FLORIDA DEPARTMENT OF
Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

August 30, 2018

Mr. Steven Cutshaw
Division of Recreation and Parks
Department of Environmental Protection
3900 Commonwealth Boulevard, MS 525
Tallahassee, Florida 32399-3000

RE: Lake Manatee State Park - Lease No. 2543

Dear Mr. Cutshaw:

On **August 24, 2018**, the Acquisition and Restoration Council (ARC) recommended approval of the **Lake Manatee State Park** management plan. Therefore, Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the **Lake Manatee State Park** management plan. The next management plan update is due August 24, 2028.

Pursuant to s. 253.034(5)(a), F.S., each management plan is required to "describe both short-term and long-term management goals, and include measurable objectives to achieve those goals. Short-term goals shall be achievable within a 2-year planning period, and long-term goals shall be achievable within a 10-year planning period." Upon completion of short-term goals, please submit a signed letter identifying categories, goals, and results with attached methodology to the Division of State Lands, Office of Environmental Services.

Pursuant to s. 259.032(8)(g), F.S., by July 1 of each year, each governmental agency and each private entity designated to manage lands shall report to the Secretary of Environmental Protection, via the Division of State Lands, on the progress of funding, staffing, and resource management of every project for which the agency or entity is responsible.

Pursuant to s. 259.036(2), F.S., management areas that exceed 1,000 acres in size, shall be scheduled for a land management review at least every 5 years.

Pursuant to s. 259.032, F.S., and Chapter 18-2.021, F.A.C., management plans for areas less than 160 acres may be handled in accordance with the negative response process. This process requires small management plans and management plan amendments be submitted to the Division of State Lands for review, and the Acquisition and Restoration Council (ARC) for public notification. The Division of State Lands will approve these

plans or plan amendments submitted for review through delegated authority unless three or more ARC members request the division place the item on a future council meeting agenda for review. To create better efficiency, improve customer service, and assist members of the ARC, the Division of State Lands will notice negative response items on Thursdays except for weeks that have State or Federal holidays that fall on Thursday or Friday. The Division of State Lands will contact you on the appropriate Friday to inform you if the item is approved via delegated authority or if it will be placed on a future ARC agenda by request of the ARC members.

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

Sincerely,

Raymond V. Spaulding
Chief, Office of Environmental Services
Division of State Lands
Department of Environmental Protection

Lake Manatee State Park

Lead Agency: Department of Environmental Protection
Division of Recreation and Parks

Common Name of Property: Lake Manatee State Park

Location: Manatee County

Acreage: 548.78 Acres

Acreage Breakdown

Natural Communities	Acres
Abandoned Field/Pasture	45.1
Bottomland Forest	7.72
Baygall	16.36
Depression Marsh	6.96
Developed	34.36
Mesic Flatwoods	203.32
Scrub	98.51
Scrubby Flatwoods	62.65
Sandhill	6.46
Successional Hardwood Forest	28.29
Seepage Stream	1.03
Wet Flatwoods	31.55
Xeric Hammock	6.54

Lease/Management Agreement Number(s): 2543

Use: Single Use

Management Responsibilities

Agency: Dept. of Environmental Protection, Division of Recreation and Parks

Responsibility: Public access and resource conservation

Designated Land Use: Public outdoor recreation and conservation

Sublease: None

Encumbrances: None

Type of Acquisition: Bond Issuance

Unique Features

Overview: The park serves as dedicated conservation land along the shoreline of Lake Manatee, protecting water quality in the lake. A dam was built in 1967 on the Manatee River just west of park property, and the resulting lake supplies drinking water to Bradenton and surrounding cities. The water collected here provides a major regional water supply, with over 10 million gallons per day extracted, treated, and distributed to Sarasota and Manatee counties. Lake Manatee covers 2,400 acres, and has an average depth of 38 feet, with a

maximum depth of 51 feet. The park was given its name due to this lake that defines its northern boundary.

Natural: Mesic flatwoods are the most abundant natural community found at Lake Manatee State Park, and an intensive resource management program has created viable habitat for imperiled species such as the eastern diamondback rattlesnake. The sandhill found at Lake Manatee are only small relicts of what existed prior to when the reservoir was created by damming the Manatee River, based on soil maps and aerial photography dating back to 1942. Aerial photography also depicts early agriculture on soils associated with sandhill at the park. Scrub habitat is found on higher, well-drained areas. This scrub is considered to be in good condition, with potential to improve to excellent condition with regular fire intervals. This scrub is being managed to accommodate the endemic scrub-jay.

Archaeological/Historical: An archaeological resource sensitivity model was completed for Lake Manatee in 2014 by the University of South Florida, Alliance of Integrated Spatial Technologies. It is predicted that there is low site occurrence probability at Lake Manatee State Park, but it is possible that late Paleo-to-early Archaic occupants utilized the Manatee River drainage area which is now covered by the reservoir. Late Archaic and latter Manasota have been documented at higher sea levels, but nothing has been identified yet on park property.

Management Goals, Objectives and Actions

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

While, the Division of Recreation and Parks utilizes the ten-year management plan to serve as the basic statement of policy and future direction for each park, a number of annual work plans provide more specific guidance for Division staff to accomplish many of the resource management goals and objectives of the park. Where such detailed planning is appropriate to the character and scale of the park's natural resources, annual work plans are developed for prescribed fire management, exotic plant management and imperiled species management. Annual or longer-term work plans are developed for natural community restoration and hydrological restoration.

The work plans provide the Division with crucial flexibility in its efforts to generate and implement adaptive resource management practices in the state park system. The work plans are reviewed and updated annually. Through this process, the Division's resource management strategies are systematically evaluated to determine their effectiveness. The process and the information collected is used to refine techniques, methodologies and strategies, and ensures that each park's prescribed management actions are monitored and

reported as required by Chapters 253.034 and 259.037, Florida Statutes. The goals, objectives and actions identified in this management plan will serve as the basis for developing annual work plans for the park. Since the plan is based on conditions that exist at the time the plan is developed, the annual work plans will provide the flexibility needed to adapt to future conditions as they change during the ten-year management planning cycle. As the park's annual work plans are implemented through the ten-year cycle, it may become necessary to adjust the management plan's priority schedules and cost estimates to reflect these changing conditions.

Resource Management

Hydrological Management

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

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

Natural Communities Management

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

- *Objective: Within 10 years, have 488 acres of the park maintained within the optimum fire return interval.*
- *Objective: Continue habitat/natural community restoration activities on 16 acres of sandhill natural community.*
- *Objective: Conduct natural community/habitat improvement activities on 46 acres of abandoned pasture.*

Imperiled Species Management

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

- *Objective: Update baseline imperiled species occurrence inventory lists for plants and animals.*
- *Objective: Monitor and document 1 selected imperiled animal species in the park.*
- *Objective: Monitor and document 4 selected imperiled plant species in the park.*

Exotic Species Management

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

- *Objective: Annually treat 21 acres of exotic plant species in the park.*
- *Objective: Implement control measures on 1 invasive animal species in the park.*

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

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

Ten-Year Implementation Schedule and Cost Estimates: See Table 8, pages 83-86.

Acquisition Needs/Acreage: There are no additional lands to be considered for acquisition needs.

Surplus Lands/Acreage: No lands are considered surplus to the needs of the park.

Public Involvement: DRP solicited public input by conducting a public meeting on Tuesday, March 13, 2018. The purpose was to present the management plan to the public. On Wednesday, March 14, 2018, an advisory group meeting was held. The purpose of this meeting was to provide the advisory group members the opportunity to review and discuss the management plan (see Addendum 2).

Summary of Significant Changes in the Management Plan Update

New recreational opportunities and facilities have been proposed that are appropriate for this park and consistent with the DRP mission. These include:

Recreation Facilities

Poley Branch Dock and Boat Ramp
Floating Dock (200 feet)
Small Picnic Pavilion
Paddling Launch
Small Restroom

Primitive Group Camping Area
Potable Water
Fire Ring

Campground
Replace Bathhouses (2)
Tent Camping Sites (12)

Gopher Trailhead
Restroom
Potable Water
Interpretive Kiosk
Stabilized Access Road (0.25 miles)
Stabilized Parking (10 cars)
Stabilized Parking (8 equestrian trailers)
Poley Branch Boardwalk (300 feet)
Shared-Use Trail Addition (600 feet)

Lakeside Day Use Area
Small Picnic Pavilion

Support Facilities

Entrance Area
Replace Ranger Station

Shop Area
Four-Bay Shop
Six-Bay Equipment Shelter/Pole Barn

Residence Area
Replace Staff Residence

Lake Manatee State Park

Approved
Unit Management Plan

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Recreation and Parks
August 2018

TABLE OF CONTENTS

RESOURCE MANAGEMENT COMPONENT

LAND USE COMPONENT

IMPLEMENTATION COMPONENT

TABLES

MAPS

LIST OF ADDENDA

INTRODUCTION

Lake Manatee State Park is located in Manatee County (see Vicinity Map). Access to the park is from State Road 64, which runs directly from Interstate Highway 75 to the Park entrance, and then continues along the southern boundary of the Park, crossing the Manatee River just beyond the Park's eastern terminus. (see Reference Map). The Vicinity Map also reflects significant land and water resources existing near the park.

Lake Manatee State Park was initially acquired on June 16, 1970 using Bond Proceeds. Currently, the park compromises 548.78 acres. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) hold fee simple title to the park and on June 16, 1970, the Trustees leased (Lease Number 2543) the property to DRP under a ninety-nine (99) year lease. The current lease will expire on June 29, 2070.

Lake Manatee State Park is designated single-use to provide public outdoor recreation and conservation. There are no legislative or executive directives that constrain the use of this property (see Addendum 1).

Purpose and Significance of the Park

Lake Manatee State Park was acquired for the purpose of protecting and maintaining the quality of the Lake Manatee reservoir and to preserve the natural resources of the surrounding area as an exceptional public outdoor resource-based recreation opportunity for Florida residents and visitors.

Park Significance

- Located on the southern shore of Lake Manatee, a dedicated Fish Management Area, the park provides access to unique recreational opportunities for the surrounding region. Excellent boating and fishing opportunities are popular regional attractions with the only paved boat ramp on the lake. Other recreational opportunities include cycling, camping, paddling, hiking, swimming, equestrian trails, and wildlife viewing.

- The park serves as dedicated conservation land along the shoreline of Lake Manatee, protecting water quality in the lake; which is used as the drinking water reservoir for Sarasota and Manatee counties.

- The park contains ten distinct natural communities including sandhill, scrub, and scrubby flatwoods. There are seven notable plant and animal species including Florida goldenaster (*Chrysopsis floridana*), giant orchid (*Pteroglossaspis ecristata*), Manasota pawpaw (*Asimina manasota*), gopher tortoise (*Gopherus polyphemus*), and wood stork (*Mycteria americana*).

Lake Manatee is classified as a State Park in the DRP's unit classification system. In the management of a State Park, a balance is sought between the goals of maintaining and enhancing natural conditions and providing various recreational

opportunities. Natural resource management activities are aimed at management of natural systems. Development in the park is directed toward providing public access to and within the park, and to providing recreational facilities, in a reasonable balance, that are both convenient and safe. Program emphasis is on interpretation on the park's natural, aesthetic and educational attributes.

Purpose and Scope of the Plan

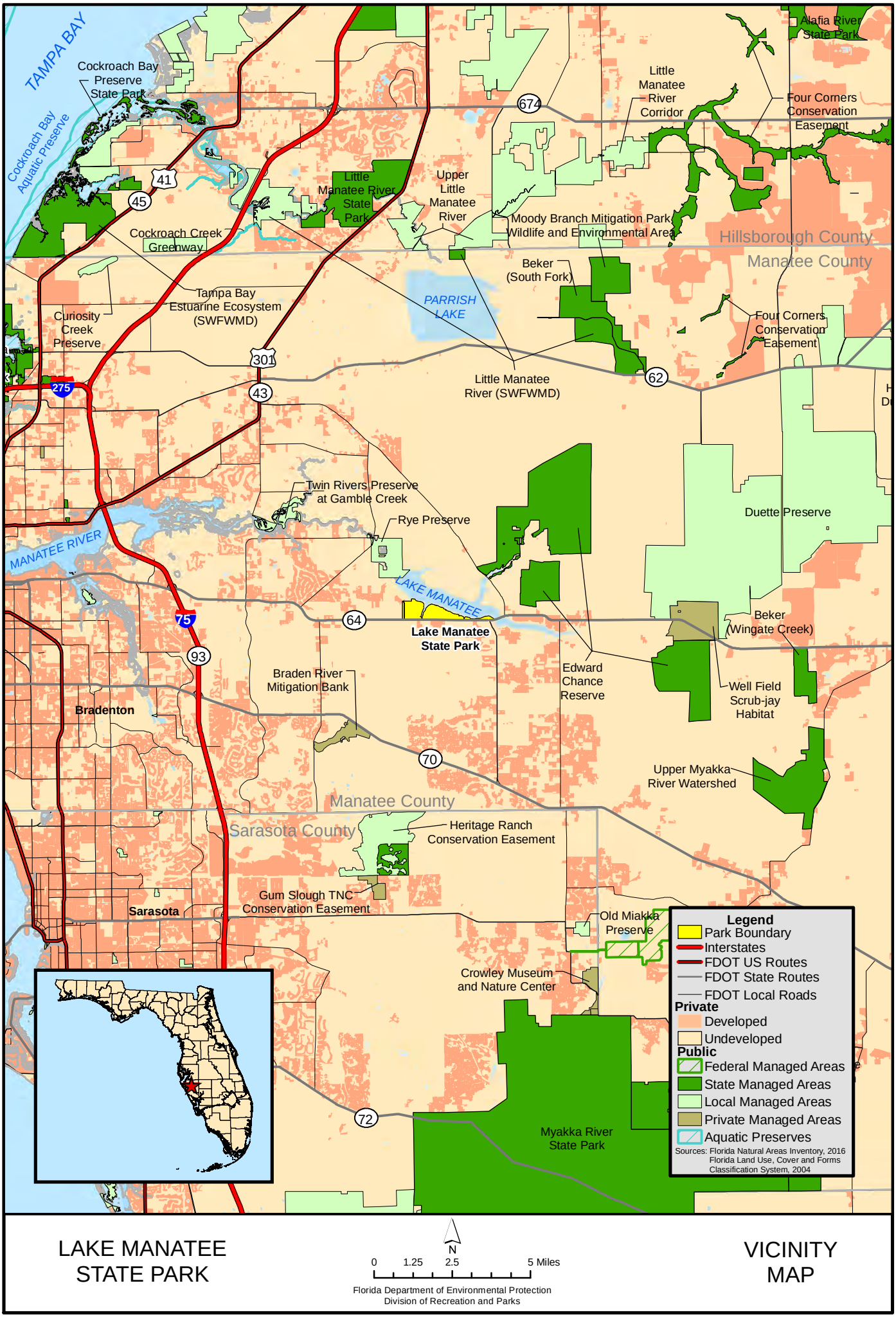
This plan serves as the basic statement of policy and direction for the management of Lake Manatee State Park as a unit of Florida's state park system. It identifies the goals, objectives, actions and criteria or standards that guide each aspect of park administration, and sets forth the specific measures that will be implemented to meet management objectives and provide balanced public utilization. The plan is intended to meet the requirements of Sections 253.034 and 259.032, Florida Statutes, Chapter 18-2, Florida Administrative Code, and is intended to be consistent with the State Lands Management Plan. With approval, this management plan will replace the 2004 approved plan.

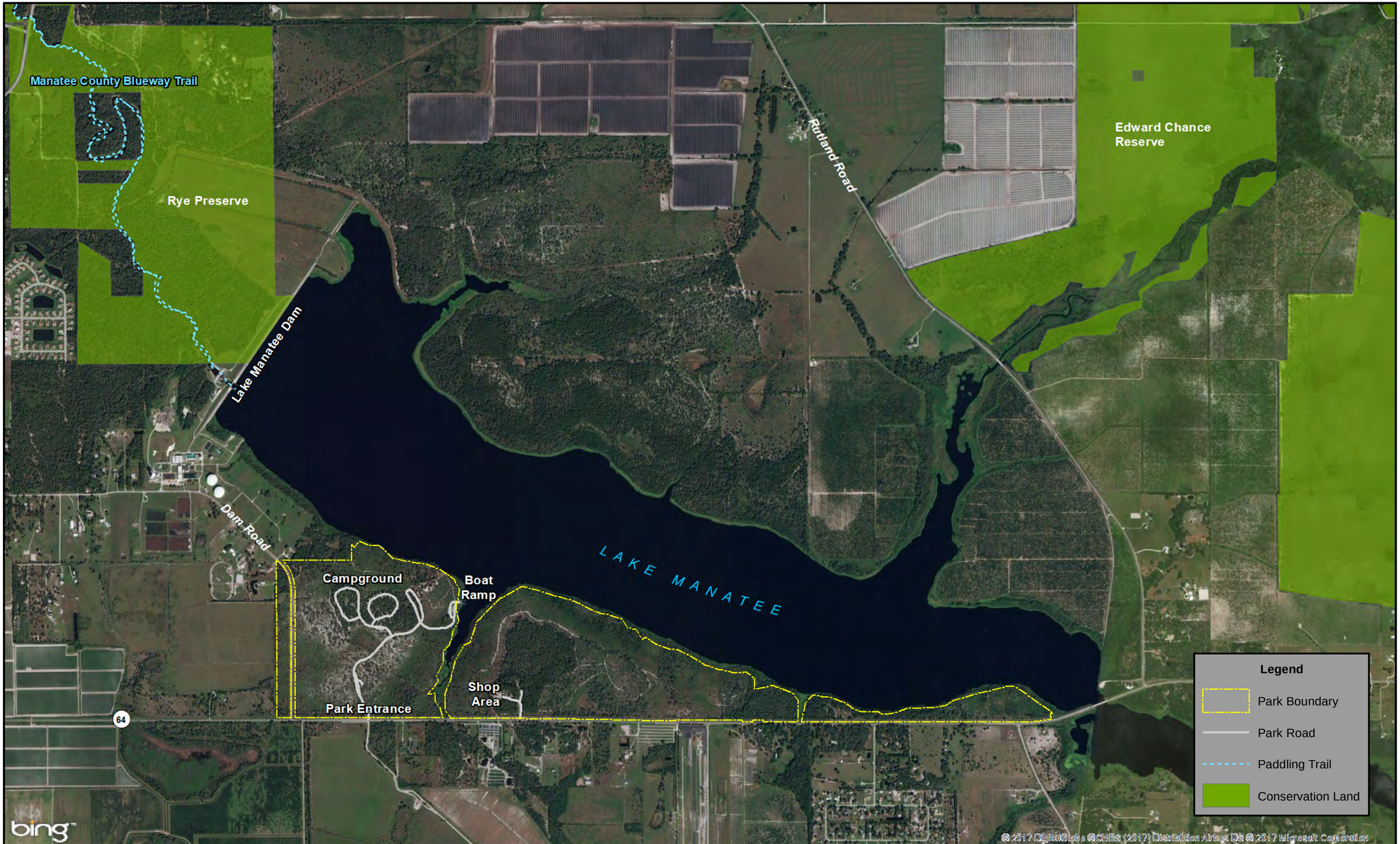
The plan consists of three interrelated components: the Resource Management Component, the Land Use Component and the Implementation Component. The Resource Management Component provides a detailed inventory and assessment of the natural and cultural resources of the park. Resource management needs and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

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

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

All development and resource alteration proposed in this plan is subject to the granting of appropriate permits, easements, licenses, and other required legal instruments. Approval of the management plan does not constitute an exemption from complying with the appropriate local, state or federal agencies.


TAMPA BAY
Cockroach Bay Preserve State Park
Cockroach Bay Aquatic Preserve
Alafia River State Park
Little Manatee River Corridor
Four Corners Conservation Easement
Little Manatee River State Park
Upper Little Manatee River
Moody Branch Mitigation Park Wildlife and Environmental Area
Cockroach Creek Greenway
Hillsborough County
Manatee County
Beker (South Fork)
PARRISH LAKE
Tampa Bay Estuarine Ecosystem (SWFWMD)
Curiosity Creek Preserve
Four Corners Conservation Easement
Little Manatee River (SWFWMD)
Twin Rivers Preserve at Gamble Creek
Rye Preserve
Duette Preserve
MANATEE RIVER
LAKE MANATEE
Lake Manatee State Park
Beker (Wingate Creek)
Braden River Mitigation Bank
Edward Chance Reserve
Well Field Scrub-jay Habitat
Bradenton
Upper Myakka River Watershed
Manatee County
Sarasota County
Heritage Ranch Conservation Easement
Gum Slough TNC Conservation Easement
Sarasota
Old Miakka Preserve
Crowley Museum and Nature Center
Myakka River State Park
Legend
Park Boundary
Interstates
FDOT US Routes
FDOT State Routes
FDOT Local Roads
Private
Developed
Undeveloped
Public
Federal Managed Areas
State Managed Areas
Local Managed Areas
Private Managed Areas
Aquatic Preserves
Sources: Florida Natural Areas Inventory, 2016
Florida Land Use, Cover and Forms Classification System, 2004
LAKE MANATEE STATE PARK
VICINITY MAP
N
0 1.25 2.5 5 Miles
Florida Department of Environmental Protection
Division of Recreation and Parks



LAKE MANATEE STATE PARK

N

0 0.25 0.5 1 Miles

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

REFERENCE MAP

In accordance with 253.034(5) F.S., the potential of the park to accommodate secondary management purposes was analyzed. These secondary purposes were considered within the context of the DRP's statutory responsibilities and the resource needs and values of the park. This analysis considered the park natural and cultural resources, management needs, aesthetic values, visitation and visitor experiences. For this park, it was determined that no secondary purposes could be accommodated in a manner that would not interfere with the primary purpose of resource-based outdoor recreation and conservation.

DRP has determined that uses such as water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in this plan) are not consistent with this plan.

DRP may provide the services and facilities outlined in this plan either with its own funds and staff or through an outsourcing contract. Private contractors may provide assistance with natural resource management and restoration activities or a concessionaire may provide services to park visitors in order to enhance the visitor experience. For example, a concessionaire could be authorized to sell merchandise and food and to rent recreational equipment for use in the park. A concessionaire may also be authorized to provide specialized services, such as interpretive tours, or overnight accommodations when the required capital investment exceeds that which DRP can elect to incur. Decisions regarding outsourcing, contracting with the private sector, the use of concessionaires, etc. are made on a case-by-case basis in accordance with the policies set forth in DRP's Operations Manual (OM).

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.

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

Park Management Goals

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

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

Management Coordination

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

The Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service (FFS), assists DRP staff in the development of wildfire emergency plans and provides the authorization required for prescribed burning. The Florida Fish and Wildlife Conservation Commission (FWC) assists staff in the enforcement of state laws pertaining to wildlife, freshwater fish and other aquatic life existing within the park. In addition, the FWC aids DRP with wildlife management programs, including imperiled species management.

Public Participation

DRP provided an opportunity for public input by conducting a public meeting and an advisory group meeting to present the draft management plan to the public. These meetings were held on March 13, 2018 and March 14, 2018, respectively. Meeting notices were published in the Florida Administrative Register, March 2, 2018 Vol.

44/43, included on the Department Internet Calendar, posted in clear view at the park, and promoted locally. The purpose of the advisory group meeting is to provide the advisory group members an opportunity to discuss the draft management plan (see Addendum 2).

Other Designations

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

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

RESOURCE MANAGEMENT COMPONENT

Introduction

The Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) in accordance with Chapter 258, Florida Statutes, has implemented resource management programs for preserving for all time the representative examples of natural and cultural resources of statewide significance under its administration. This component of the unit plan describes the natural and cultural resources of the park and identifies the methods that will be used to manage them. Management measures expressed in this plan are consistent with the DRP's overall mission in natural systems management. Cited references are contained in Addendum 3.

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

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

Because park units are often components of larger ecosystems, their proper management can be affected by conditions and events that occur beyond park boundaries. Ecosystem management is implemented through a resource management evaluation program that assesses resource conditions, evaluates management activities and refines management actions, and reviews local comprehensive plans and development permit applications for park/ecosystem impacts.

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

Table 1. Lake Manatee State Park Management Zones			
Management Zone	**Acreage**	**Managed with Prescribed Fire**	**Contains Known Cultural Resources**
LAM-1A	21.67	Yes	No
LAM-1B	93.97	Yes	No
LAM-1C	19.18	Yes	No
LAM-1D	62.08	Yes	No
LAM-1E	6.23	Yes	No
LAM-1F	13.09	Yes	No
LAM-1G	37.45	No	No
LAM-1H	3.99	No	No
LAM-2	32.25	Yes	No
LAM-3A	59.29	Yes	No
LAM-3B	10.81	Yes	No
LAM-3C	22.85	Yes	No
LAM-3D	19.81	Yes	No
LAM-3E	6.84	No	No
LAM-4A	61.74	Yes	No
LAM-4B	31.90	Yes	No
LAM-5A	16.10	Yes	No
LAM-5B	12.09	Yes	No
LAM-5C	33.55	Yes	No

Resource Description and Assessment

Natural Resources

Topography

Lake Manatee State Park is located on a major topographic division known as the Coastal Lowlands. The Coastal Lowlands extend inland from the coast to approximately the 100-foot contour line. The limestone substrate beneath the park is a juncture of two Miocene formations: the Hawthorn and the Bone Valley. The entire park lies on the southern slope of the Manatee River Valley, and the soils suggest former marine terraces and shorelines. A reservoir has been created by damming the Manatee River downstream of the western park boundary and is now called Lake Manatee. The southern shoreline of this reservoir forms the northern boundary of the park. The highest point of the park is found at the southern boundary of the park, and is approximately 70 feet above mean sea level (msl). The park then slopes downward towards Lake Manatee to approximately 40 feet above msl at the northern park boundary.

LAKE MANATEE STATE PARK

N

0 500 1,000 2,000 Feet

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

MANAGEMENT ZONES MAP

Legend

Elevation (Feet)

High : 72

Mid : 36

Low : 0

45

50

55

60

65

70

Highest Point : 72 ft

LAKE MANATEE STATE PARK

N

0 500 1,000 2,000 Feet

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

TOPOGRAPHIC MAP

Geology

Lake Manatee State Park lies on a relatively flat terrace known as the DeSoto Plain, which is believed to be of submarine origin (White 1970). The Terraced Coastal Lowlands are a subdivision of the Coastal Plain Province (Vernon 1951). Rocks associated with Coastal Lowlands are of the Cretaceous Period and occur from 5,000 to 10,000 feet below sea level. They consist of interbedded shale, limestone, and anhydrite, containing highly mineralized water. At depths of 10,000 feet, the water contains more than 100,000 ppm (parts per million) of chloride, compared to less than 20,000 ppm found in average seawater.

