

Little Manatee River State Park

Approved Plan Unit Management Plan

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Recreation and Parks
December 16, 2016





Florida Department of Environmental Protection

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

Rick Scott
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Lt. Governor

Jonathan P. Steverson
Secretary

December 19, 2016

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

RE: Long Key State Park (Lease #3672)
Curry Hammock State Park (Lease #3983)
Suwannee River State Park (Lease #3643)
Little Manatee River State Park (Lease #2806)

Dear Ms. Murray:

On **December 16, 2016**, the Acquisition and Restoration Council recommended approval of the above management plans. Therefore, the Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the above mentioned management plans. The next management plan update for these plans is due December 16, 2026.

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,

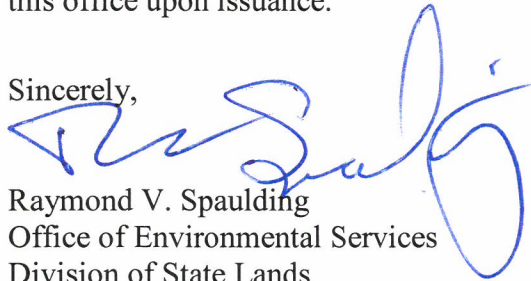

Raymond V. Spaulding
Office of Environmental Services
Division of State Lands
Department of Environmental Protection

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INTRODUCTION

Little Manatee River State Park is located in the southwestern portion of Hillsborough County (see Vicinity Map). Access to the park is from Interstate 75, exit 240B (State Road 674) east to U.S. Highway 301, south to Lightfoot Road (see Reference Map). The Vicinity Map also reflects significant land and water resources existing near the park.

Little Manatee River State Park was initially acquired on August 2, 1974 with funds from the Land Acquisition Trust Fund (LATF). Currently, the park comprises 2,416.40 acres. The Board of Trustees of the Internal Improvement Trust Fund (Trustees) hold fee simple title to the park and on April 10, 1975, the Trustees leased (Lease Number 2806) the property to DRP under a ninety-nine year lease. The current lease will expire on April 9, 2074.

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

Purpose and Significance of the Park

The purpose of Little Manatee River State Park is to protect and restore the natural and cultural values of the environmentally unique and irreplaceable lands associated with the Little Manatee River corridor and to provide resource-based outdoor recreation opportunities for the citizens of the state.

Park Significance

- The Little Manatee River provides some of the best examples of blackwater stream and bottomland forest in Hillsborough County. The river remains one of the most pristine blackwater rivers in southwest Florida.
- The upland natural communities in the park, including sandhill, scrub, and mesic and scrubby flatwoods, provide valuable remnants in a region where ninety percent or more of the original natural areas have been lost to development, mining, and agriculture.
- The diversity of habitats in the park support a variety of imperiled species including gopher tortoise, Florida manatee, Florida sandhill crane, Sherman's fox squirrel, and Florida golden aster.
- The park provides a diversity of high-quality outdoor recreational opportunities for residents and visitors in one of the state's most developed regions.

Little Manatee River State Park is classified as a state park in the DRP's unit classification system. In the management of a state park, a balance is sought between the goals of maintaining and enhancing natural conditions and providing various recreational opportunities. Natural resource management activities are

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

Purpose and Scope of the Plan

This plan serves as the basic statement of policy and direction for the management of Little Manatee River 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.

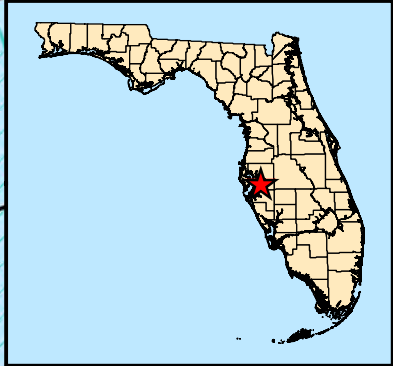
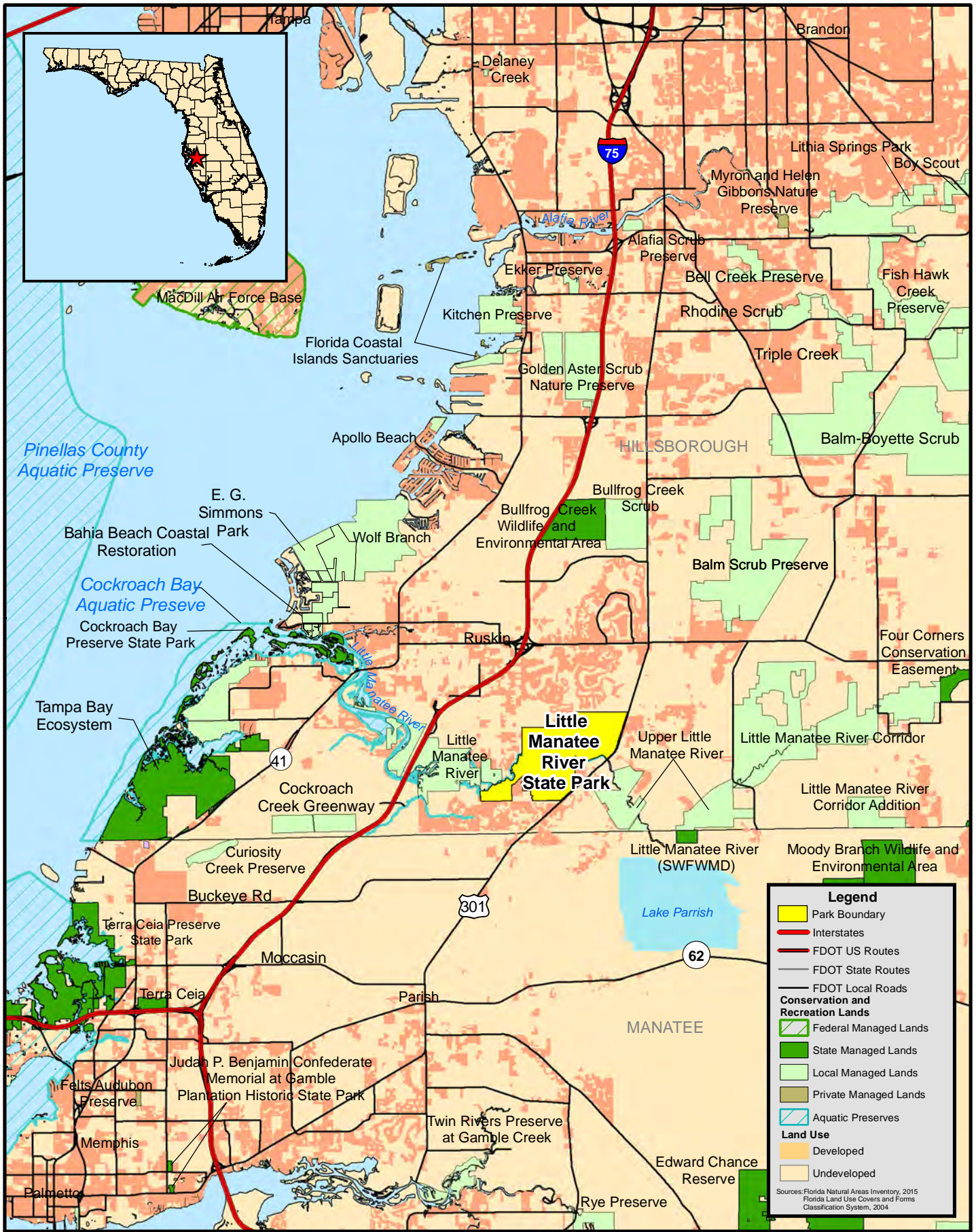
The plan consists of three interrelated components: the Resource Management Component, the Land Use Component and the Implementation Component. The Resource Management Component provides a detailed inventory and assessment of the natural and cultural resources of the park. Resource management needs and 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, 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.

In the development of this plan, the potential of the park to accommodate secondary management purposes was analyzed. These secondary purposes were



Legend

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

Conservation and Recreation Lands

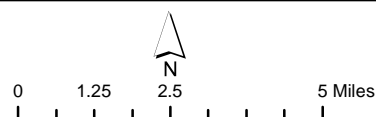
- Federal Managed Lands
- State Managed Lands
- Local Managed Lands
- Private Managed Lands
- Aquatic Preserves

