SAVANNAS PRESERVE STATE PARK

UNIT MANAGEMENT PLAN

APPROVED

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Recreation and Parks

June 6, 2003

Department of
Environmental Protection

Jeb Bush
Governor

Marjorie Stoneman Douglas Building
3900 Commonwealth Boulevard, MS 140
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

June 6, 2003

Ms. BryAnne White
Government Operations Consultant II
Office of Park Planning
Division of Recreation and Parks

Savannas Preserve State Park

Lease Number: # 3996

Dear Ms. White:

On June 6, 2003, the Acquisition and Restoration Council recommended approval of the Land Management Plan for Savannas Preserve State Park. Therefore, the Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund approves this plan. Pursuant to Section 253.034 and 259.032, Florida Statutes, and Chapter 18-2, Florida Administrative Code the plan's 10-year update will be due in June 2013.

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.

Sincerely,

Delmas T. Barber

Delmas T. Barber, OMC Manager
Office of Environmental Services
Division of State Lands

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INTRODUCTION

Savannas Preserve State Park is located in St. Lucie and Martin Counties (see Vicinity Map) about five miles south of the City of Ft. Pierce. The southern portion of the park is within the city limits of Port St. Lucie. Access to the main use area of the park is from U.S. Highway 1, approximately two miles east on Walton Road. The vicinity map also reflects significant land and water resources existing near the park.

At Savannas Preserve State Park, public outdoor recreation and conservation is the designated single use of the property (see Addendum 1). There are no legislative or executive directives that constrain the use of this property.

The initial acquisition took place on April 25, 1977, when the Trustees obtained title to the property. The purchase was funded under the EEL program. Since this initial acquisition, the Trustees have purchased several additional parcels with EEL, LATF, and P2000/CARL funds and added them to the park. The park contains approximately 5,227 acres as delineated on the Natural Communities Map.

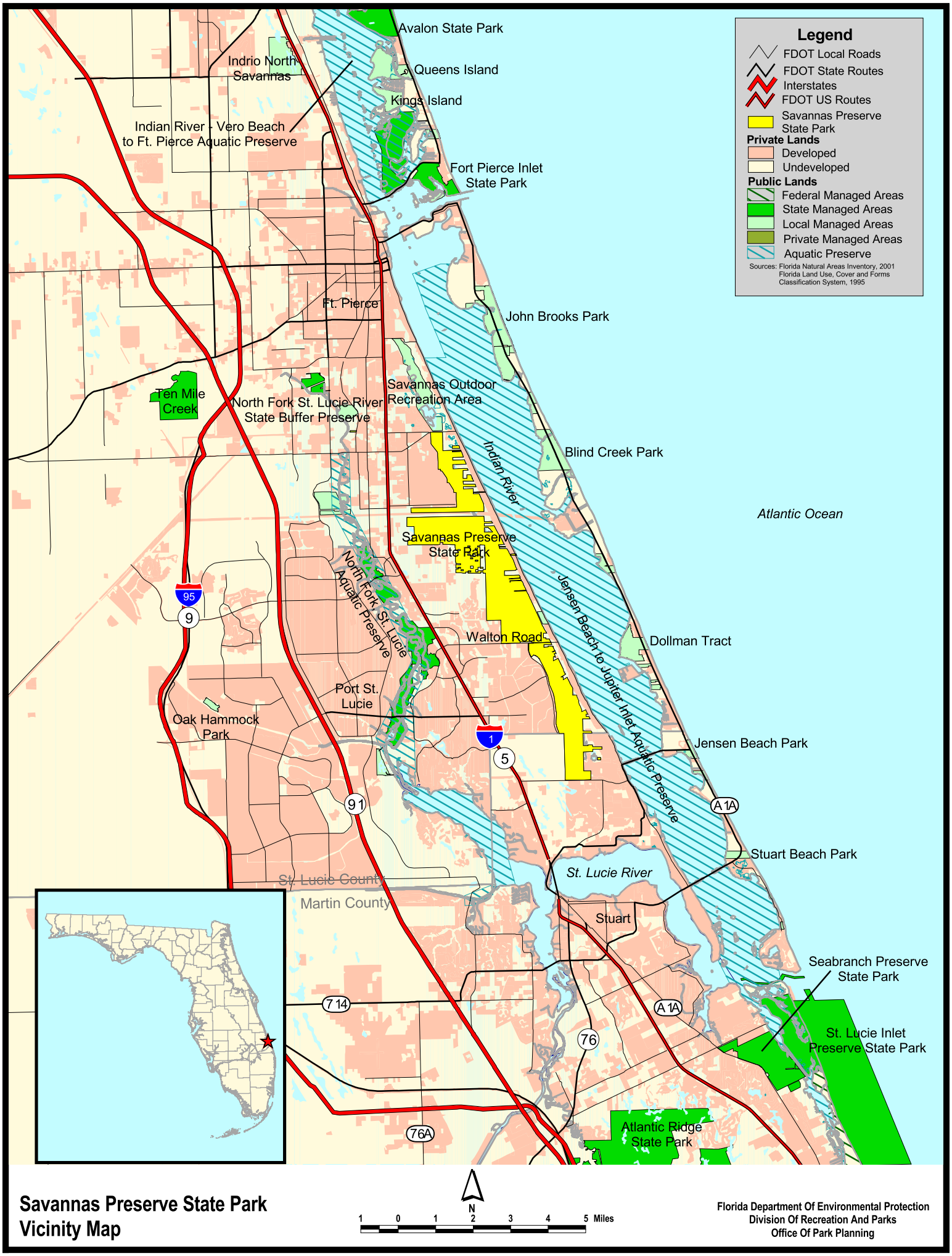
PURPOSE AND SCOPE OF THE PLAN

This plan serves as the basic statement of policy and direction for the management of Savannas Preserve State Park as a unit of Florida's state park system. It identifies the objectives, criteria and standards that guide each aspect of park administration, and sets forth the specific measures that will be implemented to meet management objectives. The plan is intended to meet the requirements of Sections 253.034 and 259.032, Florida Statutes, Chapter 18-2, Florida Administrative Code, and intended to be consistent with the State Lands Management Plan. With approval, this management plan will supercede and replace the current approved plan of September 30, 1997. All development and resource alteration encompassed in this plan is subject to the granting of appropriate permits; easements, licenses, and other required legal instruments. Approval of the management plan does not constitute an exemption from complying with the appropriate local, state, or federal agencies. This plan is also intended to meet the requirements for beach and shore preservation, as defined in Chapter 161, Florida Statutes, and Chapters 62B-33, 62B-36 and 62R-49, Florida Administrative Code.

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

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

In the development of this plan, the potential of the park to accommodate secondary management purposes (“multiple uses”) was analyzed. These secondary purposes were considered within the context of the Division’s statutory responsibilities and an analysis of the resource needs and values of the park. This analysis considered the park natural and cultural resources, management needs, aesthetic values, visitation, and visitor experiences. For this park, it was determined that no secondary purposes could be accommodated in a manner that would not interfere with the primary purpose of resource-based outdoor recreation and conservation. Uses such as, water resource development projects, water


Legend
FDOT Local Roads
FDOT State Routes
Interstates
FDOT US Routes
Savannas Preserve State Park
Private Lands
Developed
Undeveloped
Public Lands
Federal Managed Areas
State Managed Areas
Local Managed Areas
Private Managed Areas
Aquatic Preserve
Sources: Florida Natural Areas Inventory, 2001
Florida Land Use, Cover and Forms Classification System, 1995
Avalon State Park
Indrio North Savannas
Queens Island
Kings Island
Indian River - Vero Beach to Ft. Pierce Aquatic Preserve
Fort Pierce Inlet State Park
Ft. Pierce
John Brooks Park
Ten Mile Creek
North Fork St. Lucie River State Buffer Preserve
Savannas Outdoor Recreation Area
Blind Creek Park
Indian River
Atlantic Ocean
Savannas Preserve State Park
North Fork St. Lucie Aquatic Preserve
Jensen Beach to Jupiter Inlet Aquatic Preserve
Walton Road
Dollman Tract
Port St. Lucie
Oak Hammock Park
Jensen Beach Park
A1A
Stuart Beach Park
St. Lucie River
St. Lucie County
Martin County
Stuart
Seabranch Preserve State Park
St. Lucie Inlet Preserve State Park
Atlantic Ridge State Park
95
9
1
5
91
714
76
76A
N
1 0 1 2 3 4 5 Miles
Savannas Preserve State Park
Vicinity Map
Florida Department Of Environmental Protection
Division Of Recreation And Parks
Office Of Park Planning

supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in this plan) are not consistent with this plan or the management purposes of the park and should be discouraged.

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

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

MANAGEMENT PROGRAM OVERVIEW

Management Authority and Responsibility

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

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

The Trustees have also granted management authority of certain sovereign submerged lands to the Division under Management Agreement MA 68-086 (as amended January 19, 1988). The management area includes a 400-foot zone from the edge of mean high water where a park boundary borders sovereign submerged lands fronting beaches, bays, estuarine areas, rivers or streams. Where emergent wetland vegetation exists, the zone extends waterward 400 feet beyond the vegetation. The agreement is intended to provide additional protection to resources of the park and nearshore areas and to provide authority to manage activities that could adversely impact public recreational uses.

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

In the management of Savannas Preserve State Park, preservation and enhancement of natural conditions is all important. Resource considerations are given priority over user considerations and development is restricted to the minimum necessary for ensuring its protection and maintenance, limited access, user safety and convenience, and appropriate interpretation. Permitted uses are primarily of a passive nature, related to the aesthetic,

educational and recreational enjoyment of the preserve, although other compatible uses are permitted in limited amounts. Program emphasis is placed on interpretation of the natural and cultural attributes of the preserve.

Park Goals and Objectives

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

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

Natural and Cultural Resources

1. Continue to protect, improve and effectively manage the natural resources of the park.
- **A.** Continue to work with the South Florida Water Management District (SFWMD), counties, and municipalities to eliminate or retrofit stormwater runoff from residential areas surrounding the preserve.
- **B.** Continue review of all groundwater withdrawal permit applications that occur nearby.
- **C.** Support efforts of the DEP Surface Water Ambient Monitoring Program to continue its work in and around the preserve.
- **D.** Implement prescribed burning as a tool to enhance fire-dependent native plant communities and to prevent damaging wildfires from occurring. Initial burns will be conducted in areas with established perimeter fire lines.
- **E.** Seek funding to use mechanical means to restore scrub and flatwoods where prescribed fire is either ineffective or too difficult to apply initially.
- **F.** Continue to educate and inform nearby residential communities, businesses, and local governments about the critical needs for and benefits of using prescribed fire in the preserve.
- **G.** Continue efforts to restore old existing fire plow scars, ditches, and ORV trails in the preserve.
- **H.** Establish a protective, no-entry buffer zone around wading bird colonies.
- **I.** Continue exotic species removal program. Particular attention should be paid to melaleuca and feral hog removal.

2. Continue to identify, preserve and actively manage the cultural resources of the park.
- **A.** Pursue funding for a Phase I archaeological survey.

Recreation

3. Continue to provide quality resource based recreational and interpretive programs and facilities at the state park.
- **A.** Provide visitor education through interpretive displays and programming at the environmental education center.
- **B.** Provide a well-maintained shared-use trail system for biking, hiking and equestrian use.

C. Provide water access points for canoes, kayaks and boats without internal combustion engines.

4. Seek funding to expand recreational and interpretive opportunities through the improvement of programs and the development of new use areas and facilities, as outlined in this management plan.

A. Construct a hiking and biking trail tied to the Jensen Beach Trailhead.
B. Add a restroom and picnic shelter to the equestrian trailhead.
C. Construct observation platforms to enhance vistas and wildlife viewing opportunities.
D. Improve parking at the canoe/kayak launch area off Gumbo Limbo Lane and the Balsam Road Trailhead.
E. Establish an interpretive canoe trail, with trail directional signage, and interpretive information in coordination with Division biological staff.
F. Improve and expand on and offsite interpretive programming.

Park Administration/Operations

5. Seek funding and staffing to meet park operational needs such as corrective maintenance, visitor protection, resource management and visitor services.

A. Hire an FTE Biological Scientist II and two FTE Park Rangers.
B. Continue to increase protection of the preserve by fencing boundaries, park patrols, and the perimeter firebreak.
C. Continue to maintain and promote good working relationships with federal, state, and local agencies.
D. Develop partnerships and seek other funding alternatives to the legislative appropriation process.
E. Provide equivalent recreation and interpretive opportunities for users of all abilities.
F. Promote volunteer participation (CSO membership, student research, etc.) to assist with park operations, resource management, and interpretation.
G. Maintain high maintenance standards and conduct routine safety inspections to provide clean and safe facilities and use areas.
H. Provide staff with appropriate training opportunities in visitor services, resource management, park operations and interpretation.
I. Support local efforts to coordinate nature and heritage based tourism promotion that links the Savannas Preserve and other regional sites of significance.
J. Pursue acquisition and/or management of outparcels and adjacent properties as identified on the optimum boundary map.
K. Maintain regular contacts with all zoning and planning departments, councils, or boards in order to be aware of and respond to any issues and actions or decisions that could adversely affect resources of the preserve. This includes state, regional, county or local entities that regulate or make decisions concerning transportation corridors and road development.

Management Coordination

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

The Department of Agriculture and Consumer Services, Division of Forestry (DOF), assists Division 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 park boundaries. In addition, the FFWCC aids the Division with wildlife management programs, including the development and management of Watchable Wildlife programs. The Department of State, Division of

Historical Resources (DHR) assists staff to assure protection of archaeological and historical sites. The Department of Environmental Protection (DEP), Office of Coastal and Aquatic Managed Areas (CAMA) aid staff in aquatic preserves management programs. The DEP, Bureau of Beaches and Wetland Resources aid staff in planning and construction activities seaward of the Coastal Construction Line. In addition, the Bureau of Beaches and Wetland Resources aid the staff in the development of erosion control projects. Emphasis is placed on protection of existing resources as well as the promotion of compatible outdoor recreational uses.

Public Participation

The Division provided an opportunity for public input by conducting a public workshop and an advisory group meeting. A public workshop was held on January 8, 2003. The purpose of this meeting was to present this draft management plan to the public. A DEP Advisory Group meeting was held on January 9, 2003. The purpose of this meeting was to provide the Advisory Group members the opportunity to discuss this draft management plan. Addendum 1 contains a list of advisory group members and the advisory group meeting staff report.

Other Designations

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

All waters within the unit have been designated as Outstanding Florida Waters, pursuant to Chapter 62-302 Florida Administrative Code. Surface waters in this unit are also classified as Class III waters by DEP. This unit is not designated as an aquatic preserve as designated under the Florida Aquatic Preserve Act of 1975 (section 258.35, Florida Statutes).

RESOURCE MANAGEMENT COMPONENT

INTRODUCTION

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

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

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

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

Savannas Preserve State Park encompasses portions of the Atlantic Coastal Ridge and the flatwoods and savanna-like wetlands associated with it. It harbors a unique set of natural communities that include sand pine scrub, scrubby flatwoods, mesic flatwoods, basin marsh, depression marsh, wet prairie, and marsh lake.

Maintenance of these natural communities requires the presence of fire. Savannas Preserve State Park is surrounded by urban development. Near and on its boundaries are schools, hospitals, and residential developments. The consequences of this situation will make fire management difficult, particularly smoke management.

The core and namesake of the preserve are the "savannas", a north-south line of wetlands lying west of the Atlantic Coastal Ridge. These high quality, low nutrients, sand-bottom wetlands are susceptible to water quality changes, particularly those that can occur from storm water input.

RESOURCE DESCRIPTION AND ASSESSMENT

Natural Resource Description

Topography

The physiographic landforms found within the preserve have been highly influenced by marine forces in the past and can be divided into two regions—the Atlantic Coastal Ridge and Eastern Flatlands (Puri et al. 1964). The entire eastern boundary of the preserve lies within the Atlantic Coastal Ridge. Elevations up to 60 feet are found on the old, relic dunes, which comprise approximately eight percent of the preserve.

The majority of the property (92 percent) is located within the Eastern Lowlands with

elevations ranging from approximately 12 to 19 feet. Some minor topographic alterations have occurred because of sand and peat mining, dredge-fill activities and ditch/dike construction.

Geology

The Savannas Preserve State Park is situated on the eastern edge of the Eastern Valley geomorphic province of the Atlantic Coastal Lowlands. This province extends eastward from the Osceola Plain province of the central Florida peninsula to the Atlantic Ocean, and spans the eastern peninsula from Jacksonville southward to southern Palm Beach County. The Eastern Valley is characteristically flat and elevationally low, with land surface elevations varying between zero and 35 feet above mean sea level (MSL). Surficial sediments are predominantly marine terrace sands and shelly sands, deposited during the Pleistocene age Pamlico sea level highstand. Relict beach ridges, paralleling the modern east coast, are common features throughout the Eastern Valley.

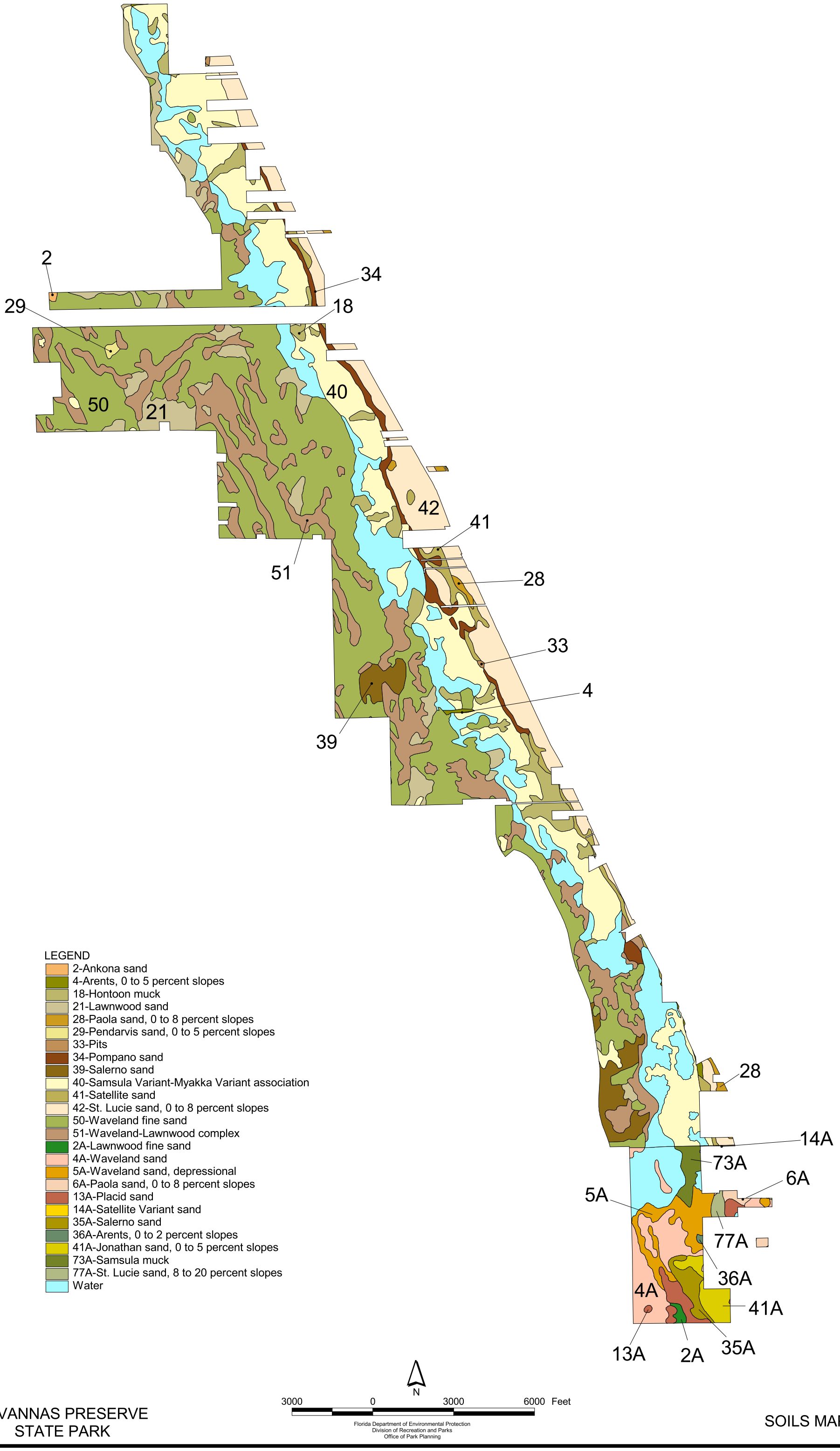
Bordering the eastern edge of the Eastern Valley province, between the Savannas and the Indian River, is a narrow coast-parallel sand ridge named the Atlantic Coastal Ridge. This ridge system extends intermittently along Florida's east coast from Jacksonville Beach to just south of Miami. Elevations along that portion of the ridge near the preserve average about 30 to 35 feet above MSL, and isolated sand hills on the ridge may attain elevations of 50-60 feet above MSL. These higher elevations appear to represent now quiescent aeolian dunes built up on the ridge core. Near the preserve, the ridge varies from 1/8 and 1/4 mile wide. The Atlantic Coastal Ridge has a foundation composed of calcareous sandstone and sandy coquina of the Pleistocene Anastasia Formation, and is believed to be developed on former offshore bars of the Pamlico (Pleistocene) sea.