Above the Cretaceous deposits are limestone slabs from the Paleocene Epoch, which are about 2,000 feet thick, and include the fossiliferous Cedar Keys formation. Above this are limestone layers of the Eocene, Oligocene and Miocene Epochs. The Tampa formation is early Miocene limestone that yields large quantities of artesian water. Above this is the Hawthorn formation, which consists of clay and marl interbedded with sandy limestone, silt, sand and shells. Formation of the latest Tertiary Epoch (Pliocene), including the Bone Valley formation, overlay the Hawthorn. Above these are the Pleistocene and recent deposits of sand, shells and limestone. Deposits of Pleistocene and probably Pliocene age are exposed at the surface throughout Manatee County (Peek 1958).

The aquifer systems found in Manatee County consist of a thin Surficial Aquifer composed primarily of unconsolidated sand, but may also contain clay and/or shell deposits. Below the Surficial Aquifer is the Intermediate Aquifer system, a confined system made up primarily of limestone, shell, sand and clay. This system ranges from 50 to 300 feet thick in Manatee County. The deepest aquifer system is the Floridan, which is further subdivided into the Upper Floridan Aquifer and the Lower Floridan Aquifer. Manatee County is unique due to its extensive thick Upper Floridan Aquifer, which can reach depths of approximately 1,400 feet (SWFWMD 2009).

Soils

The park contains 15 recognized soil types as described by the United States Department of Agriculture (USDA). Further descriptions of soil types can be found in Addendum 4. The predominant types are Duette fine sand (19) and Pomello fine sand (42) on the higher and dryer sites, and Myakka fine sand (30, 31) along the shore of Lake Manatee. Currently there are no major erosion issues at this park.

In general, the soils of Lake Manatee State Park are those of sandy ridges and knolls (Tavares-Cassia-Zolfo), consisting of nearly level to gently sloping sandy soils with or without subsoil (Hyde and Huckle 1981). Citrus and vegetable crops were grown on soils that are now within park boundaries. Where crops were present, soil disturbance is evident by the widespread presence of exotic and weedy plant species. Plant communities in other portions of the park have been altered by historical use of the land for pasture. In many areas, the non-native Bahia grass (*Paspalum notatum*) is a dominant ground layer found in the altered communities.

Minerals

There are no known mineral resources of commercial value at Lake Manatee State Park.

Hydrology

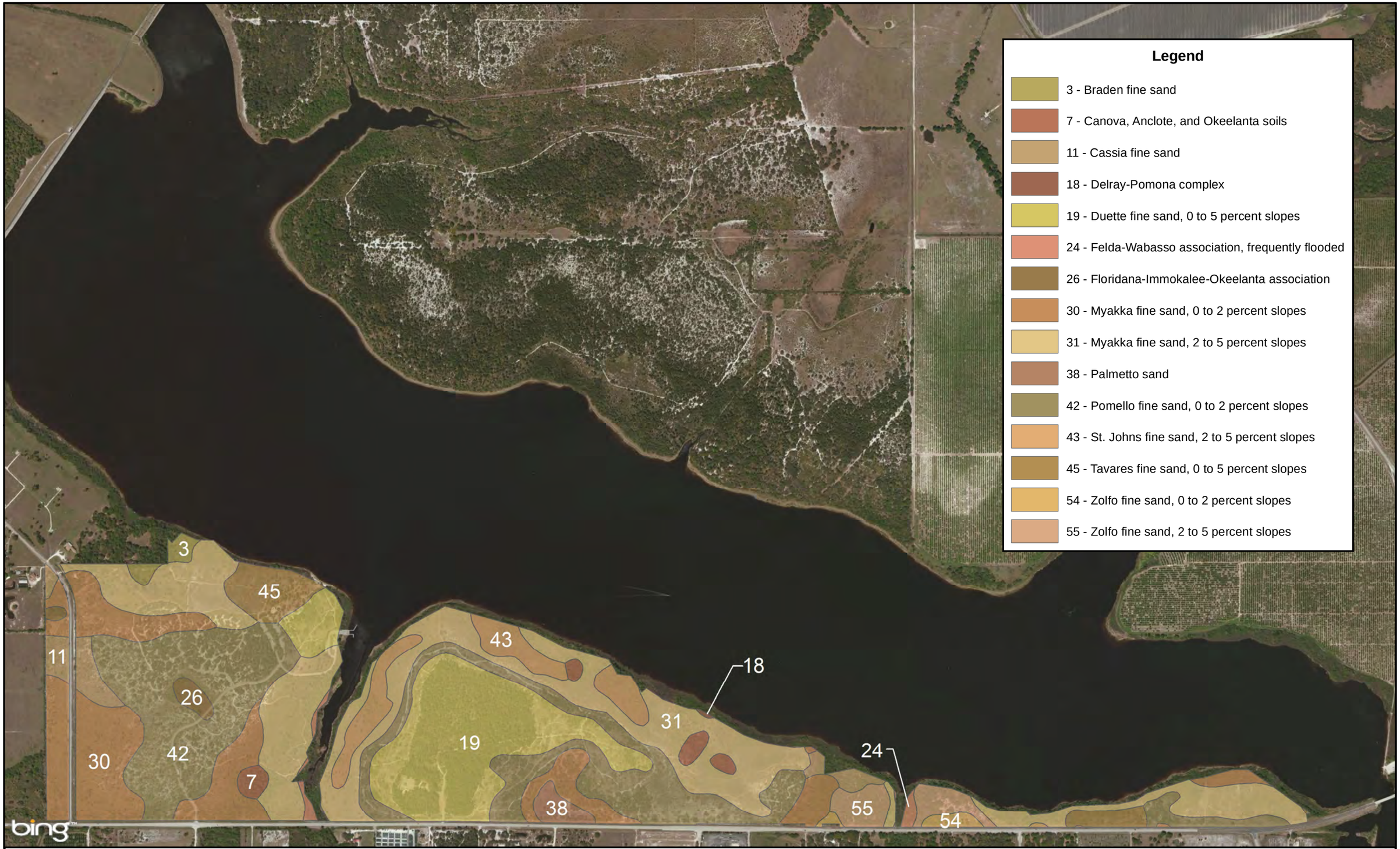
Lake Manatee State Park is located within the Manatee River watershed, and receives on average 53.4 inches of rainfall annually. A dam was built in 1967 on the Manatee River just west of park property, and the resulting lake supplies drinking water to Bradenton and surrounding cities. The water collected here provides a major regional water supply, with over 10 million gallons per day extracted, treated and distributed to Sarasota and Manatee counties. Lake Manatee covers 2,400 acres, and has an average depth of 38 feet, with a maximum depth of 51 feet. The park was given its name due to this lake that defines its northern boundary.

Along the Lake Manatee shoreline, the 40-foot contour elevation above mean sea level (msl) acts as the legal boundary between state and county lands. Shoreline that is lakeward of the 40-foot contour elevation would be claimed by the state if the waterway had been navigable at the time of Statehood (Wilkinson 1993). Since this was not the case, the land remains outside of the park boundaries.

Even though the park boundary does not include the lake, the park has a designated swimming area that is open to visitors. The park contracts monthly fecal coliform bacteria testing at the swimming area to alert visitors of unsafe swimming conditions.

Water quality has been an issue in the past for Lake Manatee due to high coliform bacteria levels. Gilley Creek, which empties into Lake Manatee from the Northeast, has been identified as a main source of the bacteria to the lake. Gilley has been considered an impaired waterway by the FDEP since 1998 due to bacteria levels that are consistently higher than the total maximum daily load (TMDL) allowed (Florida Administrative Code *62-302, 62-303*; David 2009). The large amount of coliform is attributed to the 5,610 acres of agriculture and rangeland that make up 85% of the creek's watershed (David 2009). The Environmental Protection Agency (EPA) and FDEP are working to find solutions that would lower the amount of bacteria flowing into Gilley Creek (Florida Watershed Restoration Act *99-223*).

The other main source of water into Lake Manatee, the Manatee River, empties from the east and has excellent water quality. A sampling point near State Road 64 on the Manatee River consistently receives an excellent stream condition index (SCI), and is used as a reference point when comparing water bodies throughout the region. This water has created the last remaining habitat for the stone fly (*Neoperla clymene*) in this region, which is severely sensitive to environmental stressors (DEP Stream Ecosummary 2010). The good water quality is attributed to a watershed containing healthy natural communities, and protected lands such as Rye Preserve.



LAKE MANATEE STATE PARK

N

0 500 1,000 2,000 Feet

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

SOILS MAP

Even though there is no permanent surface water within the park boundary, ephemeral ponds in the form of depression marshes are found in zones 1B, 1C and 3D. This natural community brings a great deal of biodiversity to the park, but is currently highly disturbed due to rooting by feral hogs (*Sus scrofa*). These depression marshes would benefit greatly from the removal of this exotic animal. Another seasonal water feature at the park is a small seepage stream located in zone 1D. This short, shallow water course drains into Lake Manatee through Poley Branch, and is maintained by water seeping from the Surficial Aquifer, in addition to low topographic relief of this site, and surrounding soils that are well drained.

The campground at Lake Manatee State Park (zone LAM-1G) experiences flooding during periods of heavy rainfall. The landscape slopes towards the lake, but paved roads impede the sheet flow of water. This causes multiple camp sites to maintain 2-6 inches of water. Under road culverts or modifying the pavement height and slope are being discussed to drain the water from interior campsites, and allow LAM-1G to properly drain.

Natural Communities

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

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

When a natural community within a park reaches the desired future condition, it is considered to be in a "maintenance condition." Required actions for sustaining a community's maintenance condition may include; maintaining optimal fire return intervals for fire dependent communities, ongoing control of non-native plant and animal species, maintaining natural hydrological functions (including historic water flows and water quality), preserving a community's biodiversity and vegetative structure, protecting viable populations of plant and animal species (including those

that are imperiled or endemic) and preserving intact ecotones that link natural communities across the landscape.

The park contains ten distinct natural communities as well as altered landcover types (see Natural Communities Map). A list of known plants and animals occurring in the park is contained in Addendum 5.

Mesic Flatwoods

Desired Future Condition: Mesic flatwoods is characterized by an open canopy of tall longleaf pines (*Pinus palustris*) and South Florida slash pines (*Pinus elliottii*), along with a dense, low ground layer of shrubs, grasses and forbes. Saw palmetto (*Serenoa repens*) is generally present but not overly dominant. Other shrub species include gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), runner oak (*Quercus pumila*), dwarf live oak (*Quercus minima*), shiny blueberry (*Vaccinium myrsinites*), and dwarf huckleberry (*Gaylussacia dumosa*). The herbaceous layer is primarily grasses, including wiregrass (*Aristida stricta*), pineywoods dropseed (*Sporobolus junceus*), and broomsedge (*Andropogon* spp.). This community has minimal topographic relief and the soils contain a hardpan layer within a few feet of the surface which impedes percolation. Due to these factors, water can saturate the sandy surface soils for extended periods during the wet season but lengthy droughts also commonly occur during the dry season. The optimal fire return interval for this community is 2-4 years.

Description and assessment: Mesic flatwoods are the most abundant natural community found at Lake Manatee State Park, and overall are in good to excellent condition. Frequent burning and sand pine removal has created exceptional acres of mesic flatwoods in zones 1B, 1D, 2 and 4A. The park has an intensive resource management program which includes prescribed burning, roller chopping, mechanical treatment and sand pine harvesting. This in turn creates viable habitat for imperiled species such as the eastern diamondback rattlesnake (*Crotalus adamanteus*). Other species characteristic of mesic flatwoods found at Lake Manatee State Park include gallberry, wax myrtle (*Myrica cerifera*), wiregrass, pennyroyal (*Piloblephis rigida*), grape (*Vitis rotundifolia*), winged sumac (*Rhus copallinum*) and runner oak. Uphill on higher topography, the community generally grades into scrubby flatwoods and scrub, while downhill sections transition to wet flatwoods, eventually transitioning to baygall along the lake. Soils associated with the mesic flatwoods at the park include Myakka fine sand and St. Johns fine sand, both of which are poorly drained and have minimal topographic relief.

Some areas of mesic flatwoods have become slightly overgrown due to fire suppression, but are in good condition. One example where this has occurred is in the southern portion of zone 1D. Park staff has difficulties building adequate fire intensity adjacent to SR 64. As a result, pine and saw palmetto density has increased. Tree removal and mechanical treatment such as roller-chopping saw palmetto in these overgrown areas would help maintain this natural community.

Legend

- AFP - Abandoned Field/Abandoned Pasture - 45.1 ac.
- BF - Bottomland Forest - 7.72 ac.
- BG - Baygall - 16.36 ac.
- DM - Depression Marsh - 6.96 ac.
- DV - Developed - 34.36 ac.
- MF - Mesic Flatwoods - 203.32 ac.
- SC - Scrub - 98.51 ac.
- SCF - Scrubby Flatwoods - 62.65 ac.
- SH - Sandhill - 6.46 ac.
- SHF - Successional Hardwood Forest - 28.29 ac.
- SST - Seepage Stream - 1.03 ac.
- WF - Wet Flatwoods - 31.55 ac.
- XH - Xeric Hammock - 6.54 ac.

SHF
DV
DV
SH
DV
SC
WF
MF
BG
WF
SC
SCF
BG
XH
SHF
AFP
DM
SST
BF
SH
DM

LAKE MANATEE STATE PARK

N

0 0.25 0.5 1 Miles

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

NATURAL COMMUNITIES MAP

General Management Measures: The continuation of prescribed fire is essential to maintaining the park's mesic flatwoods in good to excellent condition. Timing of the burns is important, with spring and early summer burns being critical for maintaining grass cover and species diversity. Winter burns may be preferable for restoration because they reduce fuel loads without killing juvenile pine trees. Mechanical treatment can be applied in conjunction with fire to limit the amount of saw palmetto and increase wiregrass in this natural community, and to decrease the pine density in some areas.

Sandhill

Desired Future Condition: The dominant pines of sandhills are longleaf pine and South Florida slash pine. Herbaceous cover will be very dense, typically of wiregrass, and low in stature. Most of the plant diversity is contained in the herbaceous layer including other three-awns (*Aristida* spp.), pineywoods dropseed, lopsided indiangrass (*Sorghastrum secundum*), bluestems (*Andropogon* spp.) and little bluestem (*Schizachyrium scoparium*). In addition to groundcover and pines, there are scattered individual trees, clumps, or ridges of onsite oak species, usually turkey oaks (*Quercus laevis*) and blue-jack oak (*Quercus incana*). In old growth conditions, some turkey oaks will be over 100 years old. Optimal fire return interval for this community is 1-3 years.

Description and assessment: The sandhill found at Lake Manatee are only small relicts of what existed prior to when the reservoir was created by damming the Manatee River, based on soil maps and aerial photography dating back to 1942. Aerial photography also depicts early agriculture on soils associated with sandhill at Lake Manatee, but those areas are now described as abandoned field (more detail in abandoned field description). Pockets of sandhill can be found in zone 1D, adjacent to Poley Branch on the west side and zone 2, adjacent to Poley Branch on the east side. A larger patch of sandhill was recently identified in zone 1A, along the lake. Due to the small sizes and lack of connection between the patches of sandhill, they are considered to be in fair condition.

The sandhill at the park is characterized by the presence of turkey oaks, longleaf pine, gopher apple (*Licania michauxii*), Florida greeneyes (*Berlandiera subacaulis*), multiple varieties of milkweed (*Asclepias* spp*.)* and wiregrass. Also, it has a relatively open understory with few shrubs. Rare plants such as the Manasota pawpaw (*Asimina manasota*) are only found in these small patches of sandhill. Gopher tortoises and associated species such as gopher frogs (*Rana capito*) and diamondback rattlesnakes are also commonly found in this habitat. Soil where sandhill is found includes Taveres fine sand and Myakka fine sand. Identifying and managing sandhill at Lake Manatee State Park is critical because it is located in the southernmost range for this natural community in Florida.

General Management Measures: Frequent low intensity fires are critical for managing sandhill. Burns should be alternated between growing season burns and non-growing season to allow a plethora of grass species to exist. Too much fuel causes high pine mortality, and can disturb the soil's seed bank. Mechanical treatment should also be avoided as much as possible to prevent the establishment

of weedy species. The groundcover, which is mostly wiregrass, can be easily lost with continued soil disruption. The only other concern for managing sandhill pertains to exotic plants and their effect on prescribed fire. FNAI identifies cogongrass (*Imperata cylindrica*) and natalgrass (*Rhynchelytrum repens*) as especially problematic invaders of sandhill, resulting in higher intensity fires which kill juvenile longleaf pine. Exotic removal should be a top priority in areas identified as sandhill.

Scrub

Desired Future Condition: Within scrub habitats, the dominant plant species includes scrub oak (*Quercus inopina*), sand live oak (*Quercus geminata*), myrtle oak (*Quercus myrtifolia*), Chapman's oak (*Quercus chapmanii*), saw palmetto and fetterbush (*Lyonia lucida*). There is a variety of oak age classes/heights between different scrub patches. There will be scattered openings in the canopy with bare patches of sand that support many imperiled and/or endemic plant species. These species will be regularly flowering and replenishing their seed banks. Sand pine (*Pinus clausa*) will usually not be dominant in abundance, percent cover, or height. One exception to this exists, which is a variant know as sand pine scrub (described below). Sand pine scrub contains a canopy dominated by mature sand pines with an understory containing Florida rosemary (*Ceratiola ericoides*). Optimal fire return interval for oak dominated scrub is variable; typically 5-20 years when aiming to achieve a mosaic of burned and unburned areas. Optimal fire intervals for sand pine scrub can range from 15-40 years.

Description and assessment: The scrub found at the park occurs on the higher, well-drained portions of the park. The main soil types include Duette fine sand and Pomello fine sand, both of which are porous soils with smooth slopes. Due to the location of scrub, almost all of the park facilities have been placed in this community type. This includes picnic areas, playgrounds, campgrounds, park shop, residences, and other facilities. Therefore, prescribed burning of the scrub in some areas presents a challenge.

Areas of oak dominated scrub in zones 1B, 1D and portions of 3A have been burned recently, and are returning to an earlier successional scrub state. This scrub is considered to be in good condition, with potential to improve to excellent condition with regular fire intervals. This scrub is being managed to accommodate the endemic scrub-jay, even though the acreage is not sufficient to accommodate a population. Accordingly, the burnable scrub is maintained in an early successional state, with oaks being kept between 4-6 feet in height. The reason behind managing for scrub-jays is to provide resting areas for these birds while moving throughout the landscape. Habitat loss due to increased development in the area may further displace scrub-jays. Scrub community at Lake Manatee State Park could potentially provide enough habitat for one family group of scrub-jays if this were to happen.

The oak dominated scrub communities throughout the park contain numerous rare scrub plant species, including the federally protected Florida goldenaster (*Chrysopsis floridana*), along with FNAI tracked nodding pinweed (*Lechea cernua*)

and longbristle beaksedge (*Rhynchospora megaplumosa*). Garberia (*Garberia heterophylla*) can also be found at this park within the oak-dominated scrub communities. These community specific plants became scarce due to habitat loss from development and agriculture. Much of the scrub found in southwest Florida has been disturbed in the past, leaving only isolated populations of these rare scrub plants.

Some of the scrub areas around the shop and manager's residence in zones 3A, 3B, 3C, and 3E have not been burned in decades, allowing for a dense, tall stand of mature sand pine. FNAI describes this variation in plant composition as sand pine scrub, and prescribes a longer fire interval ranging from 15-40 years. It is different from the oak dominated scrub due to its canopy and the presence of multiple lichens along with Florida rosemary. Although this unburned sand pine scrub presents a wildfire risk, the trees provide noise and visual buffers to the park and residences. In 2010, to improve the sandhill, scrub, and scrubby flatwoods communities and improve safety for prescribed burning, mature sand pines were harvested from zones 1F, and portions of zones 3A, B, C, D, and 4B. A pocket of sand pines around the shop, park manager residence, and volunteer village was intentionally left to provide a noise and visual buffer, and maintain a pocket of mature sand pine scrub. The timbering operation was followed with prescribed burning of the timbered areas.

The unburned areas in zones 1G, 3A, 3B, 3C, 3D and 3E are in good to fair condition due to a lack of regular fire. Lower fire frequency is necessary protection of a campground, multiple structures, and the buffering capacity of the dense pines. The Bradenton Speedway is adjacent to the park on the south side, and the density of trees act as a buffer not only for park visitors, but also the wildlife that utilizes the habitat.

General Management Measures: Prescribed fires are the best way to manage scrub and to ensure that endemic plant and animal species persist. FNAI describes that keeping a mosaic of different ages of scrub is vital to maintaining species diversity. If scrub becomes too tall, mechanical treatment in the form of felling sand pines can be used in conjunction with fire to avoid dangerous burn situations. Special caution to avoid wildfires is needed in the areas around park structures.

<u>Scrubby Flatwoods</u>
Desired Future Condition: The dominant tree species of the interior of scrubby flatwoods is longleaf pine and slash pine. Mature sand pines are typically not present. There is a diverse shrubby understory often with patches of bare white sand. A scrub-type oak "canopy" contains a variety of oak age classes/heights across the landscape. Dominant shrubs include sand live oak, myrtle oak, Chapman's oak, saw palmetto, fetterbush, and tarflower (*Bejaria racemosa*). Cover by herbaceous species is often low to moderately dense. The optimal fire return interval for this community is variable; typically, 4-15 years when aiming to achieve a mosaic of burned and unburned areas.

Description and assessment: The scrubby flatwoods community at the park was identified after a large area dominated by mature sand pines was cleared and burned. Areas in zone 3A and 3B are now considered to be scrubby flatwoods in fair condition. A varied herbaceous cover containing wire grass, October flower, and gopher apple have appeared in the newly cleared zones. Introducing more frequent burns in the 4-15 year fire cycle will ensure that the proper species composition persists.

Scubby flatwoods in zone 4A and 4B are in good condition and occur between scrub on the highest areas and mesic flatwoods on lower topography. The soils where scrubby flatwoods are found include similar ones to scrub, such as Duette fine sand and Pomello fine sand. These sediment types are associated with flat topography, are sandy, and tend to be well drained. This natural community sticks out from surrounding mesic flatwoods due to the oak understory, slightly higher topography, and occurrence of bare sand patches.

General management measures: Prescription fire of this community is the best management technique, and should occur between 4-15 years. To aid management, fire interval can be fluctuated to benefit surrounding mesic flatwoods and scrub areas. This habitat is also prone to be invaded by exotic species such as downy rose myrtle (*Rhodomyrtus tomentosa*), natalgrass and cogongrass. Post-burn exotic plant management/treatment is essential to avoid monocultures from forming.

Wet Flatwoods

Desired Future Condition: Dominant pines will usually be widely scattered and of variable age classes. These pines include longleaf pine and slash pine, and maintain an open canopy. Native herbaceous cover is dense and includes plants such as terrestrial orchids, wiregrass, yellow-eyed grass (*Xyris* spp.), white-head bog-buttons (*Lachnocaulon anceps)* and Carolina redroot (*Lachnanthes caroliniana*). Common shrubs will include swamp azalea (*Rhododendron viscosum*), gallberry, and wax myrtle. Optimal fire return interval for this community is 2-4 years.

Description and assessment: Wet flatwoods are found in zones 1C and 4A at Lake Manatee. Associated soils include Myakka fine sand, and St. John's fine sand. The areas in 1C seem to be the only remaining patches of a large drained wetland system that existed in the area before human development. The earliest available photographs from 1940 show disturbance to this wetland in the form of ditches and roads. Ultimately, this lower topography and poorly draining soils hold enough water to not be considered mesic. The wet flatwoods in 1C are considered to be fair condition due to human disturbance, feral hog activity, and proximity to roadways. Drainage features in place near the road and throughout the flatwoods disrupt the hydrology of this community. This has, in turn, kept fire from entering some areas of the flatwoods here, allowing hardwoods to persist in the understory.

Plants found in this area of wet flatwoods include red cedar (*Juniperus virginiana*) warty panicgrass (*Panicum verrucosum*), white fringetree (*Chionanthus virginicus*) and combleaf mermaidweed (*Proserpinaca pectinata*). There is significant soil

disturbance caused by feral hogs in this area. The community would greatly benefit from increased trapping.

Wet flatwoods found in zone 4A are in good condition do to remoteness and lack of human disturbance. This natural community exists between the mesic flatwoods upland, and baygall that lines the lake shoreline. Trees typical of baygall, including loblolly bay (*Gordonia lasianthus*) and sweetbay (*Magnolia virginiana*), seem to constantly creep upland into the wet flatwoods, but frequent burning will keep the bays at bay. Some of the common plants within this community include possumhaw (*Viburnum nudum*), yellow milkwort (*Polygala rugelii*), swamp azalea, royal fern (*Osmunda regalis var. spectabilis*) and cinnamon fern (*Osmunda cinnamomea*). More rare species found in the park's wet flatwoods include the pine lily (*Lilium catesbaei),* and yellow butterwort (*Pinguicula lutea*). With continued fire at proper time intervals, these imperilled species will continue to persist at the park.

General management measures: Best management practice for wet flatwoods is to allow areas to remain wet, and to limit structures through these hydrologically sensitive areas. Keeping roads and trails away from this community will limit erosion and soil disruption. Fire is again a key player in keeping woody species associated with baygall out of the flatwoods.

Xeric Hammock

Desired Future Condition: Xeric hammock is typically considered a late successional stage of scrub or sandhill that occurs in small isolated patches on excessively well drained soils. Vegetation consists of a low closed canopy dominated by sand live oak which provides shady conditions. Typical plant species may include Chapman's oak, sand pine, slash pine and longleaf pine. Understory species include saw palmetto (*Serenoa repens*), myrtle oak (*Quercus myrtifolia*), American beautyberry (*Callicarpa americana*), and Florida rosemary. A sparse groundcover layer of other herbaceous species exists. A continuous leaf litter layer is present in some areas along with bare white sand patches. Overgrown scrub in need of fire and/or mechanical treatment should not be confused with true xeric hammock.