Land Use

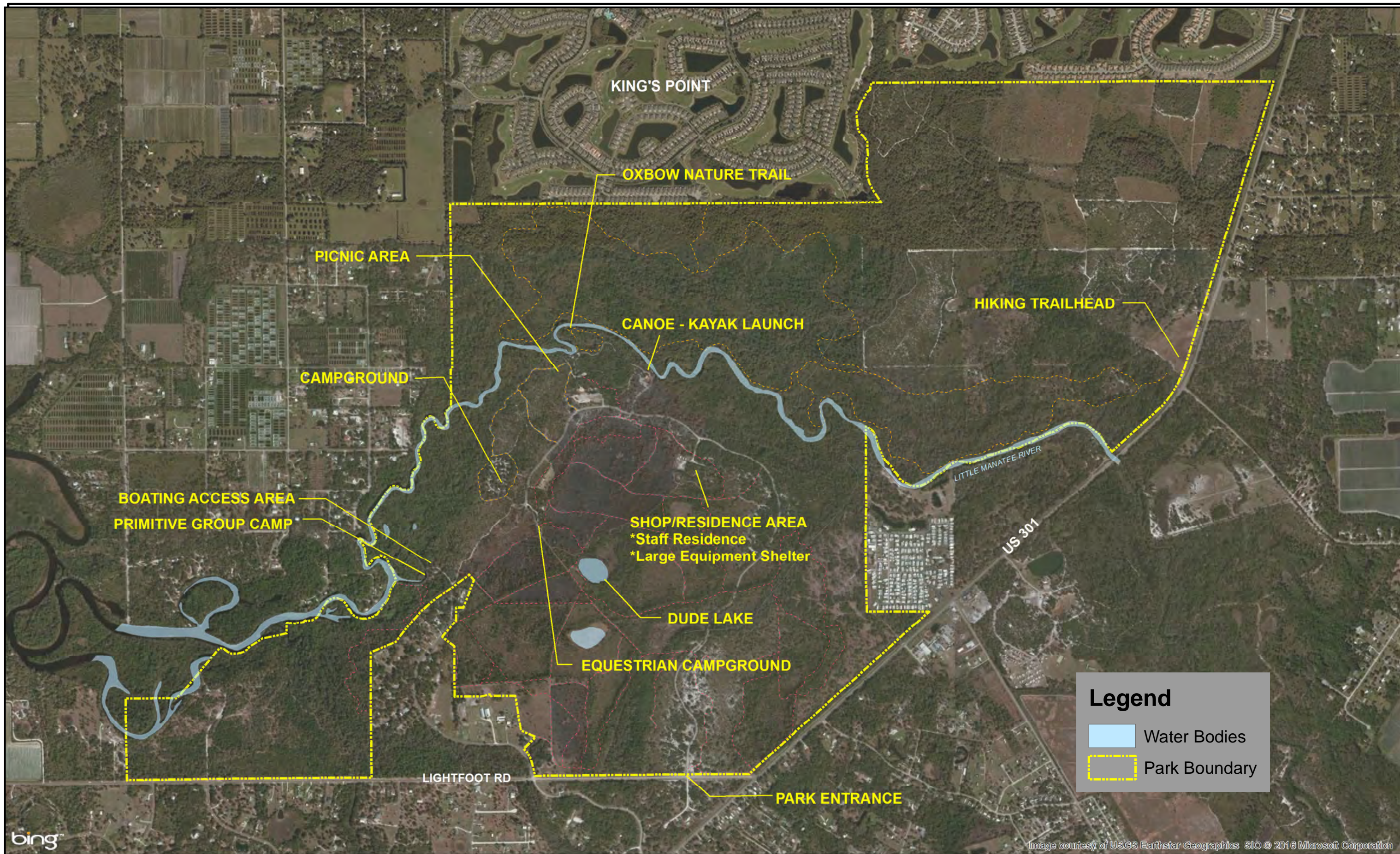
- Developed
- Undeveloped

Sources: Florida Natural Areas Inventory, 2015
Florida Land Use Covers and Forms Classification System, 2004

LITTLE MANATEE RIVER STATE PARK



VICINITY MAP



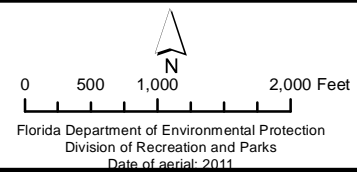
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- Water Bodies
- Park Boundary

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Image courtesy of USGS Earthstar Geographics SIO © 2016 Microsoft Corporation

LITTLE MANATEE RIVER
STATE PARK



REFERENCE MAP

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

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

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.

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

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. The Florida Department of State (FDOS), Division of Historical Resources (DHR) assists staff to ensure protection of archaeological and historical sites. The Florida Department of Environmental Protection (DEP), Florida Coastal Office (FCO) aids staff in aquatic preserves management programs. The DEP, Bureau of Beaches and Coastal Systems aids staff in planning and construction activities seaward of the Coastal Construction Control Line (CCCL). In addition, the Bureau of Beaches and Coastal Systems aid the staff in the development of erosion control projects. Park staff collaborate periodically with staff of the Southwest Florida Water Management District on water quality monitoring and protection activities on the Little Manatee River.

Public Participation

DRP provided an opportunity for public input by conducting a public workshop and an Advisory Group meeting to present the draft management plan to the public. These meetings were held on July 27 and 28, respectively. Meeting notices were published in the Florida Administrative Register, July 15, 2016 [VOL 42/137], 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

Little Manatee River 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 adjacent to the Cockroach Bay Aquatic Preserve as designated under the Florida Aquatic Preserve Act of 1975 (Section 258.35, Florida Statutes).

RESOURCE MANAGEMENT COMPONENT

Introduction

The Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) in accordance with Chapter 258, Florida Statutes, has implemented resource management programs for preserving for all time the representative examples of natural and cultural resources of statewide significance under its administration. This component of the unit plan describes the natural and cultural resources of the park and identifies the methods that will be used to manage them. 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 the 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. Little Manatee River State Park Management Zones			
Management Zone	Acreage	Managed with Prescribed Fire	Contains Known Cultural Resources
LMR-1	41	Yes	Yes
LMR-2	98	Yes	yes
LMR-3	66	Yes	No
LMR-4	20	Yes	No
LMR-5	20	Yes	No
LMR-5B	10	Yes	No
LMR-5C	4	Yes	No
LMR-6	13	Yes	No
LMR-7	36	Yes	No
LMR-8	26	Yes	No
LMR-9	40	Yes	No
LMR-10	25	Yes	No
LMR-11	48	Yes	No
LMR-12	62	Yes	No
LMR-13	46	Yes	No
LMR-14	36	Yes	No
LMR-15	48	Yes	Yes
LMR-16	122	Yes	No
LMR-17	35	Yes	No
LMR-18	17	Yes	No
LMR-19	18	Yes	No
LMR-20	11	No	No
LMR-21	102	Yes	Yes
LMR-22	35	Yes	No
LMR-23	25	Yes	No
LMR-24	22	Yes	No
LMR-25	31	Yes	No
LMR-26	31	Yes	No
LMR-27	18	Yes	No
LMR-28	51	Yes	No
LMR-29	23	Yes	No
LMR-30	23	Yes	No
LMR-31	24	Yes	Yes
LMR-32	27	Yes	Yes
LMR-33	86	Yes	Yes
LMR-34	83	Yes	Yes
LMR-35	20	Yes	No
LMR-36	155	No	No
LMR-37	123	Yes	No
LMR-38	16	no	No
LMR-39	18	no	No

LMR-40	35	No	No
LMR-41	11	No	No
LMR-42	16	No	No
LMR-43	20	No	No
LMR-44	20	Yes	No
LMR-45	53	No	No
LMR-46	45	Yes	No
LMR-47	38	Yes	No
LMR-48	48	Yes	Yes
LMR-49	38	Yes	No
LMR-50	25	Yes	No
LMR-51	32	Yes	No
LMR-52	32	Yes	No
LMR-53	30	Yes	No
LMR-54	41	Yes	No
LMR-55	7	Yes	No
LMR-56	10	Yes	No
LMR-57	62	Yes	No
LMR-58	27	Yes	No
LMR-59	32	Yes	No
LMR-60	28	Yes	No
LMR-R	32	No	No

Resource Description and Assessment

Natural Resources

Topography

Little Manatee River State Park lies in the Gulf Coastal Lowlands physiographic region near the edge of the De Soto Plain. The topography of the park is generally flat, with an average elevation of 19 to 20 feet above mean sea level. The highest point, at 65 feet, is in the easternmost section of the park; while the lowest elevation, averaging 5 feet, occurs along the Little Manatee River. At this low elevation, the river is within tidal reach of the Gulf of Mexico (Fernandez 1985). The lowland along the river is occasionally interrupted by bluffs ranging 8-9 feet in elevation. The rapid elevation change at the floodplain margin is marked by an abrupt change from a hydric community to a xeric one.

Geology

Little Manatee River State Park lies within the Florida peninsular sedimentary province. The underlying geological formation in this area dates from the Pliocene and Pleistocene periods. It is composed of preglacial Pleistocene lagoonal and prograded unlithified coastal sand, of shelly, silty, gray to greenish sand, and of reworked white, pure quartz sand with little or no heavy minerals. Sedimentary

cover is between 30 - 200 feet thick, and there is a dense layer of impermeable clay between overlying sandy material and underlying limestone.

Soils

The park is located in a portion of Hillsborough County that is within the limits of two general soil units: Myakka-Immokalee-Pomello and Myakka-Basinger-Holopaw (Doolittle et al. 1989). Floodplain soils occur adjacent to the Little Manatee River and its tributaries. There are 13 distinct soil types within the boundaries of the park (see Soils Map). Addendum 3 contains detailed descriptions of these soils.

Soil erosion is a problem along the perimeter of abandoned crop fields in the northeastern section of the park. In the same vicinity, a gully has eroded along a former boundary fence line through scrub and mesic flatwoods. Eroded soil is washing into Cypress Creek.