Savannas Preserve State Park occupies most of a north-south trending, 13 miles long by 3/4-mile wide marshy swale, situated along the western side of the Atlantic Coastal Ridge. The savanna terrain extends from approximately St. Lucie Inlet northward to Ft. Pierce. Land elevation within the swale is approximately 12 feet above MSL. During recent history, Savannas has been a freshwater marsh. It is believed that the topographically low, trough-like area occupied by the Savannas is a portion of a relict Pleistocene waterway, analogous to the modern Indian River estuary. The Atlantic Coastal Ridge may have functioned as a barrier island during higher sea level in the late Pleistocene, with a shallow, coast parallel lagoon behind it to the west. Sand and silt infilling of this Pleistocene lagoon, in conjunction with a late Pleistocene sea level drop, produced the modern savanna topography.

The stratigraphy and hydrostratigraphy underlying the preserve are shown in that the preserve is underlain by over 12,000 feet of Mesozoic and Cenozoic sedimentary rocks, resting on Mesozoic volcanic basement rock. Most of the younger overlying rocks are Cretaceous and Cenozoic age marine carbonates and siliclastics, which dip and thicken to the southeast. The Cenozoic rocks, which comprise the upper 3,000 feet of the sediment column, are Paleocene, Eocene and Oligocene carbonates, which function as primary aquifers. These are overlain by Miocene to Recent age siliclastics. Most water wells penetrate Eocene and younger sediments. The three primary hydrostratigraphic units present near the preserve, in order of increasing depth, are: the surficial aquifer system, the intermediate aquifer system or intermediate confining unit, and the Floridan aquifer system.

Soils

The soils of the Savannas can be grouped into three categories: Atlantic Coastal Ridge, the "Savannas", and the flatwoods (see Soils Map). These generally run in north-south bands and are very indicative of the natural communities to which they are associated. Detailed



SAVANNAS PRESERVE STATE PARK

SOILS MAP

soils descriptions are contained in Addendum 3.

The majority of the Atlantic Coastal Ridge soil is dominated by St. Lucie and Satellite Sand. In general, these are sloping, well-drained soils that are sandy. The "Savannas" which lie to the west of the Atlantic Coastal Ridge are characterized by Samsula and Myakka Variant soils that are level, well-drained soils with varying degrees of muck and sand. To the west of the "Savannas" lies the flatwoods, dominated by Waveland and Lawnwood Sands. Typically, they are level, poorly drained soils that are composed mostly of sand.

Three types of soil alteration have occurred in the preserve because of human disturbance – sand mining, peat mining and agricultural activities. The sand and peat mining areas are small. Agricultural activities on the Atlantic Coastal Ridge were probably extensive due to the large amount of pineapple farming that occurred in this area in the past.

Limited soil erosion is known from this site. However, soils occurring on the Atlantic Coastal Ridge are prone to erosion. Recreational activities in these soils should be limited and closely monitored. All management activities will follow best management practices to conserve soil resources and prevent soil erosion.

Minerals

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

Hydrology

Regional hydrology. The Savannas Preserve State Park lies within a basin locally known as the "Savannas" which is bounded on its east side by the Atlantic Coastal Ridge and on its west side by a topographical ridge which separates the "Savannas" basin from the North Fork St. Lucie River basin. This narrow basin extends from Ft. Pierce south to Jensen Beach. The Savannas Preserve State Park occupies the major portion of this basin. Historical information suggests that the "Savannas" was most likely two main water bodies separated by extensive marsh. The southern water body drained southward through Warner Creek into the St. Lucie River. The northern water body drained northward via Platt's Creek into the North Fork St. Lucie River. The Platt's Creek outflow no longer exists, but Warner Creek still flows. Current topographic maps suggest that historical flow through these two creeks was minimal until high water levels in the "Savannas" were reached.

Today the basin appears far different. At least half of the basin has been modified for residential and commercial interests. Water quality and quantity entering the preserve have been degraded due to the presence of storm water. The "Savannas" is a low-nutrient system. It depends on periodic natural drawdowns to maintain this regime. It receives most of its water directly from precipitation, which has historically always been the case. Currently, it receives stormwater with varying levels of treatment. Investigations by the DEP Surface Water Ambient Monitoring Program have demonstrated that areas of the Savannas Preserve State Park are being degraded by some of these stormwater inputs, particularly the area adjacent to Indian River Estates, a sub-division located on the northwest corner of the preserve.

Park hydrology. Wetlands comprise approximately 45 percent of the total acreage of the preserve and are a conspicuous part of its landscape. Surface water results mostly from direct precipitation. This aspect along with the fact that the "Savannas" lies within its own relatively small basin results in significant changes in water levels depending on the amount of rainfall and the time of year. These changes account for the system being low in nutrients in that any significant build-up of organic substrate will be oxidized during extreme low water levels. This results in water chemistry that is unusual in this part of Florida – low in conductivity, Ph, and phosphate nutrients. Currently, however, the

preserve is receiving ever-increasing amounts of stormwater from multiple sources. Results from the DEP Surface Water Ambient Monitoring Program suggest that stormwater input into the Savannas Preserve State Park has resulted in adverse changes in the composition and character of its biota, particularly in the area adjacent to Indian River Estates.

Several different man-made structures have altered the unit's hydrology. Six ditches, three of which currently possess no easements, drain into the preserve from Indian River Estates. Hog Pen Ditch connects the basin marsh of the preserve to the North Fork St. Lucie River. Restoration via mitigation with Florida Power and Light allowed for the placement of two weirs in the preserve that have aided in the restoration of flatwoods and wet prairie habitat that were interrupted by the ditch. There are at least two places within the preserve in which peat mining has occurred in the past. This has lengthened the hydroperiods in these areas.

The two major aquifers in the park are the deep Floridan Aquifer and the shallow surficial aquifer. The Floridan is separated from the surface waters in the park, but the surficial is not. During high water times, the ground water and the surface water can intermix. It is important to monitor ground water withdrawals around the preserve. Martin County Utilities has a large wellfield just to the south of the park and most of the housing developments, which surround the preserve, have wells and septic tanks.

The porous soils of the Atlantic Coastal Ridge are important for recharge of the surficial aquifer and to allow seepage into the wetlands located down slope of the Ridge.

Natural Communities

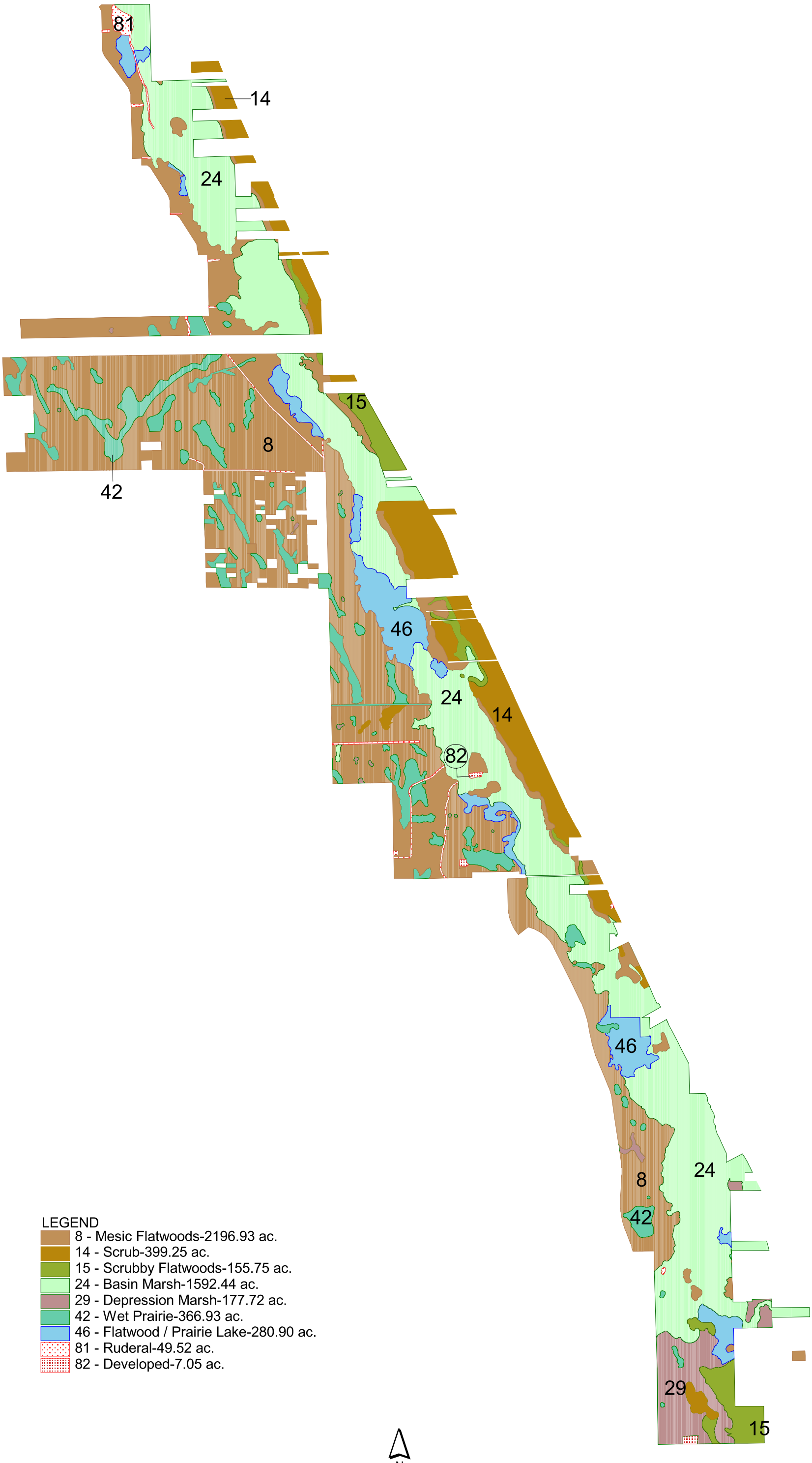
The system of classifying natural communities employed in this plan was developed by the Florida Natural Areas Inventory (FNAI) **FNAI Descriptions**. The premise of this system is that physical factors, such as climate, geology, soil, hydrology and fire frequency generally determine the species composition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

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

Mesic flatwoods. Flatwoods represent the dominant natural community in the preserve. The vast majority is found on the western half of the property associated with wet prairies. This is a typical South Florida slash pine – saw palmetto – gallberry association with a diverse assemblage of grass and herbaceous groundcover.

The flatwoods of the preserve have received a number of human-caused disturbances, such as old fire plow scars, ditches and ORV trails that have altered its hydrology and continuity. Most of these disturbances can and will be ameliorated by restoration activities. Perhaps the most important activity will be the implementation of a prescribed burn program. Fire has been mostly excluded from the landscape. The fires that have occurred were wildfires, which burned under extreme conditions of fuel and weather and resulted in high pine tree mortality.

Scrub. This community is located along the eastern side of the park. The Florida Natural



LEGEND

- 8 - Mesic Flatwoods-2196.93 ac.
- 14 - Scrub-399.25 ac.
- 15 - Scrubby Flatwoods-155.75 ac.
- 24 - Basin Marsh-1592.44 ac.
- 29 - Depression Marsh-177.72 ac.
- 42 - Wet Prairie-366.93 ac.
- 46 - Flatwood / Prairie Lake-280.90 ac.
- 81 - Ruderal-49.52 ac.
- 82 - Developed-7.05 ac.

N

2000 0 2000 4000 Feet

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

SAVANNAS PRESERVE STATE PARK

NATURAL COMMUNITIES MAP

Areas Inventory lists this community as globally and state endangered. It has a sand pine-dominated canopy with a scrub oak-dominated sub-canopy. Ground vegetation is generally sparse. A significant number of listed species are found within this community such as the fragrant prickly apple (*Harrisia fragrans*), four-petal pawpaw (*Asimina tetramera*), Florida scrub-jay (*Aphelocoma floridana*), and the eastern indigo snake (*Drymarchon corais*).

The scrub in the preserve has received varying degrees of disturbance. Some areas were cleared for pineapple plantations, some were cleared in anticipation of development, many were cut-up by off-road vehicle trails, and some are in good shape. Scrub is sensitive to disturbance with some scars taking more than 50 years to rehabilitate. To maintain the integrity of this community, fire will have to be introduced back in to this landscape.

In the past, recreationists have expressed interest in opening the scrub in the eastern portion of the preserve to trails, specifically for equestrian use. Due to the sensitivity of this habitat to disturbance, and the fact that ample trail opportunities exist elsewhere at the preserve, it is recommended that trail activities be prohibited or extremely limited within this community.

Scrubby flatwoods. The majority of this community is found in bands adjacent to and west of the scrub. The canopy is mostly slash pine and the understory is a mixture of saw palmetto, scrub oaks and various grasses and herbs. It has received varying degrees of disturbance, but overall is in good health. As with most of the natural communities within the preserve, it suffers from a lack of fire. The introduction of a prescribed fire program is necessary to perpetuate this community.

Basin marsh. This community comprises the dominant wetland type in the preserve. It is located down slope from the Atlantic Coastal Ridge. This is a high quality wetland, which is strikingly ephemeral. During wetter times, it is dominated by various grasses, sedges and emergent plants. During drought times, major areas are open, white sand with the deeper areas still containing wetland vegetation. The vistas associated with this community are outstanding.

Depression marsh. This community is located within the flatwoods. It is dominated by various grasses, sedges, herbs, and woody plants. These ephemeral wetlands are important breeding and feeding areas for a variety of animals.

Wet prairie. This community is located within the flatwoods and is dominated by various grasses, sedges, herbs and woody vegetation. Like the depression marsh, it is ephemeral and important for a variety of animals, and requires fire. Many of these prairies are perched, so their water levels can apparently move independent of the basin marsh.

Marsh lake. This community is located within or adjacent to the basin marsh. The marsh lakes are deeper wetland communities, with mostly floating or emergent plants such as water lilies and pickerelweed and a peat bottom. The boundaries of this community blend with the basin marsh and makes a precise boundary delineation difficult. For this reason, this community type is described but not included on the Natural Community Map.

Ruderal and developed. These areas are minor components of the preserve. At present, there are three developed sites, the preserve office complex area, the new Environmental Education Center, and the canoe launch area. The ruderal areas include ditches and the site of a former ultra-light landing strip adjacent to the Savannas office.

Designated Species

Designated species are those that are listed by the Florida Natural Areas Inventory (FNAI), U.S. Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FFWCC), and the Florida Department of Agriculture and Consumer Services

(FDA) as endangered, threatened or of special concern. Addendum 5 contains a list of the designated species and their designated status for this park. Management measures will be addressed later in this plan.

Fragrant prickly apple cactus (*Harrisia fragrans*)**.** This tree-like cactus has a limited range, found only along the Atlantic Coastal Ridge in southern St. Lucie Co. and northern Martin Co. Little is known about the life history of this federally endangered plant. Preliminary research revealed what is apparently a declining population (Rae, J., 1994). Additional research involving the demographics and ecology of this cactus is needed.

Four-petal pawpaw (*Asimina tetramera*)**.** This federally endangered plant has a limited range, occurring in Martin Co. and northern Palm Beach Co. Research has been done on this plant at Jonathan Dickinson State Park by Anne Cox at Florida International University. It is hoped that some of the results of her research can be applied to management of this small population, which apparently is the northernmost population on record.

***Dicerandra* sp.** In the fall of 1995, a population of *Dicerandra* mint was discovered in the preserve along the scrub ridge. At the writing of this document it is unknown whether this is a new species or a moderate range extension for the nearest known *Dicerandra*, Lakela's mint (*Dicerandra immaculata*). Management decisions will have to be made regarding this plant regardless of the outcome of the taxonomic study.

Scrub plants. A number of plants, in addition to those listed above, are found within scrub habitat on the preserve. Perhaps not all of them require fire for perpetuation, but most do. It is important that fire is introduced into the scrub or some of these plants will eventually disappear. Examples are Curtiss'milkweed (*Asclepias curtissii*), sand dune spurge (*Chamaesyce cumulicola*), and brown-haired snoutbean (*Rhynchosia cinerea*).

Southern bald eagle (*Haliaeetus leucocephalus*)**.** A pair of bald eagles nest within the park. Their nest is in a live slash pine that is located near the Savanna Club, a Development of Regional Impact located on the western side of the preserve. Close monitoring will be required to ensure that this development does not affect this nest site, as well as a roadway that St. Lucie Co. wishes to build in this area.

Florida scrub-jay (*Aphelocoma coerulescens*)**.** Detailed surveys of scrub-jays during the last 5-year management plan period (1997-2001) have identified most territories. Florida Atlantic University graduate student E. Cowan is conducting his masters' thesis research on the demographics of this population. This work will provide management recommendations for the species. Starting in 2002, scrub-jay surveys will be scheduled every other year (e.g., 2002, 2004, and 2006).

Scrub animals. A number of animals use the scrub for a good portion of their lives. Some of these species use other natural communities, such as flatwoods, but they are ecologically tied to scrub. Examples are the indigo snake (*Drymarchon corais*), gopher tortoise (*Gopherus polyphemus*), and the Florida scrub lizard (*Sceloporus woodi*). As with scrub plants, fire is essential in perpetuating their existence within the preserve.

Waterbird nesting in the basin marsh. A variety of waterbirds nest and/or forage in the basin marsh and adjacent habitat. Examples are the Florida sandhill crane (*Grus canadensis*), great blue heron (*Ardea herodias*), anhinga (*Anhinga anhinga*), wood stork (*Mycteria americana*), and *Egretta* spp. The Division plans to establish no-entry buffer zones around wading bird colonies.

Special Natural Features

The basin marsh and scrub habitats are both special natural features of the preserve.

Cultural Resources

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

The Florida Master Site File (FMSF) lists two sites within the park. Two sites adjacent to the preserve boundary have also been identified.

The Savannas Preserve State Park lies within the area known archaeologically as the Indian River Region, originally defined by John Goggin (Goggin 1949). Several archaeological sites have been recorded within the Atlantic coastal ridge, part of which lies within the eastern boundary of the preserve. Two sites, SL-8 (Mount Elizabeth) and SL-9 (King's Mound), are relatively long-term habitation sites whose inhabitants used the rich faunal and floral resources of the Indian River. While relatively small and limited for cultural material produced and technically located just outside the boundary of the preserve, they are important to understanding the overall lifestyles of the people who produced them. Both the sand mound and black earth and shell midden components represented by these sites are significant at the local and regional level. DHR staff recently observed SL9 to be in good condition, despite the existence of a few old looter holes (Wheeler 1999).