Description and assessment: The areas of xeric hammock at the park are dominated by sand live oak and have a relatively low, open canopy. A sparse shrub layer is present and is dominated by saw palmetto and hog plum. Xeric hammock found in zone 4B is considered to be in excellent condition and contains a population of the Florida goldenaster, which is a federally endangered plant species. Also found in this hammock are two state endangered airplants - the giant airplant (*Tillandsia utriculata*) and cardinal airplant (*Tillandsia fasciculata*). More information on these plants can be found in the imperiled species section later in the document. The soils in this patch of hammock (Pomello fine sand) and the assemblage of species found, lead to a prerequisite of scrub habitat that has been fire excluded for long periods of time. Photographs from the 40s show the presence of hammock, therefore it is possible that human disturbance intentionally kept fire away from this location due to its proximity to orange groves present at that time directly to the east.

General Management Measures: The main management concern in this natural community is the presence of exotic species. Areas directly east of the hammock are classified as successional hardwood forest containing mature exotic trees. This acts as a seed source for exotic plants, allowing populations to spread west towards the xeric hammock. Staff should survey the eastern border of the xeric hammock in zone 4B to check for patches of exotics, especially Brazilian pepper (*Schinus terebinthifolius*), Guava (*Psidium guajava*) and Cesar weed (*Urena lobata*).

Baygall

Desired Future Condition: Baygall consists of a wet, densely forested, peat filled depression typically near the base of a slope. Seepage from adjacent uplands will maintain saturated conditions. Medium to tall trees mainly consist of sweetbay (*Magnolia virginiana*), loblolly bay (*Gordonia lasianthus*) and swamp bay (*Persea palustris*). Occasionally sparse pines (*Pinus* spp.) may also exist. A thick understory consisting of gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), and dahoon (*Ilex cassine*) will be typical with climbing vines such as greenbriar (*Smilax* spp.) and grape (*Vitis* spp.) will usually be abundant. The dominant baygall species are fire intolerant, indicating an infrequent optimal fire return interval of 25-100 years. Frequent fires from adjacent communities should be allowed to enter the baygall ecotone however, being aware of the problems associated with peat fires.

Description and assessment: This community type is present along the shoreline of Lake Manatee, and along areas that drain into the lake in zones 1D and 4A. It is characterized by water oak (*Quercus nigra*), laurel oak, loblolly bay, swamp bay (*Persea palustris*) and airplants in the canopy, and saw palmetto, wax myrtle and greenbrier in the shrub layer. Ferns, sedges and occasional ground orchids are found on the ground layer. This community is currently only in fair condition due to constant rooting by feral hogs, and due to presence of climbing fern (*Lygodium microphyllum*) and laurel wilt, a fungal disease, which is killing the mature swamp bays.

General Management Measures: The best management for baygall is to maintain the upland communities surrounding it. Proper management of the flatwoods, scrub and sandhill located upland of this community with and occasional fire, will maintain the baygall. Removal of exotic hogs will improve this community, as rooting damages native vegetation and opens up areas for exotics to invade. Park staff should specifically look for climbing fern in baygall communities. The other concern deals with the laurel wilt, for which there is no cure. Management should be cautious to leave all felled or dead trees as to not introduce the wilt to any other locations. More information on laurel wilt can be found in the exotics section later in this document.

Bottomland Forest

Desired Future Condition: Bottomland forest is a fairly low lying, mesic to hydric community prone to periodic flooding. Vegetation will consist of a mature closed canopy of deciduous and evergreen trees. Overstory species may consist of species such as sweetbay, loblolly bay, water oak and live oak (*Quercus virginiana*). Understory is mainly open, and includes wax myrtle, dahoon holley (*Ilex cassine*),

and sparkleberry (*Vaccinium arboreum*). Presence of groundcover will be variable and may consist of witchgrass (*Dicanthelium* sp.), various sedges (*Carex* spp.) and ferns.

Description and assessment: The bottomland forest is contained within Zone 1D and surrounds a small seepage stream. It is characterized by a dense canopy of loblolly bays, magnolias and mature oaks, with an open understory containing ferns. A few citrus trees remain from the agriculture that existed near this area in the 1940s and 1950s. This community is in fair condition due to soil disturbance by feral hogs, large Brazilian pepper trees and an overwhelming amount of Caesar weed.

This natural community exists on Myakka fine sand and a small pocket of Canova/Anclote and Okeelanat soils. This patch of mucky sediment is probably the result of the lower topography and seepage stream collecting organic materials and settling in this area. This combination of sediment and topography change allows the bottomland forest to persist in a matrix of mesic flatwoods and sandhill.

General Management Measures: Exotic treatment and removal is the best way to manage this natural community within the park. Being remote and difficult to access, large amounts of exotics have gone untreated in the park's bottomland forest. This area is a seed source for exotic species that affects the rest of the park.

Depression Marsh

Desired Future Condition: Depression marsh is characterized by low emergent herbaceous and shrub species, which will be dominant over most of the area and include open vistas. Trees will be few, and will occur primarily in the deeper portions of the community. There will be little accumulation of dead grassy fuels due to frequent burning, such that the soil surface is often visible through the vegetation when the community is not inundated. Dominant vegetation in basin marsh and depression marsh may include maidencane (*Panicum hemitomon*), panic grasses (*Panicum* spp.), pickerelweed (*Pontederia cordata*), St. John's wort (*Hypericum sp.*) and coastalplain willow (*Salix caroliniana*). The optimal fire return interval for this community is 2-10 years depending on fire frequency of adjacent communities.

Description and assessment: This type of marsh is found in three zones - 1B, 1C and 3D. It tends to have a peripheral zone composed of gallberry, wax myrtle, and an occasional loblolly bay. The central zone is mostly composed of *Andropogon spp.* grasses. The limited pattern of zonation probably reflects disturbance to hydroperiod, fire exclusion, and damage from rooting hogs. Due to previous ditching damage from agriculture in the area, and rooting from hogs, this community is considered to be in fair to poor condition.

As noted before, a large wetland system near zone 1C was disrupted by humans before 1940. Some primitive ditching and draining of adjacent lands is visible at both the depression marshes found in 1C (one on the north end, and another on

the south). Due to the proximity of nearby structures and roads, it is not likely that these marshes will be restored due to the resulting localized flooding.

General Management Measures: Fire should be allowed to extinguish naturally, or burn through the depression marsh along with the surrounding natural communities. Feral hogs should be removed to avoid soil disruption at these sites, and to abate the encroachment of exotics such as Peruvian primrose-willow (*Ludwigia peruviana*).

Seepage Stream

Desired Future Condition: A seepage stream can be characterized as a narrow, relatively short perennial or intermittent stream formed by percolating water from adjacent uplands. As they are typically sheltered by a dense overstory of broad-leaved hardwoods which block out much of the sunlight, the flora within seepage streams is often depauperate but may include filamentous algae, ferns and liverworts growing in clumps at the streams edge. Water color will be clear to slightly colored, with a fairly slow flow rate and fairly constant temperature. Bottom substrate is typically sandy, but may include gravel or limestone.

Description and assessment: The seepage stream found in zone 1D is a short, perennial water feature that is surrounded by bottomland forest. The water is slightly colored, and appears to be seeping from the surrounding landscape. It appears to be in good condition, although no water sampling has been conducted by park staff. The stream itself occurs in lower topographic areas as compared to the adjacent landscape, and deep sandy soils nearby percolate the water slowly to this feature. The water from this stream drains into Poley Branch, and then into Lake Manatee.

General management measures: The seepage stream should be considered when planning for additional park infrastructure such as trails or boardwalks. Changes to the hydrology, or clearing land surrounding the stream could affect water quality.

Altered Land Cover Types

Abandoned Field

Desired Future Condition: The desired future condition for the abandoned field is to restore it to its historical community type. The exact species composition will vary, but it is projected that the majority will be mesic flatwoods with the potential for some restoration of the western edge to reestablish sandhill. See descriptions of desired future conditions for both community types above.

Description and assessment: Zones 5B and 5C, located on the far east side of Lake Manatee State Park, consist of abandoned field. Major soil disruption is evident from past agriculture, and the entire area is covered with exotics and weedy species. Soil surveys display Zolfo Fine Sand and Tavares Fine Sand, both of which point to sandhill as the historic natural community. Some remnant sandhill species such as milkweeds (*Asclepias* spp.) and Manasota pawpaw can be found in this area. Remnants of an FWC radio tower and patches of asphalt can be found hidden

amongst the cogongrass and dogfennel (*Eupatorium capillifolium*). Restoration has been attempted in the form of planting longleaf pines, beginning with 2,000 trees in 1977, in this agriculturally altered habitat. During the latter years, longleaf pines were planted at a rate of 1,000 trees per year with the last plantings occurring in 1987. Even with this attention, these zones remain desolate with highly disturbed habitats that are infested with exotic and weedy species. In 2013, an FWC grant was acquired to remove all exotic plant species found in zones 5B and 5C. This initial work was completed in 2014, however this area will need continual follow-up monitoring and exotic treatment until native species cover is well established.

General Management Measures: Staff will continue looking into restoring these zones to mesic flatwoods and sandhill community types. Major projects to remove exotics and prescribed burns are needed to remove the exotic ground cover. Native plantings are needed to reestablish appropriate plant communities.

Canal/Ditch

Description and assessment: The canal found in zone 5A is a man-made ditch that allows stormwater to drain off the road and adjacent agriculture lands. It is covered on both sides by weedy species and exotics such as Brazilian pepper, Caesar weed and air potato (*Dioscorea bulbifera*).

General management measures: Staff should continue to control invasive exotic plant species along the canal/ditch.

Developed

The developed areas within the park will be managed to minimize the effect of the developed areas on adjacent natural areas. Mowing schedules and heights clearly encourage seeding and growth of native plant ground covers. Landscaping activities do not introduce species, native or exotic, that are not already found at the park. Priority invasive plant species (FLEPPC Category I and II species) will be removed from all developed areas, as will the local region's Early Detection invasive plant species; cover from invasive exotic plant species will be 5% or less. Other management measures include proper storm water management and development guidelines that are compatible with prescribed fire management in adjacent natural areas.

Description and assessment: Developed areas include a picnic area, playground, parking lots, campground, shop, residences and storage areas.

General management measures: Staff should continue to control invasive exotic plant species in developed areas of the park. Defensible space will be maintained around all structures in areas managed with prescribed fire or at risk of wildfires.

Successional Hardwood Forest

Successional Hardwood Forest can be found in zones 1C, 1H and 5A. In 5A, the hammock is a result of previous land use as an orange grove, which was identified through 1942 aerial photographs. Many exotics persist, such as rosary pea (*Abrus precatorius*), Caesar weed, dianella lily (*Dianella ensifolia*) and guava. The soils

(Zolfo fine sand and Tavares fine sand) are indicative of sandhill as the natural community present prior to human disturbance. Zone 1H has been excluded by fire intentionally due to residential structures, and equipment used by Manatee County for treating drinking water. 1C has been identified as SHF due to fire suppression from adjacent homes, and the proximity to a depression marsh. Also, the hydrology has been significantly altered by agricultural drainage practices prior to 1940. These structures, past hydrological disturbances and natural landscape differences make high intensity burning difficult or impossible to accomplish. The forest is also highly disturbed by feral hogs and exotic plants, especially yerba de guava (*Coccocypselum hirsutum*).

Description and assessment: Areas now mapped as successional hardwood forest were historically classified at Lake Manatee as upland mixed forest or mesic flatwoods. The nearly closed canopy of these areas is dominated by oak species, primarily live oak, but water oak and laurel oak are also present. South Florida slash pines and the occasional cabbage palm are scattered in the canopy as well. The understory is dominated by saw palmetto with scattered shrubs like beautyberry, gallberry and hog plum (*Ximenia americana*). Remnant grasses, sedges, forbs, and ferns are occasional in the understory. These mature hammocks have been shielded from fire for many years, due mostly to their locations adjacent to depression marshes or residential structures. In general, the successional hardwood forest will be maintained, unless areas are identified as priorities for sandhill or mesic flatwoods restoration.

General management measures: Staff should continue to control invasive exotic plant species in successional hardwood forest areas of the park. Defensible space will be maintained around all structures in areas managed with prescribed fire or at risk of wildfires.

Imperiled Species

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

Lake Manatee State Park provides essential habitat to multiple imperiled species. Seven imperiled plant species can be found at the park, with Florida golden aster (*Chrysopsis floridana*) being the most notable due to its federally endangered status. In 1988, a recovery plan was published for this species, which outlines the research and population goals for this plant. Goals include being established in three counties with at least 10 to 20 populations to become down listed or possibly delisted.

What made this plant so rare is that it is only found in areas of Florida scrub and xeric hammock, most of which were converted to agricultural lands in the 1970s. Lake Manatee not only has a healthy and thriving population of the Florida golden

aster, but it also acts as a donor site to other nearby areas undergoing scrub restoration. Scientific research centered on the golden aster has been conducted at Lake Manatee State Park since 1989. Projects include studies on effects of light limitation on growth, effects of soil properties on seed production, and conditions needed to yield the highest germination rates. Lake Manatee State Park has worked extensively with the Bok Tower Gardens to cryogenically preserve seeds of this endangered plant for future preservation. Annual surveys monitor the population of the Florida golden aster at Lake Manatee State Park. Surveys are also conducted every three years to analyze population dynamics.

Other imperiled plant species tracked by FNAI and FDACS found at Lake Manatee State Park include garberia (*Garberia heterophylla*), nodding pinweed (*Lechea cernua*), pine Lily (*Lilium catesbaei*), yellow butterwort (*Pinguicula lutea*), giant orchid (*Pteroglossaspsis ecristata*) and longbristle beaksedge (*Rhynchospora megaplumosa*). Application of the proper management measures to the habitat in which they occur should provide adequate protection. Species such as the nodding pinweed and the pine lily will benefit greatly from continued application of prescribed fire and the targeted removal of hardwoods invading the mesic flatwoods and sandhill communities. Any newly discovered locations of imperiled species should be recorded and targeted monitoring initiated if site conditions warrant. All imperiled species that are currently encountered in the field are marked with GIS points to record their occurrence and identify locations.

Airplants such as the giant airplant and cardinal airplant are found in hammocks at the park. These bromeliads were listed as state-endangered by FDACS due to the exotic Mexican weevil *Metamasius callizona*. The weevil lays eggs in the largest bromeliads, and the resultant larvae mine the stems. The largest bromeliads, which take years to grow to that size, are the breeding population. As the breeding plants are killed, the plant population produces fewer seeds.

Though not currently listed, another significant plant is the Manasota pawpaw (*Asimina manasota*). Only recently discovered and named, this pawpaw is endemic to only two Florida counties (Sarasota and Manatee), and is only found in remnant sandhill communities within the park. It is possible that Lake Manatee State Park has the largest population of Manasota pawpaw on conservation lands statewide. It is critical that these individuals are protected and managed appropriately with fire.

While Lake Manatee provides habitat for a variety of imperiled plants, still more imperiled animals inhabit the adjacent land. Some notable vertebrates found within park boundaries include the gopher tortoise (*Gopherus polyphemus*), eastern indigo snake (*Drymarchon couperi*), Crested Caracara (*Caracara cheriway*) and wood stork (*Mycteria americana*). None of these species require targeted management measures at this time. No bald eagle (*Haliaeetus leucocephalus*) nests occur in the park, but eagles are commonly found resting and foraging within the park. If an eagle nest is established in the park, all guidelines of the Bald Eagle Management Plan will be followed (FWC 2008).

Gopher tortoises are common in the sandhill and scrub communities at Lake Manatee State Park and burrows have been mapped with GIS coordinates. Other FNAI-tracked reptiles such as the eastern indigo snake, and southern hognose (*Heterodon simus*) are recorded when encountered in the field or during burns. Keeping up with sand pine removal and proper fire return intervals should provide adequate protection to imperiled snakes and gopher tortoises at the park.

Some imperiled species found at Lake Manatee State Park also act as indicator species for natural communities found within the park. Sandhill cranes (*Grus canadensis pratensis*) is a good indicator of depression marshes which are found in the park. Sandhill communities can be identified by the appearance of gopher tortoises, Sherman's fox squirrels (*Sciurus niger shermani)*, Manasota pawpaw and giant orchids. Most of the imperiled species listed in the table below can be used as indicators for specific community types as currently described by FNAI.

Florida scrub-jays are currently on the park's imperiled species list, even though they have not been observed at the park since 1982. Management actions are being continued to keep scrub habitat at the park appropriate for scrub-jays (scrub oaks 4-6 feet high). Development is increasingly occurring throughout the region and within the vicinity of the park and scrub-jay habitat is diminishing. For this reason, Lake Manatee State Park is preserving portions of scrub community in an early successional state to allow for transient or a few scrub-jays to persist.

Table 2 contains a list of all known imperiled species within the park and identifies their status as defined by various entities. It also identifies the types of management actions that are currently being taken by DRP staff or others, and identifies the current level of monitoring effort. The codes used under the column headings for management actions and monitoring level are defined following the table. Explanations for federal and state status as well as FNAI global and state rank are provided in Addendum 6.

Table 2. Imperiled Species Inventory

Common and Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FWC	USFWS	FDACS	FNAI		
PLANTS						
Florida goldenaster *Chrysopsis floridana*		LE	LE	G1,S1	1,2,3,10,13	Tier 1,2
Garberia *Garberia heterophylla*			LT		1,2	Tier 1

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Nodding pinweed *Lechea cernua*			LT	G3,S3	1,2	Tier 1
Pine Lily *Lilium catesbaei*			LT		1,2,4	Tier 1
Yellow butterwort *Pinguicula lutea*			LT		1,2	Tier 1
Giant orchid *Pteroglossaspsis ecristata*			LT	G2G3,S2	1,2	Tier 1
Longbristle beaksedge *Rhynchospora megaplumosa*			LE	G2,S2	1,2	Tier 1
Cardinal airplant *Tillandsia fasciculata*			LE		2	Tier 1
Giant airplant *Tillandsia utriculata*			LE		2	Tier 1
INVERTEBRATES						
Berry's Skipper *Euphyes berryi*				G1G3,S1S2	1,2	Tier 1
REPTILES						
American alligator *Alligator mississippiensis*	FT(S/A)	FT(S/A)		G5,S4	4,13	Tier 1
Eastern indigo snake *Drymarchon couperi*	FT	LT		G3,S3	1,2,13	Tier 1
Gopher tortoise *Gopherus polyphemus*	ST	C		G3,S3	1,2,6,13	Tier 3
BIRDS						
Florida scrub-jay *Aphelocoma coerulescens*	FT	LT		G2,S2	1,2,6,7,13	Tier 1

Table 2. Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Crested caracara *Caracara cheriway*	FT	LT		G5,S2	1,2,13	Tier 1
Little blue heron *Egretta caerulea*	ST			G5,S4	2,4	Tier 1
Tricolored heron Egretta tricolor	ST			G5,S4	2,4	Tier 1
Swallow-tailed kite *Elanus forficatus*				G5,S2	1,2,4,13	Tier 1
Florida sandhill crane *Grus canadensis pratensis*	ST			G5T2T3,S2S3	1,2,4,13	Tier 1
Wood stork *Mycteria americana*	FT	LT		G4,S2	1,2,4,13	Tier 1
Roseate spoonbill *Platalea ajaja*	ST			G5,S2	4,13	Tier 1
American redstart *Setophaga ruticilla*				G5,S2	1,2,13	Tier 1
MAMMALS						
Sherman's fox squirrel *Sciurus niger shermani*	SSC			G5T3,S3	1,2,6,8,13	Tier 1

Management Actions:

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

Monitoring Level:

Tier 1.	Non-Targeted Observation/Documentation: includes documentation of species presence through casual/passive observation during routine park activities (i.e. not conducting species-specific searches).Documentation may be in the form of Wildlife Observation Forms, or other district specific methods used to communicate observations.
Tier 2.	Targeted Presence/Absence: includes monitoring methods/activities that are specifically intended to document presence/absence of a particular species or suite of species.
Tier 3.	Population Estimate/Index: an approximation of the true population size or population index based on a widely accepted method of sampling.
Tier 4.	Population Census: A complete count of an entire population with demographic analysis, including mortality, reproduction, emigration, and immigration.
Tier 5.	Other: may include habitat assessments for a particular species or suite of species or any other specific methods used as indicators to gather information about a particular species.

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

Exotic and Nuisance Species

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

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

In some cases, native wildlife may also pose management problems or nuisances within state parks. A nuisance animal is an individual native animal whose presence or activities create special management problems. Examples of animal species from which nuisance cases may arise include venomous snakes or raccoons and alligators that are in public areas. Nuisance animals are dealt with on a case-by-case basis in accordance with the DRP's Nuisance and Exotic Animal Removal Standard.

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

The most problematic exotic animal effecting Lake Manatee State Park is the feral hog *Sus scrofa*. This animal causes extensive soil disruption which in turn tears up natural plant communities. These rooted areas allow exotic plant species to become established without competition from native vegetation. In addition to disturbing the soil, hogs act as vectors for many invasive plants and spread seeds to newly uprooted areas. Although the park traps hogs, there is a continued environmental

impact from the presence of hogs in the park. The natural communities at the park would greatly benefit from the removal of this exotic animal. Other exotic animals within the park include the coyote (*Canis latrans*) and the nine-banded armadillo (*Dasypus novemcinctus*), both of which limit food availability and cause soil disruption throughout the landscape.

Current park staff has been proactive with controlling exotic plant species at the park. Only 23% (130 acres) of the park's total acreage is considered infested with exotic vegetation. Over the past 10 years, over 1,000 acres have been treated for exotic plants at Lake Manatee State Park. AmeriCorps has recently assisted park personnel with surveying and treating large areas of land with both spraying and hand pulling. The focus of exotic work is centered on cogon grass, downy rose-myrtle, rosary pea and Brazilian pepper, all of which can be found in every natural community within the park. The natural areas found in zones 1-4 have small, interspersed areas of exotic plants within natural communities. Downy rose-myrtle is the only real exception, and it occurs in zones 1B, 1E and 1H. Constant surveying and treatment should help control the population, and prevent future spreading. Zone 5 is different in that it has had long term soil disruption from agriculture. Large tracts of land are covered with exotics including bahiagrass (*Paspalum notatum*), cogon grass, climbing fern and dianella lily. Contractors funded by the FWC Upland Invasive Plant Program have been coordinated, and these highly infested acres will soon be treated with herbicide, mechanical treatment and fire.

It should be noted that dianella lily is not found anywhere else in Manatee County. It is possibly linked to mechanical treatment work at Highlands Hammock where the specie is present, then use of the same equipment at the park. A plan for phytosanitation of all equipment entering, exiting, or passing through the park should be instituted.

A species not included with FLEPPC, but is known to have an impact on the park is yerba de guava or hairy rattail (*Coccocypselum hirsutum*). This ground cover takes advantage of disturbed soil from hog rooting and covers large areas of the park. This plant should be treated as if it were listed on the FLEPPC list.

Laurel wilt, which was confirmed in Manatee County in 2013, has affected swamp bay trees (*Persea palustris*) in Lake Manatee State Park since February 2013. This disease is caused by the fungus *Raffaelea lauricola,* which is transferred to trees by the exotic redbay ambrosia beetle (*Xyleborus glabratus).* The fungus plugs the water-conducting cells of an affected tree and causes it to wilt. Most of the bay trees displaying signs of this fungus are located in zone 4A within the baygall community adjacent to the lake shoreline. Park staff should be careful to not move infected wood to other areas, to avoid further spread of this disease. Currently, the park does not have widespread laurel wilt, but this may increase significantly over the next ten years. Available treatments for trees are expensive and time consuming, therefore no management actions are currently being discussed.
Table 3 contains a list of the Florida Exotic Pest Plant Council (FLEPPC) Category I and II invasive, exotic plant species found within the park (FLEPPC 2011). The table also identifies relative distribution for each species and the management zones in

which they are known to occur. An explanation of the codes is provided following the table. For an inventory of all exotic species found within the park, see Addendum 5.