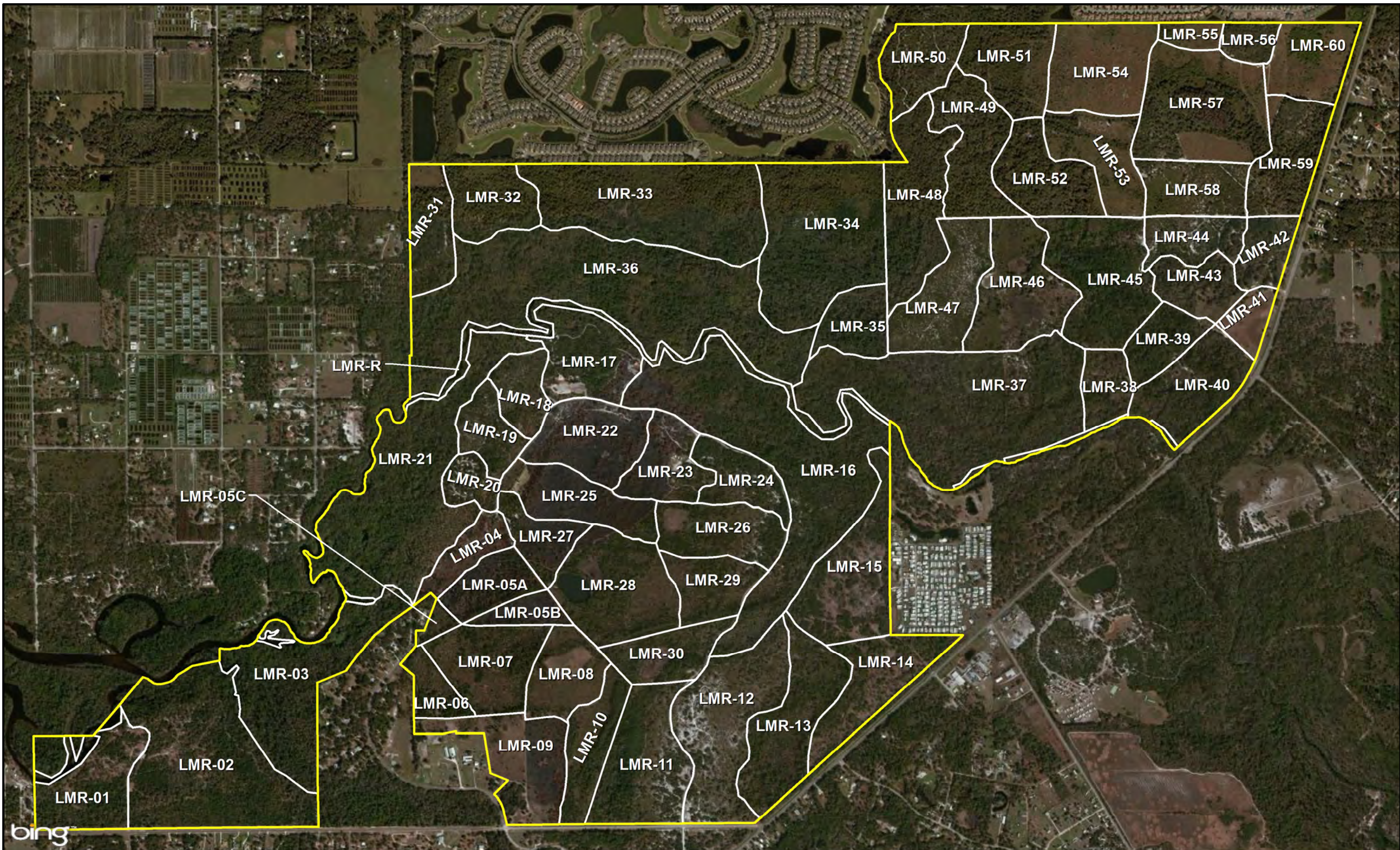
Minerals

The Peace River, as well as some other Florida streams, were dredged for pebble phosphate rock ("bone phosphate") beginning in 1888 (FDE 1984). The mineral probably occurred in blackwater streams south of, and including, the Hillsborough River (Johnson 1994). Picks and shovels were used at first to remove nodules of phosphate. Steam-driven centrifuge pumps were in use by the time river pebble production ceased in 1908. Thereafter, the industry was sustained by land pebble mining (FDE 1984).

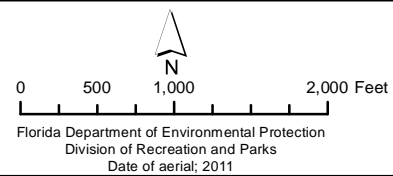
Hydrology

The Little Manatee River below State Road 674 has been designated as an Outstanding Florida Water. As such, special permitting criteria are used by the Florida Department of Environmental Protection for activities that might impact the water quality of the river. The waters within the park are also classified as Class III waters by the Department of Environmental Protection. Under this classification, the waters should be suitable for recreation, propagation and maintenance of a well-balanced population of fish and wildlife. If monitoring reveals any changes in the ambient water quality measures will be taken to remedy any problems. The submerged portion of the river channel is considered part of the Cockroach Bay Aquatic Preserve.

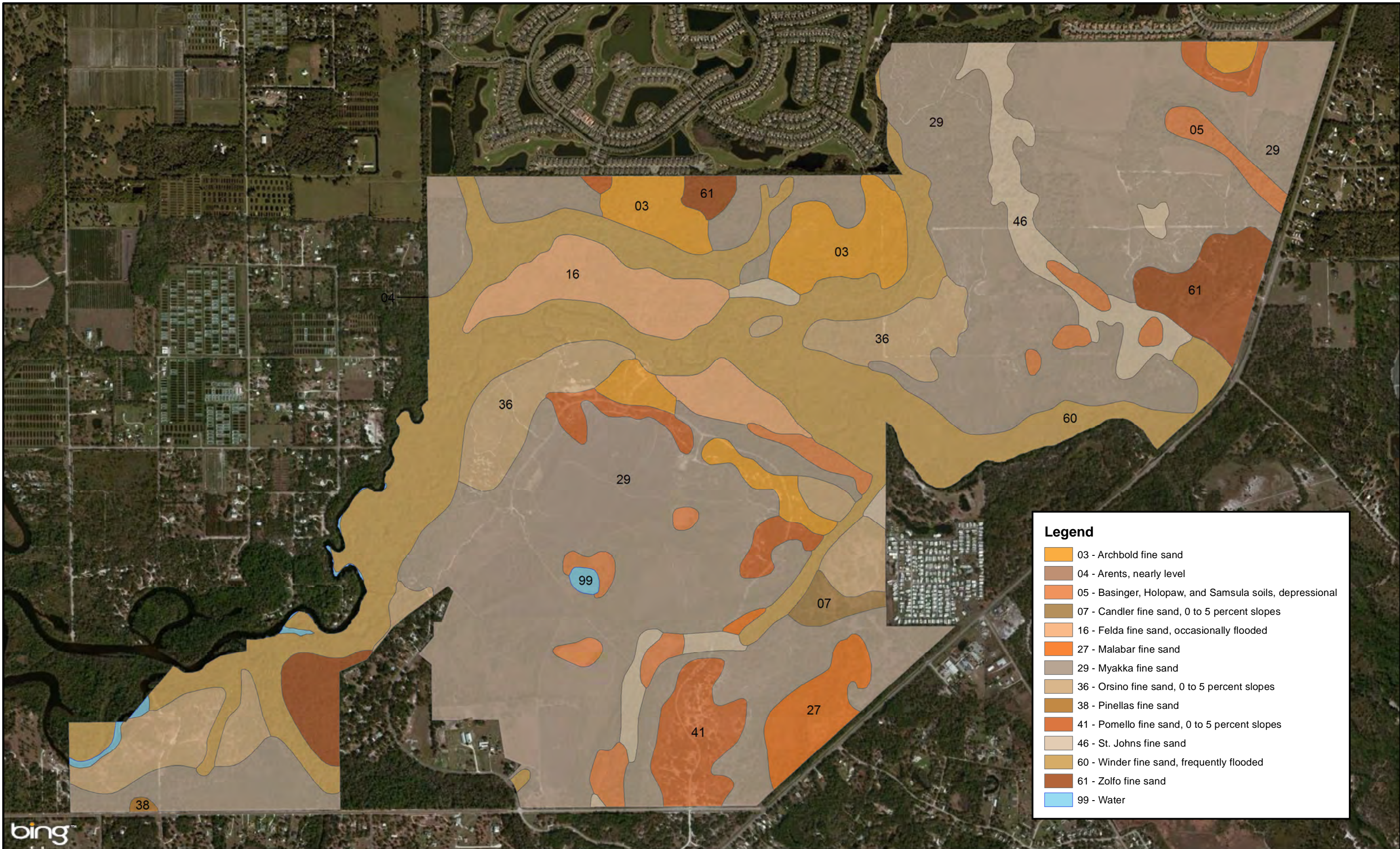
The Southwest Florida Water Management District has scheduled the establishment of minimum flows for the Little Manatee River in 2006-2015, with a draft currently under review. Minimum flows are defined as in Florida Statutes as "the limit at which further withdrawals would result in significant harm to the water resources or ecology of the area (F.S. 373.042). The establishment of minimum flows will have a major effect on the availability of additional water supplies from the Little Manatee River.



LITTLE MANATEE RIVER
STATE PARK

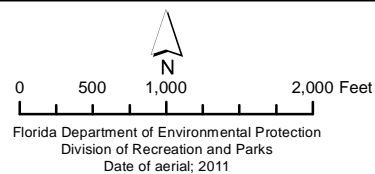


MANAGEMENT ZONES MAP



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LITTLE MANATEE RIVER
STATE PARK



SOILS MAP

Surface waters contributing to the Little Manatee River upstream from park boundaries include the South Fork, North Fork and Dug Creek. The South Fork originates in Manatee County and flows north into the river. The North Fork originates near Fort Lonesome in eastern Hillsborough County. It flows west and merges with the South Fork approximately 1.5 miles east of U.S Hwy 301. Tributaries contributing to the North Fork include the Carlton Branch and the Gully Branch which flow south into the North Fork. Dug Creek flows south and enters the river just east of U.S Hwy 301.

Surface waters contributing to the Little Manatee River within the park boundaries include Cypress Creek, a smaller unnamed tributary and several sloughs. Cypress Creek is the main tributary located within the park and originates within Sun City Center. Sun City Center is an area of medium density commercial and residential development. The creek receives urban storm water runoff from ditches flowing into the headwaters. Drainage from these areas of development and agriculture has a potential to adversely affect the water quality of Little Manatee River. Drainage ditches flowing directly into the river may also affect water quality. The ditches deposit offsite drainage directly into the river without the natural filtering effects of wetlands. Other sources of potential adverse impacts on water quality include phosphate mining along upstream tributaries and water diversion by Florida Power and Light Corporation.

The River within the park boundaries is tidally influenced. The tidal influence in most of the park is a result of the blackwater effect from the tidal prism, and not the intrusion of the saltwater-freshwater interface. The 800 micromho conductivity line lies just inside the parks eastern boundary (DEP 2004). This defines the end of the estuarine system and the beginning of the riverine system.