There are no recorded prehistoric sites within the boundaries of Savannas Preserve State Park. However, it is likely that further investigation will yield more sites. Although SL8 and SL9 are long-term habitation sites, the type of sites expected to be most prevalent in the preserve are short-term hunting and gathering campsites. The areas where archaeological sites would be most likely to occur in the preserve are the slightly higher ground elevations often associated with the hardwood hammocks and adjacent to fresh water marshes and ponds. Scrub and mesic flatwood communities are less likely to contain prehistoric sites. It is likely that sites in the area would range in age from the Middle Archaic (ca. 7,000 years old) to Seminole times (A.D. 1750-60). Nonetheless, further investigation may reveal earlier sites (Paleo-Indian to Early Archaic), which would most likely occur around the perimeters of depressions that contained water during lower sea level stands. These sites could lie beneath the ground surface a meter or more.

While conducting a BAR/CARL archaeological survey of the preserve in July 1993, C. Newman and B. Weisman identified two scatters of historic artifacts, SL 291 and SL 292. The area also contains evidence of twentieth century homesteads that were identified by park staff. In 1990, "Historic Property Associates" conducted a survey of historic properties in unincorporated areas of St. Lucie County. They identified thirty-one structures along Indian River Drive as significant. These houses accurately reflect the types of dwellings occupied by settlers during the "Great Florida Land Boom" of the 1920s. None of the structures identified are on park property, but many are adjacent to the eastern boundary.

SL 291, Dump Road #1 is located within the park boundary east of Dump Road. The artifacts may represent the remains of a historic homestead. The resource management

team observed numerous pieces of bottle glass, European ceramics, metal pipe fragments and brick at SL 291, Dump Road #1. Because the water level was low, remnants of an old road (parallel spoil piles placed at regular intervals) were visible near the site. The existence of a road in this area during the first half of the twentieth century was confirmed through the examination of old aerial photographs. Both the site and the old road appear to be in fair to good condition.

SL 292, Walton Railroad #1 is located approximately 100 meters north of Walton Road and slightly west of the train tracks. The site contains numerous historic artifacts scattered on the surface – bricks, broken ceramics (pearlware and ironstone), tin, iron, a cement block, glass (Stuart Bottle Works), and a wooden post in the ground. The area was probably the location of a "section house" built for workers who were assigned to care for certain "sections" (miles) of the train tracks.
The site had been vandalized during the 1990s but is assessed to be in fair condition.

The following narrative provides a brief history of prehistoric and historic occupation of the savannas and surrounding region and context for understanding the aforementioned cultural sites:

Before European contact, the land was first settled by the Ais Indians, a group related to the Tequesta. Little is known of their culture, except that they subsisted upon the resources of the Indian River. Irving Rouse conducted extensive fieldwork in the Indian River area during the 1940s, and published *A Survey of Indian River Archeology, Florida* (see Rouse 1951). Since Rouse's volume remains the only comprehensive study of the region's cultural history, our understanding of the archaeological record in this part of Florida's east coast is limited (cf. Griffin 1952: 328, Sears 1974, Clause et al. 1978).

Jonathan Dickinson traveled through the area after being shipwrecked at Hobe Sound in 1696; however, his description is too vague to be useful for specific identification. Since the Spanish failed to fortify the coast and Christianize the indigenous peoples along the St. Lucie River, the area does not figure prominently in the modern historical record until the Second Seminole War (1835-1842). In 1837, Lieutenant Colonel Benjamin K. Pierce founded the fortress that was to bear his name. Under Pierce's command, numerous survey expeditions were conducted in the vicinity, including Lieutenant Powell's ill-fated 1838 venture (see Sprague 1848:190). Aside from one excellent description of the Loxahatchee, these early explorations described the area as a series of ponds and marshes, with the terms "savannah" and "prairie" interspersed (see Motte 1953: 189-92).

The conclusion of the war and the Armed Occupation Act of 1842 brought rapid settlement to the Indian River area. The Act provided a quarter section of land (160 acres) to any male over 18 years of age, or male head of household, who agreed to build a home and reside on the property for five years. With 46 heads of families or single men, the Indian River Settlement extended from the St. Lucie River north to the Sebastian River. Records and memoirs of the new settlers contain descriptions of the surveyed area, such as the following by Dr. P.A. Willis (St. Augustine Permit No. 85):

> *Beginning at the point of rocks at a dry tree marked 9.6 and running west forty chains to a stake in a sheet of fresh water running along the Savannah prairie. Thence to another stake in the same sheet of water, thence East twenty chains to a blazed live oak.*

When trouble arose with nearby Seminole Indians in August 1849, a large number of settlers fled to the relative safety of St. Augustine. Some of them returned in 1850, following the establishment of Fort Capron several miles north of Fort Pierce. Reports from various scouting expeditions provide only generalized descriptions of marshland (see

correspondence between Lt. F. Anthony and Lt. Col. John Monroe in "Letters Sent" (1850-58). On the other hand, J.C. Ives' well-known map indicates the presence of open water, although this is difficult to prove, given the small scale of the map. Nor is Ives' description detailed enough to obtain a clear understanding of the area's physical features. For example, Ives relates in his memoir (Ives 1856: 8):

> *South of the latter post [Fort Pierce] the ridge is covered with hammock growth, and, two miles below, rises to the height of forty feet, where is the old Indian Garden. Along the ridge, in this vicinity, are a few dwelling houses: the inhabitants of these, with the lighthouse keeper at Cape Canaveral, are the only settlers upon the coast, from the canal, ninety miles above Fort Capron, to the Miami River, more than a hundred miles below. Nine miles south of the Indian Garden, there is a high point of the ridge. Along the top is a narrow strip of cultivable ground, from which there is a rapid descent, inland, to an open country, covered with flagponds, savannas, sawgrass, marshes, and palmetto flats, with a few scattered pines.*

The population of the Indian River area during the 1850s never matched the level attained during the previous decade, owing to the outbreak of the Third Seminole War in 1855. Muster rolls found in *Soldiers of Florida in the Seminole Indian-Civil and Spanish American Wars* (1903) shows none of the Armed Occupation Act settlers as having served in the volunteer militia. In fact, few of the Indian River pioneers chose to stay on the frontier, and many left the area permanently.

During the War Between the States, sentiment in the Indian River area favored secession, although the settlers themselves had little direct involvement in the theater of war. They were instrumental, however, in their efforts to assist blockage runners smuggling arms and supplies needed by the Confederate states. The rivers, inlets and small islands provided ideal hiding places for small boats to unload supplies to wagons continuing northward (Heller 1965:11). No specific descriptions of the area can be ascertained from the *Official Records of the Union and Confederate Navies in the War of the Rebellion* (1903).

Following the war, a new influx of pioneers brought a consequent demand for goods and infrastructure. A trade dependent on the river grew as sailboats carried food, clothing and building supplies to settlements along the river from Titusville to Jupiter. The river functioned as a highway for people as well as goods. One of the many travelers was Captain Thomas E. Richards, who sailed down the river in 1879 and settled south of Fort Pierce on property he named "Eden." From there, he pioneered the pineapple industry on mainland Florida, using slips he brought back from Key West. He first planted the crop on Hutchinson Island, where soil conditions appeared similar to those at Key West. However, the abundant moisture and mineral-rich soil proved detrimental and the crop fared better on the mainland's sandy, well-drained soils, supplemented with fertilizer.

Other settlers, and other pineapple plantations, followed Captain Richards. New settlers included Scandinavians who arrived in the 1890s. In a letter to Albert Sawyer, co-founder of the Florida Coast Line Canal and Transportation Company, his chief engineer George F. Miles described the settlement at the town of Viking (Miles to Sawyer 1893, pp. 1-2):

> *I am obliged to go south (for a few days) tomorrow to meet some of Mr. Pio's Scandinavian settlers the advance guard of who have arrived. There is a new town about to be started at the mouth of the St. Lucie River, and we propose to build a house in which to lodge these settlers as they arrive on the site of this proposed "City". Have you made any arrangement with Pio about your lands I think he could find you some purchaser, as I understand he is bringing down quite a large number of people this month.*

By the 1890s, large pineapple plantations stretched along the coastal ridge (the eastern boundary of the Savannas) from Jensen Beach to north of Ft. Pierce near the town of Indrio. Before the construction of the railroad, the produce would be loaded onto coastal schooners and shipped to northern markets such as Baltimore. The industry attracted planters from northern states and Great Britain. J.F. Mitchell, describing his journey along the Indian River by steamer in 1894 remarked (Mitchell, 1894, Part 1):

> *Among others from different states in the Union, quite a number of young Englishmen are now successfully engaged in this lucrative business, and each year sees their numbers increase.*

African Americans provided the labor force for the plantations. Many Bahamians came to work seasonally, sending money back to their families in the islands. Eventually they settled with other African American laborers at a neighborhood called Tick Ridge, located south of T.E. Richard's plantation in Eden and now part of Jensen Beach. Robert Goodbread, whose father worked the fields, recalled in a 1986 *Miami Herald* interview:

> *They called this Tick Ridge because when they came out here, ticks would get on 'em. Like dog ticks, you know.*

Laborers farmed the pineapple fields ten hours a day, six days a week, amid swarms of mosquitoes and gnats. Despite the heat and humidity, the laborers wore heavy clothing and stuffed newspapers in their trouser legs to prevent injuries from the sharp spines of the pineapple plants.

With the growing population, major improvements in infrastructure ensued which permanently altered the landscape. In the 1880s, the Florida Coast Line Canal and Transportation Company began construction of a canal extending from the St. Johns River to Miami. The canal was to be at least five feet deep at low water and fifty feet wide (House of Representatives Document No. 586, p. 4) to permit larger steamers to ply the trade of the growing coastal communities.

Construction of the Florida East Coast Railroad in 1894 vastly improved accessibility to the area and eventually brought the end of the steamers and trade boats. As early as April 1894 the "East Coast Line" ran its first through train from Jacksonville to Lake Worth, following the west bank of the Indian River and Lake Worth. The railway company laid spurs right into the pineapple plantations on the ridge adjacent to the Savannas scrub in order to facilitate transport of the produce. Correspondence during the late 1890s reveals the intense competition between the steamer companies brought about by the railways. For example, George Miles noted to Albert Sawyer in 1897 the improved speed of transport (Miles to Sawyer 1897, p. 1):

> *[The farmers along the river] look upon our company as a "deliverer" from the clutches of a monopoly, and they have promised us their strong support so long as we give them a fair service. As a matter of fact our pines have been beating the East Coast Ry pines by from 24 to 48 hours to New York as the Jacksonville Tampa and Key West Railroad Company are exerting themselves to make the service as good as possible. If the boat is delayed by weather or any other cause they at once run a special train for the pineapples and the result is the shippers are much pleased with the service we are giving them.*

Jensen became known as the Pineapple Capital of the World. By 1895, plantations occupied the entire coastal ridge and exports numbered over a million crates of fruit per year. Among the many varieties grown in the Indian River area included: Common Red Spanish, Egyptian Queens, Ripley Queens, Trinidads, Abbakashee, Charlotte Rothschild,

Black Jamaica, Cayenne, Crown Prince, Mammoth Kew, Sugar-Loaf, Porto Rico, Prince Albert, and the Montserrat. Winthrop Packard described the area during the height of the industry (Packard 1912, p. 144):

> *This is a country of pineapple plantations. They cover that ridge next to the Indian River, clothing it in prickly green lances from the river banks to the savanna behind it, for miles on miles, running north and south.*

The pineapple industry collapsed in 1920, due to a variety of financial and agricultural problems.

In 1924, the Florida East Coast Railway double-tracked the mainline between Jacksonville and Miami, which involved further embanking and ditching (see Florida East Coast Railway, *A Brief History of the Florida East Coast Railway*). Very heavy flooding occurred in the region during the 1920s, and a very active community-wide drainage movement ensued. The North St. Lucie River Drainage District had been established in 1915 with the expressed goal of draining approximately 75,000 acres for agricultural purposes. Five and a half million cubic yards of earth was dredged in order to "remake" Ten-Mile Creek. According to Charles Miley, drainage efforts focused on the White City area bordering the Savannas to the west. Consisting of over two hundred miles of dikes, levees and spillways, the system was valued at $25 million with an operating budget of $318,000 during the 1970s. At one time, nearly 40,000 acres were given over to citrus production (Miley 1980:27-28).

European exploration and settlement in the Indian River area altered the natural topographic and hydrologic features of the Savannas. These changes occupy an important place in the historical record, and in our collective cultural identity. How the Savannas were affected by generations that preceded us is an important cultural lesson. Resource managers should apply this knowledge to educate the public, so that we all can help manage the unique natural and cultural features of the Savannas for future generations.

RESOURCE MANAGEMENT PROGRAM

Special Management Considerations

Timber Management Analysis

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

During the development of this plan, an analysis was made regarding the feasibility of timber management activities for this park. It was then determined that the primary management objectives of the unit could be met without conducting timber management activities for this 5-year management plan cycle. Timber management will be reevaluated during the next 5-year revision of this management plan.

Management Needs and Problems

1. Begin an active fire management program in the preserve.
2. Perform additional plant and animal surveys, targeting specific taxa, such as amphibians and reptiles.
3. Continue hydrological and water quality restoration efforts.

Management Objectives

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

Management Measures for Natural Resources

Hydrology

1. Continue to review all groundwater withdrawal permit applications that occur within a minimum of one mile of preserve boundary.
2. Address water quality concerns as related to watercraft usage in the preserve.
3. Continue efforts of the DEP Surface Water Ambient Monitoring Program (SWAMP) work in and around the preserve.
4. Work with South Florida Water Management District and appropriate counties and/or municipalities to retrofit or eliminate all storm water discharge into the preserve that does not meet current OFW and South Florida Water Management District criteria for discharge.
5. Maintain a prohibition on the use of internal combustion engines for recreational purposes in the waters of the preserve. Motorized watercraft my be used for operational or research purposes under the discretion of the Division.
6. In general, all management activities will comply with best management practices to maintain and improve the water resources within and around the preserve.

Prescribed Burning

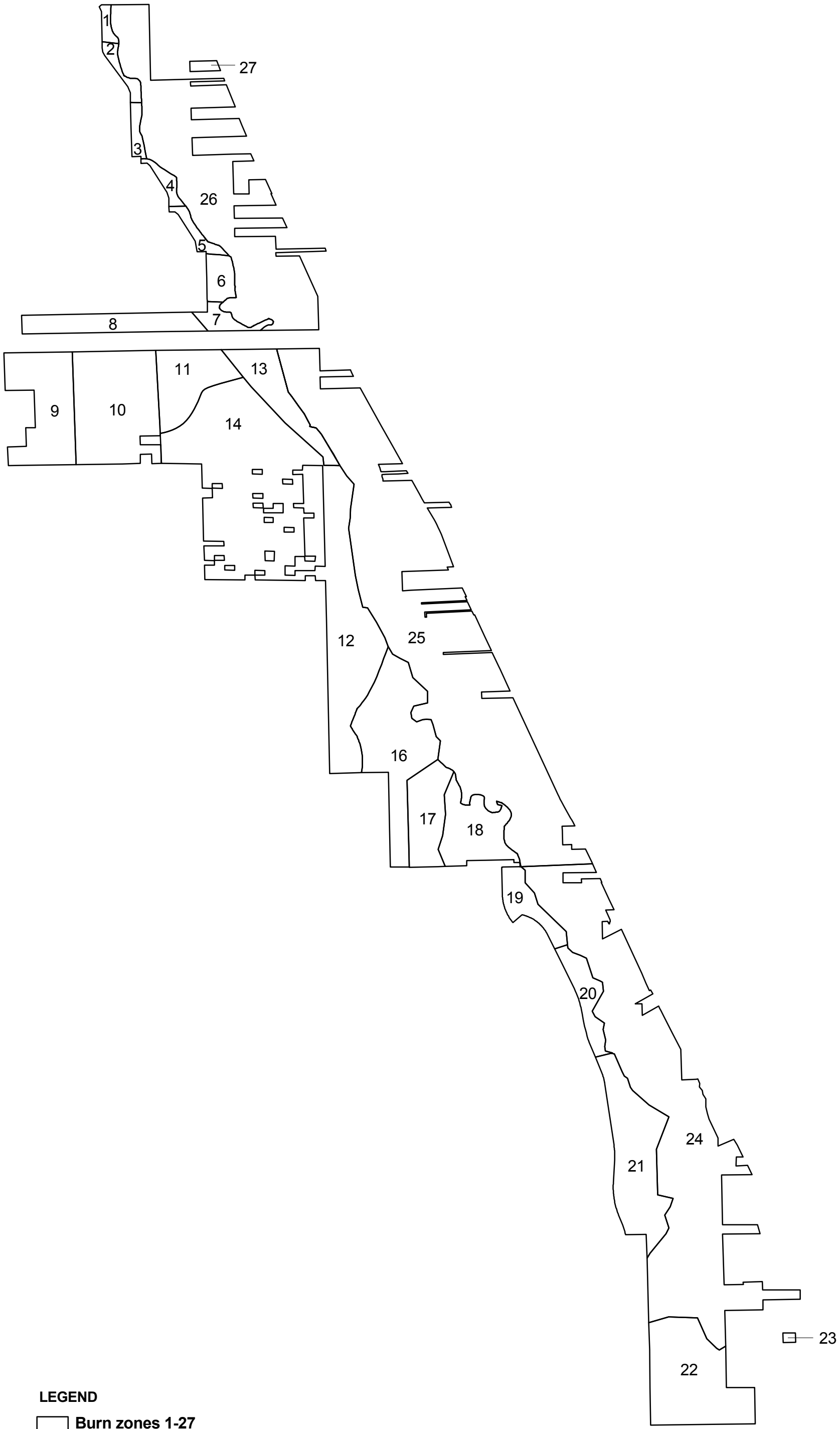
The objectives of prescribed burning are to create those conditions that are most natural for a particular community, and to maintain ecological diversity within the unit's natural communities. To meet these objectives, the park is partitioned into burn zones (see Burn Zone Map), and burn prescriptions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

Currently, this parcel has perimeter firebreaks only along a small portion of the preserve's 30 – 35 miles of perimeter. Construction of these perimeter lines along the west, north and south boundaries are a priority, but the park does not possess all of the equipment necessary to build them. The burn zone map depicts a conceptual map of the burn zones that are planned. It is likely that the zones will be further divided by soft, mowed lines, particularly in the areas with high fuels.

Construction of perimeter lines on the east side of the preserve is a low priority due to the large number of inholdings. It would not be prudent to build hard lines in the scrub knowing that acquisition of many of these parcels is outstanding.

The most difficult aspect of burning within the preserve is smoke management. This unit is surrounded by homes. In addition, a number of primary smoke-sensitive areas (e.g., hospitals and schools) exist adjacent to or near the preserve.

Burning will generally be conducted in those areas that have established perimeter lines and will be expanded as further lines are added. Unfortunately, due to the high number of smoke sensitive areas within the preserve, many areas will have to be burned under sub-



LEGEND

Burn zones 1-27

N

2000 0 2000 4000 Feet

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

SAVANNAS PRESERVE STATE PARK

BURN ZONES MAP

optimal conditions, such as flatwoods burned during the dry season because of the necessity of northwest winds for smoke management. It is hoped over time, and with the help of the DOF Forest Area Supervisor, that some wet season burning can be accomplished in these areas, as the fuels become more manageable and the homeowners become more tolerant.

Designated Species Protection

The welfare of designated species is an important concern of the Division. In many cases, these species will benefit most from proper management of their natural communities. At times, however, additional management measures are needed because of the poor condition of some communities, or because of unusual circumstances that aggravate the particular problems of a species.

Fragrant prickly apple cactus (*Harrisia fragrans*). The USFWS recovery plan suggests many activities that are needed, however, some very basic life history information is lacking for this plant. This information is necessary before resource management activities are undertaken.

Mint (*Dicerandra sp.*). If this plant turns out to be *D. immaculata*, a federal recovery plan exists. If it is a new species, it will most likely be proposed for listing and with any luck a recovery plan will be written. Either way, more survey work is needed with the hopes of finding additional populations.

Florida scrub-jay (*Aphelocoma coerulescens*). A two-year study (2001-2002) of the demographics of this species at Savannas is being conducted by Florida Atlantic University graduate student E. Cowan.

Exotic Species Control

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

Exotic plants and animals are identified in Addendum 4. A priority list for removal has been established. The primary targeted plant is melaleuca (*Melaleuca quinquenervia*) and the animal is the pig (*Sus scrofa*).

Problem Species

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

To date, no known problem species have been identified.

