visitor experiences. For this park, it was determined that no secondary purposes could be accommodated in a manner that would not interfere with the primary purpose of resource-based outdoor recreation and conservation. Uses such as water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in this plan) are not consistent with this plan.

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 Board of Trustees of the Internal Improvement Trust Fund (Trustees) has granted management authority of certain sovereign submerged lands to the 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 the 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 the DRP's long-term intent in managing the state park.

Provide administrative support for all park functions.
Protect water quality and quantity in the park, restore hydrology to the extent feasible and maintain the restored condition.
Restore and maintain the natural communities/habitats of the park.
Maintain, improve or restore imperiled species populations and habitats in the park.
Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.
Protect, preserve and maintain the cultural resources of the park.
Provide public access and recreational opportunities in the park.
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 Department of Agriculture and Consumer Services, 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, the FFWCC aids the DRP with wildlife management programs, including imperiled species management and Watchable Wildlife programs. The Department of State, Division of Historical Resources (DHR) assists staff to ensure protection of archaeological and historical sites. The SFMWD assists park staff with conducting hydrological research and examining technical issues surrounding the restoration of the Loxahatchee River.

Public Participation

The 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 January 11, 2012 and January 12, 2012, respectively. Meeting notices were published in the Florida Administrative Weekly, December 30, 2012, Volume 37, Issue 52., 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

Jonathan Dickinson State Park is not within an Area of Critical State Concern as defined in Section 380.05, Florida Statutes, and it is not under study for such designation. The Loxahatchee River has been designated as the Loxahatchee National Wild and Scenic River. The park is a component of the Florida Greenways and Trails System, administered by the Department's Office of Greenways and Trails.

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 II waters by DEP. This park is within or adjacent to Loxahatchee River-Lake Worth Creek Aquatic Preserve an aquatic preserve as designated under the Florida Aquatic Preserve Act of 1975 (Section 258.35, Florida Statutes).

RESOURCE MANAGEMENT COMPONENT

INTRODUCTION

In accordance with Chapter 258, Florida Statutes, the Division of Recreation and Parks (Division) 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 the Department of Environmental Protections' (DEP) overall mission in ecosystem management. Cited references are contained in Addendum 3.

The Division'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.

The Division'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: Management Zones		
Management Zone	**Acreage**	**Managed with Prescribed Fire**
JD-A01	56.13	Yes
JD-A02	221.24	Yes
JD-A03	71.20	Yes
JD-A04	23.48	Yes
JD-A05	103.12	Yes
JD-A06	75.21	Yes
JD-A07	213.87	Yes
JD-A08	111.93	Yes
JD-A09	68.32	Yes
JD-A10	42.81	Yes
JD-A11	36.13	Yes
JD-AF	17.44	No
JD-B01	76.78	Yes
JD-B02	51.08	Yes
JD-B03	32.64	Yes
JD-B04	47.81	Yes
JD-B05	151.93	Yes
JD-B06	163.29	Yes
JD-B07	91.76	Yes
JD-B08	164.17	Yes
JD-B09	184.37	Yes
JD-B10	42.71	Yes
JD-B11	47.52	Yes
JD-B12	105.20	Yes
JD-B13	134.22	Yes
JD-B14	10.49	Yes
JD-B15	179.96	Yes
JD-B16	59.00	Yes
JD-B17	36.15	Yes
JD-B18	599.37	Yes
JD-B19	75.59	Yes

Table 1: Management Zones		
Management Zone	**Acreage**	**Managed with Prescribed Fire**
JD-B20	49.43	Yes
JD-B21	99.71	Yes
JD-B22	100.53	Yes
JD-B23	64.97	Yes
JD-B24	42.29	Yes
JD-B25	172.81	Yes
JD-B26	67.19	Yes
JD-C01	5.22	Yes
JD-C02	64.71	Yes
JD-C03	16.98	Yes
JD-C04	92.06	Yes
JD-C05	356.68	Yes
JD-C06	67.78	Yes
JD-C07	54.52	Yes
JD-C09	205.10	Yes
JD-C10	54.21	Yes
JD-D01	74.59	Yes
JD-D02	53.84	Yes
JD-D03	172.42	Yes
JD-D04	25.81	Yes
JD-D05	258.36	Yes
JD-D06	68.76	Yes
JD-D07	71.89	Yes
JD-D08	55.45	Yes
JD-D09	81.98	Yes
JD-D10	5.00	No
JD-E01	118.42	Yes
JD-E02	315.99	Yes
JD-E03	47.06	Yes
JD-E04	256.29	Yes
JD-E05	166.44	Yes

Table 1: Management Zones		
Management Zone	**Acreage**	**Managed with Prescribed Fire**
JD-E06	109.13	Yes
JD-E07	213.38	Yes
JD-E08	70.53	Yes
JD-E09	224.71	Yes
JD-E10	151.38	Yes
JD-E11	71.21	Yes
JD-E12	84.29	Yes
JD-E13	89.86	Yes
JD-E14	154.54	Yes
JD-E15	38.63	Yes
JD-F01	94.68	Yes
JD-F02	72.10	Yes
JD-F03	106.08	Yes
JD-F04	431.68	Yes
JD-F05	170.00	Yes
JD-F06	449.41	Yes
JD-F07	196.26	Yes
JD-F08	6.02	No
JD-G01	72.04	Yes
JD-G02	116.41	Yes
JD-G03	96.33	Yes
JD-G04	220.16	Yes
JD-G05	243.79	Yes
JD-G06	151.24	Yes
JD-G07	122.27	Yes
JD-G08	121.21	Yes
JD-H01	66.50	Yes
JD-H02	35.62	Yes
JD-H03	203.00	Yes
JD-H04	70.04	Yes
JD-I01	51.80	Yes

Table 1: Management Zones		
Management Zone	**Acreage**	**Managed with Prescribed Fire**
JD-I02	140.37	Yes
JD-I03	91.42	Yes
JD-J01	67.07	Yes
JD-J02	24.52	Yes
JD-J03	45.74	No
JD-J04	35.05	No
JD-J05	29.40	No
JD-K01	52.10	No
JD-K02	27.80	No
JD-K03	6.04	No
JD-L01	18.85	No
JD-L02	32.36	No
JD-L03	12.14	No

RESOURCE DESCRIPTION AND ASSESSMENT

Natural Resources

Topography

The park occupies lands in Martin and Palm Beach Counties and is located west of U.S. Highway 1 (US-1) and south of the unincorporated area of Hobe Sound. The physiographic landforms found in the park are highly influenced by marine forces from the past and are divided into two regions: the Atlantic Coastal Ridge and Eastern Flatlands (Puri et al., 1964). The Atlantic Coastal Ridge parallels the coastline and is the only part of the park that possesses any noticeable topography, ranging from 25 to 86 feet above sea level. Approximately 20 percent of the park is found within this region. The Eastern Flatlands stretch westward from this ridge towards Lake Okeechobee with occasional depressions in relationships to creeks and rivers. This area, with its flat terraces, contains poorly drained sands and intermittent shallow depressions. Elevations were altered in several areas of park's old dune system in World War II, during the development of Camp Murphy by the United States Army Signal Corps.

Geology

During the Pamlico Period that preceded Wisconsin Stage, the most recent North American glaciation or ice age, the sea covered most of South Florida and eroded and deposited sand composed mostly of quartz, fossils and some carbon materials. The deposits formed broad terraces known as the Eastern Flatlands with higher elevations

forming the sandbars, beach ridges, dunes and barrier islands of the Atlantic Coastal Ridge. The Loxahatchee River drainage basin probably formed in an ancient lagoon between the flatland and ridge similar to the Indian River Lagoon area today.

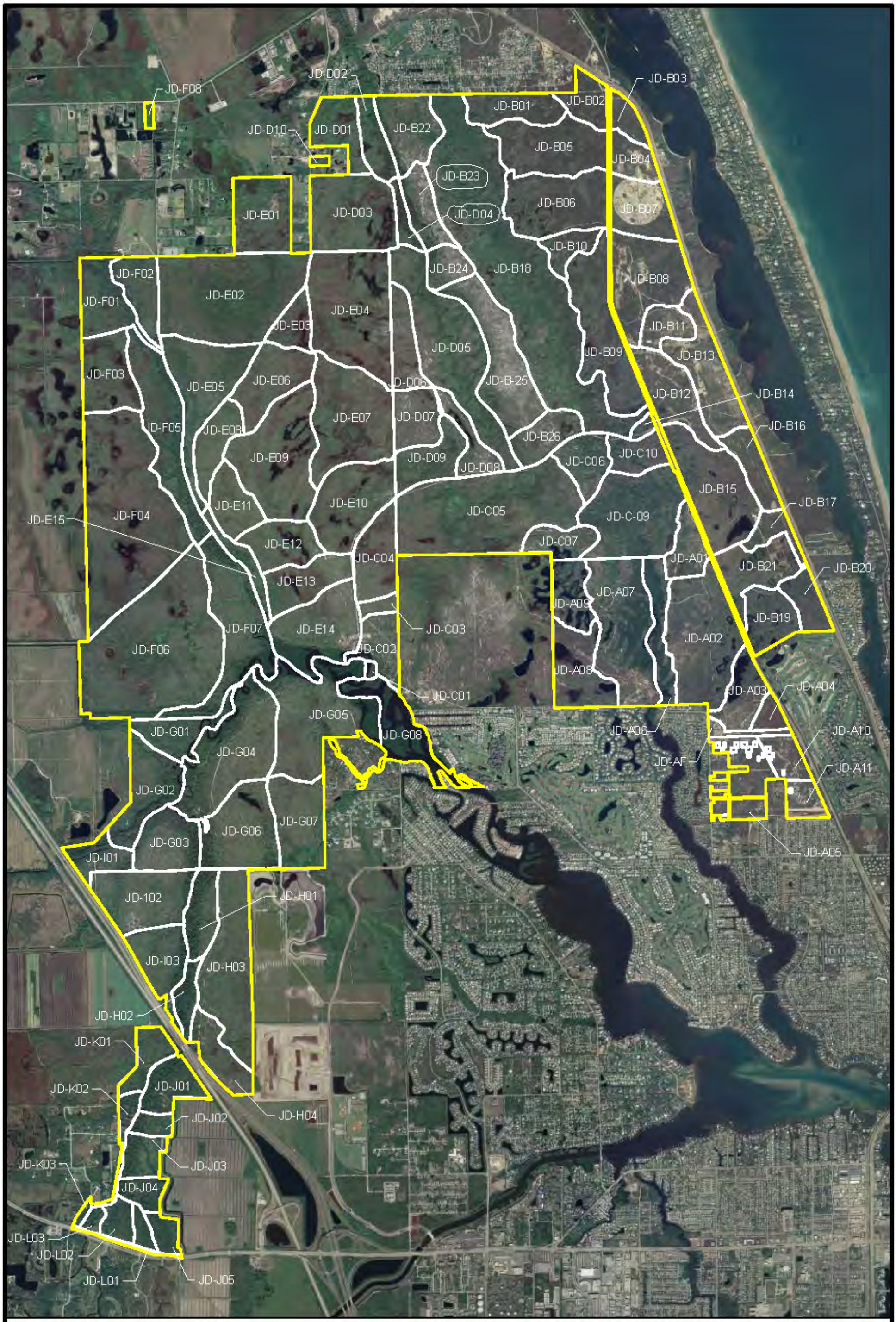
The Wisconsin Stage began after the Pamlico Period approximately 100,000 years ago. As glacial ice increased, sea level fell until about 20,000 years ago. Finally, the sea reached a low point of 300 feet below the present ocean level. The climate was windy, cool and dry, leading to the formation of large sand dune formations. From about 15,000 to 6,000 years ago, the sea level rose at a relatively rapid rate of more than three feet per century. Near the end of this period, the rise in sea level slowed and modern-climate vegetation became established. As the sea level continued to rise, the Loxahatchee River estuary transformed from a fresh water marsh to an area influenced by salt water.

The geological formations underlying the area form two aquifers separated by confining beds: a shallow surficial (non-artesian) aquifer from 15 to 150 feet below the land surface and the Floridan (artesian) aquifer at a depths from 600 to 1,500 feet. The shallow aquifer is the principal source of fresh water for public supply along the coast and includes the Pliocene Tamiami Formation, the Pleistocene Anastasia Formation and Pamlico Sands (Lichtler, 1960). It is composed of permeable sand, limestone and shell beds. The Floridan aquifer contains more mineralized water, especially in the southern region of Broward County and is made up of marl and clay from the Miocene age.

Soils

With the recession of each glacial stage, the deposited sand was modified by climate and vegetation, resulting in the development of 38 distinct soil profiles (described in Addendum 4). Other than the well-drained soils of the Atlantic Coastal Ridge's old dunes, located in the eastern area of the park, most of Jonathan Dickinson State Park and the Loxahatchee River are dominated by poorly drained soils (see Soils Map). The old dunes are most noticeable just west of US-1 and form ridges and other minor dune patterns that run north to south and consist of the Paola-St. Lucie association, fine white sand. Soil types in these areas are generally very sterile and dry, and historically cultivated for pineapples (*Ananas comosus)* and mangos *(Mangifera indica*). Excessively drained soils are also characteristic of the low ridges of the Salerno-Jonathan-Hobe soil associations.

An organic, poorly drained and nearly level hardpan exists under the soils of wet and mesic flatwoods. Most of these soils are dark gray sandy subsoil composed primarily of Waveland-Lawnwood-Basinger. Other nearly level and poorly drained soils include the dark colored Nettles and Wabasso-Riviera-Oldsmar associations. Soils located in wet prairies and depression marshes range from poorly to very poorly drained and are primarily associated with Pineda-Riviera.


JD-D02
JD-F08
JD-B03
JD-B01
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JD-D01
JD-B22
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JD-B04
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JD-E01
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JD-K02
JD-H04
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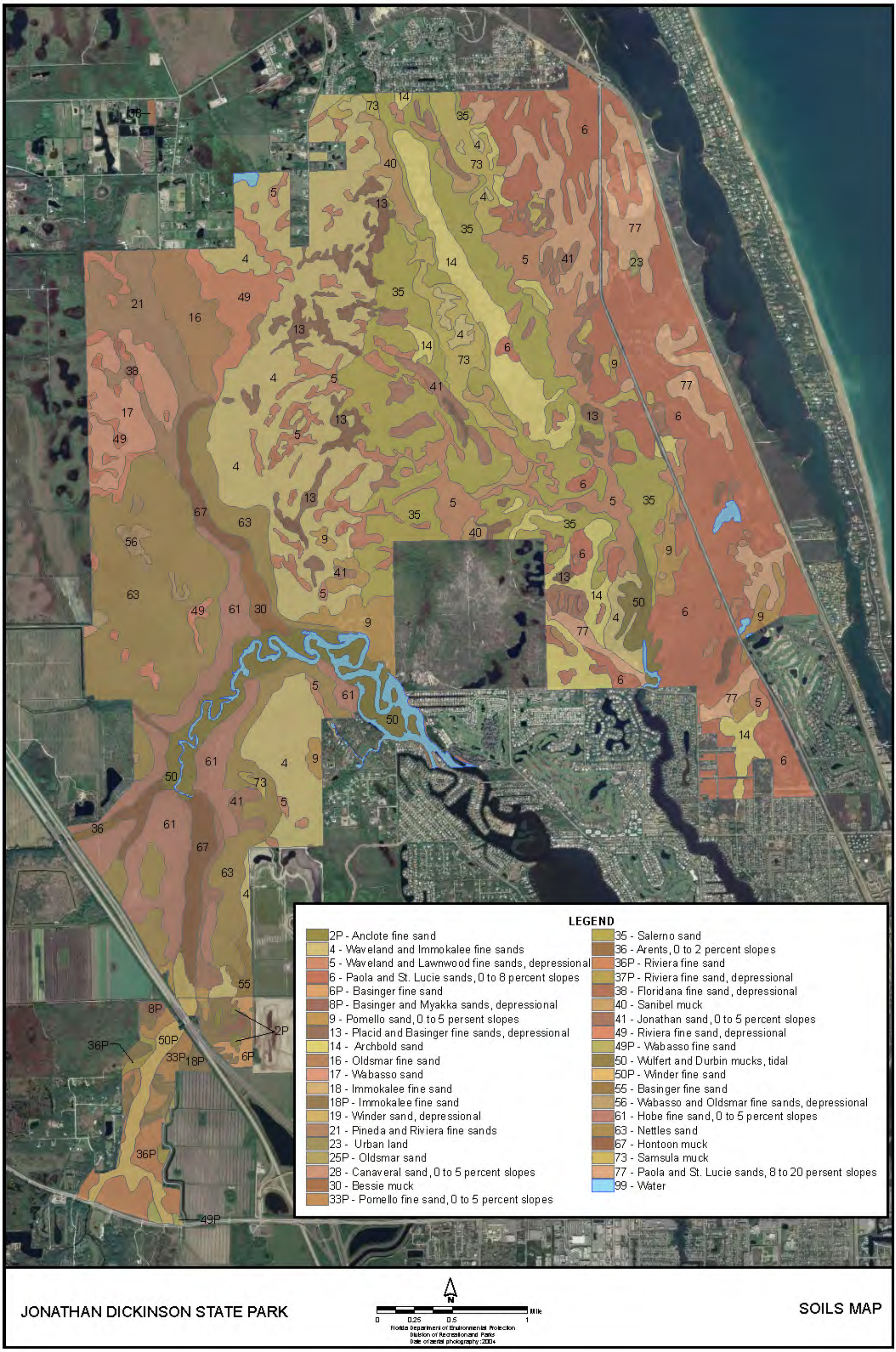
JD-J03
JD-J04
JD-L03
JD-L02
JD-L01
JD-J05
JONATHAN DICKINSON STATE PARK
N
0
0.25
0.5
1
Mile
Florida Department of Environmental Protection
Division of Recreation and Park
Date of aerial photography: 2004
MANAGEMENT ZONE MAP



JONATHAN DICKINSON STATE PARK

SOILS MAP

Finally, the underlying soils of mangrove swamp communities are largely organic, very poorly drained and are the Bessie-Okeelanta Variant-Terra Ceia Variant. As indicated on the Soil Map, these soils support swamps dominated by mangroves and are subject to tidal flooding. These soils are also found in the Floodplain Swamp community, which is dominated by bald cypress (*Taxodium distichum)* and red maple *(Acer rubrum)*.

Minerals

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

Hydrology

Regional hydrology: The entire park lies within the Loxahatchee River basin, an area that encompasses approximately 210 square miles and empties into the Atlantic Ocean at the Jupiter Inlet. The river basin includes seven sub-basins with areas ranging from 17 to 100 square miles (DEP, 1998). The sub-basins form three watersheds with three river forks that converge in the Loxahatchee River and its estuary, approximately two miles upstream from the ocean. The North Fork and Northwest Fork flow through Jonathan Dickinson State Park. The Southwest Fork is located outside the park's boundary. The Northwest Fork forms the central and longest reach of the river and provides drainage for the eastern portion of the Northeast Everglades Natural Area, a multi-agency planning area consisting of approximately 145,000 acres of connected local, state and federal conservation sites that extend from the Atlantic Ocean to Lake Okeechobee in Martin and Palm Beach counties.

Since the turn of the last century, human features have significantly affected the natural drainage systems of the Loxahatchee River basin. These alterations include the C-18 canal/Southwest Fork, the Florida Turnpike, Bridge Road (SR-708), Pratt and Whitney Road (SR-711), Indiantown Road (SR-706), Bee Line Highway (SR-710), Interstate 95 (I-95) and a system of primary and secondary canals developed by special drainage districts and landowners.

In its original condition, the Loxahatchee River received flow into its Northwest Fork from the Loxahatchee and Hungryland sloughs west of the City of West Palm Beach and south of the park. These areas were historically swampy flatlands interspersed with small, interconnected ponds and streams that produced sheet flows toward the north. In 1958, the construction of the C-18 canal within the sloughs drained 106 square miles (or 50 percent of the basin) by diverting flows to the Southwest Fork through control structure S-46. Degradation of the Northwest Fork of the Loxahatchee River resulted by altering the hydrology and increasing saltwater intrusion into the Loxahatchee River. The engineering of the G-92 water control structure in the 1970s redirected flows from the C-18 canal to the Northwest Fork to preserve the remaining freshwater vegetation (McPerson and Sabanskas, 1980).

Today, the Northwest Fork receives most of its water from C-18 and freshwater communities are still in decline. Changes in the vegetation along the river are examples of the effects of the reduction of freshwater flows (Alexander and Crook, 1975). Of particular concern is the health of the floodplain swamp community, specifically the bald cypress that characterizes this community. Many cypress trees in the park are dead due to saltwater intrusion and other cypresses are reproducing unsuccessfully where mangroves dominate. In the upper reaches of the river, most of the mature cypress trees appear healthy, but are being encroached upon by hardwood trees indicative of a drier hydrological regime [i.e., pop ash (*Fraxinus caroliniana*), red maple; laurel oak (*Quercus laurifolia*) and water hickory (*Carya aquatica*)]. In the middle reaches of the river, where mangroves exist along the river channel and cypress exist in the floodplain, cypress are reproducing best because of longer inundation that results from daily tidal cycles.

Other major drainage systems are located west of C-18, within the areas of Jupiter Farms and Palm Beach Country Estates and maintained by the South Indian River Water Control District (SIRWCD). Waters from the Jupiter Farms neighborhood flow easterly from a series of canals into the C-14 canal that flows into the Northwest Fork. Flows from the Palm Beach Country Estates area drain into the east side of the Florida Turnpike's borrow canal that outfalls downstream from the South Florida Water Management District's (SFWMD) S-46 structure at Indiantown Road into the Southwest Fork.

In comparison to the historic wetlands that dominated the watershed, the C-18 has minimal water storage capacity. Today, during dry conditions, the river carries less water than historical quantities. In response, SFWMD purchased an old rock mine, known as the L-8 reservoir, to store surplus surface water and provide water to the Northwest Fork of the Loxahatchee River during periods of drought. *The Restoration Plan for Northwest Fork of the Loxahatchee River* (SFWMD, 2006) provides thresholds for this additional water. The L-8 conveys water to the river by utilizing the Grassy Waters Preserve, Loxahatchee Slough Natural Area (a 10,389-acre property managed by Palm Beach County) and the C-18 and C-14 canals. Goals for water flow levels are set in *The Restoration Plan for the Northwest Fork of the Loxahatchee River* and in the 2003 Minimum Flows and Levels Rule established by SFWMD. Operations and infrastructure of the flow-way are currently under development by SFWMD. Interagency cooperation, communication and monitoring of hydrology are essential to the continued success of the restoration effort.

Other than the C-18 canal, important sources of water for the Northwest Fork include its tributaries: Cypress Creek, Moonshine Creek/Hobe Grove Canal and Kitching Creek. These tributaries originate from a variety public and private lands adjacent to the park. Martin and Palm Beach counties and SFWMD have purchased parcels within the Cypress Creek basin for watershed conservation. Hydrological restoration of these properties is ongoing or slated for future efforts. Moonshine Creek is the smallest

tributary, in terms of natural channel length and is severely altered by Hobe Grove Canal. This canal bypasses the creek and discharges water directly into the river. Enhancement of this small system is possible within existing public properties, but currently not planned. Several thousand acres of the park's pine flatwoods surround Kitching Creek. With continued help from Martin County and SFWMD, the creek has high potential for restoration.

Studies have not been as comprehensive for the North Fork as with the National Wild and Scenic Northwest Fork of the Loxahatchee River. The North Fork is smaller and is only navigable for a short distance within the park. Much of the North Fork south of SR-706 (Bridge Road) is in public ownership. Acquisition of lands north of SR-706 will continue to protect the headwaters of the North Fork. In 2007, a small-scale project led by Martin County augmented and enhanced flows to the North Fork of the Loxahatchee River.

Regional groundwater: The two major aquifers underlying the park are the shallow (non-artesian) surficial aquifer and the Floridan (artesian) aquifer. Local rainfall supplies most of the recharge to the surficial aquifer, whereas the principal recharge to the Floridan aquifer is centered in Central Florida within Polk and Pasco counties. Although the park's wells do not draw from the later aquifer, a reverse osmosis plant located Town of Jupiter utilizes this resource to supply the needs of surrounding communities, including the adjacent Village of Tequesta.

Park management is concerned with two potential problems: the effect of groundwater withdrawals on the park's wetlands and the effect of saltwater intrusion into the park's aquifer. Presently, 19 groundwater-sampling sites within the park are monitored by SFWMD and park staff. Four more sites will be added as part of the Kitching Creek Stormwater Master Plan. The park has worked with SFWMD to establish a series of seven monitoring wells to look at long-term effects on the park's shallow ponds and wetlands. In addition, there are groundwater stations located throughout the park that are maintained and measured by SFWMD and United States Geological Survey (USGS). Together, these stations delineate any cone of water depression that pumping could cause on the park's wetlands. As new development begins to surround the park, it will be necessary to establish monitoring wells and conduct a water base-line study over a course of at least three years.

Saltwater intrusion into the surficial aquifer along the eastern boundary of the park has been problematic for many years and will continue to be a problem as groundwater demands around the park increase. The withdrawal of large quantities of fresh groundwater near the coast has reduced or reversed the natural seaward hydraulic gradient, allowing saltwater to advance inland, displacing fresh water in the surficial aquifer. During drought conditions, the park is prone to saltwater intrusions from the Intracoastal Waterway via the Loxahatchee River. Presently, saltwater monitoring wells

along US-1 are checked by SFWMD and USGS. In 1994, the Town of Jupiter Island's groundwater wells (former wells of the Hobe Sound Water Company located near the park's main entrance) had saltwater contamination.

Other area wells near the park include a series of wells installed by the Village of Tequesta at the park's southeast boundary. The wells provide Jupiter Hills Golf Club with an annual permitted withdrawal of 58 million gallons; however, the club has reduced its use of well water with a daily augmentation of 1.1 million gallons of irrigation quality water from the Loxahatchee River District (LRD).

Freshwater withdrawal by communities and residences east of the park near the Intracoastal Waterway, where some saltwater intrusion has been recorded, is also an important concern. Salinity monitoring conducted by USGS and SFWMD should be maintained with biannual readings and recordings.

Old wells associated with Camp Murphy need to be sealed to protect the underlying surficial aquifer. The completion of this project will protect the park's water source from potential contamination.

In summary, the Loxahatchee River watershed has experienced a general lowering of groundwater levels. Since the turn of the century, drainage canals, ditches, roads, superhighways, agriculture and residential development have negatively affected marshlands. As the region's population increases in both urban and agricultural areas, there will be additional demands on the park's groundwater. Long-term water resource planning is required to balance the needs of surrounding coastal communities while protecting important environmental resources, including natural recharge areas.

Regional water quality: During the early 1980s, USGS analyzed the physical, chemical and biological aspects of the Loxahatchee River watershed. Based on the findings, there is a consensus that the basin's surface water quality is good. The park and river both depend on surface flow and the horizontal movement of water through the sandy soils from the surrounding area. Provisions are necessary for future off-site developments to filter and slow down surface water runoff to minimize the transport of pollutants to receiving water bodies. Discharges of contaminated waters through the canals should be significantly reduced or prohibited, where possible. Sources of degradation within the river basin include oil residue from roads; pesticides and fertilizers from agriculture and landscaped areas, including residential; and erosion after heavy rains from cleared canals or lands. Further impacts from the development of infrastructure, higher density urban/suburban areas and agricultural lands also alter water flows and quality. The monitoring and control of runoff from stormwater is critical because it can have a deleterious effect on water quality. The preservation and protection of the Loxahatchee River has been of great concern to citizens in recent years. Legislative acts designated

the river as a part of the National Wild and Scenic River System from the park's eastern boundary upstream to approximately 0.5 miles south of SR-706.

Regional water quality monitoring is conducted from a federal, state and regional perspective. Since the 1970s, USGS conducted water quality monitoring in the river basin supplemented by DEP and SFWMD. In addition, the Palm Beach County Health Department, Palm Beach County Department of Environmental Resources Management and the LRD also provide water quality monitoring data at the local level. Since 1992, the LRD has assumed responsibility for a comprehensive bi-monthly monitoring program for the watershed, including several stations in the park. Since 1992, the National Wild and Scenic Northwest Fork of the Loxahatchee River scores in the "good" category of the Numeric Nutrient Water Quality criteria (Howard, personal communication, 2012). Specific information on tributaries, drainage, water quantity and quality and the management of this river are found in the *Loxahatchee River National Wild and Scenic River Management Plan* (2010) and the *Loxahatchee River Watershed Ecosystem Management Action Plan* (1998). The implementation of the river management plan and the *Loxahatchee River Watershed Action Plan* will further water quality and quantity protection efforts within the park.

Most authorities agree that the best method for reducing saltwater intrusion and protecting the floodplain swamp community along the Northwest Fork of the Loxahatchee River is to restore and protect the watershed of both the river and its tributaries. Ongoing projects currently being implemented by SFWMD in conjunction with DEP, the two lead agencies in the *Loxahatchee River National Wild and Scenic River Management Plan* (2010) are guided by the following specified actions:

1. Continue land acquisition within the Loxahatchee River watershed for conservation purposes including Pal-Mar, Atlantic Ridge and Cypress Creek. Acquisition efforts will help preserve major wetlands, hydrological links, wildlife corridors and greenways for Kitching Creek, the North Fork and Cypress Creek. Maximizing acquisition increases the chances for future restoration.
2. Monitor salinities within the park to evaluate the need and feasibility of a salinity control structure to help prevent further adverse saltwater encroachment in the park.
3. Monitor for pesticides, fertilizers and other contaminants in the park.
4. Improve baseline research and controls to protect the park's groundwater.

Although several federal, state and local agencies conduct periodic water quality sampling activities on the Loxahatchee River for years, it was not until 1992 that strong baseline data system were gathered, from which changes can be detected. LRD assumes the lead responsibility for assessing water quality data and the coordination of multiagency activities. The Loxahatchee River Management Coordinating Council has authorized the LRD to monitor and develop a water quality index for the river.

Park staff assists other agencies in data gathering, documentary activities and other events that might affect the river corridor area. Detrimental activities or events are reported to the appropriate regulatory agencies.

The proper control of stormwater pollution in the drainage basin is essential to the overall health of the river. The basin management rules, which may be promulgated by SFWMD, should be effective in preventing adverse impacts on water quality caused by new development. Park staff will continue to assist SFWMD in insuring that the best management practices for non-point source pollution are initiated. Staff will also work with the Martin and Palm Beach County farm bureaus, local soil and water conservation districts, Florida Division of Agriculture and Consumer Services (FDACS), individual growers and drainage districts to develop and implement conservation plans to mitigate potential negative impacts of agricultural runoff to the river. Park staff will assist in the development, review, and comment of local government comprehensive plans, Developments of Regional Impact and existing and proposed land use activities that could affect the environmental integrity of the river. Staff will also monitor conditions on the river to help ensure compliance with the water quality standards.

Hydrological disturbances within the park: In addition to regional water quantity and quality issues, there are local hydrological disturbances within the park that create major and minor disturbances. Major hydrological disruptions within the park include Hobe Grove Canal and Jenkins Canal (Management Zones JD-F06/G01 and JD-F02/E02, respectively); both of which are at least 10-foot deep and cause a general lowering of groundwater tables and disturbance to adjacent uplands. The canals bypass the historic natural drainage systems of Moonshine and Kitching Creeks and affect the natural flow pattern of the area by reducing the time required for waters to flow from the wetlands (headwaters) into the main drainage basin. As flow time is reduced, velocities are increased, giving rise to the potential for greater nutrient and sediment loads reaching the river at peak flows. Jenkins Canal bypasses 0.61 miles of Kitching Creek, leaving it without its natural flows. The length of the canal within the park is about 0.50 miles. The canal contains no structures to obstruct or retain water flow and alters the hydrology of approximately 75 acres by favoring the growth of cabbage palms *(Sabal palmetto)* in a community that was historically mesic flatwoods. Similarly, Hobe Grove Canal flows for one mile within the park, bypassing 0.37 mile of Moonshine Creek within the park and another 0.29 miles on adjacent SFWMD property. The restoration of Moonshine and Kitching Creeks is challenging because the canals offer flood protection to neighboring agricultural and residential communities. A variety of complex solutions are being analyzed, permitted and implemented through partnerships with Martin County and SFWMD.

There are also several examples of more minor hydrological disturbances within the park. Past agricultural uses, general drainage practices and fire control efforts using

tractor plows have left drainage ditches up to 5-foot deep scattered throughout the park. The use of tractor plows to control wildfires should only be used as a last resort to limit further hydrological disturbances. In preparation for restoration, a concerted effort is needed to identify, document and map these disturbances during the optimal conditions of post-burn field evaluations. Permits for restoration work are required and will be obtained from SFWMD and the United States Army Corps of Engineers (USACOE) prior to implementing the relative plans.

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 which 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 very different climatic environments and require different management programs. Some physical influences, such as fire frequency, may vary from FNAI's descriptions for certain natural communities in this plan.

When a natural community within a park reaches the desired future condition, it is considered to be in a "maintenance condition." Actions for maintaining a community's condition may require optimal fire return intervals for fire dependent communities, ongoing control of non-native plant and animal species, maintaining natural hydrological functions, historic water flows and water quality, preserving a community's biodiversity and vegetative structure, protecting viable populations of imperiled or endemic plant and animal species, and preserving linking ecotones.

The park contains 16 distinct natural communities in addition to ruderal and developed areas (see Natural Communities Map). A list of known plants and animals occurring in the park is contained in Addendum 5.

MESIC HAMMOCK

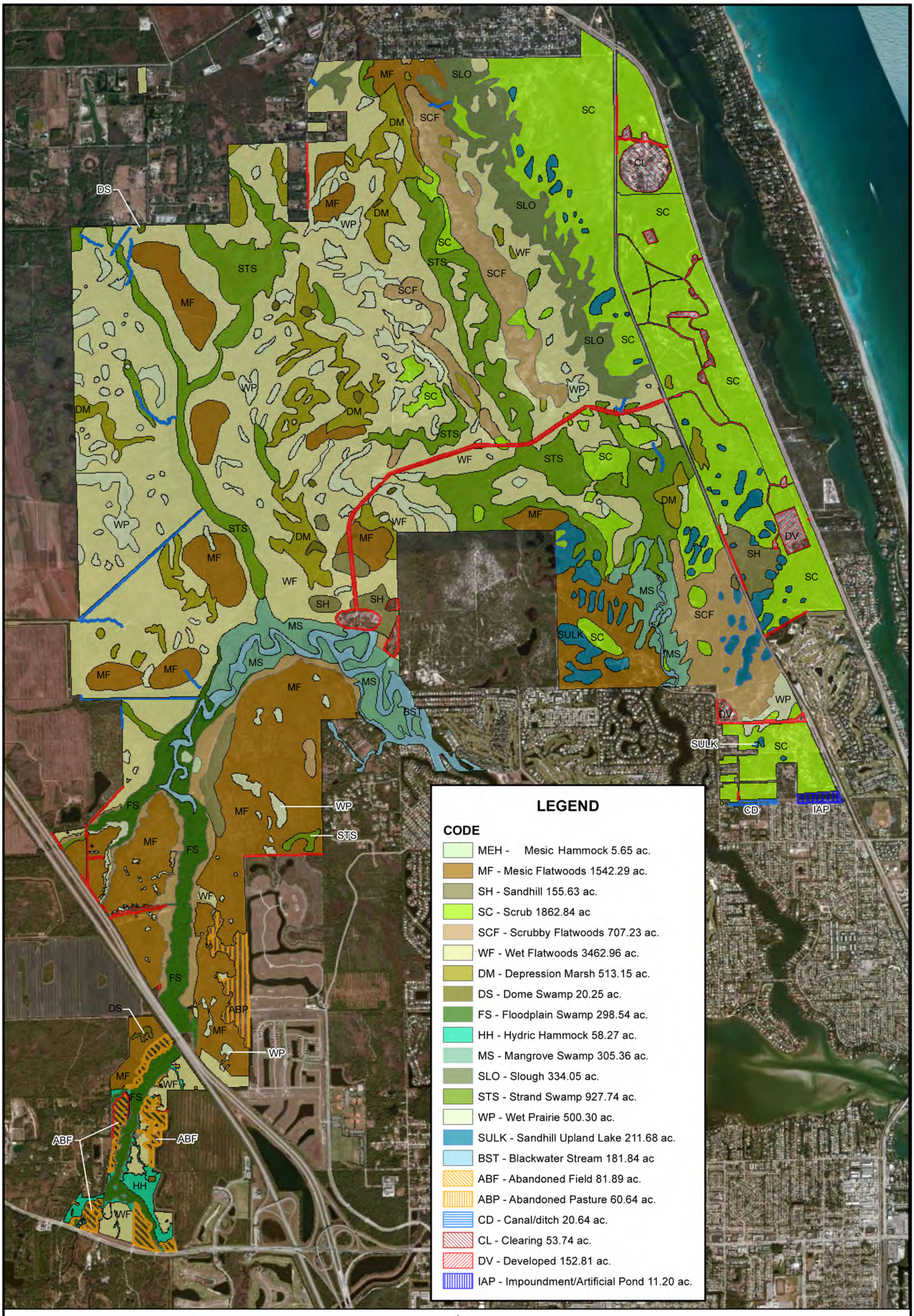
Desired future condition: An evergreen hardwood forest that generally occurs on soils that are rarely inundated. Various tropical species dominate the canopy, including satinleaf *(Chrysophyllum oliviforme*) and paradise tree *(Simarouba glauca)*. Understory species consist of wild coffee, myrsine *(Rapanea punctata)*, white stopper *(Eugenia axillaris)*, swamp fern *(Blechnum serrulatum)* and strap fern *(Campyloneurum phyllitidis)*. This community has very sparse or absent herbaceous groundcover.

Description and assessment: There are approximately 5.56 acres classified as mesic hammock within the park (although many of the component species of the understory are found in other communities). The hammock is on an island within a matrix of floodplain swamp on the Northwest Fork of the Loxahatchee River near Trapper Nelson Zoo Historic District [Trapper Nelson Site (MT01449)]. The canopy of this small area of mesic hammock is characterized by paradise tree, satinleaf and cabbage palm. The understory consists of wild coffee, strap fern, white stopper, swamp fern, myrsine and pineapples (planted by Trapper Nelson).

General management measures: Non-native vegetation such as java plum (*Syzygium cumini*), Brazilian pepper (*Schinus terebinthifolius*), and Old World climbing fern (*Lygodium microphyllum*) are a constant threat to this community and annual or biannual treatments should be done. Because of the small size of this community, a relatively small effort goes a long way to maintain this community's viability. In addition to the non-native invasive plants listed above, over 100 pineapple plants planted by Trapper Nelson are located on the island. In late summer after the pineapples and java plum bear fruit, there is evidence of feral hog *(Sus scrofa)* rooting. Currently, there is no plan to remove the pineapples, as they pose no threat of spreading and represent a piece of the Trapper Nelson Site. Erosion on the site needs to be monitored, as there is a cut in the mound that is thought to have originated from Trapper Nelson's unsuccessful efforts to recover historical or archaeological artifacts.

MESIC FLATWOODS

Desired future condition: South Florida slash pine (*Pinus elliottii* var. *densa*) is the dominant overstory species. Native herbaceous groundcover encompassing greater than 25 percent of any given area and is less than 3 feet in height. Saw palmetto *(Serenoa repens)* /shrub component comprises no more than 50 percent of total shrub species cover and is less than three feet in height. Shrub species include saw palmetto, gallberry (*Ilex glabra*), fetterbush *(Lyonia lucida)*, runner oak, dwarf live oak, shiny blueberry *(Vaccinium myrsinites)* and dwarf huckleberry *(Gaylussacia dumosa)*. Shrubs are generally knee-high



LEGEND

CODE

- MEH - Mesic Hammock 5.65 ac.
- MF - Mesic Flatwoods 1542.29 ac.
- SH - Sandhill 155.63 ac.
- SC - Scrub 1862.84 ac
- SCF - Scrubby Flatwoods 707.23 ac.
- WF - Wet Flatwoods 3462.96 ac.
- DM - Depression Marsh 513.15 ac.
- DS - Dome Swamp 20.25 ac.
- FS - Floodplain Swamp 298.54 ac.
- HH - Hydric Hammock 58.27 ac.
- MS - Mangrove Swamp 305.36 ac.
- SLO - Slough 334.05 ac.
- STS - Strand Swamp 927.74 ac.
- WP - Wet Prairie 500.30 ac.
- SULK - Sandhill Upland Lake 211.68 ac.
- BST - Blackwater Stream 181.84 ac
- ABF - Abandoned Field 81.89 ac.
- ABP - Abandoned Pasture 60.64 ac.
- CD - Canal/ditch 20.64 ac.
- CL - Clearing 53.74 ac.
- DV - Developed 152.81 ac.
- IAP - Impoundment/Artificial Pond 11.20 ac.

JONATHAN DICKINSON STATE PARK

N

0 0.25 0.5 1 Mile

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial photography: 2011

NATURAL COMMUNITIES MAP

or less, with few if any large trunks of saw palmetto along the ground. The Optimal Fire Return Interval for this community is 1 to 5 years. Flatwoods that are in better condition will carry fire at intervals shorter than flatwoods with a larger component of saw palmetto.

Description and assessment: Mesic flatwoods are common in the central, western and southern portions of the park. The major plant constituents of the understory include wiregrass *(Aristida stricta* var. *beyrichiana)*, saw palmetto, gallberry, tarflower *(Bejaria racemosa)* and staggerbush *(Lyonia fruticosa)*. The community is rated from poor to good condition depending upon fire return intervals, altered hydrology, non-native invasive plant infestation and past logging practices.

Trees exhibiting old growth characteristics are generally found sparsely (less than 1 per 5 acres) throughout the mesic flatwoods community with the exception of a few areas where old growth trees are more common (greater than one per five acres and in some areas this number is greatly exceeded). Logging in the early and mid-19th century has reduced the number of older trees in the park. Reintroduction of fire into some areas has killed some older trees due to high fuel loadings. Firing technique, drought condition and burning during the summer when trees are more resilient are all tools to minimize old growth tree kill and maintain desirable tree densities. It is important to note that many areas in the park also have a higher density of younger slash pine that may prove to be undesirable in the long term.

Pine mortality naturally occurs due to age, disease, lightning strike and other causes. Dead trees or snags play an important role in the ecology and aesthetics of mesic flatwoods. Many vertebrates and invertebrates use snags for shelter and feeding. Park staff are not to remove dead or partially dead trees unless a snag is potentially dangerous to visitors, staff, property, or is a hazard to prescribed burning operations. In some cases, snags may be deemed as counter-productive for management of certain wildlife species. In these instances, a biological assessment is needed before taking down these snags.

General management measures: Short interval prescribed fire application (1 to 5 years) will maintain and restore the understory of these communities and allow older slash pines to experience low intensity fires that are essential to their survival.

Hydrological alterations of the park's flatwoods community exist in areas with agricultural or flood control ditches. The impacts of these human-made drainages are larger than the canals' footprints. Indicators include the proliferation of cabbage palms, larger saw palmettos and a lack of wiregrass in the groundcover. Hydrological alterations occur within the park on large and smaller scales, with the most obvious alterations near the Jenkins Canal and the Hobe Grove Canal. The alterations extend several hundred feet beyond these canals and affect many acres of mesic flatwoods.

Non-native, invasive plants are another threat to mesic flatwoods with downy rose myrtle (*Rhodomyrtus tomentosa*) being the most disruptive. Initial herbicide treatment for this plant has been conducted through much of this community (2006 through 2009), but continued re-treatments combined with prescribed fire application are essential for maintenance. Large infestations of downy rose myrtle occur adjacent to the park, along the west and south sides of the park, making retreatment critical. In addition, Old World climbing fern invades the edges of mesic flatwoods. Monitoring and treatment are important to minimizing its impact.

SANDHILL

Desired future condition: The dominant pine is the South Florida slash pine. Herbaceous cover is 25 percent or greater and is less than three feet in height. In addition to groundcover and pines characteristics, there are scattered individual trees, clumps or ridges of turkey oaks *(Quercus laevis)*. Some turkey oaks are over 100 years old. The optimal fire return interval for this community is 1 to 3 years.

Description and assessment: Jonathan Dickinson State Park is at the southern range of the sandhill community. Signature plants include an overstory of slash pine, a mid-story of turkey oaks and understory of wiregrass. Three large areas of this community are located in the park west of the campground near US-1, on the north bank of the Loxahatchee River in the picnic area and just east of the Trapper Nelson Site . Scrub and scrubby flatwoods dominate the area near US-1. Widely spaced slash pines and turkey oaks with a sparse understory of oaks, wiregrass and herbaceous vegetation characterize the sandhill areas. Overall, this community is in fair condition, with the site closest to the river and picnic area being partially developed.

General management measures: Sandhill areas need to be burned with frequent (1 to 3 years), low intensity surface fire. Non-native, invasive plants are not a major threat to this community.

SCRUB

Desired future condition: Dominant species over the vast majority of scrub acres include sand live oak *(Quercus geminate)*, myrtle oak *(Quercus myrtifolia)*, Chapman's oak *(Quercus chapmanii)*, saw palmetto and rusty staggerbush. Scrub oak canopy varies in height from three to eight feet. There is a variety of oak age classes/heights between different scrub patches. There are scattered openings in the canopy with bare patches of sand that support many imperiled or endemic plant species; these species are regularly flowering and replenishing their seed banks. Sand pine *(Pinus clausa)*, where present, is usually not dominant in abundance, percent cover or height. There are some areas of mature sand pine occurring with the oldest trees approximately 50 years old. The optimal fire return interval is 5 to 20 years with the goal to achieve a mosaic of burned and unburned areas.

Description and assessment: The original extent of this community on the Atlantic Coastal Ridge ranged from North Miami to Cape Canaveral. Scrub is almost eliminated in Dade and Broward counties and only remnants occur in Palm Beach County. The park contains one of the last remaining coastal scrub stands in southeast Florida.