Natural Communities

This section of the management plan describes and assesses each of the natural communities found in the state park. It also describes of 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 2010). 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 20 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 hammock

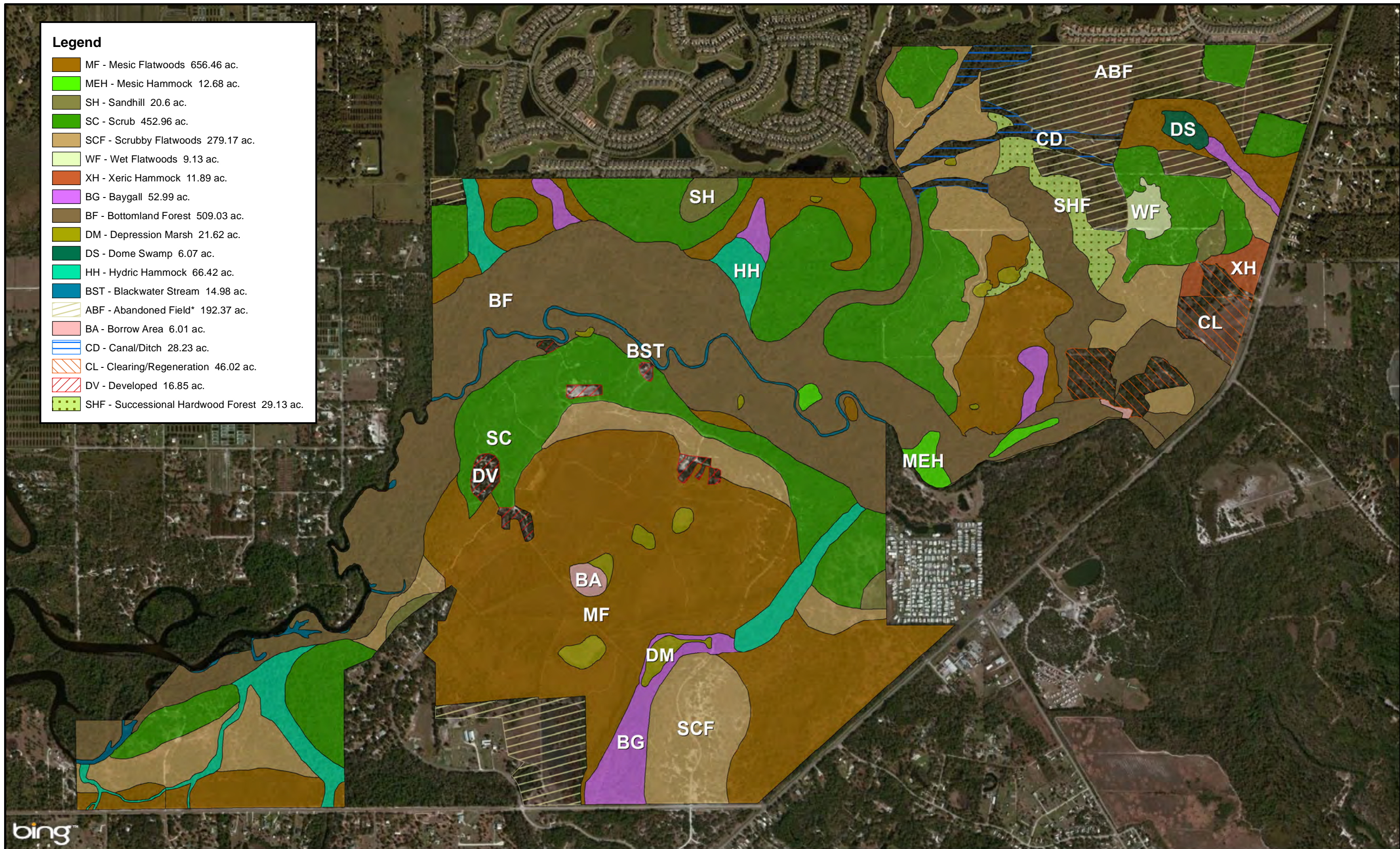
Desired future condition: Mesic hammock is a well-developed evergreen hardwood and/or palm forest which can occur, with variation, through much of peninsular Florida. The often dense canopy will typically be dominated by live oak (*Quercus virginiana*) with cabbage palm (*Sabal palmetto*) mixed into the understory. Pignut hickory (*Carya glabra*) can be a common component in the subcanopy as well. The shrubby understory may be dense or open, tall or short, and will typically be composed of saw palmetto (*Serenoa repens*), American beautyberry (*Callicarpa americana*), gallberry (*Ilex glabra*) and sparkleberry (*Vaccinium arboreum*). The groundcover may be sparse and patchy but generally contains switchgrass (*Panicum virgatum*), sedges, as well as various ferns and forbs. Abundant vines and epiphytes will occur on live oaks and cabbage palms and other subcanopy trees. Mesic hammocks will generally contain sandy soils with organic materials and may have a thick layer of leaf litter at the surface. Mesic hammocks will rarely be inundated, are not considered to be fire-adapted communities and will typically be shielded from fire.

Description and assessment: Mesic hammock is dispersed throughout the park and occurs as an ecotone between the mesic flatwoods and the baygall in the northwest section. The mesic hammock areas have developed as a result of fire suppression, much like the hardwood invaded mesic flatwoods at the park. It is not certain what conditions led to the development of a mature hammock in these areas while the mesic flatwoods maintained enough semblances to flatwoods to retain the designation. More mesic conditions, less manipulation such as mowing and later or no return of prescribed fire in the mesic hammocks may all be factors. Some areas are natural transition zones from mesic flatwoods to the lower baygall and will likely remain as a narrow ecotone. The mesic hammock is also found in proximity to the river, growing on natural levees built of sediment, deposited along the banks by repeated floods. This community is surrounded by the bottomland forest.

The overstory is dominated by live oak, pignut hickory and some slash pine. Other overstory trees include red maple (*Acer rubrum*) and laurel oak (*Quercus laurifolia*). The mid story is mainly saw palmetto with American beautyberry with American

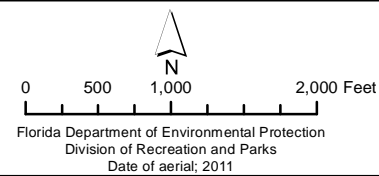
Legend

- MF - Mesic Flatwoods 656.46 ac.
- MEH - Mesic Hammock 12.68 ac.
- SH - Sandhill 20.6 ac.
- SC - Scrub 452.96 ac.
- SCF - Scrubby Flatwoods 279.17 ac.
- WF - Wet Flatwoods 9.13 ac.
- XH - Xeric Hammock 11.89 ac.
- BG - Baygall 52.99 ac.
- BF - Bottomland Forest 509.03 ac.
- DM - Depression Marsh 21.62 ac.
- DS - Dome Swamp 6.07 ac.
- HH - Hydric Hammock 66.42 ac.
- BST - Blackwater Stream 14.98 ac.
- ABF - Abandoned Field* 192.37 ac.
- BA - Borrow Area 6.01 ac.
- CD - Canal/Ditch 28.23 ac.
- CL - Clearing/Regeneration 46.02 ac.
- DV - Developed 16.85 ac.
- SHF - Successional Hardwood Forest 29.13 ac.



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LITTLE MANATEE RIVER
STATE PARK



NATURAL COMMUNITIES EXISTING CONDITIONS MAP

partridgeberry (*Mitchella repens*) and sparse grasses making up the understory. *General management measures:* Mesic hammock is not considered a fire adapted community but where possible fire should be allowed to carry into the hammock and extinguish naturally. This will help to maintain a more diverse ecotone as well as push back the hammock to a more historical footprint. Feral hogs (*Sus scrofa*) need to be removed at the park to protect the groundcover and soils from rooting damage in this community. Invasive exotic plants will need to be surveyed and treated in this community, with an emphasis on trees, shrubs and vine species.

Xeric Hammock

Desired future condition: Typically considered a late successional stage of scrub or sandhill that generally occurs in small isolated patches on excessively well drained soils. Vegetation will consist of a low closed canopy dominated by sand live oak (*Quercus geminata*) which provides shady conditions. Typical plant species may also include Chapman's oak (*Quercus chapmani*), and laurel oak. Sand pine (*Pinus clausa*), slash pine, or longleaf pine, may also be a minor component. Understory species will include saw palmetto, fetterbush (*Lyonia lucida*), myrtle oak (*Quercus myrtifolia*) and yaupon holly (*Ilex vomitoria*). A sparse groundcover layer of wiregrass (*Aristida stricta* var. *beyrichiana*) and herbaceous species may exist but will typically be absent. A continuous leaf litter layer may be present.

Description and assessment: The xeric hammock is restricted to management zones LMR-42, 43, 44 in the northeast section of the park. It occurs at a relatively high elevation on Zolfo fine sand which is typically poorly drained. The xeric hammock is bordered by sandhill on the west, scrub on the north and a successional hardwood forest to the south. The eastern portion of the xeric hammock is dominated by live oak, laurel oak and sand live oak. The understory is dominated by saw palmetto, hog plum, (*Ximenia americana*) and muscadine (*Vitis rotundifolia*). A herbaceous layer is generally lacking. The western portion has been disturbed in the past by a home site. The canopy is dominated by sand live oaks. The understory is dominated by various exotics including confederate jasmine (*Trachelospermum jasminoides*), African evergreen (*Syngonium podophyllum*) and a grassy layer of bahagrass (*Paspalum notatum* var. *saurae*).

General management measures: Xeric hammock is considered a climax community. Mature examples are rare because it is a popular area for development due to its high elevation and occurrence of large trees (FNAI 2010). Xeric hammocks, whether natural or anthropogenic origin, result from years of fire exclusion or lengthened fire return intervals combined with low intensity fires in the winter months (FNAI 2012). The old home site may be an indication of the origins of this particular xeric hammock. Protection from catastrophic fire will be required to protect this community and a program for the removal of invasive exotic plants would return some of the aesthetic appeal to the area of the old home site.

Sandhill

Desired future condition: The dominant pine of sandhill, will usually be longleaf 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 (*Sporobolus junceus*), lopsided Indian grass (*Sorghastrum secundum*), bluestems (*Andropogon* spp.) and little bluestem (*Schizachyrium scoparium*). In addition to groundcover and pines, there will be scattered individual trees, clumps, or ridges of onsite oak species usually turkey oaks (*Quercus laevis*) and blue-jack oak (*Quercus incana*). The Optimal Fire Return Interval for this community is 1 - 3 years.