Table 3. Inventory of FLEPPC Category I and II Exotic Plant Species			
Species Scientific/Common	**FLEPPC Category**	**Distribution**	**Resource Management Zones**
Abrus precatorius Rosary Pea	I	1	LAM-1G
		2	LAM-1A, LAM-1G, LAM-3E, LAM-5A, LAM-5B, LAM-5C
		3	LAM-1A, LAM-1G
		4	LAM-1G, LAM-1A
Albizia julibrissin Mimosa	I	1	LAM-1G
		2	LAM-1D
Cinnamomum camphora Camphor-Tree	I	1	LAM-3D
		2	LAM-5A
Cupaniopsis anacardioides Carrotwood	I	2	LAM-5B
Dioscorea bulbifera Air-Potato	I	1	LAM-1H
		2	LAM-5A
		3	LAM-1H
Ficus microcarpa Laurel Fig	I	1	LAM-1C
Imperata cylindrica Cogon Grass	I	1	LAM-1B
		2	LAM-1G, LAM-4B, LAM-1H, LAM-1F, LAM-1D, LAM-1C, LAM-1B, LAM-2
		3	LAM-3B, LAM-5A, LAM-5B, LAM-4A, LAM-3E, LAM-3D,

Table 3. Inventory of FLEPPC Category I and II Exotic Plant Species			
			LAM-1F, LAM-1E, LAM-1D, LAM-1C, LAM-1A, LAM-1B, LAM-5C, LAM-1G
		4	LAM-1F, LAM-5C, LAM-5B, LAM-4B, LAM-4A, LAM-3E, LAM-3B, LAM-1G, LAM-1D, LAM-1A, LAM-2
		5	LAM-1D, LAM-4B, LAM-1G, LAM-1B, LAM-1A, LAM-4A, LAM-1C
		6	LAM-1B, LAM-1C
Lantana camara Lantana	I	2	LAM-5A, LAM-5B, LAM-5C
Ludwigia peruviana Peruvian Primrosewillow	I	2	LAM-4B, LAM-1D, LAM-1F
Lygodium japonicum Japanese Cimbing Fern	I	1	LAM-1D
		2	LAM-1C, LAM-1D, LAM-4A, LAM-5A, LAM-5B, LAM-5C, LAM-1A
		3	LAM-1H, LAM-4A
		4	LAM-1H, LAM-1F, LAM-4A
		5	LAM-1A
Lygodium microphyllum Old World Climbing Fern	I	2	LAM-5A
Melinis repens Natal Grass	I	2	LAM-3B, LAM-5A, LAM-5B
		3	LAM-3B, LAM-5A, LAM-5C
		4	LAM-3C

Table 3. Inventory of FLEPPC Category I and II Exotic Plant Species			
		6	LAM-3B, LAM-3C, LAM-1F
Panicum repens Torpedo Grass	I	2	LAM-1H
Psidium cattleianum Strawberry Guava	I	2	LAM-5C
		3	LAM-5A
		4	LAM-1D
Psidium guajava Guava	I	2	LAM-5C, LAM-5A, LAM-5B
Rhodomyrtus tomentosa Downy Rose-Myrtle	I	1	LAM-1D
		2	LAM-1H, LAM-1G, LAM-1C, LAM-1D, LAM-1E, LAM-1A
		3	LAM-1H, LAM-1B
		4	LAM-1E
Sapium sebiferum Chinese Tallow Tree	I	1	LAM-1E
		2	LAM-1E
Schinus terebinthifolius Brazilian Pepper	I	1	LAM-1C, LAM-3E, LAM-1G
		2	LAM-1H, LAM-1A, LAM-1B, LAM-1C, LAM-1G, LAM-2, LAM-3B, LAM-3E, LAM-4A, LAM-4B, LAM-5A, LAM-5B, LAM-1D, LAM-3D
		3	LAM-1D, LAM-1G, LAM-1C, LAM-5C
		4	LAM-1B, LAM-3D, LAM-1G, LAM-1F, LAM-1D
Solanum viarum Tropical Soda Apple	I	2	LAM-1E

Table 3. Inventory of FLEPPC Category I and II Exotic Plant Species			
Urena lobata Caesar's Weed	I	1	LAM-1B, LAM-1A
		2	LAM-1E, LAM-5B, LAM-5A, LAM-4A, LAM-1A, LAM-1B
		3	LAM-1H, LAM-1E
Melinis minutiflora Molasses Grass	II	2	LAM-2, LAM-4B, LAM-4A
Panicum maximum Guinea Grass	II	1	LAM-4A
		2	LAM-2, LAM-1H, LAM-3E
		3	LAM-3E
		4	LAM-1B, LAM-3E, LAM-3C, LAM-3B
		6	LAM-1H, LAM-2

Distribution Categories:

0 No current infestation: All known sites have been treated and no plants are currently evident.
1 Single plant or clump: One individual plant or one small clump of a single species.
2 Scattered plants or clumps: Multiple individual plants or small clumps of a single species scattered within the gross area infested.
3 Scattered dense patches: Dense patches of a single species scattered within the gross area infested.
4 Dominant cover: Multiple plants or clumps of a single species that occupy a majority of the gross area infested.
5 Dense monoculture: Generally, a dense stand of a single dominant species that not only occupies more than a majority of the gross area infested, but also covers/excludes other plants.
6 Linearly scattered: Plants or clumps of a single species generally scattered along a linear feature, such as a road, trail, property line, ditch, ridge, slough, etc. within the gross area infested.

Cultural Resources

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

in the National Register of Historic Places. The terms archaeological site, historic structure or historic landscape refer to all resources that will become 50 years old during the term of this plan.

Condition Assessment

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

Level of Significance

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

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

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

<u>Prehistoric and Historic Archaeological Sites</u>
Desired future condition: All significant archaeological sites within the park that represent Florida's cultural periods or significant historic events or persons are preserved in good condition in perpetuity, protected from physical threats and interpreted to the public.

Description: As of right now, Lake Manatee State Park does not contain any known prehistoric or historic archaeological sites. Although none have been identified, it is possible that they exist due to the parks high elevation and proximity to fresh water. Several archeological sites have been found along the northeastern shore of Lake Manatee (i.e., Florida Master Site File sites Ma830, Ma831, Ma832), but nothing within the park boundaries. Unspecified aboriginal lithics were collected from these sites, and were found in natural communities similar (Mesic flatwoods) to those found within Lake Manatee State Park.

An archaeological resource sensitivity model (predictive model) was completed for Lake Manatee in 2014 by the University of South Florida, Alliance of Integrated Spatial Technologies (AIST). The model identified areas of high, medium and low cultural sensitivity in the park and can be used as a planning tool, along with other archaeological methods, to target survey areas and assist in land use planning.

It is predicted that there is low site occurrence probability at Lake Manatee State Park, and any expected sites are likely to be deeper than would be affected by planned activities (60–100 cm deep). It is possible that late paleo to early archaic occupants utilized the Manatee River drainage area which is now covered by the reservoir. Late archaic and latter Manasota have been documented at higher sea levels, but nothing has been identified yet on park property.

Historic Structures

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

Description: There are currently no historic structures found within Lake Manatee State Park. The oldest structures in the park, which include the shop, ranger station, park manager residence and picnic area, were constructed in 1977. These structures will need to be added to FMSF list of historic structures for the next management planning period.

Collections

Desired future condition: All historic, natural history and archaeological objects within the park that represent Florida's cultural periods, significant historic events or persons, or natural history specimens are preserved in good condition in perpetuity, protected from physical threats and interpreted to the public.

Description: The collections at Lake Manatee State Park are housed in the ranger station near the main entrance of the park. Most of the collection consists of taxidermically preserved wildlife that are viewable around the station, and are used as interpretive displays for the public. All taxidermies were either donated to the park or collected on park property and processed for long term preservation. Historical and archival photographs and documents are kept in the ranger station.

Two of the taxidermy animals held at the park are on loan from the District. Both a taxidermy bobcat and barred owl belong to the District 4 Office, but kept on permanent loan to Lake Manatee State Park for interpretive purposes. On the other side, plant samples from Lake Manatee are kept at the district office in the herbarium. These specimens will remain at district for research and reference purposes. Duplicate plant collections will also be brought from the park to the University of South Florida's Herbarium to be included in the Atlas of Florida Vascular Plants and species ID verification.

A small collection of animal skulls that were collected on park property are kept with the collections in the ranger station. These skulls are used alongside the taxidermy animals for educational purposes.

Condition Assessment: The park collections are in good condition, and are kept in a climate controlled facility. The ranger station, where the collections are held, is consistently monitored for water and insect damage. This area is also locked during the hours when park staff is not present. There are currently no threats to the park collection.

General Management Measures: A Scope of Collections Statement is needed at Lake Manatee. Because this park was acquired relatively recently, and has no known historical or cultural resources, the collection is small. By writing a scope of collections now, the park can avoid acquiring objects that do not pertain to the park's natural and potential historical resources. Also, an inventory of all current and future collection objects should be added, and documented in the PastPerfect program used by the state collection's manager.

Detailed management goals, objectives and actions for the management of cultural resources in this park are discussed in the Cultural Resource Management Program section of this component.

Resource Management Program

Management Goals, Objectives and Actions

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

While, the DRP utilizes the ten-year management plan to serve as the basic statement of policy and future direction for each park, a number of annual work plans provide more specific guidance for DRP staff to accomplish many of the resource management goals and objectives of the park. Where such detailed planning is appropriate to the character and scale of the park's natural resources, annual work plans are developed for prescribed fire management, exotic plant

management and imperiled species management. Annual or longer- term work plans are developed for natural community restoration and hydrological restoration. The work plans provide the DRP with crucial flexibility in its efforts to generate and implement adaptive resource management practices in the state park system.

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

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

Natural Resource Management

Hydrological Management

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

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

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

Action 1 Assess park's historical hydrology.
Action 2 Assess impacts of ditches.
Action 3 Develop a hydrological restoration plan.

Further hydrological studies of the park's current surface water features, including ditches and depression marshes, need to be conducted. Historical sheet flow of the property needs to be determined, especially in zone 1G where flooding of the

campground commonly occurs and runoff from heavy rain events is ponded by the elevated roads that do not allow natural sheet flow. The feasibility of restoration needs to be determined and the impact of the restoration evaluated. Negative impacts such as flooding of developed areas should be assessed and mitigated if possible. A sequential and prioritized hydrological restoration plan should then be developed in the next 10 years and used as a tool to aid park management in the restoration of the park's hydrology.

Natural Communities Management

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

The DRP practices natural systems management. In most cases, this entails returning fire to its natural role in fire-dependent natural communities. Other methods to implement this goal include large-scale restoration projects as well as smaller scale natural communities improvements. Following are the natural community management objectives and actions recommended for the state park.

Prescribed Fire Management

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

All prescribed burns in the Florida state park system are conducted with authorization from the FDACS, Florida Forest Service (FFS). Wildfire suppression activities in the park are coordinated with the FFS.

Objective A: Within 10 years, have 488 acres of the park maintained within the optimum fire return interval.

Action 1 Develop/update annual burn plan

Action 2 Manage fire dependent communities by burning between 78 and 173 acres annually.

Table 4 contains a list of all fire-dependent natural communities found within the park, their associated acreage and optimal fire return interval, and the annual average target for acres to be burned.

Table 4. Prescribed Fire Management		
Natural Community	**Acres**	**Optimal Fire Return Interval (Years)**
Sandhill	7	1-3
Mesic Flatwoods	230	2-4
Scrub	94	5-20
Sand Pine Scrub	56	20-40
Depression Marsh	5	2-4
Wet Flatwoods	34	3-5
Scrubby Flatwoods	62	4-15
Annual Target Acreage*	78-173	

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

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

Preparation and planning for wildfires or escaped prescribed burns within the park should also be a component of the park's prescribed burn plan. Preferred fire suppression techniques and guidelines should be identified and discussed with the local FFS staff prior to the need for fire suppression within the park. Sensitive resources such as wetlands, imperiled species and cultural sites should be identified and mapped and that information conveyed to FFS prior to any suppression activities.

In developing prescribed burn plans for the fire-adapted communities in the park, every effort should be made to mimic natural fire regimes in both timing and technique.

In most natural fires, flank fires and head fires probably burned the majority of acreage. Care should be taken during prescribed burns to avoid creating the hot spots that occur when two fire lines rapidly converge. To minimize the intensity of the fire convergence, narrow strip-head fires, point source ignition fires or flanking fires are preferred over a single backing fire that converges with a head fire.

Season and return interval are both critical components of a fire regime. In most cases after initial fuel reduction burns have been completed during the non-growing season, all burns should then be conducted during the natural lightning season, given staffing and weather constraints. However, non-growing season burns are favorable over allowing a zone to become backlogged.

Wet flatwoods burn intervals should match those of the surrounding communities, and the annual targeted burn for wet flatwoods is 7-11 acres. In zones where this community is present, mesic flatwoods borders the wet flatwoods. Fire should be allowed to carry through, or extinguish naturally if there are not enough fuels or the ground is too wet. Many factors will dictate whether this community will burn, including soil moisture, groundwater levels, weather and plant size. FNAI advises that long fire return intervals (5-10 years) increases woody species and reduces grasses and forbs. Ideally, fires in the growing season will reduce the stature of woody vegetation and hardwoods, and promote flowering of herbaceous groundcover.

For areas identified as sandhill, frequent low intensity fires are critical for management. Burns should be alternated between growing season and non-growing season to promote growth of diverse grass species. Excess fuel increases fire intensity, resulting in high pine mortality and disturbing the soil's seed bank. Mechanical treatment should also be avoided as much as possible to prevent the establishment of weedy species. Burning sandhill on 1-3 year intervals is optimal, but combining sandhill burns with mesic flatwoods burns would simplify scheduling. The annual targeted burn area for sandhill is 3-7 acres.

The target fire return interval for the mesic flatwoods is 2-4 years. To remain current, 58-115 acres of mesic flatwoods should be burned each fiscal year. Variousspecies depend on the mesic flatwoods community, including Gopher tortoises (especially hatchlings and juveniles), which depend on the diverse herbaceous component maintained by frequent fire. The growth response of grasses and forbs following prescribed fire provide an ideal food source of succulent, low growing vegetation. Imperiled plants such as pine lily depend on fire to reduce the competition of larger perennial species, as well as the nutrient cycling that results from regular burning.

Scrub and sand pine scrub communities at Lake Manatee State Park are treated very differently for prescribed fire. For oak-dominated scrub, the return interval is shorter and can be burned in conjunction with the scrubby flatwoods interval of 5-20 years. For these areas of scrub intermixed with scrubby flatwoods and mesic flatwoods, burn strategy will be based on the dominant community type natural community.

Depression marshes at the park are interspersed within mesic flatwoods, and will be burned as often as the mesic flatwoods community that surrounds them. Fire is critical to depression marshes to reduce the build-up of thatch and prevent colonization by woody and undesirable species. A number of wading and songbirds, as well as amphibians and insects, depend on depression marshes for seasonal feeding, resting and breeding. The depression marsh located in zone 1C will be difficult to burn due to its location within non fire-type communities such as successional hardwood forest.

Perimeter and internal firebreaks should be maintained and established according to policy. They should provide for adequate park protection and safe prescribed fire

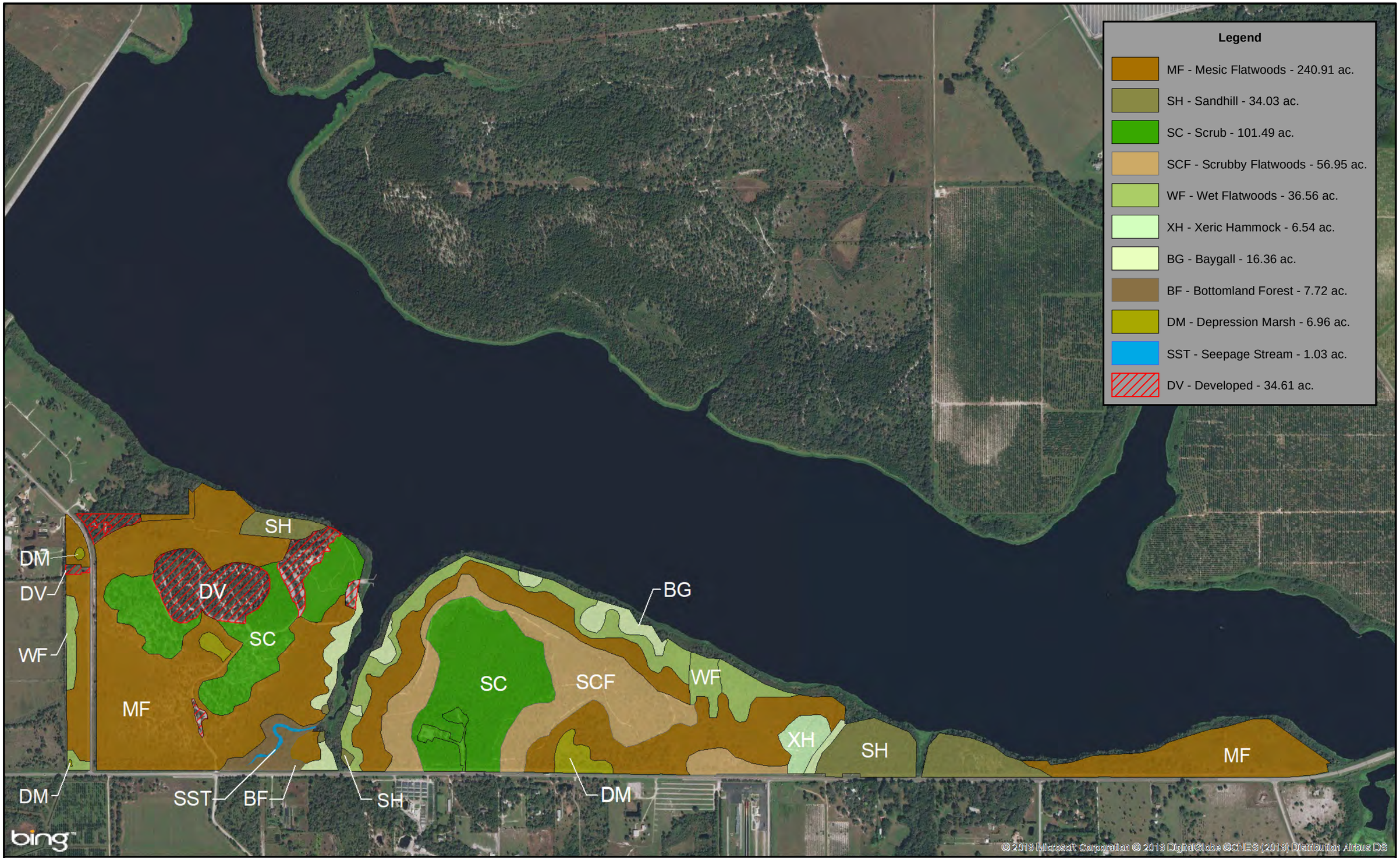
application. The complexity of the burn unit including the structure and height of the fuel within the zone and the receptiveness of fuels adjacent to the zone should be taken into account when preparing the firebreaks. Fire lines twice as wide as the adjacent fuel heights is a general guideline for fire line preparation (10-footfoot fuel heights adjacent to line call for 20-foot wide firebreak). Mechanical treatment of fuels adjacent to the firebreak may be needed to burn the zone safely. Perimeter lines need to be wide enough for defense and to allow a type 6 fire engine to move safely down the line. When widening the firebreaks, the vegetation along the boundary/fence line should be removed first to allow the perimeter break to function as such (the presence of wetlands, large native trees or protected plant species that pose no line defense threat may be an exception). Any additional widening can then be made on the zone side of the firebreak. It is important that the results of management practices be monitored. Post burn evaluations, that include review of established photo points, should be conducted to determine progress towards restoration goals and if adaptations to management practices are needed.

Management with fire is not only necessary for maintaining natural communities for plants, it is also necessary for many animal species. Imperiled species such as gopher tortoises and Eastern diamondback rattlesnakes require a landscape that is relatively open and easy to transverse in order to find food and mating partners. Animals such as the endemic scrub-jay will only use scrub communities kept in an early successional state by fire. Other birds such as hawks, and caracara require open, fire maintained areas to successfully hunt prey. Without fire management, biodiversity would be reduced.

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

Natural Community Restoration

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



LAKE MANATEE STATE PARK

N

0 0.25 0.5 1 Miles

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

NATURAL COMMUNITIES MAP
DESIRED FUTURE CONDITIONS

Examples that would qualify as natural community restoration, requiring annual restoration plans, include large mitigation projects, large-scale hardwood removal and timbering activities – roller-chopping and other large-scale vegetative modifications. The key concept is that restoration projects will go beyond management activities routinely carried out as standard operating procedures, such as routine mowing, reintroduction of fire as a natural process, spot treatments of exotic plants and small-scale vegetation management.

Following are the natural community/habitat restoration and maintenance actions recommended to create the desired future conditions in the successional hardwood forest community (see Desired Future Conditions Map).

Objective B: Conduct habitat/natural community restoration activities on 16 acres of successional hardwood forest community.

Action 1 Develop/update site specific restoration plan
Action 2 Begin implementation of restoration plan

The area in zone 5A marked as Successional Hardwood Forest was at one point an orange grove (earliest photography dated 1940). The area is now significantly overgrown and infested with exotic and weedy species. Observing that the soils are similar to the xeric hammock adjacent to this disturbed community, it is likely that 5A previously contained scrub. Since this abandoned orange grove is adjacent to excellent xeric hammock, the xeric plant species may be suitable seed sources for restoration.

The 16 acres included in the restoration project may include hardwood removal, mechanical treatment and burning to remove the overwhelming amount of vegetation. Exotic treatment would need to follow burning to avoid monocultures of cogongrass and natalgrass in this area. Monitoring should be done monthly to see which plants emerge after clearing the land, and to assess what community type was present before agriculture.

It is possible that the soil has been disturbed beyond feasible restoration. If this is the case, management may plan to maintain an open, exotic-free area for recreational purposes and classify the area as developed.

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

Objective C: Conduct natural community/habitat improvement activities on 46 acres of Abandoned Pasture.

Action 1 Develop/update site specific natural community improvement plan.
Action 2 Implement improvement plan.

The 46 acres located in zones 5B and 5C are considered abandoned pasture. Past uses of this land have included tomato farming and cattle grazing. A long history of disturbance is evident. Isolated small areas of sandhill and mesic flatwoods remain and can act as seed sources. More plantings from outside sources could help to establish a healthy natural community.

Hardwood removal in these areas should be the first step to assessing what community types should exist. Once tree density is reduced, sporadic burns occurring within the 2-4 year interval cycle should produce plants that are indicative of the natural community type. If plant recruitment does not clearly demonstrate the site's natural community type, land managers should use soil maps to guide replantings.

It is noteworthy that in zone 5B, Manasota pawpaw is found along with other sandhill-specific species. In this area and surrounding locations, park staff should look to replant longleaf pines and wiregrass to reestablish the former sandhill community.

In some areas, especially zone 5C, there are leftover concrete roads and a gravel base for an old FWC radio tower site. These areas should be assessed for potential land uses.

Imperiled Species Management

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

The DRP strives to maintain and restore viable populations of imperiled plant and animal species primarily by implementing effective management of natural systems. Single species management is appropriate in state parks when the maintenance, recovery or restoration of a species or population is complicated due to constraints associated with long-term restoration efforts, unnaturally high mortality or insufficient habitat. Single species management should be compatible with the maintenance and restoration of natural processes, and should not imperil other native species or seriously compromise park values.

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

Ongoing inventory and monitoring of imperiled species in the state park system is necessary to meet the DRP's mission. Long-term monitoring is also essential to ensure the effectiveness of resource management programs. Monitoring efforts

must be prioritized so that the data collected provides information that can be used to improve or confirm the effectiveness of management actions on conservation priorities. Monitoring intensity must at least be at a level that provides the minimum data needed to make informed decisions to meet conservation goals. Not all imperiled species require intensive monitoring efforts on a regular interval. Priority must be given to those species that can provide valuable data to guide adaptive management practices.

Objective A: Develop/Update baseline imperiled species occurrence inventory lists for plants and animals.

Objective B: Monitor and document one selected imperiled animal species in the park.

Action 1 Follow FWC monitoring protocols for one imperiled animal species to estimate the gopher tortoise population at the park.

The only animal species identified for increased monitoring is the gopher tortoise. This is based on the resources available to the park and the amount of ideal habitat for this imperiled species. FWC's Gopher Tortoise Management Plan will help guide management actions, and the FWC line transect distance sampling survey protocols will be used to estimate the tortoise population. Park staff hopes to team up with local colleges to have students perform the monitoring.

Objective C: Monitor and document 4 selected imperiled plant species in the park.

Action 1 Develop monitoring protocols for 4 selected imperiled plant species including Manasota pawpaw.

Action 2 Implement monitoring protocols for 4 imperiled plant species including those listed in Action 1 and Florida goldenaster, garberia and longbristle beaksedge.

Four plant species have been identified for monitoring three of which already have monitoring protocols in place. These plants were picked because of their small native ranges within Florida. Longbristle beaksedge and the Manasota pawpaw are only found in two counties. Therefore, monitoring these species is a priority for park service personnel. Manasota pawpaw does not yet have a monitoring protocol as it was only recently identified. It will most likely be lumped in with the other three species protocol - annually recording presence/absence and estimating population every three years.

In the past, park staff has worked with Bok Tower Gardens Rare Plant Conservation Program to conduct research on the Florida goldenaster, and maintain genetic diversity of this imperiled plant. The park expects to continue working with Bok Tower in the future for goldenaster and other imperiled plants. As for monitoring, USFWS, FNAI, FDACS and DRP district staff have worked with these imperiled plants in the past. Currently, park staff and Bok Tower are the only major groups monitoring for imperiled species at Lake Manatee State Park.

Exotic Species Management

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

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

Objective A: Annually treat 21 acres of exotic plant species in the park.

- Action 1 Annually develop/update exotic plant management work plan.
- Action 2 Implement annual work plan by treating 21 acres in the park, annually, and continuing maintenance and follow-up treatments, as needed.
- Action 3 Pursue grant funding to remove exotics and increase herbicide bank.

Staff should annually treat 21 acres of infested acres at Lake Manatee State Park. Follow-up treatments should include visits to treatment areas 3-4 weeks after the use of herbicide to assess plant die off rates. By revisiting areas after treatment, park staff will have a higher success rate of removing exotics for longer periods of time. After the initial die-off, park staff should revisit treated areas within 6 months of treatment to retreat as needed. Areas where trees are felled should be cleared of remaining wood or left in such a manner that re-rooting will not occur. Monitoring of all natural communities should be conducted yearly to assess the progress and spread of different exotics. Exotic species surveys required for the exotics database should be reevaluated every two years to remain recent. Park staff should also work with local CISMA groups and become involved in workdays at other state parks in Manatee County.

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

- Action 1 Establish baseline data of hog populations at park and set annual removal goals.
- Action 2 Pursue USDA or other hog removal contracts and continue in-house trapping to reduce the hog population.

No research has been conducted at Lake Manatee State Park to assess the hog population. By understanding the population size and distribution, park staff can better manage the issue. With the help of USDA and potential volunteer trappers, park staff could minimize the impact of this exotic animal.

Cultural Resource Management

Cultural resources are individually unique, and collectively, very challenging for the public land manager whose goal is to preserve and protect them in perpetuity. The DRP will implement the following goals, objectives and actions, as funding becomes available, to preserve the cultural resources found in Lake Manatee State Park.

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

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

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

Action 1 Ensure all known sites are recorded or updated in the Florida Master Site File.

Action 2 Develop and adopt a Scope of Collections Statement.

An archaeological resource sensitivity model (predictive model) was completed for the park in 2014 by the University of South Florida, Alliance of Integrated Spatial Technologies (AIST). The model identified areas of high, medium and low cultural sensitivity in the park and can be used as a planning tool, along with other archaeological methods, to target survey areas and assist in land use planning.

Lake Manatee State Park is in need of adopting a scope of collections. As a small and relatively newer park, a scope of collections may help to minimize accumulation of unwanted items by defining the types of items that are generally relevant to and representative of the park's unique natural and cultural features. Park staff should work with the collections manager to create and implement a scope of collections statement.

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 DRP's statutory responsibilities and an analysis of the park's resource needs and values. The long-term management goal for forest communities in the state park system is to maintain or re-establish old-growth characteristics to the degree practicable, with the exception of those communities specifically managed as early successional.

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

In 2010, Lake Manatee State Park conducted a sand pine harvest that removed trees across 82 acres of park property. Trees were removed from zones 1F, 3A, 3B, 3C, 3D and 4B. Within these zones, the thinning helped to restore pine densities to scrub, scrubby flatwoods and mesic flatwoods. This also helped to reduce the hazards associated with wildfire.

Arthropod Control Plan

Lake Manatee State Park adopted an arthropod control plan in July 1987. This plan allows for the use of *Bacillus thuringiensis israelensis* (BTI) application, ground adulticiding and the placement of larvae eating fishes such as *Gambusia*.