Within the park, this community is largely found along the eastern part of the park, but also to a lesser extent on various ridges in the interior and in some cases on the edge of river or creek floodplains. The highest elevation in the park is 86 feet at Hobe Mountain (an ancient sand dune) and shows evidence of early Pleistocene shorelines as parallel dune ridges. The view from Hobe Mountain Tower provides a microcosm of the various stages of scrub succession, from a 40-year-old forest to the north, senescent hurricane-killed sand pines around the tower, logged and burned scrub to the east and south and burned (unlogged) scrub directly to the west.

General management measures: Current fire management of scrub dictates a fire return interval of 5 to 20 years with full knowledge that shorter fire return intervals increase the mosaic of scrub, thus maximizing patchiness of early and late succession examples of this community. Well thought out management of this community will protect an important representation of the area's historic scrub community as well as its many imperiled species.

While this community is generally in good condition, human impacts east of the railroad tracks are evident from the Camp Murphy era (1942 to 1944). Many of these structures need to be removed, while taking care to retain structures of historical value.

The largest non-native plant threat is Natal grass *(Melinis repens)* and while presently localized, mostly along US-1 and the railroad tracks, continued treatment is critical in controlling this very prolific plant. Other exotic plants existing in disturbed areas include Brazilian pepper, Madagascar periwinkle *(Catharanthus roseus)*, rosary pea *(Abrus precatorius)* and Australian pine *(Casuarina equisetifolia)*. Currently, these species provide more localized threats to the overall health of this community than Natal grass.

SCRUBBY FLATWOODS

Desired future condition: The dominant tree species is slash pine. Mature sand pines typically are not present. There is a diverse shrubby understory often with patches of bare white sand. Scrub oak height will vary from three to eight feet and there are oaks with a variety of age classes and heights across the landscape. Dominant shrubs include sand live oak, myrtle oak, Chapman's oak, saw palmetto and tarflower. Cover by herbaceous species is below 40 percent. The Optimal Fire Return Interval for this community is 3 to 8 years when aiming to achieve a mosaic of burned and unburned areas.

Description and assessment: The majority of this community is located on three ridges that are former old dune lines. Other sites containing this community are located on the upland edge of the floodplain along the Loxahatchee River and its tributaries. Ideally, this community is an open canopied forest of widely scattered slash pines with an understory of scrub oaks and other shrubby species. Sites containing scrubby flatwood communities range in poor to good condition relative to current fire intervals. Condition assessment is based on several factors, including bare soil cover, percentage of slash pine killed by fire and sand pine abundance.

General management measures: To ensure diversity, these sites are maintained with a fire return interval of 3 to 8 years. In areas where unburned stands could finally be burned, significant slash pine mortality has resulted (greater than 75 percent). High concentrations of dead slash pine are reminders that prescribed fire needs to be regular to maintain the understory but also to avoid catastrophic kill of slash pines. This community currently has few non-native plant encroachments but is still susceptible to Natal grass invasion.

DEPRESSION MARSH

Desired future condition: Emergent herbaceous and low shrub species dominate most of the area and are open vistas. Trees are few and, if present, occur primarily in the deeper portions of the community. There is little accumulation of dead grassy fuels due to frequent burning; one often sees the soil surface through the vegetation when the community is not inundated. Dominant vegetation in the depression marsh community will include maidencane *(Panicum hemitomon)*, common reed *(Phragmites australis)*, pickerelweed *(Pontederia cordata)*, arrowheads, buttonbush *(Cephalanthus occidentalis)*, St. John's wort *(Hypericum* spp.*)*, Carolina willow *(Salix caroliniana)*, cordgrass *(Spartina alterniflora)* and saw-grass *(Cladium jamaicense)*. The optimal fire return interval for this community is 2 to 10 years depending on fire frequency of adjacent communities.

Description and assessment: This community adds significantly to the diversity of the park by supporting wading-bird nesting sites, numerous reptile and amphibian species and many mammals, including the park's only documented population of rice rats (*Oryzomys palustris natator*).

The characteristics and plant diversity of the park's depression marshes are directly governed by location, depth and soil porosity. Marshes may be encountered at any elevation in the park due to the organic hardpan created in the wet flatwoods and typical plants include saw-grass, Carolina willow and maidencane. This community is in good to poor condition, depending on hydrological impacts and the presence or absence of fire.

General management measures: Continued management needs to focus on non-native, invasive plant treatment especially Old World climbing fern, Brazilian pepper,

melaleuca *(Melaleuca quinquenervia)* and torpedo grass *(Panicum repens)*. Feral hogs generally move around the perimeter of these marshes. In some areas, drainage ditches and canals impact this ecosystem. Where possible, backfilling of these ditches and canals will restore or enhance this community.

DOME SWAMP

Desired future condition: This community typically is a forested depression wetland occurring in a fire maintained matrix, such as mesic flatwoods. Small trees growing on the outer edge (shallower water and less peat) and larger trees growing in the interior create the characteristic dome appearance. In many instances, dome swamps are present in a larger matrix of wet prairie and depression marshes. As these three different ecosystems transition into each other, dwarf or hat rack cypress *(Taxodium ascendens)* are the indicator species. The sub-canopy of the dome species, other than cypress, will include red maple, dahoon holly *(Ilex cassine* var. *cassine)* and swamp bay *(Persea palustris)*. Shrubs are absent to moderate (a function of fire frequency) and may include Carolina willow, fetterbush, buttonbush, wax myrtle *(Myrica cerifera)* and leather fern *(Acrostichum danaeifolium)*. The herbaceous component is absent to dense and includes ferns, maidencane, saw-grass, sedges, lizard's tail *(Saururus cernuus)* and sphagnum moss *(Sphagnum spp*.). Vines and epiphytes are common. Maintaining appropriate hydrology and fire frequency is critical for preserving the structure and species composition of the community. Dome swamps are allowed to burn on the same frequency as the adjacent fire type community, allowing fires to naturally burn across ecotones. Fires should be appropriately planned to avoid high severity fuel consumption within the dome swamp.

Description and assessment: Generally, this community is in good condition. Pond cypress (*Taxodium ascenden*; including the dwarf cypress variant) dominate this community, but succession is a problem in some areas due to the lowered water table of the region.

General management measures: A major focus of management in this ecosystem is the removal of non-native, invasive species such as Old World climbing fern, Brazilian pepper, downy rose myrtle, strawberry guava (*Psidium cattleianum*) and melaleuca. Sampling has shown that Cuban treefrogs *(Osteopilus septentrionalis)* are the dominant treefrog in this ecosystem; prompting concerns for the health of native treefrogs populations. However, prolonged freezes have had major impacts to Cuban treefrog populations (Cunningham, personal observation, 2009).

FLOODPLAIN SWAMP

Desired future condition: The frequently or permanently flooded community (inundated greater than 180 days) occurs in low-lying areas along streams and rivers. Soils consist of a mixture of sand, organics and alluvial materials. The closed canopy is

dominated by bald cypress and includes water hickory, pop ash and red maple. Tree bases are buttressed. Understory and groundcover a sparse.

Description and assessment: This community borders the Loxahatchee River and Kitching Creek channel where the floodplain is saturated or submerged during most of the year by freshwater. It is dominated by bald cypress, red maple, pop ash, pond apple (*Annona glabra*) and cabbage palm. In this area of the state, floodplain swamp has a high diversity because of the overlap of temperate and sub-tropical species. Many large bald cypress remain after logging occurred in the area in the early 1900s and early 1940s. In In the 1990s, the age of the oldest tree was determined to be approximately 325 years old (Roberts, personal communication). The quality of this community varies from very poor to good, depending on its location along the river. Several factors threaten the park's floodplain swamps including the 1947 permanent opening of Jupiter Inlet. The permanent opening allows a wedge of saltwater to move up the Loxahatchee River shifting the community from a freshwater, cypress-dominated ecosystem, to a saltwater, mangrove-dominated ecosystem. In addition, a lack of freshwater coming down the river from outside the park has resulted in lower levels and shorter periods of inundation, allowing hardwood encroachment into the floodplain (i.e., red maple, pop ash, water hickory, laurel oak). Lastly, the creation of the C-18 canal in 1958 further diminished natural freshwater flows to the river.

General management measures: Non-native plant threats include many different species with the worst being java plum, Brazilian pepper, arrowhead vine (*Syngonium podophyllum*) and wild taro *(Colocasia esculenta)*. While other plants such as Old World climbing fern and strawberry guava, are present, their impacts are mitigated by higher than optimal water levels. The threat of java plum is potentially overpowering, but has largely been ignored over several decades (until the early 2000s), especially downstream of the Trapper Nelson Site. A major hurdle was crossed when the dozen mature java plums on Trapper Nelson's homestead were removed after the 2004 and 2005 hurricanes. Much work remains along the river especially with the hard-to-treat arrowhead vine and wild taro. Arrowhead vine climbs up cypress trees and can also cover the ground, while wild taro exclusively covers the understory. Another management focus is exotic animal control. Wild pigs (*Sus scrofa)* seasonally use the floodplain swamp community. Cuban treefrogs are abundant and their impact to native frog populations remains unclear.

There is an ongoing interagency effort, supported by the community and the Loxahatchee River Management Coordinating Council, to increase water flows to the Loxahatchee River and its tributaries, formalized by the minimum flows and level (MFL) rule (SFWMD, Chapter 40E-8, FAC, 2003) and further cemented with the *Restoration Plan for the Northwest Fork of the Loxahatchee River* (2006). The MFL provides for flows of 35 cubic feet per second (cfs) over Lainhart Dam and the restoration plan increases that target to an average of 90 cfs. The MFL rule and the restoration plan

provide quantifiable targets, both of which have yet to be met with current infrastructure. Once the targets in the MFL and restoration plan are met, an improvement in hydrology will allow slow recovery and enhancement of this community.

HYDRIC HAMMOCK

Desired future condition: This community is characterized as a closed canopy, evergreen hardwood or palm forest with a variable understory dominated by palms and hardwoods, with a sparse to moderate ground cover of grasses and ferns. Typical canopy species include laurel oak, cabbage palm, live oak, red maple and other hydrophytic tree species. Soils are poorly drained, with a normal hydroperiod seldom over 60 days per year. Hydric hammock occasionally burns when fires originate in adjacent upland natural communities.

Description and assessment: This community is characterized by laurel oak, cabbage palm and swamp bay, with an understory of myrsine, saw palmetto, wax myrtle and swamp ferns. It is mainly located along the southern extension of the Loxahatchee River and Kitching Creek floodplains along the borders of the floodplain swamp community.

Because of impacts from past agricultural practices, overall the hydric hammock areas can only be rated as fair. One half of this community exhibits old soil disturbance associated with farming, but it has largely recovered with typical plant species found in the more pristine sites. However, there has been a notable invasion of exotic pest plants, such as Old World climbing fern, strawberry guava, Brazilian pepper, Caesarweed *(Urena lobata)*, shoebutton ardisia *(Ardisia elliptica)* and citrus *(Citrus spp.)*, especially on or near the old farm sites located close to Indiantown Road. Feral pigs are major carriers of the non-native plant, Caesarweed.

General management measures: Non-native plant invasions pose the biggest threat to this community. Continued treatment and re-treatment is necessary to maintain this community free of invaders. Minor to moderate plant invasions are typical of this plant community. Feral hog damage in this community ranges from minor to major.

STRAND SWAMP

Desired future condition: This community is a closed canopy, hardwood forest with a variable understory dominated with sparse to moderate ground cover of grasses and ferns. Typical canopy species include pond cypress, swamp bay, red maple and other hydrophytic tree species. Soils are poorly drained, with a normal hydroperiod rarely over 180 days per year. Fire return intervals in this system will be over long periods, perhaps in the 100-year or more range. However, cypresses are fire tolerant.

Description and assessment: The headwaters of the park's drainages are considered strand swamps and all flow into the North Fork or the Northwest Fork of the

Loxahatchee River. As with the floodplain swamp, this bald cypress dominated community depends largely on the specific area or, in this case, creek, as to the rating of the strand swamp's condition. Generally, most of this habitat is in fair condition with the biggest physical impacts coming from the exotic Old World climbing fern, Brazilian pepper, downy rose myrtle, melaleuca, shoebutton ardisia and feral hogs. In terms of water quantity and quality, each creek is somewhat different. Most of the North Fork headwaters and much of its channel is within the boundary of the park or other public properties. In the past, the park has worked with the landowners north of the park, whose lands are part of the system, to maintain adequate flow and water quality. Kitching Creek headwaters are located on agricultural land north and just west of the park, but its entire natural channel lies within the park. Both Moonshine Creek (which is bypassed by the Hobe Grove Canal) and Cypress Creek have only a portion of their natural channel within the park and their headwaters lie west of the park.

Surface water runoff and groundwater seepage are two water sources for Moonshine Creek and Cypress Creeks. Of the two, surface water systems contribute the largest volume and highest peak flows to the river. The excavation of canals to facilitate drainage for development has disrupted the headwaters of these swamps and, as a result, the river. As flow time is reduced, velocities are increased, giving rise to the potential for greater nutrient and sediment loads reaching the Loxahatchee River and less water stored within the floodplain. The hydrological alterations are favoring growth of upland species versus swamp plant species. These tributaries and their headwaters are in need of greater protection through acquisition and subsequent restoration.

General management measures: The largest threats to this community are lack of proper hydrology from over-drainage and the dominance of Old World climbing fern. In the past, fire rarely moved through this ecosystem, but with the infestation of the Old World climbing fern, fire regularly pushes through this plant community and therefore is changing the dominant plants in this community. While drainage and flood control require regional and local planning solutions, the management of invasive plant species can be addressed by the park, but only through adequate multi-year funding.

WET FLATWOODS

Desired future condition: The dominant tree is slash pine. Pond cypress may reach the canopy in some locations. The canopy is open, with widely scattered pines of at least three age classes. Native herbaceous plants cover at least 25 percent of the understory. Common shrubs include fetterbush, gallberry and wax myrtle. The optimal fire return interval for this community is 2 to 6 years.

Description and assessment: A substantial portion of the park is comprised of wet flatwoods that dominate the central and western areas separated by strand swamp communities. Most of this community is found west of the power lines in the area

designated as a Wilderness Preserve. Summer rains make these slash pine-dominated flatwoods extremely wet, with up to several inches of standing or flowing water. The major plant constituents of the understory include saw palmetto, gallberry, tarflower and wax myrtle.

The community is rated in fair to good condition depending upon whether or not it has been burned regularly. Past logging has left numerous stumps as artifacts of human activity. The most significant feature is the absence of large pine trees typical of pre-Columbian flatwoods.

The importance of snag management to the flatwoods ecosystem needs to be stressed. Park staff will not remove pine trees that have died from disease, lightning strikes or other natural causes unless a snag is potentially dangerous to visitors, staff or property.

General management measures: Hydrological alteration of this community can be found in various areas of the park where there are agricultural or flood control ditches. The impacts of these human made drainages are much larger than the canals' footprint. Telltale signs include a proliferation of cabbage palms, larger saw palmetto and a lack of wiregrass in the groundcover. Evidence of hydrological alteration is found in various parts of the park on larger and smaller scales. The most obvious of these areas occur around Jenkins Canal and Hobe Grove Canal, but other areas also exist. Hydrologically impacted pine flatwoods surrounding these larger ditches extend several hundred feet beyond the canals.

Another threat to this community is non-native, invasive plants and animals with the largest being downy rose myrtle. Initial treatment for this plant was conducted through much of wet and mesic flatwoods (2006 through 2009) but continued vigilant herbicide re-treatment combined with prescribed fire application are essential for maintaining this community. Large infestations of downy rose myrtle adjacent to the park, especially on the west and south sides of the park, make re-treatment very important. In addition, Old World climbing fern invades the edges of wet flatwoods. Monitoring and treatment are both key to minimizing its impact.

WET PRAIRIE

Desired future condition: Trees are few or absent. Groundcover is dense and exceptionally species-rich. Dominant species will be wiregrass, sedges and occasionally cutthroat grass (*Panicum abscissum*). The optimal fire return interval for this community is 1 to 3 years.

Description and assessment: Covering large portions of the central and western sections of the park, this community is closely associated with wet flatwoods, depression marshes, dome swamps and strand swamps. It is characterized as a treeless wetland with a sparse to dense ground cover of grasses and herbs, especially St. John's

wort. Within the park, this community serves as an important filtering system for the Loxahatchee River (excess nutrients are used by plants of the wet prairie). It also retains water during times of drought, thereby reducing the possibility of saltwater moving up the river.

The wet prairie community is rated from fair to good condition. With the increased artificial drainage surrounding the park, this community type is stressed as indicated by the invasion of woody species (especially slash pine). If the elevations of the water table continue to lower and prescribed burns are withheld from the management of these areas, the dominate St. John's wort understory of the wet prairie will eventually shift to a more woody community.

General management measures: Prescribed fire intervals should vary from one to three years, depending on drought conditions. Ditches that drain these wetlands need to be backfilled. Old plow scars that create sheet flow by connecting these communities to other wetlands are difficult to correct, but should be identified and restored if feasible. Further threats to this community come from feral hog damage, melaleuca, Old World climbing fern, torpedo grass and downy rose myrtle.

SANDHILL UPLAND LAKE

Desired future condition: This community is a shallow sandy-bottomed lake formed in shallow depressions within scrub upland communities. Water levels fluctuate dramatically, including completely drying up during extreme droughts. Typical vegetation includes emergent, submerged aquatic plants and transitional species along the shoreline. Species include water lilies (*Nymphaea odorata*), saw-grass, pickerel weed (*Pontederia cordata*), meadow beauty (*Rhexia virginica*), St. John's wort, yellow-eyed grass (*Xyris* spp.), hatpins *(Syngonanthus flavidulus)* and spikerush *(Eleocharis spp.)*. The natural water quality in these wetlands is characterized by low nutrient loading.

Description and assessment: This community is found within the park's scrub, in areas that were once depressions or small swales located between the sand ridges along former shorelines. These areas are extremely important breeding areas for amphibians, including the gopher frog *(Rana capito aesopus)*, as well as many unusual and endemic insects. They are also important sources of water for many mammals and birds that inhabit the surrounding scrub community.

This community is generally in good condition, although several of these areas exhibit decreased water levels as indicated by plant succession along their edges. There is a long-term concern with effects of water withdrawal from the well fields of Jupiter Hills Club and the more distant Town of Jupiter Island and the Village of Tequesta.

General management measures: Sandhill upland lakes are extremely vulnerable to hydrological manipulations. Because of their value to the park and the scrub

community, any future and ongoing impacts that would alter their balance and cause an irreversible change in the park's fauna and flora should not be permitted. Water quality is also an important concern in these oligotrophic systems, especially where these lakes occur on the edges of the park. For example, water quality samples of a lake shared with the adjacent Jupiter Hills area indicate high nutrient loads and the presence of cattails *(Typha* spp.*),* which will require ongoing treatment. Melaleuca, Old World climbing fern and Brazilian pepper also threaten this community. Historically, the worst melaleuca infestations within the park occur in this community. Feral hogs also threaten these areas.

FLATWOODS LAKE

Desired future condition: This community is a shallow sandy-bottomed lake formed in shallow depressions within wet, mesic, and scrubby flatwoods upland communities. Water levels fluctuate dramatically, including completely drying up during extreme droughts. Typical vegetation includes emergent, submerged aquatic plants and transitional species along the shoreline. Species include water lilies (*Nymphaea odorata*), saw-grass, pickerel weed (*Pontederia cordata*), meadow beauty (*Rhexia virginica*), St. John's wort, yellow-eyed grass (*Xyris* spp.), hatpins *(Syngonanthus flavidulus)* and spikerush *(Eleocharis spp.)*. The natural water quality in these wetlands is characterized by low nutrient loading.

Description and assessment: This community is found only in the area of the border of the Girl Scout Camp and Boy Scout Camp (Management Zones JD-A08 and JD-A09), in areas that were once depressions or small swales located between the sand ridges along former shorelines. These areas are extremely important breeding areas for amphibians, including the gopher frog *(Rana capito aesopus)*, as well as many unusual and endemic insects. They are also important sources of water for many mammals and birds that inhabit the surrounding scrub community.

This community is generally in good condition, although several of these areas exhibit decreased water levels as indicated by plant succession along their edges.

General management measures: Flatwoods lakes are extremely vulnerable to hydrological manipulations. Because of their value to the park any future and ongoing impacts that would alter their balance and cause an irreversible change in the park's fauna and flora should not be permitted. Water quality is also an important concern in these oligotrophic systems, especially where these lakes occur on the edges of the park. Old World climbing fern, Brazilian pepper, melaleuca and feral hogs are a threat to this community.

BLACKWATER STREAM

Desired future condition: The community is characterized as perennial or intermittent watercourses originating in lowlands where extensive wetlands with organic soils

collect rainfall and runoff, discharging it slowly to the stream. The stained waters are laden with tannins, particulates and dissolved organic matter derived from drainage through adjacent swamps resulting in sandy bottoms overlain by organic matter. Emergent and floating vegetation, including smartweed (*Polygonum hydropiperoides*) grasses and sedges, is limited by steep banks and dramatic seasonal fluctuations in water levels. Desired conditions include minimizing disturbance and alterations and preserving adjacent natural communities.

Description and assessment: This community is comprised of the channel of the Loxahatchee River (approximately 9 miles of navigable waterway) and its tributaries. The name characterizes the tea-colored waters of these streams, which are laden with tannins particulates and iron derived from the drainage through strand and floodplain swamps, wet prairies and depression marshes. This community is primarily bounded by floodplain swamp and tidal swamp. Swamp communities along the stream vary according to their location relative to the upstream migration of saltwater.

The West Indian manatee is often spotted along the Northwest Fork of the Loxahatchee River by visitors and park staff. To protect the manatee, FFWCC has set boating speed limits at idle speed. Ospreys are also associated with the downstream portion of the river and are commonly seen diving for fish and are often observed nesting on adjacent trees. In addition, the Loxahatchee River provides diverse opportunities for recreational saltwater and freshwater fishing.

The water quality in the river is monitored at various points along the North and Northwest Forks of the Loxahatchee River with levels of quality generally reported as very good. However, during the wet season, high bacterial counts from upstream areas require seasonal closures of the swimming area. Non-native invasive fish are common in the freshwater portion of this ecosystem including tilapia *(Tilapia mariae)*, black acara *(Cichlasoma bimaculatum)*, armored catfish *(Callichthys callichthys)*, walking catfish *(Clarias batrachus*) and vermiculated sailfin catfish (*Pterygoplichthys disjunctivus)*.

MANGROVE SWAMP

Desired future condition: This community includes expanses of mangroves along coastlines of low wave-energy and river mouths. Soils are saturated to inundated and vary considerably from deep mucks to fine sands but will always contain a high salt content limiting plant biodiversity.

Description and assessment: Mangrove swamp vegetation is dominated by red (*Rhizophora mangle*) and white mangroves (*Laguncularia racemosa*). Red mangroves occur on the islands within the river and along the river's floodplains. Further upland, in soils usually covered by water at high tides and storms, are white mangroves. Damaging freezes in the winters of 1977, 1983, 1985 and 1989 and severe, localized wind damage sustained in hurricanes Frances, Jeanne and Wilma (2004, 2004 and 2005, respectively)

have resulted in the poor condition of some of the mangrove swamp community. However, other portions of the mangrove swamp are rated as fair or good.

Since the completion of the Intracoastal Waterway, the stabilization of the Jupiter Inlet in 1947, and reduced flows to the river the salinity of the Loxahatchee River dramatically increased. In addition, the drainage and diversion of headwaters caused estuarine conditions to move upstream much further than historically. The intrusion of saltwater has caused the death of numerous cypress trees within the park and has led to the formation of a mangrove forest. There are now standing dead cypress within a live forest of mangroves and the small numbers of live cypress are not successfully reproducing.

General management measures: Continue to remove non-native, invasive plants from this community. Generally, this community is very resilient in terms of non-native invasive species, but is more susceptible to natural disturbances such as hurricanes and freezes. One area in particular, located to the south of the Elsa Kimbell Environmental Education and Research Center, has been disturbed by the placement of fill in the mangrove swamp community for creating a nature walk. This area is deemed appropriate for the placement of a boardwalk, but the fill needs to be removed (at least in places) to allow more natural tidal flushing.

As discussed in the preceding natural community descriptions, not all of the parks habitats are in natural condition. Historic communities have been replaced or severely altered by human activities and do not fit into natural community descriptions. The following altered landcover types describe the various non-natural habitats found within Jonathan Dickinson State Park.

ARTIFICIAL POND

Description and assessment: There is one artificial pond within in the park (management zone JD-A11).

General management measures:
This artificial pond serves as a stormwater treatment area for a neighboring community and is maintained as such by Martin County.

ABANDONED FIELDS

Description and assessment: There are several abandoned fields located on Save Our Rivers (SOR) lands acquired by SFWMD (especially in the J, K and L management blocks).

General management measures:
The long-term goal includes restoration of these areas, beginning with the removal of non-native invasive plants and if needed replanting of native species. Restoration of these areas will involve much effort.

ABANDONED PASTURE

Description and assessment: There is one large abandoned pasture in the park, which was cleared of a monoculture of Brazilian Pepper and now is dominated by another non-native, Guinea Grass (in the JD-H03 management zone).

General management measures:
The long-term goal includes restoration of this area, beginning with the removal of non-native invasive plants and if needed replanting of native species.

CANAL/DITCH

Description and assessment: Approximately 5 miles of old agricultural ditches and canals have been identified within the park.

General management measures:
The long-term goal includes restoration of these areas, beginning with the removal of non-native invasive plants, followed by hydrological restoration and if needed replanting of native species. Restoration of these areas will involve much effort.

CLEARING

Description and assessment: In the northeast corner of the park, the United States Coast Guard maintains a 50-acre cleared area for a Long Range Navigation (LORAN) radio tower. This openly maintained area includes a variety of scrub plant and animal species.

General management measures:
The Coast Guard maintains the vegetation in its open state using mechanical means.

DEVELOPED

Description and assessment: There are several developed areas in the park. The developed areas include the campgrounds, river area, administrative buildings, roads, a variety of old Camp Murphy era roadbeds and building foundations and other small areas.

General management measures: 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 (FLEPPC 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.

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 United States Fish and Wildlife Service (USFWS), FFWCC or the FDACS as endangered, threatened or of special concern.

Plants: Curtiss' milkweed *(Asclepias curtissi)* is an herbaceous perennial that dies back to its rootstock each year. It is very cryptic and has a variety of leaves with shapes resembling other scrub species. This scrub species can persist for a number of years in shaded areas, but usually flowers and fruits only in full sunlight.

The four-petal pawpaw (*Asimina tetramera)* is found only at exacting elevations within the scrub where it can reach the water table. It is restricted to Martin and Palm Beach counties.

Although not identified until 1993, perforated reindeer lichen *(Cladonia perforata)* are found in both in scrubby flatwoods and open scrub. This species cannot survive direct flame yet still depends on a disturbance maintained environment (which naturally would be wildfires) that promotes gaps, open sandy patches, reduced canopy vegetation and a lack of fine fuels (grass, litter, etc.) on the ground.

Large-flowered rosemary (*Conradina grandifolia*) is an aromatic shrub found in the scrub. This plant belongs to the mint family and is found in burned and disturbed sites, such as trails, with open sand.

Both nodding pinweed (*Lechea cernua)* and pineland pinweed (*Lechea sessiliflora*) are small perennial herbs that prefer the park's open, sandy soils in the scrub and scrubby flatwoods communities.

Like many of the other designated scrub plants, Small's milkwort *(Polygala smallii)* prefers areas of open sand, with little litter buildup and no canopy vegetation. While this shallow rooted plant is killed by fire, the proper fire and/or mechanical management maintains these conditions and favors seed germination.
Dancing lady orchid (*Tolumnia bahamensis*) occurs in scrub and scrubby flatwoods, usually within the leaf litter or near the lower branches of the Florida rosemary or scrub oak plants. The range of this plant in Florida is restricted to Martin and Palm Beach counties.

Satinleaf is a distinctive and attractive tree found in maritime hammocks and near the Loxahatchee River's floodplain swamp communities where fire is not a threat.

There are many designated orchid species. The pine pink orchid *(Bletia purpurea)*, two grass pinks (*Calopogon* spp.), wild coco *(Eulophia alta)*, snowy orchid *(Habenaria nivea)*, rose pogonia *(Pogonia ophioglossoides)*, giant orchid *(Pteroglossaspis ecristata)*, lace-lip ladiestresses *(Spiranthes laciniata)* and spiral orchid are all normally found within the wet, mesic or scrubby flatwoods communities. The clamshell orchid *(Prosthechea cochleata)*, butterfly orchid *(Encyclia tampensis)* and stiff-flower star orchid or rigid

epidendrum (*Epidendrum rigidum*) are observed in the floodplain swamp and hydric and mesic hammocks along the river and its tributaries.

Hand ferns (*Ophioglossum palmatum)* are almost exclusively located in the detritus filled base or boot of cabbage palms. Very sensitive to fire and drought, its habitat in the park has been located in the strand swamp and floodplain swamp communities.

The sometimes-epiphytic low peperomia (*Peperomia humilis*) has only been located in one small locale within the floodplain swamp of the river.

A small area of seepage slope was found in 2004 along the North Fork of the Loxahatchee River. This community contains a small area of cutthroat panicum.

Animals: The American alligator (*Alligator mississippiensis*) occurs in all of the park's wetland habitats and moves on land. Currently, monitoring is minimal because this animal is abundant in the natural communities where it is typically observed. In 2009 and 2010 alligator surveys were conducted on the river to determine how they respond to fresh and saltwater influxes. Alligators turn out to be an excellent indicator for freshwater inflows into the Northwest Fork of the Loxahatchee River. Management of this species is discussed further in the Exotic/Nuisance Animal Section of this plan.

The gopher tortoise (*Gopherus polyphemus)* occurs mainly in the park's upland pine forest in areas with dense herbaceous ground cover and sandy soils. Occasionally it digs burrows in low-lying areas during the drier winter months. The gopher tortoise is a keystone species because it provides shelter for many species, including invertebrates, amphibians, other reptiles and mammals. Several imperiled species share its burrow. The park staff's largest management concern for these animals is road kill mortality. Road fatalities occur within the park along Park Drive and at the edge of the park along US-1. Since 1997, 26 gopher tortoise fatalities have been observed on US-1, 14 within the park, with 19 of those occurring between July 2006 and September 2008. The implication of this mortality on long-term population viability is unclear. However, with the knowledge that many species use gopher tortoise burrows, it is clear that the impact of these road kills is much greater than what is observed. As the park's outlying areas continue to be burned, gopher tortoise populations should be surveyed to determine if reintroduction into these fragmented areas (such as JD-I management zones) is feasible.

The Florida pine snake is an example of a species that takes refuge in gopher tortoise burrows. The snake has a unique head and muscular body that allows for burrowing into loose sand. This seldom-observed snake is adapted to life in open sandy habitats. According to herpetologists, there have been serious declines in the numbers of these snakes in the last 20 years due to excessive collecting, road mortality and habitat alteration (Franz, 1992).

Gopher frogs are another species inhabiting tortoise burrows. These frogs are restricted to the park's drier habitats such as scrub, scrubby flatwoods, mesic flatwoods and sandhills. It almost exclusively utilizes the burrow of the gopher tortoise.

The eastern indigo snake is an imperiled species that requires a large territory of high quality and diverse habitats in order to maintain a viable population. Home ranges sometimes extend beyond 500 acres and may include wet and dry habitats.

The Florida mouse is limited to well-drained, sandy soils of the scrub and scrubby flatwoods of the park. To ensure their continued survival, prescribed fire application maintains early successional stages of this community. Prescribed fire is important to Florida mouse populations because this species prefers lower shrub height and thick cover. In 1983 and 1984, four sites in the park were surveyed. In response to this survey, a research project was conducted from 1986 to 2003 to monitor the population trends after fire (Roberts and Stout, unpublished).

The Florida scrub-jay (*Aphelocoma coerulescens*) inhabits the fire maintained communities of scrub and scrubby flatwoods. This species requires low, open scrub or scrubby flatwoods for nesting and relies on the acorns produced by the oaks of these communities.

The Florida sandhill crane (*Grus canadensis*) utilizes mostly wetland habitats for nesting and upland and transition areas for foraging. Casual observations indicate between four and six breeding pairs within the park. Management for this animal falls into two categories: first, maintaining the viability of park wetlands by maintaining groundwater levels and backfilling agricultural ditches and second, applying fire in a variety of seasons. Increased public awareness through education should help reduce feeding, poaching, disturbance and road kill incidents of this species in sites adjacent to the park. Feeding these animals is common and perhaps one reason a particular group annually nests next to Pine Grove Campground. Bird mortality caused by vehicle collisions occurs regularly on US-1 adjacent to the campground and outside of the park.

Bald eagles (*Haliaeetus leucocephalus*) were first observed nesting in the park in 1966 and since 1979, the park's eagles have produced 31 fledglings (as of 2010). Continued destruction of coastal feeding habitat is a serious threat to their continued presence at this location. Prescribed burning and non-native plant removal near the nest can only occur prior to the eagles' incubating the eggs in the nest or until after fledging of the eaglets. Therefore, it is important to monitor the nest on an annual basis to determine when management activity needs to stop and start.

Adult eagles are observed in the park from early September to early June. After fledging, immature birds migrate north. The breeding pair is most vulnerable to disturbance from the start of courtship through the first 12 weeks of nesting. This time

includes nest building, egg laying, incubation and early brooding of the eggs. If disturbed during this critical period, the nest may be abandoned with eggs or nestlings left to the elements. Monitoring of the nest site includes surveys between October to fledging (typically in April or May) to determine nesting success along with incomplete records produced prior to 1979 prior to improved monitoring beginning in 1988.

Observations will continue into the future. Since bald eagles often use alternate nest sites and old nests are sometimes rebuilt and occupied after years of inactivity, all new and old nests alike are legally protected by federal law. Nesting locations are not advertised to visitors, nor are hikers brought to these sites as part of the park's interpretive programming.

During certain times of the year, wood storks are often seen in the park's freshwater and estuarine wetlands. However, the birds have no known nesting rookeries at this location.

Snail kites *(Rostrhamus sociabilis*) are rarely observed in or around the park. These birds are somewhat nomadic in their search for apple-snails *(Pomacea paludosa)*. The park does not have many open marshes where these snails are easily found.

In 2008, one crested caracara (*Polyborus plancus*) was observed and photographed in burn zone JD-H4 and remains the only verified sighting of this species in the park. Caracaras are regularly seen in cattle pastures along Bridge Road, west and north of the park.

West Indian manatees (*Trichechus manatus latirostris*) are observed along the Northwest Fork of the Loxahatchee River throughout the year in salt, brackish and fresh water.

A singular report of Sherman's fox squirrel was documented (*Sciurus niger shermanii*) photographically in JD-E14 in June of 2009. Previous sightings were unverified photographically. JD-E14 and adjacent areas contain small pockets of sandhill and are thought to be marginal for these creatures because of the relatively small amount of suitable habitat.

One listed species that is no longer found within the park is the red-cockaded woodpecker, which was last seen in 1983.

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.

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.

Table 2: Imperiled Species						
Common and *Scientific* Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FFWCC	**USFWS**	**FDACS**	**FNAI**		
PLANTS						
Giant leather fern *Acrostichum danaeifolium*			T		2,4	1,2
Pinewoods bluestem *Andropogon arctatus*			T	S3	1,2	1
Curtiss' milkweed *Asclepias curtissii*			E	S3	1,2	1
Four-petal pawpaw *Asimina tetramera*		E	E	S1	1,2	1,2,3,4
Pine pink Orchid *Bletia purpurea*			T		1,2	1
Many-flowered grass pink *Calopogon multiflorus*			E		1,2	1
Sand dune spurge *Chamaesyce cumulicola*			E	S2	2	1
Satinleaf *Chrysophyllum oliviforme*			T		2	1
Perforated reindeer lichen *Cladonia perforata*		E	E	S1	1,2,3	1,2
Florida jointtail grass *Coelorachis tuberculosa*			T	S3	1,2	1
Large-flowered rosemary *Conradina grandiflora*			T	S3	1,2	1
Clamshell orchid *Encyclia cochleata*			E	S2	2	1
Rigid epidendrum *Epidendrum rigidum*			E		2	1
Nodding pinweed *Lechea cerua*			T	S3	2	1
Pine pinweed *Lechea divaricata*			E	S2	2	1
Catesby's lily *Lilium catesbaei*			T		2	1

Table 2: Imperiled Species						
Common and *Scientific* Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FFWCC	**USFWS**	**FDACS**	**FNAI**		
Twinberry *Myrcianthes fragrans*			T	S3	2	1
Hand fern *Ophioglossum palmatum*			E		2	1
Dancing lady orchid *Oncidium bahamensis*			E	S1	1,2,3	1,2
Cutthroat grass *Panicum abcissum*			E	S2	1	1
Low peperomia *Peperomia humilis*			E	S2	2	1
Rose pogonia *Pogonia ophioglossoides*			T		2	1
Small's milkwort *Polygala smallii*		E	E	S1	1,2	1
Giant orchid *Pteroglossaspis ecristata*			T	S2	1,2	1
Lace-lip ladies' tresses *Spiranthes laciniata*			T		1,2	1
Reflexed airplant *Tillandsia balbisiana*			T		2	1
Common wild pine *Tillandsia fasciculata*			E		2	1
Twisted airplant *Tillandsia flexusa*			T		2	1
Giant wild pine *Tillandsia utriculata*			E		2	1
Soft-leaved wild pine *Tillandsia variablilis*			T		2	1
Florida mock gama grass *Tripsacum floridanum*			T	S2	2	1
Blodgett's ironweed *Vernonia blodgettii*			E	S3	2	1
FISH						
Opossum pipefish *Microphis brachyurus*		SSC*				
AMPHIBIANS						
Gopher frog *Rana capito*	SSC			S3	1,2,13	1,2
REPTILES						

Table 2: Imperiled Species						
Common and *Scientific* Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FFWCC	**USFWS**	**FDACS**	**FNAI**		
American alligator *Alligator mississippiensis*		T (S/A)		S4	2,10	1,2
Eastern indigo snake *Drymarchon corais couperi*		T		S3	1,2	1
Gopher tortoise *Gopherus polyphemus*	ST			S3	1,2	1,2
Florida pine snake *Pituophis melanoleucus mugitus*	SSC			S3	1,2,13	1
BIRDS						
Roseate spoonbill *Ajaia ajaja*	SSC			S2		1
Florida scrub-jay *Aphelocoma coerulescens*		T		S3	1,2,7,13	1,2,3,4,5
Limpkin *Aramus guarauna*	SSC			S3	4	1
Kirtland's warbler *Setophaega kirtlandii*	E	E				1
Little blue heron *Egretta caerulea*	SSC			S4	2,4	1
Snowy egret *Egretta thula*	SSC			S3	2,4	1
Tricolored heron *Egretta tricolor*	SSC			S4	2,4	1
White Ibis *Eudocimus albus*	SSC			S4	2,4	1
Florida sandhill crane *Grus canadensis pratensis*	ST			S2,S3	1,2,4	1
Bald eagle *Haliaeetus leucocephalus*		T/DM		S3	1,2,10	1,2,3,4
Wood stork *Mycteria americana*		E		S2	2,4	1
Brown pelican *Pelecanus occidentalis*	SSC	DM		S3		1
Audubon's crested caracara *Polyborus plancus*	T	T		S2	1	1
Snail kite *Rostrhamus sociabilis*		E		S2		1
Black skimmer *Rynchops niger*	SSC			S3		1

Table 2: Imperiled Species						
Common and *Scientific* Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FFWCC	**USFWS**	**FDACS**	**FNAI**		
Least tern *Sterna antillarum*	ST			S3		1
MAMMALS						
Florida mouse *Podomys floridanus*	SSC			S3	1	1
Sherman's fox squirrel *Sciurus niger shermanii*	SSC			S3	1	1
West Indian manatee *Trichechus manatus*		E		S2	4,10, 13, 14	1

*listed by National Oceanographic and Atmospheric Administration, National Marine Fisheries Service

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 & Education
14..... 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.

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.

Invasive non-native plants including the Old World climbing fern, downy rose myrtle, Brazilian pepper, java plum, strawberry guava, shoebutton ardisia, melaleuca, Natal grass, arrowhead vine, wild taro, Australian pine and rosary pea are all problems at the park and every effort is being made to eliminate them. The extent of the non-native plant problem is large and complex but is actively being managed.

Old World climbing fern is the most dominant, widespread and expensive invasive non-native plant species to treat at this management unit. Treatment for old world climbing fern started in 1993 in localized areas. However, since 2000, the scale of treatment has increased dramatically with contractors and dedicated park and district staff. Significant progress has been made since 2000, but several large areas remain untreated. A continuing problem following initial treatments is the re-colonization from untreated sources on adjacent natural or ruderal lands.

Control of the downy rose myrtle infestation saw much improvement in 2006 to 2008 with initial treatments of heavily infested areas. Retreatment continues in areas of infestation by contractors and staff. The work done to reduce the acreage of this plant was largely accomplished through the creative use of grant funding. The infestation was reduced from major to manageable in a very short time. Vigilance by land managers is required as the populations of this plant outside the park are at very high levels. Continued short interval fire application will reduce the ability of this plant to reproduce because fire top-kills large plants and can kill small plants. Unfortunately, this plant also does very well in areas with longer hydro-periods than mesic and wet flatwoods, such as cypress domes and mesic hammock. Therefore, burning alone will not solve the problem of this plant's spread.

Many of the large acreage, monoculture infestations of Brazilian pepper within the park (especially in the JD-H zones) have been treated since 2000, although remote sites remain untreated. Generally, treated or existing areas occur in ruderal areas such as former agricultural areas or along the banks of canals. Throughout the floodplain of the North Fork and Northwest Fork of the Loxahatchee River, large trees are sparse. Treatment and re-treatment in the floodplain swamp and hydric hammock ecosystems must continue. Perhaps the largest remaining untreated area is the North Fork of the Loxahatchee River. Outside sources of seeds distributed in the park, primarily from bird droppings require vigilance from land managers.

The spread of java plum from the Trapper Nelson Historical Site went unchecked from the time Nelson planted them (prior to 1968) until 2005 when contracted arborists removed large seed trees to protect the district's historic structures. Subsequently, park staff and contractors have been removing java plum from the surrounding floodplain swamp and mangrove swamp. This tree forms dense thickets that require years of re-treatment. In addition, the infestation had gotten to a point that the plant was spreading into surrounding uplands. While infestations of java plum were significantly reduced since 2000, tropical almond (Category II) and Surinam cherry (Category I) remain. Although java plum and strawberry guava were cultivated by Trapper for food and tourism, these invasive species are a source for reinfestation and need to be treated and replaced with native plants.

While melaleuca populations generally remain at low levels within the park, re-treatment needs to continue due to its explosive rate of growth and spread. Much work has been done to control this plant, but staff needs to continue to revisit treatment sites due to existing seed sources on adjacent properties.

After the hurricanes of 2004, the park's largest remaining stand of Australian pines was removed from the Pine Grove Campground. The trees were planted at the site during the Camp Murphy era and many of the fallen and damaged Australian pines made access to the campground impossible. Standing pines were mechanically removed from the site and from the Short Term Offender Program (STOP) campsite. A few remain in isolated areas, but the large infestations have been removed with ongoing re-treatment as needed.

Finally, Natal grass and rosary pea are newer invasive species and their infestations, while generally localized, are slowly spreading throughout the park particularly along linear corridors such as roads, the FEC railroad right-of-way, and ditch lines. Natal grass is extremely fecund and potentially the worst invader of the scrub. Treatment efforts are still in their infancy and may prove more challenging than Old World climbing fern.

Over the past five years, more than $2 million has been spent on non-native plant removal through the FFWCC's Invasive Plant Management program and the Loxahatchee River Preservation Initiative. The Bureau of Natural and Cultural Resources and District 5 continue to fund (since 2002) a regional non-native plant removal crew that spends a substantial amount of time at the park. In addition, park staff treat select areas opportunistically. Most of the chemical used by in house staff is provided through FFWCC's herbicide bank. Lastly, Park and District staff continue to work with the United States Department of Agriculture and researchers from the University of Florida who are pioneering new biological controls and herbicide treatments for the Old World climbing fern.

In addition to non-native plants, there are several non-native pest and pathogens that park staff and outside agencies monitor for within the park. Some of pests and pathogens being monitored include the red-bay ambrosia beetle-laurel wilt pathogen, emerald ash-borer (*Agrilus planipennis*), and the Mexican bromeliad weevil (*Metamasius callizona*). Literature educating visitors about the unintentional spreading of pests and pathogens is distributed by staff or volunteers and displayed or main recreational facilities.

Table 3 contains a list of the 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.