Description and assessment: There are four examples of sandhill at Little Manatee River State Park. Two sites north of the river and two sites south of the river. Although sandhill communities exist on well-drained soil (FNAI 2010) the sandhill north of the river lie on soil that is relatively poorly drained. The sandhill area west of Cypress Creek lies at elevations between 30 and 35 feet above msl. The sandhill to the east of Cypress creek lies between 40 and 60 feet above msl. This relatively high elevation for the park, combined with the sloping topography may provide the drained conditions that are generally not typical of poorly drained soils. The sandhill south of the river on Orsino fine sands are well drained and occur between 20 and 30 feet above msl. (Myers 1990).

The best example of sandhill community lies to the west of Cypress Creek along the north boundary of the park in management zone LMR-33 It is characterized by longleaf pine, slash pine and sand pine. Turkey oak is the dominant hardwood specie while blue jack oak is also present. The shrubby understory is sparse. The herbaceous layer is dominated by wire grass (*Aristida* sp.) with forbs such as sky blue lupine (*Lupinus diffusus*) and narrowleaf silkgrass (*Pityopsis graminifolia*) occurring. The sandhill community south of the river in management zone LMR-03 has a substantially different composition. Due to lack of fire there is a relatively dense canopy and shrubby understory. There are few bare sandy patches. The canopy is dominated by sand pine, turkey oak, chapman's oak, sand live oak and several longleaf pine. There is a dense shrubby understory composed of hog plum (*Ximenia americana*) and garberia (*Garberia heterophylla*). The understory has a sparse wire grass component (Myers 1990). The sandhill communities are in poor condition due to the lack fire and has resulted in communities with varying degrees of succession

General management measures: The introduction of prescribed fire is essential in returning the sandhill communities at Little Manatee River State Park to functioning ecosystems. The sandhill on the north boundary could benefit from a sand pine and hardwood reduction prior to prescribed fire. Due to the change in hydrology north of the park with the golf course development, ongoing monitoring will need to be done to assess the changing floral component of the sandhill areas. What was once a well-drained, high area may be more inundated now that the northern area elevation has been altered. Cogon grass infestation should continue to be treated and retreated as necessary and monitoring should continue for new infestations. Large areas where cogon grass has been eliminated may need to be seeded with native groundcover species to restore these areas

Scrub

Desired future condition: Within scrub habitats, the dominant plant species will include scrub oak (*Quercus inopina*), sand live oak, myrtle oak, Chapman's oak, saw palmetto and rusty staggerbush (*Lyonia ferruginea*). There will be 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, where present, will usually not be dominant in abundance, percent cover, or height. Some areas of mature sand pine may occur. The Optimal Fire Return Interval for this community will be regionally variable; typically, 5-20 years when aiming to achieve a mosaic of burned and unburned areas.

Description and assessment: There are seven examples of scrub communities in the park. These generally occur on the well-drained nutrient poor sands such as Orsino fine sands and Archbold fine sand. The scrub found in management zones LMR-58 and LMR-44 have had fire applied to them be it prescribed or wild and has a low, relatively open structure. The dominant vegetation consists of sand live oak, myrtle oak, hogplum and scrub wild olive (*Cartrema floridana*). Sand spike moss (*Selaginella arenicola*) occasionally occurs. The Florida goldenaster (*Chrysopsis floridana*) occurs here and is endemic to Florida and is listed as endangered at the state and federal levels and FNAI lists it as imperiled G1/S1. Its documented range is limited to Hillsborough, Pinellas, Manatee, Highlands and Hardee counties. The scrub found in management zone LMR-33 in the North West portion of the park was timbered recently but as of yet has not been burnt. Sand pine seedling are now dominating and are crowding out other scrub species.

The day use areas south of the river has been developed in a scrub community. This has made prescribed fire in these areas more difficult and resulted in a late successional sand pine scrub to develop. The canopy is characterized by mature sand pines. Some of these are leaning and senescent. There is often a sub canopy of sand live oak, myrtle oak, rusty staggerbush, chapman oak and coastalplain staggerbush (*Lyonia fruticosa*). Silk bay (*Persea borbonia var. humilis*), hogplum, saw palmetto, scrub hickory, sparkleberry and scrub wild olive can be found in this sub canopy. The understory is generally sparse, but includes garberia, Feay's palafox (*Palafoxia feayi*) and sandyfield beaksedge (*Rhynchospora megalocarpa*) and narrowleaf silkgrass.

General management measures:

Ideally, the scrub should be managed with prescribed fire as early succession scrub and not allowed to succeed back to a more challenging to manage late succession phase of scrub. Firebreaks around scrub zones may need widening and fuel heights adjacent to firebreaks reduced. The endemic Florida scrub-jay (*Aphelocoma coerulescens*) has been recorded in this area. If Little Manatee River State Park is identified as critical scrub-jay habitat the scrub will be managed for the optimum Florida scrub-jay habitat conditions identified in the "*Scrub Management Guidelines for Peninsular Florida: Using the Scrub-Jay as an Umbrella Species*" (FWC 2010; 2015) however, these will be modified to include management measures for other

scrub species that require different habitat conditions to persist. The lowered height of the sand pine scrub canopy following fires opens a time window for Florida scrub-jays to colonize an area until the canopy again reaches a height that excludes them. By returning the community to the desired height, the scrub can then be burned under prescribed conditions and within the normal fire return interval (FNAI 2010). Exotic plant species removal will continue.

Wet flatwoods

Desired future condition: The dominant pines will usually be longleaf pine, slash pine. The canopy will be open, with pines being widely scattered and of variable age classes. Common shrubs will include fetterbush, gallberry, and wax myrtle (*Myrica cerifera*). Herbs include wiregrass, blue maidencane (*Amphicarpum muhlenbergianum*), and/or hydrophytic species. The Optimal Fire Return Interval for this community is 2-4 years.

Description and assessment. The small area of wet flatwoods occurs in zone LMR-58. The understory is dominated by gallberry and wax myrtle and further to the south many bays are starting to move in. The over story is sparse due to a wildfire in previous years. This area has not had regular fire due to it formerly being mapped as scrub.

General management measures: In order to restore this community to a functioning wet flatwoods community, regular growing season burns need to occur. That is easier said than done with the surrounding scrub community but it should not be impossible. Fire in the growing season can reduce the stature of woody vegetation, particularly hardwoods, and prevent increases in shrub densities (although it may not reduce stem densities), and promote flowering of herbaceous groundcover. (FNAI 2010) The road running through this area should be repaired and further erosion should be prevented.

Mesic Flatwoods

Desired future condition: Mesic flatwoods is characterized by an open canopy of tall pines longleaf pine and a dense, low ground layer of low shrubs, grasses and forbs. Saw palmetto will generally be present but not overly dominant. Other shrub species may include gallberry, fetterbush, runner oak, dwarf live oak (*Quercus minima*), shiny blueberry (*Vaccinium myrsinites*), and dwarf huckleberry (*Gaylussacia dumosa*). The herbaceous layer is primarily grasses, including wiregrass, dropseeds, panicgrasses (*Dicanthelium* spp.), 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. The desired future conditions will support Bachman's sparrow and other fire-maintained flatwoods species.

Description and assessment: The mesic flatwood areas north of the river are generally in good condition. The overstory of these mesic flatwood communities are

sparse with widely spaced slash pine and some longleaf pine. The understory shrub layer of this community is dominated by dense saw palmetto, with occasional shrubs such as coastal staggerbush, shiny blueberry, blue huckleberry (*Gaylussacia frondosa*) and tarflower. Gallberry is also common in some areas. A sparse herbaceous layer is represented by various grasses, Elliot's milkpea (*Galactia elliotii*), rabbitbells (*Crotalaria rotundifolia*), wild pennyroyal (*Piloblephis rigida*) and blackroot (*Pterocaulon pycnostachyum*).

The largest area of mesic flatwoods is represented in zones 22-30. This was previously an offsite slash pine plantation with predominantly (*Pinus elliotii* var. *elliotii*) that was planted. This is at the southern limit of this variety with the remaining mature trees in poor condition, however they are recruiting well. The resulting overstory is a closely spaced slash pine over story which limits the native ground cover from flourishing. Prescribed fire has been introduced in this area with varying amount of success. The understory has components of saw palmetto four petal St John's-wort (*Hypericum tetrapetalum*, netted pap-paw (*Asimina reticulata*), earleaf greenbriar (*Smilax auriculata*), yellow jessamine (*Gelsimium sempervirens*) and muscadine occurring in the more open areas. The understory has bluestem grass species as well as wiregrass species in areas where fire has been reintroduced. In other areas where fire has been excluded or unsuccessful the understory is dominated by the exotic Bahia grass. After the pine plantation harvest in 2003, longleaf pine and wiregrass was planted in where trees were removed, however the plantings were not followed-up by a prescribed burn within two years. This has resulted in the recruitment of numerous small north Florida slash pines, and fuel buildup that caused mortality in the young longleaf pines, so addition reforestation may be required.

General management measures: The long-term restoration of this community will require the regular application of prescribed fire and may require some planting of additional longleaf pine. The fire that has been applied to this area has produced the desired result of opening up the overstory and allowing native groundcover to return. This growing season burning should be continued in order to maintain desired groundcover/understory conditions. Firebreaks within and adjacent to the mesic flatwoods may need to be widened and fuel heights along firebreaks reduced to manageable levels. The considerable amount of fuels that has been allowed to accumulate in these areas now impedes successful prescribed fire to be implemented. The staff have done courageous work in dealing with this hazard but has a long way to go before maintenance is reached. Timing of the burns is important, with spring and early summer burns critical for maintaining grass cover and species diversity. Mechanical treatment can be used 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. Continuous monitoring and treatment of exotic plants will continue for this area.