Special Management Considerations

One of the most outstanding natural values of this unit is the stunning scenic vista. Besides the current man-made distractions, such as power lines and roads, it is important that future development not further damage these vistas. This includes both park and outside development. A successful prescribed fire program will only improve these vistas.

Dramatic water level changes can occur in a relatively short period, making power boating difficult, as well as damaging. Impacts include disturbance of wildlife (particularly wading bird nesting), destruction of aquatic habitat, water quality degradation, and an associated loss of aesthetic values.

It is recommended that internal combustion engine watercraft be prohibited from the Savannas Preserve State Park, except as needed for operational or research purposes as determined by the Division.

Management Measures for Cultural Resources

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

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

Because of the known archaeological resources at and near the preserve, management measures for cultural resources should include drafting a proposal for a Phase 1 archaeological survey.

Research Needs

Natural Resources

Any research or other activity that involves the collection of plant or animal species on park property requires a collecting permit from the Department of Environmental Protection. Additional permits from the Florida Fish and Wildlife Conservation Commission, the Department of Agriculture and Consumer Services, or the U.S. Fish and Wildlife Service may also be required.

Very little research has been done on this unit. To date the two most significant projects have been the DEP Surface Water Ambient Monitoring Program's work on identifying stormwater effects on the biota of the preserve and Dr. John Rae's demographic work on the fragrant wooly cactus (*Harrisia fragrans*). Both of these efforts have significantly improved the resource management decisions made regarding this unit. The research needed on this unit is:

1. Additional demographic and life history work on both the fragrant prickly apple cactus (*Harrisia fragrans*) and the *Dicerandra* mint. The U.S. Fish and Wildlife Service, Florida Department of Agriculture and Consumer Services, Fairchild Tropical Garden, and universities should be contacted for technical assistance.
2. Hydrological modeling of the basin would be beneficial for long-term policy and management decisions regarding this unit. The South Florida Water Management District deleted funding for such a project from their 1996-1997 budget. The Division should request funding in future budgets.
3. Detailed surveys of Florida scrub-jays (*Aphelocoma coerulescens*) during the last 5-year management plan period (1997-2001) have identified most territories. Florida Atlantic University graduate student E. Cowan is conducting his masters' thesis research on the demographics of this population. This work will provide management recommendations for the species. Starting in 2002, scrub-jay surveys will be scheduled every other year (e.g., 2002, 2004, and 2006).

Cultural Resources

A Phase 1 archaeological survey of the property is recommended.

Resource Management Schedule

A priority schedule for conducting all management activities that is based on the purposes

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

Land Management Review

Section 259.036, Florida Statutes, established land management review teams to determine whether conservation, preservation, and recreation lands titled in the name of the Board of Trustees of the Internal Improvement Trust Fund (board) are being managed for the purposes for which they were acquired and in accordance with a land management plan adopted pursuant to s. 259.032, the board of trustees, acting through the Department of Environmental Protection (department). The managing agency shall consider the findings and recommendations of the land management review team in finalizing the required 5-year update of its management plan.

If the land management review team determines that reviewed lands are not being managed for the purposes for which they were acquired or in compliance with the adopted land management plan, management policy statement, or management prospectus, or if the managing agency fails to address the review findings in the updated management plan, the department shall provide the review findings to the board, and the managing agency must report to the board its reasons for managing the lands as it has.

Savannas Preserve State Park has not been subject to a land management review.

LAND USE COMPONENT

INTRODUCTION

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

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

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

EXTERNAL CONDITIONS

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

Savannas Preserve State Park is located between U.S. Highway 1 and the Indian River Lagoon in southeastern St. Lucie County and northeastern Martin County. Most of the southern half of the park is within the Port St. Lucie city limits. The incorporated areas of Stuart and Ft. Pierce are within five miles of the park. The park lies within the Treasure Coast Planning District, which includes Indian River, Martin, Palm Beach and St. Lucie counties. According to the Florida Statistical Abstract 2001, the District is the fourth most populous and third fastest growing of the state's eleven planning districts, having grown nearly 30 percent since 1990 to more than 1.5 million residents. Palm Beach County accounts for over 70 percent of the total District population. Medium projections calculate an additional 21 percent growth in District population by 2010.

Existing Use of Adjacent Lands

Savannas Preserve State Park is bounded on the north by Midway Road, on the south by State Road 732, or Jensen Beach Boulevard and on the east by the CSX Railroad right of way. The land area contained by the park is long and relatively narrow, spanning a north-south distance of over ten miles with width varying from less than 1,000 feet to over 2.5 miles. Walton Road bisects the property just south of the midpoint and a Florida Power and Light powerline corridor bisects the northern half of the park.

The park is surrounded by urban development, which presents management problems related to stormwater runoff, exotic plant control and use of prescribed fire. Low to

medium density single family and multi-family residential development is the predominant land uses on the east and west sides of the state preserve in both St. Lucie and Martin Counties. A small area of commercial development exists on the southeastern edge of the boundary, along Jensen Beach Boulevard. Savannas Outdoor Recreation Area, a St. Lucie County maintained facility, lies due north across Midway Road and Port St. Lucie's Sandhill Crane Park is adjacent to the western boundary off Walton Road.

A variety of other publicly and/or privately managed areas lie within proximity of the park, providing additional outdoor recreation opportunities and resource protection: Ft. Pierce Inlet State Park, Avalon State Park, St. Lucie Inlet Preserve State Park, Seabranch Preserve State Park, Atlantic Ridge State Park, North Fork St. Lucie Aquatic Preserve, North Fork St. Lucie River State Buffer Preserve, Jensen Beach to Jupiter Inlet Aquatic Preserve, Queens Island, Pepper Beach Park, John Brooks Park, Isabella Beach, Frederick Douglas Memorial Park, Blind Creek Park, Dollman Tract, Walton Scrub, Savannas Outdoor Recreation Area, Emett-McDermott Sanctuary, Children's, Environmental Learning Museum, and Spruce Bluff. Refer to the Vicinity Map for locations of these areas.

Planned Use of Adjacent Lands

The resident population of St. Lucie and Martin Counties is projected to exceed 384,000 by the year 2010. Rapid development of residential and commercial properties and increasing tourist populations should be anticipated near the state preserve. Since the preserve is one of the highest-quality natural ecosystems in southeast Florida, the demand for resource-based recreational and educational opportunities will increase with the expansion of these populations.

Natural resource impacts from future development adjacent to the park should be anticipated and managed in cooperation with local government planning agencies. Land alteration and development in the past have dramatically altered the hydrology of the Savannas. The original topography, hydroecology and flow have been altered for agricultural production and to make wet flatlands fit for human habitation. Extensive residential development is expected to continue in the areas surrounding the preserve, making water quality and quantity critical factors in the management of preserve resources. Remediation and avoidance of surface and groundwater pollution should be encouraged, especially through strong regulatory provisions and incentives that address stormwater management and treatment upstream from the state preserve. The South Florida Water Management District's review process for permits for additional withdrawals of water from the underlying aquifer near the state preserve should carefully consider the potential impacts those withdrawals may have on the state preserve.

Park and District staff will make a conscientious effort to keep abreast of all local development plans that may affect Savannas Preserve State Park. Regular contacts should be made with the three local planning and zoning departments with regulatory authority of adjacent lands to express interest in notification of any planning decisions or issues affecting the preserve. Staff participation in planning meetings and provision of comments will occur as appropriate.

Division and Department staff must be involved in all transportation planning decisions that may affect the state preserve. Existing roadways adjacent to or running through the state preserve may be proposed for expansion in the future, as population growth places more demands on the local roadway systems. For instance, current projects of concern include the planned Lennard Road extension north to U.S. Highway 1 and four lane widening of Walton Road. The impacts to vegetative communities, listed plants and

animals, and the visual resources within the state preserve should be minimized through the planning and design processes for any future road improvements. Implementation of best management practices for the treatment of stormwater runoff will be critically important. If road improvements are determined to be necessary and appropriate, and impacts to the state preserve cannot be avoided, then mitigation for those impacts will be included in the road design and construction projects.

Other potential impacts from future development around the state preserve include complications of smoke management during prescribed burning operations, traffic congestion on roads running through the preserve and noise impacts from surrounding development.

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.

The Savannas Preserve State Park includes over 5,200 acres of upland and wetland plant communities. The range of this unit and the unique natural resources contained within creates a significant feature of the landscapes of southern St. Lucie and northern Martin Counties. The preserve offers ideal resources for hiking, bicycling, horseback and canoe trail recreation, picnicking, wildlife viewing and environmental education. The geological history that is revealed by the preserve's outstanding natural features: the Savannas and the Atlantic Coastal Ridge should be featured in the interpretive programs of the park. Interpretive programs linked to recreational trail access on the preserve should highlight the interconnected nature of Florida ecosystems, and explain the impacts of land development on critical habitat and aquifer recharge areas throughout the state.

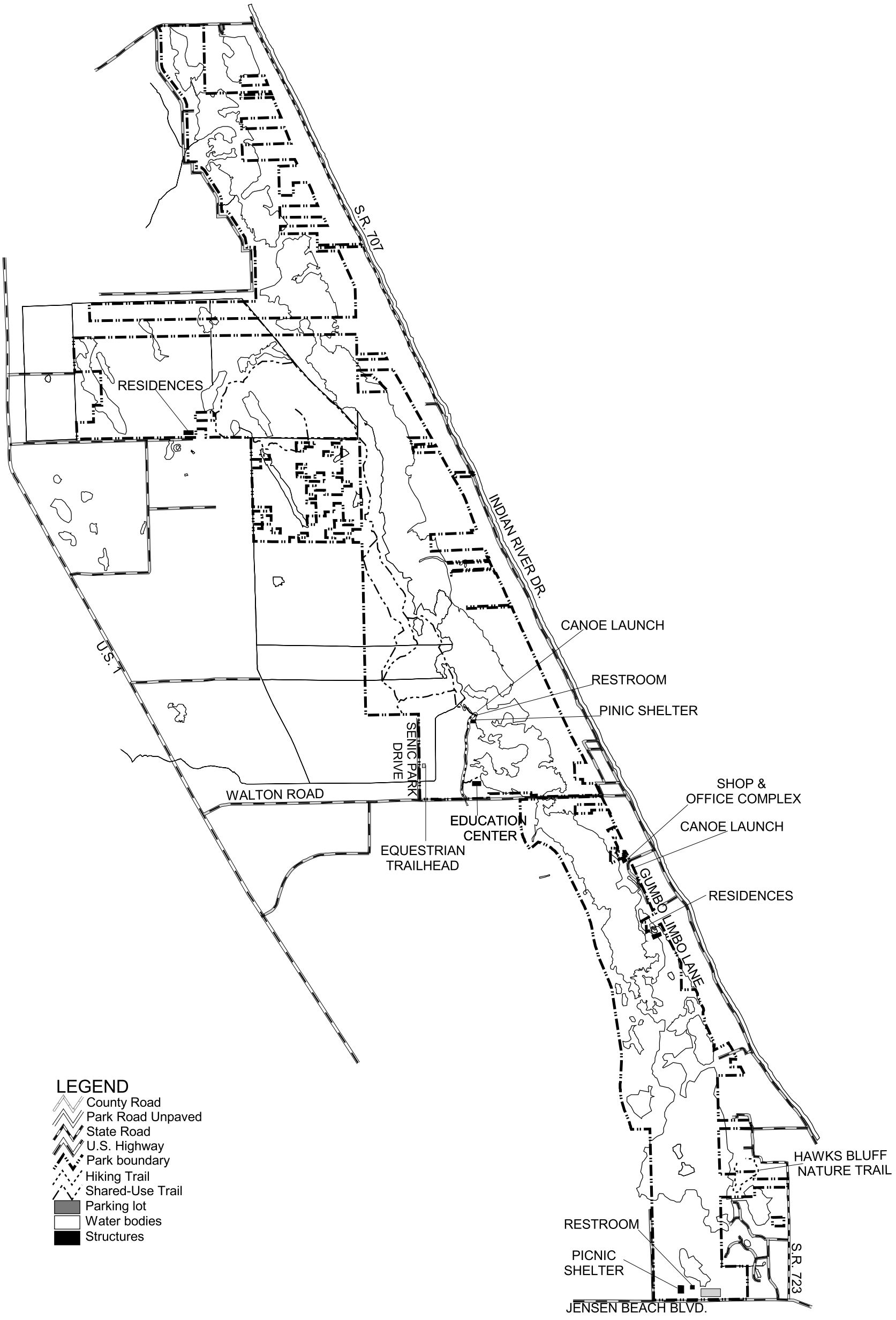
The natural scenery of the state preserve is one of its most important resources. Vistas across the basin, the variety of natural communities and the diversity of wildlife, provide great visual interest for visitors to the preserve. A large population of wading birds in feeding, roosting and nesting areas on the preserve is indicative of the significant wildlife habitat that this area provides. Wildlife viewing opportunities and education should be featured through the programs of the state preserve to heighten the awareness of local residents and visitors regarding Florida's shrinking natural habitat areas.

Assessment of Use

All legal boundaries, significant natural features, structures, facilities, roads, trails and easements 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

In the late 1800s and early 1900s, the sandy ridge east of the Savannas was covered with



LEGEND

- County Road
- Park Road Unpaved
- State Road
- U.S. Highway
- Park boundary
- Hiking Trail
- Shared-Use Trail
- Parking lot
- Water bodies
- Structures

N

3000 0 3000 6000 Feet

Florida Department of Environmental Protection
Division of Recreation and Parks

SAVANNAS PRESERVE STATE PARK

BASE MAP

pineapple plantations. Jensen Beach was known as the "pineapple capital of the world." These plantations were very successful until the 1920s when the crops were destroyed by insects, and Cuban pineapples invaded the market. The production of pineapples was abandoned and the Savannas were allowed to return to their natural state.

Recreational Uses

Past recreational activities on preserve land included horseback riding, fishing, canoeing, hiking, and nature observation. A fish camp was located on the south end of the preserve to support some of these activities. Unauthorized use of off-road vehicles has also been one of the recreational activities throughout the preserve. Intrusion of vehicular traffic is largely under control, with limited incursions occurring on the east side of the property and along the powerline corridor.

Other Uses

Florida Power and Light Corporation own a 600+ foot wide transmission line corridor for the Port St. Lucie nuclear power plant at the northern end of the state preserve.

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 Savannas Preserve State Park the basin marsh, depression marsh, wet prairie, flatwood/prairie lake and the scrubby flatwoods and scrub communities of the Atlantic Coastal Ridge have been designated as protected zones as delineated on the Natural Communities Map. Protected zones include 57 percent of preserve lands.

Existing Facilities

The park opened its new Environmental Education Center in late 2001. The Center, located off Walton Road, is the focal point of interpretation at the park, and includes exhibits about the natural and cultural resources of the Savannas and the ecosystem processes and human uses that shaped the land. Support facilities include restrooms and an office area. A meeting room and covered porches provide additional space for programs, and special events. The Center’s gravel parking area can accommodate 38 vehicles and a medium picnic pavilion adds sheltered space nearby.

Approximately 9.25 miles of shared use trails for hiking, biking and equestrian use are provided between Walton Road and Easy Street, just north of the FPL powerline corridor. A small trailhead with no facilities provides bicycle and pedestrian access to the north end of the trail system at the end of Balsam Road. Primary access to the trail system for hiking and biking is from the Environmental Education Center parking area. A recently completed equestrian trailhead off Scenic Park Drive, roughly 2,300 feet west of the Education Center, provides access for equestrian users. The equestrian trailhead includes parking, an interpretive sign, and potable water. Hawk’s Bluff Trail, a short (3/4 mile) single use hiking trail, is located in the southern portion of the park off Savanna Road, with parking limited to the road right of way. No facilities are provided at this location. The Jensen Beach Trailhead was recently completed at the very southern end of the park, off Jensen Beach Boulevard. The trailhead includes gravel parking, restrooms, a picnic shelter and will eventually provide access to a shared-use trail for biking and hiking only.

Water access is provided at a canoe and kayak launch facility a short distance northeast

of the Education Center and just south of the park's shop area at Gumbo Limbo Lane and Riverview Drive. The latter location does not include any constructed facilities along the shoreline.

A shop building, two mobile home residences, and office are located in the shop area. The Office of Coastal and Aquatic Managed Areas (CAMA) maintains an office and residence due south of the park's shop area off Gumbo Limbo Lane. The following is a comprehensive listing of existing recreation and support facilities at Savannas Preserve State Park:

Environmental Education Center
Education Center
Unpaved parking (38 spaces)
Medium picnic shelter

Equestrian Trailhead
Unpaved parking
Interpretive sign
Potable water

Jensen Beach Trailhead
Unpaved parking (42 spaces)
Medium picnic shelter
Restrooms

Trails
Shared-use Trail (all users) (9.25 miles)
Hawk's Bluff Trail (hiking only) (.75 miles)

Canoe/Kayak Facilities
Canoe/kayak launch
Small picnic shelter
Composting restroom
Interpretive sign

Support Facilities
Shop building
Office
Staff residences (2-mobile homes)
CAMA office and residence

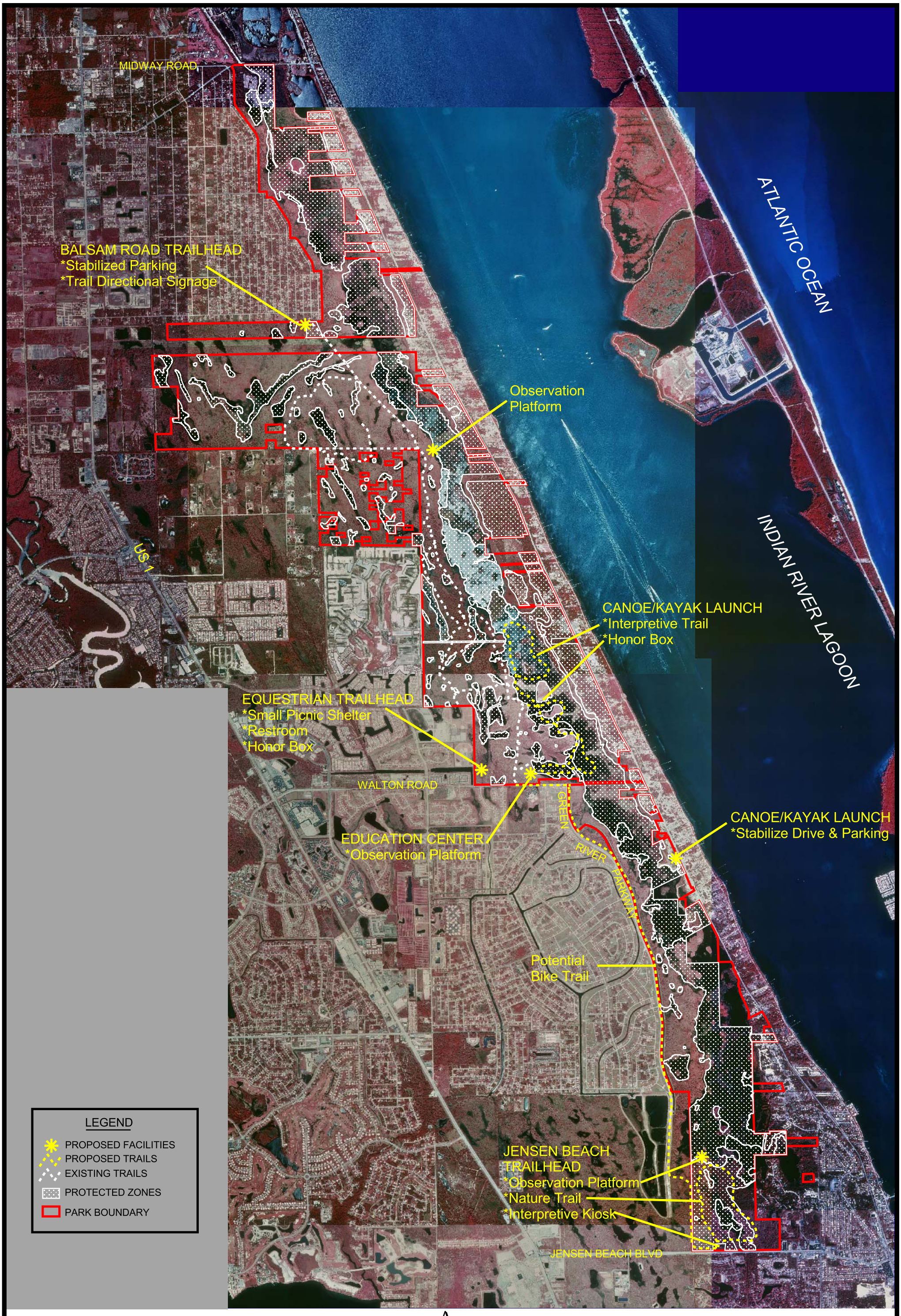
CONCEPTUAL LAND USE PLAN

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

Potential Uses and Proposed Facilities

The existing uses and facilities at Savannas Preserve State Park are appropriate and



SAVANNAS PRESERVE STATE PARK

CONCEPTUAL LAND USE PLAN

should continue. As a state preserve, protection of the unit's resources is paramount. Day use access within appropriate areas should be maintained to provide visitors the opportunity to experience the unique ecology of the Savannas. As discussed in the resource management component of this plan, no recreational access is recommended on the Atlantic Coastal Ridge portion of the state preserve, due to the potential for erosion of the steep slopes, and the presence of endangered plant species found nowhere else. Recommended improvements are limited to facilitating access and navigation along preserve waterways and trails, expanding the trail system and enhancing opportunities for wildlife viewing and appreciation of the scenic qualities of the property.