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

Common and *Scientific* Name	**FLEPPC Category**	**Distribution**	**Management Zone**
PLANTS			
Rosary pea *Abrus precatorius*	I	3	Throughout
		6	JD-A,B,E,H
Ear leaf acacia *Acacia auriculiformis*	I	2	Throughout
		3	JD-A
Sisal hemp *Agave sisalana*	II	2	JD-B8,B11,B12,B13
Woman's tongue *Albizia lebbeck*	I	1	JD-B and JD-L2,L3
		2	JD-L2,L3
Alligatorweed *Alternanthera philoxeroides*	II	3	JD-E,F,G,H,J,K,L

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and *Scientific* Name	**FLEPPC Category**	**Distribution**	**Management Zone**
Coral ardisia *Ardisia crenata*	I	3	JD-J,K,L
Shoebutton ardisia *Ardisia elliptica*	I	4	JD-E,F,G,H
Sprenger's asparagus fern *Asparagus aethiopicus*	I	1	JD-A,B
Chinese violet *Asystasia gangetica*	II	3	JD-G,H,J,K,L
Bishopwood *Bischofia javanica*	I	2	JD-E,F,G,H,J,K,L
Basketplant *Callisia fragrans*	II	1	JD-A,B
Australian pine *Casuarina equisetifolia*	I	2	JD-A,B
Beefwood *Casuarina glauca*	I	2	JD-A,B
Wild taro *Colocasia esculenta*	I	1,2,3	JD-J,K,L
Common dayflower *Commelina diffusa* var. diffusa	II	3	JD-A,B,C,E,H,L
Carrotwood *Cupaniopsis anacardioides*	I	1	Throughout
Durban crowfoot grass *Dactyloctenium aegyptium*	II	3	JD-A,B,C,E,F,H,J,L
		6	JD-A,B,C,E,F,H,J,L
Water hyacinth *Eichhornia crassipes*	I	2	JD-H,J,K
Golden pothos *Epipremnum pinnatum*	II	2	JD-H,J,K
Surinam cherry *Eugenia uniflora*	I	2	JD-A,B,G
False banyon *Ficus altissima*	II	1	JD-A,B
Indian laurel *Ficus microcarpa*	I	1	JD-A,B,E,J,K,L
Hydrilla *Hydrilla verticillata*	I	3	JD-G,H,J,K,L
Indian hygrophila *Hygrophila polysperma*	I	3	JD-G,H,J,K,L
Jaragua *Hyparrhenia rufa*	II	2	JD-B,C,E,F
cogon grass	I	3	JD-C,DE,F,H

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and *Scientific* Name	**FLEPPC Category**	**Distribution**	**Management Zone**
Imperata cylindrical			
Life plant *Kalanchoe pinnata*	II	2	JD-A,B,G
Dotted duckweed *Landoltia punctate*	II	1,2	JD-J,K,L
Lantana *Lantana camara*	I	1,2	JD-A,B,C
Asian marshweed *Limnophilia sessiflora*	II	1,2	JD-G,H,I,J,K,L
Peruvian primrose willow *Ludwigia peruviana*	I	3	JD-A,B,G
Old world climbing fern *Lygodium microphyllum*	I	3	JD-A,B,C,D,E,F,G,H,I,J,K,L
		4	JD-D5, C5, C6
		6	JD-A,B,C,D,E,F,G,H,I,J,K,L
Melaleuca *Melaleuca quinquenervia*	I	2	JD-A,B,C,I,J,K,L
		3	JD-E,F,D,H
Chinaberry *Melia azedarach*	II	2	JD-H,J,K,L
Molasses grass *Melinis minutiflora*	II	2	JD-A,B,C
Rose natal grass *Melinis repens*	I	3	JD-A,B,C
		6	JD-A,B,C
Cat claw mimosa *Mimosa pigra*	I	2	JD-I2,I3
		6	JD-I2,I3
Asian sword fern *Nephrolepis brownii*	I	2	JD-J,K,L
Tuberous sword fern *Nephrolepis cordifolia*	I	2	JD-J,K,L
Guinea grass *Panicum maximum*	II	2	JD-A,B,C,J,L
		3	JD-H
		6	JD-A,B,C,H,J,L
Torpedo grass *Panicum repens*	I	3	JD-A,B,C,D,E,F,G,H,I,J,K,L

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and *Scientific* Name	**FLEPPC Category**	**Distribution**	**Management Zone**
Napier grass *Pennisetum purpureum*	I	2	JD-A,B,C,E,F,I
Senegal date palm *Phoenix reclinata*	II	3	JD-E,F
		6	JD-E,F
water-lettuce *Pistia stratiotes*	I	2	JD-J,K,L
Strawberry guava *Psidium cattleianum*	I	1	Throughout
		2	Throughout
		3	Throughout
		4	JD-A,B,C
		5	JD-A,B,C
Guava *Psidium guajava*	I	1	Throughout
		2	Throughout
		3	Throughout
Downy rose myrtle *Rhodomyrtus tomentosa*	I	1	Throughout
		2	Throughout
		3	JD-E,F,D,G,H
		4	JD-E,F
		5	JD-E,F
Castor bean *Ricinus communis*	II	1	JD-A,C
		2	JD-A,C
Water spangles *Salvinia minima*	I	1	JD-G,H,I,J,K,L
Bowstring hemp *Sansevieria hyacinthoides*	II	2	JD-A,B
		3	JD-A,B
Queensland umbrella tree *Schefflera actinophylla*	I	1	JD-A,B,J,K,L
		2	JD-A,B,J,K,L
Brazilian pepper *Schinus terebinthifolius*	I	1	Throughout
		2	Throughout
		3	Throughout
		4	JD-A,B,D
		5	JD-A,B,D
		6	Throughout
Christmas cassia *Senna pendula* var. glabrata	I	1	Throughout
		2	Throughout
		3	Throughout
Two-leaf nightshade *Solanum diphyllum*	II	1	JD-J,K,L
Tropical soda apple *Solanum viarum*	I	1	JD-A,C

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and *Scientific* Name	**FLEPPC Category**	**Distribution**	**Management Zone**
Creeping oxeye *Sphagneticola trilobata*	II	1	Throughout
		2	Throughout
		3	Throughout
		6	Throughout
Queen palm *Syagrus romanzoffiana*	II	1	JD-E,F
Arrowhead vine *Syngonium podophyllum*	I	3	JD-J,K,L
		4	JD-J,K,L
		6	JD-J,K,L
Rose apple *Syzygium jambos*	II	1,2	JD-G,J,K,L
Java plum *Syzygium cumini*	I	1	Throughout
		2	Throughout
		3	JD-G,H
		4	JD-G,H
		5	JD-G,H
		6	JD-G,H
Seaside mahoe *Talipariti tiliaceum*	I	1	JD-J,K,L
		2	JD-J,K,L
Tropical almond *Terminalia catappa*	II	1	JD-G
		2	JD-G
Australian almond *Terminalia muelleri*	II	1	JD-G
		2	JD-G
Burrnut *Tribulus cistoides*	II	1,2,3	JD-A,B
Caesar's weed *Urena lobata*	I	1	Throughout
		2	Throughout
		3	Throughout
		4	JD-B,C,D,E,F,G,H,I,J,K,L
		6	JD-B,C,D,E,F,G,H,I,J,K,L
Paragrass *Urochloa mutica*	I	3	JD-E,F,G,J,K
		4	JD-E,F,G,J,K
		6	JD-E,F,G,J,K
Elephant ear *Xanthosoma sagittifolium*	II	2	JD-J,K

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, the DRP actively removes exotic animals from state parks, with priority being given to those species causing the most 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 *(Procyon lotor elucus)*, venomous snakes and alligators. Nuisance animals are dealt with on a case-by-case basis.

American alligators are ubiquitous in the park's wetland habitats. Florida law prohibits the feeding of alligators. However, feeding is the primary reason why alligators attack humans. For visitor safety and the protection of wildlife, the park installed a boardwalk with chain link fencing at the intersection of Park Drive and a section of the North Fork headwaters of the Loxahatchee River. The swimming area is a second area where human/alligator interactions occur. On occasion, it is necessary for staff to close the area, followed by a documented threat assessment by trained staff. A third area where there are frequent human/alligator interactions is on the reaches of the river upstream of Trapper Nelson's to Indiantown Road. Reports of nuisance alligator behavior in this remote area are infrequent. Factors that can confuse both visitors and park staff as to whether there are nuisance alligators present in these upper reaches of the river include: nest protection behavior; low water levels; alligator positively responding to fishing lures; and a lack of landmarks to re-create the event. In 1993, a fatal attack by a large alligator occurred in the upper reaches of the Northwest Fork. Interpretation and education programs need to be proactive to help alleviate nuisance alligators in the

park. In addition, enforcement of the "No Swimming" rule in the river, except in the designated swimming area, is necessary to prevent dangerous encounters. Enforcement of rules in an approachable manner is the key to compliance.

The immigration of feral cats (*Felis catus)* and dogs (*Canis lupus familiaris)* from the surrounding residential areas to park lands is an ongoing concern for the protection of natural and cultural resources. Park staff and volunteers remove exotic animals through regular trapping programs. Primary subject species are feral hogs, Cuban tree-frogs, nine-banded armadillos *(Dasypus novemcinctus mexicanus)*, coyotes *(Canis latrans)*, non-native mallard ducks, feral cats and feral dogs. Park staff will continue to concentrate removal efforts along the park's boundaries and areas of concern.

Feral hogs are found throughout the park and generally forage in the park's wetter areas and seasonally in scrub when acorn crops are plentiful. These areas contain some of the most sensitive assemblages of plants, such as terrestrial orchids and wetland species. The hogs also affect residential areas surrounding the park by rooting up yards and causing costly damage.

Both black acara fish and walking catfish are established in most of the wetland habitats throughout the park. Black acara have been collected in most of the park's wet prairies. The distribution of these two species should be investigated.

Several non-native herpetological species are of concern in the park. Arguably, the most common terrestrial, non-native vertebrate in the park is the Cuban treefrog. These animals are found from scrub to mangrove swamps and everywhere in between. More disturbing than their ubiquity is the observation of these animals feeding on native treefrogs. Park staff is studying the impacts of Cuban tree frogs on native tree frogs. Since the last unit management plan, over 350 Cuban treefrogs have been removed. Although many died naturally in the prolonged and hard frosts of 2009 and 2010, many survive and continue to be a problem to native populations. In addition, greenhouse frogs are very common in the park but their impact is un-quantified as these animals are much smaller and therefore much more cryptic than Cuban treefrogs. More recently, green iguanas have been found in the park near the swimming area (2006-2009; possibly coming from the area around SE River's Edge Street) and near some residences adjacent to the park (2006, 2009) in the Tropic Vista area (south end of management zone A11). One incident of iguana removal was recorded since the last unit management plan.

In the same area, a Martin County retention pond/drainage canal, constructed in 2004, has attracted exotic Muscovy ducks (*Lophodytes cucullatus*) and non-migratory mallard ducks *(Anas platyrhynchos)* from the adjacent residential area. Atypical male mallard ducks at this site indicate crossbreeding with the park's native population of mottled ducks *(Anas fulviqula)*. Bobcat, coyote, and raccoon predation is currently impacting the

mallard population and FFWCC is encouraging the park to pursue further removal of the exotic species. Additional public outreach is also needed to assist park staff with maintaining a viable population of native mottled ducks while fostering support for the removal of the exotic species.

In October of 2008, a large adult Burmese python *(Python molurus bivittatus)* was found approximately 700 feet from the park in the area just west of Indiantown Road and the Loxahatchee River (Sierra Square). No evidence suggests the animals are present in the park, although these snakes are typically cryptic.

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

Three primary natural features define Jonathan Dickinson State Park: the National Wild and Scenic Northwest Fork of the Loxahatchee River, the scrub and scrubby flatwoods communities and the mesic and wetland communities. The National Wild and Scenic River is a major destination for recreational anglers, boaters, canoeists, kayakers and nature enthusiasts. Restoration of the river is a focus of several agencies and millions of dollars have been spent to those ends. Over three thousand acres of scrub and scrubby flatwoods communities within the park, including its many rare species of plants and animals, are important because of the park's large size and limited distribution in Southeast Florida and throughout Florida. Lastly, the often-overlooked mix of mesic and wet flatwoods, wet prairies, dome swamps and depression marsh communities in the park's central, western and southern areas are generally in fair to good condition.

Cultural Resources

This section addresses the cultural resources present in Jonathan Dickinson State Park, which may include archaeological sites, historic buildings and structures, cultural landscapes and collections. The Florida Department of State 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 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 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. Every cultural resource's significance derives from historical, architectural or archaeological contexts. Evaluation 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.

For collections, 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.

The following is a summary of the FMSF inventory. In addition, this inventory contains the evaluation of significance.

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: Thirty –five archaeological sites are founds within the park; six are pre-historic and 29 are historic sites. Two historic sites involve the Battle of the Loxahatchee, six are related to Camp Murphy remains and two involve the Trapper Nelson Site (MT01449). A more detailed discussion of Trapper Nelson and Camp Murphy and their associated structures is located in the Historic Structures section. Of the six pre-historic sites, one is associated with the Northwest Fork of the Loxahatchee River, one is on the North Fork of the Loxahatchee River and there are four on Kitching Creek. The only upland archaeological site is the Simpson Hill Site (MT00375), which is partially buried under US-1.

The history of the Hunt Sawmill (PB13530) is very general. The site consists of the metal remains of the mill, the foundation on which it sits and unidentified scattered brick rubble. It is unclear when the mill was in operation and for how long.

During the 1990s, major archaeological work (Phase I and II) was conducted in and around the property within and near the Loxahatchee River floodplain (Pepe and Steele, 1998). Most of the surveyed sites were probably seasonal or temporary prehistoric Indian camps located in the hammocks and swamps of the river. These investigations revealed locations of Seminole encampments and more information on the two Battles of the Loxahatchee that occurred during the Second Seminole War.

Condition Assessment: Of the 35 archaeological sites, two cannot be re-located (5%), six are in poor condition (17%), 14 are in fair condition (40%) and 13 are in good condition (37%). A few of these sites bear further discussion. Loxahatchee Battlefield (PB08401) is in the general area of the Loxahatchee Battlefield and is in poor condition because of early to mid 20th century agricultural disturbances. SOR #6 (PB09253) and SOR #7 (PB09254) are determined to be middens along the Loxahatchee River that are in good condition. SOR #14 (PB09884) is a burial mound in good condition near the Loxahatchee River and may require some future stabilization because of its size. The North Fork Burial Mound (MT00741) is in fair condition and has not been evaluated for significance for the National Register of Historic Places. The site may require future stabilization because of its size. During the 1990s, poachers set up a camp within several hundred yards of the site and dug a four-foot hole into the top of the mound in search of artifacts. Since the discovery of the poachers in the park no further degradation of this remote site has been noted. Trapper Nelson's Pineapple Patch (MT01344) is listed in good condition because of the ongoing removal of non-native vegetation. There is some need for stabilization and monitoring of the site due to an excavation by Trapper Nelson who thought the feature had historical or archaeological significance.

Level of Significance: Of the 35 archaeological sites recorded at the park, six are considered as eligible for the National Register of Historic Places: Kitchen Creek # 3 (MT01284), MT01285, Trapper Nelson's Pineapple Patch (MT01344), Loxahatchee River 1 (PB00036), Loxahatchee Battlefield (PB08401) and PB09884. Loxahatchee River 1

(PB00036) was recorded in 1953 as a pre-Columbian mound and considered as a significant aboriginal and prehistoric site. However, subsequent archaeological investigations have been unable to relocate the site. It appears that the Archaeological and Historical Conservancy located a mound in the area, but their test units revealed no further information and they concluded that it might simply be a spoil pile. Kitchen Creek # 3 (MT01284), is considered to have been a small temporary camp, significant for its association with the East Okeechobee I culture. Trapper Nelson's Pineapple Patch (MT01344), a historic archaeological site, is significant for its agricultural association to the Trapper Nelson Site (MT01449), which is on the National Register of Historic Places. Loxahatchee Battlefield (PB08401) is a significant Seminole battlefield site that contains numerous prehistoric components. SOR #14 (PB09884), appears to be a well-preserved burial mound with an intact ramp and is considered significant because of its physical integrity and possible association with the Glades culture habitation sites in the same general area.

Many of the recorded archaeological sites within the park were not evaluated for significance by the recorder or the State Historic Preservation Officer (SHPO). The FMSF files for several of these sites contain recommendations by the recorder for further testing. Such additional testing and research could potentially reveal more National Register eligible sites at the park.

General management measures: Archaeological site management is generally passive (preservation) with monitoring being the most important tool to manage these sites. The threat of wildfire and the use of tractor plows in these historically important areas have the potential to be a significant threat. This underscores the importance of the use of prescribed fire to mitigate for wildfire and the need for staff to become familiar with the location of these archaeological sites. In addition, some of these areas are located in areas of light to medium non-native plant and animal infestations. Non-native plant infestations need to be dealt with in a way to minimize soil disturbance and non-native animals, such as feral pigs, should be kept to low population levels to minimize their threat to cultural sites.

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, protected from physical threats and interpreted to the public.

Description: Thirty-one sites are listed within the park as historic structures. The most represented period listed in the FMSF is the Camp Murphy era (14 sites) which lasted from 1942 to 1944. The Trapper Nelson period (early 1930s to 1968) has seven total sites. The upper part of the river includes three sites (two cabins and a dam) from the 1940s. The Steam Engine (PB13530) is from the 19th century (Hunt Brothers 1891) and

represents a period when cypress and pine trees were logged in the area (another logging operation occurred in 1941 by Arbuthnot). Four 50-year-old Florida Park Service structures are also listed in the FMSF, including two pump houses, the river campground bathroom and the Cypress Creek pavilion.

During World War II, much of the current park was part of Camp Murphy, a United States Army base for instruction of radar operations and home to the Southern Signal Corps. Camp Murphy was the first training post built under a plan adopted by the War Department calling for a "dispersed layout" or "theater of war" construction. The numerous buildings were camouflaged by native and exotic plantings. After deactivation, the property was purchased on June 9, 1947 from the federal government by the State of Florida for a park. Jupiter State Park was quickly renamed to Jonathan Dickinson State Park in 1950 when the park opened. The historical significance of Camp Murphy was commemorated on August 14, 2006 when part of Jonathan Dickinson State Park was designated as a Florida Heritage Site by the Florida Department of State, Division of Historical Resources. Currently, two Camp Murphy era buildings are used daily for park support: the Camp Murphy Barrack (MT00633) and the shop area bunker (MT01475). Between 2004 and 2005, hurricanes Frances, Jean and Wilma substantially damaged the Camp Murphy Classroom Building (MT01468) that once functioned as the park's shop building. The building was subsequently condemned and demolished. Other remnants of the military base are dilapidated structures, building foundations, old roads, a firing range, dumpsites and various other structures as noted in Table 4. Most of these military structures are located east of the railroad tracks in JD-B management zones.

Before and after the existence of Camp Murphy, Vincent Nostokovich (later known as Trapper Nelson) settled on the shoreline of the Loxahatchee River within present day Jonathan Dickinson State Park. "Trapper" moved to Southeast Florida around 1931 and lived off the land by trapping and selling furs. When game became scarce along the coast, he made his way up the river to the current location of his historic homesite and profited from curious tourists by opening "Trapper Nelson's Zoo and Historic Garden." He eventually purchased more land and acquired over 1,000 acres by the time of his death in 1968. Before his death, he worked with the state to sell his property as an addition to the park. His old home and grounds appear as they did in the 1960s, are managed as an historic site and are a popular destination for canoeists, kayakers and boaters. The Trapper Nelson Site has received two historic designations. On June 6, 2006, the site was designated as a Florida Heritage Site by the Florida Department of State, Division of Historical Resources. On October 2, 2006, the site was added to the National Register of Historic Places for being unique and rare. This recognition includes the entire homesite as well as all buildings (Table 4).

In the area around Indiantown Road (Management Zones L02 and L03), there are three related historical structures: two Lainhart Cabins (PB13761, north cabin and PB13574,

south cabin; built in 1941) and the Lainhart Dam (PB13762). In general, this area of the SOR property contains agricultural evidence from the past 100 years. The north cabin has a bathroom addition and is maintained by the park as a residence for interns. Recent repairs on this structure were approved by DHR and SFWMD and include the replacement of interior siding and roofing. The south cabin has an associated nonfunctioning outhouse and is not currently used by the park. The historic Lainhart Dam is an agricultural structure used to retain water during dry periods. It is a gathering point for paddlers on the river and as such requires regular maintenance on the various wooden components.

One resource group, USCG LORAN Station Jupiter (MT01570) and its two contributing historic structures, the USCG LORAN Station Jupiter Ops Bldg (MT01571) and the USCG LORAN Station Jupiter Tower (MT01572), were recorded in the FMSF in 2010, in association with the proposed decommissioning of the LORAN-C Station Jupiter by the United States Coast Guard. LORAN, an acronym for "Long Range Aid to Navigation," was originally developed during World War II by the military as a radio navigational system. The original USCG LORAN Station Jupiter was built in 1957 on land leased from the State of Florida and located within the park. After this lease expired, operations were moved in 1962 to the location of the recorded structures, which are also on land leased from the state and within park boundaries, but three to four north of the original LORAN station.

Condition Assessment: Eight of the 14 Camp Murphy FMSF sites are eligible for the National Register of Historic Places. Of the eight sites, six are buildings and one is a firing range (MT01476) that is in fair condition. In the near future, the USACOE is scheduled to cleanup the environmental contamination at the site of the firing range. The other seven sites include the barrack (MT00633), residence (MT00634), treatment plant 1 (MT01470) and treatment plant 2 (MT01471), a storage facility (MT01474), shop area bunker (MT01475) and covered bunker (MT01479), originally a water storage structure. All are in poor condition, with the exception of the barrack and shop area bunker that are maintained as support facilities. In 2004, the barrack was reroofed and its original windows were replaced with period windows from a donor building in 2008. The interior of the shop area bunker is undergoing rehabilitation and is used for office space in the shop area. Rehabilitation work was accomplished at this site in 2009 and included painting, tiling and asbestos removal.

Six historic structures are included in the Trapper Nelson Site. Trapper Nelson's Chickee (MT00350), Trapper Nelson's Main Cabin (MT00995), Trapper Nelson's Restroom (MT00998) and Trapper Nelson's Guest Cabin (MT01323) are listed in fair condition. The structures are constructed with slash pine and prone to termite damage and rot. Individual slash pine beams, the roof and other wooden parts are periodically replaced or maintained by park staff. The partially-submerged Trapper Nelson's Boathouse (MT00997) sustained damage during the hurricanes and continues to be

damaged by watercrafts during docking. Rehabilitation is ongoing and a new dock would protect this structure by giving boaters controlled access to the site from the river.

The USCG LORAN Station Jupiter (MT01570) resource group and its two contributing historic structures, the USCG LORAN Station Jupiter Ops Bldg (MT01571) and the USCG LORAN Station Jupiter Tower (MT01572), were in good condition when the buildings were recorded in 2010. The land on which the LORAN complex located is currently under lease to the United States Coast Guard who is responsible for the maintenance of the structures located upon it.

The four Florida Park Service structures listed on the FMSF were considered as ineligible for the National Register of Historic Places by the Bureau of Natural and Cultural Resources. Subsequently, DHR stated that the sites have "…insufficient information, so these sites and locations can be readdressed should some future project activity be proposed at these locations" (December 12, 2008). The four sites are: River Campground Bathroom (MT01488), Cypress Creek Pavilion (MT01489), Pump House – Picnic Area (MT01490) and Pump House – Pine Grove Campground (MT01491). With the approval of DHR, two pump houses were demolished when the park acquired municipal water service. The river campground bathroom and the Cypress Creek pavilion are maintained for visitor services.

Level of Significance: Applying the criteria for listing in the National Register of Historic Places involves the use of context as well as integrity of the site. Every significant historical or cultural resource's significance derives from historical contexts. Evaluation 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).

The two main eras determined as significant in reference to historic structures in the park are: the Camp Murphy era (1942 to 1944) and the Trapper Nelson era (early 1930s to 1968). During the Camp Murphy era, the military constructed many bases in Florida during World War II and at the the time it was decommissioned in 1944 Camp Murphy was not considered a unique facility. Due to the army's intent to design temporary facilities to support its "theater of war" and the dismantling of almost 1,000 buildings at the end of the war, very few of the associated historical features remain at the park. The remaining structures are listed in the FMSF files. Other components of the base include scattered concrete slabs and roadbeds located on park lands between the railroad tracks and US-1. The inevitable rarity of the remaining buildings has qualified them as eligible for the National Register of Historic Places under a National Register Multiple Property Cover Nomination entitled "Florida's Historic War II Military Resources," provided the structures meet the criteria outlined in the Multiple Property Cover. On September 10,

2008, Camp Murphy's nomination to the National Register of Historic Places was submitted and is pending review by DHR.

As mentioned in the Condition Assessment section, the Trapper Nelson Site is listed on the National Register and was determined significant in the areas of Architecture, Conservation, Exploration/Settlement and Recreation/Entertainment in connection with Vincent "Trapper" Nelson. Site files for the individual contributing building and structures within the National Register district have been listed as "NRL" in the table below.

The USCG LORAN Station Jupiter (MT01570) resource group and its two contributing historic structures, the USCG LORAN Station Jupiter Ops Bldg (MT01571) and the USCG LORAN Station Jupiter Tower (MT01572) were determined eligible for listing on the National Register of Historic Places on December 18, 2011. The Deputy State Historic Preservation Officer concluded that the LORAN Jupiter complex appeared to meet the criteria for listing under National Register Criterion A, Event.

The four Florida Park Service structures listed in the FMSF have been determined as not significant (NS) by BNCR staff (Table 4; River Campground Bathroom, MT01488; Cypress Creek Pavilion, MT01489; Pump House – Picnic Area, MT01490; Pump House – Pine Grove Campground, MT01491). These structures are not architecturally unique nor are they representative of any time period. They were not constructed as part of an overall park plan or architectural theme, but were individually designed and constructed to meet the needs of the park during the period they were built.

General management measures: Many of the Camp Murphy structures fall into the category of eventual removal (old foundations, ruins, etc.). A long-term plan is being developed to determine which structures will be removed or retained with recommendations approved by DHR prior to work. The Camp Murphy barrack and shop area bunker require regular maintenance and will continue to be rehabilitated in a historically accurate way while providing support facilities for the park.

As previously discussed, the Trapper Nelson Site is managed as an interpretive site for thousands of annual visitors. The buildings continue to be rehabilitated as funds, time and historically accurate materials become available. All historic buildings, docks and cages at the Trapper Nelson Site are maintained as they were before Trapper's death. These features are and will continue to be structurally sound to ensure public safety and the preservation of the site. All exposed beams, poles and cages are treated with an approved clear, non-residue preservative. The cabins are periodically inspected and treated for termites. All tin roofs and nail holes are leak-proof. Docks are kept free of algae buildup. Repairs or replacements retain the original integrity of materials and design as much as possible. No alterations to the interiors of the cabins are conducted without consultation with DHR.

The grounds surrounding the Trapper Nelson Site will continue to be maintained. Erosion from stormwater and undesignated river access points is controlled with swales, terrace steps, fill and the use of natural litter. A new dock and launch sites should be constructed to prevent further erosion of the shoreline and banks. Vegetation, associated debris and root systems continue to be cleared from all structures, cages and woodpiles. Horizontal clearing widths of guided tour trails are trimmed to eight feet with seven-foot overhead clearances. All vegetation cuttings and scrap from repairs are removed to the designated dumpsite. Woodpiles are maintained and stacked off the ground. This site is an original source for a number of the exotic invasive plants currently affecting outlaying natural areas. The park will continue to target Category I and II species for removal to prevent infestation from within the park. Regular prescribed burn schedules will eliminate the danger of heavy fuel buildup around the site and help control some of the invasive exotics plants. This site is classified as an interpretive and passive-use area. The park will continue to enforce the rules and regulations set for this site, including the exclusion of swimming, fires and loud music.

Other homestead sites include Lainhart Dam (PB13762), Masten Dam, two Lainhart cabins (PB13574 and PB13761) and the Steam Engine (PB13530). The dams are functional, provide a positive ecological service to the river and are maintained by DRP using appropriate materials. The north Lainhart cabin is being maintained as housing for interns and upgrades and rehabilitation (roof, siding, interior, etc.) is ongoing and remain true to the original building materials. The south Lainhart cabin has no restroom and is not occupied, but is appropriately maintained. Management of the Steam Engine is passive. Occasionally looters have visited the site, but the remaining materials are too heavy for transport. In 2009, the faceplate of the steam engine was placed in the park's collections to protect the artifact from looters. The structure is monitored by staff during prescribed fires.

The two remaining Florida Park Service structures listed in the FMSF will continue to be maintained for the public's use. The buildings will be replaced with updated facilities when funding becomes available.

The land on which the USCG LORAN Station Jupiter (MT01570) resource group and its two contributing historic structures, the USCG LORAN Station Jupiter Ops Bldg (MT01571) and the USCG LORAN Station Jupiter Tower (MT01572) are located is currently under lease to the United States Coast Guard who is responsible for the maintenance of the structures.

Collections

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

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

Description: Jonathan Dickinson State Park's collections include a variety of items that are stored in the archival room within the education center. The collection is compromised of about 30 cubic feet of documents and about 30 cubic feet of historical artifacts and includes objects related to Trapper Nelson, Camp Murphy, the late 19th and early 20th Centuries (i.e., faceplate of the Steam Engine, PB13530) and the park's history. Camp Murphy items include historical records, photographs and memorabilia that are collected by park staff, mostly from individuals or relatives of individuals who were stationed at Camp Murphy. Trapper Nelson items include those collected from the original site after it became park property and items donated by friends and family of Trapper Nelson.

Condition Assessment: Generally speaking, the various items are in good to fair condition. Many of the older paper documents are aged but still serviceable. An effort to digitize these items may be a valuable endeavor if the documents are significant. The objects found in the collection range in condition from good to poor depending on the length of exposure to the outside elements. Many objects are either from the Trapper Nelson or Camp Murphy eras. In addition, archival park documents are held in this room and are generally in good to fair condition, depending on the frequency of use and quality of original printed materials.

The collections are being housed in a climate controlled space within the education center, and silverfish control is being implemented in this restricted access room (only a handful of people have access to this room). Visitation to this room is documented, and the removal and return of items documented.

Level of Significance: Archival items related to the park (and the local area) and its existence since 1950 are important in terms of the park's management of its resources and the recreation that occurs on the property. Artifacts and documents from the Trapper Nelson era are important (but less so than the site and the buildings themselves) and in the future could be used on site to provide greater insight for visitors going to the site. Camp Murphy artifacts exist but are not very numerous. Historical pictures, historical documents and interviews of people who were around Camp Murphy are extremely important as many of the physical remnants of the base are in ruins. Interviews with people involved with Camp Murphy from 1942 to 1944 and with their relatives are important in understanding basic facts of the workings of Camp Murphy.

General management measures: The collections are being managed in a climate controlled, pest controlled environment in the education center.

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
Trapper Nelson's Chickee MT00350	American 20th Century	Historic structure	NRL	F	RH, P
Simpson Hill Site MT00375	Unspecified prehistoric	Archaeological site	NE	F	P
Camp Murphy Barrack MT00633	American 20th Century, c. 1942 WWII	Historic structure	NR	F	RH
Residence of Jonathan Dickinson State Park MT00634	American 20th Century, c. 1942 WWII	Historic structure	NR	P	P
Reservoir and Tower-Jonathan Dickinson State Park MT00635	c. 1942 WWII	Historic structure	Cannot relocate		
Trapper Nelson's Main Cabin MT00995	American 20th Century	Historic structure	NRL	F	RH, P
Trapper Nelson's Boathouse MT00997	American 20th Century	Historic structure	NRL	P	RH, P
Trapper Nelson's Restroom MT00998	American 20th Century	Historic structure	NRL	F	RH, P
North Fork Burial Mound (Thunder Mound) MT00741	Prehistoric unspecified	Archaeological site	NE	F	P

Table 4: Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**
Kitchen Creek #1 MT01282	Prehistoric ceramic	Archaeological site	NS	G	P
Kitchen Creek #2 MT01283	Prehistoric ceramic	Archaeological site	NS	G	P
Kitchen Creek #3 MT01284	Glades I East Okeechobee I	Archaeological site	NR	G	P
Kitchen Creek #4 MT01285	Prehistoric unspecified	Archaeological site	NR	G	P
Hunt Sawmill MT01320	American 19th Century 1821-1899	Archaeological site	NE	P	P
Trapper Nelson Guest Cabin MT01323	American 20th 1937-1945	Historic structure	NRL	F	P
Trapper Nelsons Pineapple Patch MT01344	American 20th Century	Archaeological site	NR	G	P
Trapper Nelson Cabin and Zoo MT01348	American 20th Century	Archaeological site	NE	G	P
The Trapper Nelson Zoo Historic District MT01449	American 20th Century	Historic district	NRL	G	P, R
Camp Murphy Classroom Building MT01468	American 20th Century, c. 1942 WWII	Historic structure	Demolished		
Camp Murphy Water Treatment Building MT01469	American 20th Century, c. 1942 WWII	Historic structure	Demolished		
Camp Murphy Treatment Plant Building 1 MT01470	American 20th Century, c. 1942 WWII	Historic structure	NR	P	P
Camp Murphy Treatment Plant Building 2 MT01471	American 20th Century, c. 1942 WWII	Historic structure	NR	P	P

Table 4: Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**
Camp Murphy Theater MT01472	American 20th Century, c. 1942 WWII	Historic structure	NS	P	P
Camp Murphy Communications Building MT01473	American 20th Century, c. 1942 WWII	Historic structure	NS	P	P
Camp Murphy Bunker (District Storage) MT01474	American 20th Century , c. 1942 WWII	Historic structure	NR	P	P
Camp Murphy Bunker (Shop Area; cave) MT01475	American 20th Century, c. 1942 WWII	Historic structure	NR	F	P
Camp Murphy Firing Range MT01476	American 20th Century, c. 1942 WWII	Historic structure	NR	F	P
Camp Murphy Bank Building MT01477	American 20th Century, c. 1942 WWII	Historic structure	NS	P	P
Camp Murphy Intelligence Office MT01478	American 20th Century, c. 1942 WWII	Historic structure	NS	P	P
Camp Murphy Covered Bunker (Bunker Hill) MT01479	American 20th Century, c. 1942 WWII	Historic structure	NR	P	RH, P
Camp Murphy Literature Division MT01480	American 20th Century, c. 1942 WWII	Historic structure	NS	P	P
Camp Murphy Spur MT01481	American 20th Century, c. 1942 WWII	Linear resource	NS	P	P
Camp Murphy's Quartermaster's Warehouse MT01482	American 20th Century, c. 1942 WWII	Archaeological site	NS	P	P

Table 4: Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**
Camp Murphy Big Dump MT01483	American 20th Century, c. 1942 WWII	Archaeological site	NS	F	P
Camp Murphy Dump MT01484	American 20th Century , c. 1942 WWII	Archaeological site	NS	G	P
Camp Murphy Concrete Structure MT01485	American 20th Century, c. 1942 WWII	Archaeological site	NS	P	P
Camp Murphy Truck Ramp MT01486	American 20th Century, c. 1942 WWII	Archaeological site	NS	P	P
Camp Murphy Radio Tower Foundations MT01487	American 20th Century, c. 1942 WWII	Archaeological site	NS	P	P
River Campground Bathroom MT01488	American 20th Century , 1964	Historic structure	NS	F	RH
Cypress Creek Pavilion MT01489	American 20th 1957	Historic structure	NS	F	RH
Pump House - Picnic Area MT01490	American 20th Century, c. 1961	Historic structure	NS	Demolished	
Pump House - Pine Grove Campground MT01491	American 20th Century, c. 1961	Historic structure	NS	Demolished	
USCG LORAN Station Jupiter MT01570	American 20th Century, 1962	Resource Group	NR	G	U
USCG LORAN Station Jupiter Ops Bldg MT01571	American 20th Century, 1962	Historic Structure	NR	G	U
USCG LORAN Station Jupiter Tower MT01572	American 20th Century, 1962	Historic Structure	NR	G	U

Table 4: Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**
Loxahatchee River 1 PB00036	Prehistoric unspecified	Archaeological site	NR	Positive location pending	
SFWM Midden PB06862	Glades II, 1000 B.C. – 1700 A.D.	Archaeological site	NE	G	P
Shunk Site #1 PB07944	Glades I, 1000 B.C. – 1700 A.D., American 19th - 20th Centuries, Seminole 1716 - present	Archaeological site	NE	F	P
Shunk 2 Tract PB07945	American 19th Century, 1821-1899	Archaeological site	NE	F	P
Loxahatchee Battlefield PB08401	Archaic, prehistoric & Glades unspecified, Seminole 1716 - present	Archaeological site	NR	P	P
SOR #1 PB09248	Glades I, 1000 B.C. - 750 A.D., East Okeechobee I	Archaeological site	NE	F	P
SOR #2 PB09249	East Okeechobee III	Archaeological site	NE	F	P
SOR #3 PB09250	Glades I, 1000 B.C. - 750 A.D., East Okeechobee I	Archaeological site	NE	F	P
SOR #4 PB09251	Glades I, 1000 B.C. - 750 A.D., East Okeechobee I	Archaeological site	NE	F	P
SOR #5 PB09252	Glades I, 1000 B.C. - 750 A.D., East Okeechobee I	Archaeological site	NS	F	P
SOR #6 PB09253	Glades I, 1000 B.C. - 750 A.D., East Okeechobee I	Archaeological site	LS	G	P
SOR #7 PB09254	Glades I, 1000 B.C. - 750 A.D., East Okeechobee I	Archaeological site	LS	G	P

Table 4: Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture/Period**	**Description**	**Significance**	**Condition**	**Treatment**
SOR #8 PB09255	Glades I, 1000 B.C. - 750 A.D., East Okeechobee I	Archaeological site	NS	F	P
SOR #9 PB09256	Glades I, 1000 B.C. - 750 A.D., East Okeechobee I	Archaeological site	NE	F	P
SOR #10 PB09257	Glades I, 1000 B.C. - 750 A.D., East Okeechobee I	Archaeological site	NS	G	P
SOR #11 PB09259	Glades I 1000 B.C. - 750 A.D., East Okeechobee I	Archaeological site	NE	G	P
SOR #12 PB09259	Glades I, 1000 B.C. - 750 A.D., East Okeechobee I	Archaeological site	NE	F	P
SOR #13 PB09260	Glades I, 1000 B.C. - 750 A.D., East Okeechobee I	Archaeological site	NE	F	P
SOR #14 PB09884	Glades 1a, East Okeechobee I, 750 B.C. – 100 A.D.	Archaeological site	NR	G	ST, P
Steam Engine PB13530	Unidentified	Historic structure	NE Unidentified resource, unclear if this is same as Hunt Sawmill, further research needed		
Lainhart Cabin South PB13574	American 20th Century , 1941	Historic structure	NE	F	RH, P
Lainhart Cabin North PB13761	American 20th Century , 1941	Historic structure	NE	G	RH, P
Lainhart Dam PB13762	American 20th Century , 1941	Historic structure	NE	G	RH, P

Significance:

NRL .....National Register listed
NR.....National Register eligible

LS.....Locally significant
NE.....Not evaluated
NS .....Not significant

Condition

G.....Good
F .....Fair
P .....Poor

Recommended Treatment:

RS.....Restoration
RH.....Rehabilitation
ST .....Stabilization
P .....Preservation
R.....Removal
U…….Undetermined

RESOURCE MANAGEMENT PROGRAM

Management Goals, Objectives and Actions

Measurable objectives and actions have been identified for each of the DRP management goals for Jonathan Dickinson 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, the 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 Division 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 long-term work plans are developed for natural community restoration and hydrological restoration. The work plans provide the Division 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, the 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.

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 to one degree or another prior to acquisition. 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.

Objective: Conduct/obtain an assessment of the park's hydrological restoration needs.

Staff will inventory canals and ditches and develop a restoration plan for identified areas. The park will continue to assist the SFWMD with updating the Restoration Plan for the Northwest Fork of the Loxahatchee River in 2011 and developing hydrologica restoration plans for Jenkins' Canal and Hobe Grove Canal.

Objective: Restore natural hydrological conditions and function to approximately 1,086 acres of wet flatwoods, mesic flatwoods, wet prairie, depression marsh, floodplain swamp and mangrove swamp natural communities.

Park staff will attain the permitting and fill approximately 2 miles of drainage ditches and small canals to restore 580 acres of four natural communities. The park will also continue to implement Loxahatchee River restoration plans to restore and enhance 496 acres of floodplain swamp. The DRP will seek to restore natural flows to 10 acres of mangrove swamp community and continue to support the efforts of the SFWMD, Martin County, Palm Beach County and other local stakeholders in their efforts to restore Kitching Creek and Cypress Creek.

Objective: Monitor and maintain 24 culverts and one vehicular bridge.

Objective: Monitor and analyze water resources in the park.

The park will cooperate with SFWMD to identify and cap all old wells within the park. Staff will continue to monitor data from groundwater stations within the park and to coordinate with the LRD and collect water quality samples at four sites.

Objective: Implement the Division's responsibilities under the Loxahatchee River National Wild and Scenic River Management Plan (2010) and the Loxahatchee River Watershed Action Plan.

Staff will attend Loxahatchee River Management Coordinating Council meetings and participate in updates of the Loxahatchee River National Wild and Scenic River Management Plan.

Natural Communities Management

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

As discussed, the Division 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 and small-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.

Objective: Within 10 years, have 7,850 acres of the park maintained within the optimum fire return interval.

Park staff will develop an annual burn plan at the beginning of each fiscal year and burn the plan's target acreages, ranging from 1,381 to 4,834 acres. Staff will also update the long-range prescribed fire and wildfire plan. The park will manage fire dependent communities for ecosystem function, structure and processes through prescribed burns. Forty-two miles of existing firebreaks will be maintained in accordance with annual burn plan and to DRP standards. Park staff will also establish 2 miles of new firebreaks such that all of the acres that need prescribed fire receive it (in zone JD-A5). While the

park's annual prescribed goal ranges from 1,381 to 4,834 acres, the average target acreage should be around 2,400 acres. Park staff will follow the April, 2010 Department of Environmental Protection, Division of Recreation and Parks' "Fire Management Standard" when conducting prescribed fires which includes post-burn evaluations.

Table 5 contains a list of all fire-dependent natural communities found within the park, 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)**
Sandhill	156	1-3
Mesic flatwoods	1,542	1-5
Scrub	1863	5-20
Scrubby flatwoods	707	3-8
Wet flatwoods	3,462	2-6
Wet prairie	500	1-3
Abandoned Field	82	1-3
Abandoned Pasture	61	1-3
Clearing	54	5-20
Total Burn Acreage	**8,940**	
Annual Target Acreage	**1,415 to 4,953**	

The park is partitioned into management zones and burn prescriptions are implemented on the prescribed burn cycle for each zone (see Management Zones Map). 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.

Stepwise improvements have been made in the prescribed burn program since 2000 in terms of acreage burned, a renewed focus on summer burning, equipment upgrades and staff training. Many of the park's imperiled species are adapted to the the effects mimicked by fire management. The park's general burning program needs to continue to grow in both sophistication and implementation due to smoke-management problems and designated-species considerations. Most importantly, the burn program needs to be consistent year to year in terms of acreage burned and number of prescribed fires executed in a year.

The park contains six fire-dependent communities: including mesic, wet and scrubby flatwoods, sandhill, scrub and wet prairie. All of these communities support a variety of

fire dependent and fire enhanced plants and animals. In the flatwoods and sandhills, frequent fire maintains a low understory of wiregrass, saw palmetto and scrub oak and a sparse overstory of slash pine. Wiregrass is arguably the most visually spectacular example of a fire-dependent species within these communities and only blooms across an entire landscape when burned during the growing season. In addition to enhancing vegetation, a wide variety of animal species benefit from fire in the flatwoods including: northern bobwhite *(Colinus virginianus)*, white tailed deer *(Odocoileus virginianus seminolus)*, wild turkey(*Meleagris gallopavo)*, Florida scrub-jays, gopher tortoises, gopher frogs, indigo snakes *(Drymarchon corais couperi)*, pine snakes *(Pituophis melanoleucus mugitus)* and Bachman's sparrow *(Aimophila aestivalis)*. For scrub and scrubby flatwoods, maintenance fire provides an open understory of oaks that is exceptionally beneficial to gopher tortoises and Florida scrub-jays. Maintenance burning also minimizes damage to slash pines in the scrubby flatwoods and in the scrub, creates small pockets (less than 5 acres) of sand pine monocultures.

Training standards are becoming more rigorous within the DRP, which means there are additional costs associated with training staff to reach the various levels of responsibility. In addition, maintenance and upgrading of equipment, such as fire trucks and tractors, can be expensive endeavors.

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.

Natural communities 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.

The following natural community/habitat restoration and maintenance actions are recommended to create the desired future conditions for the mesic hammock, floodplain swamp, scrub and ruderal communities at Jonathan Dickinson State Park.

Objective: Conduct natural community restoration activities on 179 acres of mesic hammock, floodplain swamp, scrubby flatwoods, scrub and ruderal communities.

The park will conduct natural community restoration activities on 49 acres of mesic hammock and/or floodplain swamp communities. On average, restore 2.9 acres of the mesic hammock or floodplain swamp communities per year and conduct necessary follow-up management activities. Several restoration projects surrounding the Northwest Fork of the Loxahatchee River floodplain need to be undertaken, including replanting old pastures and citrus fields (approximately 29 acres) with native species. Due to the very sensitive archaeological nature of this region, no alterations will be made without prior approval and in consultation with the DHR. Consideration should also be given to developing and implementing a plan to restore and re-contour the old agricultural dumpsite within the river floodplain.

Park staff will conduct community restoration activities on 65 acres of wet flatwoods, mesic flatwoods, scrubby flatwoods and scrub communities by removing building foundations and roadbeds from the Camp Murphy area and conducting necessary follow-up resource management activities. Various remains and ruins of Camp Murphy buildings, roads and dumpsites are concentrated in the eastern part of the park. Areas containing these remnants need to be evaluated for their historical significance and removal should be prioritized accordingly.

Park staff will conduct habitat/natural community restoration activities on 64 acres of ruderal land by reestablishing 64 acres of mesic flatwoods and approximately 6.4 acres of the scrub community per year with prescribed burn application, exotic plant removal and follow-up management activities. This area was once used for agricultural practices (cattle) and is heavily infested with non-natives, including Brazilian pepper, melaleuca and infestations of guinea grass and cogon grass. Although remnant populations of the native plant communities exist, the area also suffers from lowered water tables. Little hydrological restoration can be accomplished in the short term because the area has been hydrologically severed by development to the east. Further study regarding restoration is needed.