Scrubby Flatwoods

Desired future condition: The dominant tree species of the interior of scrubby flatwoods will usually be longleaf pine and slash pine. Mature sand pines will typically not be present. There will be a diverse shrubby understory often with

patches of bare white sand. A scrub-type oak "canopy" will contain a variety of oak age classes/heights across the landscape. Dominant shrubs will include sand live oak, myrtle oak, Chapman's oak, saw palmetto, coastal plain staggerbush, and tarflower. Cover by herbaceous species will often be low to moderately dense. The Optimal Fire Return Interval for this community will be regionally variable; typically, 5-15 years when aiming to achieve a mosaic of burned and unburned areas.

Description and assessment: The scrubby flatwoods at Little Manatee State Park historically have not experienced prescribed fire until recently. The many years of fire exclusion has allowed the oaks to become large and shaded out the herbaceous understory. Since fire has been re-introduced in this community the oaks have been reduced and the understory has recovered somewhat. The park entrance off Lightfoot road goes through one of the scrubby flatwood communities. This former orange grove is characterized by sparse slash pine and longleaf pine. The dominant hardwood is sand live oak and the shrubby understory is very sparse and consists mainly of saw palmetto. The herbaceous layer consists of mainly blue stem grass, slender flattop goldenrod (*Euthamia caroliniana*), Prickly pear (*Opuntia humifusa*), Mohr's thoroughwort (*Eupatorium mohrii*), shortleaf blazing star (*Liatris tenuifolia*), gopher apple, Florida paintbrush (*Carphephorus corymbosus*) and roserush (*Lygodesmia aphylla*) interspersed with areas of relatively bare sand. This community indicates it may have been impacted by agricultural uses in the 1940's (DEP 1999). The scrubby flatwoods here have recently received prescribed fire and seem to be benefitting.

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

Depression Marsh

Desired future condition: Depression marsh is characterized as containing low emergent herbaceous and shrub species which will be dominant over most of the area and include open vistas. Trees will be few and if present, will occur primarily in the deeper portions of the community. There will be little accumulation of dead grassy fuels due to frequent burning; one can often see the soil surface through the vegetation when the community is not inundated. Dominant vegetation in basin marsh and depression marsh may include maidencane (*Panicum hemitomon*), Southern cutgrass (*Leersia hexandra*), pickerelweed (*Pontederia cordata*), arrowheads (*Sagittaria* sp.), buttonbush (*Cephalanthus occidentalis*), Peelbark St. John's wort (*Hypericum fasciculatum*), and coastalplain willow (*Salix caroliniana*).

Description and assessment: There are a number of depression marshes throughout the park and generally occur in poorly drained Basinger Holopaw and Samsula soils. Hydroperiods in this community varies from 50 days to 200 days per year (FNAI 2010). The depression marshes at Little Manatee River State Park are dominated by grasses including the exotic torpedo grass (*Panicum repens*). The other herbaceous

plants such as grassy arrowhead (*Sagittaria graminea*), smallfruit beggarticks (*Bidens mitis*), combleaf mermaidweed (*Prosperpinaca pectinata*), swamp smartweed (*Polygonum hydropiperoides*) and dogfennel (*Eupatorium capillifolium*) may be common. Woody shrubs such as myrtleleaf St. John's-wort (*Hypericum myrtifolium*) and wax myrtle occur in the drier areas of the marsh. Florida sandhill cranes (*Grus canadensis pratensis*) are known to nest in a few depression marshes at the park.

General management measures: There are several animal species that rely on depression marshes for habitat, therefore they are considered important and worth protecting. Management concerns include protecting the water table level and hydroperiod of the marshes. Occasional fires are essential in eliminating shrubs and trees which may move in, especially in prolonged dry periods. The Optimal Fire Return Interval for this community is 2-10 years, therefore depression marshes should be burned with the surrounding firetype community's fire return interval.

Dome Swamp

Desired future condition: Dome swamp is an isolated, forested, depression wetland occurring within a fire maintained matrix such as mesic flatwoods. The characteristic dome appearance will be created by smaller trees that grow on the outer edge (shallower water and less peat) and larger trees that grow in the interior. Bald cypress (*Taxodium distichum*) will typically dominate, but swamp tupelo (*Nyssa sylvatica* var. *biflora*) may also form a pure stand or occur as a co-dominant. Other subcanopy species may include red maple, dahoon holly (*Ilex cassine*), swamp bay (*Persea palustris*), sweetbay (*Magnolia virginiana*), and loblolly bay (*Gordonia lasianthus*). Shrubs may be absent to moderate (a function of fire frequency) and can include Virginia willow (*Itea virginica*), fetterbush, buttonbush and wax myrtle. A herbaceous component may range from absent to dense and include ferns, maidencane, sawgrass (*Cladium jamaicense*), sedges (*Carex* spp.) and lizards tail (*Saururus cernuus*). Vines and epiphytes will be commonly found. Maintaining the appropriate hydrology and fire frequency is critical for preserving the structure and species composition of the community. Dome swamps should be allowed to burn on the same frequency as the adjacent fire type community, allowing fires to naturally burn across ecotones. Fires should be appropriately planned to avoid high severity fuel consumption within the dome swamp.

Description and assessment: The single seven-acre dome swamp is located in the northeastern part of Little Manatee River state park and is surrounded by saw palmetto within a mesic flatwood/hammock community that has long been excluded from any fire. The dome swamp still maintains a typical profile with smaller trees at the periphery and older trees in the center. There is a drainage ditch surrounding the swamp which was used to artificially drain the area for agriculture.

General management measures: Dome swamps should be allowed to burn on the same frequency as the adjacent fire type community, allowing fires to naturally burn across ecotones. Fires should be appropriately planned to avoid high severity fuel consumption within the dome swamp. The drainage ditch needs to be filled in

order to return normal hydrological function to the dome swamp. Exotic plant species removal will continue

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 will mainly consist of sweetbay, loblolly bay, and/or swamp bay. Occasionally sparse pines may also exist. A thick understory consisting of gallberry, fetterbush, dahoon (*Ilex cassine*), and red maple will be typical with climbing vines such as greenbriar (*Smilax* spp.) and muscadine 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 baygall ecotone however, being aware of the problems associated with peat fires.

Description and assessment: Baygall occurs in a number of areas around the park. The area to the south of the river was previously mapped as hydric hammock. The baygall in zone LMR-33 is the best example of this type of community in Little Manatee River State Park. The canopy is relatively dense and is composed primarily of sweetbay, loblolly bay, red maple and swamp bay. The shrubby understory consists of Virginia willow, muscadine, swamp azalea, saw palmetto and wax myrtle. The herbaceous layer is composed primarily of ferns, sedges, and occasional ground orchids. This community is currently in fair condition due to constant rooting by feral hogs, climbing fern (*Lygodium microphyllum*) and laurel wilt 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 upland of this community, and occasional fire, will maintain the baygall. Removal of exotic hogs will improve this community, as rooting destroys 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 dead/felled trees as to not introduce the wilt into any other locations. More information on laurel wilt can be found in the exotics section later in this document.

Hydric Hammock

Desired future condition: Hydric hammock is characterized with a closed canopy, evergreen hardwood and/or palm forest with a variable understory dominated by palms, with sparse to moderate ground cover of grasses and ferns. Typical canopy species will include laurel oak, cabbage palm, live oak, sweetbay, swamp tupelo, red maple and other hydrophytic tree species. Soils will be poorly drained but only occasionally flooded. Hydric hammock should occasionally burn by allowing fires to naturally burn across ecotones from fires originating in adjacent upland natural communities.

Description and assessment: This community is found on wet sites above the floodplain. It often grades into baygall community uphill. In the southwest corner of

the park, a bifurcate strand of hydric hammock stretches south from the bottomland forest to Lightfoot Road. It follows gentle to steep elevation changes. The canopy is dense and is composed of laurel oak, sweetbay, red maple, swamp bay and dahoon. The general sparse understory includes saw palmetto, swamp fern, cinnamon fern and royal fern.

Another example of hydric hammock is in zones LMR-15 and 16. The canopy is dominated by laurel oak, red maple and sweetbay. The understory includes saw palmetto toothpetal false reinorchid (*Habenaria floribunda*) and various ferns. The understory also includes various exotic species including Japanese climbing fern, skunkvine and Brazilian pepper (*Schinus terebinthiformis*)

General management measures: Hydric hammock should occasionally burn by allowing fires to naturally burn across ecotones from fires originating in adjacent upland natural communities. Survey work should continue as skunkvine and Japanese climbing fern are abundant in the hydric hammock. Invasive exotic plant surveying and removal should continue. Routine removal of hogs should continue. Maintaining the hydrological integrity of the community must continue to ensure the health of the hydric hammock. To maintain the natural community composition, the hydrological regimes of hydric hammocks must not be altered (FNAI 2010)

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 sweetgum (*Liquidambar styraciflua*), sweetbay, loblolly bay, water oak (*Quercus nigra*) and live oak. Red maple and bald cypress (*Taxodium distichum*) may also be present. Understory may be open or dense. Understory species will typically include wax myrtle, and swamp dogwood (*Cornus foemina*). Presence of groundcover will be variable and may consist of witchgrass and various sedges.

Description and assessment: This natural community occurs along the Little Manatee River as well as along Cypress Creek. It is usually inundated with water for part of the year. The canopy is relatively closed with little light penetrating in some areas. There is also an accumulation of leaf litter. In these areas there is a sparse understory. Dominant tree species include laurel oak, sweet gum, red maple, cabbage palm and sweetbay. When an understory is present it is represented by saw palmetto, eastern poison ivy (*Toxicodendron radicans*) and greenbrier. Epiphytes are also present. One notable epiphyte occurring in the bottomland forest is the Florida butterfly orchid (*Encyclia tampensis*). These populations tend to be restricted to host located over or close to rivers. This may be due to the moderating effect of the water during freeze events. Other ephytes include several species *Tilandsia*. Relatively dry bluffs often occur within the bottomland forest due to the scouring effects of the river. This can result in species not commonly associated with. This community has a pristine appearance probably due to its inaccessibility by people.