In the past 20 years, the director of Manatee County Mosquito Control has treated mosquitos within the park only one time. A *Bacillus sphaericus* formulation was used at a wastewater treatment tank to control *Culex spp.* in 2006. The county utilizes aerial spraying in the rural residential areas to the south and west of the park, including the Bradenton Motorsports Park, but does not include the Lake Manatee State Park property in the spray zones. Aerial spraying of the adjacent areas is typically in response to high mosquito populations as indicated by mosquito traps close to the Bradenton Motorsports Park, and just south of Lake Manatee State Park on County Road 675. The only time aerial spraying would occur within and over the park lands would be during a significant disease outbreak (a declared health threat/emergency by the State of Florida), and that would only be done through prior consultation with the District Office.

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

Sea Level Rise

Potential sea level rise is now under study and will be addressed by Florida's residents and governments in the future. The DRP will stay current on existing research and predictive models, in coordination with other DEP programs and federal, state and local agencies. The DRP will continue to observe and document changes that occur to the park's shorelines, natural features, imperiled species populations and cultural resources. This ongoing data collection and analysis will inform the DRP in its adaptive management response to future conditions, including the effects of sea level rise, as they develop.

Within the ten-year planning period of this management plan, however, sea level rise is not anticipated to directly affect the natural or cultural resources of Lake Manatee State Park or its recreation facilities and infrastructure.

Additional Considerations

Lake Manatee State Park and District staff are currently discussing the possible addition of submerged lands adjacent to and/or in Poley Branch. This is a drainage area that feeds into Lake Manatee from the south, and bisects zones 1 and 2. Management would like to see a boardwalk that would connect the now separate sections of the park with a walking trail. Since Lake Manatee is a drinking water supply and is owned entirely by Manatee County, the lake contains no sovereign submerged land. In order to build new structures on or over any part of the lake or drainage areas, management must work with Manatee County staff to resolve land use agreements.

Resource Management Schedule

A priority schedule for conducting all management activities based on the purposes for which these lands were acquired, and to enhance the resource values, is located in the Implementation Component of this management plan.

Land Management Review

Section 259.036, Florida Statutes, established land management review teams to determine whether conservation, preservation and recreation lands titled in the name of the Board of Trustees are being managed for the purposes for which they were acquired and in accordance with their approved land management plans. Recommendations of the land management review team were considered and corresponding plans updated accordingly.

Lake Manatee State Park was subject to a land management review on December 18, 2007. The review team made the following determinations:

- The land is being managed for the purpose for which it was acquired.
- The actual management practices, including public access, complied with the management plan for this site.

LAND USE COMPONENT

Introduction

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

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

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

External Conditions

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

Lake Manatee State Park is located within Manatee County, about 15 miles east of Bradenton and Sarasota in the southwest part of the state. Approximately 1,170,000 people live within 30 miles of the park (U.S. Census 2010). According to U.S. Census data (2010), approximately 18% of residents in Manatee County identify as black, Hispanic or Latino, or another minority group. About 59% of the population is of working age, which is defined as being between 16 and 65 years old (U.S. Census 2010). Manatee County ranked 16th statewide in per capita personal income at $43,121, below the statewide average of $44,429 (U.S. Bureau of Economic Analysis 2015).

The table below identifies significant resource-based recreation opportunities within 15 miles of Lake Manatee State Park.

Table 5. Resource-Based Recreational Opportunities Near Lake Manatee State Park

Name	Biking	Hiking	Swim / Beach Access	Boating / Paddling	Fishing	Wildlife Viewing	Overnight Stay	Hunting	Equestrian Facilities
Rye Preserve (Manatee County)	✓	✓		✓	✓	✓	✓		✓
Little Manatee River State Park (FDEP)	✓	✓		✓	✓	✓	✓		✓
Little Manatee River – Upper, Southfork, Lower Tracts (SWFWMD)	✓	✓		✓	✓	✓	✓		
Edward Chance Reserve (SWFWMD)	✓					✓			
Duette Preserve (Manatee County)	✓	✓			✓	✓	✓	✓	✓
Myakka River State Park (FDEP)	✓	✓		✓		✓	✓		
Crowley Museum and Nature Center (Private)		✓					✓		

The park is located in the Southwest Vacation Region, which includes Charlotte, Collier, DeSoto, Glades, Hendry, Lee, Manatee, and Sarasota counties (Visit Florida 2014). According to the 2014 Florida Visitor Survey, approximately 9.6% of domestic visitors to Florida visited this region. Roughly 95% visitors to the region traveled to the Southwest for leisure purposes. The top activities for domestic visitors were beach/waterfront, followed by culinary experiences and visiting friends or relatives. Winter was the most popular travel season followed closely by Spring. Most visitors traveled by non-air (62%), reporting an average of 5.4 nights and spending an average of $140 per person per day including transportation (Visit Florida 2014).

Florida's Statewide Comprehensive Outdoor Recreation Plan (SCORP) indicates that participation rates in this region for saltwater beach activities, saltwater (boat and non-boat) fishing, saltwater boat-ramp use, freshwater non-boat fishing, canoeing and kayaking, visiting archaeological and historic sites, wildlife viewing, bicycle riding, hiking, picnicking, and camping are higher than the state average with demand for additional facilities increasing through 2020 (FDEP 2013).

Existing Use of Adjacent Lands

Lake Manatee State Park is bound to the north and east by Lake Manatee and to the south by State Road 64. Most the land surrounding Lake Manatee State Park is used for agricultural purposes, but a few parcels around the park are used for other purposes. To the west, a water treatment plant is adjacent to the dam that creates Lake Manatee. South of State Road 64, a low-density residential neighborhood, motorsports track, and Montessori school are located in the immediate vicinity of the park.

Planned Use of Adjacent Lands

Manatee County has established a future development area boundary, also known as an urban growth boundary. This boundary runs along the western edge of Lake Manatee and signifies an intention to concentrate new/major development west of the urban growth boundary. Within this boundary near the park's western edge, Manatee County's future land use map indicates that land previously used for agricultural purposes will be zoned to allow for the conversion of farm land to mixed-use and urban fringe land uses. Suburban neighborhoods are currently in the process of being developed and will continue into the future. The mixed-use future land use designations are immediately southwest of the park boundary, and this district will be meant to serve the urban fringe and suburban neighborhoods to the west of the park. Given these designations, it can be expected that the residential population surrounding the park will increase. Therefore, park visitation may also increase as a result.

East of the future development area boundary, Manatee County has designated all of the land surrounding the park and north of Lake Manatee as agriculture/rural. Agriculture and low-density residential are allowable uses in this district. In addition to this agriculture/rural designation, the Lake Manatee Watershed overlay has also been established. The park property, as well as areas to the north, east, and south of Lake Manatee, is included in this overlay. The goal of the watershed overlay is the protection of surface and groundwater resources (Manatee County Comprehensive Plan 1998). The DRP should work with Manatee County to ensure park facilities are compliant with water quality standards.

The table below identifies the zoning and future land use designations for parcels in Manatee County that are adjacent to Lake Manatee State Park.

Table 6. Zoning and Future Land Use Designations for Manatee County*				
Future Land Use Designation	**Allowable Uses**	**Maximum Density (Dwelling Units per Acre)**	**Maximum Intensity (Floor Area Ratio)**	**Other Noteworthy Considerations**
Agriculture Rural (AG/R)	Agriculture, rural residential, mining, agro-industry	0.2 du/acre	0.23 FAR	Commercial activities limited to those supporting agriculture activities
Mixed Use Community (MU-C)	Retail, wholesale, office, light industry, residential, recreation facilities, community services	Maximum: 9 du/acre Minimum: 6 du/acre	1.0 FAR	Mixed uses meant to function as market place for neighborhoods and local communities
Public/Semi Public (P/SP-1)	Landfills, water treatment, maintenance facilities, solid waste transfer, utility transmission	N/A	N/A	Subject to approval
Residential (RES-1)	Residential, neighborhood retail uses, professional services, recreation facilities	1 du/acre	0.23 FAR	Potential secondary uses generally limited to neighborhood retail
Urban Fringe (UF-3)	Higher density residential uses, suburban communities	3 du/acre	0.23 FAR	Neighborhood retail uses and wholesale uses are not allowed

*Manatee County. 1998. Manatee County Comprehensive Plan 1998. Manatee County, Florida.

Florida Greenways and Trails System (FGTS)

The Florida Greenways and Trails System (FGTS) is made up of existing, planned and conceptual non-motorized trails and ecological greenways that form a connected, integrated statewide network. The FGTS serves as a green infrastructure plan for Florida, tying together the greenways and trails plans and planning activities of communities, agencies and non-profit organizations throughout Florida. Trails include paddling, hiking, biking, multi-use and equestrian trails. The Office of Greenways and Trails maintains a priority trails map and gap analysis for the FGTS to focus attention and resources on closing key gaps in the system.

In some cases, existing or planned priority trails run through or are adjacent to state parks, or they may be in close proximity and can be connected by a spur trail. State parks can often serve as trailheads, points-of-interest, and offer amenities such as camping, showers and laundry, providing valuable services for trail users while increasing state park visitation.

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.

Recreational Resource Elements

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

Land Area

Lake Manatee State Park contains 548.78 acres and is adjacent to the Lake Manatee reservoir. Topography of the site is characteristic of the coastal lowlands of western Florida. Two creeks, which flow northward through the park, physically separate the property into three segments. Plant communities at the park include scrub, mesic flatwoods, depression marsh, baygall, and xeric hammock. Except for the last two these are fire maintained communities. At Lake Manatee State Park, the scrub, mesic flatwoods, and xeric hammock communities offer the greatest opportunities for outdoor recreation. These communities contain sufficient uplands for recreational activities such as

camping, hiking, picnicking, and horseback riding. The recreational potential of the remaining plant communities is limited to nature study and appreciation of their natural beauty. Each of these plant communities has different functions, values, and limitations for development.

Water Area

The most significant water feature associated with the park is the Lake Manatee reservoir, which is the focal point for much of the parks recreational appeal. Because Lake Manatee is the water source for the surrounding area, special consideration must be given to preventing its contamination. The park maintains a small swimming area which is the only place where swimming is allowed in the Lake. Fishing is popular in Lake Manatee and boats are limited to 20 horsepower or less. The boat ramp within the park provides visitors with access into Lake Manatee. This lake is maintained primarily as a reservoir and water sports are limited to those listed above.

Shoreline

The State Park has approximately 13,200 linear feet of shoreline along Lake Manatee. Only a small portion of the shoreline is readily accessible to park visitors. Although most of the land surrounding the shoreline is suitable for pedestrian access, it would not be advisable to encourage additional activity along the shoreline since this reservoir is the water source for the surrounding area. The two creeks, which run through the property, act as barrier to those persons who might wish to walk along the total length of shoreline in the park.

Natural Scenery

Although there are no outstanding visual amenities associated with the park, the lake and shoreline are attractive and could be considered focal points. The dominant vegetation at Lake Manatee is associated with the scrub and flatwoods communities. Although there is a natural beauty connected with these plant communities, it may be overlooked by the casual observer.

Significant Habitat

Although many species of wildlife have been observed in the park, the amount of available habitat is relatively small. Much of the wildlife currently observed here depends heavily on undeveloped adjacent tracts. As these areas are developed, wildlife densities will probably decrease. This will, in turn, decrease opportunities for visitors to engage in wildlife observation as a recreational activity.

Archaeological and Historical Features

There are no known archaeological or historical features within the park. However, it is highly likely that archaeological sites are present, considering the cultural prehistory of the region and the park's topographic setting.

Assessment of Use

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

Past Uses

The state acquired the property for Lake Manatee State Park from Manatee County in 1970. Before the county acquired the property, it was used as a ranch for raising cattle.

Future Land Use and Zoning

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

The future land use designation for the park is Recreation-Open Space (R-OS). The zoning designation for the park is Conservation (CON). This designation is intended to preserve and protect large areas of open space, vegetative habitat, natural drainage systems, aquifer recharge areas, soils, and wildlife habitats located on public property or on privately-held lands as desired by the property owner. Conservation lands are intended primarily for the purpose of preserving natural resources. Support structures which are incidental to the operation and management of the park are allowed by the future land use and zoning designations (Barrett 2017).

Current Recreational Use and Visitor Programs

The existing forms of recreation at Lake Manatee State Park include camping, hiking, horseback riding, bicycling, picnicking, swimming, fishing, paddling, and boating. The park offers a variety of interpretive programs to provide information about the park's wildlife and natural habitats.

Lake Manatee State Park recorded 60,819 visitors in FY 2015/2016. By DRP estimates, the FY 2015/2016 visitors contributed $5.5 million in direct economic impact, the equivalent of adding 89 jobs to the local economy (FDEP 2016).

Other Uses

The county maintains Lake Manatee as a reservoir, supplying water to the surrounding area. The property is subject to a flooding easement of all lands between the 40 and 45-foot contours. Other than the boat ramp, there are no other park facilities affected by this flooding easement.

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 Lake Manatee State Park, all wetlands and floodplain as well as known imperiled species habitat have been designated as protected zones. The park's current protected zone is delineated on the Conceptual Land Use Plan.

Existing Facilities

The current recreation facilities at Lake Manatee State Park are in three areas within the western segment. The picnic/swimming area facilities include a small bathhouse, picnic shelter, picnic tables, cooking grills, paved parking and playground equipment. The camping area includes two loops of full facility campsites and centrally located bathhouses. The boating area facilities consist of a double boat ramp with docks and paved parking for vehicles with trailers. The park also contains about 4 miles of shared-use trail, providing opportunities for hiking, off-road bicycling, and horseback riding.

The support facilities at this park consist of a shop building, flammable storage building, two ranger residences, and entrance station (see Base Map).

Recreation Facilities

Lakeside Day Use Area
Picnic Pavilion – Picnic Tables/Grills
Bathhouse
Playground
Parking Area

Poley Branch Dock and Boat Ramp
Floating Dock
Boat Ramp
Parking Area

Gopher Trailhead
Parking Area
Picnic Area
Shared-Use Trail (4 miles)

Campground
Developed Campsites (60)
Bathhouse (2)

Support Facilities

Residence/Shop Area
Staff Residence (2)
Shop
Flammable Storage
Storage (4)
Volunteer Campsites (2)

Entrance area
Ranger Station

Conceptual Land Use Plan

The following narrative represents the current conceptual land use proposal for this park. The conceptual land use plan is the long-term, optimal development plan for the park, based on current conditions and knowledge of the park's resources, landscape and social setting (see Conceptual Land Use Plan). The conceptual land use plan is modified or amended, as new information becomes available regarding the park's natural and cultural resources or trends in recreational uses, in order to adapt to changing conditions. Additionally, the acquisition of new parkland may provide opportunities for alternative or expanded land uses. The DRP develops a detailed development plan for the park and a site plan for specific facilities based on this conceptual land use plan, as funding becomes available.

During the development of the conceptual land use plan, the DRP assessed the potential impact of proposed uses or development on the park resources and applied that analysis to determine the future physical plan of the park as well as the scale and character of proposed development. Potential resource impacts are also identified and assessed as part of the site planning process once funding is available for facility development. At that stage, design elements (such as existing topography and vegetation, sewage disposal and stormwater management) and design constraints (such as imperiled species or cultural site locations) are investigated in greater detail. Municipal sewer connections, advanced wastewater treatment or best available technology systems are applied for on-site sewage disposal. Creation of impervious surfaces is minimized to the greatest extent feasible in order to limit the need for stormwater management systems, and all facilities are designed and constructed using best management practices to limit and avoid resource impacts. Federal, state and local permit and regulatory requirements are addressed during facility development. 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, park staff monitors conditions to ensure that impacts remain within acceptable levels.

Potential Uses

Public Access and Recreational Opportunities

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

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

Objective: Maintain the park's current recreational carrying capacity of 1,380 users per day.

The park will continue to provide opportunities for camping, hiking, horseback riding, picnicking, boating, paddling, swimming, and fishing. Interpretive programs will continue to be offered.

Objective: Expand the park's recreational carrying capacity by 214 users per day.

Camping opportunities will be expanded with the development of a primitive group camping area. Fishing opportunities will be expanded with the addition of fishing docks along the shoreline of Lake Manatee. Picnicking opportunities will be enhanced with the provision of additional pavilions in the Lakeside Day Use Area. Horseback riding will be improved with the development of equestrian facilities at the Gopher Trailhead.

Objective: Continue to provide the current repertoire of 3 interpretive, educational and recreational programs on a regular basis.

The current interpretive programs offered at the park include ranger guided nature walks, an earth bingo game, and fishing clinics for children.

Objective: Develop 4 new interpretive, educational and recreational programs.

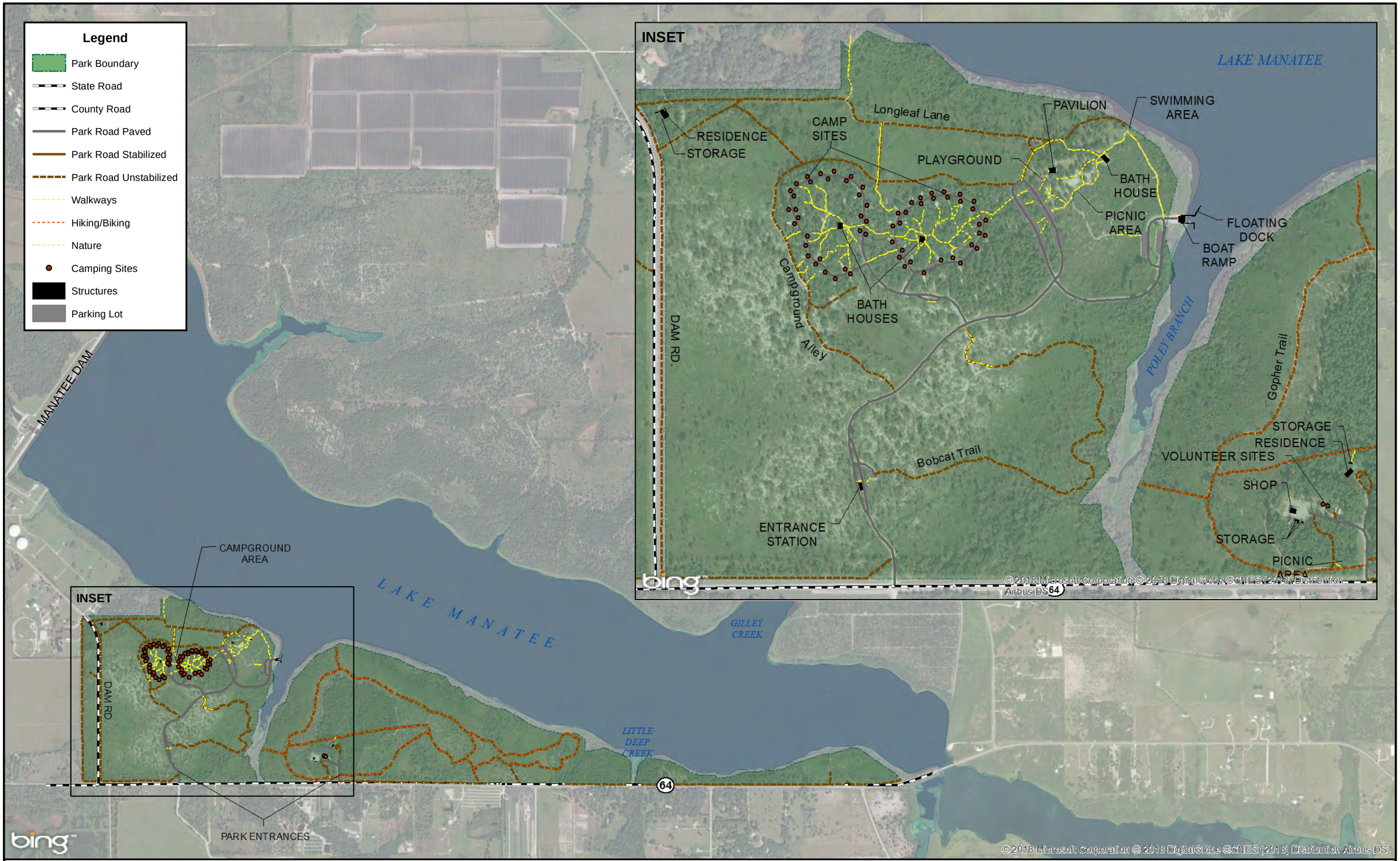
Proposed interpretive programs for the park include ranger guided canoe trips, campfire programs, how-to camping programs, and educational fishing programs.

Proposed Facilities

Capital Facilities and Infrastructure

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

The existing facilities of this state park are appropriate to the natural and cultural resources contained in the park and should be maintained. New construction, as discussed further below, is recommended to improve the quality and safety of the recreational opportunities, to improve the protection of park resources, and to streamline the efficiency of park operations.



LAKE MANATEE STATE PARK

N

0 0.25 0.5 1 Miles

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

BASE MAP

The following is a summary of improved and new facilities needed to implement the conceptual land use plan for Lake Manatee State Park:

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

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

Objective: Improve/repair 8 existing facilities, 600 feet of trail, and 0.25 miles of road.

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

Park Entrance
The ranger station will be replaced with a larger structure to increase staff workspace.

Lakeside Day Use Area
Picnicking opportunities will be increased with the addition of two picnic pavilions to supplement the main pavilion. The playground will be upgraded and improved. Walkways will be upgraded where necessary to improve accessibility.

Poley Branch Dock and Boat Ramp
A small permanent restroom will be provided to replace the portable facility. Shoreline fishing access will be improved along Poley Branch with the development of a floating dock parallel to the shoreline or with multiple short fishing piers (200 feet). Either alternative will connect to the existing Bobcat Trail. One small picnic pavilion with a grill will be added to the site with existing scattered picnic tables. An accessible paddling launch will be added to the existing floating dock. A canoe/kayak rental concession operation will be considered for boat ramp area.

Campground
Campsite flooding along the south ends of loops one and two will be mitigated. A hydrological study may be needed to determine the most effective alternative. The bathhouses in both loops will be upgraded or replaced. The addition of unisex restrooms and storage space for cleaning and maintenance supplies is recommended for both bathhouses. Up to four designated tent camping sites will be added to the campground to diversify the types of camping experiences in the park. The proposed location is an area between the two camping loops near the intersection of the loop drives.

Gopher Trailhead
This trailhead will be relocated to a site further to the east along Highway 64 to provide more space for equestrian activities. A new stabilized road will be provided for access. Facilities to be provided at the new location include a small restroom, potable water, and interpretive kiosk. A designated equestrian area will be developed as part of the new trailhead. This trailhead should be designed in an area that creates minimal-to-no impact to the surrounding natural communities. Stabilized parking for eight horse trailers will be provided. A shared-use trail will be developed to connect the trails in the eastern and western portions of the park. This connection will require the construction of a boardwalk/bridge across Poley Branch. The facilities at the existing Gopher Trailhead will be removed and the site restored.

Trails
Manatee County has identified the need to develop and implement a countywide, non-motorized, shared-use greenway trail network connecting to a regional system. Their greenway master plan identifies Lake Manatee State Park as an excellent trailhead due to the existing amenities that can support the trail system. The DRP will consider providing a linkage to the countywide greenways and trails network if requested by Manatee County.

Shop Area
The shop building will be replaced with a new 4-bay structure. A new 4 to 6-bay equipment shelter/pole barn will be provided.

Residence Area
The staff residence will be replaced at this site, which is located in the northwest corner of the park.

Objective: Construct 1 new facility.

Primitive Group Camp
A primitive group camp is proposed for a location in the northwest corner of the park, just north of the developed campground. The area will accommodate up to 30 campers. Visitors using this area can utilize existing facilities in the developed campground.

Facilities Development

Preliminary cost estimates for these recommended facilities and improvements are provided in the Ten-Year Implementation Schedule and Cost Estimates (Table 8) located in the Implementation Component of this plan. These cost estimates are based on the most cost-effective construction standards available at this time. The preliminary estimates are provided to assist DRP in budgeting future park improvements, and may be revised as more information is collected through the planning and design processes. New facilities and improvements to existing facilities recommended by the plan include:

LAKE MANATEE STATE PARK

N

0 0.25 0.5 1 Miles

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

CONCEPTUAL LAND USE PLAN

Recreation Facilities

Poley Branch Dock and Boat Ramp
Floating Dock (200 feet)
Small Picnic Pavilion
Paddling Launch
Small Restroom

Primitive Group Camping Area
Potable Water
Fire Ring

Campground
Replace Bathhouses (2)
Tent Camping Sites (12)

Gopher Trailhead
Restroom
Potable Water
Interpretive Kiosk
Stabilized Access Road (0.25 miles)
Stabilized Parking (10 cars)
Stabilized Parking (8 equestrian trailers)
Poley Branch Boardwalk (300 feet)
Shared-Use Trail Addition (600 feet)

Lakeside Day Use Area
Small Picnic Pavilion

Support Facilities

Entrance Area
Replace Ranger Station

Shop Area
Four-Bay Shop
Six-Bay Equipment Shelter/Pole Barn

Residence Area
Replace Staff Residence

Recreational Carrying Capacity

Carrying capacity is an estimate of the number of users a recreation resource or facility can accommodate and still provide a high quality recreational experience and preserve the natural values of the site. The carrying capacity of a unit is determined by identifying the land and water requirements for each recreation activity at the unit, and then applying these requirements to the unit's land and water base. Next, guidelines are applied which estimate the physical capacity of the unit's natural communities to withstand recreational uses without significant degradation. This analysis identifies a range within which the carrying capacity most appropriate to the specific activity, the activity site and the unit's classification is selected (see Table 7).

The recreational carrying capacity for this park is a preliminary estimate of the number of users the unit could accommodate after the current conceptual development program has been implemented. When developed, the proposed new facilities would approximately increase the unit's carrying capacity as shown in Table 7.

Table 7. Recreational Carrying Capacity

Activity / Facility	Existing Capacity* One Time	Existing Capacity* Daily	Proposed Additional Capacity One Time	Proposed Additional Capacity Daily	Estimated Recreational Capacity One Time	Estimated Recreational Capacity Daily
Camping						
Family	480	480	96	96	576	576
Primitive Group			30	30	30	30
Trails						
Shared Use	45	90			45	90
Nature	20	40			20	40
Picnicking	215	430	24	48	239	478
Swimming	50	100			50	100
Fishing						
Dock	20	40	20	40	40	80
Boating						
Limited Power	40	80			40	80
Paddling	60	120			60	120
TOTAL	**930**	**1380**	**170**	**214**	**1100**	**1594**

Optimum Boundary

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

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

At this time, no additional lands have been identified for management as part of the park. No lands are considered surplus to the needs of the park.