The park staff will conduct natural community/habitat restoration activities on one acre of mesic flatwoods and sandhill communities by replacing lost soil, replanting and not removing soil in the future. There are several areas and reasons why soil is being moved from one area of the park to another. In general, there are three types of areas: areas next to culverts, areas next to unwanted ditches and the Trapper Nelson Site. While culverts are relatively inexpensive and vital to maintain access roads, heavy rain events and general wear undermine them. Long-term solutions should be developed to stabilize culvert areas and reduce the need for soil extraction and subsequent borrow pits within the park necessary for repairs. A few areas in the park contain small ditches that cross under fire lanes and wash out culverts or roads. Maintenance of the culverts

is essential for resource management. Backfilling the ditches would prevent washouts and ease culvert maintenance. Occasionally during heavy rains, sand is dug from the area the Trapper site and moved to shore-up the chickee shelters. The resulting, deep borrow pits surrounding the Trapper Nelson Site are unsightly. A concerted effort to centralize the effort or obtain fill from offsite would benefit the park and minimize impacts to surrounding natural communities.

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/habitat improvement actions recommended at the park.

Objective: Conduct habitat/natural community improvement activities on 60 acres of wet flatwoods, mesic flatwoods, scrubby flatwoods and scrub natural communities.

The park will conduct natural community/habitat improvement activities on 10 acres of mesic flatwoods, scrubby flatwoods and scrub communities by consolidating vegetation dumpsites in one location. An official site is located adjacent to the railroad tracks in burn zone JD-B08 and a brush pile near the Trapper Nelson Site. All other sites will be cleaned up and any refuse that has been scattered in the natural areas of the park, especially along roads and trails, will be removed and deposited at the designated vegetation dumpsite. Salvaged materials should be located in the central vicinity of the shop area for accessibility and inventory. Dump sites throughout the park have unintended impacts. Most importantly, they allow for the movement of non-native plants and associated seeds to areas in which they previously did not exist. Secondly, dumping vegetation in natural areas may increase fuel loadings and may have unintended impacts on fire intensity such as sterilizing the soil where such accumulations did not occur naturally.

A cleanup and restoration of an old agricultural dumpsite located on the SOR property was accomplished through the John D. and Catherine T. MacArthur Foundation and SFWMD. Park staff and volunteers have also removed various old dumpsites from SOR lands along the river.

Park staff will conduct natural community improvement activities on 25 acres of scrub and 25 acres of scrubby flatwoods communities in Section 24. The area of the park known as Machine Gun Hill, Section 24, has undergone serious, environmental decline because of past military activities. In view of the damage and improvement efforts, Military Reserve and National Guard unit field training exercises are no longer permitted. In addition, current access to the area is limited to park staff via fire roads for resource management and park security. Reclamation efforts will be made to remove litter, fill foxholes, abandon and level extraneous roads and revegetate.

Imperiled Species Management

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

The 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 are necessary to meet the DRP's mission. Long-term monitoring is also essential to ensure the effectiveness of resource management programs. Prioritized monitoring will provide information from collected data 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.

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

Park staff will implement monitoring protocols for two selected imperiled animal species including the Florida scrub-jay and gopher tortoise. Staff will also continue to monitor and band Florida scrub-jays and monitor the effects of prescribed fire treatments on supporting natural communities.

The Florida scrub-jay is found in the park's well-maintained scrub or scrubby flatwoods communities. Ideal habitat consists of a single layer of evergreen shrubs, usually dominated by three main species of oaks. Even more specifically, Florida scrub-jays are seldom found as permanent residents of areas with dense sand pine canopy cover and vegetation that is over 10 feet tall (Woolfenden and Fitzpatrick, 1996). These areas need to be interspersed with bare sand for foraging and caching surplus acorns. Snag management is also important since the birds use these standing dead trees as sentinel posts. Population surveys were conducted in 1981, 1988, 1989 and 1990. From 1995 to 2003, single day surveys of the park were conducted by biologists, park staff and volunteers. Generally, the surveys indicate a precipitous decline in numbers of these animals. In 2007 until the present, the area with highest population in the park was targeted for detailed long-term monitoring which includes banding of birds through USFWS and FFWCC permitted banders. Current Florida scrub-jay banding efforts were started in 2004 (efforts are ongoing) and 52 animals have received leg bands (in 1991 55 birds were banded; but none of these birds are still alive). After recent wildfires and prescribed fires in the area where the birds are highly concentrated, movement and spreading continues to occur. While monitoring is important, a well thought out and executed prescribed fire program targeting scrub and scrubby flatwoods is the most important ingredient for this animal's continued survival. Currently, Florida scrub-jays are monitored using the protocol set by The Nature Conservancy's Jay Watch program. The park has participated in this program since 2007. Volunteers supplement the efforts of park staff to attain monitoring goals.

The park will monitor and determine the need for augmentation of gopher tortoises in management zone JD-I (SOR property) and JD-G and improve the zone's mesic flatwoods community. Lands within the JD-I management zones were not in the original portion of the park but were added with the SOR property acquisition. This area is adjacent to the I-95/Florida Turnpike corridor (to the west) and is surrounded by Cypress Creek and the Loxahatchee River to the north, east and west. Anecdotal observation indicates a lack of gopher tortoises. Low population levels may be a result of a recent lack of fire, harvesting or being cut off from the main population in the park. It is recommended that after the next burn cycle in 2012 that the site be monitored to determine how many gopher tortoises are in this area and if any augmentation needs to be done. The site is surrounded by Cypress Creek on the north, the Loxahatchee River on the east and south and I-95 on the west.

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

Park staff will develop monitoring protocols for three selected imperiled plant species including perforated reindeer lichen, dancing lady orchid and four-petal pawpaw and implement these monitoring protocols for three species. The four-petal pawpaw is perhaps one of the most important plants in the park's scrub because of its limited distribution to Martin and St. Lucie counties. Moreover, it occurs only in the scrubby areas, which are even more limited because of development. Post-fire reconnaissance in

areas where this plant occurs or may occur is important, because the plant is easily visible. Reconnaissance should follow Dr. Anne Cox's protocols.

Perforated reindeer lichen depends on a fire/disturbance maintained environment. Burn prescriptions that stress the importance of site protection are important for their management. This should include a pre-treatment site visit to see if there are continuous or a mosaic of fuels in these lichen patches. If burned, these sites need to be marked and protected from foot and vehicle damage. The three locations of this lichen in the park should be resurveyed every five years. The biggest threats to their population are visitor-use impacts and a lack of prescribed fire.

Dancing lady orchid is a plant that needs protection from collectors. This species is somewhat of an enigma in that it is a imperiled species that only lives in scrub areas, yet it appears to be intolerant to fire. Mapping of this plant in the park was done in 1983 and 1984 (Sysskind). Relocation has been carried out in 1970, 1975, 1977, 1983 and 1984. The population was severely damaged by the freeze of 1989 (Sysskind) and is only now starting to recover (Schuh).

With regard to long-term threats, the park staff and volunteers have relocated some of these plants due to development (Jonathan Dickinson Missile Tracking Annex) and scrub burns (Machine Gun Hill). In the three areas where it is known to occur, populations have declined since 2000. The third site had a sparser population to begin with and the sand pine overstory is no longer present leading to a hotter, drier microclimate that is thought to be less favorable for this plant.

In response to these problems, park staff initiated a hand pollination program that subsequently sends seeds to the Atlanta Botanical Garden for propagation and reintroduction into the park. Special fire management consideration and protection from orchid collectors is needed for the long-term maintenance of this species.

The park will augment populations of two imperiled plant species, including perforated reindeer lichen and dancing lady orchids. Augmentation of populations of perforated reindeer lichen may come from soon to be developed areas outside the park. Areas to be targeted for relocation include disturbed sites with large open sandy patches. Monitoring will be ongoing through Florida Atlantic University.

Objective: Re-introduce red-cockaded woodpeckers into the park, if feasible.

Park staff will evaluate potential to reintroduce red-cockaded woodpeckers into the park. If the potential exists, the park will implement reintroduction of red-cockaded woodpeckers. Red-cockaded woodpeckers were last seen in the park in 1983. As a long-term goal and in agreement with the 2006 Land Management Review, the park would like to explore the topic of this species re-introduction. Park lands should be evaluated for suitable pine habitat as defined in the management plans *Red-Cockaded Woodpecker*

(FFWCC, 2003) and *Red-cockaded Woodpecker Recovery Plan* (USFWS, 2003). Although the park is not identified as a recipient site in FFWCC's management plan, its lands may meet the criteria currently or in the future particularly if it is coupled with Atlantic Ridge State Park. Suitable habitat within the park could assist FFWCC's metapopulation goal of increasing active clusters from 13 to 31 by 2020 in the Corbett/DuPuis area of its Southern Peninsula Management Unit. The DRP will seek expert guidance, including FFWCC and USFWS's, for re-introducing the species.

Exotic Species Management

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

The 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 biological control agents.

Objective: Annually treat 1,000 acres of the park for exotic plant species in the park.

The park will update the invasive exotic species treatment plan and implement the exotic plant management annual work plan. The park will remove exotic and invasive plants and animals from the park and conduct needed maintenance-control. The park will also continue and improve non-native plant removal efforts, especially for Old World climbing fern, downy rose myrtle, Brazilian pepper, java plum and melaleuca and ensure that areas treated initially will continue to be re-treated.

Of all the non-native plants found at Jonathan Dickinson State Park, FLEPPC's Category I and II plant species are targeted for intensive treatment. Because of their aggressive growth, invasive exotic plant species eventually form monocultures, which displace natural communities and associated animal species.

A comprehensive invasive exotic plant treatment plan has been completed for park properties purchased through the SOR program (Resource Management Zones JD-H through JD-L). A comprehensive invasive exotic plant treatment plan for the remainder of the park property will be completed and will follow the same format as the SOR plan. Both plans will be on file at the Park Biologist's office, the park office and at the District 5 Administrative Office.

At the beginning of each fiscal year, the park biologist, district biologists and park manager determine which areas of the park will have focused invasive exotic plant treatment for the upcoming year. Each zone that has been treated must be maintained free of invasive exotics through a follow-up monitoring program. The follow-up program will involve walking an area that has been treated, on a quarterly to bi-annual basis to remove newly established plants. Records will be kept on these follow-up workdays in the same manner as is done on an active treatment day.

When the park manager, park biologist and district biological staff determine that the viable seed source has been reduced, they will shift that area's follow-up schedule from quarterly to bi-annually and finally to annually. Annual follow-up will be continued to control reintroduction from populations outside park boundaries.

As the park proceeds farther along with the plan, staff time will be shifted from treating areas to providing follow-up efforts for previously treated areas. Continued commitment to both activities is mandated in order for this plan to be successful.

Current and new contract projects will have participation from both park management and park and district biologists. All contractor removal efforts will be reported to the District for the annual invasive exotic removal report. Mitigation projects (primarily on the SOR properties) will follow the same procedures as a regular contract project, in addition to the legal process required for mitigation efforts.

Problem Species Plants: Due to the creation of more hydric conditions, slash pines, wax myrtles and cabbage palms have become established along the ditches next to Park Drive. This detracts from the scenic vistas along the drive and breaks the continuity of the appearance of the flatwoods and wet prairies. In addition, cabbage palms are hazardous to the safe application of prescribed fire because of their tendency to torch and spew hot embers.

In areas of hydrologically-impacted flatwoods (see discussions about Hobe Grove Canal and Jenkins Canal), cabbage palms by the thousands have taken over. Once the hydrology of these areas is returned to its natural condition, removal of these trees may be necessary for restoration.

Other nuisance native vegetation includes cattails, grapevine *(Vitis* spp.*)* and love vine *(Cassytha filiformis)*. In the park, cattails are typically found in disturbed wetlands, such as old borrow pits or non-native plant removal. In these cases, the spraying of cattails may be necessary for aesthetic and ecological reasons. Grapevine may also take over disturbed sites in wet or mesic flatwoods. Lastly, many of the area's residents comment on the abundance of love vine growing in the scrub located in the park and adjacent natural areas along the US-1 corridor. Love vine is problematic because chemical spray application generally harms the vegetation it is parasitizing and hand pulling is costly in terms of labor. The best long term solution is the continued use of prescribed fire, which kills or stunts the growth of this very conspicuous orange vine. Fiscally, prescribed fire is the most viable method of control because a large area can be treated in a single application.

Objective: Implement control measures on 8 exotic animal species in the park.

The park will continue to remove eight exotic animal species from the park, including feral hogs, nine-banded armadillos, coyote, iguanas, non-native mallards, feral cats and feral dogs. Exotic animals are removed from the park as authorized by FFWCC. The animals will continue to be removed as they are encountered through regular trapping programs, by park staff and by volunteers. Since most of the park is surrounded by residential areas, the immigration of feral cats and dogs is a continuous problem. Removal efforts should be concentrated along park boundaries or where the greatest damage to park resources occurs.

Special Management Considerations

Timber Management Analysis

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

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

Human-Native Animal Conflicts

The park will continue to monitor, relocate and remove four animal species, including the American alligator, diamondback rattlesnake *(Crotalus adamanteus)*, gray squirrel (*Sciurus carolinensis*) and raccoon. These animal species typically become a danger to the public only after repeated feedings by humans. In the case of raccoons, raiding of campsites may be a learned behavior. Warning signs are posted at likely points of visitor-animal contact to state that such activities are illegal. Staff are on alert for violations and take appropriate action when violations occur.

Rattlesnakes typically are not a "nuisance" in the sense that alligators, squirrels and raccoons are because their presence has nothing to do with being fed. However, there is balance that needs to be struck between visitor safety and the presence of rattlesnakes in public areas. Typically, rattlesnakes present very little threat to visitors because of their generally docile nature towards humans. However, a small percentage of people actively engage the animals. In other instances rattlesnakes go unnoticed until the person is too close and the animal feels threatened. Lastly rattlesnakes interact with pets

(typically dogs) that are off-leash (which is against the park rules). These three examples of human / rattlesnake interactions do and have occurred in the park but are rare. It is important that there is a policy to deal with this potential conflict.

Typically, the procedure to deal with problem animals is as follows. The staff will first attempt to live-trap the problem animal for relocation to a remote area with the proper permits from FFWCC. If the animal cannot be trapped or if it displays abnormal behavior indicative of a disease (rabies or distemper), then the animal will be removed from the park. Dealing with problem species, other than those listed, should always be reported to the district and park biologist because control measures may require approval from other agencies. Removal of nuisance animals is considered either as a last resort or an emergency measure only when public safety is compromised.

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

Shoreline protection: In the past, extensive erosion has occurred along the shorelines of the Loxahatchee River, as exhibited by exposed roots and by fallen pine trees and cabbage palms. Part of this erosion may be attributed to natural processes associated with extreme high tides and wet season floods. However, erosion has also been caused by excessive boat wakes and visitor foot trails. Although boat wakes have been controlled by a no-wake zone within the park, steps will be taken to repair and protect eroded areas. In public use areas, retaining walls and steps should be constructed similar to those at the canoe dock and Kitching Creek overlook.

Wilderness preserve: The Park has a 2,600-acre Wilderness Preserve in which human-related influence is kept to a minimum.

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. The Division of Recreation and Parks is implementing the following goals, objectives and

actions, as funding becomes available, to preserve the cultural resources found in Jonathan Dickinson 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 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 32 of 68 recorded cultural resources in the park.

Assessments and evaluations of known sites are important and need to be prioritized in terms of most important sites first. Order of priority is given to sites that are on the National Register, sites known to be National Register eligible, locally significant sites, areas that have not been evaluated and lastly not significant sites. Of the 32 sites to be evaluated, 12 are archaeological sites and 20 are historic structures. Archaeological sites include: North Fork Burial Mound (MT0741), Kitchen Creek #1 (MT1282), Kitchen Creek #2 (MT1283), Kitchen Creek #3 (MT1284), Kitchen Creek #4 (MT1285), Trapper Nelson's Pineapple Patch (MT1344), Trapper Nelson Cabin and Zoo (MT1348), Loxahatchee River 1 (PB00036), SFWM Midden (PB06862), Loxahatchee Battlefield (PB08401), SOR #14 (PB09884) and Steam Engine (PB13530). Historical structures to be evaluated include: Trapper Nelson's Chickee (MT0350), Camp Murphy Barrack (MT0633), Residence of Jonathan Dickinson State Park (MT0634), Trapper Nelson's Main Cabin (MT0995), Trapper Nelson's Boathouse (MT0997), Trapper Nelson's Restroom (MT0998), Trapper Nelson Guest Cabin (MT1323), the Trapper Nelson Site (MT1449), Camp Murphy Treatment Plant Building 1 (MT1470), Camp Murphy Treatment Plant Building 2 (MT1471), Camp Murphy Theater (MT1472), Camp Murphy Bunker (District Storage) (MT1474), Camp Murphy Bunker (shop area) (MT1475), Camp Murphy Firing Range (MT1476), Camp Murphy Covered Bunker (MT1479), River Campground Bathroom (MT1488), Cypress Creek Pavilion (MT1489), Lainhart Cabin

South (PB13574), Lainhart Cabin North (PB13761) and Lainhart Dam (PB13762). For the four buildings within the Trapper Nelson Site (MT01449), historic structure reports are recommended (Trapper Nelson's Chickee (MT0350), Trapper Nelson's Main Cabin (MT0995), Trapper Nelson's Boathouse (MT0997), Trapper Nelson's Restroom (MT0998), Trapper Nelson Guest Cabin (MT1323)). Historic structure reports will help evaluate and prioritize repair, restoration and rehabilitation projects. Assessments will include an examination of each site with a discussion of any threats to the site's condition such as natural erosion; vehicular damage; horse, bicycle or pedestrian damage; looting; construction including damage from fire break construction; animal damage; plant or root damage or other factors which might cause deterioration of the site. The evaluation will include an attempt to compare the current condition with previous evaluations using photo points or high resolution scanning or similar techniques.

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

The park will ensure all known sites are recorded or updated in the FMSF. The staff will continue to update the FMSF, verify information and the reorganize records. Prior to updating this plan, an attempt was made to visit and document all the archaeological sites and historic structures for assessment. It is unclear how accurate latitude/longitude calculations were done during initial discovery of the sites and locating them has been difficult. Evaluations were done where possible, but many of the sites in and around SOR lands and Kitching Creek were obscure or impossible to find because there is little remaining evidence. GPS verification of previously recorded sites will provide further protection. Sites should be regularly monitored and documented with management recommendations by trained staff. Monitoring, particularly after prescribed fires or during every Unit Management Plan cycle at a minimum, should be implemented for protection and to familiarize staff with the resources. In addition, mound sites should be patrolled for vandalism and any deterioration documented and photographed. All ground-disturbing activities should be conducted in accordance with DRP policy.

DRP will complete a predictive model for high, medium and low probability for locating archaeological sites within the park and conduct Phase I archaeological surveys for 15 recorded sites. With exception of the area around the Northwest Fork of the Loxahatchee River floodplain, it is recommended that a complete predictive model or a comprehensive archaeological survey. Complete Phase I surveys are also recommended for 15 sites, including MT01283-1285, PB09248-9251, PB9253, PB9255-9260 and PB09884, to help the park to plan for future construction, mitigate effects of land impacts and identify sensitive areas. Site PB08401 should be subjected to a Phase II only if valid research questions can be ascertained and specific loci can be determined.

The park will develop and adopt a Scope of Collections Statement. The Scope of Collections Statement is a guide to the collections within the park. Park staff is currently in the process of completing this statement. The statement will include an inventory of the collections and will organize these records so that they are easily accessible.

Staff will conduct oral history interviews. On occasion various people who were involved in the park's cultural history visit or provide historical information on subjects such as Camp Murphy, Trapper Nelson's or the early to mid 19th Century agriculture era along the Loxahatchee River. Many interviews are with family members of people that were involved during this time period. Many of these interviews are unsolicited and provide levels of detail that cannot be garnered from historical documents and therefore are invaluable. Interviews are ongoing.

Objective: Bring four of 68recorded cultural resources into good condition.

The park will design and implement regular monitoring programs to manage 16 cultural sites and create and implement a cyclical maintenance program for each cultural resource. In consultation with DHR, management measures required for the park's cultural resources include the protection of Florida Master Sites and maintaining the Trapper Nelson Site and representative sample of Camp Murphy. Sixteen of the 64 recorded sites are in good condition and will be maintained in good condition. Of the remaining 49 sites, at least four others can be brought into good condition and include Trapper Nelson's Chickee (MT00350), Camp Murphy Barrack (MT00633), Trapper Nelson's Main Cabin (MT00995) and Trapper Nelson's Restroom (MT00998).

Objective: Write a master plan for Camp Murphy structures and ruins to determine what needs to be protected and what needs to be removed.

Camp Murphy included over 1,000 structures in this park. There are 27 recorded sites related to Camp Murphy that vary in condition (see Table 4). Many sites are classified as "Not Significant" (72%; 13; see Table 4) and need to be removed to facilitate upland restoration. Other relics of the period, such as roadbeds, are not listed but need removal. A master plan would inventory all sites and make action recommendations.

Objective: Implement the Historic Structures Report for the Trapper Nelson Site (2004) plan for Trapper Nelson Zoo Historic District (MT01449).

The *Historic Structures Report for the Trapper Nelson Site* provides the staff with recommended guidelines. The guidelines include maintenance of the existing buildings and structures, including relocating historic docks for protection. Other guidelines provide recommendations for restroom and concession facilities, including moving structures off-site. Structures that were vandalized or burned after Trapper Nelson's death are recommended for removal or replacement.

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. The DRP considered recommendations of the land management review team and updated this plan accordingly.

Jonathan Dickinson State Park was subject to a land management review on November 15, 2011**.** The review team made the following determinations:

1. The land is being managed for the purpose for which it was acquired.

2. The actual management practices, including public access, complied with the management plan for this site.

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, the DRP 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.

Most of Jonathan Dickinson State Park is located within the unincorporated areas of Martin County with its remaining lands lying within Palm Beach County and the incorporated Town of Jupiter in the southeastern part of the state. The park is approximately 30 miles north of West Palm Beach, the most populated city in the area. More than 2,000,000 people reside within 50 miles of the park, which includes both counties in addition to portions of St. Lucie, Okeechobee, Indian River, Highlands, Hendry, Glades and Broward counties (Census, 2000). The estimated populations of Martin County and Palm Beach County have grown 15 percent since 2000, and are projected to grow an additional 19 percent by 2020 (BEBR, University of Florida, 2008).

Existing Use of Adjacent Lands

The park is generally bordered by residential and undeveloped lands to the north; mixed density residential, commercial and the conservation lands of the Hobe Sound National Wildlife Refuge to the east; a large residential/golf course development to the south; and agricultural lands with scattered single-family residential development to the west. Other land uses located next to the park's southern boundary include the United States military radar tracking station, Tequesta Park; a county outdoors sports facility, and the Boy Scouts of America camping and shooting facilities. Adjacent lands next to the most southern reaches of the park are within Palm Beach County and consist of low density residential and conservation.

Major transportation corridors adjacent to the park include Interstate Highway 95 and the Florida Turnpike. The Florida East Coast Line railroad bisects the park, approximately one-half mile west and parallel to U.S. Highway 1 (US-1).

Opportunities for resource-based recreation within the vicinity of the park include public lands managed by Martin County and the South Florida Water Management District. These areas support the Cypress Creek/Loxahatchee Project, a preservation initiative that offers public access to passive resource-based recreation. Additional area parks within Martin County include Hosford Park, offering hiking and launching for canoes/kayaks and small boats, and the Halpatiokee Regional Park, providing a sports complex in addition to opportunities for resource-based recreation. Passive recreational opportunities provided by Palm Beach County include the Cypress Creek Natural Area, providing residents and visitors with opportunities for nature walks and bird watching, and Riverbend Park, the only designated launching point for canoes and kayaks upriver to Jonathan Dickinson State Park on the Northwest Fork of the Loxahatchee and Scenic River. Palm Beach County manages Riverbend Park, which includes a half mile of the Northwest Fork, providing river landings in addition to hiking and equestrian trails.

Other state parks that provide access to resource-based recreation within the vicinity include St. Lucie Inlet Preserve State Park, accessible only by boat and features a mangrove-to-beach boardwalk; Savannas Preserve State Park, offering nature trails, canoe/kayaking, picnicking and educational programs; and Seabranch Preserve State Park, offering hiking, picnicking and nature appreciation. Additional recreational facilities will be developed nearby at Atlantic Ridge Preserve State Park.

National and state trail systems utilize the park's facilities while expanding resource-based recreational opportunities at the park. The Ocean to Lake Trail is a segment of the Florida National Scenic Trail that connects the park to over 63 miles of hiking, biking and equestrian trails in addition to 165,000 acres of natural Florida lands within the Northeast Everglades Natural Area (NENA). The Florida Trail Association in conjunction with county, state and federal governments and the South Florida Water Management District (SFWMD) developed the trail segment, which travels through

Martin and Palm Beach Counties from the Atlantic Ocean west to Lake Okeechobee. The trail utilizes sidewalks, back roads and the boundary of Hobe Sound National Wildlife Refuge before entering Jonathan Dickinson State Park. From the park, the segment continues through five managed areas before tying into the Lake Okeechobee segment of the national trail.

A proposed segment of the East Coast Greenway (ECG) will connect the park trails to a potential network of 3,000 miles of shared-use trail, extending from Calais, Maine to Key West, Florida. The East Coast Greenway Alliance is currently working with the State and local governments to develop the trail, which will connect 25 east coast cities while promoting recreation, tourism, business, culture and an alternative means of transportation. Referred to as the "Urban Appalachian Trail," the ECG will run adjacent to an operational railway through Jonathan Dickinson State Park.

Paddlers navigating the Florida Circumnavigation Saltwater Paddling Trail can access recreational facilities at the park. The paddling trail begins at Big Lagoon State Park near Pensacola, extends around the Florida peninsula and Keys and ends at Fort Clinch State Park at the Georgia border. The trail is 1,500 miles long and divided into 26 segments. Segment 19 of the paddling trail accesses the Loxahatchee River Paddling Trail located via the Martin County Paddling Trail off Jupiter Inlet. The development of the paddling trail was coordinated by the Office of Greenways and Trails in cooperation with state agencies and local governments.

The Loxahatchee River Canoe Trail begins at Palm Beach County Riverbend Park, providing paddlers with up to 8 miles of river through subtropical river swamp and access to park facilities. The river corridor through the park is subject to special management measures and land use restrictions as outlined in The Loxahatchee River Wild and Scenic River Management Plan. Many of the management measures within the Resource Management Component for the park are drawn from the river management plan. Land use planning within the park will continue to be subject to the conditions of the plan.

Planned Use of Adjacent Lands

The Future Land Use Map for Martin County indicates that most lands adjacent to the park will continue to reflect the current zoning designations. Clockwise, designations of Low Density residential (5 dwelling units per acre or du/ac), Industrial, Rural Density residential (.5 du/ac) and Agricultural Ranchette (1 du/5 ac) occur adjacent to the park's northern boundary. Lands east of the park, across S.E. Federal Highway, are designated as Estate Density and Public Conservation Area Lands with lands south of the park designed as Rural Density, Estate Density residential (2 du/ac), Low Density and High Density residential (10 du/ac). Amendments to the county's future land use designations are anticipated west of the park boundary to Interstate Highway 95. These parcels were formerly designated as Agricultural and will acquire increased densities

(20 du/1 ac) under their new designation of Agricultural Ranchette (Martin County, 2002).

Palm Beach County's Future Land Use Atlas identifies unincorporated properties bordering the park's southwestern lands as Conservation (CON), Rural Residential-5 (RR-5, 1 du/5 ac), Rural Residential (RR-10, 1 du/10 ac). The properties south of West Indiantown Road are designated as Conservation or Low Residential (LR-3, 3 du/1 acre) (Palm Beach County, 1988).

The Future Land Use Map for the Town of Jupiter identifies lands adjacent to the park's most southern lands as Low Density Residential with Commercial, Medium Density Residential and Conservation designations. These lands also incorporate three planned unit developments east of the park's boundary (Town of Jupiter, 1992).

The Florida Department of Transportation (FDOT) is planning to widen I-95 including sections adjacent to the park's southern lands. FDOT works with the Loxahatchee River Management Coordinating Council that includes park staff during the development of the project. A five-mile resurfacing project is currently underway on US-1 from the Martin and Palm Beach County boundary line north to Bridge Road. Additional road improvements include wider shoulders and a shared-use trail beginning from the county line to the entrance of the park. The trail will be located adjacent to the park boundary in the right-of-way. The DRP will continue to work with local governments to protect the park's resources from potential impacts associated with expanding transportation systems.

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

Jonathan Dickinson State Park is one of the largest units in the Florida State Park System. Early development of recreational facilities was primarily located in the uplands of the scrub community. The river camping area, picnic area, and cabin area are located mostly in the flatwoods communities of the park, near the Northwest Fork of the Loxahatchee River.

All of the park's natural communities are valued by visitors interested in the natural communities and native wildlife of Florida. Due to its large size, 2,600 acres of the park have been set aside as a Wilderness Preserve. This area provides visitors with opportunities to hike, bike or horseback ride through lands that are generally undisturbed by man.

Water Area

The park contains several water areas, including the Northwest Fork of the Loxahatchee River. This portion of the river is mostly free flowing and is generally accessible by hiking trail. The river-offers outstanding opportunities for recreation. Most of the other water areas, including the park's rare sandhill upland lakes and blackwater streams are accessible for nature study and photography from the park's trails.

Shoreline

The park contains over 16 miles of shoreline on the Loxahatchee River. Most of the shoreline is occupied by floodplain communities limiting development. However, the shoreline provides many opportunities for fishing, swimming and nature study. An upland segment of shoreline has been developed for day use recreation, including swimming, and is accessible by boat and canoe/kayak.

Natural Scenery

The park's natural communities offer visitors outstanding scenic features that are remarkably distinct from the adjacent urbanized area. The scrub, sandhill and sandhill upland lake communities provide photographers with some of the park's most unusual scenery, due to the contorted shapes of the sand pines, white relict dunes and glass-like sandhill upland lakes. Fire-maintained flatwoods communities enhance windshield tours with open views of pines set against a regenerating understory of saw palmetto, grasses and herbs. An observation tower stationed on the park's highest elevation rewards visitors with a 360 degree-view of the park's diverse habitats and the surrounding horizon.

Significant Wildlife Habitat

As discussed in the plan's Resource Management Component, the park has an abundant variety of wildlife, which is supported by large interconnecting natural communities. Park visitors have the opportunity to observe wildlife behavior in their natural habitats.

Natural Features

The outstanding natural features of this unit are the Loxahatchee Wild and Scenic River and the extensive mosaic of natural communities. The river with its narrow cypress-lined creeks and open mangrove estuaries provides park visitors with an exceptional blackwater river experience reminiscent of historic South Florida. The rare and contiguous habitats maintained at the park include the globally imperiled scrub and sandhill upland lake communities and the wildlife they support.

Archaeological and Historical Features

In 2006, the National Park Service listed the Trapper Nelson homestead site (Trapper Nelson Site) in the National Register for Historic Places as the Trapper Nelson Zoo Historic District. The unique character of the buildings and the legends surrounding the individual who personified them attract visitors to the park.

The park's lesser known prehistoric and historic features include Second Seminole War encampments of warriors associated with the two Battles of the Loxahatchee and the World War II remnants of Camp Murphy, a United States Army training base for radar operations. Several of the Camp Murphy structures sustained hurricane damage in 2004 and were demolished. Further investigation for both research and interpretative information is needed to provide visitors with additional developed cultural destinations within the park.

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.

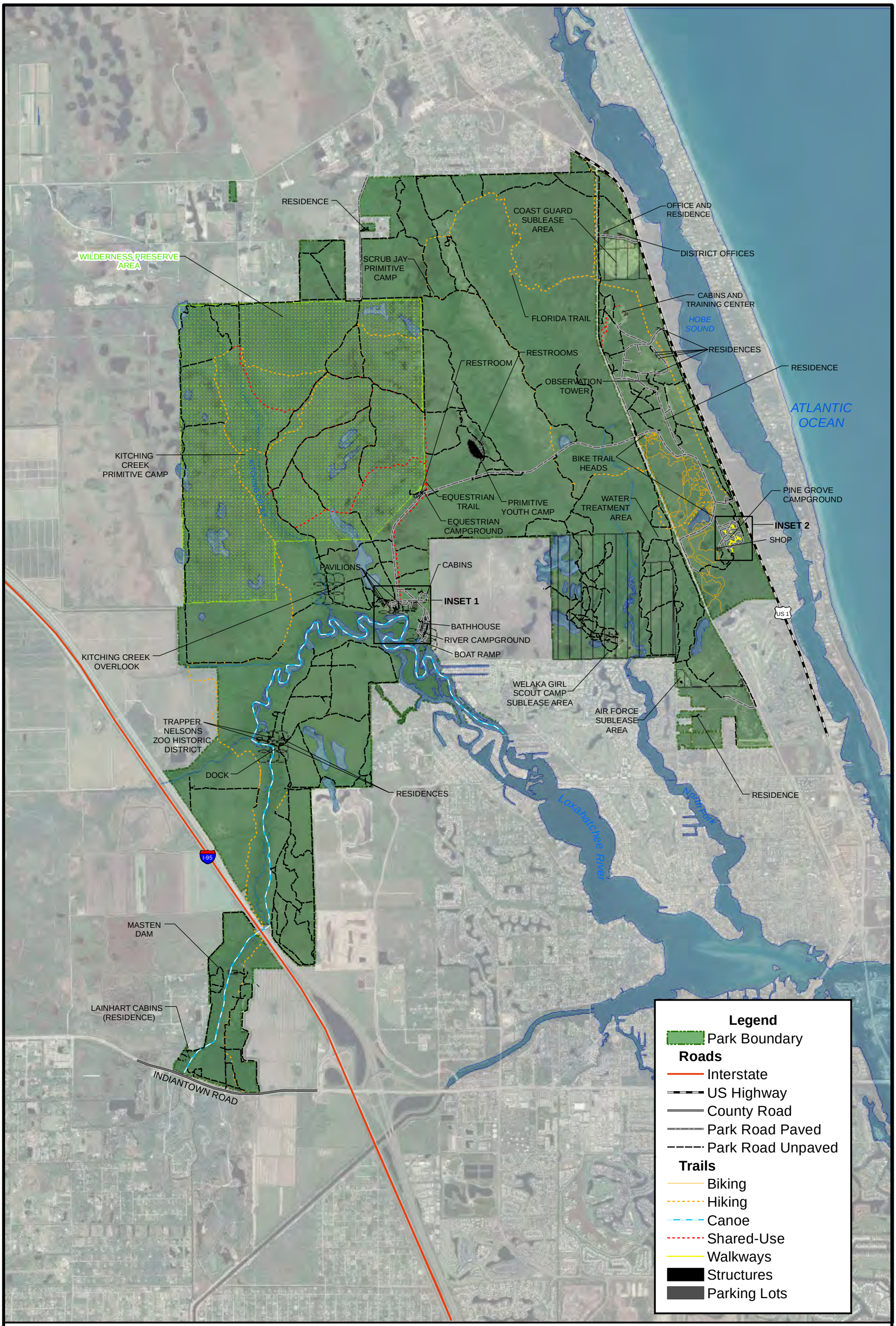
Past Uses

Logging, agriculture and homesteading, and government use are the land uses that initially altered the landscape of the state park. Hydrological influences from regional flood control and the development and operation of military facilities had the greatest physical impact on the property. Impacts to the park's wetland communities continue due to regional water use, regional and on-site flood control structures and abandoned roadbeds within the park.

Future Land Use and Zoning

The 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.

Generally, parklands within Martin County have future land use (FLU)/zoning designations of Public Conservation Area/Public Service (PS), respectfully. Additional designations include Agricultural/Small Farms (A-1), located in a remote area on the



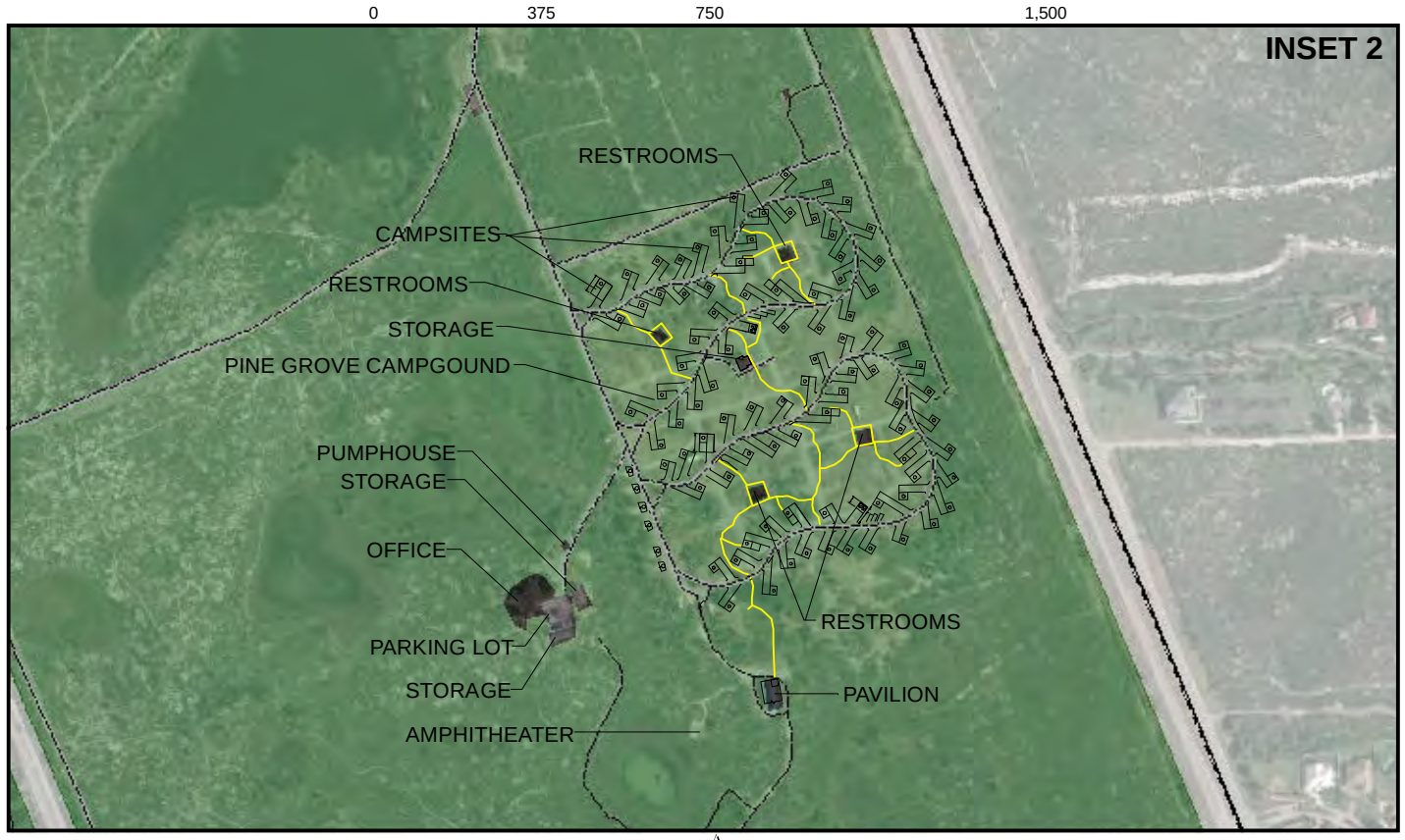
JONATHAN DICKINSON STATE PARK

N

0 0.25 0.5 1 Mile

Florida Department of Environmental Protection
Division of Recreation Parks
Date of aerial: 2004

BASE MAP PAGE 1 OF 2



Legend

- Park Boundary

Roads

- Interstate
- US Highway
- Park Road Paved
- Park Road Unpaved

Trails

- Biking
- Canoe
- Hiking
- Shared-Use
- Camp Sites
- Marine Structures
- Structures
- Walkways

JONATHAN DICKINSON STATE PARK

N

0 0.125 0.25 0.5 Mile

Florida Department of Environmental Protection
Division of Recreation Parks
Date of aerial: 2004

south shore of the Loxahatchee River and east of the river day use area, Low Density residential/Residential-5 (RS-5), located at the northeastern corner of the park, and General Institution/Public Service (PS) and Multi-family Residential (R-3), located at the southeastern corner of the park (Martin County, 2002). Parcels may require a permit from the county for low impact recreation, wildlife management and support facilities associated with those uses.

The FLU/zoning designations for park lands within Palm Beach County, east of I-95, include Low Residential (LR-3)/Agricultural-Residential (AR). Park lands west of the Turnpike are designated Conservation (CON)/Agricultural-Residential (AR). Not all Palm Beach County zoning designations within the park allow typical state park development under a permitted or conditional use. The DRP will need to seek rezoning to develop these parcels (Palm Beach County, 1988).

The FLU/Zoning designations for park lands within the Town of Jupiter, located north of West Indian Town Road, are Conservation/Public-Institutional (PI). This zoning designation allows typical state park development (Town of Jupiter, 1992).

Current Recreational Use and Visitor Programs

The park provides access to an abundance of wildlife within 16 natural communities, including scrub, flatwoods, mangrove swamp and blackwater stream. The park offers resource-based recreation for day use activities, including picnicking, hiking, cycling, off-road biking and horseback riding. Campgrounds accommodate recreational vehicles (RVs) and tent camping with additional overnight facilities provided for groups, primitive and equestrian camping and cabin rentals. A 25-passenger boat tour and guided tours at the Trapper Nelson Site are available for a wide variety of user groups. The park's Wilderness Preserve is managed as a primitive area that supports low impact recreational activities. This area of the park offers hiking and primitive camping opportunities in conditions of solitude and remoteness that are essential to a backpacking wilderness experience. The Loxahatchee Wild and Scenic River can also be accessed from the park for water-related recreation, including freshwater and saltwater fishing, swimming, boating, canoeing and kayaking. Small watercraft rentals are available to visitors through on-site vendors. The park's primary launching and take-out points for paddlers include the River Day Use Area and the boat ramp adjacent to the River Campground.

Natural and cultural resources found in the region and in the park are interpreted through exhibits and displays in the Elsa Kimbell Environmental Education and Research Center (the education center). The education center also functions as a visitor center and offers educational programs, classrooms and a research laboratory for students and families.

Ranger-guided tours of the 1930s pioneer homestead of Trapper Nelson are also available year-round. Wildlife study, at observation areas and throughout the park, gives visitor's viewing access to many species of animals. The park is recognized by the Great Florida Birding Trail program because of its excellent birdwatching opportunities for over 140 species of birds.

Jonathan Dickinson State Park recorded 176,018 visitors in FY 2010-2011. By DRP estimates, the park contributed over $8.85 million in direct economic impact and supported about 177 jobs in the local economy during the last fiscal year (DRP, 2011).

Other Uses

Through various lease agreements and permits, several areas of the park are currently dedicated to other uses. The uses include the Jonathan Dickinson Missile Tracking Annex, a Coast Guard Long Range Navigation station (LORAN), a Martin County fire station, a Martin County weir and swale stormwater system and Camp Welaka, subleased to the Girl Scouts of Southeast Florida, Inc. The Florida East Coast railroad corridor bisects the park from north to south, approximately one-half mile west of US-1

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 Jonathan Dickinson State Park, the maritime hammock, sandhill, scrub, depression marsh, dome, floodplain swamp, hydric hammock, strand swamp, wet flatwoods, wet prairie, sandhill upland lake, blackwater stream and mangrove swamp communities have been designated as protected zones as delineated on the Conceptual Land Use Plan (Note: For the purpose of clarity, designated protected zones east of the railroad are not illustrated in the Conceptual Land Use Plan.). All wet flatwoods have been mapped as protected zones, however, those areas that are not jurisdictional wetlands may be suitable for development. Jurisdictional determination will be made when necessary for each site on a case-by-case basis. Other protected zones include the area designated as a Wilderness Preserve, the Trapper Nelson Site, some of the Camp Murphy structures and the Loxahatchee Wild and Scenic River.