General management measures: Being remote and difficult to access, large amounts of exotics have gone untreated in this community, therefore acting as a seed source to the rest of the park. Exotic treatment and removal is the best way to manage this natural community within the park.

Blackwater Stream

Desired future condition: Blackwater stream can be characterized as perennial or intermittent watercourses originating in lowlands where extensive wetlands with organic soils collect rainfall and runoff, discharging it slowly to the stream. The stained waters will be laden with tannins, particulates, and dissolved organic matter derived from drainage through adjacent swamps resulting in sandy bottoms overlain by organic matter. Emergent and floating vegetation may occur but is often limited by steep banks and dramatic seasonal fluctuations in water levels. Desired conditions include minimizing disturbance and alterations and preserving adjacent natural communities.

Description and assessment: The Little Manatee River and Cypress creek are the most significant examples of blackwater streams in the park. Sandy bottoms and dark water characterize these waterways. The tea-colored water contains tannins, particulates and organic matter derived from flow through swamps and marshes. The water greatly reduces light available for photosynthesis and submerged plant growth.

Water levels vary greatly with precipitation. Wide variation in water levels and steep river banks minimize environments conducive to establishment of aquatic vegetation (FNAI 2010) Vegetation within the main channel is very sparse and is usually associated with dead snags in the river. The river has scoured high banks along most of its length in the park. The community is in good condition and with sound monitoring management programs the prognosis of the riverine ecosystem looks good.

General management measures: Monitoring for human caused bank erosion should continue and the damage restored as appropriate. Input from the division, district and park staff regarding hydrologic disturbances will continue. Park staff will continue to control invasives along the riverbank as well to partner with other agencies to control aquatic invasives.

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 believed that the majority will be mesic flatwoods with the possibility of some restoration to reestablish sandhill. See descriptions of desired future conditions for both community types above.

Description and assessment: Most of the abandoned fields occur north of the river and were previously used for agriculture. They are now dominated by Bahia grass,

and a mixture of saw palmetto, blackberry (*Rubus pensilvanicus*) and wax myrtle. The areas that were previously tomato crop fields still have the drainage ruts used for the crop rows and are dominated by groundsel tree (*Baccharis halimifolia*), Brazilian pepper and dog fennel.

General management measures. Major work removing exotics and burning are needed to remove the exotic ground cover, and native plantings are needed to reestablish appropriate plant communities. More on these restoration needs will be covered in the Resource Management Program.

Borrow Area

There are two borrow areas in the park. One is in the north east which probably had some mining origin and the other is Dude Lake which is now used as a popular recreational area.

General management measures: The removal of invasive plant species around the shorelines should continue to maintain the health of these water bodies.

Canal/Ditch

Desired future condition: A full hydrology assessment will provide the park with an overview of what the natural flow of water should be at the park. It will provide the data and strategy necessary to plan where canals and ditches need to be altered, and how.

Description and assessment: There are a number of canals and ditches mapped for the park, but this number under-represents the extent of these alterations. Complete mapping must be part of a full-park hydrology assessment. While there are native species that make good use of the water features, the same species will do well in the natural communities that will exist without such alterations. On the other hand, the disturbances from creating the canals and ditches have mostly provided habitat for invasive species.

General management measures: Continue to work towards a full hydrology assessment of the park. Continue to work with SWFWMD and other relevant agencies to implement water quality testing. Continue control of exotic invasive plant species.

Clearing / Regeneration

There are a number of areas that were cleared for anthropogenic activities and have now succeeded into feral fields that are covered in exotics. These areas are northeast of the river in the vicinity of the manger's house.

General management measures: The exotic infestation in these areas has been significantly treated but more work is needed. Continued exotic removal and application of prescribed fire should bring these areas into a more natural condition.

Developed

Desired future condition: The developed areas within the park will be managed to minimize the effect of the developed areas on adjacent natural areas. 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 naturally distributed 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 five percent 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, Dude Lake and storage areas.

General management measures: Staff will 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

Desired future condition: This altered community should be managed to become primarily mesic hammock, serving as an ecotone between the bottomland forest community and the associated uplands. See the Desired Future Condition discussion for mesic hammock.

Description and assessment: Successional hardwood forest is closed-canopied forest dominated by fast growing hardwoods such as laurel oak, water oak, or sweetgum, often with remnant pines. The subcanopy and shrub layers of these forests are dominated by smaller individuals of the canopy species. At Little Manatee River State Park, these forests are old agricultural fields that have succeeded to forest, with some remnant species of the former natural community. Restoration of these forests usually requires mechanical tree removal, reintroduction of fire, and may require supplemental plantings. When the predominance of species are native, it can serve the park better to maintain a forest or hammock community even if this is not what was there before the initial disturbance.

General management measures: Removal and control of exotic invasive species. Reduction of hardwood species not relevant to mesic hammock or to adjacent bottomland forest or mesic flatwoods. See General Management Measures for mesic hammock.

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.

The Florida goldenaster is endemic to Florida and is listed as endangered at the state and federal levels and FNAI lists it as imperiled G1/S1. Its documented range is limited to Hillsborough, Pinellas, Manatee, Highlands and Hardee Counties. 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 10-20 populations to become down listed or possibly delisted. What made this plant so rare is the fact it is only found in areas of Florida scrub and xeric hammock, most of which was converted to agriculture lands in the 1970s.

The Giant airplant (*Tillandsia utricularia*) is now considered state endangered epiphytes due to the exotic Mexican bromeliad weevil (*Metamazius callizona*) whose larvae feed on and kill larger airplant species. Biological controls are being researched to control the exotic weevil. The Giant airplant are infrequently observed in trees along the river, baygall communities, and in isolated hammocks of larger oaks at the park. The scarcity of these species at the park could be due to the weevil. Other imperiled plant species tracked by FNAI and FDACS at Little Manatee River State Park include garberia (*Garberia heterophylla*), nodding pinweed (*Lechea cernua*), pine Lily (*Lilium catesbaei*), 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 flatwood 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 mark locations.

The eastern indigo snake (*Drymarchon couperi*) is federally-listed as threatened. Indigo snakes are infrequently observed at the park. They are habitat generalists, and all natural community types are used by these snakes, with individuals observed in the scrub. Protection of gopher tortoises and their burrows is important for indigo snakes. The biggest threat to this wide-ranging species is roadways in and around the park, since road mortality is a leading cause of this species decline. Park visitors should also be educated, so they do not deliberately kill indigo and other snake species protected at the park.

Florida scrub-jay (*Aphelocoma coerulescens*) is a federally-designated threatened species and is the only bird species endemic to the state of Florida. Scrub-jays are habitat specialists that have been known to frequent the scrub and scrubby flatwoods in Little Manatee River State Park. Scrub-jays are being monitored at the park under the Jay Watch Program, which is expected to continue. During recent Jay Watch surveys and staff observations the populations within the park have dwindled and in 2016 there was only one individual observed irregularly. The District staff and park staff will coordinate with USFWS as well as the FWC to determine if Little Manatee River is a viable area for scrub-jay habitat restoration in

line with the statewide Florida scrub-jay recovery plan. If Little Manatee River State Park is indeed identified for restoration and an important area within the metapopulation, the park will follow guidelines identified in the "*Scrub Management Guidelines for Peninsular Florida: Using the Scrub-Jay as an Umbrella Species*" (FWC 2010). However, these will be modified to include management measures for other scrub species that require different habitat conditions to persist. Optimal conditions for scrub-jays at the 25-acre territory scale include: at least 10% of the oaks between 4-5.5 feet, no more than one acre taller than 5.5 feet, and the remainder either 4-5.5 feet or less than four feet tall; 10-50% bare sand open ground; less than one tree greater than 15 feet tall per acre; and a buffer distances to forest edge, where trees have a density of greater than one per acre. Scrub-jays can tolerate one to two pine trees per acre, but less than one tree per acre is optimal.

Managing the oak scrub using optimum habitat measures for scrub-jays is recommended to protect a diversity of other scrub species. The greatest threat to the scrub-jays at the park is fire exclusion, allowing the scrub habitats to become overgrown and abandoned by the jays. Prescribed burning, reducing the density of pine trees to approximately one per acre and mechanical treatment (chainsaw) of hardwoods are being conducted to improve habitat for scrub-jay and other fire-dependent scrub species. Even though scrub-jays are an umbrella species, the needs of other critically endangered plant and animal species will be addressed during habitat management and enhancement activities. Other threats to the scrub-jay population at the park are pets wandering from adjacent residential areas, people feeding the jays, and road mortality around sections of the park perimeter.

Florida sandhill crane (*Grus canadensis pratensis*) is state-listed as threatened. Sandhill cranes and pairs with chicks are occasionally observed flying over the park and foraging in the depression marshes. There are documented instances of sandhill cranes nesting in the depression marsh to the west of the main drive south of the shop area. When nesting is observed within the park, prescribed fires should be planned to keep the fire from the nest during nesting season (February – May).

Swallow-tailed kite (*Elanoides forficatus*) is listed by FNAI as imperiled (S2) in the state. Kites are regularly observed in the air at the park during the spring and summer nesting season. Nests have been observed at the park, and there is a considerable amount of potential nesting habitat. If new nests are found some resource management activities could be modified to protect the nest, such as reducing the fuels and decreasing fire intensity around nest trees. Merlin (*Falco columbarius*) is a small, winter resident falcon that is listed by FNAI as imperiled (S2) in the state. Merlin are infrequently observed at the park, and no special resource management or monitoring (other than casual observation documentation) is conducted for this species. 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)

The gopher tortoise (*Gopherus polyphemus*) population, has been monitored in the past for select management zones post-burns. The last survey was done in 2005 and it was determined that population was roughly 2.5 tortoise per acre (District 4 records). The Florida Park Service has now adopted the range-wide standardized survey methodology, Line Transect Distance Sampling with scoping. Using the established range-wide protocol for estimating gopher tortoise populations, three representative management zones will be monitored post-burn to see if management actions to improve gopher tortoise habitat result in population change. Gopher tortoise is state-listed as threatened and is a candidate for listing by USFWS. Habitat management with prescribed fire as described in the section on scrub-jays should optimize the carrying capacity of gopher tortoises at the park. New development at the park will need to follow the FWC permitting guidelines, which includes a 25-foot protective buffer around gopher tortoise burrows. Development activities within the 25-foot buffer require a permit from FWC.