IMPLEMENTATION COMPONENT

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

Management Progress

Since the approval of the last management plan for Lake Manatee State Park in 2004, significant work has been accomplished and progress made towards meeting the DRP's management objectives for the park. These accomplishments fall within three of the five general categories that encompass the mission of the park and the DRP.

Resource Management

Natural Resources

- Timbered 82 acres of sand pine to improve scrub habitat in 2010.
- Removed and average of 50 exotic animals per year.
- Surveyed all management zones for exotic plants in 2012 and treated annual goals successfully.
- In 2016 all management zones with fire-type natural community acres, with the exception of mature sand pine scrub, were within the optimal fire return interval.
- In 2012 a newly described plant species, the Manasota paw paw (*Asimina manasota*) was discovered in the remnant sandhill in the park.

Recreation and Visitor Services

- Improved day use picnic area.
- Installed ADA accessible viewing area at swimming area.
- Provided canoe and bike rentals.
- Improved and added items to the gift shop.
- Conducted a UTAP survey of all trails in 2009.

Park Facilities

- Improved front entrance fencing and installed an automatic gate.
- Reestablished boundaries with new fencing.
- Upgraded the wastewater treatment plant.
- Installed new campground drainfield.
- Repaired and added 4 inch water shutoffs as part of infrastructure improvements.

Management Plan Implementation

This management plan is written for a timeframe of ten years, as required by Section 253.034 Florida Statutes. The Ten-Year Implementation Schedule and Cost Estimates (Table 8) summarizes the management goals, objectives and actions that are recommended for implementation over this period, and beyond. Measures are identified for assessing progress toward completing each objective and action. A time frame for completing each objective and action is provided. Preliminary cost estimates for each action are provided and the estimated total costs to complete each objective are computed. Finally, all costs are consolidated under the following five standard land management categories: Resource Management, Administration and Support, Capital Improvements, Recreation Visitor Services and Law Enforcement.

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

Statewide priorities for all aspects of land management are evaluated each year as part of the process for developing the DRP's annual legislative budget requests. When preparing these annual requests, the DRP considers the needs and priorities of the entire state park system and the projected availability of funding from all sources during the upcoming fiscal year. In addition to annual legislative appropriations, the DRP pursues supplemental sources of funds and staff resources wherever possible, including grants, volunteers and partnerships with other entities. The DRP's ability to accomplish the specific actions identified in the plan will be determined largely by the availability of funds and staff for these purposes, which may vary from year to year. Consequently, the target schedules and estimated costs identified in Table 8 may need to be adjusted during the ten-year management planning cycle.

Table 8
Lake Manatee State Park Ten-Year Implementation Schedule and Cost Estimates
Page 83

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

Goal I: Provide administrative support for all park functions.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Continue day-to-day administrative support at current levels.**	Administrative support ongoing	C	**$667,000**
Objective B	**Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.**	Administrative support expanded	UFN	**$103,000**
Goal II: Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Conduct/obtain an assessment of the park's hydrological needs.**	Assessment conducted	UFN	**$170,000**
Action 1	Asses the park's historical hydrologic patterns.	Assessment conducted	UFN	$75,000
Action 2	Assess hydrological impacts of ditches throughout the park.	Assessment conducted	UFN	$75,000
Action 3	Develop a hydrological restoration plan	Plan developed	UFN	$20,000
Goal III: Restore and maintain the natural communities/habitats of the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Within 10 years have 488 acres of the park maintained within optimal fire return interval.**	# Acres within fire return interval target	LT	**$450,000**
Action 1	Develop/update annual burn plan.	Plan updated	C	$2,000
Action 2	Manage fire dependent communities for ecosystem function, structure and processes by burning between 78 - 173 acres annually, as identified by the annual burn plan.	Average # acres burned annually	C	$448,000
Objective B	**Conduct habitat/natural community restoration activities on 16 acres of successional hardwood forest community.**	# Acres restored or with restoration underway	UFN	**$85,000**
Action 1	Develop/update site specific restoration plan	Plan developed/updated	UFN	$5,000
Action 2	Implement restoration plan	# Acres with restoration underway	UFN	$80,000

* 2017 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 8
Lake Manatee State Park Ten-Year Implementation Schedule and Cost Estimates
Page 84

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.				
Objective C	**Conduct habitat / natural community improvement activities on 46 acres of abandoned pasture.**	# Acres improved or with improvements underway	UFN	**$115,000**
Action 1	Develop/update site specific natural community improvement plan.	Plan developed/updated	UFN	$5,000
Action 2	Implement improvement plan.	Plan implemented	UFN	$110,000
Goal IV: Maintain, improve or restore imperiled species populations and habitats in the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Update baseline imperiled species occurrence inventory lists for plants and animals, as needed.**	List developed/updated	C	**$7,000**
Objective B	**Monitor and document 1 selected imperiled animal species in the park.**	# Species monitored	C	**$10,000**
Action 1	Follow FWC Develop monitoring protocols for 1 selected one imperiled animal species including to estimate the gopher tortoise population at the parks.	# Protocols developed	ST	$10,000
Objective C	**Monitor and document 4 selected imperiled plant species in the park.**	# Species monitored	C	**$7,000**
Action 1	Develop monitoring protocols for 4 selected imperiled plant species, including Manasota pawpaw.	# Protocols developed	ST	$800
Action 2	Implement monitoring protocols for 4 imperiled plant species, including those listed in Action 1 and Florida goldenaster, garberia and longbristle beaksedge.	# Species monitored	C	$6,200
Goal V: Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Annually treat 21 acres of exotic plant species in the park.**	# Acres treated	C	**$42,000**
Action 1	Annually develop/update exotic plant management work plan.	Plan developed/updated	C	$2,000
Action 2	Implement annual work plan by treating 21 acres in the park, annually, and continuing maintenance and follow-up treatments, as needed.	Plan implemented	C	$40,000

* 2017 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 8
Lake Manatee State Park Ten-Year Implementation Schedule and Cost Estimates
Page 85

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.				
Objective B	**Implement control measures on 1 exotic and nuisance animal species in the park.**	# Species for which control measures implemented	C	**$15,000**
Action 1	Establish baseline data of hog populations at park and set annual removal goals.	Baselines data collected	ST	$4,000
Action 2	Pursue USDA contracts and continue in-house trapping to reduce the hog population.	Contracts developed	C	$11,000
Goal VI: Protect, preserve and maintain the cultural resources of the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective B	**Compile reliable documentation for all recorded historic and archaeological sites.**	Documentation complete	LT	**$1,000**
Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.	# Sites recorded or updated	ST	$500
Action 2	Develop and adopt a Scope of Collections Statement.	Document completed	ST	$500
Goal VII: Provide public access and recreational opportunities in the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Maintain the park's current recreational carrying capacity of 1380 users per day.**	# Recreation/visitor	C	**$667,000**
Objective B	**Expand the park's recreational carrying capacity by 214 users per day.**	# Recreation/visitor	UFN	**$103,000**
Objective C	**Continue to provide the current repertoire of 3 interpretive, educational and recreational programs on a regular basis.**	# Interpretive/education programs	C	**$15,000**
Objective D	**Develop 4 new interpretive, educational and recreational programs.**	# Interpretive/education programs	UFN	**$28,000**

* 2017 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 8
Lake Manatee State Park Ten-Year Implementation Schedule and Cost Estimates
Page 86

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

Goal VIII: Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Maintain all public and support facilities in the park.**	Facilities maintained	C	**$747,000**
Objective B	**Continue to implement the park's transition plan to ensure facilities are accessible in accordance with the American with Disabilities Act of 1990.**	Plan implemented	LT	**$200,000**
Objective C	**Improve and/or repair 8 existing facilities, 600 feet of trail and .25 miles of road as identified in the Land Use Component.**	# Facilities/Feet of Trail/Miles of Road	UFN	**$4,240,000**
Objective D	**Construct 1 new facility**	# Facilities constructed	UFN	**$1,249,000**
Objective E	**Expand maintenance activities as existing facilities are improved and new facilities are developed.**	Facilities maintained	UFN	**$250,000**

Summary of Estimated Costs

Management Categories		**Total Estimated Manpower and Expense Cost* (10-years)**
Resource Management		**$902,000**
Administration and Support		**$770,000**
Capital Improvements		**$5,689,000**
Recreation Visitor Services		**$1,810,000**
Law Enforcement Activities[1]		
	1Law enforcement activities in Florida State Parks are conducted by the FWC Division of Law Enforcement and by local law enforcement agencies.	

* 2017 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Addendum 1—Acquisition History

LAND ACQUISITION HISTORY REPORT

Park Name	Lake Manatee State Park
Date Updated	12/28/2016
County	Manatee County, Florida
Trustees Lease Number	Trustees Lease No. 2543
Current Park Size	548.78 acres
Purpose of Acquisition	The State of Florida acquired Lake Manatee State Park to develop the property for open space purposes.

Acquisition History

Parcel Name or Parcel DM-ID	Date Acquired	Initial Seller	Initial Purchaser	Size in acres	Instrument Type
DMID 3027	6/16/1970	Manatee County	The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida	547.187	County Deed

Management Lease

Parcel Name or Lease Number	Date Leased	Initial Lessor	Initial Lessee	Current Term	Expiration Date
Lease No. 2543	6/30/1971	The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida	The State of Florida Department of Natural Resources for the use and benefit of the Division of Recreation and Parks	99 years	6/23/2070

Outstanding Issue	Type of Instrument	Brief Description of the Outstanding Issue	Term of the Outstanding Issue
There are no known deed-related outstanding issues such as restrictions or resevations that apply to Lake Manatee State Park.			

Addendum 2—Advisory Group Members and Report

Lake Manatee State Park
Advisory Group Members

Local Government Representative

The Honorable Priscilla Trace, Chair
Manatee County
Board of County Commissioners

The Honorable Wayne Poston, Mayor
City of Bradenton

Agency Representatives

Joshua Herman, Park Manager
Division of Recreation and Parks
Lake Manatee State Park

Michael Edwards
Florida Forest Service

Joshua Birchfield
Florida Fish and Wildlife
Conservation Commission

Lt. Lewis Heinz
Florida Fish and Wildlife
Conservation Commission
Law Enforcement

Julia Duggins, Archaeologist
Florida Department of State
Division of Historical Resources

Colleen Kruk
Southwest Florida
Water Management District

John O'Connor
Manatee River
Soil and Water Conservation District

Michael Elswick
Manatee County
Parks and Natural Resources

Environmental and Conservation Group Representative

Karen Willey
Florida Native Plant Society
Serenoa Chapter

Dave Feagles
Florida Native Plant Society
Serenoa Chapter

Kim Jones
Manatee County Audubon Society

Local Private Property Owners

Steve Ranch
Local Resident

Recreational User Group Representatives

Jackie Vizzie
Myakka River Riders

Tourism and Economic Development Representative

Wayne Poston
Manatee County
Tourist Development Council

The advisory group meeting to review the proposed unit management plan (UMP) for Lake Manatee State Park was held at the East Manatee Fire Rescue District on March 13, 2018 at 9:00 am.

Priscilla Trace, Wayne Poston, Michael Edwards, Julia Duggins, John O'Connor, Kim Jones, Steve Ranch, and Jackie Vizzie were not in attendance. Michael Edwards, Julia Duggins, John O'Connor, and Jackie Vizzie provided written comments prior to the meeting, which are summarized below. All other appointed advisory group members were present, as well as Ray Vinson. Attending staff were Valinda Subic, Chris Becker, Joshua Herman, Ed Alaniz, and Tyler Maldonado.

Mr. Maldonado began the meeting by explaining the purpose of the advisory group and reviewing the meeting agenda. He 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 meeting. Mr. Maldonado then asked each member of the advisory group to express his or her comments on the plan.

Summary of Advisory Group Comments

Colleen Kruk (Southwest Florida Water Management District) commented on recreational carrying capacity and asked how additional capacity is calculated in the UMP. It was explained that the recreational carrying capacity is formula-driven based on user experience models developed by the National Park Service. She suggested that given an emphasis on regional trail connectivity, day-use pedestrian and cyclist access could increase the visitor capacity of the park. She pointed out that there are no specific plans for hydrological restoration in the UMP and asked if there are any hydrological restoration opportunities at the park. It was stated the park works closely with Manatee County to maintain the water quality of Lake Manatee. She asked about how visitor fees collected at the park factor into DRP's budget. It was explained that visitor fees go into the General Trust Fund and can be redistributed throughout the park system.

Karen Willey (Florida Native Plant Society, Serenoa Chapter) applauded DRP and park staff on their exemplary resource management at the park over the past ten years. She suggested modifying the language associated with the equestrian trailhead relocation proposal. She stated that one acre for a trailhead seems too large and recommended using less than one acre in an area that does not disturb pristine natural landscapes.

Dave Feagles (Florida Native Plant Society, Serenoa Chapter) questioned the carrying capacity's considerations, stating high recreational carrying capacities seemed to overlook considerations for species such as the scrub-jay. He suggested reducing the recreational carrying capacity of the park. He recommended replacing the term "wildlife viewing" with "nature study". He asked about the park's relationship with surrounding neighbors and called for better coordination with neighboring property owners.

Michael Elswick (Manatee County Parks and Natural Resources) suggested that the area's user base is shifting away from equestrians, alluding to the equestrian trailhead proposal in the UMP. He recommended using the term "invasive species", as opposed to "exotic species". He stated the invasive species estimations seemed to be higher than expected. He proposed including in the UMP a reference to the process for cleaning management equipment to help prevent the spread of invasive species and stated that guidelines should be developed in a more systematic manner to avoid ad-hoc cleaning techniques and procedures. He suggested revising the optimum fire return intervals associated with the prescribed fire management objectives. He commented that he would have liked to see more elaboration on in-house hog control efforts and questioned if the practice is worth the resources necessary for implementation. Mr. Elswick suggested that the management plan process and the UMP seemed to create a wish list of management goals and objectives that was detached from the money and resources that would be needed to implement the proposals. He urged the DRP to reach out to local agencies in order to improve engagement and collaboration on resource management, particularly in the areas of invasive species treatment and timber management.

Joshua Birchfield (Florida Fish and Wildlife Conservation Commission) thanked DRP for the opportunity to participate in the advisory group discussion and offered his support to help coordinate resource management activities.

Summary of Advisory Group Written Comments

Michael Edwards (Florida Forest Service) recommended cooperating with the Florida Forest Service (FFS) when conducting prescribed burns on fire-type natural communities at the park. He referred the park to the region's wildfire mitigation specialist. Although DRP is not required to develop a timber assessment because the park is under 1,000 acres, he suggested developing a timber assessment for the park given that there was a timber harvest conducted for restoration purposes in 2010. He advised DRP to keep a GIS database of areas that have been infested and treated for invasive species and suggested coordinating invasive species treatments with local Cooperative Invasive Species Management Areas (CISMA). He recommended the use of permeable and semi-permeable construction materials at developed areas of the park and recommended connecting all facilities to city/county sewage systems. He urged DRP to conduct a hydrological assessment of the park in order to help protect the water quality of Lake Manatee.

Julia Duggins (Division of Historical Resources) thanked DRP for including DHR in the advisory group process, but did not provide comments given the park's absence of recorded cultural resources.

John O'Connor (Manatee River Soil and Water Conservation District) complimented the thoroughness of the UMP. He appreciated the discussion of regional trail connectivity. He noted a few discrepancies in the cost estimates spreadsheet, and those inconsistencies will be addressed in the revised UMP. He requested clarification on terms related to the recreational carrying capacity.

Jackie Vizzie (Myakka River Riders) provided representative comments after polling her equestrian organization. She advised DRP to consider more equestrian trails, a larger parking area that can accommodate horse trailers, water accessibility in the parking area, an equestrian trail around Lake Manatee, access to the park from Dam Road, and more equestrian parking sites with water and electric.

Staff Recommendations

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

- Language on the proposed equestrian trailhead relocation will be revised to specify the size of the trailhead should be less than one acre and the location should utilize previously disturbed land or cause minimal-to-no impact to the surrounding natural communities.

Notes on Composition of the Advisory Group

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

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

Advisory groups that are composed in compliance with these requirements complete the review of State park management plans. Additional members may be appointed to the groups, such as a representative of the park's Citizen Support Organization (if one exists), representatives of the recreational activities that exist in or are planned for the park, or representatives of any agency with an ownership interest in the property. Special issues or conditions that require a broader representation for adequate review of the management plan may require the appointment of additional members. The Division's intent in making these appointments is to create a group that represents a balanced cross-section of the park's stakeholders. Decisions on appointments are made on a case-by-case basis by Division of Recreation and Parks staff.

Addendum 3—References Cited

Barrett, Lisa. 2017. Personal Communication. Manatee County Planning and Zoning Department. Manatee County, Florida

David, Tyler. 2009. TMDL Final Report: Tampa Bay Tributaries Basin; Gilly Creek (WBID1840), Nonsense Creek (WBID 1913), Braden River above Ward Lake (WBID 1914), Rattlesnake Slough (WBID 1923), and Cedar Creek (WBID 1926); Fecal Coliform. Department of Environmental Protection.

Hyde, Adam and Horace Huckle. 1983. Soil Survey of Manatee County, Florida. Soil Conservation Service, U.S. Dept. of Agric. 159 pp.

Florida Administrative Code. Rule 62-303, Identification of impaired surface waters. https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-303.

Florida Administrative Code. Rule 62-302, Surface water quality standards. https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-302.

Florida Department of Environmental Protection. 2016. Florida State Park System Economic Impact Assessment for Fiscal Year 2015/2016. Tallahassee, Florida.

Florida Watershed Restoration Act. Chapter 99-223, Laws of Florida. http://www.dep.state.fl.us/water/tmdl/background.htm.

Peek, Harry. 1958. Ground-water resources of Manatee County, Florida. Report of Investigations No. 18, U.S. Geol. Survey, Tallahassee, Florida. 99 pp.

SWFWMD, Southwest Florida Water Management District. 2009. West-Central Florida's Aquifers. http://www.swfwmd.state.fl.us/publications/files/flas_aquifers.pdf.

Vernon, R. O. 1951. Geology of Citrus and Levy Counties, Florida. Florida Geological Survey Bull. 33.

White, William. 1970. The geomorphology of the Florida Peninsula. Geological Bulletin No. 51, Bur. Or Geology, Florida Dept. of Nat. Res., Tallahassee. 164 pp.

Wilkinson, Terry. 1993. Pers. Comm. To Ms Brenda Garland, Park Programs Development Specialist, Dept. of Nat. Res., District 8 Admin. From: Chief, Bureau of Survey and Mapping, Title and Land Records Section, Dept. of Nat. Res., Tallahassee, Florida.

DEP Stream Ecosummary. 2010. Upper Manatee River, Manatee County, WBID 1807C STORET Station TP1; 24010002. Water Quality Report. 3 pp. ftp://ftp.dep.state.fl.us/pub/labs/lds/reports/12201.pdf.

Addendum 4—Soil Descriptions

3 - Braden Fine Sand - This is a nearly level to very gently sloping, somewhat poorly drained soil on stream terraces that are well above normal overflow. Slopes are smooth and are 0 to 3 percent. They generally grade toward the stream.

Typically, the surface layer is very dark gray fine sand about 4 inches thick. The subsurface layer, to a depth of 28 inches, is grayish brown, brown, dark brown, light yellowish brown, and yellow fine sand. The subsoil, to a depth of 44 inches, is yellowish brown fine sandy loam. The substratum to a depth of 70 inches or more is light gray, gray, and light brownish gray fine sand and sand.

Included with this soil in mapping are areas of soils on similar landscapes; however, those soils are sandy to a depth of 80 inches of more. Also included are a few areas where the subsoil is at a depth of less than 20 inches and some places where a brownish organic stained layer is in the surface layer.

In most years, the water table is at a depth of 30 to 40 inches for 1 to 3 months out of the year. It rises above a depth of 30 inches briefly during periods of heavy rainfall. The soil is flooded rarely for brief periods following abnormally high rainfall. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The available water capacity is medium in the surface layer and subsoil and low in the subsurface layer and substratum.

The natural vegetation consists of open forest of slash pine and live oak and a ground cover of saw palmetto, creeping bluestem, panicum, and pineland threeawn.

7 - Canova, Anclote, and Okeelanta Soils - This map unit consists of nearly level, very poorly drained mineral and organic soils in freshwater swamps and in broad, poorly defined drainageways. It is about 40 percent Canova soils, 25 percent Anclote soils, 20 percent Okeelanta soils, and 15 percent other soils, but the proportion varies in each mapped area. Individual areas of each soil are large enough to map separately, but because of present and predicted use they were not separated in mapping. In a typical mapped area, Okeelanta soils are in the lowest places; Anclote soils in the highest places, generally near the edges; and Canova soils in an intermediate position. In the poorly defined drainageways, the Anclote soils and to a lesser extent the Canova soils are adjacent to the streams. Slopes are less than 2 percent.

Typically, the surface layer of Canova soils is dark reddish brown muck 8 inches thick and dark gray fine sand 9 inches thick. The subsurface layer is gray fine sand 7 inches thick. The subsoil is gray sandy clay loam about 39 inches thick. The substratum is gray fine sandy loam.

In most years, Canova soils are ponded, or the water table is at or near the surface for 9 months or more out of the year. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The available water capacity is high in the surface layer, very low in the subsurface layer, and medium in the subsoil.

Typically, the surface layer of Anclote soils is black fine sand 16 inches thick. Below that, to a depth of 80 inches or more, there is grayish brown, gray, and light gray fine sand.

In most years, Anclote soils are ponded, or the water table is at or near the surf ace for 9 months or more out of the year. Permeability is rapid throughout. The available water capacity is medium in the surface layer and low in the other layers.

Typically, the surface layer of Okeelanta soils is black muck 20 inches thick. Below the surface layer, there is black sand 7 inches thick, grayish brown sand 4 inches thick, and light brownish gray sand 29 inches thick.

In most years, Okeelanta soils are ponded, or the water table is at or near the surface for 9 months or more out of the year. Permeability is rapid throughout. The available water capacity is very high in the surf ace layer and low in the other layers.

The most extensive minor soils are the Chobee, Floridana, and Manatee soils.

The soils making up this map unit are mainly in natural vegetation consisting of bay, gum, ash, swamp maple, water oak, scattered cypress, and some slash pine. In many areas they support a thick undergrowth of vines, briers, and water-loving plants.

11 - Cassia Fine Sand - This is a nearly level, somewhat poorly drained soil, on low ridges and knolls that are slightly higher than the adjacent flatwoods. Slopes range from 0 to 2 percent.

Typically, the surface layer is gray fine sand about 3 inches thick. The subsurface layer is light gray to white fine sand about 21 inches thick. The subsoil is black to dark reddish brown fine sand coated with organic material and is about 9 inches thick. The substratum to a depth of 80 inches or more is very pale brown and light gray fine sand.

Included with this soil in mapping are areas of Myakka and Pomello soils and soils that are similar to Cassia soils except that they are weakly cemented in the subsoil.

The water table is at a depth of 15 to 40 inches for about 6 months out of the year and below a depth of 40 inches during dry periods. The available water capacity is very low except in the subsoil, where it is medium. Natural fertility is low. Permeability is rapid in the subsurface layers and moderate to moderately rapid in the subsoil.

The native vegetation consists of scattered slash and longleaf pine, dwarf oak and sand live oak, saw palmetto, pineland threeawn, running oak, and broomsedge bluestem.

18 - Delray-Pomona Complex - This complex consists of soils in nearly level, broad grassy sloughs where there are poorly defined stream channels in some places. Some areas are located around the larger ponds. The soils are in the eastern part of the county, generally above an elevation of about 40 feet. The soils are so intermixed that they could not be mapped separately at the scale selected for mapping. Slopes are less than 2 percent.

Delray soils make up about 50 percent of this complex, Pomona soils make up 40 percent, and scattered areas of Myakka, Wauchula, Waveland, and Palmetto soils make up 10 percent. Typically, the Delray soils are at slightly lower elevations than the Pomona soils.

Typically, the surface layer of Delray soils is black fine sand about 15 inches thick. The subsurface layer is grayish brown and light brownish gray fine sand 40 inches thick. The subsoil is grayish brown and greenish gray fine sandy loam and sandy clay loam to a depth of 80 inches or more.

In most years, if Delray soils are not drained, the water table is at or near the surface for 6 months or more out of the year. The available water capacity is high in the surface layer, medium in the subsoil, and low in the subsurface layer. Permeability is rapid in the surface and subsurface layers and moderate to moderately rapid in the subsoil. Natural fertility is medium.

Typically, the surface layer of Pomona soils is black fine sand about 6 inches thick. The subsurface layer is gray and light gray fine sand 16 inches thick. The subsoil in the upper part is dark reddish brown and dark brown fine sand 14 inches thick. Below that, there is pale brown fine sand 15 inches thick. The subsoil in the lower part is olive gray fine sandy loam 9 inches thick. The substratum is gray loamy fine sand to a depth of 80 inches.

In most years, if Pomona soils are not drained, the water table is at or near the soil surface for 5 months or more out of the year. The available water capacity is low in the surface layer, medium in both parts of the subsoil, and very low in the other layers. Permeability is moderately slow in the lower part of the subsoil, moderate in the upper part of the subsoil, and rapid in the other layers. Natural fertility is low.

The natural vegetation in areas of this complex consists of scattered pine trees, clumps of saw palmetto, gallberry, and a stand of grasses such as bluestem, lopsided indiangrass, maidencane, and pineland threeawn.

19 - Duette Fine Sand, 0 to 5 Percent Slopes - This is a moderately well drained soil on low ridges and knolls in flatwoods. Slopes are smooth.

Typically, the surface layer is very dark gray fine sand about 4 inches thick. The subsurface layer, to a depth of 58 inches, is fine sand. In the upper 8 inches it is light gray, and below that it is white. The subsoil is fine sand that is coated with organic materials to a depth of 80 inches or more. To a depth of 64 inches, it is dark brown, and below that, it is black.

Included with this soil in mapping are small areas of Cassia and Pomello soils.

In most years, if this Duette soil is not drained, the water table is at a depth of 48 to 72 inches for 1 to 4 months during the wet season. It is below a depth of 72 inches for the rest of the year. The available water capacity is very low, except in the subsoil where it is medium. Natural fertility is low. Permeability is very rapid in the surface layer and moderately rapid in the subsoil.