Existing Facilities

Recreation Facilities:

Elsa Kimbell Environmental Education and Research Center
- Visitor center
- Exhibit hall
- Classrooms
- Research lab
- Campfire circle

Pine Grove Campground
- RV/Tent sites (90)
- Bathhouses (4)
- Picnic pavilion

River Campground
- RV camp sites (45)
- Bathhouse
- Cabins (12)

Equestrian Trailhead and Campground
- RV/Tent sites (5)
- Bathhouse

Primitive campsites (2)
- Composting toilets (1 each)

Primitive Group Camp
- Campsites (3)
- Composting toilets (3)

Swimming Area
- Picnic pavilion
- Bathhouse

Trails
- Bicycle (13 miles)
- Hiking (17 miles)
- Shared-use (8 miles)
- Canoe/Kayak (9 miles)

River Day Use Area
- Large picnic pavilion
- Medium picnic pavilion
- Medium picnic/restroom pavilion

River Day Use Area, continued
- Restroom
- Concession building
- Dock/launch (tour boat/canoe concession)
- Playground
- Paved walkway

Boat Ramp Area
- Boat ramp
- Dock (boat and canoe/kayak)

Trapper Nelson Site
- Main cabin
- Guest cabin
- Water tower
- Chickee shelter
- Restroom
- Animal pens
- Tour boat dock
- Boathouse
- Early shelter no. 1
- Early shelter no. 2

Support Facilities:

District 5 Bureau of Park Operations Headquarters
- Administration office building
- Biology and law enforcement office

District Education Center and Resident Area (STOP Camp)
- Administration office/kitchen
- Classroom
- Bathhouse
- Cabins (3)

Elsa Kimbell Environmental Education and Research Center
- Park offices

Park Entrance
Ranger station

Shop Area
Ranger's office (bunker)
Two-bay shop building
Three-bay pole barn
Flammable storage
Pump house

Residences
Residences (3)
Pole barn
Mobile homes (3)
Staff-owned trailer sites (7)
Short-term staff cabins (2)

Pine Grove Campground
Volunteer camp sites (8)

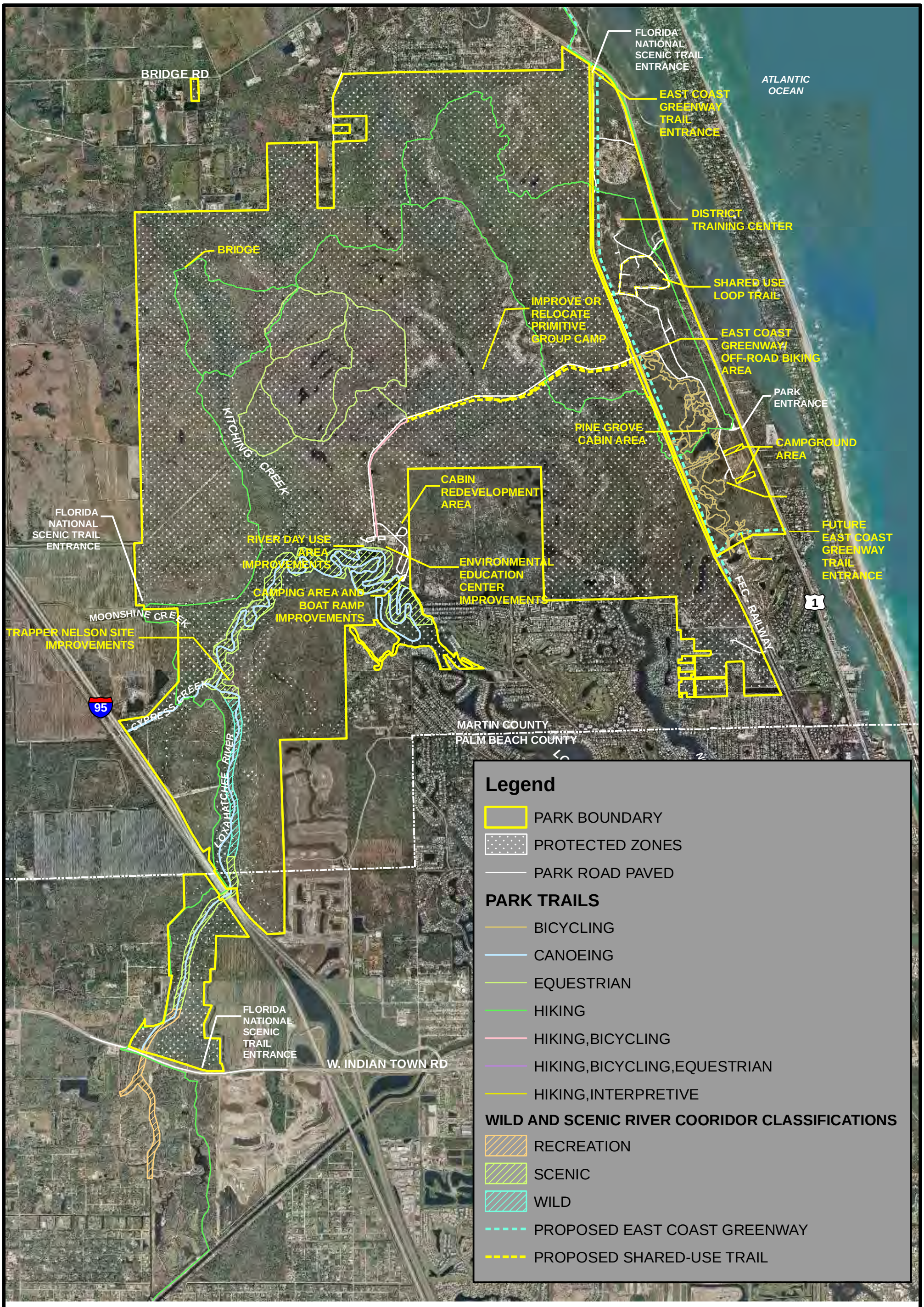
Trapper Nelson Site
Pump house
Storage shed
Volunteer camp sites (2)

Park-wide
Pump houses (2)

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.

During the development of the management plan, the 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.



JONATHAN DICKINSON STATE PARK

CONCEPTUAL LAND USE PLAN

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. New and improved activities and programs are also recommended and discussed below.

Objective: Maintain the park's current recreational carrying capacity of 4,060 users per day.

Located near the most populous metropolis in the southeastern United States, the park provides visitors with opportunities for day-use activities, including water recreation, and access to overnight accommodations, all within outstanding natural settings.

Objective: Expand the park's recreational carrying capacity by 636 users per day.

The anticipated arrival of the East Coast Greenway, the Florida National Scenic Trail and two new shared-use trails, as well as improved overnight accommodation and camping opportunities will provide greater access to the park's resources.

Objective: The DRP in cooperation with Palm Beach County will determine and implement an appropriate carrying capacity for the National Wild and Scenic Loxahatchee River.

There is a need to quantify the collective user impacts at the Jonathan Dickinson State Park and the Riverbend Park located within the "Recreational" portion of the National Wild and Scenic River. Cumulative public access and use within the parks may have a significant influence on the river's designated areas. In cooperation with Palm Beach County, the establishment of a carrying capacity monitoring program is recommended to assess the river's resources and to develop visitor capacities and associated guidelines for development of recreational facilities to meet the public need without causing excessive impacts on the natural and cultural resources.

Objective: Continue to provide 12 interpretive, educational, and recreational programs on a regular basis.

The park's visitors also have access to a full menu of educational programs that address the park's hydrology, fire dependent communities and wildlife identification and behavior. In addition, the park provides educational programs for children tailored for each grade level. The Elsa Kimbell Environmental Education and Research Center offers lectures and digital media dedicated to the unique characteristics and functions that define South Florida's ecosystems.

The park also offers several interpretive programs to park visitors. These programs include guided nature walks and campfire programs led by park staff. The Trapper Nelson Site tour is designed for visitors of all ages. Through the colorful story of Trapper Nelson, visitors can acquire a better understanding of Florida's early tourism industry.

Staff also utilizes outreach forums and special events to address the public's questions and concerns about vital resource management practices. Topics include the prescribed fire program and treatment program for invasive exotic species.

Recreation programs are also available at the park. Programs are developed to improve outdoor skills and related safety skills.

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

The park needs to update and develop seven new interpretive and educational media presentations for visitors. The media will include standard slides and DVDs covering general information about the park's resources and prescribed fire program.

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 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 improved, renovated and new facilities needed to implement the conceptual land use plan for Jonathan Dickinson State Park:

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

Maintaining facilities is an ongoing part of managing the park to provide visitors with a high-quality experience. All capital facilities, trails and roads within the park will be kept in proper condition by park staff and/or contracted help.

Objective: Continue to implement the park's transition plan to ensure facilities are accessible in accordance with the American with Disabilities Act of 1990.

Modifications to existing park facilities will continue as part of the ongoing effort to bring park facilities into compliance with the Americans with Disabilities Act.

Objective: Improve or repair 12 existing facilities and .5 mile of trail.

Major repair projects for park facilities may be accomplished within the 10-year term of this management plan, if funding is made available. The following discussion of other recommended improvements and repairs are organized by use area within the park.

Recreation Facilities

Elsa Kimbell Environmental Education and Research Center. An open-air education pavilion is proposed near the existing stormwater retention area to enhance outdoor learning opportunities at the center. An interpretive trail and elevated boardwalk is also recommended from the center to the river.

Trapper Nelson Site. The site is a cultural resource destination that is accessible by tour boat. A new dock, accessible walkways and interpretive signage introducing visitors to the site are needed to provide improved access for visitors arriving by tour boat. The existing dock should be removed and the new dock constructed in a location that will prevent erosion and protect cultural resources from unauthorized access. A new small restroom is proposed near the docking area and historic site. The new facility will replace the outdated restroom located in the historic bathhouse.

River Day Use Area. The existing outdated combined restroom and picnic pavilion should be replaced with a new medium restroom and two medium picnic pavilions. A barbecue shelter is also recommended to replace the existing deteriorating structure and a new concession building is proposed to replace the existing building.

River Campground Area. A new universally-accessible restroom is currently being built in the River Campground Area in addition to the existing bathhouse. A second bathhouse is recommended to replace the existing structure, relocated to provide campers with closer proximity to the facilities.

Boat Ramp Area. A small restroom is recommended for the boat ramp area. The permanent structure would replace the existing composting restroom and tie into the park's sewer system.

River Cabin Area. The redevelopment of this area may proceed in phases, with interior upgrades and additions to the existing wood frame cabins preceding the construction of the new units discussed below. When redevelopment is complete, the existing eight mobile cabins, the two oldest frame cabins and the staff residence trailers will be removed and the two remaining wood frame cabins will be converted to park or concessionaire residences, for nighttime security.

Group Camping Area. The facilities at the popular group camping area need improvement. New restrooms and utilities may be added to the existing area or the group camp may be relocated to an adjacent site, if necessary, to make the proposed facility improvements. In the event that relocation is necessary, road stabilization and a

wetland crossing to provide access to the new location will be needed. Alternative routes for access that minimize resource impacts will be studied as part of the design process.

Trails. A gateway for the Ocean to Lake Segment of the Florida National Scenic Trail is located at the western boundary of the park, adjacent to Moonshine Creek. An honor box and entrance gate is recommended for this entry point to manage the park's segment of the trail.

A vehicle bridge is recommended on Kitching Creek to expand recreation opportunities for the Florida National Scenic Trail and improve resource management access. The proposed bridge will be located on the trail near the northeastern corner of the park.

Off-road bicycling events held at the park attract large numbers of visitors. The trailhead for the off-road bicycle trail is located in a disturbed area at the intersection of the main park road and the remnants of the Old Dixie Highway. Redevelopment of this existing trailhead is proposed to support the future East Coast Greenway and improve the overall visitor experience. Paved parking for up to 50 vehicles, a small restroom, a medium picnic pavilion and an interpretive kiosk are recommended. DRP will also conduct a trail study of the existing biking trails with regard to visitor use and demand for expanding trail use to shared use.

The 0.5-mile shared-use trail northwest of the Pine Grove Campground is in need of repair. It is recommended that the trail be repaved.

Support Facilities

District Training Center and Park Residence Area. The District and park acquired the structures used for the Short Term Offender Program (STOP) camp after a sublease to the Florida Department of Juvenile Justice expired. The facilities are now used as a FPS District 5 training center and as a residence area. The existing bathhouse cannot be renovated to provide separate male and female facilities. That bathhouse should be designated for men and a bathhouse addition should be constructed at the administration office/kitchen building for women.

A new park staff and volunteer residence area is also recommended for the former STOP Camp site. Three mobile residences should be moved to the abandoned Camp Murphy shop area, facilitating the development of a proposed shared-use loop trail adjacent to the former shop. In order to provide short-term housing for park volunteers and staff, two RV sites and eight mobile units are also recommended to be placed at this site.

River Cabin Area Residences. As mentioned above, two of the existing wood frame cabins in the existing cabin area should be converted to staff residences as part of the proposed redevelopment of the area, discussed below.

Objective: Construct three new facilities and three miles of trail.

Recreation Facilities

Pine Grove Campground Expansion. Up to 60 campsites are recommended to expand the existing family camping area. The additional sites should be located in disturbed areas located immediately north and south of the existing campground. Efforts are underway to improve shade and the visual separation between the Pine Grove Campground sites with native landscape plantings. Similar landscape development will be a necessary component of the proposed expansion project.

River Cabin Area. Redevelopment of the existing cabin area adjacent to the park's river day-use area is recommended. The proposed redevelopment will completely redesign the area to improve the quality of the visitor experience during an overnight stay at the park, improve the privacy provided cabin guests and address the aesthetic impacts of the cabin area on the park's adjacent day-use area.

Up to six new lodging units for overnight accommodation are proposed. These may consist of three duplex cabins, six single cabins or a combination of the two designs. Alternative lodging units that are appropriate to the character and setting of the park may also be considered for the cabin area redevelopment. Locating the new structures further into the adjacent flatwoods and developing a landscape that screens the units from the adjacent visitor center and day use area will serve to improve the natural aesthetic quality of this section of the park.

Sandhill Lake Cabin Area. The development of up to 12 new accommodation units is recommended just northwest of the Pine Grove family camping area, near the park entrance. This area may be developed in phases, and the units may consist of duplex cabins, or other alternative lodging units for overnight accommodation as long as they are appropriate to the character and setting of the park.

Trails. The DRP is working with Martin County to extend the proposed East Coast Greenway shared-use trail through the park on the abandoned Old Dixie Highway right of way. The 10-foot wide paved trail is to be constructed in two phases. Phase I will extend from the park's northeastern boundary with US-1 along the roadbed of the abandoned Old Dixie Highway, leaving that alignment and connecting to the main park drive near the Pine Grove campground. Phase II will extend from the main park drive to the park's southern boundary, where the trail will turn east along the existing perimeter firebreak and connect to US 1 at the park's southern boundary. Two honor boxes will be placed at the trail's proposed park entrances.

To enhance trail opportunities at the park, a 1.8-mile shared-use trail is recommended along the south side of the main park drive. The trail will complete the connection from the Elsa Kimbell Environmental Education and Research Center to the proposed East Coast Greenway. In addition, a 1.25-mile shared-use loop trail and interpretive signs are recommended for biking, hiking and wildlife viewing opportunities within the scrub community at the abandoned Camp Murphy shop area. The proposed trail area will utilize exiting roads and accessed from the East Coast Greenway corridor.

Facilities Development

Preliminary cost estimates for these recommended facilities, improvements are provided in the Ten-Year Implementation Schedule, and Cost Estimates (Table 6) located 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 the 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:

Improved Facilities
Recreation Facilities:

Elsa Kimbell Environmental Education and Research Center
- Education Pavilion
- Interpretive Trail w/boardwalk

Trapper Nelson Site
- Tour boat dock
- Paved walkways
- Small Restroom

River Day Use Area Improvements
- Medium picnic pavilions (2)
- Barbecue pit and shelter
- Medium restroom
- Concession building

River Campground Area
- Small Bathhouse

Boat Ramp Area
- Small restroom

Group Camping Area
- Bathhouse(s) (1 or 2)
- Utilities

Trails
- East Coast Greenway/Off-road
- Biking Area Trailhead
- Parking, paved (50 spaces)
- Small picnic pavilion
- Small restroom
- Kiosk/Interpretive signage

Pine Grove Campground Trail
Shared-use trail, repaving (0.5 miles)

Florida National Scenic Trail
- Entrance gate
- Honor box
- Vehicle bridge

Support Facilities:

District Training Center and Residence Area
Bathhouse addition
Relocate eight mobile units
Two volunteer RV sites

Trapper Nelson Zoo Historic District
New Residence, mobile unit

River Cabin Area
Convert cabins to residences (2)

River Cabin Area Redevelopment
New accommodation units (6)
Roads and parking
Landscape Improvements

Sandhill Lake Cabin Area
New accommodation units (12)
Roads and parking
Utilities
Landscaping

East Coast Greenway
Honor boxes (2)

New Facilities
Recreation Facilities:

Pine Grove Camping Area
Family campsites (60)
Bathhouses (2)
Roads
Utilities

Trails
Shared-use loop trail, stabilized (1.25 miles)
Interpretive signs
Shared-use trail, Main Park Drive (1.8 miles)

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).

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

As additional needs are identified through park use, development, research, and as adjacent land uses change on private properties, modification of the unit's optimum boundary may occur for the enhancement of natural and cultural resources, recreational values and management efficiency.

Identification of lands on the optimum boundary map is solely for planning purposes and not for regulatory purposes. A property's identification on the optimum boundary map is not for use by any party or other government body to reduce or restrict the lawful right of private landowners. Identification on the map does not empower or require any government entity to impose additional or more restrictive environmental land use or zoning regulations. Identification is not to be used as the basis for permit denial or the imposition of permit conditions.

The optimum boundary map reflects lands identified for direct management by the Division as part of the park. These parcels may include public as well as privately owned lands that improve the continuity of existing park lands, provide additional natural and cultural resource protection and/or allow for future expansion of recreational activities.

Lands identified on the optimum boundary map adjacent to the western boundary of the park provide valuable watershed protection; enhance protection of the park and the National Wild and Scenic Northwest Fork of the Loxahatchee River; and allow the public to enjoy the original landscape of this fast-growing area. The northern parcels, lying south of Bridge Road, would extend public ownership from the park to undeveloped parcels north of Bridge Road as identified in the proposed optimum boundary in the approved 2005 Atlantic Ridge Preserve State Park Unit Management Plan (DRP, 2005). A parcel on the southeastern boundary of the park would provide access to staff for resource management. Lands adjacent to Cypress Creek along the southwestern corner of the park would allow a hydrologic greenway connection between the Pal/Mar Florida Forever project and the river. The Beker orange groves west of the optimum boundary would not provide the public with good resource based recreation; however, the Division would be interested in managing these lands if the natural areas and hydrology were restored.

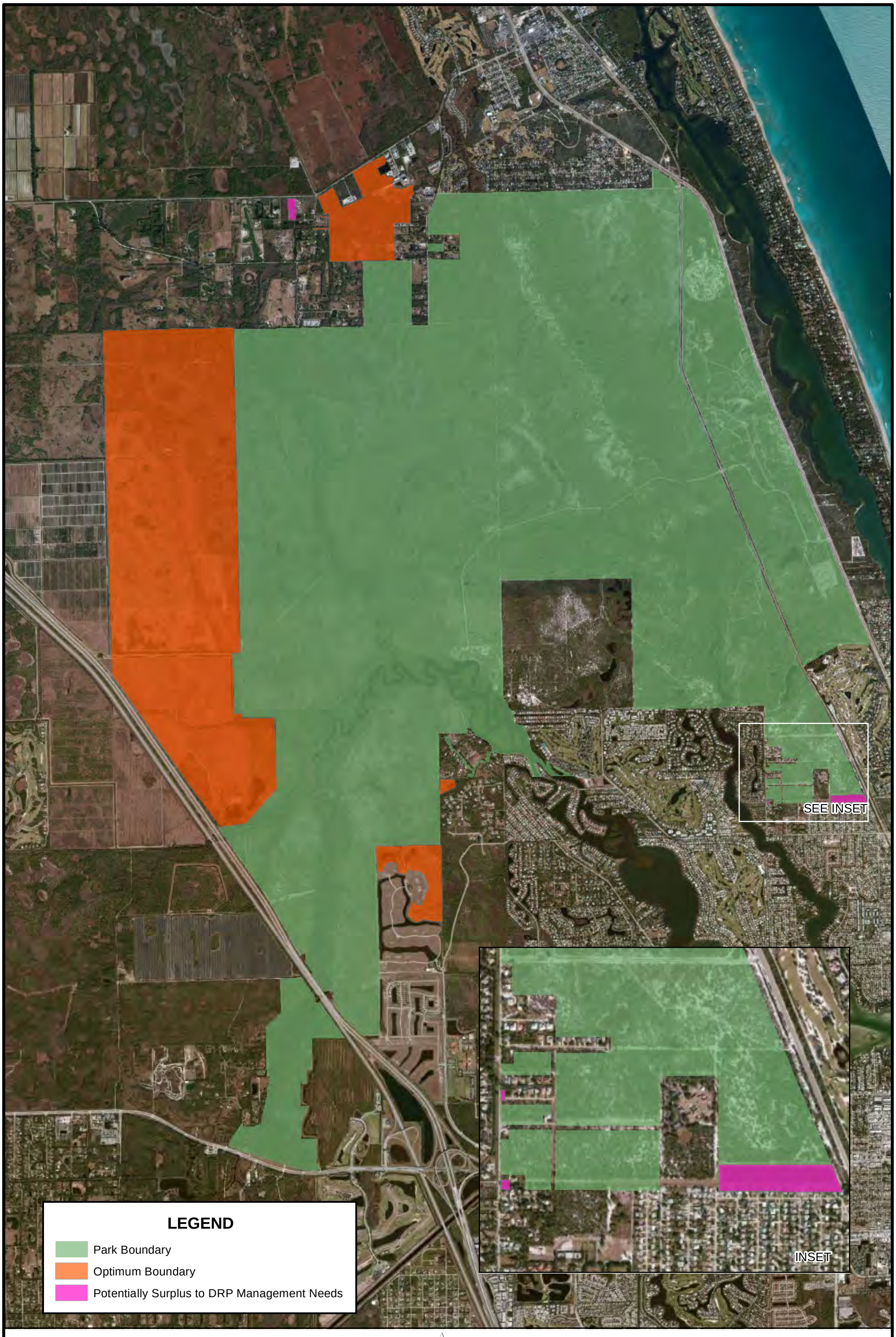
At this time, four parcels are being considered surplus to the management needs of the park. A six-acre parcel located north of the park's boundary on Bridge Road is isolated from the park by development and lands owned by Martin County. Two small isolated parcels adjacent to the park's southern boundary on S.E. County Road are developed, located within residential subdivisions and are not contiguous with the park's boundary. Approximately 11 acres of park land contain a Martin

County easement and stormwater retention pond. This facility is located on the park's southeastern boundary and is maintained by the County.

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**
Visitor Center	60	240	0	0	60	240
Historic District						
Tour Boat	25	100	0	0	25	100
Trails						
Bicycle	130	520	0	0	130	520
Hiking	104	416	0	0	104	416
Shared-use	80	320	30	120	110	440
Camping						
Standard	1,080	1,080	480	480	1,560	1,560
Cabin	72	72	36	36	108	108
Group	60	60	0	0	60	60
Primitive	8	8	0	0	8	8
Equestrian	20	20	0	0	20	20
Picnicking	196	392	0	0	196	392
Swimming	80	160	0	0	80	160
Boating						
Canoe/Kayaking	360	552	0	0	360	552
Boating	60	120	0	0	60	120
TOTAL	2,335	4,060	546	636	2,881	4,696

Note: The fishing facilities are assumed to serve the same recreational user base as the picnic area, therefore, no carrying capacity is determined for them.



JONATHAN DICKINSON STATE PARK

N

0 0.25 0.5 1 Mile

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of Aerial: 2011

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 DRP's 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 Jonathan Dickinson State Park in 2000, significant work has been accomplished and progress made towards meeting the Division's management objectives for the park. These accomplishments fall within three of the five general categories that encompass the mission of the park and the DRP.

Park Administration and Operations

- During fiscal year 2008-09, volunteers contributed 9,494 hours.

Resource Management

Natural Resources

- Over 20,893 acres of park land have been burned at a rate of 1,741 acres per year. The burn backlog has been reduced to approximately 6% or 550 acres. In addition, almost five miles of fire lines have been established and over eight miles of existing fire breaks widened.
- Within ten years, over 16,000 acres of exotic plants have been treated, including 1,700 acres of downy rose myrtle and large stands of Australian pine.
- Within ten years, park staff removed 1,900 nuisance and exotic animals, including 1,556 wild pigs (*Sus scrofa*), 350 Cuban tree frogs (*Osteopilus septentrionalis*) and 85 nine-banded armadillos (*Dasypus novemcinctus mexicanus*).
- In 2000, almost 393 acres of sand pines were harvested.
- Since 2007, 44 resident Florida scrub-jays (*Aphelocoma coerulescens*) have been banded and 33 juveniles documented as a result of the park's participation in the Jay Watch program.
- Within ten years, staff has augmented the park's wild population of dancing lady orchids with approximately 2,000 of these imperiled plants with a survival rate of approximately 40 percent.
- Staff have assisted with hydrological studies and conducted restoration activities, including backfilling three canals that discharged into the Northwest Fork of the Loxahatchee River and backfilling 1.4 miles of ditches to restore sheetflow.

- Within ten years, staff has published six peer-reviewed papers, finalized the 2011 Loxahatchee River Wildlife Utilization Study and significantly contributed to the 2006 Restoration Plan of the Northwest Fork of the Loxahatchee River.

Cultural Resources

- In 2006, Trapper Nelson's Zoo Historic District was designated as a Florida Heritage Site by the Florida Department of State, Division of Historical Resources and placed on the National Register of Historic Places by the National Park Service in 2006.
- Building and landscape surveys were completed for the Trapper Nelson's Zoo Historic District.
- Applications for designation as a Florida Heritage Site and listing on the National Register of Historic Places have been submitted for the Camp Murphy radar operations training base.
- Since 2007, the park's historical and cultural collections have been archived within a temperature-controlled room at the Elsa Kimbell Environmental Education and Research Center.

Recreation and Visitor Services

- The park provides programs that encourage outdoor exploration and fosters an appreciation of the park's natural and cultural resources.
- The Elsa Kimbell Environmental Education and Research Center provides rotating displays and exhibits that highlight different aspects of the park including information about current resource management and research projects.
- The park provides visitors with universally accessible interpretative films, programs and nature walks.
- The park provides environmental education programs to more than 50 regional schools, Boy Scout and Girl Scout groups, and other organizations.

Park Facilities

Recreation Facilities

- After construction in 2007, the Elsa Kimbell Environmental Education and Research Center annually receives 17,000 domestic and international visitors.
- The Pine Grove Campground was redeveloped in 2009 to provide visitors with improved campsites, new roads, electrical upgrades, a large picnic pavilion, and new bathhouses.
- Improvements to the equestrian campsite and trailhead provide users with five additional campsites, a new bathhouse, picnicking facilities, and electrical and water hook-ups.
- Two primitive campsites were constructed adjacent to portions of the Florida National Scenic Trail to provide trail users with alternative overnight accommodations.

- The park constructed an interpretive and wildlife viewing area adjacent to the park's main drive to provide visitors an opportunity to safely observe the resident alligators (*Alligator mississipiensis*).
- Universally accessible docking facilities, walkways, scenic overlook and shoreline access were constructed at the river day-use area.
- The off-road bicycle facility was expanded to include a trailhead parking area and up to five miles of additional trails.
- Renovations were made to the Hobe Mountain Trail and observation tower.
- The riverside swimming area was reopened for visitors in 2003.
- Composting toilets were constructed at three sites, including Masten Dam, boat ramp and primitive youth camp.

Support Facilities

- After the 2005-06 hurricanes, the park removed three damaged buildings from the old shop area and created a new shop area at a vacated office complex.
- New municipal sewer and water services are available at two major use areas within the park.
- The park has widened and resurfaced 3.5 miles of the park's main road.

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. 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 actions have been identified that are unlikely to be carried out during the life of this plan unless additional resources are provided. The ten-year Implementation Schedule and Cost Estimates table therefore includes both "funded" and "unfunded" needs.

The administration of the state park is an ongoing cost that will increase in the future as additional staff, programs and responsibilities are assigned. These administrative costs include a variety of activities, such as the administration of personnel, the management of vendors and contractors for all the park's supply and service needs and the coordination of the park's Citizen Support Organization, to name a few.

The plan's recommended actions, timeframes and cost estimates will guide the Division'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 the Division 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 the Division's annual legislative budget requests. When preparing these annual requests, the Division 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, the Division pursues supplemental sources of funds and staff resources wherever possible, including grants, volunteers and partnerships with other entities. The Division'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
Jonathan Dickinson 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	**$2,780,035**
Objective B	**Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.**	Administrative support expanded	UFN	**$289,013**
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	**Conduct/obtain an assessment of the park's hydrological restoration needs.**	Assessment conducted	LT	**$20,000**
Action 1	Inventory canals and ditches and develop a restoration plan for identified areas.	Plan developed	ST	$5,000
Action 2	Continue to assist SFWMD with the update of the Restoration Plan for the Northwest Fork of the Loxahatchee River.	Cooperation ongoing	LT	$9,000
Action 3	Develop hydrological and restoration plans for Jenkin's Canal and Hobe Grove Canal with various partners.	Plan developed	LT	$6,000
Objective B	**Restore natural hydrological conditions and function to approximately 1,086 acres of wet flatwoods, mesic flatwoods, wet prairie, depression marsh, floodplain swamp and mangrove swamp natural communities.**	# Acres restored or with restoration underway	UFN	**$437,500**
Action 1	Attain permits and fill approximately 2 miles of drainage ditches and small canals to restore 580 acres of 4 natural communities.	# Miles of ditches filled	UFN	$125,000
Action 2	Continue to implement Loxahachee River restoration plans to restore and enhance 496 acres of floodplain swamp.	# Acres restored or with restoration underway	UFN	$10,000
Action 3	Restore natural flows to 10 acres of tidal swamp community.	# Acres restored or with restoration underway	UFN	$282,500
Action 4	Continue to support the efforts of SFWMD, Martin County, Palm Beach County, and other local cooperators in their efforts to restore Kitching Creek and Cypress Creek.	Cooperation ongoing	UFN	$20,000
Objective C	**Monitor and maintain 24 culverts and replace 1 vehicular bridge.**	# of culverts and bridge maintained	LT	**$313,000**
Objective D	**Monitor and analyze water resources in the park.**	Monitoring ongoing	C	**$13,000**
Action 1	Cooperate with SFWMD to identify and cap all old wells within the park.	# Wells identified and capped	LT	$4,000
Action 2	Continue to coordinate with the Loxahachee River District and collect water quality samples at 4 sites.	Monitoring ongoing	C	$9,000
Objective E	**Implement the Division's responsibilities under the Loxahatchee River National Wild and Scenic River Management Plan (2010) and the Loxahatchee River Watershed Action Plan.**	Responsibilities fulfilled or underway	C	**$70,000**

* 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

Table 7
Jonathan Dickinson State Park
Ten-Year Implementation Schedule and Cost Estimates
Sheet 2 of 5

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 7,850 acres of the park maintained within optimal fire return interval.**	# Acres within fire return interval target	LT	**$848,300**
Action 1	Develop/update annual burn plan.	Plan updated	C	$16,000
Action 2	Manage fire dependent communities for ecosystem function, structure and processes by burning between 1,415 to 4,953 acres annually, as identified by the annual burn plan.	Average # acres burned annually	C	$693,000
Action 3	Maintain 42 miles of existing firebreaks.	# Miles maintained	C	$60,000
Action 4	Widen 0.5 mile of existing firebreaks.	# Miles widened	ST	$10,300
Action 5	Establish 2 mile of new firebreaks.	# Miles estabilished	ST	$66,500
Action 6	Update long range prescribed fire and wildfire plan.	Plan updated	ST	$2,500
Objective B	**Conduct natural community restoration activities on 179 acres of mesic hammock, floodplain swamp, wet flatwoods, sandhill, scrubby flatwoods, scrub and ruderal communities.**	# Acres restored or with restoration underway	UFN	**$1,372,500**
Action 1	Conduct natural community restoration activities on 49 acres of mesic hammock and/or floodplain swamp communities.	Plan developed/updated	UFN	$505,000
Action 2	Conduct habitat/natural community restoration activities on 65 acres of wet flatwoods, mesic flatwoods, scrubby flatwoods and scrub communities.	# Acres restored or with improvements underway	UFN	$502,500
Action 3	Conduct habitat/natural community restoration activities on 64 acres of ruderal land and 64 acres of scrub.	# Acres restored or with restoration underway	UFN	$355,000
Action 4	Conduct natural community/habitat improvement activities on 1 acre of mesic flatwoods and sandhill communities by not removing soil.	# Acres improved or with improvements underway	LT	$10,000
Objective C	**Conduct habitat/natural community improvement activities on 60 acres of wet flatwoods, mesic flatwoods, scrubby flatwoods and scrub natural communities.**	# Acres improved or with improvements underway	LT	**$2,000**
Action 1	Conduct natural community/habitat improvement activities on 10 acres of mesic flatwoods, scrubby flatwoods, and scrub communities by consolidating vegetation dump sites in one location.	# Acres improved or with improvements underway	LT	$1,000
Action 2	Conduct natural community improvement activities on 25 acres of scrub and 25 acres of scrubby flatwoods communities in Section 24.	# Acres improved or with improvements underway	LT	$1,000

* 2011 Dollars
ST = actions within 2 years
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UFN = currently unfunded need

Table 7
Jonathan Dickinson State Park
Ten-Year Implementation Schedule and Cost Estimates
Sheet 3 of 5

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.**	List updated	C	**$1,300**
Objective B	**Monitor and document 2 selected imperiled animal species in the park.**	# Species monitored	C	**$45,500**
Action 1	Implement monitoring protocols for 2 selected imperiled animal species including Florida scrub-jay and gopher tortoise.	# Protocols developed	ST	$0
Action 2	Continue to monitor and band Florida scrub jays and monitor the effects of prescribed fire treatments on supporting natural communities.	Monitoring ongoing	C	$41,000
Action 3	Monitor and determine the need for augmentation of gopher tortoises in management zone I and G (SOR property).	Analysis complete	LT	$4,500
Objective C	**Monitor and document 3 selected imperiled plant species in the park.**	# Species monitored	C	**$155,000**
Action 1	Develop monitoring protocols for 3 selected imperiled plant species including perforated reindeer lichen, dancing lady orchid, and four petal paw paw.	# Protocols developed	ST	$15,000
Action 2	Implement monitoring protocols for 3 including those listed in Action 1 above.	# Species monitored	C	$85,000
Action 3	Augment populations of 2 imperiled plant species, including perforated reindeer lichen and dancing lady orchids.	# Species augmented	LT	$55,000
Objective D	**Re-introduce red-cockaded woodpeckers into the park, if feasible.**	# Individuals introduced or translocated, etc.	UFN	**$360,000**
Action 1	Evaluate potential to re-introduce red-cockaded woodpeckers into the park with the assistance of FWC.	Project completed	UFN	$25,000
Action 2	If the potential exists, implement re-introduction of red-cockaded woodpeckers.	Project implemented	UFN	$335,000
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 1000 acres of exotic plant species in the park.**	# Acres treated	UFN	**$3,500,000**
Action 1	Update the annual work plan and annually treat 100 acres.	# Acres treated	C	$350,000
Action 2	Continue to annually treat an additional 900 acres.	# Acres treated	UFN	$3,150,000
Objective B	**Implement control measures on 8 exotic animal species in the park.**	# Species for which control measures implemented	C	**$200,000**
Action 2	Continue to remove 8 exotic species from the park, including feral hogs, nine banded armadillos, coyotes, iguanas, non-native mallards, feral cats and feral dogs.	# Animals removed	C	$200,000

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Table 7
Jonathan Dickinson State Park
Ten-Year Implementation Schedule and Cost Estimates
Sheet 4 of 5

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 32 of 68 recorded cultural resources in the park.**	Documentation complete	LT	**$38,000**
Objective B	**Compile reliable documentation for all recorded historic and archaeological sites.**	Documentation complete	LT	**$269,400**
Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.	# Sites recorded or updated	ST	$11,000
Action 2	Complete a predictive model for high, medium and low probability of locating archaeological sites within the park.	Probability Map completed	UFN	$46,000
Action 3	Conduct Level 1 archaeological survey for 15 priority areas.	Survey completed	UFN	$205,000
Action 4	Develop and adopt a Scope of Collections Statement.	Document completed	ST	$2,000
Action 5	Conduct oral history interviews.	Interviews complete	UFN	$5,400
Objective C	**Bring 4 of 68 recorded cultural resources into good condition.**	# Sites in good condition	UFN	**$282,200**
Action 1	Design and implement regular monitoring programs for 64 cultural sites	# Sites monitored	C	$2,200
Action 2	Create and implement a cyclical maintenance program for each cultural resource.	Programs implemented	UFN	$280,000
Objective D	**Write a master plan for Camp Murphy structures and ruins to determine what needs to be protected and what needs to be removed.**	Plan completed	UFN	**$8,000**
Objective E	**Objective: Implement the Historic Structures Report for the Trapper Nelson Interpretive Site (2004) plan for Trapper Nelson Zoo Historic District (MT01449).**	Plan implemented	UFN	**$1,010,000**

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Table 7
Jonathan Dickinson State Park
Ten-Year Implementation Schedule and Cost Estimates
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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 4,060 users per day.**	# Recreation/visitor	C	**$2,780,034**
Objective B	**Expand the park's recreational carrying capacity by 636 users per day.**	# Recreation/visitor	UFN	**$290,000**
Action 1	Develop 2 new shared-use trails and trailhead parking opportunities for the East Coast Greenway.	# Recreation/visitor opportunities per day	UFN	$290,000
Objective C	**The Division, in cooperation with Palm Beach County, will determine and implement an appropriate carrying capacity for the Loxahatchee National Wild and Scenic River.**	Carrying capacity implemented	UFN	**$25,000**
Objective D	**Continue to provide the current repertoire of 12 interpretive, educational and recreational programs on a regular basis.**	# Interpretive/education programs	C	**$220,000**
Objective E	**Develop 7 new interpretive and educational programs.**	# Interpretive/education programs	UFN	**$148,000**
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	**$3,113,639**
Objective B	**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	UFN	**$1,200,000**
Objective C	**Improve and/or repair 12 existing facilities and .5 mile of trail as identified in the Land Use Component.**	# Facilities/Miles of Trail/Miles of Road	UFN	**$2,480,000**
Objective D	**Construct 3 new facilities and 3 miles of trail.**	# Facilities/Miles of Trail/Miles of Road	UFN	**$9,940,000**
Objective E	**Expand maintenance activities as existing facilities are improved and new facilities are developed.**	Facilities maintained	UFN	**$323,702**

Summary of Estimated Costs		
Management Categories		**Total Estimated Manpower and Expense Cost* (10-years)**
Resource Management		**$8,945,700**
Administration and Support		**$3,069,048**
Capital Improvements		**$17,057,341**
Recreation Visitor Services		**$3,463,034**
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.	

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Addendum 1 — Acquisition History

Sequence of Acquisition

Jonathan Dickinson State Park was acquired on June 9, 1947, to protect, develop, operate and maintain the property for public outdoor recreational, park, conservation, historic and related purposes.

The property was purchased from the Federal Farm Mortgage Corporation, which was acting on behalf of the United States of America, for $45,000 using "Old Money." Since the initial purchase, additional parcels were acquired through the abandonment of a public right-of-way, through dedication and donation, under P2000/Acquisition and Inholdings program and through a management agreement with the South Florida Water Management District (SFWMD). Acquisition of the SFWMD portion of the park was through the Save Our Rivers acquisition program.

Lease Agreements

On January 23, 1968, the Board of Trustees of the Internal Improvement Trust Fund (Trustees) conveyed management authority of the park to the Division of Recreation and Parks (Division) under Lease No. 3628 for a period of ninety-nine (99) years and will expire on January 23, 2067. According to this lease agreement with the Trustees, the property must be used for public outdoor recreation and related purposes.

The SFWMD management agreement with the Department of Environmental Protection (Department) stipulates that the purpose of the agreement is to promote the restoration, protection and enhancement of the water resources and related environmental values of the Loxahatchee National Wild and Scenic River. This management agreement was entered into on February 15, 1990 and is for a period of twenty-five (25) years. Currently the park contains 11,458.68 acres.

Title Interest

The Board of Trustees of the Internal Improvement Trust Fund (Trustees) and the SFWMD hold fee simple title to Jonathan Dickinson State Park.

Special Conditions on Use

Jonathan Dickinson State Park is designated single-use to provide public outdoor recreation and other park related uses. Uses such as water resource development projects, water supply projects, storm-water 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.

Outstanding Reservations

Following is a listing of encumbrances that apply to Jonathan Dickinson State Park.

Type of Instrument: Corrective Easement No. 26358
Instrument Grantor: Board of Trustees of the Internal Improvement Trust Fund of the State of Florida
Instrument Grantee: Virgil Sprague and Tony Raich
Beginning Date: January 16, 2007
Ending Date: January 15, 2057
Encumbrance: This non-exclusive easement grants to the grantee the right to construct and maintain a non-asphalt, non-concrete road or with no other paving materials on a certain portion of Jonathan Dickinson State Park. The easement reverts if the grantee gets another access or fails to use the land for the intended purpose.

Instrument: Extension of Sublease
Sublessor: Division of Recreation and Parks
Sublessee: United States Coast Guard
Beginning Date: October 1, 2007
Ending Date: September 30, 2012
Encumbrance: The original sublease, which expired on September 30, 2007, allowed U.S. Department of Transportation's Coast Guard to use a portion of Jonathan Dickinson State Park as an electronic aid navigation station along with other related uses necessary for accomplishment of this purpose. DRP has extended this sublease through September 30, 2012 by a letter dated September 25, 2007.

Instrument: .....Easement No. 31410
Instrument Grantor:.....Board of Trustees of the Internal Improvement Trust Fund of the State of Florida
Instrument Grantee: .....Martin County, Florida
Beginning Date:.....June 28, 2005
Ending Date:.....June 27, 2055
Encumbrance:.....The easement grants the county the right to install and maintain flowage easement upon and across a certain portion of Jonathan Dickinson State Park.

Instrument: .....Easement No. 30600
Instrument Grantor:.....Trustees
Instrument Grantee: .....Jupiter Hills Home Owners Association, Inc.
Beginning Date:.....August 7, 2000
Ending Date:.....August 6, 2050
Encumbrance:.....This easement grants the right of access to the grantee across a certain portion of Jonathan Dickinson State Park.

Type of Instrument: .....Easement No. 29480
Instrument Grantor:.....Board of Trustees of the Internal Improvement Trust Fund of the State of Florida
Instrument Grantee: .....Florida Power & Light Company
Beginning Date:.....July 6, 1995
Ending Date:.....July 5, 2045
Encumbrance:.....This easement grants a ten-foot wide aerial sway area upon and across a portion of Jonathan Dickinson State Park.

Type of Instrument: .....Supplemental Agreement 1 to Lease No. DACA01-5-79-323 for a portion Jonathan Dickinson State Park in Martin County dated December 22, 1978
Instrument Grantor:.....State of Florida
Instrument Grantee:.....United States of America
Beginning Date: .....October 25, 1984
Ending Date: .....October 24, 2034
Encumbrance: .....The agreement enables the United States of America to construct, install, operate and maintain communication facilities on a portion of Jonathan Dickinson State Park in Martin County, Florida.

Type of Instrument: ..... Revocable Permit
Instrument Grantor: ..... Florida Board of Parks and Historic Memorials
Instrument Grantee: ..... The Palm Glades Girls Scout Council, Inc.
Beginning Date: ..... October 1, 1956
Ending Date: ..... No ending date as long as the property is used for intended purpose.
Encumbrance: ..... The permit allows formerly Palm Glades Girl Scout Council, Inc., now Girls Scouts of Southeast Florida, Inc. as of May 22, 2009, to occupy a portion of Jonathan Dickinson State Park for education, recreation and physical development of scouts.

Type of Instrument: ..... Deed
Instrument Grantor: ..... Executors of Last Will and Testament of Vince Nelson
Instrument Grantee: ..... The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida
Beginning Date: ..... March 27, 1969
Ending Date: ..... Forever
Encumbrance: ..... The deed is subject to s certain perpetual easement to owners of land as recorded in book 48, page 111 and a certain roadway easement as recorded in book 52, page177.

Addendum 2—Advisory Group Members and Report

Jonathan Dickinson State Park Advisory Group Members and Report

Local Government Representatives

The Honorable Patrick Hayes, District 3
Martin County Board of
County Commissioners
2401 Southeast Monterey Road
Stuart, Florida 34996

The Honorable Karen Marcus, Chair
Palm Beach County Board of
County Commissioners
301North Olive Avenue, Suite 1201
West Palm Beach, FL 33401

Richard Gittings, Chair
Martin County Soil and Water
Conservation District
2401 Southeast Monterey Road
Stuart, Florida 34996

Eva Webb, Chair
Palm Beach County Soil and Water
Conservation District
420 South State Road 7
Suite 162
Royal Palm Beach, Florida 33414

Representative:
Melanie Peterson, Vice President
P.O. Box 480653
Del Ray Beach, Florida 33448

Agency Representatives

Mark Nelson, Manager
Jonathan Dickinson State Park
16450 Southeast Federal Highway

Bill Miller, Manager
Hobe Sound National Wildlife Refuge
Post Office Box 645
13640 Southeast Federal Highway
Hobe Sound, Florida 33455

Richard Burst
Hobe Sound National Wildlife Refuge
Post Office Box 645
13640 Southeast Federal Highway
Hobe Sound, Florida 33455

James Rath, Manager
Florida Division of Forestry
Okeechobee District
Florida Forest Service
5200 Highway 441 North
Okeechobee, Florida 34972-8697
Main: (863) 462-5160

Joe DeBree III, Forest Area Supervisor
Florida Division of Forestry
Okeechobee District
Florida Forest Service
5058 Southwest Citrus Boulevard
Palm City, Florida 34990

Chuck Collins
Florida Fish and Wildlife
Conservation Commission
8535 Northlake Boulevard
West Palm Beach, Florida 33412

Representative:
Ricardo Zambrano
1621 North M Street
Lake Worth, Florida 33460

Bert Trammell,
Supervising Land Manager
South Florida Water Management District
Dupuis Preserve
23500 Kanner Highway
Canal Point, Florida 33438

Representative:
James Schuette
South Florida Water Management District
Dupuis Preserve
23500 Kanner Highway
Canal Point, Florida 33438

Dr. D. Albrey Arrington,
Executive Director
Loxahatchee River District
2500 Jupiter Park Drive
Jupiter, Florida 33458

Chad Kennedy, Chair

Loxahatchee River Management
Coordinating Council
3301 Gun Club Road
West Palm Beach, Florida 33401

Environmental and Conservation Representatives

Ricardo Zambrano, Chair
Sierra Club Loxahatchee Group
1621 North M Street
Lake Worth, Florida 33460

Representative:
Lisa Hanley
1621 North M Street
Lake Worth, Florida 33460

Brenda Mills, President
Florida Native Plant Society,
Palm Beach County Chapter
159 Gregory Road
West Palm Beach, Florida 33405

Lisa Fiore, Executive Director
Audubon of Martin County
621 SE Palm Beach Road
Stuart, Florida 34994

Representative:
Jack Horniman
Audubon of Martin County
621 SE Palm Beach Road
Stuart, Florida 34994

Recreational User Representatives

Cindy McHeran,
Vice President of Operations
Girl Scouts of Southeast Florida
1224 West Indiantown Road
Jupiter, Florida 33458

Bill Meyers
Club Scrub (Bicycle Club)
15389 85th Way N
Palm Beach Gardens, Florida 33418

Bea Rogers
Florida Trails Association,
Loxahatchee Chapter
3328 Plaza Place
Lantana, Florida 33462

Bill Meyers
Club Scrub (Bicycle Club)
15389 85th Way N
Palm Beach Gardens, Florida 33418

Adjacent Landowner

Dr. Peter Merritt
8558 Southeast Sharon Street
Hobe Sound, Florida 33455

Citizen Support Organization Representative

David Nickerson
Friends of Jonathan Dickinson State Park
Jonathan Dickinson State Park
16450 Southeast Federal Highway
Hobe Sound, Florida 33455

The Advisory Group meeting to review the proposed land management plan for Jonathan Dickinson State Park was held at the Kimbell Environmental Education and Research Center located at park on January 12, 2012 at 9:00 a.m.