Six other state parks are within a fifteen-mile radius of Savannas Preserve State Park, including Avalon, Fort Pierce Inlet, Seabranch Preserve, St. Lucie Inlet, Atlantic Ridge, and Jonathan Dickinson. This presents a unique opportunity to design and develop ecotourism programming that links the visitor experience with each of these units of the state park system. The Division supports initiatives aimed at creating a seamless visitor experience in which multiple parks are included in the itinerary of individuals, families and groups wishing to experience a variety of resource types and recreation opportunities during their stay in the area.

Recreation Facilities

A small, stabilized parking area for up to five vehicles is proposed just inside the park boundary at the end of Balsam Drive. A trail directional sign is also recommended. These improvements will eliminate parking on private property and assist users in navigating the trail.

A restroom and small picnic shelter are recommended to complete development of the equestrian trailhead.

Three elevated structures are proposed to enhance vistas over the marshes and flatwoods of the Savannas and improve opportunities for wildlife observation. These structures should be constructed at elevations that can reasonably be made universally accessible while providing the height necessary to see over understory vegetation. One observation platform is recommended behind the Environmental Education Center that would be linked to the building by a universally accessible pathway. This facility would provide visitors that do not have the time or ability to venture away from the Center an added feature that is readily accessible. A second platform is proposed along the existing shared-use trail system near a weir structure in the northern third of the preserve. A third platform is recommended as part of a planned nature trail accessible from the Jensen Beach Trailhead (see below).

A nature trail is being designed and developed with access from the Jensen Beach Trailhead. This trail will be open to hikers only, and loop for approximately two miles through mesic and scrubby flatwoods. Boardwalks may be necessary to provide access through wet areas. An interpretive kiosk is also recommended at the trailhead to provide trail information, educate users to other recreation opportunities at the park, and enhance an understanding of and foster an appreciation for the Savannas among trail users. The exact siting of these facilities will be coordinated with biological staff to minimize potential environmental impacts and disturbance to wildlife populations.

There is potential to provide a trail connection from Walton Road to Jensen Beach Boulevard along the stormwater management berm located just east of Green River Parkway, which runs along the park's southwest boundary. Development of this trail will depend on acquisition of land along the southwestern boundary and eventual coordination between the Division, St. Lucie County, Martin County and the City of Port St. Lucie.

Construction of this trail would significantly enhance trail opportunities in the southern part of the preserve. Visitors could ride from the Jensen Beach Trailhead north, cross Walton Road and continue to the Education Center and trails in the rest of the park. It will be important to establish a safe crossing of Walton Road as part of this project. If future conditions support development of this trail, the park will work with the county and Florida DOT to establish bicycle/pedestrian facilities within the road right of way. Consideration should be given to a separate bicycle and pedestrian pathway and a striped and signed crossing.

An interpretive canoe trail is recommended, beginning at the newly constructed canoe/kayak launch, marked by small, unobtrusive directional signage that would assist visitors in navigating the marshes of the Savannas and improve their understanding of this unique system. Signs could be spaced within sight of one another, similar to the blazes on a hiking trail, and linked to an interpretive guide. The layout of this trail should be coordinated with Division biological staff to maximize wildlife viewing opportunities, yet maintain paddlers an appropriate distance from known wading bird concentrations.

The following improvements to the existing canoe launch near the shop area are recommended to improve vehicular access. Currently, vehicles must park in the soft sand along the road shoulder of Gumbo Limbo Lane and carry canoes or kayaks down to the water. It is recommended that a drive and parking area for 5-7 vehicles be established east of the road near the launch area along the shoreline. The proposed site is currently an open, ruderal area that does not necessitate removing existing trees. Due to the presence of soft sand, consideration should be given to stabilizing the drive and parking area with Geoweb or similar pervious material.

Support Facilities

Honor box fee collection stations are recommended at primary access points in the preserve. No additional support facilities are proposed for the state preserve at this time.

Facilities Development

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

Environmental Education Center
Observation platform

Equestrian Trailhead
Restroom
Small picnic shelter
Honor box fee collection station

Balsam Drive Trailhead
Stabilized parking
Honor box fee collection station

North Canoe/Kayak Launch
Interpretive canoe trail
Honor box fee collection station

Jensen Beach Trailhead
Observation platforms (2)
Nature trail (approx. 2 miles)
Interpretive kiosk
Honor box fee collection station

South Canoe/Kayak Launch
Stabilized drive and parking (5-7 vehicles)

Existing Use and Optimum 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 1).

The optimum 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 1.

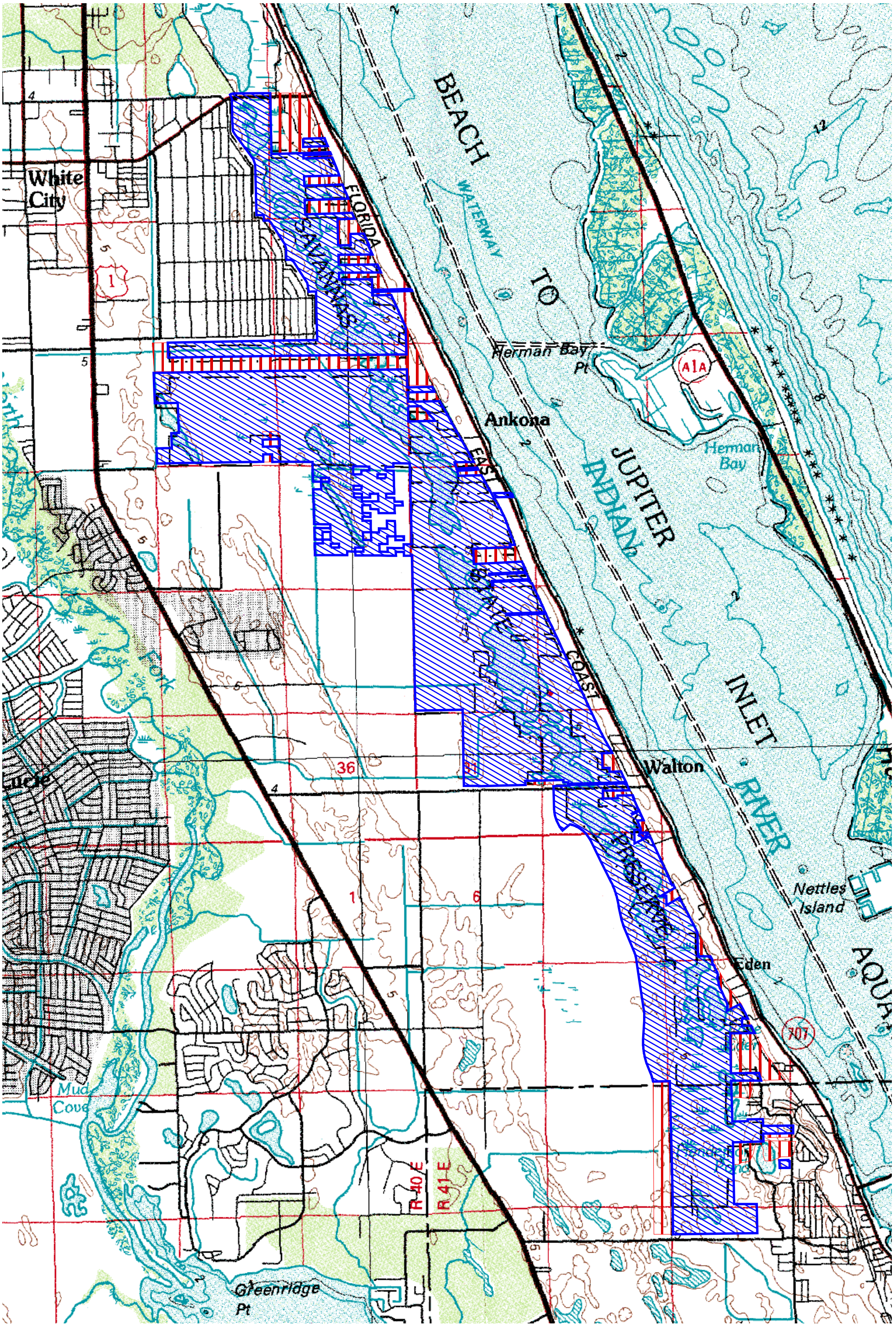
Table 1--Existing Use and Optimum Carrying Capacity

	Existing Capacity		Proposed Additional Capacity		Estimated Optimum Capacity	
Activity/Facility	**One Time**	**Daily**	**One Time**	**Daily**	**One Time**	**Daily**
Education Center	60	240	0	0	60	240
Trails						
Shared Use	93	372	20	80	113	452
Hiking only	8	32	0	0	8	32
Boating						
Canoe/kayak	80	160	0	0	80	160
TOTALS	**241**	**804**	**20**	**80**	**261**	**884**

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 meant to be used 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 meant to be used as the basis for permit denial or the imposition of permit conditions.

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



LEGEND
Park boundary
Optimum boundary

N

3000 0 3000 6000 Feet

SAVANNAS PRESERVE STATE PARK

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

OPTIMUM BOUNDARY MAP

Addendum 1--Acquisition History and Advisory Group Meeting Documentation

Purpose and Sequence of Acquisition

The Board of Trustees of the Internal Improvement Trust Fund (Trustees) acquired Savannas Preserve State Park to protect, develop, operate, and maintain the property for public outdoor recreation, park, conservation, historic and related purposes.

The initial acquisition took place on April 25, 1977, when the Trustees obtained title to the property. The purchase was funded under the EEL program. Since this initial acquisition, the Trustees have purchased several additional parcels with EEL, LATF, and P2000/CARL funds and added them to the park.

On June 21, 1984, the Trustees leased Savannas Preserve State Park to the Division of Recreation and Parks (DRP) and the Florida Fish and Wildlife Conservation Commission (FFWCC), under Agreement No. 745-9002. The DRP and FFWCC formally ended this lease in 1988/89 so that Savannas Preserve State Park could be managed by the DEP Office of Coastal and Aquatic Managed Areas (CAMA). CAMA managed the property until June 1993 under Lease No. 3566.

The DRP reassumed the management responsibility of the park on August 19, 1993, under a new number, Lease No. 3996, that is for a period of fifty (50) years and will expire on August 18, 2043.

On November 15, 1993, the DRP leased approximately property from the South Florida Water Management District (SFWMD) to manage the property as part of the park. This lease is for a period of twenty-five (25) years and will expire on November 14, 2018.

According to the leases from the Trustees and the SFWMD, the DRP manages Savannas Preserve State Park for the conservation and protection of natural, historic and cultural resources of the property and to provide resource-based public outdoor recreation compatible with the conservation and protection of the property.

Title Interest

The Trustees and SFWMD hold fee simple title to the Savannas Preserve State Park.

Special Conditions on Use
Savannas Preserve State Park is designated single-use to provide resource-based public outdoor recreation and other related uses. Uses such as water resource development projects, water supply projects, storm-water management projects, and linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in the preserve's unit management plan) are not consistent with the unit management plan or the management purposes of the preserve and will be discouraged.

Outstanding Reservations
Following is a listing of outstanding rights, reservations, and encumbrances that apply to Savannas Preserve State Park

Instrument:	Warranty Deed
Instrument Holder:	Wayne Construction Company
Beginning Date:	May 12, 1977
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Subject to a certain perpetual easement to General Development Corporation for drainage purposes.
Instrument:	Warranty Deed
Instrument Holder:	Clarence and Nancy Brooks
Beginning Date:	July 18, 1977
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Subject to an easement to American Telephone and

Telegraph Company.

Instrument: Warranty Deed
Instrument Holder: The Trust for Public Land
Beginning Date: March 17, 198
Ending Date: Forever
Outstanding Rights, Uses, Etc.: Subject to easements for access and drainage purposes and an easement to the Florida Power and Light Company.

Instrument: Warranty Deed
Instrument Holder: Donald and Gisela Leitner
Beginning Date: January 12, 1979
Ending Date: Forever
Outstanding Rights, Uses, Etc.: Subject to an easement to American Telephone and Telegraph Company.

Instrument: Warranty Deed
Instrument Holder: Harry and Blanche McFall
Beginning Date: October 19, 1983
Ending Date: Forever
Outstanding Rights, Uses, Etc.: Subject to an easement to American Telephone and Telegraph Company.

Instrument: Warranty Deed
Instrument Holder: GMSG Port St. Lucie Partners
Beginning Date: April 21, 1989
Ending Date: Forever
Outstanding Rights, Uses, Etc.: Subject to easements for road right of way purposes.

Instrument: Warranty Deed
Instrument Holder: Lake Lucie Estate, Inc.
Beginning Date: July 25, 1990
Ending Date: Forever
Outstanding Rights, Uses, Etc.: Subject to easements for road, utility and drainage purposes.

Instrument: Warranty Deed
Instrument Holder: Caster Farms, Inc.
Beginning Date: July 26, 1990
Ending Date: Forever
Outstanding Rights, Uses, Etc.: Subject to easements for road, utility and drainage purposes.

Instrument: Warranty Deed
Instrument Holder: The Trust for Public Land
Beginning Date: March 29, 1991
Ending Date: Forever
Outstanding Rights, Uses, Etc.: Subject to an easement to Florida Power and Light Company and easement for road right of way and drainage purposes.

Instrument: Warranty Deed
Instrument Holder: Lavaughn Tilton.
Beginning Date: June 3, 1992
Ending Date: Forever

Outstanding Rights, Uses, Etc.:	Subject to right of way set forth on Plat Block 1 page 35 of St. Lucie County
Instrument:	Warranty Deed
Instrument Holder:	Ransom R. Tilton
Beginning Date:	June 3, 1992
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Subject to right of way set forth on Plat of St. Lucie County
Instrument:	Warranty Deed
Instrument Holder:	City of Port St. Lucie
Beginning Date:	September 30, 1992
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Subject to an easement to Florida Power and Light Company.
Instrument:	Warranty Deed
Instrument Holder:	Theresa Kozik, Edward Kozik, Casmir Struzyna, Zenon Struzyna, and Camille Rawley
Beginning Date:	October 12, 1992
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Subject to a perpetual easement for access purposes.
Instrument:	Warranty Deed
Instrument Holder:	Atlantic Gulf Communities Corp.
Beginning Date:	September 20, 1993
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Easement granted to Florida Power and Light company.
Instrument:	Warranty Deed
Instrument Holder:	The City of Port St. Lucie
Beginning Date:	February 14, 1994
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Easement in favor of the American Telephone and Telegraph Company.
Instrument:	Interagency Lease no. 430012198
Instrument Holder:	SFWMD
Beginning Date:	November 15, 1993
Ending Date:	For a period of 25 years.
Outstanding Rights, Uses, Etc.:	SFWMD reserves an unrestricted right of access to the property. The property is subject to easements for right of way and drainage purposes.
Instrument:	Warranty Deed
Instrument Holder:	MacArthur Foundation
Beginning Date:	December 10, 1992
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Easements granted to the Florida Power and Light Company.
Instrument:	Warranty Deeds/Amendment No. 5
Instrument Holder:	29 Grantors
Beginning Date:	Amendment Date October 29, 1996
Ending Date:	Forever

Outstanding Rights, Uses, Etc.:	28 deeds are subject to easements for road, utility and drainage purposes.
Instrument:	Warranty Deeds/Amendment No. 8
Instrument Holder:	12 Grantors
Beginning Date:	Amendment Date June 2, 1997
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	11 deeds are subject to easements for road, utility and drainage purpose.
Instrument:	Warranty Deed
Instrument Holder:	Avelino and Maria Donascimento
Beginning Date:	April 4, 1997
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Subject to easements for road, utility and drainage purpose.
Instrument:	Warranty Deed
Instrument Holder:	Herman R. and Rita M. Kastner
Beginning Date:	May 2, 1997
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Subject to easements for road, utility and drainage purpose.
Instrument:	Warranty Deeds/Amendment No.10
Instrument Holder:	11 Grantors
Beginning Date:	Amendment Date July 23, 1998
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	five deeds are subject to easements for road, utility and drainage purpose.
Instrument:	Warranty Deed
Instrument Holder:	Grant P. and Sheryle T, Williams
Beginning Date:	June 24, 1998
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Subject to easements for road, utility and drainage purpose.
Instrument:	Warranty Deed
Instrument Holder:	Hsien and Mary Chao Lu
Beginning Date:	June 11, 1998
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Subject to easements for road, utility and drainage purpose.
Instrument:	Warranty Deeds/Amendment No. 13
Instrument Holder:	four Grantors
Beginning Date:	Amendment Date February 9, 1999
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	three deeds are subject to easements and right of ways. Stephen M. Finn's deed is also subject to utility easements for Florida Power and Light Company.
Instrument:	Warranty Deed
Instrument Holder:	Gregory and Deborah Younkin
Beginning Date:	February 16, 1999
Ending Date:	Forever

Outstanding Rights, Uses, Etc.:	Subject to easements for access.
Instrument:	Warranty Deeds/Amendment No. 16
Instrument Holder:	three Grantors
Beginning Date:	Amendment Date April 29, 1999
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	Subject to easements for road, utility and drainage purpose.
Instrument:	Warranty Deed
Instrument Holder:	Clara H. Noguiera
Beginning Date:	May 2, 2000
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	The deed is subject to a non-exclusive easement for ingress and egress purposes recorded in O.R. book 859, page 998, O.R. book 859, page 1003, O.R. book 859, page 1014.
Instrument:	Warranty Deed
Instrument Holder:	Fred Wittig, Phyllis Wittig
Beginning Date:	May 11, 2001
Ending Date:	Forever
Outstanding Rights, Uses, Etc.:	The deed is subject to the non-exclusive easement of ingress and egress in certain agreement recorded in O.R. book, 190, page 2261.
Instrument:	Easement
Instrument Holder:	Trustees
Beginning Date:	January 25, 2002
Ending Date:	No specific date is given.
Outstanding Rights, Uses, Etc.:	The easement allows the Florida Power and Light Company to construction, operation and maintenance of overhead and underground electric facilities within state park property.