The natural vegetation consists of dwarf and scrub oak, saw palmetto, sand pine, prickly pear, and pineland threeawn.

24 - Felda-Wabasso Association, Frequently Flooded - This association consists of nearly level, poorly drained Felda soils and Wabasso soils and soils that are closely similar to them. The soils are in a regular and repeating pattern on the flood plains along the larger streams in the county. The Wabasso soils are on low ridges. The Felda soils are at slightly lower elevations. Slopes are 0 to 2 percent. Areas are generally narrow and long and follow streambeds and flood plains. Some areas are broad and range in width to almost 2 miles. Areas of the individual soils are large enough to map separately, but in considering the present and predicted use they were mapped as one unit.

The composition of this map unit is more variable than that of most other map units in the county; nevertheless, valid interpretations for the expected uses of the soils can still be made.

Felda soils and those that are closely similar to them make up about 60 percent of the association, wabasso soils and those that are closely similar to them make up 25 percent, and minor soils make up 15 percent.

Typically, the surface layer of Felda soils is very dark gray fine sand 3 inches thick. The subsurface layer is grayish brown fine sand 21 inches thick. The subsoil is between depths of 24 and 64 inches. In the upper part it is grayish brown fine sandy loam 3 inches thick. In the middle part it is gray sandy clay loam 6 inches thick. In the lower part it is light gray sandy clay loam 29 inches thick. The substratum to a depth of 80 inches or more is light gray sandy loam. In some of the closely similar soils the subsoil is nearer the surface and in others the surface layer is thicker than in Felda soils.

In most years, if Felda soils are not drained, the water table is within a depth of 10 inches for 2 to 4 months out of the year and at a depth of 10 to 40 inches for about 6 months out of the year. It recedes to below a depth of 70 inches in dry seasons. Stream overflow frequently floods these soils. Permeability is rapid in the surface and subsurface layers and moderate to moderately rapid in the subsoil. The available water capacity is very low in the surface and subsurface layers and medium in the subsoil.
Typically, Wabasso soils have a surface layer of very dark gray fine sand 7 inches thick. The subsurface layer is gray and light gray fine sand 14 inches thick. The subsoil in the upper part is black, dark reddish brown and brown fine sand 10 inches thick. In the lower part it is grayish brown sandy loam and

gray sandy clay loam 28 inches thick. A 6-inch layer of pale brown fine sand separates the two parts. The substratum to a depth of 80 inches or more is gray sand mixed with shell fragments. The closely similar soils are like Wabasso soils except that they do not have the lower part of the subsoil.

In most years, if Wabasso soils are not drained, the water table is at a depth of 10 to 40 inches for more than 6 months out of the year and within a depth of 10 inches for less than 60 days in wet seasons. Stream overflow frequently floods these soils.

Permeability is rapid in the surface and subsurface layers, in the layer between the two parts of the subsoil, and in the substratum. It is moderate to moderately rapid in the upper part of the subsoil and slow to very slow in the lower part. The available water capacity is very low in the surface and subsurface layers and in the layer between the two parts of the subsoil. It is medium in the upper and lower parts of the subsoil.

The most extensive soils included in the association are the Anclote, Floridana, Bradenton, and Chobee soils.

The natural vegetation consists mostly of gum, oak, maple, hickory, bay, and magnolia in the lower areas and scattered pine and saw palmetto on the low ridges. In a few places it consists of water-tolerant grasses. Almost all areas of this unit are in natural vegetation.

26 - Floridana-Immokalee-Okeelanta Association - This map unit consists of nearly level, very poorly drained Floridana soils, poorly drained Immokalee soils, and very poorly drained Okeelanta soils. It is about 35 percent Floridana soils, 30 percent Immokalee soils, 20 percent Okeelanta soils, and 15 percent minor soils. These soils are in small to large shallow grassy ponds mainly in the central and eastern parts of the county. Generally, Okeelanta soils are in the lowest places near in the center of the ponds; Floridana soils are in an intermediate position; and Immokalee soils are along the edges of ponds. Slopes are less than 2 percent. Areas of the individual soils are large enough to map separately, but in considering the present and predicted use they were mapped as one unit. Most of the mapped areas are circular or oblong.

The composition of this map unit is more variable than that of most other map units in the county; nevertheless, valid interpretations for expected uses of the soil could still be made.

Typically, the surface layer of Floridana soils is black and very dark gray fine sand about 19 inches thick. The subsurface layer is gray fine sand about 17 inches thick. The subsoil is dark gray sandy clay loam 17 inches thick. The substratum is light gray fine sand that extends to a depth of 80 inches or more.

In most years, in undrained areas Floridana soils are ponded for 6 to 9 months of more out of the year. The water table is at a depth within 40 inches for the

rest of the year except in extended dry periods. Permeability is rapid in the surface layer, subsurface layer, and substratum; it is slow in the subsoil. The available water capacity is medium in the surface layer and subsoil and low in the other layers.

Typically, the surface layer of Immokalee soils is black fine sand about 5 inches thick. The subsurface layer is dark gray, gray, and light gray fine sand 29 inches thick. The subsoil is dark reddish brown and dark brown fine sand 9 inches thick. The substratum to a depth of 80 inches or more is grayish brown fine sand.

Immokalee soils are ponded for 6 months or more in most years. The water table is at a depth within 40 inches for much of the remainder of the year. Permeability is moderate in the subsoil and rapid in all other layers. The available water capacity is medium in the subsoil, low in the surface layer, and very low in the other layers.

Typically, Okeelanta soils in the uppermost 20 inches are black muck. Below that, to a depth of 54 inches or more, there is black and light brownish gray sand.

In most years, in undrained areas Okeelanta soils are ponded for 9 months or more, and the water table is near the surf ace f or the rest of the time. Permeability is rapid throughout the soil. The available water capacity is very high in the organic layer and low in the sandy layers.

Included with the soils in this map unit are areas of Anclote, Chobee, Delray, Manatee, Myakka, and Pomona soils.

The natural vegetation in the lowest places is sawgrass, maidencane, willow, and, in places, a few cypress. In other areas, the vegetation is maidencane, St. Johnswort, various bluestems, smooth cordgrass, and sedges.

30 - Myakka Fine Sand, 0 to 2 Percent Slopes - This is a nearly level, poorly drained soil in areas of broad flatwoods. Slopes are smooth to concave.

Typically, the surface layer is dark gray fine sand about 5 inches thick. The subsurface layer is fine sand. In the upper 8 inches it is gray, and below that, it is light gray. The subsoil is fine sand 22 inches thick. In the upper 6 inches it is black, in the next 8 inches it is dark reddish brown, and in the lower 8 inches it is dark brown. Below the subsoil there is brown fine sand to a depth of 61 inches, and below that, there is very dark brown fine sand to a depth of 75 inches or more.

Included with this soil in mapping are small areas of EauGallie, Ona, Pomona, St. Johns, Wabasso, Wauchula, and Waveland soils. In most years, the water table is at a depth of less than 10 inches for 1 to 4 months out of the year. It recedes to a depth of more than 40 inches in very dry seasons. The available water capacity is medium in the subsoil and very low in the other layers. Permeability is rapid in the surface and subsurface layers and substratum and

moderate or moderately rapid in the subsoil. Internal drainage is slow, and runoff is slow. Natural fertility is low.

The natural vegetation consists of longleaf and slash pines and an undergrowth of saw palmetto, running oak, gallberry, waxmyrtle, huckleberry, pineland threeawn, and scattered fetterbushes.

31 - Myakka Fine Sand, 2 to 5 Percent Slopes - This is a gently sloping, poorly drained soil in areas of flatwoods along many of the main drainage channels in the county.

Typically, the surface layer is black fine sand about 6 inches thick. The subsoil in the upper part is very dark brown fine sand about 21 inches thick. The next layer is brown fine sand about 28 inches thick. The subsoil in the lower part is very dark brown fine sand. The subsoil in the lower part s very dark brown fine sand to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Ona, Pomona, St. Johns, and Wauchula soils and areas that have a less well developed subsoil.

In most years, the water table is at a depth of less than 10 inches for 1 to 4 months out of the year. It recedes to a depth of more than 40 inches in very dry seasons. The available water capacity is medium in the subsoil and very low in the other layers. Permeability is rapid in the surface and subsurface layers and substratum and moderately or moderately rapid in the subsoil. Internal drainage is slow and runoff is slow to moderate. Natural fertility is low.

The native vegetation consists of longleaf and scattered slash pine and an undergrowth of saw palmetto, running oak, gallberry, waxmyrtle, huckleberry, pineland threeawn, and scattered fetterbushes.

38 - Palmetto Sand - This is a nearly level, poorly drained soil in flatwoods. The soil is in sloughs, in poorly defined drainageways, and in narrow bands around some ponds. Slopes are smooth to slightly concave and are less than 2 percent.

Typically, the surface layer is black sand about 8 inches thick. The subsurface layer is dark gray or gray sand to a depth of 25 inches. The upper part of the subsoil is dark grayish brown and very dark grayish brown sand to a depth of about 45 inches. The lower part of the subsoil is grayish brown and dark grayish brown sandy clay loam and sandy loam to a depth of about 64 inches and dark grayish brown loamy sand to a depth of 68 inches.

Included with this soil in mapping are areas of similar soils that have a yellowish subsurface layer, that do not have a loamy subsoil, or that have a slightly more developed, brownish subsurface layer. Also included are small areas of Delray soils. The included soils make up about 25 percent of the map unit.

In most years, if this Palmetto soil is not drained, the water table is within 10 inches of the surface for 2 to 6 months out of the year. In some areas the soil may be ponded briefly after heavy rainfall. Permeability is rapid in the surface and subsurface layers and moderately slow in the subsoil. The available water capacity is low to medium in the surface and subsurface layers and medium in the subsoil.

Some areas are used for improved pasture. A few areas are used for vegetable crops. In many areas the native vegetation consists of chalky bluestem, blue maidencane, sand cordgrass, pineland threeawn, low panicums, scattered slash pines, and clumps of saw palmetto.

This soil is in capability subclass IVw and in the Slough range site.

42 - Pomello Fine Sand, 0 to 2 Percent Slopes - This is a nearly level, moderately well drained soil on low ridges in flatwoods. Individual areas are irregularly shaped. Slopes are smooth concave.

Typically, the surface layer is gray fine sand 2 inches thick. The subsurface layer is white fine sand to a depth of 46 inches. The subsoil is fine sand. In the upper 5 inches it is black. Below that, to a depth of 80 inches or more it is dark reddish brown.

Included with this soil in mapping are similar soils that have a subsoil below a depth of 50 inches. Also included are small areas of Cassia, Duette, and Zolfo soils and Pomello soils on 2 to 5 percent slopes.

In most years, the water table is at a depth of 24 to 40 inches for 1 to 4 months out of the year and at a depth of 40 to 60 inches for 8 months out of the year. The available water capacity is very low except in the subsoil, where it is medium. Natural fertility is low. Permeability is very rapid in the surface and subsurface layers and moderately rapid in the subsoil.
The natural vegetation consists of dwarf and sand live oaks, saw palmetto, longleaf and slash pines, pineland threeawn, running oak, creeping bluestem, broomsedge bluestem, splitbeard bluestem, lopsided indiangrass, switchgrass, panicum, and paspalum. A few areas are used for citrus, vegetables, and improved pasture grasses where the areas are near other soils used for these crops.

43 - St. Johns Fine Sand, 2 to 5 Percent Slopes - This is a gently sloping, poorly drained soil on seepy side slopes adjacent to drainageways. Most areas of this soil are long and narrow.

Typically, the surface layer is black fine sand to a depth of 7 inches and very dark gray fine sand to a depth of 13 inches. The subsurface layer, to a depth of 28 inches, is light gray fine sand. The subsoil is black to very dark gray fine sand about 32 inches thick. The sand grains in the subsoil are well coated with organic matter. The next layer is dark gray fine sand about 8 inches thick, and the layer below that, to a depth of 80 inches or more, is black fine sand.

Included with this soil in mapping are small but numerous areas of very poorly drained sandy soils in seeps. Also included area areas of a similar soil that has a subsoil below a depth of 30 inches, areas of other similar soils that are cemented in the subsoil, and a few areas where slopes are greater than 5 percent.

In most years, if this soil is not drained, the water table is within a depth of 15 inches for 2 to 6 months out of the year and at a depth of 15 to 30 inches during periods of lower rainfall. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low, and the content of organic matter is moderate. The available water capacity is medium in the subsoil and low in the surface and subsurface layers.

The natural vegetation consists of slash pine, loblolly bay, saw palmetto, and gallberry. The native grasses include chalky bluestem, cinnamon fern, and pineland threeawn.

45 - Tavares Fine Sand, 0 to 5 Percent Slopes - This is a moderately well drained soil on ridges and knolls. Slopes are smooth to convex.

The soil is fine sand to a depth of 80 inches or more. Typically, the surface layer is very dark gray to a depth of about 6 inches. The underlying material is yellowish brown and light yellowish brown to a depth of 56 inches, very pale brown to a depth of 79 inches, and white to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Adamsville Variant, Orlando, Orsino, and Zolfo soils. Also included are small areas of Tavares soils on 5 to 8 percent slopes.

In most years, if this soil is not drained, a water table is at a depth of 40 to 60 inches for 6 to 12 months and at a depth of 60 inches or more during very dry periods. The available water capacity is very low. Permeability is very rapid. Natural fertility is low.

The natural vegetation consists of slash and longleaf pine, blackjack, turkey, and post oak, and an understory of pineland threeawn, creeping bluestem, lopsided indiangrass, hairy panicum, low panicums, purple lovegrass, and broomsedge bluestem.

54 - Zolfo Fine Sand, 0 to 2 Percent Slopes - This is a somewhat poorly drained soil on low to high ridges and knolls in flatwoods.

Typically, the surface layer is very dark gray fine sand about 7 inches thick. The subsurface layer is light brownish gray, pale brown, and light gray fine sand. The subsoil begins at a depth of 65 inches. In the upper 7 inches it is dark grayish brown fine sand, and below that, it is dark brown fine sand to a depth of 80 inches or more.

Included with this soil in mapping are areas of Cassia, Duette, Orsino, Pomello, and Tavares soils. Also included are soils that are very similar to Zolfo soils except that the subsoil is less well developed.

Permeability is very rapid in the surface and subsurface layers and moderate in the
subsoil. In most years, it this soil is not drained, the high water table is at a depth of 24 to 40 inches for 2 to 6 months out of the year. In some years the water table is at a depth of 10 to 24 inches for periods of as much as 2 weeks. The water table is at a depth of 60 inches for more than 9 months of the year.

The available water capacity is low to very low in the surface and subsurface and medium in the subsoil. Natural fertility is low and the content of organic matter is low to very low.

The native vegetation consists of slash and longleaf pines, laurel, bluejack, turkey, live and water oaks and an understory of, saw palmetto, pineland threeawn, broomsedge and chalky bluestems, and other perennial grasses.

55 - Zolfo Fine Sand, 2 to 5 Percent Slopes - This is a somewhat poorly drained soil on slopes of ridged that border the larger streams and rivers.

Typically, the surface layer is gray fine sand about 4inches thick. The subsurface layer is light brownish gray, pale brown, light gray and white fine sand. The subsoil begins at a depth of 65 inches. In the upper 15 inches it is dark reddish brown fine sand, and below that, it is black fine sand to a depth of 80 inches or more.

Included with this soil in mapping are areas of Cassia, Duette, Orsino, Pomello, and Tavares soils. Also included are soils that are very similar to Zolfo soils except that the subsoil is less well developed and areas of Zolfo soils on 5 to 8 percent slopes.

Permeability is very rapid in the surface and subsurface layers and moderate in the subsoil. In most years, it this soil is not drained, the high water table is at a depth of 24 to 40 inches for 2 to 6 months out of the year. In some years the water table is at a depth of 10 to 24 inches for periods of as much as 2 weeks. The water table is at a depth of 60 inches for more than 9 months of the year.

The available water capacity is low to very low in the surface and subsurface and medium in the subsoil. Natural fertility is low and the content of organic matter is low to very low.

The native vegetation consists of slash and longleaf pines, laurel, bluejack, turkey, live and water oaks and an understory of, saw palmetto, pineland threeawn, broomsedge and chalky bluestems, and other perennial grasses.

Addendum 5—Plant and Animal List

Lake Manatee State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
LICHENS		
Resurrection cladonia	*Cladonia prostrata*	
Reindeer lichen	*Cladonia spp.*	
PTERIDOPHYTES		
Club moss	Lycopodium alopecuroides	
Nodding clubmoss	Lycopodiella cernua	
GYMNOSPERMS		
Red cedar	Juniperus virginiana	
Sand pine	Pinus clausa	
Slash pine	Pinus elliottii	
Longleaf pine	Pinus palustris	
Coontie	Zamia pumila	
ANGIOSPERMS		
Rosary pea*	Abrus precatorius	
Hammock snakeroot	Ageratina jucunda	
Yellow colic-root	*Aletris lutea*	
Golden trumpet*	Allamanda cathartica	
Alligator-weed*	Alternanthera philoxeroides	
Common ragweed	Ambrosia artemisiifolia	
Blue maidencane	Amphicarpum muhlenbergianum	
Bushy bluestem	Andropogon glomeratus var. pumilus	
Splitbeard bluestem	Andropogon ternarius	
Broomsedge	Andropogon virginicus	
Broomsedge	Andropogon virginicus var. decipiens	
Chalky bluestem	Andropogon virginicus var. glaucus	
Corkscrew threeawn	*Aristida gyrans*	
Tall threeawn	Aristida patula	
Bottlebrush threeawn	Aristida spiciformis	
Wiregrass	Aristida stricta var. beyrichiana	
Florida Indian-plantain	Arnoglossum floridanum	
Florida milkweed	*Asclepias feayi*	
Pinewoods milkweed	Asclepias humistrata	
Butterfly-weed	Asclepias tuberosa	
Manasota pawpaw	Asimina manasota	
Smallflower pawpaw	Asimina parviflora	
Dwarf pawpaw	Asimina pygmea	
Netted pawpaw	Asimina reticulate	
Rice-button aster	Aster dumosus var. coridifolius	

Lake Manatee State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
Pine-barren white-top aster	*Aster reticulatus*	
Carolina mosquito fern	*Azolla caroliniana*	
Saltwater false willow	Baccharis angustifolia	
Silverling	Baccharis glomeruliflora	
Salt bush	Baccharis halimifolia	
Coastal water-hyssop	*Bacopa monnieri*	
Yellow buttons	Balduina angustifolia	
Tarflower	Bejaria racemosa	
Florida greeneyes	Berlandiera subacaulis	
Beggar-ticks	*Bidens alba* var. *radiata*	
Small-fruit beggarticks	*Bidens mitis*	
False nettle	Boehmeria cylindrica	
American blueheart	*Buchnera americana*	
Capillary hairsedge	Bulbostylis ciliatifolia	
Northern bluethreads	*Burmannia biflora*	
Carolina fanwort	Cabomba caroliniana	
American beautyberry	*Callicarpa americana*	
Florida scrub roseling	*Callisia ornate*	
Florida paintbrush	Carphephorus corymbosus	
Scrub wild olive	Cartrema floridana	
Slender sandspur	Cenchrus gracillimus	
Coinwort; spadeleaf	*Centella asiatica*	
Spurred butterfly-pea	*Centrosema virginianum*	
Rosemary	Ceratiola ericoides	
Partridge-pea	Chamaecrista fasciculata	
Wild sensitive plant	Chamaecrista nictitans var. aspera	
Blodgett's sandmat	*Chamaesyae blodgettii*	
Hyssopleaf sandmat	Chamaesyce hyssopifolia	
Florida alicia; Chapman's pea	*Chapmannia floridana*	
Florida goldenaster	*Chrysopsis floridana*	SC, XH
Narrow-leaf goldenaster	Chrysopsis linearifolia subsp. dressii	
Maryland goldenaster	*Chrysopsis mariana*	
Camphor-tree*	Cinnamonum camphora	
Purple thistle	Cirsium horridulum	
Nuttall's thistle	*Cirsium nuttallii*	
Lemon*	Citrus limon	
Tread-softly	Cnidoscolus stimulosus	
Hairy rattail*	Coccocypselum hirsutum	
Common dayflower	*Commelina diffusa*	
Climbing day-flower	Commelina diffusa var. gigas	
Erect dayflower	Commelina erecta	
Dwarf horseweed	Conyza canadensis var. pusilla	
Leavenworth's tickseed	*Coreopsis leavenworthii*	
Smooth rattlebox*	Crotalaria pallida var. obovata	
Rabbit-bells	Crotalaria rotundifolia	

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
Narrow-leaf rushfoil	*Croton michauxii*	
Baldwin's flatsedge	*Cyperus croceus*	
Rusty flatsedge	*Cyperus odoratus*	
Pinebarren flatsedge	*Cyperus ovatus*	
Many-spike flatsedge	*Cyperus polystachyos*	
Tropical flatsedge	Cyperus surinamensis	
Whitetassels	*Dalea carnea*	
Florida tick-trefoil	*Desmodium floridanum*	
Zarzabacoa comun*	Desmodium incanum	
Dianella lily*	Dianella ensifolia	
Hemlock witchgrass	Dichanthelium portoricense	
Carolina ponysfoot	Dichondria caroliniensis	
Virginia buttonweed	*Diodia virginiana*	
Air potato*	Dioscorea bulbifera	
Persimmon	Diospyros virginiana	
Pink sundew	Drosera capillaris	
False daisy	Eclipta prostrata	
Water hyacinth *	Eichhornia crassipes	
Viviparous spikerush	*Eleocharis vivipara*	
Florida elephant's-foot	*Elephantopus elatus*	
Florida tasselflower*	*Emilia fosbergii*	
Thalia lovegrass*	Eragrostis atrovirens	
Coastal lovegrass	Eragrostis virginica	
Fireweed; Pilewort	Erechtites hieraciifolius	
Oakleaf fleabane	Erigeron quercifolius	
Daisy fleabane	Erigeron strigosus	
Early white-top fleabane	*Erigeron vernus*	
Flattened pipewort	Eriocaulon compressum	
Ten-angle pipewort	Eriocaulon decangulare	
Dog's tongue; Wild buckwheat	*Eriogonum tomentosum*	
Fragrant eryngium	*Eryngium aromaticum*	
Wild coco; Ground coco	*Eulophia alta*	
Dogfennel	Eupatorium capillifolium	
Mohr's thoroughwort	*Eupatorium mohrii*	
Round-leaf thoroughwort	*Eupatorium rotundifolium*	
Lesser Florida spurge	*Euphorbia polyphylla*	
Pinewoods fingergrass	*Eustachys petraea*	
Flat-topped goldenrod	*Euthamia caroliniana*	
Carolina fimbry	Fimbristylis caroliniana	
Hurricanegrass	Fimbristylis cymosa	
Pop ash	Fraxinus caroliniana	
Dwarf umbrellasedge	*Fuirena pumila*	
Southern umbrellasedge	*Fuirena scirpoidea*	
Elliott's milk-pea	*Galactia elliottii*	
Eastern milk-pea	Galactia volubilis	

Lake Manatee State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
Stiff marsh bedstraw	*Galium tinctorium*	
Garberia	Garberia heterophylla	SH, SC
Southern beeblossom	*Gaura angustifolia*	
Dwarf huckleberry	*Gaylussacia dumosa*	
Yellow jessamine	Gelsemium sempervirens	
Loblolly bay	Gordonia lasianthus	
Rough hedge-hyssop	*Gratiola hispida*	
Silk oak*	Grevillea robusta	
Tooth-petal; False rein orchid	*Habenaria floribunda*	
Spanish daisy; Bitterweed	*Helenium amarum*	
Pine-barren frostweed	*Helianthemum corymbosum*	
Narrow-leaved sunflower	*Helianthus angustifolius*	
Coastal plain hawkweed	*Hieracium megacephalon*	
Round-leaf bluet	Houstonia procumbens	
Hydrilla*	Hydrilla verticillata	
Floating marsh pennywort	*Hydrocotyle ranunculoides*	
Many-flower marsh pennywort	*Hydrocotyle umbellata*	
Round-pod St. John's-wort	*Hypericum cistifolium*	
St. Andrew's cross	Hypericum hypericoides	
Myrtle-leaf St. John's-wort	*Hypericum myrtifolium*	
Atlantic St. John's-wort	*Hypericum tenuifolium*	
Four-petal St. John's-wort	*Hypericum tetrapetalum*	
Fringed yellow-star grass	*Hypoxis juncea*	
Carolina holly; Sand holly	*Ilex ambigua*	
Dahoon holly	*Ilex cassine*	
Inkberry; Gallberry	*Ilex glabra*	
Cogongrass *	Imperata cylindrica	
Rough hairy indigo *	*Indigofera hirsuta*	
Trailing indigo *	*Indigofera spicata*	
Soft rush; Lamp rush	*Juncus effusus subsp. solutus*	
Grass-leaf rush; Shore rush	*Juncus marginatus*	
Big-head rush	Juncus megacephalus	
Needle-pod rush	Juncus scirpoides	
Fragrant flatsedge	*Kyllinga odorata*	
Carolina redroot; Bloodroot	*Lachnanthes caroliniana*	
White-head bog-buttons	*Lachnocaulon anceps*	
Grass-leaf lettuce	*Lactuca graminifolia*	
Shrub verbena*	*Lantana camara*	
Nodding pinweed	*Lechea cernua*	SH
Piedmont pinweed	*Lechea torreyi*	
Short-leaf blazing star	Liatris tenuifolia var. quadriflora	
Gopher apple	Licania michauxii	
Pine lily	Lilium catesbaei	MF
Savannah false pimpernel	*Lindernia grandiflora*	
Bay lobelia	Lobelia feayana	