Melanie Peterson represented Eva Webb. Joe DeBree III represented James Rath. Richard Brust represented Bill Miller. James Schuette represented Bert Trammell. Ricardo Zambrano (Florida Fish and Wildlife Conservation Commission) represented Chuck Collins. Jack Horniman represented Lisa Fiore. Lisa Hanley (Sierra Club Loxahatchee Group) represented Ricardo Zambrano. The Honorable Karen Marcus (Palm Beach County Board of County Commissioners) was not in attendance. All other appointed Advisory Group members were present as well as Dean Drake (Florida Trails Association). Attending staff were Paul Rice, Mark Nelson, Rob Rossmanith and Jillaine (Jill) Owens.

Jill Owens began the meeting by explaining the purpose of the Advisory Group and reviewing the meeting agenda. She provided a brief overview of the Division's planning process and summarized public 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 plans.

Summary of Advisory Group Comments

Ms. Cindy McHeran (Girl Scouts of Southeast Florida) provided support for the park and appreciation for the good working relationship the Girl Scouts have with the Division. Ms. McHeran requested park staff work towards reducing fuel loads on lands leased by the Girl Scouts, which provides camping for 5000 campers per year. Mr. Rob Rossmanith and Mr. Nelson said that park staff would continue ongoing prescribed burns in the remaining areas that need treatment and cleared around facilities with firebreaks by the Girl Scouts.

Mr. Joe DeBree III (Florida Forest Service) encouraged the park to continue using prescribed burns for resource management. Mr. DeBree said the plan was good and had no further recommendations or comments.

Dr. Peter Merritt (Adjacent Landowner) said the plan was good and complimented staff on their management of prescribed burns and recommended the park continue to provide good communication with residents in adjacent areas. He requested clarification regarding the plan's recommendation of locating honor boxes at the park's entry points for visitors using the regional trails. He encouraged staff to include adjacent natural communities on the Natural Communities Map to illustrate connectivity. Mr. Nelson located the three proposed entry points that would contain honor boxes, which are not indicated in the plan. Ms. Owens said two honor boxes will be added to the plan's text. Mr. Rossmanith explained that the Natural Communities

Map is also part of the park's inventory of natural communities as it relates to the management plan. Mr. Rossmanith also explained the purpose of management zones and the reason lines on the Management Zones Map differ from those on the Natural Community Map in response to a follow-up question by Dr. Arrington.

Mr. James (Jim) Schuette (South Florida Water Management District) supported the plan's recommendation for increasing the use of prescribed burning during wetter summer months to improve restoration efforts and limit tree mortality. He said he would like the burn plan to be included in the plan as an appendix. He asked why 100% of the park's fire maintained acreage was not recommended for the optimum fire return interval during the plan's 10-year cycle. He also inquired why large open lands north of Bridge Road were not included in the proposed optimum boundary. Mr. Schuette wanted to know what archeological resources were available to staff for resource management. Mr. Rossmanith explained that the plan focused on management goals, objectives and actions and the public could request a copy of the park's comprehensive burn plan, which is referred to in the management plan. Mr. Rossmanith stated that the Division of Recreation and Parks (DRP) always strives to maintain 100% of the park's burn zones within the fire return intervals, however, a minimum acreage number was proposed due to unforeseen conditions and available funding. Mr. Nelson identified the archeological resources available to staff that included the Division of Historical Resources, the Division's Bureau of Natural and Cultural Resources and qualified park staff with Archaeological Resource Management (ARM) training. Mr. Nelson identified lands north of Bridge Road as parcels within the Atlantic Ridge State Park's Optimum Boundary. He also identified proposed parcels for acquisition, including a small parcel needed to access southern lands and identified surplus of parcels that did not meet the management needs of the park. In response to a follow-up question, Mr. Nelson explained that South Florida Water Management District's unfunded Save Our River (SOR) lands will continue to be included within the park's boundary in anticipation of future funding for land management by DRP staff.

Mr. Ricardo Zambrano (Florida Fish and Wildlife Conservation Commission) recommended thinning snags to improve available Florida scrub-jay habitat and developing a plan for wildlife crossings under the S.E. Federal Highway (US-1) in an effort to decrease gopher tortoise mortality. He said he was concerned that visitors were feeding sandhill cranes and that providing further education to the public would protect the birds. Mr. Zambrano said lands identified as possible recipient sites for the reintroduce of red cockaded woodpeckers were not large enough and were isolated to support the species. He encouraged the removal of the bypass ditch to restore hydrological flows to Moonshine Creek and complimented staff on the accomplishments of the park's burn program. Mr. Zambrano inquired about the status of the LORAN tower and said he was concerned that the tower's guide wires are a hazard for birds. Mr. Rossmanith clarified that staff was studying the feasibility of reintroducing the red cockaded woodpecker. Mr. Rossmanith said that future land

connections between the park and the Atlantic Ridge State Park combined with habitat restoration could make the reintroduction of the species feasible. Paul Rice stated that the Coast Guard's intentions are to vacate the LORAN tower's property and that the agency and the DRP were currently exploring the least disruptive strategies to remove the tower. Mark explained restoration strategies for Moonshine Creek and said plans included bypassing the drainage canal and reintroducing the floodplain within park lands. He said the restoration would also provide wildlife corridors to the park.

Ms. Bea Rogers (Florida Trails Association) stated the mission of the FTA and expressed concern that portions of the 24 miles of trails originally designated for hiking were being transformed into shared-use trails. She explained that right-of-way conflicts between hikers, bikers and horseback riders occur at "pinch points" (where different trail types combine) because not all trail users are aware of trail protocols. She said the remote hiking experience is lost when pedestrians need to avoid collisions with bicycles and horses and that the association would like the Ocean to Lake Trail maintained as a footpath. Ms. Rogers said that trail signs needed to incorporate the type of trail into the trail's name when separate trails had identical names. She wanted staff to clarify the purpose of the Wilderness Preserve and requested corrections to the Base Map regarding trail types and the inclusion of the Wilderness Preserve hatching in the legend. Ms. Rogers and Mr. Nelson recognized that obtaining an agreement with FEC for trail crossings along the railroad corridor has not been successful in the past and that all trail crossings will continue to be limited to the park's main road crossing. Mr. Rossmanith explained that the Wilderness Preserve is a protected zone that is managed as a primitive area with limited facilities and that DRP is currently unifying the term/definition of the designation for future planning and resource management. Ms. Rogers asked about the plan's referenced paddling take-out point located on the Loxahatchee River. Mr. Nelson said the facility does not exist and will removed from the document.

Ms. Lisa Hanley (Sierra Club Loxahatchee Group) Ms. Hanley liked the plan and supports the park's prescribed burning efforts. She inquired about the affects the proposed bridge's might have on the Wilderness Preserve. Ms. Hanley requested that Table 7 (Ten-Year Implementation Schedule and Cost Estimates) projects listed as unfunded be prioritized. She also requested restoration and exotic control goals and objectives be given priority over increased carrying capacities, specifically over additional lodging. Mr. Nelson explained that the bridge will provide better access for resource management and trail users, but will be a pinch point for foot trails and shared-use trails. Mr. Rossmanith said that prioritizing projects within Table 7 was not possible due to the unknown availability of funding sources.

Mr. Bill Meyers (Club Scrub) Mr. Meyers stated he liked the plan's proposals supports the new shared-use trailhead. He requested a breakdown of facility costs in Table 7 and an additional parking area for the proposed loop trail due to overflow parking concerns

during biannual special biking events at the park. Mr. Meyers said he would like the park to expand the shared-use trail system and suggested converting designated biking trails due to the increasing interest in cross training at the park. He said he asked that recreation be expanded with a disc course for trail users in disturbed areas adjacent to the proposed loop trail. Mr. Rice stated that the park would manage biannual-event parking as needed and construction of additional parking was unnecessary. Mr. Nelson indicated that previously disturbed areas adjacent to the existing parking area would be considered for additional stabilized parking. Mr. Rice said that the River Day Use Area is being considered for a disc course due to the greater potential for demand and use.

Dr. Anne Cox (Florida Native Plant Society) said she would like the management plan's maps referenced and scientific documentation provided in the plan to provide researchers with improved clarification of the District's research materials. She commended the park for providing environmental programs to the local educational system. Dr. Cox requested additional outdoor programming at the nature center. She said she is concerned about the expansion of cabin areas within disturbed areas of rare scrub habitat and requested that preservation and restoration take precedence. She suggested alternative sites, including flatwoods and would like to work with the park with locating the sites. Mr. Nelson stated that DRP considered all of the park's lands and continues active restoration of disturbed areas within the scrub community while providing public access. Mr. Rossmanith identified the proposed lodging area's proximity to existing infrastructure as a better alternative to constructing infrastructure in undisturbed areas. Ms. Owens acknowledged the park's rare scrub habitat as regionally important and explained that the park's collection of sixteen contiguous communities and linking ecotones are also regionally unique and rare.

Mr. Richard Burst (Hobe Sound National Wildlife Refuge) Mr. Burst said that U.S. Fish and Wildlife Service would continue their partnership with the DRP, including prescribed fire coordination and related imperiled species management. He inquired if park staff collected road kill data and consulted with the U.S. Fish and Wildlife Service on the management of imperiled species in addition to identifying increasing threats. He inquired if the park had incorporated the use of green energy technology. Mr. Rossmanith confirmed that staff will develop a plan for the management of imperiled species, as stated in draft management plan, and that a nominal number of species are monitored due to DRP's use of systems management. He stated that DRP will share the proposed plan with the agency and that Federal and State staff often collaborate on special projects. Mr. Nelson stated the park has an ongoing collection of US-1 road kill data to support the development of a wildlife connection between the refuge and the park. He also announced the recent installation of solar panels to augment electrical use at the nature center.

The Honorable Patrick Hayes (Martin County Board of County Commissioners) stated that he previously provided comments at the Public Workshop that included his

support for improved trail connectivity between county and park trails and to remote areas within the park. Commissioner Hayes said he supported the plan and had no further comments and that working with DRP has been a good experience.

Dr. Albrey Arrington (Loxahatchee River District) would like the plan to be available in web-accessible formats and suggested the DRP publish in Wikipedia and Google Earth to provide wider access to the park's data and management needs for research, education and recreation purposes. Dr. Arrington suggested that scientific names be included in tandem with common names throughout the document for improved electronic-search and web readership. He asked that the DRP consider an additional table (Table 8) to sort goals and objectives identified in Table 7 by timeframe and priority for a chronological perspective. He suggested restoring firebreaks to grade and be planted with low vegetation similar in height as plants located under the LORAN Tower. He inquired if the park used spatial and post burn data to determine the effectiveness of the park's resource management methods. Regarding hydrology, Dr. Arrington identified multiple factors contributing to the increased salinity of the Loxahatchee River other than the opening of the Jupiter Inlet and suggested updating the document for better accuracy of terms and contributing factors. Dr. Arrington supported the Division's policy of "use" for reconnecting people to nature and requested that the balanced approach be maintained. With regard to impacts of firebreaks, Mr. Rossmanith said leveling plow lines often compounds problems and that staff will continue to monitor these areas to determine the best approach. He said spatial data, measurement of vegetation, and species counts are used by staff to determine the effectiveness of resource management strategies and required adjustments. Mr. Nelson added that the park actively assesses each burn's impacts on resources as part of the Division's systems approach to resource management. Mr. Rossmanith said names of species and hydrological information corrections would be included within the revised plan.

Mr. Richard Gettings (Martin County Soil and Water Conservation District) stated that he liked the plan and requested an electronic copy. He stated that the Conservation District would like to be a resource and provide educational programs to the park that provide information about sustainable land use and farming and alternative forms of energy.

Mr. Chad Kennedy (Loxahatchee River Management Coordinating Council) stated that he would like the plan to address noise pollution of the surrounding major transportation corridors and buffering strategies. He had concerns about the widening of I-95 and requested the plan include a discussion that addresses wildlife corridors and wildlife railroad crossing areas. Mr. Kennedy inquired about post-burn data feedback and would like the data included in the plan's addenda. He also asked if the park burns into the river plane as illustrated on the Management Zones Map. He suggested providing the public with reference names to in depth studies and scholastic research,

which addresses the park's resources. Mr. Kennedy requested the plan to include language that identifies the Optimum Boundary for the Atlantic Ridge State Park due to the confusion over excluded parcels of large undeveloped areas north of Bridge Road. With regard to administration and operations, Mr. Kennedy would like expanded language about current and future volunteer labor and wanted the plan to contain an equipment inventory that identifies future needs. He said the plan should provide the public with more information about the cooperative efforts between government agencies and other groups. Mr. Rossmanith acknowledged Mr. Kennedy's comments and explained the overlay of management zones over natural communities. He also confirmed that the park does burn into wetlands during wetter months. Mr. Rossmanith said gave examples of two imperiled species projects that evaluated management measures. Ms. Owens said the exclusion of information with regard to the Atlantic Ridge State Park also led to confusion at the Public Workshop and edits would be included in the updated plan for clarification.

Mr. Dave Nickerson (Friends of Jonathan Dickinson State Park) explained the volunteer role of the non-profit organization. He requested two corrections, including the identification of the adjacent aquatic preserve. He also asked the plan be edited to acknowledge headwaters occurring outside the park's boundary.

Ms. Melanie Peterson (Palm Beach County Soil and Water Conservation District) supported the plan and identified the Conservation District as a resource for the park. Ms. Peterson said the District is prepared to assist the park with public relations and outreach to further the park's prescribed burn program. She expressed concern with respect to local ordinances that do not hold owners of undeveloped parcels responsible for exotic plant infestations particularly private properties adjacent to conservation areas. She said the public should be educated regarding the correlation between irresponsible property stewardship and the wasteful use of pubic tax money. Ms. Peterson requested the plan include justifications for the Division's optimum boundary acquisitions. She also requested that public lands be open to equestrian coyote hunts. Ms. Peterson explained that the use of dogs is more efficient than shooting because the practice does not increase pressure on female coyotes to breed.

Mr. Jack Horniman (Audubon of Martin County) Due to overlapping meetings, Mr. Horniman excused himself from the Advisory Group and Mr. Rossmanith read his comments to the members: Mr. Horniman recommended collaboration between agencies be included as a goal and objective in the proposed plan. He also requested a detailed breakdown of facility costs identified on Sheet 5 in Table 7.

Summary of Written Comments

Ms. Cindy McHeran (Girl Scouts of Southeast Florida) provided written comments. She identified the Girl Scouts long-standing and good relationship with the Park and finds

the respective missions compatible. She cited the revocable permit that has been honored since 1956 with the provision that the lease will remain in effect "so long as the lands are devoted to and used for the purposes herein designated". She identified Section 14 as an area of concern because they have not been treated with prescribed burns for over the 35 years and carry a heavy fuel load following the 2004 and 2005 hurricane seasons. She stated that the Girl Scouts understand and accept the liabilities associated with prescribed burning and would like to see progress made in this area.

Chad Kennedy and Dianne Hughes (Loxahatchee River Management Coordinating Council) provided written comments. He identified corrections in the Base, Vicinity and Reference maps in addition to minor editorial changes. They requested brief narratives addressing buffers to reduce traffic noise adjacent to US-1 and I-95, additional wildlife and recreational railroad crossings, the discontinued SFWMD lease and more information regarding the Wilderness Preserve. They also requested additional information regarding park administration and operations, including management of volunteer work. They also requested edits to the Table 7, including minor edits and the additional reference to concerning protection of the Loxahatchee River's riparian areas adjacent to use areas.

Staff Recommendations

The staff recommends approval of the proposed management plans for Jonathan Dickinson State Park as presented, with the following significant changes:

Staff will include additional sources of increased salinity within the Loxahatchee River as discussed in the Resource Management Component (RMC). The Loxahatchee River-Lake Worth Creek Aquatic Preserve will be identified in the plan's Introduction section and Reference Map. Information will be added to the park's Land Use Component (LUC) to clarify DRP's discussion for excluding open lands north of Bridge Road that are currently identified within Atlantic Ridge State Park Optimum Boundary. The Vicinity Map will be edited to reflect updated County managed lands. Two additional honor boxes will be proposed in the LUC at the northern and southern park entry points of the East Coast Greenway and shown in the Conceptual Land Use Plan map. Identification of secondary canoe/kayak access points located at the Lainhart Dam and Masten Dam will be removed from the LUC. Staff does not recommend recreational hunting in the park to be consistent with current DRP policy for other parks.

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. The Division'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 Division of Recreation and Parks staff.

Addendum 3—References Cited

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Addendum 4—Soil Descriptions

(2) Anclote Fine Sand - The Anclote series consists of very deep, very poorly drained, rapidly permeable soils in depressions, poorly defined drainage ways, and flood plains. They formed in thick beds of sandy marine sediments. Slopes range from 0 to 1 percent.

Depth of sand is 60 inches or more. The surface layer has shades of gray or pockets of sand not coated with organic matter. Texture is sand, fine sand, loamy sand, and loamy fine sand or their mucky analogs.

(4) Waveland Sand - This nearly level soil is poorly drained. It is in broad areas of flatwoods. Slopes are dominantly smooth and range from 0 to 2 percent.

Typically, the surface layer is dark gray sand. The subsurface layer is light gray and grayish brown. The subsoil begins at a depth of 43 inches. The upper 4 inches of the subsoil is black sand and is not cemented. The next 30 inches is weakly cemented, black and dark reddish brown loamy sand. The next 14 inches is loose black sand, and below that is dark brown sand.

(5) Waveland and Lawnwood Fine Sands, Depression - This poorly drained soil is in depressions in the flatwoods. Slopes are smooth to concave and range from 0 to 2 percent.

Typically, the surface layer is very dray gray sand. The subsurface layer is gray, light gray, and light brownish gray sand to a depth of 48 inches. The subsoil is black, weakly cemented sand and noncemented, dark reddish brown sand. Below this is brown sand to a depth of 80 inches or more.

(6) Paola Sand, 0-8 percent slopes - This nearly level to sloping soil is excessively drained. It is on the coastal ridge and isolated knolls in coastal areas. Areas are many hundreds of acres in size. Slopes are smooth to convex.

Typically, the surface layer is gray sand. The subsurface layer is white sand. Below this is yellowish brown and brownish yellow sand to a depth of 80 inches or more.

(6P) Basinger Fine Sand- The Basinger soils are poorly drained. Typically, the surface layer is very dray gray fine sand about 6 inches thick. The subsurface layer is fine sand to a depth of about 28 inches; the upper 6 inches of the subsurface layer is grayish brown, and the lower 16 inches is light brownish gray. The subsoil is dark grayish brown fine sand to a depth of about 42 inches and has pockets of very dark grayish brown. The substratum is grayish brown fine sand in the upper 26 inches and brown fine sand in the lower 20 inches.

(8P) Basinger and Myakka Sands, Depressional- The Basinger series consists of very deep, poorly drained and very poorly drained, rapidly permeable soils in sloughs, depressions, low flats, and poorly defined drainageways. They formed in sandy marine sediments. Near the type location, the mean annual temperature is about 72 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 2 percent.

(9) Pomello Sand, 0-5 percent slopes - This nearly level to gently sloping soil is moderately well drained. It is on low ridges and knolls in the flatwoods. Areas range from about 5 to 100 acres. Slopes are smooth to convex.

Typically, the surface layer is gray sand about 3 inches thick. The subsurface layer is light gray sand about 43 inches thick. The subsoil is dark reddish brown sand about 21 inches thick and has scattered, weakly cemented fragments throughout. Below this is brown sand to a depth of 80 inches or more.

(13) Placid and Basinger Fine Sands, depressional - This nearly level soil is very poorly drained. It is in wet depressions and drainageways in the flatwoods. Areas range from a few acres to about 30 acres. Slopes are smooth to concave and range from 0 to 2 percent.

Typically, the surface layer is black sand. The subsurface layer is sand to a depth of more than 80 inches. It is dark grayish brown, gray and light brownish gray.

(14) Archbold Sand - This deep, nearly level sandy soil is moderately well drained. It is on slightly elevated ridges and knolls in the flatwoods. Areas range from about 5 to 200 acres. Slopes are smooth to convex and range from 0 to 2 percent.

Typically, the surface layer is gray sand about 5 inches thick. Underlying this is sand to a depth of more than 80 inches. The upper 12 inches of this sand is light gray, the next 22 inches is light brownish gray, and the lower 41 inches is grayish brown.

(16) Oldsmar Fine Sand - The Oldsmar series consists of very deep, poorly drained and very poorly drained soils in flats and depressions such as in the area of the east fork of Kitching Creek. They formed in sandy marine sediments overlying loamy materials. Slopes range from 0 to 2 percent.

(17) Wabasso Sand - This nearly level soil is poorly drained. It is in broad, open areas in the flatwoods. Areas generally range up to about 1,000 acres. Slopes are smooth and range from 0 to 2 percent.

Typically, the surface layer is black and very dark gray sand about 7 inches thick. The subsurface layer is gray and light brownish gray sand. The upper part of the subsoil is black sand, and the lower part is very dark grayish brown, dark grayish brown and

olive gray sandy clay loam. The substratum is olive gray and greenish gray sandy clay loam.

(18) Imokalee Fine Sand – The Immokalee series consists of deep and very deep, poorly drained and very poorly drained soils that formed in sandy marine sediments. They occur on flatwoods and in depressions of Peninsular Florida. Slopes are dominantly 0 to 2 percent but range to 5 percent.

On the surface, there is a sand or fine sand.

The lower soil horizons are mottled in shades of gray, yellow, brown, or red. Texture is sand, fine sand. Limestone substratum phases are recognized.

(19) Winder Sand, Depressional – The Winder series consists of very deep, poorly drained, slowly to very slowly permeable soils on broad, low flats and depressional areas. They formed in loamy marine sediments on the Lower Coastal Plain. Near the type location, the mean annual temperature is about 73 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 2 percent.

Texture of the surface soil is sand, fine sand, loamy sand, or loamy fine sand. Lower in the horizon clay content is 18 to 25 percent and there are masses of iron accumulations in shades of yellow and brown range, that is underlain by a sandy loam or sandy clay loam.

(21) Pineda Riviera Fine Sand - This nearly level soil is poorly drained. It is on broad, low flats and in drainageways. Slopes are smooth to concave and range from 0 to 2 percent.

Typically, the surface layer is dark gray fine sand about 4 inches thick. The subsurface layer is grayish brown to light gray fine sand to a depth of 36 inches. The subsoil is olive gray fine sandy loam that has a few fine tongues and pockets of light gray subsurface material. Next is light gray fine sand to a depth of about 56 inches and mixed fine sand and shell fragments to a depth of 80 inches or more.

(23) Urban Land - This miscellaneous area is more than 70 percent covered by shopping centers, parking lots, large buildings, houses, streets, sidewalks, airports, and related facilities. The natural soil cannot be observed. Unoccupied areas, mostly lawns, vacant lots, playgrounds, and parks consist mainly of St. Lucie, Paola, Pomello, and Waveland soils. These soils have been generally altered by grading and shaping or have been covered with 5 to 12 inches of sandy fill material. Slopes are mostly nearly level, but range to sloping in a few places.

(25P) Oldsmar Sand- The Oldsmar series consists of very deep poorly drained and very poorly drained soils in flats and depressions of Peninsular Florida. They formed in sandy marine sediments overlying loamy materials. Slopes range from 0 to 2 percent.

Oldsmar soils are on flats and depressions in the flatwoods. They formed in sandy marine sediments overlying loamy materials. Generally, the soil horizon is characterized by sand, fine sand, and loamy fine sand.

(28) Canaveral Sand, 0 to 5 percent slope- The Canaveral series consists of very deep, somewhat poorly to moderately well drained, very rapidly permeable soils on side slopes of dune-like ridges bordering depressions and sloughs along the coast in Peninsular Florida. They formed in thick marine deposits of sand and shell fragments. Slopes are dominantly less than 3 percent but range up to 5 percent.

Upper layers of the soil are very dark grayish brown sand, single grained, loose, with many fine roots, and fine shell fragments. Lower layers include as much as 55 percent-multicolored shell fragments mixed with pale brown to gray sand.

(30) Bessie Muck - This nearly level, organic soil is very poorly drained. It is in mangrove swamps along coastal areas, especially the Intracoastal Waterway. Areas range from about 20 to 200 acres. Slopes are less than 1 percent.

Typically, the surface layer is dark reddish brown muck about 18 inches thick. This layer has a high percent of fine mineral material. Next is 26 inches of very dark grayish brown clay. Below this is dark gray fine sand with shell fragments.

(33P) Pomello Fine Sand, 0 to 5 percent slopes- The Pomello series consists of very deep, moderately well to somewhat poorly drained soils that are sandy to depths of more than 80 inches. Pomello soils formed in sandy marine sediments in the flatwoods areas of Peninsular Florida. Slopes range from 0 to 5 percent.

The surface of this soil horizon typically includes fine sand and many fine and medium roots. Further down in the horizon there is fine sand that is single grained; loose that is reddish to dark brown.

(35) Salerno Sand - This nearly level soil is poorly drained. It is in broad areas of flatwoods. Areas range from about 20 to 500 acres. Slopes are dominantly smooth and range from 0 to 2 percent.

Typically, the surface layer is black to very dray gray sand about 9 inches thick. The subsurface layer is dark gray to brown fine sand about 15 inches thick. Below this is

dark reddish brown sand that has weakly cemented gragments to a depth of 100 inches or more.

(36) Arents, 0 to 2 percent slopes – Arrent sands consist of unconsolidated materials that were excavated during the construction of major canals. Texture and thickness of the layers are variable, with the surface layer olive gray fine sand. Below this layer are various layers of fine sand or loamy material from other natural soil horizons. Colors range from black, gray, brown, and white with some soil containing fragments of shell.

(36P) Riviera Fine Sand - The Riviera series consists of very deep, poorly drained, very slowly permeable soils on broad, low flats and in depressions in the Lower Coastal Plain. They formed in stratified sandy and loamy marine sediments on the Lower Coastal Plain. Slopes range from 0 to 2 percent.

The surface layer of soil is sand or fine sand. Further down in the horizon the texture is a sandy loam, fine sandy loam, or sandy clay loam shades of brown, yellow, or gray range from few to many. The lowest layers include a mixture of sand and shell fragments or a mixture of shell fragments and marl. Texture ranges from sand to fine sandy loam.

(37P) Riviera Fine Sand, Depressional - The Riviera series consists of very deep, poorly drained, very slowly permeable soils on broad, low flats and in depressions in the Lower Coastal Plain. They formed in stratified sandy and loamy marine sediments on the Lower Coastal Plain. Slopes range from 0 to 2 percent.

The surface layer of soil is sand or fine sand. Further down in the horizon the texture is a sandy loam, fine sandy loam, or sandy clay loam shades of brown, yellow, or gray range from few to many. The lowest layers include a mixture of sand and shell fragments or a mixture of shell fragments and marl. Texture ranges from sand to fine sandy loam.

(38) Floridana Fine Sand, Depressional - The Floridana series consists of very deep, very poorly drained, slowly to very slowly permeable soils on low broad flats, flood plains, and in depressional areas. They formed in thick beds of sandy and loamy marine sediments. Slopes range from 0 to 1 percent.

(40) Sanibel Muck - This nearly level soil is very poorly drained. It is in marshes and swamps, depressions, and poorly defined drainageways. Areas range from about 5 to 100 acres. Slopes are smooth to concave and are less than 1 percent.

Typically, the surface layer is muck about 12 inches thick; the upper 7 inches of the surface layer is black, and the lower 5 inches is dark reddish brown. Next is very dark

grayish brown sand about 4 inches thick. Below this is sand to a depth of 80 inches or more. The upper 7 inches of the sand is grayish brown, and the lower part is light gray.

(41) Jonathan Sand - This nearly level to gently sloping soil is moderately well drained. It is on slightly elevated knolls and ridges in the flatwoods, mainly in the eastern part of the county. Areas range from 5 to 200 acres or more. Slopes are smooth to convex and range from 0 to 5 percent.

Typically, the surface layer is dark gray sand about 5 inches thick. The subsurface layer is sand to a depth of about 56 inches. The upper 33 inches of the subsurface layer is light gray, and the lower 18 inches is light brownish gray. The subsoil is black, weakly cemented sand to a depth of 100 inches or more.

(49) Riviera Fine Sand, Depressional - This nearly level soil is poorly drained. It is in depressions. Slopes are smooth to concave and range from 0 to 2 percent.

Typically, the surface layer is gray fine sand about 2 inches thick. The subsurface layer is gray fine sand to a depth of 28 inches is light brownish gray. The upper 10 inches of the subsoil is gray fine sandy loam that has pocket and tongues of material from the subsurface layer, and the lower 11 inches is grayish brown sandy clay loam. Below this is grayish brown loamy fine sand to a depth of 50 inches or more.

(50) Wulfert and Durbin Mucks, Tidal - This nearly level soil is very poorly drained. It is in tidal mangrove swamps and the upper reaches of the Loxahatchee River. Areas generally range from about 20 to 200 acres. Slopes are less than 1 percent.

Typically, the surface layer is black muck about 4 inches thick. Next is dark reddish brown mucky peat about 16 inches thick. Below this is sand mixed with shell fragments to a depth of 60 inches or more. The upper 8 inches of sand is very dark brown, the next 8 inches is very dark grayish brown, the next 6 inches is dark grayish brown, and the lower 18 inches is grayish brown.

(50P) Winder Fine Sand - The Winder series consists of very deep, poorly drained, slowly to very slowly permeable soils on broad, low flats and depressional areas. They formed in loamy marine sediments on the Lower Coastal Plain. Near the type location, the mean annual temperature is about 73 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 2 percent.

Texture of the surface soil is sand, fine sand, loamy sand, or loamy fine sand. Lower in the horizon clay content is 18 to 25 percent and there are masses of iron accumulations in shades of yellow and brown range, that is underlain by a sandy loam or sandy clay loam.

(55) Basinger Fine Sand – Very poorly drained soils, whose slopes are smooth. The surface layer is a gray colored fine sand. Lower layers include light gray, fine sand underlain by a fine sand that is gray with brown streaks.

(56) Wabasso and Oldsmar Fine Sands, Depressional - This nearly level soil is poorly drained. It is in broad, open areas in the flatwoods. Areas generally range up to about 1,000 acres. Slopes are smooth and range from 0 to 2 percent.

Typically, the surface layer is black and very dark gray sand about 7 inches thick. The subsurface layer is gray and light brownish gray sand. The upper part of the subsoil is black sand, and the lower part is very dark grayish brown, dark grayish brown and olive gray sandy clay loam. The substratum is olive gray and greenish gray sandy clay loam.

(61) Hobe Fine Sand - This nearly level to gently sloping soil is somewhat excessively drained. It is on knolls and ridges in coastal areas of flatwoods. Slopes are smooth to convex.

Typically, the surface layer is gray fine sand. The subsurface layer is gray, white, and light gray fine sand to a depth of about 70 inches. In places the upper 4 inches of the subsoil is black, strongly cemented fine sand coated with organic matter. The lower 4 inches is dark yellowish brown fine sand coated with organic matter and has weakly cemented, dark brown lumps. The lower part of the subsoil is gray fine sand loam to a depth of 88 inches or more.

(63) Nettles Sand - This nearly level soil is poorly drained. It is in broad areas of flatwoods. Areas are generally quite large, ranging up to 2,000 acres. Slopes are smooth and range from 0 to 2 percent. Typically, the surface layer is about 12 inches thick. The upper 5 inches of the surface layer is very dark gray sand, and the lower 7 inches is dark gray fine sand. The subsurface layer is gray fine sand about 20 inches thick. The upper part of the subsoil is fine sand weakly cemented with organic mater. It is black in the upper 11 inches and dark reddish brown in the lower 8 inches. The lower part of the subsoil is grayish brown fine sandy loam about 11 inches thick. Below this is about 9 inches of dark grayish brown loamy fine sand over grayish brown loamy fine sand to a depth of 80 inches.

(67) Hontoon Muck - This nearly level, organic soil is very poorly drained. It is in mangrove swamps along the Loxahatchee River. Slopes are smoothly and less than 1 percent.

Typically, the surface layer is black muck about 12 inches thick. Next is dark reddish brown muck to a depth of 40 inches. Below this is black muck to a depth of 60 inches or more.

(73) Samsula Muck - This nearly level, organic soil is very poorly drained. It is in depressions and in freshwater swamps and marshes. Slopes are smooth to concave and are 0 to 1 percent.

Typically, the surface layer is muck about 34 inches thick. The upper 12 inches of the surface layer is black, and the lower 22 inches is dark reddish brown. Below this is sand to a depth of 80 inches or more. The upper 10 inches of the sand is very dark gray, the lower 36 inches is light brownish gray.

(77) Paola and St. Lucie Sands, 8-20 percent slopes - This deep, strongly sloping moderately steep sandy soil is excessively drained. It is on the coastal ridge. Areas range from about 10 to 100 acres. Slopes are single or complex and range from 8 to 20 percent.
Typically, the surface layer is gray sand about 3 inches thick. Underlying this is white sand to a depth of 80 inches or more.

Addendum 5—Plant And Animal List

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)

LICHENS

Tiny button lichen	*Amandinea punctata*	
	Arthonia rubrocinctum	
	Buellia curatellae	
	Buellia imshaugiana	
	Buellia pachnidisca	
	Bulbothrix confoederata	
	Canoparmelia amazonica	
	Canoparmelia cryptochlorophaea	
	Canoparmelia salacinifera	
	Cladina evansii	
	Cladina subtenuis	
	Cladonia abbreviatula	
	Cladonia leporina	
Perforate reindeer lichen	*Cladonia perforata*	15,16
	Cladonia peziziformis	
	Cladonia rappii	
	Cladonia subradiata	
	Coccocarpia erythroxyli	
	Coccocarpia palmicola	
	Coccocarpia stellata	
	Dirinaria aegialita	
	Dirinaria picta	
	Graphina abaphoides	
	Graphis afzelii	
	Graphis candidata	
	Gyalideopsis vainioi	
	Haematomma flexuosum	
	Hafellia bahiana	
	Herpothallon rubrocinctum	
	Heterodermia obscurata	
	Lecanora caesiorubella	
	Leptogium cyanescens	
	Mycoporum eschweileri	
	Mycoporum sparsellum	
	Myriotrema subcompunctum	
	Ochrolechia africana	
	Opegrapha atra	
	Opegrapha cypressi	
	Parmelinopsis minarum	
	Parmotrema dilatatum	
	Parmotrema dominicanum	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
	Parmotrema endosulpheureum	
	Parmotrema gardneri	
	Parmotrema hypoleucinum	
	Parmotrema praesorediosum	
	Parmotrema rampoddense	
	Parmotrema ridigum	
	Pertusaria floridana	
	Pertusaria texana	
	Phaeographis erumpens	
	Physcia atrostriata	
	Pseudoparmelia uleana	
	Pyrenula ochraceoflavens	
	Pyxine eschweileri	
	Rimelia subisidiosa	
	Tephromela atra	
	Trapeliopsis flexuosa	
	Trypethelium variolosum	
	Usnea strigosa	

PTERIDOPHYTES

Giant leather fern	*Acrostichum danaeifolium*	35,36
American water fern	*Azolla filiculoides*	
Swamp fern	*Blechnum serrulatum*	
Strap fern	*Campyloneurum phyllitidis*	
Water horn fern	*Ceratopteris pteridoides*	
Water sprite*	*Ceratopteris thalictroides*	
Small-leaf climbing fern*	*Lygodium microphyllum*	
Giant sword fern	*Nephrolepis biserrata*	
Asian sword fern*	*Nephrolepis brownii*	
Tuberous sword fern*	*Nephrolepis cordifolia*	
Sword fern	*Nephrolepis exaltata*	
Fishtail sword fern*	*Nephrolepis falcata*	
Hand fern	*Ophioglossum palmatum*	9,35,36,37
Adder's tongue	*Ophioglossum petiolatum*	
Cinnamon fern	*Osmunda cinnamomea*	
Royal fern	*Osmunda regalis*	
Golden polypody	*Phlebodium aureum*	
Resurrection fern	*Pleopeltis polypodioides var. michauxiana*	
Whisk-fern	*Psilotum nudum*	
Lacy bracken fern	*Pteridium aquilinum var. caudatum*	
Tailed bracken fern	*Pteridium aquilinum var. pseudocaudatum*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Giant brake fern*	*Pteris tripartita*	
Chinese ladder brake fern*	*Pteris vittata*	
Water spangles*	*Salvinia minima*	
Downy maiden fern*	*Thelypteris dentata*	
Hairy maiden fern	*Thelypteris hispidula var. versicolor*	
Tri-veined maiden fern	*Thelypteris interrupta*	
Kunth's maiden fern	*Thelypteris kunthii*	
Marsh fern	*Thelypteris palustris*	
Lattice-vein fern	*Thelypteris reticulata*	
Toothed lattice-vein fern	*Thelypteris serrata*	
Shoestring fern	*Vittaria lineata*	
Netted chain fern	*Woodwardia areolata*	
Virginia chain fern	*Woodwardia virginica*	
GYMNOSPERMS		
Red cedar	*Juniperus virginiana*	
Sand pine	*Pinus clausa*	
Slash pine	*Pinus elliottii*	
Pond-cypress	*Taxodium ascendens*	
Bald-cypress	*Taxodium distichum*	
MONOCOTS		
False sisal	*Agave decipiens*	
Sisal hemp*	*Agave sisalana*	
Yellow colicroot	*Aletris lutea*	
Blue maidencane	*Amphicarpum muhlenbergianum*	
Pineapple*	*Ananas comosus*	
Shortspike bluestem	*Andropogon brachystachyus*	
Florida bluestem	*Andropogon floridanus*	
Purple bluestem	*Andropogon glomeratus var. glaucopsis*	
Bushy bluestem	*Andropogon glomeratus var. hirsutior*	
Bushy bluestem	*Andropogon glomeratus var. pumilus*	
Elliot's bluestem	*Andropogon gyrans var. gyrans*	
Hairy bluestem	*Andropogon longiberbis*	
Splitbeard bluestem	*Andropogon ternarius*	
Tracy's bluestem	*Andropogon tracyi*	
Broomsedge bluestem	*Andropogon virginicus var. decipiens*	
Chalky bluestem	*Andropogon virginicus var. glaucus*	
Broomsedge bluestem	*Andropogon virginicus var. virginicus*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Nodding-nixie	*Apteria aphylla*	
Jack-in-the-pulpit	*Arisaema triphyllum*	
Corkscrew threeawn	*Aristida gyrans*	
Longleaf threeawn	*Aristida palustris*	
Tall threeawn	*Aristida patula*	
Arrowfeather threeawn	*Aristida purpurascens var. purpurascens*	
Hillsboro threeawn	*Aristida purpurascens var. tenuispica*	
Arrowfeather threeawn	*Aristida purpurascens var. virgata*	
Florida threeawn	*Aristida rhizomophora*	
Bottlebush threeawn	*Aristida spiciformis*	
Wiregrass	*Aristida stricta var. beyrichiana*	
Sprenger's asparagus-fern*	*Asparagus aethiopicus*	
Common carpetgrass	*Axonopus fissifolius*	
Big carpetgrass	*Axonopus furcatus*	
Common bamboo*	*Bambusa vulgaris*	
Pinepink orchid	*Bletia purpurea*	43,44
Pitted beardgrass*	*Bothriochloa pertusa*	
Watergrass*	*Bulbostylis barbata*	
Capillary hairsedge	*Bulbostylis ciliatifolia*	
Sandyfield hairsedge	*Bulbostylis stenophylla*	
Ware's hairsedge	*Bulbostylis warei*	
Bluethread	*Burmannia biflora*	
Southern bluethread	*Burmannia capitata*	
Basketplant*	*Callisia fragrans*	
Florida scrub roseling	*Callisia ornata*	
Bearded grasspink	*Calopogon barbatus*	
Manyflowered grasspink	*Calopogon multiflorus*	43,44
Pale grasspink	*Calopogon pallidus*	
Tuberous grasspink	*Calopogon tuberosus*	
Golden canna lily	*Canna flaccida*	
Long's sedge	*Carex longii*	
False hop sedge	*Carex lupuliformis*	
Florida hammock sedge	*Carex vexans*	
Slender sandbur	*Cenchrus gracillimus*	
Coastal sandbur	*Cenchrus spinifex*	
Florida false beardgrass	*Chrysopogon pauciflorus*	
Jamaica swamp sawgrass	*Cladium jamaicense*	
Wrinkled jointtail grass	*Coelorachis rugosa*	8,14,15
Florida jointtail grass	*Coelorachis tuberculosa*	
Wild taro*	*Colocasia esculenta*	
Common dayflower*	*Commelina diffusa*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Whitemouth dayflower	*Commelina erecta*	
String-lily	*Crinum americanum*	
Toothachegrass	*Ctenium aromaticum*	
Bermudagrass*	*Cynodon dactylon*	
Jointed flatsedge	*Cyperus articulatus*	
Poorland flatsedge	*Cyperus compressus*	
Baldwin's flatsedge	*Cyperus croceus*	
Variable flatsedge*	*Cyperus difformis*	
Swamp flatsedge	*Cyperus distinctus*	
Yellow nutgrass*	*Cyperus esculentus*	
Yellow flatsedge	*Cyperus flavescens*	
Haspan flatsedge	*Cyperus haspan*	
Epiphytic flatsedge*	*Cyperus lanceolatus*	
Leconte's flatsedge	*Cyperus lecontei*	
Swamp flatsedge	*Cyperus ligularis*	
Fragrant flatsedge	*Cyperus odoratus*	
Pinebarren flatsedge	*Cyperus ovatus*	
Flatleaf flatsedge	*Cyperus planifolius*	
Manyspike flatsedge	*Cyperus polystachyos*	
Low flatsedge*	*Cyperus pumilus*	
Nutgrass*	*Cyperus rotundus*	
Roadside flatsedge*	*Cyperus sphacelatus*	
Strawcolored flatsedge	*Cyperus strigosus*	
Tropical flatsedge	*Cyperus surinamensis*	
Fourangle flatsedge	*Cyperus tetragonus*	
Crowfootgrass*	*Dactyloctenium aegyptium*	
Needleleaf witchgrass	*Dichanthelium aciculare*	
Tapered witchgrass	*Dichanthelium acuminatum*	
Variable witchgrass	*Dichanthelium commutatum*	
Cypress witchgrass	*Dichanthelium dichotomum*	
Dwarf cypress witchgrass	*Dichanthelium ensifolium var. breve*	
Cypress witchgrass	*Dichanthelium ensifolium var. ensifolium*	
Cypress witchgrass	*Dichanthelium ensifolium var. uniciplyllum*	
Erectleaf witchgrass	*Dichanthelium erectifolium*	
Openflower witchgrass	*Dichanthelium laxiflorum*	
Hemlock witchgrass	*Dichanthelium portoricense*	
Woolly witchgrass	*Dichanthelium scabriusculum*	
Roughhair witchgrass	*Dichanthelium strigosum var. glabrescens*	
Asia crabgrass*	*Digitaria bicornis*	
Southern crabgrass	*Digitaria ciliaris*	
Pangolagrass*	*Digitaria eriantha*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Caribbean crabgrass	*Digitaria filiformis var. dolichophylla*	
Shaggy crabgrass	*Digitaria filiformis var. filiformis*	
Sourgrass	*Digitaria insularis*	
Indian crabgrass*	*Digitaria longiflora*	
Areca palm*	*Dypsis lutescens*	
Jungle rice*	*Echinochloa colona*	
Barnyard grass*	*Echinochloa crus-galli*	
Rough barnyard grass	*Echinochloa muricata*	
Florida cockspur	*Echinochloa paludigena*	
Coast cockspur	*Echinochloa walteri*	
Water hyacinth*	*Eichhornia crassipes*	
Baldwin's spikerush	*Eleocharis baldwinii*	
Slim spikerush	*Eleocharis elongata*	
Yellow spikerush	*Eleocharis flavescens*	
Canada spikerush	*Eleocharis geniculata*	
Jointed spikerush	*Eleocharis interstincta*	
Black spikerush*	*Eleocharis nigrescens*	
Viviparous spikerush	*Eleocharis vivipara*	
Indian goosegrass*	*Eleusine indica*	
Pan-American balsamscale	*Elionurus tripsacoides*	
Butterfly orchid	*Encyclia tampensis*	9,37
Stiff-flower star orchid	*Epidendrum rigidum*	
Golden pothos*	*Epipremnum pinnatum*	
Thalia lovegrass*	*Eragrostis atrovirens*	
Gophertail lovegrass*	*Eragrostis ciliaris*	
Elliott's lovegrass	*Eragrostis elliottii*	
Indian lovegrass*	*Eragrostis pilosa*	
Coastal lovegrass	*Eragrostis virginica*	
Centipedegrass*	*Eremochloa ophiuroides*	
Flattened pipewort	*Eriocaulon compressum*	
Tenangle pipewort	*Eriocaulon decangulare*	
Ravenel's pipewort	*Eriocaulon ravenelii*	
Wild coco	*Eulophia alta*	
Saltmarsh fingergrass	*Eustachys glauca*	
Pinewoods fingergrass	*Eustachys petraea*	
Slender fimbry	*Fimbristylis autumnalis*	
Carolina fimbry	*Fimbristylis caroliniana*	
Hurricane grass	*Fimbristylis cymosa*	
Forked fimbry	*Fimbristylis dichotoma*	
Hairy fimbry	*Fimbristylis puberula*	
Saltmarsh umbrellasedge	*Fuirena breviseta*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Dwarf umbrellasedge	*Fuirena pumila*	
Southern umbrellasedge	*Fuirena scirpoidea*	
Hairy umbrellasedge	*Fuirena squarrosa*	
Shortleaf skeletongrass	*Gymnopogon brevifolius*	
Toothpetal false reinorchid	*Habenaria floribunda*	
Snowy orchid	*Habenaria nivea*	
Longhorn false reinorchid	*Habenaria quinqueseta*	
Waterspider false reinorchid	*Habenaria repens*	
Limpograss*	*Hemarthria altissima*	
Tanglehead grass	*Heteropogon contortus*	
Hydrilla*	*Hydrilla verticillata*	
Mangrove spiderlily	*Hymenocallis latifolia*	
Alligatorlily	*Hymenocallis palmeri*	
Jaragua*	*Hyparrhenia rufa*	
Common yellow stargrass	*Hypoxis curtissii*	
Fringed yellow stargrass	*Hypoxis juncea*	
Bristleseed yellow stargrass	*Hypoxis wrightii*	
Forked rush	*Juncus dichotomus*	
Soft rush	*Juncus effusus subsp. solutus*	
Grassleaf rush	*Juncus marginatus*	
Bighead rush	*Juncus megacephalus*	
Manyhead rush	*Juncus polycephalos*	
Lesser creeping rush	*Juncus repens*	
Needlepod rush	*Juncus scirpoides*	
Shortleaf spikerush*	*Kyllinga brevifolia*	
Fragrant spikerush	*Kyllinga odorata*	
Carolina redroot	*Lachnanthes caroliana*	
Whitehead bogbutton	*Lachnocaulon anceps*	
Southern bogbutton	*Lachnocaulon beyrichianum*	
Engler's bogbutton	*Lachnocaulon engleri*	
Small's bogbutton	*Lachnocaulon minus*	
Dotted duckweed*	*Landoltia punctata*	
Southern cutgrass	*Leersia hexandra*	
Lesser duckweed	*Lemna aequinoctialis*	
Little duckweed	*Lemna obscura*	
Catesby's pine lily	*Lilium catesbaei*	8,43
Halfchaff sedge*	*Lipocarpha aristulata*	
Chinese fan palm*	*Livistona chinensis*	
Italian ryegrass*	*Lolium perenne*	
Molassesgrass*	*Melinis minutiflora*	
Rose natalgrass*	*Melinis repens*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Hairawn muhly	*Muhlenbergia capillaris var. capillaris*	
Nakedstem dewflower*	*Murdannia nudiflora*	
Banana*	*Musa x paradisiaca*	
Southern waternymph	*Najas guadalupensis*	
Woodgrass	*Oplismenus hirtellus*	
Cuban bulrush*	*Oxycaryum cubense*	
Screw-pine*	*Pandanus utilis*	
Cutthroatgrass	*Panicum abscissum*	39
Beaked panicum	*Panicum anceps*	
Fall panicgrass	*Panicum dichotomiflorum var. bartowense*	
Fall panicgrass	*Panicum dichotomiflorum var. dichotomiflorum*	
Maidencane	*Panicum hemitomon*	
Gaping panicum	*Panicum hians*	
Long-leaved panicum	*Panicum longifolium*	
Guineagrass*	*Panicum maximum*	
Broomcorn willet*	*Panicum miliaceum*	
Torpedograss*	*Panicum repens*	
Redtop panicum	*Panicum rigidulum*	
Bluejoint panicum	*Panicum tenerum*	
Warty panicum	*Panicum verrucosum*	
Switchgrass	*Panicum virgatum*	
Coral paspalum	*Paspalum blodgetti*	
Sour paspalum	*Paspalum conjugatum*	
Knotgrass	*Paspalum distichum*	
Florida paspalum	*Paspalum floridanum*	
Field paspalum	*Paspalum laeve*	
Coconut paspalum	*Paspalum laxum*	
Gulfdune paspalum	*Paspalum monostachyum*	
Bahiagrass*	*Paspalum notatum var. saurae*	
Brownseed paspalum	*Paspalum plicatulum*	
Early paspalum	*Paspalum praecox*	
Thin paspalum	*Paspalum setaceum*	
Vaseygrass*	*Paspalum urvillei*	
Green arum	*Peltandra virginica*	
Elephantgrass*	*Pennisetum purpureum*	
Senegal date palm*	*Phoenix reclinata*	
Common reed	*Phragmites australis*	
Water-lettuce*	*Pistia stratiotes*	
Rose pogonia	*Pogonia ophioglossoides*	
Pickerelweed	*Pontederia cordata*	
Clamshell orchid	*Prosthechea cochleata*	9,37