The Honorable Doug Coward,
Chairman
St. Lucie County Board of County
Commissioners
2300 Virginia Ave, Room 304
Fort Pierce, Florida 34982

The Honorable Michael DiTerlizzi,
Chairman
Martin County Board of County
Commissioners
District 4
2401 S.E. Monterey Road
Stuart, Florida 34996

Represented by:
Mr. David Night
Martin County Growth Management
Department
2401 SE Monterey Road
Stuart, Florida 34990

Kim Love, Water Resource Manager
Martin County Office of Water Quality
2401 SE Monterey Road
Stuart, Florida 34996

Dan Griffin, Park Manager
Savannas Preserve State Park
905 Shorewinds Drive
Ft. Pierce, Florida 34949-1549

David Lennard, Chair
Martin Soil and Water
Conservation District
19220 Mack Dairy Road
Jupiter, Florida 33478

Phillip C. Gates Jr., Chair
St. Lucie Soil & Water Conservation
District
8400 Picos Rd., Suite 202
Ft. Pierce, Florida 34945

Chuck Prouix, Director
Port St. Lucie Parks & Recreation
121 SW Port St. Lucie Blvd.
Pt. St. Lucie, Florida 34984

Represented by:
Mr. Brad Keen
Port St. Lucie Parks & Recreation
703 Anita Street
Ft. Pierce, Florida 34982

Joe Spataro, Forest Area Supervisor
Florida Division of Forestry
4330 4th Street
Vero Beach, Florida 34968

Steve Coughlin, Regional Biologist
Florida Fish and Wildlife
Conservation Commission
8535 Northlake Boulevard
West Palm Beach, Florida 33412

Gayla Barwick, Executive Director
St. Lucie County Tourism Development
Council
2300 Virginia Avenue
Ft. Pierce, Florida 34982

Tim Kinane, Chair
Stuart/Martin County Chamber of
Commerce
1650 South Kanner Highway
Stuart, Florida 34994-7199

Kathy Gates, Chair
Sierra Club, Loxahatchee Group
9693 El Clair Ranch Road
Boynton Beach, Florida 33437

Represented by:
Mr. Lee Mitchell
Sierra Club, Loxahatchee Group
1837 SE Hideaway Circle
Port St. Lucie, Florida 34952-4814

Bob Bangert, President
Conservation Alliance of St. Lucie County
5608 Eagle Drive
Ft. Pierce, Florida 34951

Donna Meltzer, President
Conservation Alliance of Martin County
Post Office Box 1923
Stuart, Florida 34995

Represented by:
Mr. Howard K. Heims
Conservation Alliance of Martin County
P.O. Box 1197
Stuart, Florida 34995

Ms. Audrey Minnis
Florida Trail Association
Tropical Trekkers Chapter
6090 S.W. Moores Street
Palm City, Florida 34990

Represented by:
Mr. Tom Clements
Florida Trail Association
Tropical Trekkers Chapter
548 SW Halpatiokee St.
Stuart, Florida 34994

Ms. Debbie McManus
Equestrian Representative
8400 Picos Rd., Suite 101
Ft. Pierce, Florida 34945

Mr. Ed Stout
South River Outfitters
7645 Southwest Lost River Road
Stuart, Florida

Mr. Dave DeWitt
Indian River Estates Homeowners Association
505 Easy Street
Ft. Pierce, Florida 34982

Ray Hoffman, President
Savannas Reserve Endowment, Inc.
2525 SE Hallahan St.
Port St. Lucie, FL 34952

The Advisory Group appointed to review the proposed land management plan for Savannas Preserve State Park was held at the Savannas Education Center on January 9, 2003. David Night and Kim Love represented Commissioner DiTerlizzi. Brad Keen represented Chuck Prouix, Lee Mitchell represented Kathy Gates, Howard Heims represented Donna Meltzer, and Tom Clements represented Audrey Minnis. Commissioner Doug Coward, David Lennard, Phillip Gates, Jr., Gayla Barwick, Tim Kinane, Debbie McManus, Dave DeWitt, and Steve Coughlin did not attend. All other appointed Advisory Group members were present. Attending staff was George Jones, Danny Jones, Hank Smith, Dan Griffin, Ernie Cowan, Brian Burket and Michael Kinnison.

Mr. Kinnison began the meeting by explaining the purpose of the advisory group and reviewing the meeting agenda. He also provided a brief overview of the Division of Recreation and Parks (DRP) planning process and summarized public comments received during the previous evening's public workshop. Mr. Smith and Mr. Jones acknowledged the assistance provided by other agencies, particularly the Division of Forestry, in accomplishing resource management activities. Each member of the advisory group was then asked to express his or her comments on the plan.

Summary Of Advisory Group Comments

Joe Spataro discussed the need to burn existing outparcels to reduce fuel loads. He explained that notification is being provided to landowners in their tax bills and that these areas will be burned if no objections received. **Kim Love** asked about area residents' perceptions regarding the use of prescribed fire at the park. She suggested that staff consult with Palm Coast authorities since that area of the state has experience with public contact resulting from wildfires. **Hank Smith** explained that the park sends out notices to residents prior to burning, meets with individuals as needed, and utilizes public service announcements to educate citizens on the use of fire at the park. He added that the DRP is assisting a student with a thesis project on the use of public service messages related to burning on the Atlantic Ridge. **Mr. Spataro** stated that the park has been trying to do as much burning as conditions permit. **George Jones** indicated that new equipment at the park will assist with burning and recognized the assistance agency partners provide. **Dan Griffin** thanked the Division of Forestry and county fire departments for helping the park accomplish its burn objectives. **Brad Keane** asked what elements are considered when deciding whether to burn. **Mr. Spataro** explained that the park service biologist and park manager design the burn site. He stated that the Division of Forestry reviews burn plans and that humidity and winds must be within a narrow set of conditions before a permit is issued or surrounding development will be impacted by smoke.

Mr. Keane asked if Sandhill Crane Park had been asked to help notify the public about burning. **Mr. Griffin** indicated that the park was contacted before initiating burns. **Mr. Keane** explained that Sandhill Crane Park might have to alter their recreational programs if conditions blew smoke that direction. **Howard Heims** asked about wildlife impacts from burning. **Mr. Spataro** responded that wildlife impacts were minimal. **Mr. Smith** explained that wildlife in these systems require fire to persist. **Lee Mitchell** suggested the park work with environmental groups to get the word out regarding the park's burn program since their support could be beneficial. **Mr. G. Jones** stated that the DRP does work with such groups, particularly The Nature Conservancy, on this issue.

Mr. Heims asked about plans for bicycle access. **Mr. Kinnison** explained that existing trails accommodate hikers, horseback riders and bicyclists. He stated that the staff would like to establish a bicycle connection from the Jensen Beach Trailhead north to Walton Road, but the acquisition of additional land was necessary.

Kim Love asked about efforts to remove exotic species. **Mr. Smith** explained that parks develop separate exotic removal plans, which are periodically updated and monitored for progress. **Mr. Keen** asked about plans to remove Malaleuca. **Mr. Smith** responded that

mitigation projects have helped remove plants by reflooding areas that were previously ditched and drained. He indicated that herbicides are also used on large trees while saplings are removed by hand.

Bob Bangart provided no additional comments.

Ed Stout inquired about plans for establishing a canoe trail. **Mr. Smith** discussed his research on the disturbance of birds when approached directly. He explained plans to use volunteers to assist on collecting disturbance data when birds are approached tangentially and how this information will be used to design the layout of the trail. He emphasized that staff were committed to providing a watchable wildlife experience that would be sensitive to bird nesting and resting areas. **Mr. Stout** asked about access of park waters by motorized boats since he has seen them in the park. **Mr. Smith** responded that a St. Lucie County ordinance and the park's management plan prohibits their use in the Savannas. He stated that individuals have been arrested for violating the prohibition and that enforcement efforts will continue. **Mr. Keen** clarified that St. Lucie County regulations restrict airboats and size of motors but not all watercraft. **Mr. G. Jones** explained that the DRP has authority to regulate this activity in park waters. **Mr. Stout** asked if there was signs that indicated vehicles were prohibited from other locations in the park. **Mr. Griffin** affirmed that signage was in place in problem areas and that there were plans to use signs more widely.

David Knight provided no additional comment.

Mr. Mitchell asked if the park experienced problems with mudbogging. **Mr. Griffin** discussed a recent incident in which unauthorized vehicles were caught and the operators were being prosecuted. He discussed plans to address unauthorized access through a county managed stormwater facility adjacent to the park. He explained the challenge of policing the park's extensive boundary and the importance of assistance from neighbors and local law enforcement agencies. **Mr. Mitchell** explained that mudbogging was a traditional use at the Savannas that has taken place for decades. He stated that the park has made great progress in controlling this destructive practice. **Mr. Jones** discussed the problem the park service has of controlling destructive traditional uses at other parks.

Ed Stout requested to be included in the Atlantic Ridge planning process.

Tom Clements asked about the method of construction to be used to build the proposed Jensen Beach shared-use trail. **Mr. Griffin** stated that a roughly five foot wide path would be cleared using a shredder. **Mr. Clements** expressed concerns about potential user conflicts on such a narrow trail, and stated that the Florida Trail Association prefers hiking only trails. He also suggested stabilizing the trail surface to prevent erosion. **Mr. Clements** asked about plans for connecting this area of the park to Walton Road. **Mr. Kinnison** discussed the opportunity provided if property along the western boundary could be acquired. **Mr. Griffin** added that it was his understanding that this area would eventually be transferred to the park as mitigation for the adjacent West Jensen development. He indicated that it is currently included on the Optimum Boundary Map. **Ms. Love** asked if Martin County could assist with this and other areas identified for acquisition. **Mr. Griffin** responded that most of the remaining parcels are located in St. Lucie County. **Mr. Smith** stated that Martin County could help by regulating land use and non-point water sources that impact the park. **Mr. Clements** discussed the impacts adjacent roads have on park hydrology, particularly Walton Road. **Mr. Smith** responded that additional culverts could help mitigate the impacts of the road. **Mr. Jones** added that the DRP would be able to comment on future improvements to the road as part of the permitting process, and that hydrological restoration would be a priority concern.

Ray Hoffman asked about plans for the design and construction of proposed observation points. **Mr. Smith** stated that the park plans to model these facilities after ones constructed at the St. Marks National Wildlife Refuge. **Mr. G. Jones** explained that costs for these facilities in the plan are estimates only and that decisions regarding the timing of construction will be made

by park and District staff. He discussed the limits that ADA requirements place on constructing elevated structures and that those proposed for the Savannas would be designed to be unobtrusive visually. **Mr. Griffin** indicated that he would prefer to construct the one at the Education Center first. **Mr. Smith** added that that location would also serve as a fire lookout. **Mr. Kinnison** suggested that these types of facilities make ideal fundraising projects for a park CSO. **Mr. Hoffman** supported prioritizing the Education Center location and asked if the work would be contracted out. **Mr. G. Jones** responded that CSO's with the appropriate expertise have undertaken similar projects at other parks.

Mr. Keen asked how access was currently handled at the Balsam Road Trailhead. **Mr. Kinnison** explained that vehicles currently park on the road right of way, which is why the plan calls for establishing a small trailhead parking area. **Mr. Keen** asked if the DRP had a lease to allow crossing of the FPL property and if the park was concerned about access in this area. **Mr. Griffin** indicated that a lease was in place and that the park has successfully addressed FPL concerns regarding access in this area. He added that FPL has been a supportive neighbor of the park.

Dan Griffin provided no additional comment.

Mr. Mitchell commended the use of recycled composite lumber for park facilities and suggested using signage to educate visitors about its use.

The meeting was then adjourned.

Steve Coughlin arrived as the meeting was adjourned and expressed his support to staff for the Savannas management plan.

Staff Recommendation

Staff recommends approval of the proposed management plan for Savannas Preserve State Park as presented with the following recommendation.

Trails

1. Staff concurs with the FTA representative and recommends designating the proposed Jensen Beach trail as a hiking only facility.
2. Add the concept of providing honor box fee collection stations at primary access points.

Addendum 2--References Cited

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Addendum 3--Soils Descriptions

4 - Arents, 0-5% Slopes - This soil is an amalgamation of different soil types dug from different areas to be used as fill material.

12 - Electra Fine Sand, 0-5% Slopes - This nearly level to gently sloping soil is poorly drained and is associated with low ridges within the flatwoods. The slopes are smooth to convex and range from 0 to 5 percent.

Typically, the surface layer is composed of gray, fine sand while the subsurface layer is white, fine sand.

12 - St. Johns Variant Sand - This nearly level soil is very poorly drained. It is in depressions and sloughs and at the base of short slopes in areas of flatwoods. Areas are generally long and narrow and range from about 5 to 50 acres. Slopes are smooth to concave and range from 0 to 2 percent.

Typically, the surface layer is black sand about 14 inches thick. The subsurface layer is sand to a depth of about 40 inches. The upper 16 inches of the subsurface layer is dark gray, and the lower 10 inches is gray. The subsoil is sand to a depth of 72 inches or more. The upper 8 inches of the subsoil is dark grayish brown, and the next 6 inches is black and has dark grayish brown pockets or mottles. The next 8 inches of the subsoil is dark reddish brown mixed with black and grayish brown, and the lower 10 inches is brown.

13 - Placid Sand - 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.

18 - Hontoon Muck - This nearly level organic soil is very poorly drained. It is in low, wet areas. Slopes are smooth to concave and range from 0 - 2 percent.

The surface layer is typically dark, reddish-brown muck.

19 - Jonathan Sand, 0-5% Slopes - This nearly level to gently sloping soil is moderately well drained. It is associated with scrubby flatwoods with slopes that are smooth to convex.

Typically, the surface layer is comprised of gray sand and the subsurface layer is white sand.

21 - Lawnwood Sand - This nearly level soil is poorly drained and is associated with pine flatwoods. Slopes are smooth to concave and range from 0 to 2 percent.

The surface layer is black sand above and dark gray sand below. The subsurface layer is composed of gray sand.

28 - Paola Sand, 0-8% 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.

29 - Pendarvis Sand, 0-5% Slopes - This nearly level to gently sloping soil is moderately well drained. It is associated with low ridges located within the flatwoods and has slopes that are smooth to convex.

Typically, the surface layer is very dark gray sand and the subsurface layer is light gray sand.

34 - Pompano Sand - This nearly level soil is poorly drained. It is in narrow drainageways. Areas are long, narrow, and highly dissected by stream action. Slopes are dominantly 0 to 2 percent, but stream dissection has created numerous short steep side slopes.

Typically, the surface layer is dark gray fine sand. Below this is fine sand to a depth of 80 inches or more. The upper part is light gray and has white pockets. Next is mottled light brownish gray with dark grayish brown and very dark grayish brown pockets. The lower part is light gray fine sand with a few grayish brown pockets.

39 - 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 fragments to a depth of 100 inches or more.

40 - Samsula Variant-Myakka Variant Association - This nearly level soil type is very poorly drained and is associated with the savannah-like wetlands. Slope is less than 2 percent.

Although these two soil types can be separated, mapping is difficult due to the wetness and dense vegetation. In general, the surface layer consists of dark or black muck followed by mucky sand and gray sand.

41 - Satellite 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.

42 - St. Lucie Sand, 0-8% Slopes - This deep, nearly level to sloping sandy soil is excessively drained. It is on dry coastal ridges and on isolated knolls in the flatwoods. Areas range from a few acres to several hundred acres. Slopes are generally uniform and range from 0 to 8 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.

50 - 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.

51 - Waveland-Lawnwood Complex - This nearly level soil complex is poorly drained and is associated with wet prairies and other depressions in the flatwoods. Slopes range from 0 - 2 percent.

This complex is difficult to separate due to the high degree of intermixing. In general, the surface layer is comprised of dark sand while the subsurface layer is gray sand.

77 - St. Lucie Sand, 8-20% 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 4--Plant And Animal List

Savannas Preserve State Park

Plants

Common Name	*Scientific Name*	Primary Habitat (For Designated Species)
Spleenwort	*Asplenium heterochroum*	
Azolla	*Azolla caroliniana*	
Swamp fern	*Blechnum serrulatum*	
Chain fern	*Woodwardia virginica*	
Tuberous sword fern*	*Nephrolepis cordifolia*	
Wild Boston fern	*Nephrolepis exaltata*	
Southern club moss	*Lycopodium appressum*	
Slender club moss	*Lycopodium carolinianum*	
Cinnamon fern	*Osmunda cinnamomea*	24
Royal fern	*Osmunda regalis*	24
Golden polypody	*Phlebodium aureum*	
Resurrection fern	*Polypodium polypodioides*	
Whisk fern	*Psilotum nudum*	
Giant leather fern	*Acrostichum danaeifolium*	24
Bracken	*Pteridium aquilinum*	
Water spangles	*Salvinia minima*	
Climbing fern*	*Lygodium microphyllum*	
Spikemoss	*Selaginella arenicola*	
Tri-vein fern	*Thelypteris interrupta*	
Shoestring fern	*Vittaria lineata*	
Sand Pine	*Pinus clausa*	
S. Fla. Slash pine	*Pinus elliottii var. densa*	
Bowstring hemp*	*Sansevieria hyacinthoides*	
Arrowhead	*Sagittaria graminea*	
Arrowhead	*Sagittaria lancifolia*	
Swamp lily	*Crinum americanum*	
Spider lily	*Hymenocallis latifolia*	14
Alligator lily	*Hymenocallis palmeri*	
Green arum	*Peltandra virginica*	
Cabbage palm	*Sabal palmetto*	
Saw palmetto	*Serenoa repens*	
Stiff-leaved wild pine	*Tillandsia fasciculata*	14
Ball moss	*Tillandsia recurvata*	
Spanish moss	*Tillandsia usneoides*	
Giant wild pine	*Tillandsia utriculata*	14
	Burmannia biflora	
	Burmannia capitata	
Day flower	*Commelina diffusa*	
Erect day flower	*Commelina erecta*	
Roseling	*Cuthbertia ornata*	
Watergrass	*Bulbostylis barbata*	
	Bulbostylis ciliatifolia	
	Bulbostylis stenophylla	
	Bulbostylis warei	
Saw grass	*Cladium jamaicensis*	
	Cyperus brevifolius	
	Cyperus compressus	
	Cyperus flavescens	

*** Non-native Species**

Savannas Preserve State Park

Plants

Common Name	*Scientific Name*	Primary Habitat (For Designated Species)
	Cyperus haspan	
	Cyperus lecontei	
	Cyperus ligularis	
	Cyperus polystachyos	
	Cyperus retrorsus	
Purple nut sedge*	*Cyperus rotundus*	
	Cyperus stenolepis	
	Cyperus surinamensis	
White-top sedge	*Dichromena colorata*	
Star rush	*Dichromena latifolia*	
Spike rush	*Eleocharis baldwinii*	
Spike rush	*Eleocharis cellulosa*	
Spike rush	*Eleocharis elongata*	
Spike rush	*Eleocharis geniculata*	
Spike rush	*Eleocharis vivipara*	
	Fimbristylis autumnalis	
	Fimbristylis dichotoma	
Umbrellagrass	*Fuirena breviseta*	
	Fuirena longa	
	Fuirena scirpoidea	
	Fuirena squarrosa	
	Hemicarpha aristulata	
	Hemicarpha micrantha	
	Psilocarya nitens	
Beak rush	*Rhynchospora cephalantha*	
	Rhynchospora ciliaris	
	Rhynchospora filifolia	
	Rhynchospora globularis	
	Rhynchospora intermedia	
	Rhynchospora inundata	
	Rhynchospora megalocarpa	
	Rhynchospora pleiantha	
	Rhynchospora plumosa	
	Rhynchospora pusilla	
	Rhynchospora tracyi	
	Rhynchospora wrightiana	
	Schoenus nigricans	
Nut sedge	*Scleria ciliata*	
	Scleria georgiana	
	Scleria oligantha	
	Scleria pauciflora	
	Scleria reticularis	
	Scleria triglomerata	
Hat Pins	*Eriocaulon compressum*	
Giant hat pins	*Eriocaulon decangulare*	
Bog buttons	*Lachnocaulon anceps*	
Bogbutton	*Lachnocaulon engleri*	
Bogbutton	*Lachnocaulon minus*	