Lake Manatee State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
Pineland lobelia	Lobelia homophylla	
Coral honeysuckle	Lonicera sempervirens	
Primrose-willow	Ludwigia lanceolata	
Seaside primrose-willow	*Ludwigia maritima*	
Mexican primrose-willow	*Ludwigia octovalvis*	
Peruvian primrose-willow*	*Ludwigia peruviana*	
Creeping primrose-willow	*Ludwigia repens*	
Shrubby primrose-willow	*Ludwigia suffruticosa*	
Sky-blue lupine	Lupinus diffusus	
Southern watergrass	*Luziola fluitans*	
Roserush	Lygodesmia aphylla	
Old world climbing fern*	*Lygodium microphyllum*	
Coastal plain staggerbush	*Lyonia fruticosa*	
Fetterbush; Shinyleaf	*Lyonia lucida*	
Sweetbay	Magnolia virginiana	
Purple axil-flower	Mecardonia acuminata subsp. peninsularis	
Melaleuca*	Melaleuca quinquenervia	
Climbing hempvine	*Mikania scandens*	
Bashful sensitive briar	Mimosa quadrivalvis var. floridana	
One-flower Indian pipe	*Monotropa uniflora*	
Wax myrtle	Myrica cerifera	
Parrot's-feather*	Myriophyllum aquaticum	
Spatter-dock; Yellow pond-lily	*Nuphar advena*	
Whitetop aster	Oclemena reticulata	
Prickly pear	Opuntia humifusa	
Scrub wild olive	Osmanthus megacarpus	
Cinnamon fern	Osmunda cinnamomea	
Royal fern	Osmunda regalis var. spectabilis	
Maidencane	Panicum hemitomon	
Gaping panicum	*Panicum hians*	
Virginia creeper; Woodbine	*Parthenocissus quinquefolia*	
Bahiagrass*	Paspalum notatum	
Thin paspalum	Paspalum setaceum	
Seashore paspalum	*Paspalum vaginatum*	
Red bay	Persea borbonia	
Silk bay	Persea borbonia var. humilis	
Swampbay	Persea palustris	
Florida false sunflower	*Phoebanthus grandiflorus*	
Oak mistletoe	Phoradendron leucarpum	
Fog fruit	Phyla nodiflora	
Starry-hair ground-cherry	*Physalis walteri*	
Pokeberry	Phytolacca americana	
Wild pennyroyal	Piloblephis rigida	
Yellow butterwort	*Pinguicula lutea*	DM
Small butterwort	Pinguicula pumila	

Lake Manatee State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
Grass-leaved golden aster	*Pityopsis graminifolia*	
Silver fern	Pityrogramma calomelanos	
Stinking camphorweed	*Pluchea foetida*	
Saltmarsh fleabane	*Pluchea odorata*	
Rosy camphorweed	*Pluchea rosea*	
Candyroot	Polygala nana	
Yellow milkwort	*Polygala rugelii*	
Coastal plain milkwort	*Polygala setacea*	
Showy milkwort	Polygala violacea	
Hairy jointweed	Polygonella ciliata	
Tall jointweed	Polygonella gracilis	
Octoberflower	*Polygonella polygama*	
Sandhill wireweed	*Polygonella robusta*	
Swamp smartweed	Polygonum hydropiperoides	
Dotted smartweed	Polygonum punctatum	
Rustweed	Polypremum procumbens	
Pickerelweed	Pontederia cordata	
Combleaf mermaidweed	Proserpinaca pectinata	
Chickasaw plum	Prunus angustifolia	
Wild cherry; Black cherry	*Prunus serotina*	
Guava*	Psidium guajava	
Lacy bracken fern	Pteridium aquilinum var. caudatum	
Tailed bracken	Pteridium aquilinum var. pseudocaudatum	
Blackroot	Pterocaulon pycnostachyum	
Giant orchid	Pteroglossapsis ecristata	MF
Chapman's oak	Quercus chapmanii	
Sand live oak	*Quercus geminata*	
Scrub oak	Quercus inopina	
Turkey oak	Quercus laevis	
Laurel oak	Quercus laurifolia	
Myrtle oak	Quercus myrtifolia	
Water oak	Quercus nigra	
Pale meadow beauty	*Rhexia mariana*	
Nuttall's meadow beauty	*Rhexia nuttallii*	
Swamp azalea	Rhododendron viscosum	
Downy rose myrtle*	Rhodomyrtus tomentosa	
Winged sumac	Rhus copallina	
Red Natalgrass*	Rhynchelytrum repens	
Starrush whitetop	Rhynchospora colorata	
Fasciculate beaksedge	Rhynchospora fascicularis	
Fernald's beaksedge	Rhynchospora fernaldii	
Sandy-field beaksedge	*Rhynchospora megalocarpa*	
Longbristle beaksedge	*Rhynchospora megaplumosa*	MF, SH
Tropical Mexican-clover	*Richardia brasiliensis*	
Sand blackberry	*Rubus cuneifolius*	

Lake Manatee State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
Cabbage palm	Sabal palmetto	
Shortleaf marsh pink	*Sabatia brevifolia*	
Large-flower marsh pink	*Sabatia grandiflora*	
American cupscale	Sacciolepis striata	
Carolina willow	Salix caroliniana	
Southern river sage	*Salvia misella*	
Water spangles	Salvinia minima	
Elderberry	Sambucus nigra subsp. canadensis	
Lizard's tail	*Saururus cernuus*	
Brazilian pepper*	Schinus terebinthifolius	
Little false bluestem	Schizachyrium scoparium	
Sweet broom; Licorice-weed	*Scoparia dulcis*	
Helmet skullcap	Scutellaria integrifolia	
Sand spikemoss (FDA)	*Selaginella arenicola*	
Septic weed	Senna occidentalis	
Saw palmetto	Serenoa repens	
Danglepod	Sesbania herbacea	
Knotroot foxtail	Setaria parviflora	
Common wireweed	*Sida acuta*	
Pantropical fanpetal*	*Sida cordifolia*	
Nash's blue-eyed grass	*Sisyrinchium nashii*	
Earleaf catbrier	*Smilax auriculata*	
Saw greenbrier	*Smilax bona-nox*	
Laurel-leaf greenbrier	*Smilax laurifolia*	
Pine-barren goldenrod	*Solidago fistulosa*	
Chapman's goldenrod	Solidago odora var. chapmanii	
Lopsided Indiangrass	*Sorghastrum secundum*	
Smutgrass*	Sporobolus indicus	
Pineywoods dropseed	*Sporobolus junceus*	
Queen's delight	Stillingia sylvatica	
Pineland scaly-pink	*Stipulicida setacea*	
Hairy dawnflower	*Stylisma villosa*	
Rice button aster	Symphyotrichum dumosum	
Yellow hatpins	Syngonanthus flavidulus	
Spreading hoary-pea	*Tephrosia hispidula*	
Downy maiden fern*	*Thelypteris dentata*	
Rough hairy maiden fern	Thelypteris hispidula var. versicolor	
Cardinal airplant	*Tillandsia fasciculate*	BG, XH
Small ball moss	Tillandsia recurvata	
Southern needle-leaf	*Tillandsia setacea*	
Spanish moss	Tillandsia usneoides	
Giant air plant	*Tillandsia utriculata*	BG, XH
Eastern poison ivy	Toxicodendron radicans	
Forked blue-curls	Trichostema dichotomum	
Purple sandgrass	Triplasis purpurea	

Lake Manatee State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
Southern cattail	Typha domingensis	
Caesar weed*	*Urena lobata*	
Paragrass*	Urochloa mutica	
Fringed bladderwort	*Utricularia simulans*	
Zigzag bladderwort	*Utricularia subulata*	
Sparkleberry	Vaccinium arboreum	
Shiny blueberry	Vaccinium myrsinites	
Deerberry	Vaccinium stamineum	
Brazilian vervain*	Verbena brasiliensis	
Possumhaw	Viburnum nudum	
Hairypod cowpea	*Vigna luteola*	
Long-leaf violet	Viola lanceolata	
Early blue violet	*Viola palmata*	
Primrose-leaved violet	*Viola primulifolia*	
Summer grape	Vitis aestivalis	
Southern fox grape	*Vitis rotundifolia*	
Netted chain fern	*Woodwardia areolata*	
Virginia chain fern	*Woodwardia virginica*	
Tallowwood; Hog plum	*Ximenia americana*	
Carolina yellow-eyed grass	*Xyris caroliniana*	
Elliott's yellow-eyed grass	*Xyris elliottii*	
Adam's needle	Yucca filamentosa	
Soldier's orchid *	Zeuxine strateumatica	

Lake Manatee State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
FISH		
Walking catfish*	*Clarias batrachus*	DM
Asian swamp eel*	*Monopterus Albus*	BM, BS, DM, RFLK
AMPHIBIANS		
Florida cricket frog	*Acris gryllus dorsalis*	DM, BG
Oak toad	*Anaxyrus quercicus*	MF, SCF, SC, XH
Southern toad	Anaxyrus terrestris	MTC
Greenhouse frog*	Eleutherodactylus planirostris	BG, SC
Eastern narrowmouth toad	*Gastrophryne carolinensis*	MF
Green treefrog	*Hyla cinerea*	MF
Pinewoods treefrog	*Hyla femoralis*	DM, BG
Squirrel treefrog	*Hyla squirella*	MF, BM, BS, WF
Florida gopher frog	*Lithobates capito*	MF, SCF, SH, SC
Southern leopard frog	Lithobates sphenocephalus	DM
Cuban tree frog*	Osteopilus septentrionalis	DV
Pig frog	Rana grylio	DM
REPTILES		
Florida cottonmouth	*Agkistrodon piscivorus*	BG, DM
American alligator	*Alligator mississippiensis*	DM
Green anole	Anolis carolinensis	MTC
Florida softshell turtle	*Apalone ferox*	DM
Cuban brown anole*	*Anolis sagrei*	MTC
Florida scarlet snake	*Cemophora coccinea coccinea*	MF, BG
Six-lined racerunner	*Cnemidophorus sexlineatus*	SH, SC, XH
Southern Black Racer	*Coluber constrictor priapus*	MF, SC, XH, SH
Eastern diamondback	*Crotalus adamanteus*	SH, MF, SCF, SC, XH
Southern ringneck snake	*Diadophis punctatus punctatus*	SH, MF, SCF
Eastern indigo snake	*Drymarchon couperi*	MF, SH, SC
Southeastern five-lined skink	*Eumeces inexpectatus*	SC, SH, MF, SCF
Gopher tortoise	*Gopherus polyphemus*	SH, SC, SCF, XH
Common house gecko	*Hemidactylus frenatus*	DV
Southern hognose snake	*Heterodon simus*	MF, SC
Florida mud turtle	Kinosternon subrubrum steindachneri	BG
Scarlet kingsnake	*Lampropeltis elapsoides*	MF, BG
Eastern coachwhip	Masticophis flagellum flagellum	MF, SC, SH
Eastern coral snake	*Micrurus fulvius*	MF, BG
Banded water snake	*Nerodia fasciata fasciata*	MF, DM, BG
Florida green water snake	*Nerodia floridana*	BG
Eastern rough green snake	Opheodrys aestivus carinatus	BG
Eastern slender glass lizard	Ophisaurus attenuatus longicaudus	MF

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
Yellow rat snake	*Pantherophis alleghaniensis*	MF, SH, XH, BG
Corn snake	*Pantherophis guttatus*	SH, MF, SCF
Florida pine snake	*Pituophis melanoleucus mugitus*	MF, SH, SC, XH
Peninsula cooter	Pseudemys peninsularis	DM
Ground skink	Scincella lateralis	DM, BG
Southern Florida swamp snake	*Seminatrix pygaea cyclas*	DM, BG
Florida box turtle	*Terrapene carolina bauri*	MF, SCF, XH, BG
Peninsula ribbon snake	Thamnophis sauritus sackenii	BG
Eastern garter snake	Thamnophis sirtalis sirtalis	MF, BG
Florida brown snake	*Storeria victa*	MF, BG

BIRDS

Sharp-shinned hawk	*Accipiter striatus*	MF, SC, BG
Spotted sandpiper	*Actitis macularia*	OF
Red-winged blackbird	*Agelaius phoeniceus*	DM
Mottled duck	*Anas fulvigula*	DM
Mallard	Anas platyrhynchos	DM
Anhinga	Anhinga anhinga	OF
Florida scrub-jay	Aphelocoma coerulescens	OF
Limpkin	Aramus guarauna	OF
Great egret	*Ardea alba*	DM
Great blue heron	*Ardea herodias*	DM
Lesser scaup	*Aythya affinis*	OF
American bittern	Botaurus lentiginosus	DM
Great horned owl	*Bubo virginianus*	MTC
Cattle egret	*Bubulcus ibis*	AG
Bufflehead	Bucephala albeola	OF
Red-tailed hawk	*Buteo jamaicensis*	MF, SC, SH, BG
Red-shouldered hawk	*Buteo lineatus*	MF, SC, BG
Broad-winged hawk	*Buteo platypterus*	OF
Green heron	Butorides virescens	DM
Muscovy duck*	Cairina moschata	OF
Crested caracara	*Caracara cheriway*	SH, MF
Chuck-will's widow	Caprimulgus carolinensis	MTC
Whip-poor-will	Caprimulgus vociferus	MTC
Northern cardinal	Cardinalis cardinalis	MTC
American goldfinch	*Carduelis tristis*	MF
Turkey vulture	*Cathartes aura*	MTC
Veery	Catharus fuscescens	BG
Belted kingfisher	*Ceryle alcyon*	OF
Chimney swift	Chaetura pelagica	OF
Killdeer	Charadrius vociferus	AG
Common nighthawk	*Chordeiles minor*	MF, SH, SC
Northern harrier	*Circus cyaneu*	OF

Lake Manatee State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
Northern flicker	*Colaptes auratus*	MTC
Northern bobwhite	*Colinus virginianus*	MF, SC
Common ground-dove	*Columbina passerina*	MF
Olive-sided flycatcher	*Contopus cooperi*	MF
Black vulture	*Coragyps atratus*	MTC
Fish crow	Corvus ossifragus	MTC
American crow	Corvus brachyrhynchos	MTC
Blue jay	Cyanocitta cristata	MTC
Yellow-rumped warbler	*Dendroica coronata*	MF, BG
Yellow-throated warbler	*Dendroica dominica*	BG
Palm warbler	*Dendroica palmarum*	MF, BG
Pine warbler	*Dendroica pinus*	MF, BG
Pileated woodpecker	*Dryocopus pileatus*	MF, XH, BG
Gray catbird	Dumetella carolinensis	MF, BG
Little blue heron	*Egretta caerulea*	DM
Snowy egret	*Egretta thula*	DM
Tricolored heron	*Egretta tricolor*	DM
Swallow tailed kite	*Elanoides forficatus*	OF
White ibis	Eudocimus albus	MTC
Southeastern american kestrel	*Falco sparverius paulus*	MTC
American coot	Fulica americana	OF
Wilson's snipe	*Gallinago delicata*	DM
Common snipe	Gallinago gallinago	DM
Common moorhen	Gallinula chloropus	DM
Sandhill crane	Grus canadensis pratensis	MTC
Common yellowthroat	*Geothlypis trichas*	MF, BG
Bald eagle	Haliaeetus leucocephalus	OF
Loggerhead shrike	*Lanius ludovicianus*	MF, SC
Ring-billed gull	*Larus delawarensis*	OF
Laughing gull	Leucophaeus atricilla	OF
Short-billed dowitcher	Limnodromus griseus	OF
Eastern screech owl	*Megascops asio*	MTC
Red-bellied woodpecker	*Melanerpes carolinus*	MTC
Wild turkey	*Meleagris gallopavo*	MF, SC, XH
Swamp sparrow	Melospiza georgiana	DM, BG
Red-breasted merganser	*Mergus serrator*	OF
Northern mockingbird	*Mimus polyglottos*	MTC
Black-and-white warbler	*Mniotilta varia*	BG, XH
Great crested flycatcher	*Myiarchus crinitus*	MF, SC
Wood stork	Mycteria Americana	DM
Yellow-crowned night heron	*Nyctanassa violacea*	DM
Black-crowned night heron	*Nycticorax nycticorax*	DM
Osprey	Pandion haliaetus	BG, MF, XH
Northern parula	*Parula americana*	MTC
Tufted titmouse	*Parus bicolor*	MTC

Lake Manatee State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
House sparrow*	Passer domesticus	DV
Indigo bunting	*Passerina cyanea*	OF
American white pelican	Pelecanus erythrorhynchos	OF
Brown pelican	Pelecanus occidentalis	OF
Double crested cormorant	*Phalacrocorax auritus*	OF
Downy woodpecker	*Picoides pubescens*	MF, SC
Eastern towhee	*Pipilo erythrophthalmus*	MF, SC, SH, BG
Roseate spoonbill	*Platalea ajaja*	DM
Pied-billed grebe	*Podilymbus podiceps*	OF
Blue-gray gnatcatcher	*Polioptila caerulea*	MF, SC
Purple gallinule	*Porphyrula martinica*	OF
Purple martin	*Progne subis*	OF
Prothonotary warbler	*Protonotaria citrea*	BG
Boat-tailed grackle	*Quiscalus major*	DM
Common grackle	Quiscalus quiscula	MTC
Eastern phoebe	*Sayornis phoebe*	MTC
American redstart	*Setophaga ruticilla*	MF, BG
Eastern bluebird	*Sialia sialis*	MF
Northern rough-winged swallow	*Stelgidopteryx serripennis*	OF
Forster's tern	*Sterna forsteri*	OF
Barred owl	*Strix varia*	MTC
Eastern meadowlark	*Sturnella magna*	MF, AG
Tree swallow	Tachycineta bicolor	OF
Carolina wren	Thryothorus ludovicianus	MTC
Brown thrasher	*Toxostoma rufum*	MF, SC
House wren	Troglodytes aedon	MF
American robin	Turdus migratorius	MTC
Barn owl	*Tyto alba*	MTC
White-eyed vireo	*Vireo griseus*	MF, BG
Mourning dove	*Zenaida macroura*	MTC

MAMMALS

Short-tailed shrew	*Blarina brevicauda*	MF, SC
Coyote*	Canis latrans	MTC
Least shrew	*Cryptotis parva*	MF, SC
Nine-banded armadillo*	*Dasypus novemcinctus*	MTC
Virginia opossum	Didelphis virginiana	MTC
Southern flying squirrel	*Glaucomys volans*	SC, MH, SCF, XH
River otter	Lutra canadensis	BG
Bobcat	*Lynx rufus*	MF, SC, MH, XH
Striped skunk	*Mephitis mephitis*	MF, SC, XH
House mouse*	*Mus musculus*	MF, DV
Round-tailed muskrat	*Neofiber alleni*	DM
Eastern woodrat	*Neotoma floridana*	MF, BG

Lake Manatee State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (Designated species)
White-tailed deer	Odocoileus virginianus	MTC
Marsh rice rat	Oryzomys palustris	DM
Eastern pipistrelle	*Perimyotis subflavus*	MTC
Cotton mouse	*Peromyscus gossypinus*	MF, SC, BG
Florida mouse	Podomys floridanus	SC
Raccoon	Procyon lotor	MTC
Black rat*	Rattus rattus	DV
Eastern mole	*Scalopus aquaticus*	MF, SH
Eastern gray squirrel	*Sciurus carolinensis*	MTC
Sherman's fox squirrel	*Sciurus niger shermani*	MF
Hispid cotton rat	*Sigmodon hispidus*	MTC
Eastern spotted skunk	*Spilogale putorius*	MF, SC, BG
Eastern cottontail	*Sylvilagus floridanus*	MF, SC
Marsh rabbit	Sylvilagus palustris	DM
Brazilian free-tailed bat	*Tadarida brasiliensis*	MTC
Wild pig*	*Sus scrofa*	MTC
Gray fox	Urocyon cinereoargenteus	MF, SH, SC
Red fox*	*Vulpes vulpes*	SH, MF, SC

TERRESTRIAL

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

PALUSTRINE

Alluvial Forest	AF
Basin Marsh	BM
Basin Swamp	BS
Baygall	BG
Bottomland Forest	BF
Coastal Interdunal Swale	CIS
Depression Marsh	DM
Dome Swamp	DS
Floodplain Marsh	FM
Floodplain Swamp	FS
Glades Marsh	GM
Hydric Hammock	HH
Keys Tidal Rock Barren	KTRB
Mangrove Swamp	MS
Marl Prairie	MP
Salt Marsh	SAM
Seepage Slope	SSL
Shrub Bog	SHB
Slough	SLO
Slough Marsh	SLM
Strand Swamp	STS

Wet Prairie ..... WP

LACUSTRINE

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

RIVERINE

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

SUBTERRANEAN

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

ESTUARINE

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

MARINE

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

ALTERED LANDCOVER TYPES

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

MISCELLANEOUS

Many Types of Communities	MTC
Overflying	OF

Addendum 6—Imperiled Species Ranking Definitions

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

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

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

FNAI GLOBAL RANK DEFINITIONS

G1 ..... Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or fabricated factor.

G2 ..... Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

G3 ..... Either very rare or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.

G4 ..... apparently secure globally (may be rare in parts of range)

G5 ..... demonstrably secure globally

GH ..... of historical occurrence throughout its range may be rediscovered (e.g., ivory-billed woodpecker)

GX ..... believed to be extinct throughout range

GXC ..... extirpated from the wild but still known from captivity or cultivation

G#? ..... Tentative rank (e.g.,G2?)

G#G# ..... range of rank; insufficient data to assign specific global rank (e.g., G2G3)

G#T# ..... rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)

G#Q..... rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)

G#T#Q..... same as above, but validity as subspecies or variety is questioned.

GU .....due to lack of information, no rank or range can be assigned (e.g., GUT2).
G?.....Not yet ranked (temporary)
S1.....Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
S2.....Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
S3.....Either very rare or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
S4.....apparently secure in Florida (may be rare in parts of range)
S5.....demonstrably secure in Florida
SH .....of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
SX.....believed to be extinct throughout range
SA.....accidental in Florida, i.e., not part of the established biota
SE.....an exotic species established in Florida may be native elsewhere in North America
SN .....regularly occurring but widely and unreliably distributed; sites for conservation hard to determine
SU .....due to lack of information, no rank or range can be assigned (e.g., SUT2).
S?.....Not yet ranked (temporary)
N .....Not currently listed, nor currently being considered for listing, by state or federal agencies.

LEGAL STATUS

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

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

E(S/A) ..... Endangered due to similarity of appearance.
T(S/A) ..... Threatened due to similarity of appearance.
EXPE, XE..... Experimental essential population. A species listed as experimental and essential.
EXPN, XN .... Experimental non-essential population. A species listed as experimental and non-essential. Experimental, nonessential populations of endangered species are treated as threatened species on public land, for consultation purposes.

STATE

ANIMALS .. (Listed by the Florida Fish and Wildlife Conservation Commission - FWC)

FE ..... Federally-designated Endangered
FT ..... Federally-designated Threatened
FXN..... Federally-designated Threatened Nonessential Experimental Population
FT(S/A) ..... Federally-designated Threatened species due to similarity of appearance
ST..... Listed as Threatened Species by the FWC. Defined as a species, subspecies, or isolated population, which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat, is decreasing in area at a rapid rate and therefore is destined or very likely to become an endangered species within the near future.
SSC..... Listed as Species of Special Concern by the FWC. Defined as a population which warrants special protection, recognition or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance or substantial human exploitation that, in the near future, may result in its becoming a threatened species.

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

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

Addendum 7—Cultural Information

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

A. General Discussion

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

B. Agency Responsibilities

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

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

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

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

C. Statutory Authority

Statutory Authority and more in depth information can be found at:
http://www.flheritage.com/preservation/compliance/guidelines.cfm

D. Management Implementation

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

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

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

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

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at: http://www.flheritage.com/preservation/compliance/docs/minimum_review_documentation_requirements.pdf .

* * *

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

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

Phone: (850) 245-6425
Toll Free: (800) 847-7278
Fax: (850) 245-6435

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

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

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

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

- **a)** a religious property deriving its primary significance from architectural or artistic distinction or historical importance; or
- **b)** a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
- **c)** a birthplace or grave of an historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or
- **d)** a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, distinctive design features, or association with historic events; ora reconstructed building, when it is accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and no other building or structure with the same association has survived; or a property primarily commemorative in intent, if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
- **e)** a property achieving significance within the past 50 years, if it is of exceptional importance.

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

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

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

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

Addendum 8—Land Management Review

Florida Department of
Environmental Protection

Memorandum

TO: Paula Allen, Program Administrator
Division of State Lands

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

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

SUBJECT: Response to Draft 2008 Land Management Review (LMR)
Lake Manatee State Park

DATE: June 20, 2008

The 2008 Land Management Review draft report provided to Division of Recreation & Parks (DRP) determined that management of Lake Manatee State Park by the DRP met the two tests prescribed by law. Namely, the review team concluded that the land is being managed for the purposes for which it was acquired and in accordance with the land management plan.

Below are additional Recommendations of the draft LMR report, with our response to each. The responses were prepared via a coordinated effort of the park, district office, and our offices.

Recommendations

1. The team recommends that DRP explore possible locations for housing sites for on-site security, to enhance maintenance and management of the park. (VOTE: 6+, 0-) *Managing Agency Response: Although the team has pointed out benefits deserving consideration, and although this may someday be implemented, the Division believes it is beyond the scope of the team's review to plan development in state parks.*

Checklist Findings

1. Management issues related to the sandhill (PR, FR), scrub (PR) and scrubby flatwoods (FR) *Managing Agency Response:* Please note that the checklist scores on the above issues were not below average, except for scrubby flatwoods (FR). A timber harvest plan has been developed for sand pines in scrubby flatwoods, with the assistance of the Florida Division of Forestry. After harvest, prescribed burning will be applied.

2. Management of the listed species including the golden aster (PR) *Managing Agency Response: This is addressed in the current plan, and additional information from current monitoring studies will be included in the next plan revision.*

3. Management issues related to the need to monitor surface water quality (PR) and quantity (FR) *Managing Agency Response: The Division and the County currently coordinate on surface water monitoring for water quality in the recreational swimming area, and the County has recently installed several water circulation devices to control bluegreen algae blooms,*

increase oxygen levels and reduce invasive exotic weed growth. The information will be added to the plan during revision. Water quantity in Lake Manatee is outside Division purview.

4. Management of the adjacent property concerns including inholdings/additions (FR)
Managing Agency Response: This issue is most likely related to noise pollution from the race track adjacent to the park. The issue is addressed in the unit management plan, but remediation in the field is currently outside Division purview.

5. Management of infrastructure including the need for additional staff and funding (FR)
Managing Agency Response: Division funding and appropriation of new staff are determined annually by the Florida Legislature. Additional funding and staff is needed by a majority of parks statewide.

Cc: Valinda Subic, Bureau Chief, District 4
Ezell Givens, Assistant Bureau Chief, District 4
Curt Wolbert, Park Manager, Lake Manatee SP
Terry Hingtgen, ES III, District 4