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Giant orchid	*Pteroglossaspis ecristata*	15,16,44
Shortbristle beaksedge	*Rhynchospora breviseta*	
Bunched beaksedge	*Rhynchospora cephalantha*	
Chapman's beaksedge	*Rhynchospora chapmanii*	
Fringed beaksedge	*Rhynchospora ciliaris*	
Starrush white-top sedge	*Rhynchospora colorata*	
Shortbristle horned beaksedge	*Rhynchospora corniculata*	
Spreading beaksedge	*Rhynchospora divergens*	
Fascicled beaksedge	*Rhynchospora fascicularis*	
Fernald's beaksedge	*Rhynchospora fernaldii*	
Threadleaf beaksedge	*Rhynchospora filifolia*	
Globe beaksedge	*Rhynchospora globularis*	
Harper's beaksedge	*Rhynchospora harperi*	
Pinebarren beaksedge	*Rhynchospora intermedia*	
Narrowfruit horned beaksedge	*Rhynchospora inundata*	
Giant white-top beaksedge	*Rhynchospora latifolia*	
Sandyfield beaksedge	*Rhynchospora megalocarpa*	
Southern beaksedge	*Rhynchospora microcarpa*	
Smallhead beaksedge	*Rhynchospora microcephala*	
Millet beaksedge	*Rhynchospora miliacea*	
Shortbeak beaksedge	*Rhynchospora nitens*	
Fragrant beaksedge	*Rhynchospora odorata*	
Plumed beaksedge	*Rhynchospora plumosa*	
Fairy beaksedge	*Rhynchospora pusilla*	
Fewflower beaksedge	*Rhynchospora rariflora*	
Tracy's beaksedge	*Rhynchospora tracyi*	
Wright's beaksedge	*Rhynchospora wrightiana*	
Itchgrass*	*Rottboellia cochinchinensis*	
Royal palm	*Roystonea regia*	
Cabbage palm	*Sabal palmetto*	
Sugarcane plumegrass	*Saccharum giganteum*	
Indian cupscale*	*Sacciolepis indica*	
American cupscale	*Sacciolepis striata*	
Threadleaf arrowhead	*Sagittaria filiformis*	
Grassy arrowhead	*Sagittaria graminea*	
Quillwort arrowhead	*Sagittaria isoetiformis*	
Lance-leaf arrowhead	*Sagittaria lancifolia*	
Slender arrowhead	*Sagittaria subulata*	
Bowstring hemp*	*Sansevieria hyacinthoides*	
Crimson bluestem	*Schizachyrium sanguineum*	
Little bluestem	*Schizachyrium scoparium var. scoparium*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Florida feathershank	*Schoenocaulon dubium*	
White sunnybell	*Schoenolirion albiflorum*	
Threesquare bulrush	*Schoenoplectus pungens*	
Soft bulrush	*Schoenoplectus tabernaemontani*	
Black bogrush	*Schoenus nigricans*	
Baldwin's nutrush	*Scleria baldwinii*	
Fringed nutrush	*Scleria ciliata*	
Riverswamp nutrush	*Scleria distans*	
Slenderfruit nutrush	*Scleria georgiana*	
Littlehead nutrush	*Scleria oligantha*	
Netted nutrush	*Scleria reticularis*	
Whip nutrush	*Scleria triglomerata*	
Low nutrush	*Scleria verticillata*	
Saw palmetto	*Serenoa repens*	
Knotroot foxtail grass	*Setaria parviflora*	
Yellow foxtail grass*	*Setaria pumila*	
Narrowleaf blue-eyed grass	*Sisyrinchium angustifolium*	
Nash's blue-eyed grass	*Sisyrinchium nashii*	
Jeweled blue-eyed grass	*Sisyrinchium xerophyllum*	
Earleaf greenbrier	*Smilax auriculata*	
Saw greenbrier	*Smilax bona-nox*	
Laurel greenbrier	*Smilax laurifolia*	
Lopsided Indian grass	*Sorghastrum secundum*	
Johnsongrass*	*Sorghum halepense*	
Saltmarsh cordgrass	*Spartina alterniflora*	
Sand cordgrass	*Spartina bakeri*	
Lacelip ladiestresses	*Spiranthes laciniata*	44
Longlip ladiestresses	*Spiranthes longilabris*	
Spring ladiestresses	*Spiranthes vernalis*	
Coral dropseed	*Sporobolus domingensis*	
Smutgrass*	*Sporobolus indicus var. indicus*	
West Indian dropseed*	*Sporobolus indicus var. pyramidalis*	
Pineywoods dropseed	*Sporobolus junceus*	
St. Augustine grass	*Stenotaphrum secundatum*	
Queen palm*	*Syagrus romanzoffiana*	
Yellow hatpins	*Syngonanthus flavidulus*	
American evergreen*	*Syngonium podophyllum*	
Alligatorflag	*Thalia geniculata*	
Reflexed airplant	*Tillandsia balbisiana*	32,41
Cardinal airplant	*Tillandsia fasciculate*	32,35,36,41
Twisted airplant	*Tillandsia flexuosa*	32,41

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Potbelly airplant	*Tillandsia paucifolia*	32,35,36,41
Ballmoss	*Tillandsia recurvata*	32,35,36,41
Needle-leaved airplant	*Tillandsia setacea*	32,35,36,41
Spanish moss	*Tillandsia usneoides*	
Giant airplant	*Tillandsia utriculata*	8,15,16,32,35,36,41
Soft-leaved airplant	*Tillandsia variabilis*	32,35,36,41
Dancing lady orchid	*Tolumnia bahamensis*	15,16
Inchplant	*Tradescantia zebrina*	
Purpletop tridens	*Tridens flavus var. flavus*	
Arrowgrass	*Triglochin striata*	
Purple sandgrass	*Triplasis purpurea*	
Fakahatcheegrass	*Tripsacum dactyloides*	
Florida mock gamagrass	*Tripsacum floridanum*	
Southern cattail	*Typha domingensis*	
Broadleaf cattail	*Typha latifolia*	
Tropical signalgrass*	*Urochloa distachya*	
Paragrass*	*Urochloa mutica*	
Creeping signalgrass*	*Urochloa plantaginea*	
Elephant ear*	*Xanthosoma sagittifolium*	
Coastalplain yelloweyed grass	*Xyris ambigua*	
Shortleaf yelloweyed grass	*Xyris brevifolia*	
Carolina yelloweyed grass	*Xyris caroliniana*	
Elliott's yelloweyed grass	*Xyris elliottii*	
Fringed yelloweyed grass	*Xyris fimbriata*	
Savannah yelloweyed grass	*Xyris flabelliformis*	
Florida yelloweyed grass	*Xyris floridana*	
Richard's yelloweyed grass*	*Xyris jupicai*	
Tall yelloweyed grass	*Xyris platylepis*	
Small's yelloweyed grass	*Xyris smalliana*	
Spanish bayonet	*Yucca aloifolia*	
Adam's needle	*Yucca filamentosa*	
Lawn orchid*	*Zeuxine strateumatica*	
Southern clubmoss	*Lycopodiella appressa*	
Slender clubmoss	*Lycopodiella caroliniana*	
Staghorn clubmoss	*Lycopodiella cernua*	
Sand spikemoss	*Selaginella arenicola*	

DICOTS

Rosary pea*	*Abrus precatorius*	
Velvetleaf*	*Abutilon theophrasti*	
Earleaf acacia*	*Acacia auriculiformis*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Slender threeseed mercury	*Acalypha gracilens*	
Starburr*	*Acanthospermum hispidum*	
Red maple	*Acer rubrum*	
Shyleaf	*Aeschynomene americana*	
Beach false foxglove	*Agalinis fasciculata*	
Seminole false foxglove	*Agalinis filifolia*	
Flaxleaf false foxglove	*Agalinis linifolia*	
Tenlobe false foxglove	*Agalinis obtusifolia*	
Hammock snakeroot	*Ageratina jucunda*	
Tropical whiteweed*	*Ageratum conyzoides*	
Bluemink*	*Ageratum houstonianum*	
Woman's tongue*	*Albizia lebbeck*	
Golden trumpet*	*Allamanda cathartica*	
Alligatorweed*	*Alternanthera philoxeroides*	
Sessile joyweed*	*Alternanthera sessilis*	
False moneywort*	*Alysicarpus ovalifolius*	
White moneywort*	*Alysicarpus vaginalis*	
Purple amaranth*	*Amaranthus blitum subsp. emarginatus*	
Spiny amaranth*	*Amaranthus spinosus*	
Slender amaranth*	*Amaranthus viridis*	
Common ragweed	*Ambrosia artemisiifolia*	
Valley redstem	*Ammannia coccinea*	
Pink redstem	*Ammannia latifolia*	
Bastard false indigo	*Amorpha fruticosa*	
Peppervine	*Ampelopsis arborea*	
Pond apple	*Annona glabra*	
Bignay*	*Antidesma bunius*	
Groundnut	*Apios americana*	
Wild celery*	*Apium graveolens*	
Scratchthroat*	*Ardisia crenata*	
Shoebutton*	*Ardisia elliptica*	
Marlberry	*Ardisia escallonioides*	
Ovateleaf Indian plantain	*Arnoglossum ovatum*	
Scarlet milkweed*	*Asclepias curassavica*	
Curtiss' milkweed	*Asclepias curtissii*	15,16
Swamp milkweed	*Asclepias incarnata*	
Lanceleaf milkweed	*Asclepias lanceolata*	
Pedicellate milkweed	*Asclepias pedicellata*	
Whorled milkweed	*Asclepias verticillata*	
Netted pawpaw	*Asimina reticulata*	
Fourpetal pawpaw	*Asimina tetramera*	15,16

* Non-native Species

Common Name	***Scientific Name***	**Primary Habitat Codes (for Listed Species)**
Chinese violet*	*Asystasia gangetica*	
Black mangrove	*Avicennia germinans*	
Saltwater falsewillow	*Baccharis angustifolia*	
Silverling	*Baccharis glomeruliflora*	
Groundsel tree	*Baccharis halimifolia*	
Blue waterhyssop	*Bacopa caroliniana*	
Herb-of-grace	*Bacopa monnieri*	
Coastalplain honeycombhead	*Balduina angustifolia*	
Twining screwstem	*Bartonia paniculata*	
White screwstem	*Bartonia verna*	
Yellow screwstem	*Bartonia virginica*	
Tarflower	*Bejaria racemosa*	
Rattan vine	*Berchemia scandens*	
Beggarticks	*Bidens alba*	
Smooth beggarticks	*Bidens laevis*	
Smallfruit beggarticks	*Bidens mitis*	
Pineland rayless goldenrod	*Bigelowia nudata subsp. australis*	
Javanese bishopwood*	*Bischofia javanica*	
False nettle	*Boehmeria cylindrica*	
Wineflower	*Boerhavia diffusa*	
Smallhead doll's daisy	*Boltonia diffusa*	
Bushy seaside oxeye	*Borrichia frutescens*	
American bluehearts	*Buchnera americana*	
Lindley's butterflybush*	*Buddleja lindleyana*	
Madagascar butterflybush*	*Buddleja madagascariensis*	
Gumbo limbo	*Bursera simaruba*	
American beautyberry	*Callicarpa americana*	
Baybean	*Canavalia rosea*	
Goatweed	*Capraria biflora*	
Hairy bittercress*	*Cardamine hirsuta*	
Pennsylvania bittercress	*Cardamine pensylvanica*	
Papaya*	*Carica papaya*	
Pineland chaffhead	*Carphephorus carnosus*	
Coastalplain chaffhead	*Carphephorus corymbosus*	
Pineland purple	*Carphephorus odoratissimus var. subtropicanus*	
Hairy chaffhead	*Carphephorus paniculatus*	
Water hickory	*Carya aquatica*	
Love vine	*Cassytha filiformis*	
Australian-pine*	*Casuarina equisetifolia*	
Suckerling Australian-pine*	*Casuarina glauca*	
Madagascar periwinkle*	*Catharanthus roseus*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Sugarberry	*Celtis laevigata*	
Spadeleaf	*Centella asiatica*	
Spurred butterfly pea	*Centrosema virginianum*	
Common buttonbush	*Cephalanthus occidentalis*	
Florida rosemary	*Ceratiola ericoides*	
Partridge pea	*Chamaecrista fasciculata*	
Sensitive pea	*Chamaecrista nictitans var. aspera*	
Hairy sensitive pea*	*Chamaecrista pilosa*	
Limestone sandmat	*Chamaesyce blodgettii*	
Dixie spurge	*Chamaesyce bombensis*	
Coastal dune sandmat	*Chamaesyce cumulicola*	15,16
Pillpod sandmat	*Chamaesyce hirta*	
Graceful sandmat	*Chamaesyce hypericifolia*	
Hyssopleaf sandmat	*Chamaesyce hyssopifolia*	
Roadside sandmat*	*Chamaesyce lasiocarpa*	
Spotted sandmat	*Chamaesyce maculata*	
Mendez's sandmat*	*Chamaesyce mendezii*	
Florida hammock sandmat	*Chamaesyce ophthalmica*	
Prostrate sandmat	*Chamaesyce prostrata*	
Gulf sandmat	*Chamaesyce thymifolia*	
Pineland daisy	*Chaptalia tomentosa*	
Mexican tea*	*Chenopodium ambrosioides*	
Snowberry	*Chiococca alba*	
Jack-in-the-bush	*Chromolaena odorata*	
Coco plum	*Chrysobalanus icaco*	
Satinleaf	*Chrysophyllum oliviforme*	7,35,37
Coastalplain goldenaster	*Chrysopsis scabrella*	
Purple thistle	*Cirsium horridulum*	
Nuttall's thistle	*Cirsium nuttallii*	
Tangerine*	*Citrus reticulata*	
Sour orange*	*Citrus x aurantium*	
Pine-hyacinth	*Clematis baldwinii*	
Fringed spiderflower*	*Cleome rutidosperma*	
Tread-softly	*Cnidoscolus stimulosus*	
Pigeon plum	*Coccoloba diversifolia*	
Seagrape	*Coccoloba uvifera*	
Buttonwood	*Conocarpus erectus*	
Blue mistflower	*Conoclinium coelestinum*	
Largeflower false rosemary	*Conradina grandiflora*	15,16
Canadian horseweed	*Conyza canadensis*	
Jute*	*Corchorus aestuans*	

* Non-native Species

Common Name	***Scientific Name***	**Primary Habitat Codes (for Listed Species)**
Fragrant manjack*	*Cordia dichotoma*	
Kou*	*Cordia subcordata*	
Florida tickseed	*Coreopsis floridana*	
Leavenworth's tickseed	*Coreopsis leavenworthii*	
Swamp dogwood	*Cornus foemina*	
Shakeshake*	*Crotalaria incana*	
Lanceleaf rattlebox*	*Crotalaria lanceolata*	
Smooth rattlebox*	*Crotalaria pallida var. obovata*	
Low rattlebox	*Crotalaria pumila*	
Rattleweed*	*Crotalaria retusa*	
Rabbitbells	*Crotalaria rotundifolia*	
Showy rattlebox*	*Crotalaria spectabilis*	
Tropic croton	*Croton glandulosus*	
Pineland croton	*Croton linearis*	
Carrotwood*	*Cupaniopsis anacardioides*	
Colombian waxweed*	*Cuphea carthagenensis*	
Tall dodder	*Cuscuta exaltata*	
Little ironweed*	*Cyanthillium cinereum*	
Gulf Coast swallowwort	*Cynanchum angustifolium*	
Blodgett's swallowwort	*Cynanchum blodgetti*	
Leafless swallowwort	*Cynanchum scoparium*	
Coinvine	*Dalbergia ecastaphyllum*	
Feay's prairieclover	*Dalea feayi*	
Summer farewell	*Dalea pinnata var. adenopoda*	
Wild tantan*	*Desmanthus virgatus*	
Zarzabacoa comun*	*Desmodium incanum*	
Panicled ticktrefoil	*Desmodium paniculatum*	
Dixie ticktrefoil*	*Desmodium tortuosum*	
Threeflower ticktrefoil*	*Desmodium triflorum*	
Carolina ponysfoot	*Dichondra carolinensis*	
Sixangle foldwing	*Dicliptera sexangularis*	
Longan*	*Dimocarpus longan*	
Rough buttonweed	*Diodia teres*	
Virginia buttonweed	*Diodia virginiana*	
Common persimmon	*Diospyros virginiana*	
Varnishleaf	*Dodonaea viscosa*	
Dwarf sundew	*Drosera brevifolia*	
Pink sundew	*Drosera capillaris*	
West Indian chickweed*	*Drymaria cordata*	
Guiana plum	*Drypetes lateriflora*	
Golden dewdrops*	*Duranta erecta*	

* Non-native Species

Common Name	***Scientific Name***	**Primary Habitat Codes (for Listed Species)**
Pineland twinflower	*Dyschoriste angusta*	
Oblongleaf twinflower	*Dyschoriste oblongifolia*	
False daisy	*Eclipta prostrata*	
Tall elephantsfoot	*Elephantopus elatus*	
Florida tasselflower*	*Emilia fosbergii*	
Lilac tassel flower*	*Emilia sonchifolia*	
Fireweed	*Erechtites hieraciifolius*	
Oakleaf fleabane	*Erigeron quercifolius*	
Early whitetop fleabane	*Erigeron vernus*	
Beach creeper	*Ernodea littoralis*	
Fragrant eryngo	*Eryngium aromaticum*	
Baldwin's eryngo	*Eryngium baldwinii*	
Button eryngo	*Eryngium yuccifolium*	
Coralbean	*Erythrina herbacea*	
White stopper	*Eugenia axillaris*	
Surinam cherry*	*Eugenia uniflora*	
Dogfennel	*Eupatorium capillifolium*	
Falsefennel	*Eupatorium leptophyllum*	
Semaphore thoroughwort	*Eupatorium mikanioides*	
Mohr's thoroughwort	*Eupatorium mohrii*	
Roundleaf thoroughwort	*Eupatorium rotundifolium*	
Lateflowering thoroughwort	*Eupatorium serotinum*	
Lesser Florida spurge	*Euphorbia polyphylla*	
Sanddune spurge	*Euphorbia trichotoma*	
Slender flattop goldenrod	*Euthamia caroliniana*	
Slender dwarf morning-glory	*Evolvulus alsinoides*	
Silver dwarf morning-glory	*Evolvulus sericeus*	
Inkwood	*Exothea paniculata*	
Council tree*	*Ficus altissima*	
Strangler fig	*Ficus aurea*	
Indian laurel*	*Ficus microcarpa*	
African cloth-bark tree*	*Ficus nekbuda*	
Narrowleaf yellowtops	*Flaveria linearis*	
Florida swampprivet	*Forestiera segregata*	
Carolina ash	*Fraxinus caroliniana*	
Cottonweed	*Froelichia floridana*	
Firewheel	*Gaillardia pulchella*	
Elliott's milkpea	*Galactia elliottii*	
Eastern milkpea	*Galactia regularis*	
Downy milkpea	*Galactia volubilis*	
Coastal bedstraw	*Galium hispidulum*	

* Non-native Species

Common Name	***Scientific Name***	**Primary Habitat Codes (for Listed Species)**
Stiff marsh bedstraw	*Galium tinctorium*	
Caribbean purple everlasting	*Gamochaeta antillana*	
Pennsylvania everlasting*	*Gamochaeta pensylvanica*	
Spoonleaf purple everlasting	*Gamochaeta purpurea*	
Southern beeblossom	*Gaura angustifolia*	
Dwarf huckleberry	*Gaylussacia dumosa*	
Yellow jessamine	*Gelsemium sempervirens*	
Carolina cranesbill	*Geranium carolinianum*	
Prostrate globe amaranth*	*Gomphrena serrata*	
Loblolly bay	*Gordonia lasianthus*	
Chewstick	*Gouania lupuloides*	
Rough hedgehyssop	*Gratiola hispida*	
Shaggy hedgehyssop	*Gratiola pilosa*	
Branched hedgehyssop	*Gratiola ramosa*	
Blolly	*Guapira discolor*	
Firebush	*Hamelia patens*	
Southern sneezeweed	*Helenium pinnatifidum*	
Pinebarren frostweed	*Helianthemum corymbosum*	
Florida scrub frostweed	*Helianthemum nashii*	
Narrowleaf sunflower	*Helianthus angustifolius*	
East Coast dune sunflower	*Helianthus debilis*	
Scorpionstail	*Heliotropium angiospermum*	
Pineland heliotrope	*Heliotropium polyphyllum*	
Camphorweed	*Heterotheca subaxillaris*	
Scarlet rosemallow	*Hibiscus coccineus*	
Lindenleaf rosemallow	*Hibiscus furcellatus*	
Swamp rosemallow	*Hibiscus grandiflorus*	
Queen-devil	*Hieracium gronovii*	
Coastalplain hawkweed	*Hieracium megacephalon*	
Innocence	*Houstonia procumbens*	
Manyflower marshpennywort	*Hydrocotyle umbellata*	
Whorled marshpennywort	*Hydrocotyle verticillata*	
Skyflower	*Hydrolea corymbosa*	
Indian swampweed*	*Hygrophila polysperma*	
Nightblooming cactus*	*Hylocereus undatus*	
Coastalplain St. John's-wort	*Hypericum brachyphyllum*	
Roundpod St. John's-wort	*Hypericum cistifolium*	
Peelbark St. John's-wort	*Hypericum fasciculatum*	
Pineweeds	*Hypericum gentianoides*	
St. Andrew's-cross	*Hypericum hypericoides*	
Dwarf St. John's-wort	*Hypericum mutilum*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Atlantic St. John's-wort	*Hypericum tenuifolium*	
Fourpetal St. John's-wort	*Hypericum tetrapetalum*	
Clustered bushmint	*Hyptis alata*	
Tropical bushmint*	*Hyptis mutabilis*	
John charles*	*Hyptis verticillata*	
Carolina holly	*Ilex ambigua*	
Dahoon holly	*Ilex cassine*	
Gallberry	*Ilex glabra*	
Hairy indigo*	*Indigofera hirsuta*	
Trailing indigo*	*Indigofera spicata*	
Anil indigo*	*Indigofera suffruticosa*	
Tropical white morning-glory	*Ipomoea alba*	
Tievine	*Ipomoea cordatotriloba*	
Oceanblue morning-glory	*Ipomoea indica*	
Saltmarsh morning-glory	*Ipomoea sagittata*	
Littlebell*	*Ipomoea triloba*	
Juba's bush	*Iresine diffusa*	
Virginia willow	*Itea virginica*	
Piedmont marshelder	*Iva microcephala*	
Star jasmine*	*Jasminum multiflorum*	
Pineland waterwillow	*Justicia angusta*	
Chandelier plant*	*Kalanchoe delagoensis*	
Cathedral bells*	*Kalanchoe pinnata*	
Virginia saltmarsh mallow	*Kosteletzkya pentacarpos*	
Black ironwood	*Krugiodendron ferreum*	
Grassleaf lettuce	*Lactuca graminifolia*	
White mangrove	*Laguncularia racemosa*	
Lantana*	*Lantana camara*	
Buttonsage	*Lantana involucrata*	
Nodding pinweed	*Lechea cernua*	15,16
Deckert's pinweed	*Lechea deckertii*	
Drysand pinweed	*Lechea divaricata*	8,15,16
Pineland pinweed	*Lechea sessiliflora*	
Piedmont pinweed	*Lechea torreyi*	
Virginia pepperweed	*Lepidium virginicum*	
White leadtree*	*Leucaena leucocephala*	
Chapman's gayfeather	*Liatris chapmanii*	
Garber's gayfeather	*Liatris garberi*	
Slender gayfeather	*Liatris gracilis*	
Dense gayfeather	*Liatris spicata*	
Shortleaf gayfeather	*Liatris tenuifolia var. quadriflora*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Shortleaf gayfeather	*Liatris tenuifolia var. tenuifolia*	
Gopher apple	*Licania michauxii*	
Asian marshweed*	*Limnophila sessiliflora*	
Canadian toadflax	*Linaria canadensis*	
Apalachicola toadflax	*Linaria floridana*	
Malaysian false pimpernel*	*Lindernia crustacea*	
Yellowseed false pimpernel	*Lindernia dubia var. anagallidea*	
Savannah false pimpernel	*Lindernia grandiflora*	
Stiff yellow flax	*Linum medium var. texanum*	
Bay lobelia	*Lobelia feayana*	
Glade lobelia	*Lobelia glandulosa*	
White lobelia	*Lobelia paludosa*	
Winged primrosewillow	*Ludwigia alata*	
Curtiss' primrosewillow	*Ludwigia curtissii*	
Yerba de jicotea	*Ludwigia erecta*	
Lanceleaf primrosewillow	*Ludwigia lanceolata*	
Anglestem primrosewillow	*Ludwigia leptocarpa*	
Southeastern primrosewillow	*Ludwigia linifolia*	
Seaside primrosewillow	*Ludwigia maritima*	
Smallfruit primrosewillow	*Ludwigia microcarpa*	
Mexican primrosewillow	*Ludwigia octovalvis*	
Marsh seedbox	*Ludwigia palustris*	
Peruvian primrosewillow*	*Ludwigia peruviana*	
Hairy primrosewillow	*Ludwigia pilosa*	
Creeping primrosewillow	*Ludwigia repens*	
Shrubby primrosewillow	*Ludwigia suffruticosa*	
Skyblue lupine	*Lupinus diffusus*	
Rose-rush	*Lygodesmia aphylla*	
Coastalplain staggerbush	*Lyonia fruticosa*	
Fetterbush	*Lyonia lucida*	
Winged loosestrife	*Lythrum alatum var. lanceolatum*	
Wand loosestrife	*Lythrum lineare*	
Wild bushbean*	*Macroptilium lathyroides*	
Sweetbay	*Magnolia virginiana*	
Threelobe false mallow*	*Malvastrum coromandelianum*	
Texas waxmallow*	*Malvaviscus arboreus var. drummondii*	
Turkscap mallow*	*Malvaviscus penduliflorus*	
Mango*	*Mangifera indica*	
Cassava*	*Manihot esculenta*	
Grassleaf Barbara's buttons	*Marshallia graminifolia*	
Axilflower	*Mecardonia acuminata subsp. peninsularis*	

* Non-native Species

Common Name	***Scientific Name***	**Primary Habitat Codes (for Listed Species)**
Punktree*	*Melaleuca quinquenervia*	
Snow squarestem	*Melanthera nivea*	
Chinaberrytree*	*Melia azedarach*	
White sweetclover*	*Melilotus albus*	
Chocolateweed*	*Melochia corchorifolia*	
Creeping cucumber	*Melothria pendula*	
Stickleaf	*Mentzelia floridana*	
Noyau vine*	*Merremia dissecta*	
Poisonwood	*Metopium toxiferum*	
Manatee mudflower	*Micranthemum glomeratum*	
Shade mudflower	*Micranthemum umbrosum*	
Florida Keys hempvine	*Mikania cordifolia*	
Climbing hempvine	*Mikania scandens*	
Black mimosa*	*Mimosa pigra*	
Sensitive brier	*Mimosa quadrivalvis var. angustata*	
Twinberry	*Mitchella repens*	
Tropical girdlepod*	*Mitracarpus hirtus*	
Lax hornpod	*Mitreola petiolata*	
Swamp hornpod	*Mitreola sessilifolia*	
Indian chickweed*	*Mollugo verticillata*	
Balsampear*	*Momordica charantia*	
Indianpipe	*Monotropa uniflora*	
Redgal	*Morinda royoc*	
Red mulberry	*Morus rubra*	
Twinberry	*Myrcianthes fragrans*	
Wax myrtle	*Myrica cerifera*	
Tropical puff	*Neptunia pubescens*	
Yellow pondlily	*Nuphar advena*	
American white waterlily	*Nymphaea odorata*	
Big floatingheart	*Nymphoides aquatica*	
Whitetop aster	*Oclemena reticulata*	
Lancewood	*Ocotea coriacea*	
Seabeach eveningprimrose	*Oenothera humifusa*	
Flattop mille graines*	*Oldenlandia corymbosa*	
Clustered mille graines	*Oldenlandia uniflora*	
Pricklypear	*Opuntia humifusa*	
Common yellow woodsorrel	*Oxalis corniculata*	
Pink woodsorrel*	*Oxalis debilis*	
Water cowbane	*Oxypolis filiformis*	
Feay's palafox	*Palafoxia feayi*	
Coastalplain palafox	*Palafoxia integrifolia*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Florida pellitory	*Parietaria floridana*	
American nailwort	*Paronychia americana*	
Virginia creeper	*Parthenocissus quinquefolia*	
Corkystem passionflower	*Passiflora suberosa*	
Sanddune cinchweed	*Pectis glaucescens*	
Spreading cinchweed	*Pectis prostrata*	
Hybrid Florida cinchweed	*Pectis x floridana*	
Manyflower beardtongue	*Penstemon multiflorus*	
Wild allamanda	*Pentalinon luteum*	
Low pepreromia	*Peperomia humilis*	
Red bay	*Persea borbonia*	
Silk bay	*Persea borbonia var. humilis*	
Swamp bay	*Persea palustris*	
Florida false sunflower	*Phoebanthus grandiflorus*	
Capeweed	*Phyla nodiflora*	
Drummond's leafflower	*Phyllanthus abnormis*	
Gale-of-wind*	*Phyllanthus amarus*	
Mascarene Island leafflower*	*Phyllanthus tenellus*	
Cutleaf groundcherry	*Physalis angulata*	
Cypresshead groundcherry	*Physalis arenicola*	
Husk tomato	*Physalis pubescens*	
Walter's groundcherry	*Physalis walteri*	
American pokeweed	*Phytolacca americana*	
Artillery plant	*Pilea microphylla*	
Wild pennyroyal	*Piloblephis rigida*	
Blueflower butterwort	*Pinguicula caerulea*	
Yellow butterwort	*Pinguicula lutea*	
Small butterwort	*Pinguicula pumila*	
Pitted stripeseed	*Piriqueta cistoides subsp. caroliniana*	
Jamaican dogwood	*Piscidia piscipula*	
Narrowleaf silkgrass	*Pityopsis graminifolia*	
Virginia plantain	*Plantago virginica*	
Rosy camphorweed	*Pluchea baccharis*	
Cure-for-all	*Pluchea carolinensis*	
Stinking camphorweed	*Pluchea foetida*	
Sweetscent	*Pluchea odorata*	
Cape leadwort*	*Plumbago auriculata*	
Doctorbush	*Plumbago zeylanica*	
Paintedleaf	*Poinsettia cyathophora*	
Slender clammyweed	*Polanisia tenuifolia*	
Baldwin's milkwort	*Polygala balduinii*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Drumheads	*Polygala cruciata*	
Tall pinebarren milkwort	*Polygala cymosa*	
Procession flower	*Polygala incarnata*	
Orange milkwort	*Polygala lutea*	
Candyroot	*Polygala nana*	
Low pinebarren milkwort	*Polygala ramosa*	
Yellow milkwort	*Polygala rugelii*	
Coastalplain milkwort	*Polygala setacea*	
Small's milkwort	*Polygala smallii*	15,16
Showy milkwort	*Polygala violacea*	
Hairy jointweed	*Polygonella ciliata*	
Tall jointweed	*Polygonella gracilis*	
October flower	*Polygonella polygama*	
Largeflower jointweed	*Polygonella robusta*	
Swamp smartweed	*Polygonum hydropiperoides*	
Curlytop knotweed	*Polygonum lapathifolium*	
Dotted smartweed	*Polygonum punctatum*	
Rustweed	*Polypremum procumbens*	
Karum tree*	*Pongamia pinnata*	
Little hogweed*	*Portulaca oleracea*	
Pink purslane	*Portulaca pilosa*	
Pouzolz's bush*	*Pouzolzia zeylanica*	
Marsh mermaidweed	*Proserpinaca palustris*	
Combleaf mermaidweed	*Proserpinaca pectinata*	
Flatwoods plum	*Prunus umbellata*	
Sweet everlasting	*Pseudognaphalium obtusifolium*	
Mexican flamevine*	*Pseudogynoxys chenopodioides*	
Strawberry guava*	*Psidium cattleianum*	
Guava*	*Psidium guajava*	
Wild coffee	*Psychotria nervosa*	
Shortleaf wild coffee	*Psychotria sulzneri*	
Blackroot	*Pterocaulon pycnostachyum*	
Mock bishopsweed	*Ptilimnium capillaceum*	
Chapman's oak	*Quercus chapmanii*	
Sand live oak	*Quercus geminata*	
Turkey oak	*Quercus laevis*	
Laurel oak	*Quercus laurifolia*	
Dwarf live oak	*Quercus minima*	
Myrtle oak	*Quercus myrtifolia*	
Running oak	*Quercus pumila*	
Live oak	*Quercus virginiana*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Myrsine	*Rapanea punctata*	
Rubbervine	*Rhabdadenia biflora*	
West Indian meadowbeauty	*Rhexia cubensis*	
Pale meadowbeauty	*Rhexia mariana*	
Nuttall's meadowbeauty	*Rhexia nuttallii*	
Red mangrove	*Rhizophora mangle*	
Rose myrtle*	*Rhodomyrtus tomentosa*	
Winged sumac	*Rhus copallinum*	
Brownhair snoutbean	*Rhynchosia cinerea*	
Michaux's snoutbean	*Rhynchosia michauxii*	
Least snoutbean	*Rhynchosia minima*	
Tropical Mexican clover*	*Richardia brasiliensis*	
Largeflower Mexican clover*	*Richardia grandiflora*	
Rough Mexican clover*	*Richardia scabra*	
Castorbean*	*Ricinus communis*	
Rougeplant	*Rivina humilis*	
Southern marsh yellowcress	*Rorippa teres*	
Southern dewberry	*Rubus trivialis*	
Blackeyed Susan	*Rudbeckia hirta*	
Browne's blechum*	*Ruellia blechum*	
Carolina wild petunia	*Ruellia caroliniensis*	
Fiddle dock*	*Rumex pulcher*	
Swamp dock	*Rumex verticillatus*	
Shortleaf rosegentian	*Sabatia brevifolia*	
Coastal rosegentian	*Sabatia calycina*	
Bartram's rosegentian	*Sabatia decandra*	
Largeflower rosegentian	*Sabatia grandiflora*	
Rose-of-plymouth	*Sabatia stellaris*	
Carolina willow	*Salix caroliniana*	
Elderberry	*Sambucus nigra subsp. canadensis*	
Water pimpernel	*Samolus ebracteatus*	
Pineland pimpernel	*Samolus valerandi subsp. parviflorus*	
White twinevine	*Sarcostemma clausum*	
Lizard's tail	*Saururus cernuus*	
Brazilian pepper*	*Schinus terebinthifolia*	
Graytwig	*Schoepfia chrysophylloides*	
Sweetbroom	*Scoparia dulcis*	
Privet wild sensitive plant	*Senna ligustrina*	
Coffeeweed*	*Senna obtusifolia*	
Septicweed*	*Senna occidentalis*	
Valamuerto*	*Senna pendula var. glabrata*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for Listed Species)
Whitetop aster	*Sericocarpus tortifolius*	
Bladderpod	*Sesbania vesicaria*	
Shoreline seapurslane	*Sesuvium portulacastrum*	
Piedmont black senna	*Seymeria pectinata*	
Heartleaf sida*	*Sida cordifolia*	
Indian hemp	*Sida rhombifolia*	
Common wireweed	*Sida ulmifolia*	
False mastic	*Sideroxylon foetidissimum*	
Florida bully	*Sideroxylon reclinatum*	
White bully	*Sideroxylon salicifolium*	
Tough bully	*Sideroxylon tenax*	
Paradisetree	*Simarouba glauca*	
American black nightshade	*Solanum americanum*	
Soda apple	*Solanum capsicoides*	
Twoleaf nightshade*	*Solanum diphyllum*	
Potatotree	*Solanum erianthum*	
Pinebarren goldenrod	*Solidago fistulosa*	
Chapman's goldenrod	*Solidago odora var. chapmanii*	
Seaside goldenrod	*Solidago sempervirens*	
Wand goldenrod	*Solidago stricta*	
Twistedleaf goldenrod	*Solidago tortifolia*	
Common sowthistle*	*Sonchus oleraceus*	
Woodland false buttonweed	*Spermacoce remota*	
Shrubby false buttonweed*	*Spermacoce verticillata*	
Roughfruit scaleseed	*Spermolepis divaricata*	
Bristly scaleseed	*Spermolepis echinata*	
Creeping oxeye*	*Sphagneticola trilobata*	
Blue porterweed	*Stachytarpheta jamaicensis*	
Common chickweed*	*Stellaria media*	
Shaggytuft	*Stenandrium dulce*	
Water toothleaf	*Stillingia aquatica*	44
Queensdelight	*Stillingia sylvatica*	
Pineland scalypink	*Stipulicida setacea var. lacerata*	
Hairy dawnflower	*Stylisma villosa*	
Cheesytoes*	*Stylosanthes hamata*	
Climbing aster	*Symphyotrichum carolinianum*	
Rice button aster	*Symphyotrichum dumosum*	
Elliott's aster	*Symphyotrichum elliottii*	
Simmonds' aster	*Symphyotrichum simmondsii*	
Annual saltmarsh aster	*Symphyotrichum subulatum*	
Java plum*	*Syzygium cumini*	

* Non-native Species

Common Name	***Scientific Name***	**Primary Habitat Codes (for Listed Species)**
Malabar plum*	*Syzygium jambos*	
Sea hibiscus*	*Talipariti tiliaceum*	
Scurf hoarypea	*Tephrosia chrysophylla*	
Sprawling hoarypea	*Tephrosia hispidula*	
Rugel's hoarypea	*Tephrosia rugelii*	
Spiked hoarypea	*Tephrosia spicata*	
Australian almond*	*Terminalia muelleri*	
Wood sage	*Teucrium canadense*	
Poison ivy	*Toxicodendron radicans*	
Nettletree	*Trema micrantha*	
Virginia marsh St. John's-wort	*Triadenum virginicum*	
Burrnut*	*Tribulus cistoides*	
Forked bluecurls	*Trichostema dichotomum*	
Narrowleaf bluecurls	*Trichostema setaceum*	
Coatbuttons*	*Tridax procumbens*	
White clover*	*Trifolium repens*	
American elm	*Ulmus americana*	
Caesarweed*	*Urena lobata*	
Horned bladderwort	*Utricularia cornuta*	
Leafy bladderwort	*Utricularia foliosa*	
Humped bladderwort	*Utricularia gibba*	
Floating bladderwort	*Utricularia inflata*	
Southern bladderwort	*Utricularia juncea*	
Eastern purple bladderwort	*Utricularia purpurea*	
Lavender bladderwort	*Utricularia resupinata*	
Fringed bladderwort	*Utricularia simulans*	
Zigzag bladderwort	*Utricularia subulata*	
Shiny blueberry	*Vaccinium myrsinites*	
Deerberry	*Vaccinium stamineum*	
Sandpaper vervain	*Verbena scabra*	
White crownbeard	*Verbesina virginica*	
Florida ironweed	*Vernonia blodgettii*	
Giant ironweed	*Vernonia gigantea*	
Walter's viburnum	*Viburnum obovatum*	
Fourleaf vetch	*Vicia acutifolia*	
Hairypod cowpea	*Vigna luteola*	
Bog white violet	*Viola lanceolata*	
Primroseleaf violet	*Viola primulifolia*	
Common blue violet	*Viola sororia*	
Summer grape	*Vitis aestivalis*	
Florida grape	*Vitis cinerea var. floridana*	

* Non-native Species

Common Name	***Scientific Name***	**Primary Habitat Codes (for Listed Species)**
Muscadine grape	*Vitis rotundifolia*	
Calloose grape	*Vitis shuttleworthii*	
Sleepy morning	*Waltheria indica*	
Hog plum	*Ximenia americana*	
Oriental false hawksbeard*	*Youngia japonica*	
Hercules-club	*Zanthoxylum clava-herculis*	
Wild lime	*Zanthoxylum fagara*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)

INVERTEBRATES

SPONGES

Spongilla lacustris

CNIDARIAN

Cordylophora lacustris

FLATWORMS

Dugesia tigrina

NEMERTRANS

Prostoma rubrum

EARTHWORMS

Branchiura sowerbyi
Dero digiata
Limnodrilus hoffmeisteri
Lumbricus sp.
Tubificidae

LEECHES

Helobdella elongata
Helobdella stagnalis

LIMPET

Ferrissia hendersoni

SNAILS

Gyraulus parvus
Physella hendersoni
Planorbella scalaris
Planorbella trivolvis intertexta
Apple snail *Pomacea paludas*
Spike-topped applesnail* *Pomacea dffusa*

CLAMS

Sphaerium occidentale

SCORPIONS

Scorpion *Centrurus* sp.
Whip Scorpion *Schizomus floridensis*

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)

SPIDERS

Silver argiope ..... *Argiope argentata*
Spiny-backed spider ..... *Gasteracantha* sp.
Huntsman spider ..... *Heteropoda venatoria*
Red widow spider ..... *Latrodectus bishopi*
Brown widow spider ..... *Latrodectus geometricus*
Black widow spider ..... *Latrodectus mactans*
Daddy longlegs ..... *Leiobunum vittatum*
Brown recluse spider ..... *Loxosceles reclusa*
Wolf spider ..... *Lycosa helluo*
Golden silk spider ..... *Nephila clavipes*
Jumping spider ..... *Phidippus regius*

TICKS AND MITES

Tick ..... *Dermacentor* sp.
Chiggers ..... *Trombicula irritans*

BARNACLES

..... *Balanus* sp.