*** Non-native Species**

Savannas Preserve State Park

Plants

Common Name	*Scientific Name*	Primary Habitat (For Designated Species)
Bantum buttons	*Snygonanthus flavidulus*	
Red root	*Lachnanthes caroliniana*	
Yellow stargrass	*Hypoxis juncea*	
Blue-eyed grass	*Sisyrinchium solstitiale*	
Rush	*Juncus marginatus*	
	Juncus megacephalus	
	Juncus polycephalus	
	Juncus scirpoides	
	Lemnaceae	
Duckweed	*Spirodela punctata*	
Asparagus-fern*	*Asparagus densiflorus*	
Pine lily	*Lilium catesbaei*	41
Sunnybell	*Schoenolirion albiflorum*	
Grass pink	*Calopogon barbatus*	42
	Calopogon pallidus	
	Calopogon tuberosus	
Butterfly orchid	*Encyclia tampensis*	33,39
Wild coco	*Eulophia alta*	42
Water spider orchid	*Habenaria repens*	
Snowy orchid	*Platanthera nivea*	42
Rose Pogonia	*Pogonia ophioglossoides*	42
Ladies'-tresses	*Spiranthes laciniata*	42
Ladies'-tresses	*Spiranthes vernalis*	
----	*Zuexine strateumatica*	
Blue maidencane	*Amphicarpum muhlenbergianum*	
Shortspike bluestem	*Andropogon brachystachyus*	
Florida bluestem	*Andropogon floridanus*	
Bushy bluestem	*Andropogon glomeratus*	
Bluestem	*Andropogon gyrans*	
Bluestem	*Andropogon longiberbis*	
Splitbeard bluestem	*Andropogon ternarius*	
Broomsedge	*Andropogon virginicus*	
Corkscrew threeawn	*Aristida gyrans*	
Longleaf threeawn	*Aristida lanosa*	
Tall threeawn	*Aristida patula*	
Arrowfeather	*Aristida purpurascens*	
Threeawn grass	*Aristida rhizomophora*	41
	Aristida spiciformis	
Wire grass	*Aristida stricta*	
Big carpetgrass	*Axonopus furcatus*	
----	*Brachiaria subquadripara*	
Slender sandspur	*Cenchrus gracillimus*	
Coast sandspur	*Cenchrus incertus*	
Florida Jointtail grass	*Coelorachis tuberculosa*	29,42
	Ctenium aromaticum	
Panic grass	*Dichanthelium erectifolium*	
Panic grass	*Dichanthelium sabulorum*	

*** Non-native Species**

Savannas Preserve State Park

Plants

Common Name	*Scientific Name*	Primary Habitat (For Designated Species)
Southern crabgrass	*Digitaria ciliaris*	
Shaggy crabgrass	*Digitaria villosa*	
Yardgrass or Goosegras*	*Eleusine indica*	
Thalia lovegrass*	*Eragrostis atrovirens*	
Gophertail lovegrass	*Eragrostis ciliaris*	
Elliott lovegrass	*Eragrostis elliottii*	
Carolina lovegrass	*Eragrostis pectinacea*	
Purple lovegrass	*Eragrostis spectabilis*	
Feather lovegrass*	*Eragrostis tenella*	
Finger grass	*Eustachys petraea*	
Molassesgrass*	*Melinis minutiflora*	
Maidencane	*Panicum hemitomon*	
Gaping panicum	*Panicum hians*	
Guinea grass*	*Panicum maximum*	
Torpedo grass*	*Panicum repens*	
Redtop panicum	*Panicum rigidulum*	
Bluejoint panicum	*Panicum tenerum*	
Warty panicum	*Panicum verrucosum*	
Switch grass	*Panicum virgatum*	
Sour paspalum	*Paspalum conjugatum*	
Florida paspalum	*Paspalum floridanum*	
Field paspalum	*Paspalum laeve*	
Bahia grass*	*Paspalum notatum*	
Brownseed paspalum	*Paspalum plicatulum*	
Thin paspalum	*Paspalum setaceum*	
Vaseygrass*	*Paspalum urvillei*	
Natalgrass*	*Rhynchelytrum repens*	
India cupscale*	*Sacciolepis indica*	
American cupscale	*Sacciolepis striata*	
Little bluestem	*Schizachyrium scoparium*	
Knotroot foxtail	*Setaria geniculata*	
Lopsided indiangrass	*Sorghastrum secundum*	
Sand cordgrass	*Spartina bakeri*	
Coral dropseed	*Sporobolus domingensis*	
Smutgrass*	*Sporobolus indicus*	
Pineywoods dropseed	*Sporobolus junceus*	
St. Augustine grass*	*Stenotaphrum secundatum*	
Water hyacinth*	*Eichhornia crassipes*	
Pickerel weed	*Pontederia cordata*	
Greenbrier	*Smilax auriculata*	
Greenbrier	*Smilax bona-nox*	
Bamboo vine	*Smilax laurifolia*	
Southern Cattail	*Typha domingensis*	
Common Cattail	*Typha latifolia*	
Yellow-eyed grass	*Xyris ambigua*	
Yellow-eyed grass	*Xyris brevifolia*	
Yellow-eyed grass	*Xyris caroliniana*	
Yellow-eyed grass	*Xyris difformis*	

*** Non-native Species**

Savannas Preserve State Park

Plants

Common Name	*Scientific Name*	Primary Habitat (For Designated Species)
Yellow-eyed grass	*Xyris elliottii*	
Yellow-eyed grass	*Xyris fimbriata*	
Yellow-eyed grass	*Xyris jupicai*	
Yellow-eyed grass	*Xyris smalliana*	
Carpetweed	*Mollugo verticillata*	
Globe amaranth*	*Gomphrena serrata*	
Sumac	*Rhus copallina*	
Brazilian Pepper*	*Schinus terebinthifolius*	
Poison Ivy	*Toxicodendron radicans*	
Pond apple	*Annona glabra*	
Dwarf pawpaw	*Asimina reticulata*	
Four-petaled pawpaw	*Asimina tetramera*	14
Coinwort	*Centella asiatica*	
Water pennywort	*Hydrocotyle bonariensis*	
Marsh pennywort	*Hydrocotyle umbellata*	
Water dropwort	*Oxypolis filiformis*	
Periwinkle*	*Catharanthus roseus*	
Dahoon holly	*Ilex cassine*	
Gallberry	*Ilex glabra*	
Milkweed	*Asclepias curtissii*	14
Lanceleaf milkweed	*Asclepias lanceolata*	
	Asclepias pedicellata	
	Asclepias verticillata	
White vine	*Sarcostemma clausa*	
Climbing aster	*Aster carolinianus*	
	Aster dumosus	
White topped aster	*Aster reticulatus*	
	Aster subulatus	
White topped aster	*Aster tortifolius*	
False willow	*Baccharis angustifolia*	
Groundsel tree	*Baccharis glomeruliflora*	
Saltbush	*Baccharis halimifolia*	
	Balduina angustifolia	
Begger-ticks	*Bidens alba*	
Beggar-ticks	*Bidens mitis*	
	Bigelowia nudata	
	Carphephorus carnosus	
	Carphephorus corymbosus	
Deer's tongue	*Carphephorus odoratissimus*	
Vanilla plant	*Carphephorus paniculatus*	
Sunbonnets	*Chaptalia tomentosa*	
Goldenaster	*Chrysopsis gossypina*	
Golden aster	*Chrysopsis scabrella*	
Mistflower	*Conoclinium coelestinum*	
Horseweed	*Conyza canadensis*	
Tickseed	*Coreopsis gladiata*	
Tickseed	*Coreopsis leavenworthii*	
Elephant's foot	*Elephantopus elatus*	

*** Non-native Species**

Savannas Preserve State Park

Plants

Common Name	*Scientific Name*	Primary Habitat (For Designated Species)
Tassel flower	*Emilia fosbergii*	
	Emilia sonchifolia	
Fireweed	*Erechtites hieracifolia*	
Fleabane	*Erigeron quercifolius*	
	Erigeron vernus	
Dog fennel	*Eupatorium capillifolium*	
	Eupatorium leptohyllum	
	Eupatorium mohrii	
	Eupatorium rotundifolium	
	Eupatoruim serotinum	
Yellowtop	*Flaveria linearis*	
Cudweed	*Gnaphalium falcatum*	
Rabbit tobacco	*Gnaphalium obtusifolium*	
Cudweed	*Gnaphalium pensylvanicum*	
Purple cudweed	*Gnaphalium purpureum*	
Sneezeweed	*Helenium pinnatifidum*	
Camphor weed	*Heterotheca subaxillaris*	
Hawkweed	*Hieracium gronovii*	
	Hieracium megacephalon	
Marsh elder	*Iva microcephala*	
Blazing stars	*Liatris chapmanii*	
Blazing stars	*Liatris tenuifolia*	
Rush pink	*Lygodesmia aphylla*	
	Melanthera nivea	
Hempvine	*Mikania scandens*	
	Palafoxia feayi	
	Pectis prostrata	
Silk grass	*Pityopsis graminifolia*	
	Pluchea foetida	
	Pluchea rosea	
Black-root	*Pterocaulon virgatum*	
Goldenrod	*Solidago chapmanii*	
Goldenrod	*Solidago fistulosa*	
Goldenrod	*Solidago sempervirens*	
Goldenrod	*Solidago tortifolia*	
Frostweed	*Verbesina virginica*	
Ironweed	*Vernonia cinerea*	
Creeping oxeye*	*Wedelia trilobata*	
	Heliotropium angiospermum	
Heliotrope	*Heliotropium polyphyllum*	
Pepper grass	*Lepidium virginicum*	
Fragrant wooly cactus	*Harrisia fragrans*	14
Prickly pear	*Opuntia humifusa*	
Bay lobelia	*Lobelia feayana*	
Swamp lobelia	*Lobelia glandulosa*	
Glades lobelia	*Lobelia paludosa*	
	Polanisia tenuifolia	
Elderberry	*Sambucus canadensis*	

*** Non-native Species**

Savannas Preserve State Park

Plants

Common Name	*Scientific Name*	Primary Habitat (For Designated Species)
Papaya*	*Carica papaya*	
West Indian chickweed*	*Drymaria cordata*	
	Stipulicida setacea	
Australian pine*	*Casuarina litorea*	
Mexican tea	*Chenopodium ambrosioides*	
Cocoplum	*Chrysobalanus icaco*	
Gopher Apple	*Licania michauxii*	
Rock-rose	*Helianthemum corymbosum*	
Creeping morning-glories	*Evolvulus alsinoides*	
Glades morning-glory	*Ipomoea sagittata*	
Chandelier plant*	*Kalanchoe tubiflora*	
Creeping cucumber	*Melothria pendula*	
Wild balsam apple*	*Momordica charantia*	
Dwarf sundew	*Drosera brevifolia*	
Pink sundew	*Drosera capillaris*	
Rosemary	*Ceratiola ericoides*	
Tarflower	*Befaria racemosa*	
Dwarf Huckleberry	*Gaylussacia dumosa*	
Staggerbush	*Lyonia fruticosa*	
Fetterbush	*Lyonia lucida*	
Indian pipe	*Monotropa uniflora*	
Shiny blueberry	*Vaccinium myrsinites*	
Sand Dune Spurge	*Chamaesyce cumulicola*	14
Hairy spurge	*Chamaesyce hirta*	
Spurge	*Chamaesyce hypericifolia*	
Eyebane	*Chamaesyce hyssopifolia*	
Milk purslane	*Chamaesyce maculata*	
Tread softly	*Cnidoscolus stimulosus*	
	Croton glandulosus	
Spurge	*Euphorbia polyphylla*	
	Phyllanthus abnormis	
Painted-leaf	*Poinsettia cyathophora*	
Castor bean*	*Ricinus communis*	
Corkwood	*Stillingia aquatica*	
Rosary Pea*	*Abrus precatorius*	
Ear leaf acacia*	*Acacia auriculaeformis*	
Shy leaves	*Aeschynomene americana*	
Woman's tongue*	*Albizia lebbeck*	
False indigo	*Amorpha fruticosa*	
Partridge-pea	*Cassia chamaecrista*	
Coffee senna	*Cassia occidentalis*	
Butterfly-pea	*Centrosema virginianum*	
Rattle box*	*Crotalaria incana*	
*	*Crotalaria retusa*	
Rabbit-bells	*Crotalaria rotundifolia*	
Showy rattle box*	*Crotalaria spectabilis*	
Prairie clover	*Dalea feayi*	
	Desmanthus virgatus	

*** Non-native Species**

Savannas Preserve State Park

Plants

Common Name	*Scientific Name*	Primary Habitat (For Designated Species)
Beggars-tick*	*Desmodium tortuosum*	
Coral bean	*Erythrina herbacea*	
Milk pea	*Galactia volubilis*	
Lupine	*Lupinus diffusus*	
Brown-haired snoutbean	*Rhynchosia cinerea*	14,15
Sensitive briar	*Schrankia microphylla*	
Bladderpod	*Sesbania vesicaria*	
Wild cow pea	*Vigna luteola*	
Chapman's Oak	*Quercus chapmanii*	
Scrub live oak	*Quercus geminata*	
Laurel oak	*Quercus laurifolia*	
Dwarf live oak	*Quercus minima*	
Myrtle oak	*Quercus myrtifolia*	
Live oak	*Quercus virginiana*	
	Bartonia verna	
Floating hearts	*Nymphoides aquatica*	
Marsh pink	*Sabatia brevifolia*	
Marsh pink	*Sabatia calycina*	
Marsh pink	*Sabatia grandiflora*	
Green Parrot's-feather	*Myriophyllum pinnatum*	
Mermaid-weed	*Proserpinaca palustris*	
Mermaid-weed	*Proserpinaca pectinata*	
	Hypericum cistifolium	
Sandweed	*Hypericum fasciculatum*	
St. Andrew's-cross	*Hypericum hypericoides*	
	Hypericum tetrapetalum	
Marsh St. John's-wort	*Triadenum virginicum*	
Scrub hickory	*Carya floridana*	
Large-flowered rosemary	*Conradina grandiflora*	14
Musky mint	*Hyptis alata*	
Pennyroyal	*Piloblephis rigida*	
Blue curls	*Trichostema dichotomum*	
Love vine	*Cassytha filliformis*	
Red bay	*Persea borbonia*	
Swamp bay	*Persea palustris*	
Blue butterwort	*Pinguicula caerulea*	42
Yellow butterwort	*Pinguicula lutea*	42
Horned bladderwort	*Utricularia cornuta*	
Bladderwort	*Utricularia foliosa*	
Purple bladderwort	*Utricularia purpurea*	
Small purple bladderwort	*Utricularia resupinata*	
Bladderwort	*Utricularia subulata*	
Yellow flax	*Linum medium*	
Miterwort	*Mitreola petiolata*	
Miterwort	*Mitreola sessilifolium*	
Rust weed	*Polypremum procumbens*	
Tarweed cuphea	*Cuphea carthagenensis*	
Loosestrife	*Lythrum alatum*	

*** Non-native Species**

Savannas Preserve State Park

Plants

Common Name	*Scientific Name*	Primary Habitat (For Designated Species)
	Hibiscus furcellatus	
Swamp hibiscus	*Hibiscus grandiflorus*	
Salt marsh mallow	*Kosteletzkya virginica*	
Broomweed	*Sida acuta*	
Indian hemp	*Sida rhombifolia*	
Caesar-weed*	*Urena lobata*	
Meadow beauty	*Rhexia cubensis*	
Meadow beauty	*Rhexia mariana*	
Meadow beauty	*Rhexia nuttallii*	
Strangler fig	*Ficus aurea*	
Wax myrtle	*Myrica cerifera*	
Marlberry	*Ardisia escallonioides*	
Myrsine	*Rapanea punctata*	
Surinam cherry*	*Eugenia uniflora*	
Melaleuca*	*Melaleuca quinquenervia*	
Red spiderling	*Boerhavia diffusa*	
Spatter-dock	*Nuphar lutea*	
White waterlily	*Nymphaea odorata*	
Tallowwood	*Ximenia americana*	
Southern guara	*Gaura angustifolia*	
	Ludwigia alata	
	Ludwigia curtissii	
	Ludwigia erecta	
	Ludwigia leptocarpa	
	Ludwigia linifolia	
	Ludwigia maritima	
	Ludwigia microcarpa	
	Ludwigia octovalvis	
Primrose willow	*Ludwigia peruviana*	
	Ludwigia repens	
	Ludwigia suffruticosa	
Pokeweed	*Phytolacca americana*	
Batchelor's button	*Polygala balduinii*	
	Polygala cruciata	
	Polygala cymosa	
	Polygala grandiflora	
Wild batchelor's button	*Polygala lutea*	
Wild batchelor's button	*Polygala nana*	
	Polygala ramosa	
Yellow bachelor's button	*Polygala rugelii*	
	Polygala setacea	
Sea grape	*Coccoloba uvifera*	
Wireweed	*Polygonella ciliata*	
Sandhill wireweed	*Polygonella fimbriata*	
Wireweed	*Polygonella gracilis*	
Jointweed	*Polygonella polygama*	
Mild water-pepper	*Polygonum hydropiperoides*	

*** Non-native Species**

Savannas Preserve State Park

Plants

Common Name	*Scientific Name*	Primary Habitat (For Designated Species)
Dotted smartweed	*Polygonum punctatum*	
	Polygonum setaceum	
Purslane*	*Portulaca oleracea*	
Pink purslane	*Portulaca pilosa*	
Buttonbush	*Cephalanthus occidentalis*	
Buttonweed	*Diodia teres*	
Buttonweed	*Diodia virginiana*	
Bedstraw	*Galium hispidulum*	
Firebush	*Hamelia patens*	
	Hedyotis corymbosa	
	Hedyotis uniflora	
Wild coffee	*Psychotria nervosa*	
White indigo berry	*Randia aculeata*	
*	*Richardia brasiliensis*	
*	*Richardia scabra*	
	Spermacoce assurgens	
	Spermacoce verticillata	
Hercules club	*Zanthoxylum clava-herculis*	
Carolina willow	*Salix caroliniana*	
Balloon vine	*Cardiospermum microcarpum*	
Slender buckthorn	*Bumelia reclinata*	
Tough buckthorn	*Bumelia tenax*	
False foxglove	*Agalinis filifolia*	
	Agalinis linifolia	
	Agalinis obtusifolia	
	Agalinis purpurea	
Blue hyssop	*Bacopa caroliniana*	
Mattel figwort	*Bacopa monnieri*	
Goatweed	*Capraria biflora*	
	Gratiola hispida	
	Gratiola ramosa	
Blue toadflax	*Linaria canadensis*	
	Linaria floridana	
	Mecardonia acuminata	
Sweet broom	*Scoparia dulcis*	
Ground cherry	*Physalis angulata*	
Ground cherry	*Physalis arenicola*	
Common nightshade	*Solanum americanum*	
	Piriqueta caroliniana	
Beauty berry	*Callicarpa americana*	
*	*Lantana camara*	
Carpetweed	*Lippia nodiflora*	
Harsh verbena	*Verbena scabra*	
Long-leaf violet	*Viola lanceolata*	
Sorrel vine	*Cissus trifoliata*	
Virginia creeper	*Parthenocissus quinquefolia*	
Southern fox grape	*Vitismunsoniana*	

*** Non-native Species**

Savannas Preserve State Park

Animals

Common Name	*Scientific Name*	Primary Habitat (For All Species)
	INVERTEBRATES	
Porifera	*Spongilla lacustris*	
Cnidaria	*Cordylophora lacustris*	
	Hydra sp.	
Platyhelminthes	*Dugesia* sp.	
Nemertea	*Prostoma* sp.	
Nematoda	undetermined sp.	
Ectoprocta	*Plumatella repens*	
Gastropoda	*Hebatancylus excentricus*	
	Melanoides tuberculata	
	Micromenetus dilatatus	
	Physella sp.	
	Planorbella scalaris	
	Pomacea paludosa	
Ancylidae	undetermined sp.	
Hydrobiidae	undetermined sp.	
Bivalvia	*Anodonta imbecilis*	
	Uniomeris carolinianus	
Lumbriculidae		
Naididae	*Allonais paraguayensis*	
	Bratislavia unidentata	
	Chaetogaster diaphanus	
	Dero digitata	
	Dero furcata	
	Dero nivea	
	Nais variabilis	
	Pristina leidyi	
	Slavina appendiculata	
Tubificidae	*Limnodrilus hoffmiesteri*	
Erpobdellidae	*Mooreobdella tetragon*	
Glossiphoniidae	*Batrachobdella phalera*	
	Helobdella triseralis	
	Helobdella sp.	
Araneae	undetermined sp.	
Hydrachnida	*Arrenurus problemicornis*	
	Arrenurus sp.	
	Hydroma sp.	
	Koenickea aphrasta	
	Limnesia sp.	
	Neumania sp.	
	Unionicola sp.	
Orbatei	cf. *Heminothrus* sp.	
	Hydrozetes sp.	
Amphipoda	*Hyalella azteca*	
Decapoda		
Cambaridae	*Procambarus* sp.	
Palaemonidae	*Palaemonetes paludosus*	