ISOPODS

..... *Sphaeroma destructor*

AMPHIPODS

..... *Hyallela azteca*
..... *Gammarus fasciatus*
Beach flea ..... *Orchestia uhleri*

CRABS

Mangrove crab ..... *Aratus pisonii*
Common blue crab ..... *Callinectes sapidus*
Crayfish ..... *Cambarus bartoni*
Land crab ..... *Cardisoma guanhumli*
..... *Macrobrachium ohione*
..... *Palaemonestes paludosus*
..... *Paleomonetes paludosus*
..... *Procambarus* sp.
Harris' mud crab ..... *Rhithropanopeus harrisii*
Gray marsh crab ..... *Sesarma cinereum*
Fiddler crab ..... *Uca* sp.

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)

CENTIPEDES

Centipede .....*Scutigera* sp.

MILIPEDES

Millipede .....*Narceus americana*

SILVERFISH

Silverfish .....*Lepisma saccharina*

MAYFLIES

.....*Baetis* sp.
.....*Caenis diminuta*
.....*Callibaetis floridanius*
.....*Callibaetis pretiosus*
.....*Callibaetis* sp.
.....*Choroterpes* sp.

BUTTERFLIES AND MOTHS

Tantalus sphinx .....*Aellopos tantalus*
Gulf fritillary .....*Agraulis vanillae nigrior*
Pink-spotted hawk moth.....*Agrius cingulata*
Nessus sphinx.....*Amphion floridensis*
White peacock.....*Anartia jatrophae guantanamo*
Polyphemus moth.....*Antheraea polyphemus*
Nais tiger moth .....*Apantesis nais*
Harnessed moth .....*Apantesis phalerata*
Dot-lined white.....*Artace cribraria*
Great southern white .....*Ascia monuste phileta*
Sachem.....*Atalopedes campestris huron*
Dusted skipper .....*Atrytonopsis loammi*
Arogos skipper .....*Atytone arogos*
Io moth.....*Automeris io lilith*
Polydamas swallowtail .....*Battus polydamas*
Little metalmark.....*Calephelis virginiensis*
Brazilian skipper .....*Calpodes ethlius*
Red-banded hairsteak.....*Calycopis cecrops*
Melsheimer's sack-bearer.....*Cicinnus melsheimeri*
Yellow-collared scape moth .....*Cisseps fulvicollis*
Southern dogface .....*Colias cesonia*
Orange sulphur .....*Colias eurytheme*
Clouded sulphur .....*Colias philodice*

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Southern skipperling	*Copaeodes minima*	
Scarlet-bodied wasp moth	*Cosmosoma myrodora*	
Queen	*Danaus gilippus berenice*	
Hog sphinx	*Darapsa myron*	
Imperial moth	*Eacles imperials*	
Giant leopard moth	*Ecpantheria scribonia*	
Mournful sphinx	*Enyo lugubris*	
Silver-spotted skipper	*Epargyreus clarus clarus*	
Alope sphinx	*Erinnyis alope*	
Ello sphinx	*Erinnyis ello*	
Horace's duskywing	*Erynnis horatius*	
Zarucco duskywing	*Erynnis zarucco*	
Salt marsh moth	*Estigmene acrea*	
Florida euceron	*Eucereon carolina*	
Milkweed tussock moth	*Euchaetes egle*	
Banded sphinx	*Eumorpha fasciata*	
Gaudy sphinx	*Eumorpha labruscae*	
Palmetto skipper	*Euphyes arpa*	
Palatka skipper	*Euphyes pilatka pilatka*	
Snowy eupseudosoma	*Eupseudosoma involutum floridum*	
Variegated fritillary	*Euptoetia claudia*	
Barred yellow	*Eurema daira daira*	
Barred yellow	*Eurema daira palmira*	
Little yellow	*Eurema lisa lisa*	
Sleepy orange	*Eurema nicippe*	
Zebra swallowtail	*Eurytides marcellus*	
Tussock moth	*Halysidota harrisii*	
Zebra	*Heliconius charitonius tuckeri*	
Hummingbird clearwing	*Hemaris thysbe*	
Ceraunus blue	*Hemiargus ceraunus antibubastus*	
Carolina satyr	*Hermeuptychia sosybius*	
Dotted skipper	*Hesperia attalus slossonae*	
Meske's skipper	*Hesperia meskei straton*	
Immaculate holomelina	*Holomelina immaculata*	
Joyful holomelina	*Holomelina laeta*	
Fiery skipper	*Hylephila phyleus*	
White-lined sphinx	*Hyles lineata*	
Fall webworm moth	*Hyphantria cunea*	
Cypress sphinx	*Isoparce cupressi*	
Common buckeye	*Junonia coenia*	
Cassius blue	*Leptotes cassius*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Clouded skipper	*Lerema accius*	
Eufala skipper	*Lerodea eufala*	
Long-streaked tussock moth	*Leucanopsis longa*	
Viceroy	*Limenitis archippus floridensis*	
Edwards' wasp moth	*Lymire edwardsii*	
Rustic sphinx	*Manduca rustica*	
Carolina sphinx	*Manduca sexta*	
Ruddy daggerwing	*Marpesia petreus*	
Neamathla skipper	*Nastra neamathla*	
Dainty sulphur	*Nathalis iole*	
Georgia satyr	*Neonympha areolata*	
Twin-spot skipper	*Oligoria maculata*	
Fig sphinx	*Pachylia ficus*	
Mouse-colored lichen moth	*Pagara simplex*	
Ocola skipper	*Panoquina ocola*	
Small-eyed sphinx	*Paonias myops*	
Giant swallowtail	*Papilio cresphontes*	
Eastern tiger swallowtail	*Papilio glaucas australis*	
Palamedes swallowtail	*Papilio palamedes*	
Black swallowtail	*Papilio polyxenes asterius*	
Spicebush swallowtail	*Papilio troilus*	
Yellow-winged pareuchaetes	*Pareuchaetes insulata*	
White m hairstreak	*Parrhasius malbum*	
Orange-barred sulphur	*Phoebis philea philea*	
Cloudless sulphur	*Phoebis sennae eubule*	
Phaon crescent	*Phyciodes phaon*	
Pearl crescent	*Phyciodes tharos*	
Crossline skipper	*Polites origines origines*	
Tawny-edged skipper	*Polites themistocles*	
Whirlabout	*Polites vibex vibex*	
Checkered white	*Pontia protodice*	
Cutworm moth	*Prodenia ornithogalli*	
Sphinx moth	*Protambulyx strigilis*	
Tropical checkered-skipper	*Pyrgus oileus*	
Isabella tiger moth	*Pyrrharctia isabella*	
Bleeding flower moth	*Schinia sanguinea*	
Three-lined flower moth	*Schinia trifascia*	
Echo moth	*Seirarctia echo*	
Saddleback caterpillar moth	*Sibine stimulea*	
Gray hairstreak	*Strymon melinus*	
Oleander moth	*Suntomeida epilais jucundissima*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Clear winged moth	*Synanthedon geliformis*	
Clear winged moth	*Synanthedon sapygaeformis*	
Yellow-banded wasp moth	*Syntomeida ipomoeae*	
Plaster bagworm	*Tineola* sp.	
Dorantes skipper	*Urbanus dorantes*	
Long-tailed skipper	*Urbanus proteus proteus*	
Bella moth	*Utetheisa bella*	
Red admiral	*Vanessa atalanta*	
Grape root borer moth	*Vitacea polistiformis*	
Southern broken-dash	*Walengrenia otho otho*	
Tersa sphinx	*Xylophanes tersa*	
	DRAGONFLIES	
Common green darner	*Anax junius*	
Comet darner	*Anax longipes*	
Faded pennants	*Celithemis nr. ornata*	
Small pennants	*Celithemis* sp.	
Regal darner	*Coryphaeschna ingens*	
Purple bluet	*Enallagma cardenium*	
Burgandy bluet	*Enallagma dubium*	
Florida bluet	*Enallagma pollutum*	
	Enallagma sp.	
Baskettails	*Epitheca* sp.	
Eastern pondhawk	*Erythemis simplicicollis*	
Pondhawks	*Erythemis* sp.	
Band-winged dragonlet	*Erythrodiplax umbrata*	
Citrine forktail	*Ischnura hastata*	
Lilypad forktail	*Ischnura kellicotti*	
Fragile forktail	*Ischnura posita*	
Rambur's forktail	*Ischnura ramburii*	
	Ischnura sp.	
Swamp spreadwing	*Lestes vigilax*	
Slaty skimmer	*Libellula incesta*	
King skimmers	*Libellula* sp.	
Royal river cruiser	*Macromia taeniolata*	
Cyrano darner	*Nasiaeschna pentacantha*	
Southern sprite	*Nehalennia intergricollis*	
Blue dasher	*Pachydiplax longipennis*	
Baskettails	*Tetragoneuria semiaquea*	
Violet-masked glider	*Tramea carolina*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)

GRASSHOPPERS

House cricket ..... *Acheta domesticus*
Field cricket ..... *Gryllus assimilis*
..... *Leptysma* sp.
Katydid ..... *Microcentrum* sp.
Mole cicket ..... *Neocurtilla hexadactyla*
Lubber gasshopper ..... *Romalea microptera*
Bird gasshopper ..... *Schistocerca obscura*
Rosemary gasshopper ..... *Schistocerca ceratiola*

EARWIGS

Earwig ..... *Labidura riparia*

STICK INSECTS

Walkingstick ..... *Anisomorpha buprestoides*

ROACHES

German cockroach ..... *Blatella germanica*
American cockroach ..... *Periplaneta americana*

PRAYING MANTISES

Praying mantis ..... *Mantis religiosa*

TRUE BUGS

Aphid ..... *Aphis spiraecola*
Wheel bug ..... *Arilus cristatus*
Giant water bugs ..... *Belostoma testaceum*
Australian pine spittlebug ..... *Clastoptera undulata*
Water striders ..... *Gerris* sp.
Leafhopper ..... *Hortensia similis*
Water measurers ..... *Hydrometra australis*
..... *Lethocerus griseus*
Water treaders ..... *Mesovelia mulsanti*
Riffle bugs ..... *Microvelia* sp.
..... *Neogerris nr. hesione*
Backswimmers ..... *Neoplea striola*
Stink bug ..... *Nezara* sp.
Creeping water bugs ..... *Pelocoris femoratus*
..... *Platyvelia* sp.
Waterscorpions ..... *Ranatra australis*
..... *Ranatra nigra*

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Cicada	*Tibicen* sp.	
	Trepobates nr. pictus	
Water boatmen	*Tricorixa calva*	
	Tricorixa sexcinta	
Thorn bug	*Umbonia crassicornis*	
	NET WINGED INSECTS	
Green lacewing	*Chrysopa bicornea*	
Antlion	*Hesperoleon* sp.	
	THRIPS	
Thrips	*Gynaikothrips ficorum*	
	BEETLES	
Predaceous diving beetles	*Anodocheilus exiguus*	
Water scavenger beetles	*Berosus infuscatus*	
	Berosus peregrinus	
Two-spotted ladybug	*Chilocorus stigma*	
	Copelatus caelatipennis p.	
	Copelatus chevrolati ch.	
	Copelatus interrogatus	
	Copelatus venustus	
Marsh beetles	*Cyphon* sp.	
	Desmophachria sp.	
Whirligig beetles	*Dineutes emarginatus*	
	Dineutes serrulatus	
Riffle beetles	*Dubiraphia* sp.	
	Enochrus consors	
	Enochrus hamiltoni	
	Enochrus ochraceus	
	Hydaticus bimarginatus	
Burrowing water beetles	*Hydrocanthus oblongus*	
	Hydrocanthus regius	
	Hydrochus sp.	
	Hydrovatus sp.	
	Laccophilus proximus	
	Laccophilus sp.	
Bromeliad weevil*	*Metamasius callizona*	
	Neoporus blanchardi	
Long-toed water beetles	*Pelonomus obscurus*	
Crawling water beetles	*Peltodytes* sp.	
Lightning bug	*Photurus* sp.	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
	Suphisellus gibbulus	
	Suphisellus punticollis	
	Suphisellus sp.	
	Tropistemus lateralis nim.	
	Tropistemus natator	
	Tropistemus sp.	
	TRUE FLIES	
	Ablabesmyia mallochi	
	Ablabesmyia parajanta	
	Ablabesmyia peleensis	
	Ablabesmyia philosphagnos	
	Ablabesmyia rhamphe	
Midges	*Asheum beckae*	
	Cardiocladius sp.	
Phantom midges	*Chaoborus* sp.	
	Chiironomini sp.	
	Chironomus attenuatus	
	Chironomus crassicaudatus	
	Chironomus ochreatus	
	Chironomus sp.	
Deerflies	*Chrysops* sp.	
	Chrysops vittatus	
	Cincticornia sp.	
	Cladopelma sp.	
	Cladotanytarsus sp.	
	Clinotanypus sp.	
	Corynoneura sp.	
	Crictotups/Orthocla sp.	
	Crocotopus sylvestris	
	Cryptochironomus sp.	
	Cryptotendipes sp.	
No-see-ums	*Culicoides* sp.	
	Dicrotendipes modestus	
	Dicrotendipes sp.	
Robber flies	*Efferia* sp.	
	Endochironomus nigricans	
	Glyptotendipes seminole	
	Glyptotendipes sp.	
	Harnishia boydii	
	Kiefferulus sp.	
	Krenopelopia sp.	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
	Labrundinia maculata	
	Labrundinia neopilosella	
	Labrundinia sp.	
	Labrundinia virescens	
	Larsia bemeri	
	Larsia sp.	
	Metriocnemus sp.	
	Monopelopia boliekae	
House fly	*Musca domestica*	
	Nilotanypus americanus	
	Nilotanypus sp.	
	Odontomyia sp.	
	Pagastiella sp.	
	Palpomyia sp.	
	Parachironomus alatus	
	Parachironomus carinatus	
	Parachironomus directus	
	Parachironomus frequens	
	Parachironomus sp.	
	Parachironomus sublettei	
Gall gnats	*Parallelodiplosis floridana*	
	Paratanytarsus sp.	
	Pentaneura inconspicua	
	Phaenopsectra obediens	
Love bug	*Plecia nearctica*	
	Polypedilum aviceps	
	Polypedilum convictum	
	Polypedilum helterale	
	Polypedilum illinoense	
	Polypedilum sp.	
	Polypedilum trigonus	
	Polypedilum tritum	
	Procladius bellus	
	Procladius sp.	
Soldier flies	*Simulium* sp.	
	Stenochironomus sp.	
Horsefly	*Tabanus stratus*	
	Tanypus carinatus	
	Tanypus sp.	
	Tanytarsus sp.	
	Thienemannimyia sp.	
	Thlenemannimyia sp.	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)

.....*Zavrelymia* sp.

FLEAS

.....*Ctenocephalides* sp.

GALL FLIES

.....*Acraspis* sp.
.....*Amphibolips murata*
.....*Amphibolips quercuscitriformis*
.....*Amphibolips quercusfuliginosa*
.....*Andricus cinnamomeus*
.....*Andricus pisiformis*
.....*Andricus quercusfoliatus*
.....*Andricus quercuslanigera*
.....*Andricus quercuspetiolicola*
.....*Belonocnema quercusvirens*
.....*Callirhytis* sp.
.....*Callirhytis balanopsis*
.....*Callirhytis floridana*
.....*Callirhytis myrtifoliae*
.....*Callirhytis quercusbatatoides*
.....*Callirhytis quercusclavigera*
.....*Callirhytis quercusgemmaria*
.....*Callirhytis medullae*
.....*Callirhytis quercusventricosa*
.....*Callirhytis quercusoperator*
.....*Disholcaspis quercusomnivora*
.....*Disholcaspis quercussuccinipes*
.....*Disholcaspis quercusvirens*
.....*Eumayria invisa*
.....*Neuroterus* sp.
.....*Neuroterus niger*
.....*Neuroterus quercusverrucarum*
.....*Neuroterus quercusirregularis*
.....*Sphaeroteras carolina*
.....*Sphaeroteras melleum*
.....*Xanthoteras* sp.

ANTS

.....*Brachymyrmex depilis*
.....*Brachymyrmex obscurior*
Carpenter ant.....*Camponotus abdominalis*

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Carpenter ant	*Camponotus tortuganus*	
	Cardiocondyla emeryi	
	Conomyrma sp.	
	Conomyrma bureni	
	Crematogaster ashmeadi	
	Cyphomyrmex rimosus	
	Discothyrea testacea	
	Forelius pruinosus	
	Formica pallidefulva	
	Hypoponera opacior	
	Iridomyrmex pruinosus	
	Leptothorax pergandei	
	Monomorium floricola	
	Ochetomyrmex auropunctata	
	Odontomachus brunneus	
	Odontomachus insularis	
	Odontomachus ruginodis	
	Pachycondyla stigma	
	Paratrechina arenivaga	
	Paratrechina longicornis	
	Pheidole dentata	
	Pheidole floridana	
	Pheidole moerens	
	Pheidole morrisi	
	Platythyrea punctata	
	Pogonomyrnex badius	
	Pseudomyrmex elongatus	
	Pseudomyrmex mexicanus	
	Quadristruma emmae	
	Smithistruma dietrichi	
	Solenopsis globularia	
Red fire ant	*Solenopsis invicta**	
	Solenopsis pergande	
	Solenopsis saevissima	
	Solenopsis tennesseensis	
	Strumigenys eggers	
	Tapinoma melanocephalum	
	Tetramoruim caldaruim	
	Tetramoruim simillimum	
	Trachymyrex septentrionalis	
	Wasmannia auropunctata	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)

BEES

Honeybee	*Apis mellifera*
Bumblebee	*Bombus pennsylvanicus*
Yellowjacket	*Vespula* sp.
Carpenter Bee	*Xylocopa* sp.

FISH

Lined sole	*Achirus lineatus*
Mountain mullet	*Agonostomus monticola*
Yellow bullhead	*Ameiurus natalis*
Brown bullhead	*Ameiurus nebulosus*
Bowfin	*Amia calva*
Bay anchovy	*Anchoa mitchilli*
American eel	*Anguilla rostrata*
Sheepshead	*Archosargus probatocephalus*
Hardhead catfish	*Ariopsis felis*
River goby	*Awaous banana*
Gafftopsail catfish	*Bagre marinus*
Silver perch	*Bairdiella chrysoura*
Whip eel	*Bascanichthys scuticaris*
Frillfin goby	*Bathygobius soporator*
Crevalle jack	*Caranx hippos*
Swordspine snook	*Centropomus ensiferus*
Largescale fat snook	*Centropomus mexicanus*
Smallscale fat snook	*Centropomus parallelus*
Tarpon snook	*Centropomus pectinatus*
Common snook	*Centropomus undecimalis*
Warmouth	*Chaenobryttus gulosus*
Black acara*	*Cichlasoma bimaculatum*
Spotted whiff	*Citharichthys macrops*
Bay whiff	*Citharichthys spilopterus*
Walking catfish*	*Clarias batrachus*
Darter goby	*Ctenogobius boleosoma*
Grass carp*	*Ctenopharyngodon idella*
Spotted seatrout	*Cynoscion nebulosus*
Sheepshead minnow	*Cyprinodon variegatus*
Atlantic stingray	*Dasyatis sabina*
Irish pompano	*Diapterus auratus*
Fat sleeper	*Dormitator maculatus*
Gizzard shad	*Dorosoma cepedianum*

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Everglades pygmy sunfish	*Elassoma evergladei*	
Largescale spinycheek sleeper	*Eleotris amblyopsis*	
Spinycheek sleeper	*Eleotris pisonis*	
Ladyfish	*Elops saurus*	
Bluespotted sunfish	*Enneacanthus gloriosus*	
Lake chubsucker	*Erimyzon sucetta*	
Swamp darter	*Etheostoma fusiforme*	
Spotfin mojarra	*Eucinostomus argenteus*	
Silver jenny	*Eucinostomus gula*	
Mottled mojarra	*Eucinostomus lefroyi*	
Striper mojarra	*Eugerres plumieri*	
Lyre goby	*Evorthodus lyricus*	
Golden topminnow	*Fundulus chrysotus*	
Banded topminnow	*Fundulus cingulatus*	
Marsh killifish	*Fundulus confluentus*	
Lined topminnow	*Fundulus lineolatus*	
Seminole killifish	*Fundulus seminolis*	
Western mosquitofish	*Gambusia affinis*	
Bigmouth sleeper	*Gobiomorus dormitor*	
Sharptail goby	*Gobionellus hastatus*	
Highfin goby	*Gobionellus oceanicus*	
Naked goby	*Gobiosoma bosc*	
Least killifish	*Heterandria formosa*	
Brown hoplo*	*Hoplosternum littorale*	
Flagfish	*Jordanella floridae*	
Brook silverside	*Labidesthes sicculus*	
Pinfish	*Lagodon rhomboides*	
Long-nosed gar	*Lepisosteus osseus*	
Florida gar	*Lepisosteus platyrhincus*	
Bluegill	*Lepomis macrochirus*	
Dollar sunfish	*Lepomis marginatus*	
Redear sunfish	*Lepomis microlophus*	
Spotted sunfish	*Lepomis punctatus*	
Pygmy killifish	*Leptolucania ommata*	
Crested goby	*Lophogobius cyprinoides*	
Bluefin killifish	*Lucania goodei*	
Gray snapper	*Lutjanus griseus*	
Dog snapper	*Lutjanus jocu*	
Tarpon	*Megalops atlanticus*	
Tidewater silverside	*Menidia beryllina*	
Glown goby	*Microgobius gulosus*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Opossum pipefish	*Microphis brachyurus*	35,36
Atlantic croaker	*Micropogonias undulatus*	
Largemouth bass	*Micropterus salmoides*	
Striped mullet	*Mugil cephalus*	
White mullet	*Mugil curema*	
Speckled worm eel	*Myrophis punctatus*	
Ironcolor shiner	*Notropis chalybaeus*	
Taillight shiner	*Notropis maculatus*	
Coastal shiner	*Notropis petersoni*	
Tadpole madtom	*Noturus gyrinus*	
Pigfish	*Orthopristis chrysoptera*	
Southern flounder	*Paralichthys lethostigma*	
Sailfin molly	*Poecilia latipinna*	
Burro grunt	*Pomadasys crocro*	
Black crappie	*Pomoxis nigromaculatus*	
Sailfin catfish*	*Pterygoplichthys multiradiatus*	
Red drum	*Sciaenops ocellatus*	
Great barracuda	*Sphyraena barracuda*	
Atlantic needlefish	*Strongylura marina*	
Redfin needlefish	*Strongylura notata*	
Gulf pipefish	*Syngnathus scovelli*	
Spotted tilapia*	*Tilapia mariae*	

AMPHIBIANS

Salamanders

Two-toed amphiuma	*Amphiuma means*	35,41
Peninsula newt	*Notophthalmus viridecens piarapicola*	31,41
Eastern lesser siren	*Siren intermedia intermedia*	44

Frogs and Toads

Florida cricket frog	*Acris gryllus dorsalis*	15,43,44
Giant toad*	*Bufo marinus*	84,85
Oak toad	*Bufo quercicus*	15,16,43,44
Southern toad	*Bufo terrestris*	15,16,43,44
Greenhouse frog	*Eleutherodactylus planirostris*	15,16,43,44
Narrowmouth toad	*Gastrophryne carolinensis*	15,16,43,44
Green treefrog	*Hyla cinerea*	32,35,43
Pine woods treefrog	*Hyla femoralis*	32,35,43
Barking treefrog	*Hyla gratiosa*	15,16,43,44
Squirrel treefrog	*Hyla squirella*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Gopher frog	*Lithobates capito aesopus*	8,15,16,51
Pig frog	*Lithobates grylio*	31
Florida leopard frog	*Lithobates sphenocephala sphenocephala*	31,32,35
Cuban treefrog*	*Osteopilus septentrionalis*	MTC
Florida chorus frog	*Pseudacris nigrita verrucosa*	43,44
Little grass frog	*Pseudacris ocularis*	43,44
Eastern spadefoot toad	*Scaphiopus holbrookii holbrookii*	15,16,43,44

REPTILES

Crocodilians

American alligator	*Alligator mississippiensis*	MTC

Turtles

Florida softshell	*Apalone ferox*	14,15,43
Florida snapping turtle	*Chelydra serpentina osceola*	55,79
Gopher tortoise	*Gopherus polyphemus*	8,15,16,43,84
Florida mud turtle	*Kinosternon subrubrum steindachneri*	43,44
Peninsula cooter	*Pseudemys concinna floridana*	31,55
Florida redbelly turtle	*Pseudemys nelsoni*	35,41,55
Florida box turtle	*Terrapene carolina bauri*	MTC

Lizards

Green anole	*Anolis carolinensis*	35,55,85
Six-lined racerunner	*Cnemidophorus sexlineatus sexineatus*	15,16,43
Peninsula mole skink	*Eumeces egregius onocrepis*	14
Southeastern five-lined skink	*Eumeces inexpectatus*	15,16
Indo-Pacific gecko*	*Hemidactylus garnotii*	43
Tropical house gecko*	*Hemidactylus mabouia*	43
Green iguana*	*Iguana iguana*	14,35,79
Northern curly-tailed lizard*	*Leiocephalus carinatus armouri*	84
Cuban brown anole*	*Norops sagrei*	15,35,43
Island glass lizard	*Ophisaurus compressus*	51,55
Florida scrub lizard	*Sceloporus woodi*	41,84
Ground skink	*Scincella lateralis*	15,16,43

Snakes

Florida cottonmouth	*Agkistrodon piscivorus conanti*	43
Florida scarlet snake	*Cemophora coccinea coccinea*	14,15,16,43
Southern black racer	*Coluber constrictor priapus*	MTC
Eastern diamondback rattlesnake	*Crotalus adamanteu*	8,14,15,16,43,84

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Southern ring neck snake	*Diadophis punctatus punctatus*	8,14,15,16
Eastern indigo snake	*Drymarchon corais couperi*	MTC
Yellow rat snake	*Elaphe alleghaniensis*	43
Corn snake	*Elaphe guttata guttata*	MTC
Eastern mud snake	*Farancia abacura abacura*	35
Eastern hognose snake	*Heterdon platirhinos*	8,15,16
Scarlet kingsnake	*Lampropeltis triangulum elapsoides*	35,43,44
Eastern coachwhip	*Masticophis flagellum flagellum*	8,13,14,15,16
Eastern coral snake	*Micrurus fulvius fulvius*	MTC
Florida water snake	*Nerodia fasciata pictiventris*	35,44,79
Florida green water snake	*Nerodia floridana*	35,44,79
Brown water snake	*Nerodia taxispilota*	35,44,79
Rough green snake	*Opheodrys aestivus*	44
Florida pine snake	*Pituophis melanoleucus mugitus*	32,35,41
Striped crayfish snake	*Regina alleni*	15
Pine woods snake	*Rhadinaea flavilata*	MTC
South Florida swamp snake	*Seminatrix pygaea cyclas*	43
Dusky pygmy rattlesnake	*Sistrurus miliarius barbouri*	15,43
Coastal dunes crowned snake	*Tantilla relicta pamlica*	15,44
Peninsula ribbon snake	*Thamnophis sauritus sackeni*	MTC
Eastern garter snake	*Thamnophis sirtalis sirtalis*	MTC

BIRDS

Loons

Common loon	*Gavia immer*	55

Grebes

Pied-billed grebe	*Podilymbus podiceps*	

Pelicans

Brown pelican	*Pelecanus occidentalis*	OF

Cormorants

Double-crested cormorant	*Phalacrocorax auritus*	55,79

Darters

Anhinga	*Anhinga anhinga*	

Frigatebirds

Magnificent frigatebird	*Fregata magnificens*	OF

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Herons and Bitterns		
Great egret	*Ardea alba*	MTC
Great blue heron	*Ardea herodias*	MTC
American bittern	*Botaurus lentiginosus*	31
Cattle egret	*Bubulcus ibis*	84,85
Green heron	*Butorides virescens*	44,55
Little blue heron	*Egretta caerulea*	31,44
Snowy egret	*Egretta thula*	55,79
Tricolored heron	*Egretta tricolor*	31,44
Wood stork	*Mycteria americana*	31,44,51
Yellow-crowned night heron	*Nyctanassa violacea*	55,79
Black-crowned night heron	*Nycticorax nycticorax*	55,79
Ibises and Spoonbills		
White ibis	*Eudocimus albus*	31,44
Roseate spoonbill	*Platalea ajaja*	55,79
Glossy ibis	*Plegadis falcinellus*	55,79
Storks		
Wood stork	*Mycteria americana*	31,44
Ducks		
Wood duck	*Aix sponsa*	35,41
Northern pintail	*Anas acuta*	31,55
American wigeon	*Anas americana*	31,55
Northern shoveler	*Anas clypeata*	31,55
Green-winged teal	*Anas crecca*	31,55
Blue-winged teal	*Anas discors*	31,55
Mottled duck	*Anas fulvigula*	31,55
Mallard*	*Anas platyrhynchos*	31,55
Lesser scaup	*Aythya affinis*	55
Ring-necked duck	*Aythya collaris*	31,55,84
Muscovy duck*	*Cairina moschata*	84,85
Hooded merganser	*Lophodytes cucullatus*	45,55
Red-breasted merganser	*Mergus serrator*	55,79
Turkeys		
Wild turkey	*Meleagris gallopavo*	MTC
Ring-necked pheasant*	*Phasianus colchicus*	8,43
Indian peafowl*	*Pavo cristatus*	84

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Quail		
Northern bobwhite	*Colinus virginianus*	8,15,43
Gannets		
Northern gannet	*Morus bassanus*	OF
Vultures		
Turkey vulture	*Cathartes aura*	MTC
Black vulture	*Coragyps atratus*	MTC
Ospreys		
Osprey	*Pandion haliaetus*	MTC
Hawks,Eagles and Kites		
Cooper's hawk	*Accipiter cooperii*	MTC
Sharp-shinned hawk	*Accipiter striatus*	MTC
Red-tailed hawk	*Buteo jamaicensis*	8,15,43,44
Red-shouldered hawk	*Buteo lineatus*	MTC
Northern harrier	*Circus cyaneus*	44
Swallow-tailed kite	*Elanoides forficatus*	MTC
Bald eagle	*Haliaeetus leucocephalus*	MTC
Snail kite	*Rostrhamus sociabilis plumbeus*	MTC
Falcons		
Crested caracara	*Caracara cheriway*	8
American kestrel	*Falco sparverius (paulus)*	MTC
Merlin	*Falco columbarius*	MTC
Peregrine falcon	*Falco peregrinus*	MTC
Rails and Coots		
Limpkin	*Aramus guarauna*	35,41,44
American coot	*Fulica americana*	51
Common moorhen	*Gallinula chloropus*	51
Purple gallinule	*Porphyrio martinica*	51
King rail	*Rallus elegans*	51
Cranes		
Sandhill crane (Florida)	*Grus canadensis (pratensis)*	MTC
Plovers		
Piping plover	*Charadrius melodus*	43,79

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Semipalmated plover	*Charadrius semipalmatus*	43,79
Killdeer	*Charadrius vociferus*	MTC
Black-bellied plover	*Pluvialis squatarola*	43,79
Snipes and Sandpipers		
Spotted sandpiper	*Actitis macularius*	43,79
Ruddy turnstone	*Arenaria interpres*	43,79
Sanderling	*Calidris alba*	43,79
Least sandpiper	*Calidris minutilla*	43,79
Willet	*Catoptrophorus semipalmatus*	43,79
Wilson's snipe	*Gallinago delicata*	43,79
Common snipe	*Gallinago gallinago*	43,79
Short-billed dowitcher	*Limnodromus griseus*	43,79
American woodcock	*Scolopax minor*	43,79
Lesser yellowlegs	*Tringa flavipes*	43,79
Greater yellowlegs	*Tringa melanoleuca*	43,79
Solitary sandpiper	*Tringa solitaria*	43,79
Gulls and Terns		
Herring gull	*Larus argentatus*	55,79
Laughing gull	*Larus atricilla*	55,79
Ring-billed gull	*Larus delawarensis*	55,79
Lesser black-backed gull	*Larus fuscus*	55,79
Great black-backed gull	*Larus marinus*	55,79
Bonaparte's gull	*Larus philadelphia*	55,79
Black skimmer	*Rynchops niger*	55,79
Least tern	*Sterna antillarum*	55,79
Caspian tern	*Sterna caspia*	55,79
Forster's tern	*Sterna forsteri*	55,79
Common tern	*Sterna hirundo*	55,79
Royal tern	*Sterna maxima*	55
Sandwich tern	*Sterna sandvicensis*	55,79
Doves		
Rock pigeon*	*Columba livia*	84,85
Common ground dove	*Columbina passerina*	MTC
Eurasian collared-dove*	*Streptopelia decaocto*	MTC
White-winged dove	*Zenaida asiatica*	43
Mourning dove	*Zenaida macroura*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Parrots		
Monk parakeet*	*Myiopsitta monachus*	84,85
Cuckoos		
Yellow-billed cuckoo	*Coccyzus americanus*	79
Smooth-billed ani	*Crotophaga ani*	43
Owls		
Great horned owl	*Bubo virginianus*	MTC
Eastern screech-owl	*Megascops asio*	MTC
Barred owl	*Strix varia*	MTC
Barn owl	*Tyto alba*	43
Goatsuckers		
Chuck-will's widow	*Caprimulgus carolinensis*	14,15,43
Whip-poor-will	*Caprimulgus vociferus*	43
Common nighthawk	*Chordeiles minor*	MTC
Swifts		
Chimney swift	*Chaetura pelagica*	MTC
Hummingbirds		
Ruby-throated hummingbird	*Archilochus colubris*	43
Kingfishers		
Belted kingfisher	*Megaceryle alcyon*	31,44,55,79
Woodpeckers		
Northern flicker	*Colaptes auratus*	MTC
Pileated woodpecker	*Dryocopus pileatus*	MTC
Red-bellied woodpecker	*Melanerpes carolinus*	MTC
Red-headed woodpecker	*Melanerpes erythrocephalus*	15,16
Downy woodpecker	*Picoides pubescens*	43
Hairy woodpecker	*Picoides villosus*	43
Yellow-bellied sapsucker	*Sphyrapicus varius*	35,43
Flycatchers and Kingbirds		
Eastern wood-pewee	*Contopus virens*	33
Acadian flycatcher	*Empidonax virescens*	35,45
Great crested flycatcher	*Myiarchus crinitus*	MTC
Eastern phoebe	*Sayornis phoebe*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Gray kingbird	*Tyrannus dominicensis*	14,43
Scissor-tailed flycatcher	*Tyrannus forficatus*	43,44
Shrikes		
Loggerhead shrike	*Lanius ludovicianus*	MTC
Vireos		
White-eyed vireo	*Vireo griseus*	MTC
Red-eyed vireo	*Vireo olivaceus*	MTC
Blue-headed vireo	*Vireo solitarius*	MTC
Jays and Crows		
Florida scrub-jay	*Aphelocoma coerulescens*	14,15,16
American crow	*Corvus brachyrhynchos*	MTC
Fish crow	*Corvus ossifragus*	MTC
Blue jay	*Cyanocitta cristata*	MTC
Swallows and Martins		
Barn swallow	*Hirundo rustica*	MTC
Purple martin	*Progne subis*	MTC
Bank swallow	*Riparia riparia*	MTC
Northern rough-winged swallow	*Stelgidopteryx serripennis*	MTC
Tree swallow	*Tachycineta bicolor*	MTC
Titmice		
Tufted titmouse	*Baeolophus bicolor*	8,43,44
Wrens		
Marsh wren	*Cistothorus palustris*	43
Carolina wren	*Thryothorus ludovicianus*	MTC
House wren	*Troglodytes aedon*	85
Kinglets		
Ruby-crowned kinglet	*Regulus calendula*	MTC
Gnatcatchers		
Blue-gray gnatcatcher	*Polioptila caerulea*	MTC
Thrushes		
Swainson's thrush	*Catharus ustulatus*	MTC
American robin	*Turdus migratorius*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Northern waterthrush	*Seiurus noveboracensis*	35,43
Thrashers		
Gray catbird	*Dumetella carolinensis*	MTC
Northern mockingbird	*Mimus polyglottos*	MTC
Brown thrasher	*Toxostoma rufum*	16,43
Starlings		
European starling*	*Sturnus vulgaris*	84,85
Waxwings		
Cedar waxwing	*Bombycilla cedrorum*	MTC
Warblers		
Bobolink	*Dolichonyx oryzivorus*	44
Common yellowthroat	*Geothlypis trichas*	35,43
Black-and-white warbler	*Mniotilta varia*	35,43
Orange-crowned warbler	*Oreothlypsis celata*	MTC
Louisiana waterthrush	*Parkesia motacilla*	35,43
Northern parula	*Setophaga americana*	MTC
Black-throated blue warbler	*Setophaga caerulescens*	MTC
Yellow-rumped warbler	*Setophaga coronata*	MTC
Prairie warbler	*Setophaga discolor*	43,79
Yellow-throated warbler	*Setophaga dominica*	41,43
Blackburnian warbler	*Setophaga fusca*	MTC
Magnolia warbler	*Setophaga magnolia*	35,43
Palm warbler	*Setophaga palmarum*	35,43
Chestnut-sided warbler	*Setophaga pensylvanica*	35,43
Yellow warbler	*Setophaga petechia*	35,43
Pine warbler	*Setophaga pinus*	35,43
American redstart	*Setophaga ruticilla*	MTC
Blackpoll warbler	*Setophaga striata*	16
Cape May warbler	*Setophaga tigrina*	35,43
Black-throated green warbler	*Setophaga virens*	35,43
Ovenbird	*Seiurus aurocapilla*	35,44
Blue-winged warbler	*Vermivora pinus*	35,43
Tanagers		
Summer tanager	*Piranga rubra*	35,41

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Sparrows and Towhees		
Bachman's sparrow	*Aimophila aestivalis*	
Swamp sparrow	*Melospiza georgiana*	8,43,44
Savannah sparrow	*Passerculus sandwichensis*	35,41,44
Eastern towhee	*Pipilo erythrophthalmus*	15,16
Chipping sparrow	*Spizella passerina*	8,43,44
Field sparrow	*Spizella pusilla*	15,16
White-throated sparrow	*Zonotrichia albicollis*	8,43,44
Cardinals, Grosbeaks and Buntings		
Northern cardinal	*Cardinalis cardinalis*	MTC
Painted bunting	*Passerina ciris*	15,16,35,41
Indigo bunting	*Passerina cyanea*	41,43
Rose-breasted grosbeak	*Pheucticus ludovicianus*	15
Meadowlarks, Blackbirds and Orioles		
Red-winged blackbird	*Agelaius phoeniceus*	41,44
Spot-breasted oriole*	*Icterus pectoralis*	35,79
Orchard oriole	*Icterus spurius*	35
Brown-headed cowbird	*Molothrus ater*	8,43,44
Boat-tailed grackle	*Quiscalus major*	43,44
Common grackle	*Quiscalus quiscula*	MTC
Eastern meadowlark	*Sturnella mag*	8,43,44
Finches		
Pine siskin	*Carduelis pinus*	35,41
American goldfinch	*Carduelis tristis*	MTC
House sparrow*	*Passer domesticus*	85

MAMMALS

Didelphids		
Virginia opossum	*Didelphis marsupialis pigea*	MTC
Insectivores		
Short-tailed shrew	*Blarina brevicauda carolinensis*	MTC
Moles		
Eastern mole	*Scalopus aquaticus howelli*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)
Bats		
Northern yellow bat	*Lasiurus intermediu*	23,55,84*s*
Seminole bat	*Lasiurus seminolus*	8,14,35,55,84
Evening bat	*Nycticeius humeralis humeralis*	MTC
Eastern pipistrelle	*Pipistrellus subflavus*	55
Brazilian free-tailed bat	*Tadaridae brasiliensis cynocephalus*	55,85
Edentates		
Nine-banded armadillo*	*Dasypus novemcinctus mexicanus*	MTC
Lagomorphs		
Eastern cottontail	*Sylvilagus floridanus floridanus*	MTC
Marsh rabbit	*Sylvilagus palustris paludicola*	33,43
Rodents		
Southern flying squirrel	*Glaucomys volans querceti*	43,84
House mouse*	*Mus musculu*	MTC
Rice rat	*Oryzomys palustris natator*	81
Cotton mouse	*Peromyscus gossypinus palmarius*	MTC
Florida mouse	*Podomys floridanus*	15,16
Gray squirrel	*Sciurus carolinensis carolinensi*	MTC
Sherman's fox squirrel	*Sciurus niger shermani*	16
Cotton rat	*Sigmodon hispidus littoralis*	MTC
Carnivores		
Dog*	*Canis familiaris*	MTC
Coyote*	*Canis latrans*	MTC
House cat*	*Felis catus*	MTC
River otter	*Lontra canadansis vaga*	35,55,79
Bobcat	*Lynx rufus floridanus*	MTC
Raccoon	*Procyon lotor elucus*	MTC
Eastern spotted skunk	*Spilogale putorius putorius*	15,16
Gray fox	*Urocyon cineroargenteus floridanus*	MTC
Artiodactyls		
White-tailed deer	*Odocoileus virginianus seminolus*	MTC
Wild pig*	*Sus scrofa*	MTC
Manatees		
West indian manatee	*Trichechus manatus latirostris*	55,79

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for All Species)

Whales, Dolphins, and Porpoises

Bottle-nosed dolphin .....*Tursiops truncatus* 55,79

* Non-native Species

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.LTListed 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 which 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 make preparations 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
Suncom: 205-6333
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.

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 which 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.

Addendum 8—Land Management Review

Memorandum

Florida Department of
Environmental Protection

February 6, 2011

TO: Marianne Gengenbach, Program Administrator
Division of State Lands

FROM: Parks Small, Chief, Bureau of Natural and Cultural Resources
Division of Recreation and Parks

Albert Gregory, Chief, Office of Park Planning
Division of Recreation and Parks

SUBJECT: Response to Draft Land Management Review (LMR)
Jonathan Dickinson State Park

The Land Management Review draft report provided to DRP determined that management of Jonathan Dickinson State Park by the Division of Recreation and Parks met the two tests prescribed by law. Namely, the review team concluded that the land is being managed for the purposes for which it was acquired and in accordance with the land management plan.

Below are Additional Recommendations and Checklist Findings (items the LMR determined should be further addressed in the management plan update) of the draft LMR report, with our Manager's Response to each. The responses were prepared via a coordinated effort of the park, district office, and our offices.

The team recommends DRP incorporate elements of their fire management and hydrological restoration plans in their 10-year management plan update. (VOTE: 5+, 0-)
Managing Agency Response: Agree; these will be referenced in the 2012 Unit Management Plan revision.

The team recommends the staff continue efforts of collecting and analyzing baseline animal survey data which was collected previously at this park. In addition, the team recommends DRP identify and implement appropriate future surveys for animals, particularly those in the scrub. (VOTE: 5+, 0-)
Managing Agency Response: Agree; however, primary inventory and monitoring focus must be on species that require special management attention. All-species inventory generally must be a lower priority than actually conducting actions to manage habitats. As needed, costs for inventory will be included in the Unit Management Plan, but can only be allocated as funds become available on a statewide priority needs basis.

PLAN REVIEW
Management of natural communities, specifically depression marsh, mesic flatwoods and slough, with documentation in the management plan.
Managing Agency Response: Agree; this will be done in the next Unit Management Plan revision.

The need for resource management, prescribed fire, specifically area being burned (no. acres), frequency and quality, with documentation in the management plan.
Managing Agency Response: Agree; this is addressed in 2012 Unit Management Plan revision and 2011 Fire Management Plan.

Restoration of ruderal areas, specifically hydrological restoration, with documentation in the management plan.
Managing Agency Response: Agree; this is addressed in 2012 Unit Management Plan revision and 2011 Hydrological Restoration Plan.

Non-Native, invasive & problem species, specifically prevention of plants, animals and pest/pathogens, with documentation in the management plan.
Managing Agency Response: Agree; this is addressed in the 2012 Unit Management Plan revision.

The need for control, specifically pest/pathogens, with documentation in the management plan.
Managing Agency Response: Agree; this is addressed in the 2012 Unit Management Plan revision.

Hydrologic/Geologic function Hydro-Alteration, specifically roads/culverts, ditches and dams, reservoirs or other impoundments, with documentation in the management plan.
Managing Agency Response: Agree

The need for resource protection, specifically law enforcement presence, with documentation in the management plan.
Managing Agency Response: Agree; the management plan update will address law enforcement needs. The Division must request additional assistance through the Division of Law Enforcement or from a local law enforcement agency.

Discussion regarding adjacent property concerns, more specifically, discussion of potential surplus land determination and the surplus lands identified, with documentation in the management plan.
Managing Agency Response: Agree; the Division will address adjacent property concerns and the determination of surplus lands in the 2012 Unit Management Plan revision.

FIELD REVIEW
The need for resource protection, specifically law enforcement presence, with documentation in the management plan.
Managing Agency Response: Agree. The management plan update will address law enforcement needs. The Division must request additional assistance through the Division of Law Enforcement or from a local law enforcement agency.

Thank you for your attention.

GK

CC: Paul Rice, Chief, Bureau of Parks District 5
Kevin Jones, Assistant Chief, Bureau of Parks District 5
Mark Nelson, Park Manager, Jonathan Dickinson State Park
Ernie Cowan, Environmental Specialist, Bureau of Parks District 5