*** Non-native Species**

Savannas Preserve State Park

Animals

Common Name	*Scientific Name*	Primary Habitat (For All Species)
Collembola	*Bourlettiella* sp.	
	Isotomurus sp.	
Ephemeroptera	*Caenis diminuta*	
	Callibaetis floridanus	
Baetidae		
Odonata		
Aeschnidae	*Boyera vinosa*	
Corduliidae	*Neurocordulia* sp.	
Gomphidae	*Aphylla williamsoni*	
Libellulidae	*Brachymesia gravida*	
	Celithemis eponina	
	Erythodiplax sp.	
	Perithemis tenera	
Coenagrionidae	*Enallagma* sp.	
	Ischnura posita	
	Ischnura ramburii	
	Ischnura sp.	
Orthoptera		
Tettigoniidae		
Thysanoptera		
Hemiptera		
Corixidae	*Sigara ?compressoidea*	
Hebridae	*Merragata brunnea*	
	Merragata hebriodes	
Hydrometridae	*Hydrometra* sp.	
Mesoveliidae	*Mesovelia mulsanti*	
Naucoridae	*Pelocoris femoratus*	
Nepidae	*Ranatra nigra*	
Notonectidae	*Notonecta indica*	
	Notonecta sp.	
Reduviidae		
Homoptera		
Aphididae		
Cicadellidae		
Coleoptera		
Chrysomelidae	*Anisostena ariadne*	
	Donacea militaris	
	Donacea palmata	
	Donacea sp.	
	Longitarsus testaceus	
Corylophidae		
Dytiscidae	*Bidessonotus pulicarius*	
	Celina sp.	
	Cybister sp.	
	Hydrovatus pustulatus	
	Hydrovatus sp.	
Gyrinidae	*Dineutus* sp.	
Haliplidae	*Peltodytes shermani*	

*** Non-native Species**

Common Name	*Scientific Name*	Primary Habitat (For All Species)
	Peltodytes sp.	
Hydraenidae	*Hydraena* sp.	
Hydrochidae	*Hydrochus* sp.	
Hydrophilidae	*Berosus ?exiguus*	
	Berosus striatus group	
	Berosus sp.	
	Chaetarthria pallida	
	Enochrus interruptus	
	Hydrobius sp.	
	Paracymus subcupreus	
Noteridae	*Hydrocanthus oblongus*	
	Hydrocanthus sp.	
	Suphisellus insularis	
Staphylinidae		
Diptera		
Ceratopogonidae	*Alluaudomyia* sp.	
	Bezzia sp.	
	Bezzia group	
	Dasyhelea sp.	
	Palpomyia sp.	
Chaoboridae	*Chaoborus punctipennis*	
Chironomidae		
Tanypodinae	*Ablabesmyia idei*	
	Ablabesmyia mallochi	
	Ablabesmyia rhamphe	
	Clinotanypus sp.	
	Coelotanypus tricolor	
	Labrundinia sp.	
	Larsia sp.	
	Procladius sp.	
Orthocladinae	*Nanocladius* sp.	
Chironominae		
Chironomini	*Asheum beckae*	
	Chironomus decorus	
	Chironomus stigmaterus	
	Cladopelma sp.	
	Cryptochironomus fulvus	
	Dicrotendipes sp.	
	Dicrotendipes sp.	
	Dicrotendipes sp.	
	Einfeldia natchitoocheae	
	Endochironomus nigricans	
	Glyptotendipes sp.	
	Glyptotendipes sp.	
	Goeldichironomus sp.	
	Hyporygma quadripunctatum	
	Microtendipes sp.	
	Nilothauma sp.	

Common Name	*Scientific Name*	Primary Habitat (For All Species)
	Parachironomus carinatus	
	Parachironomus hirtalatus	
	Parachironomus sp.	
	Parachironomus sp.	
	Polypedilum halterale	
	Polypedilum illinoense	
	Polypedilum laetum	
	Polypedilum sp.	
	Polypedilum sp.	
	Xenochironomus xenolabis	
	Zavreliella varipennis	
Pseudochironomini	*Pseudochironomus fulviventris*	
Tanytarsini	*Cladotanytarsus* sp	
	Cladotanytarsus sp.	
	Nimbocera pinderi	
	Paratanytarsus sp.	
	Tanytarsus glabrescens	
	Tanytarsus guerlus	
	Tanytarsus sp.	
	Tanytarsus sp.	
	Tanytarsus sp.	
	Tanytarsus sp.	
	Tanytarsus sp.	
	Tanytarsus sp.	
	Tanytarsus sp.	
Culicidae	*Culex* sp.	
Ephydridae	undetermined sp.	
Stratiomyiidae	*Odontomyia-Hedriodiscus*	
Trichoptera		
Hydroptilidae	*Orthotrichia* sp.	
	Oxythira sp.	
Leptoceridae	*Nectopsyche* sp.	
	Oecetis sp.	
	Oecetis sp.	
	Oecetis sp.	
Polycentropodidae	*Polycentropus* sp.	
Lepidoptera		
Noctuidae	*Bellura* sp.	
Pyralidae	*Eoparagyractis floridalis*	
	Munroessa gyralis	
	Parapoynx sp.	
	Samea multiplicatus	
Hymenoptera		
	VERTEBRATES	
Bowfin	*Amia calva*	
Everglades pygmy sunfish	*Elassoma evergladei*	

Savannas Preserve State Park

Animals

Common Name	*Scientific Name*	Primary Habitat (For All Species)
Bluespotted sunfish	*Enneacanthus gloriosus*	
Lake chubsucker	*Erimyzon sucetta*	
Chain pickerel	*Esox niger*	
Swamp darter	*Etheostoma fusiforme*	
Golden topminnow	*Fundulus chrysotus*	
Lined topminnow	*Fundulus lineolatus*	
Mosquitofish	*Gambusia holbrooki*	
Least killifish	*Heterandria formosa*	
Yellow bullhead	*Ictalurus natalis*	
Flagfish	*Jordanella floridae*	
Brook silverside	*Labidesthes sicculus*	
Florida gar	*Lepisosteus platyrhincus*	
Warmouth	*Lepomis gulosus*	
Bluegill	*Lepomis machrochirus*	
Dollar sunfish	*Lepomis marginatus*	
Redear sunfish	*Lepomis microlophus*	
Pygmy killifish	*Leptolucania ommata*	
Bluefin killifish	*Lucania goodei*	
Largemouth bass	*Micropterus salmoides*	
Golden shiner	*Notemigonus crysoleucas*	
Tadpole madtom	*Noturus gyrinus*	
	AMPHIBIANS	
Florida cricket frog	*Acris gryllus*	42
Oak toad	*Bufo quercicus*	14,15
Southern toad	*Bufo terrestris*	14,15
Green tree frog	*Hyla cinerea*	8,42
Pinewoods tree frog	*Hyla femoralis*	8,42
Barking tree frog	*Hyla gratiosa*	8,42
Squirrel tree frog	*Hyla squirella*	8,42
Little grass frog	*Limnaoedus ocularis*	42
Florida chorus frog	*Pseudacris nigrita*	8,42
Pig frog	*Rana grylio*	24,29
Southern leopard frog	*Rana sphenocephala*	8,42
	REPTILES	
American alligator	*Alligator mississippiensis*	24,29,46
Green anole	*Anolis carolinensis*	8
Brown anole*	*Anolis sagrei*	81,82
Six-lined racerunner	*Cnemidophorus sexlineatus*	14,15
Southern black racer	*Coluber constrictor*	Throughout
Eastern diamondback Rattlesnake	*Crotalus adamanteus*	Throughout
Eastern indigo snake	*Drymarchon corais couperi*	14,15
Red rat snake	*Elaphe guttata guttata*	8,42
Yellow rat snake	*Elaphe obsoleta*	8
Southeastern five-lined skink	*Eumeces inexpectatus*	Throughout
Gopher tortoise	*Gopherus polyphemus*	14,15

*** Non-native Species**

Savannas Preserve State Park

Animals

Common Name	*Scientific Name*	Primary Habitat (For All Species)
Striped mud turtle	*Kinosternon bauri*	24,29
Eastern coachwhip	*Masticophis flagellum*	14,15
Eastern coral snake	*Micrurus fulvius*	Throughout
Rough green snake	*Opheodrys aestivus*	Throughout
Florida scrub lizard	*Sceloporus woodi*	14,15
Dusky pigmy rattlesnake	*Sistrurus miliarius*	14,15
Florida box turtle	*Terrapene carolina*	8
Southern garter snake	*Thamnophis sirtalis*	8
	BIRDS	
Brown Pelican	*Pelecanus occidentalis*	24,29
Double-crested Cormorant	*Phalacrocorax auritus*	24,29
Great Blue Heron	*Ardea herodias*	24,29
Green Heron	*Butorides striatus*	24,29
Little Blue Heron	*Egretta caerulea*	24,29
Great Egret	*Ardea alba*	24,29
Snowy Egret	*Egretta thula*	24,29
Tricolored Heron	*Egretta tricolor*	24,29
Black-crowned Night Heron	*Nycticorax nycticorax*	24,29
Yellow-crowned Night Heron	*Nycticorax violacea*	24,29
White Ibis	*Eudocimus albus*	24,29
Turkey Vulture	*Cathartes aura*	Throughout
Black Vulture	*Coragyps atratus*	Throughout
Cooper's Hawk	*Accipiter cooperii*	14
Red-tailed Hawk	*Buteo jamaicensis*	Throughout
Red-shouldered Hawk	*Buteo lineatus*	Throughout
Bald Eagle	*Haliaeetus leucocephalus*	Throughout
Osprey	*Pandion haliaetus*	24
Peregrine Falcon	*Falco peregrinus*	Throughout
American Kestrel	*Falco sparverius*	Throughout
Herring Gull	*Larus argentatus*	24
Ring-billed Gull	*Larus delawarensis*	24
Least Tern	*Sterna antillarum*	*24*
Royal Tern	*Sterna maxima*	24
Black Skimmer	*Rynchops niger*	24
Mourning Dove	*Zenaida macroura*	Throughout
Ground Dove	*Columbina passerina*	8,14,15
Belted Kingfisher	*Ceryle alcyon*	24
Northern Flicker	*Colaptes auratus*	Throughout
Pileated Woodpecker	*Dryocopus pileatus*	8
Red-bellied Woodpecker	*Melanerpes carolinus*	Throughout
Tree Swallow	*Tachycineta bicolor*	Throughout
Blue Jay	*Cyanocitta cristata*	Throughout
Florida Scrub-Jay	*Aphelocoma coerulescens*	14,15
Fish Crow	*Corvus ossifragus*	Throughout
Northern Mockingbird	*Mimus polyglottos*	Throughout
Gray Catbird	*Dumetella carolinensis*	8,15
Brown Thrasher	*Toxostoma rufum*	8,15

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

Savannas Preserve State Park

Animals

Common Name	*Scientific Name*	Primary Habitat (For All Species)
Rufous-sided Towhee	*Pipilo erythrophthalmus*	8,14,15
	MAMMALS	
Nine-banded armadillo*	*Dasypus novemcinctus*	Throughout
Virginia opossum	*Didelphis virginiana*	Throughout
River otter	*Lutra canadensis*	24,29,46
Bobcat	*Lynx rufus*	Throughout
Cotton mouse	*Peromyscus gossypinus*	Throughout
Raccoon	*Procyon lotor*	Throughout
Eastern mole	*Scalopus aquaticus*	8,14,15
Gray squirrel	*Sciurus carolinensis*	8,14,15
Hispid cotton rat	*Sigmodon hispidus*	Throughout
Feral pig*	*Sus scrofa*	Throughout
Eastern cottontail	*Sylvilagus floridanus*	8,15
Marsh rabbit	*Sylvilagus palustris*	8,42
Gray fox	*Urocyon cinereoargenteus*	Throughout

*** Non-native Species**

Terrestrial

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

Palustrine

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

Lacustrine

43. Clastic Upland Lake
44. Coastal Dune Lake
45. Coastal Rockland Lake

Lacustrine—Continued

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

Riverine

52. Alluvial Stream
53. Blackwater Stream
54. Seepage Stream
55. Spring-Run Stream

Estuarine

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

Marine

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

Subterranean

79. Aquatic Cave
80. Terrestral Cave

Miscellaneous

81. Ruderal
82. Developed
83.
MTC Many Types Of Communities
OF Overflying

Addendum 5--Designated Species List

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

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

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

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

FNAI GLOBAL RANK DEFINITIONS

G1	=	Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2	=	Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
G3	=	Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
G4	=	apparently secure globally (may be rare in parts of range)
G5	=	demonstrably secure globally
GH	=	of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
GX	=	believed to be extinct throughout range
GXC	=	extirpated from the wild but still known from captivity or cultivation
G#?	=	tentative rank (e.g., G2?)
G#G#	=	range of rank; insufficient data to assign specific global rank (e.g., G2G3)
G#T#	=	rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)
G#Q	=	rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
G#T#Q	=	same as above, but validity as subspecies or variety is questioned.
GU	=	due to lack of information, no rank or range can be assigned (e.g., GUT2).
G?	=	not yet ranked (temporary)
S1	=	Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
S2	=	Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
S3	=	Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
S4	=	apparently secure in Florida (may be rare in parts of range)
S5	=	demonstrably secure in Florida
SH	=	of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
SX	=	believed to be extinct throughout range
SA	=	accidental in Florida, i.e., not part of the established biota
SE	=	an exotic species established in Florida may be native elsewhere in North America
SN	=	regularly occurring, but widely and unreliably distributed; sites for conservation hard to determine

SU	=	due to lack of information, no rank or range can be assigned (e.g., SUT2).
S?	=	not yet ranked (temporary)

LEGAL STATUS

N	=	Not currently listed, nor currently being considered for listing, by state or federal agencies.

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

STATE

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

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

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

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

Savannas Preserve State Park
Designated Species

Plants

Common Name/ *Scientific Name*	**Designated Species Status** FDA	USFWS	FNAI
Giant leather fern *Acrostichum danaeifolium*	C		
Wiregrass *Aristida rhizomophora*			G2, S2
Curtiss' milkweed *Asclepias curtissii*	E		G3,S3
Four-petal pawpaw *Asimina tetramera*	E	E	G1,S1
Bearded grass pink *Calopogon barbatus*	T		
Sand-dune spurge *Chamaesyce cumulicola*	E		G2,S2
Florida jointtail grass *Coelorachis tuberculosa*	T		G3,S3
Large-flowered rosemary *Conradina grandiflora*	E		G3,S3
Butterfly orchid *Encyclia tampensis*	C		
Wild coco *Eulophia alta*	T		
Fragrant prickly apple *Harrisia fragrans*	E	E	G1Q,S1
Catesby's lily *Lilium catesbaei*	T		S3
Cinnamon fern *Osmunda cinnamomea*	C		
Royal fern *Osmunda regalis*	C		
Blue butterwort *Pinguicula caerulea*	T		
Yellow butterwort *Pinguicula lutea*	T		
Snowy orchid *Platanthera nivea*	T		
Rose pogonia *Pogonia ophioglossoides*	T		
Lace-lip ladies' tresses *Spiranthes laciniata*	T		
Wild pine *Tillandsia fasciculata*	E		
Giant wild pine *Tillandsia utriculata*	E		

Savannas Preserve State Park
Designated Species

Animals

Common Name/ *Scientific Name*	**Designated Species Status** FFWCC	USFWS	FNAI
Sterna maxima			G5,S3
Black-whiskered vireo *Vireo altiloquus*			G5,S3

Addendum 6--Priority Schedule And Cost Estimates

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

1. Construct perimeter fire breaks and install perimeter fence. 2-5 years. **Estimated Cost: $250,000.**
2. Implement a prescribed burn program to restore fire-maintained natural communities. 0-2 years. **Estimated Cost: $32,000.**
3. Retrofit stormwater output from Indian River Estates development. 2-5 years. **Estimated Cost: $1,600,000.**
4. Perform demographic and life history research on the federally endangered fragrant prickly-apply (*Harrisia fragrans*). 2-3 years. **Estimated Cost: $25,000.**
5. Initiate level 1 archaeological survey of preserve. 2-5 years. **Estimated Cost: $25,000.**
6. Contract melaleuca removal efforts. 0-2 years. **Estimated Cost: $90,000.**
7. Monitor Florida scrub-jay population every two years. **Estimated Cost: $2,500/year reoccurring.**
8. Continue DEP's Surface Water Ambient Monitoring Program's water quality and stormwater impact work. 0-5 years. **Estimated Cost: $30,000/year reoccurring.**
9. Conduct additional plant and animal surveys. 2-5 years. **Estimated Cost: $2,000/year reoccurring.**
10. Hire FTE Biological Scientist II. **Estimated Cost: $34,721.05/year.**
11. Hire two FTE Park Rangers. **Estimated Cost: $25,505.72/year (each).**

TOTAL ESTIMATED COST: $2,495,633.85

Savannas Preserve State Park
Designated Species

Animals

Common Name/ *Scientific Name*	Designated Species Status FFWCC	USFWS	FNAI
Reptiles			
American alligator *Alligator mississippiensis*	SSC	T(S/A)	G5,S4
Eastern indigo snake *Drymarchon corais couperi*	T	T	G4,T3,S3
Gopher tortoise *Gopherus polyphemus*		SSC	G3,S3
Florida scrub lizard *Sceloporus woodi*			G3,S3
Birds			
Cooper's hawk *Accipiter cooperii*			G4,S3?
Roseate spoonbill *Ajaia ajaja*		SSC	G5,S2S3
Florida scrub-jay *Aphelocoma coerulescens*	T	T	G3,S3
Limpkin *Aramus guarauna*		SSC	G5,S3
Little blue heron *Egretta caerulea*		SSC	G5,S4
Snowy egret *Egretta thula*		SSC	G5,S4
Tricolored heron *Egretta tricolor*		SSC	G5,S4
Sandhill crane *Grus canadensis pratensis*	T		G5T2T3,S2S3
Bald eagle *Haliaeetus leucocephalus*	T	T	G4,S3
Wood stork *Mycteria americana*	E	E	G4,S2
Black-crowned night heron *Nycticorax nycticorax*			G5,S3?
Osprey *Pandion haliaetus*			G5,S3S4
Brown pelican *Pelecanus occidentalis*		SSC	G4,S3
Glossy ibis *Plegadis falcinellus*			G5,S2
Snail kite *Rostrhamus sociabilis*	E	E	G4G5T1,S1
Black skimmer *Rynchops niger*		SSC	G5,S3
Least tern *Sterna antillarum*	T		G4,S3
Caspian tern *Sterna caspia*			G5,S2?
Royal tern			

Savannas Preserve State Park
Priority Schedule And Cost Estimates

Item	Quantity	Unit	Unit Price	Amount
Balsam Drive Trailhead				
Stabilized Parking	0.500	per 10	$2,500.00	$1,875.00
Canoe/Kayak Facilities				
Stabilized Access/Service Road	0.010	mile	$130,000.00	$1,950.00
Stabilized Parking	0.750	per 10	$2,500.00	$2,812.50
Environmental Education Center				
Observation Deck	1.000	ea.	$30,000.00	$45,000.00
Equestrian Trailhead				
Composting Restroom	1.000	ea.	$20,000.00	$30,000.00
Small Picnic Shelter	1.000	ea.	$21,000.00	$31,500.00
Trails				
10 Ft. Shared Use Trail	10560.000	LF	$2.00	$31,680.00
6 Ft. Boardwalk	250.000	LF	$75.00	$28,125.00
Interpretive Canoe Trail	1.000	LS	$6,000.00	$9,000.00
Interpretive Display / Kiosk	1.000	ea.	$20,000.00	$30,000.00
Observation Deck	2.000	ea.	$30,000.00	$90,000.00
			Sub-Total	$301,942.50
		20 Percent Contingency Fee		$60,388.50
			Total	**$362,331.00**

NOTE: These preliminary cost estimates, based on Divisions standards, do not include costs for site-specific elements not evident at the conceptual level of planning. Additional costs should be investigated before finalizing budget estimates.