The Florida mouse (*Podomys floridanus*) is listed as a species of special concern by the state, but the 2011 *Biological Status Report* for the species concluded that this species should be de-listed (FWC 2011). Florida mice are found in the scrub and scrubby flatwoods habitats at the park. The Florida mouse is closely associated and is considered a gopher tortoise commensal species. Managing the scrub and scrubby flatwoods with prescribed fire using the scrub-jay umbrella species should benefit the Florida mouse and the closely-associated gopher tortoise populations of the park.

The Florida Manatee (*Trichechus manatus latirostris*) historically utilized the Little Manatee River and enter the river during the warm summer months. The portion of the river upstream from the I-75 is considered an important calving ground in the Tampa Bay area (DEP 1999). In addition, Manatee use the river for feeding, resting and a source of fresh water.

Sherman's fox squirrels (*Sciurus niger shermanii*) occur in the pasture areas as well as in the mesic flatwood and possibly the sandhill communities. Fox squirrels are observed on occasion in the park, but the park does not support a large population.

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 <i>Chrysopsis floridana</i>			LE	G1,S1	1,2,3,10,13	Tier 1,2
Angularfruit milkvine <i>Gonolobus suberosus</i>			LT		10	Tier 1
Garberia <i>Garberia heterophylla</i>			LT		1,2,6	Tier 1,2
Nodding pinweed <i>Lechea cernua</i>			LT	G3/S3	1,2,6	Tier 1,2
Pine Lily <i>Lilium catesbaei</i>			LT		1,2,4	Tier 1
Simpson's stopper <i>Myrcianthes fragrans</i>			LT		10	Tier 1
Longbristle beaksedge <i>Rhynchospora megaplumosa</i>			LE	G2,S2	1,2	Tier 1
Giant orchid <i>Pteroglossaspsis ecristata</i>			LT	G2G3,S2	1,2	Tier 1
Toothed lattice-vein fern <i>Thelypteris serrate</i>			LE	G5,S1		

Table 2: Imperiled Species Inventory

Common and Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FWC	USFWS	FDACS	FNAI		
Cardinal airplant <i>Tillandsia fasciculata</i>			LE		10	Tier 1
Giant airplant <i>Tillandsia utriculata</i>			LE		10	Tier 1
Atamasco Lily <i>Zephyranthes atamasca</i>			LT		1, 2, 4, 6, 8, 10, 13	Tier 1
REPTILES						
American Alligator <i>Alligator mississippiensis</i>	FT(S/A)	LT(S/A)		G5/S4	4,13	Tier 1
Eastern Indigo Snake <i>Drymarchon couperi</i>	FT	LT		G3/S3	1,2,4,13	Tier 1
Gopher tortoise <i>Gopherus polyphemus</i>	ST	C		G3/S3	1,2,13,14	Tier 1, 2,3
Florida pine snake <i>Pituophis melanoleucus</i>	SSC			G4T3/S3	1,13,14	Tier 1
BIRDS						
Florida scrub jay <i>Aphelocoma coerulescens</i>	FT	LT		G2,S2	1,2,6,7,13	Tier 1
Limpkin <i>Aramus quarauna</i>	SSC			G5,S3	2,4	Tier 1

Table 2: Imperiled Species Inventory

Common and Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FWC	USFWS	FDACS	FNAI		
Florida burrowing owl <i>Athene cunicularia floridana</i>	SSC			G4T3,S3	1,10	Tier 1
Little blue heron <i>Egretta caerulea</i>	SSC			G5,S4	2,4	Tier 1
Snowy egret <i>Egretta thula</i>	SSC			G5,S3	2,4	Tier 1
Tricolored heron <i>Egretta tricolor</i>	SSC			G5,S4	2,4	Tier 1
Swallow-tailed kite <i>Elanus forficatus</i>				G5,S2	1,2,4,13	Tier 1
White ibis <i>Eudocimus albus</i>	SSC			G5,S4	1,2,4	Tier 1
Peregrine falcon <i>Falco peregrinus</i>				G5,S2	1,2,4	Tier 1
Merlin <i>Falco columbarius</i>				G5/S2	1	Tier 1
Florida sandhill crane <i>Grus canadensis pratensis</i>	ST			G5T2T3,S2S3	1,2,4,13	Tier 1
Wood stork <i>Mycteria americana</i>	FT	LT		G4,S2	1,2,4,13	Tier 1
Roseate spoonbill <i>Platalea ajaja</i>	SSC			G5,S2	4,13	Tier 1

Table 2: Imperiled Species Inventory						
Common and Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FWC	USFWS	FDACS	FNAI		
Mammals						
Florida mouse <i>Podomys floridanus</i>	SSC			G3/S3	1,2,6,	Tier 1
Sherman's fox squirrel <i>Scirius niger shermani</i>	SSC			G5T3/S3	1,2,3,7,10	Tier 1
Florida Indian manatee <i>Trichechus manatus latirostris</i>		LE		G2/S2	4, 10	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 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 animals are discussed in the Resource Management Program section of this component.

Invasive, exotic plants continue to create severe problems in the river corridor and upland area within Little Manatee River State Park. Invasive, exotic plants that fall under FEPPC Category 1, in all habitats, will continue to be monitored and treated. As development and urban landscapes crowd park borders, the occurrence of invasive, exotic plant species in upland communities becomes more prevalent, necessitating rigorous monitoring and prompt treatment or removal.

The focus of exotic work is centered on cogon grass, and Brazilian pepper. The disturbed sites in the northeast section of the park seems to be worst off and cogon grass and Brazilian pepper is rampant throughout these zones. Contractors funded by the FWC Upland Invasive Plant Program have been coordinated, and these highly infested acres continue to be treated with herbicide, mechanical treatment and fire.

Areas south of the river in zones where, prescribed fire has been successfully reintroduced, new sites of cogon grass have occurred. The issue with these infestations is that it is not forming a monoculture so treatment is more difficult. Constant surveying and treatment should help control the population, and prevent future spreading.

Skunkvine (*Paederia foetida*) occurs along the northern boundary of the park in hydric hammock. This vine can displace native vegetation relatively rapidly, even where natural habitat is intact. Another exotic vine that occurs in small clumps along the hiking trail in proximity to the river, is climbing fern (*Lygodium japonicum*). Other exotic species of concern include rosary pea, wild taro, tuberous sword fern, common water hyacinth, Caesar weed, natal grass, wedelia, torpedo grass and strawberry guava.

One area that is particularly notable for exotic species is the site of an old homestead along U.S. Highway 301. This is a site with large, live oaks shading a grassy herbaceous ground layer. Many species of exotics were probably cultivated, and have persisted at the site. Fortunately, most of these are not highly invasive.

Treatment at the earliest hint of invasion is always the most efficient approach and is more likely to result in eradication of the problem. With the development of better Early Detection and Rapid Response (EDRR) programs on the federal and state levels, invasive exotic species can begin to be identified before they are the management problems that make them FLEPPC Category I and II species. The USDA Animal and Plant Health Inspection Service (APHIS) and the University of Florida's Institute of Food and Agricultural Sciences (IFAS) have become increasingly active in using predictive Weed Risk Assessment tools and provide websites with updates on exotic species newly being considered as threats. Overall invasive species management should follow a general 1:15 rule, where one hour is spent addressing new potential invaders for every 15 hours spent on work to control Category I and II plants.

Exotic pests and pathogens also pose a threat to natural communities. Laurel wilt is a fatal disease of trees in the Laurel family, which includes redbay, swamp bay and avocado. This disease is an example of an exotic pathogen (a *Raffaelea* species of fungus) introduced into trees by an exotic pest, the redbay ambrosia beetle (*Xyleborus glabratus*). This disease has already infested and killed the swamp bays in Little Manatee River State Park. At this time, management steps are limited to reducing spread by preventing movement of wood, leaving the infected wood in place and not selling it for firewood where it might be transported to another area. To date, there are no known successful management techniques for stopping the disease in Florida. As described in the listed species description for the giant and cardinal airplant, the Mexican bromeliad weevil is a threat to twelve native bromeliad species, including the two large species identified at the park. Research is being done on potential biological controls for this weevil, using a host-specific parasitoid fly

Nine-banded armadillos (*Dasyopus novemcinctus*) and feral hogs (*Sus scrofa*) are commonly found in the park. Hog rooting can devoid large areas of vegetation, create extensive ground disturbance, disrupt surface water flow, inhibit fire from moving across the landscape, decimate the arthropod community and compete with native wildlife species for food resources. Evidence of hog disturbance can easily be found in the floodplain forest and flatwoods communities both north and south of the Little Manatee River. Armadillos create the same disturbances on a smaller scale. Coyotes (*Canis latrans*) and fallow deer (*Cervus dama*) have been occasionally seen on the property. Direct impacts to the park resources from these animals have not been documented, though these species compete with native species for resources.

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, 2013). The table also identifies relative distribution for each species and the management zones in which they are known to occur. An explanation of the codes is provided following the table. For an inventory of all exotic species found within the park, see Addendum 5.

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and Scientific Name	FLEPPC Category	Distribution	Management Zone (s)
PLANTS			
<i>Abrus precatorius</i> Rosary pea	I	2	LMR-20, LMR-42, LMR-43
<i>Albizia julibrissin</i> Mimosa	I	1	LMR-31
<i>Albizia lebeck</i> Woman's tongue	I	2	LMR-31
<i>Asparagus aethiopicus</i> Asparagus-fern	I	1	LMR-40
<i>Broussonetia papyrifera</i> Paper mulberry	II	2	LMR-38, LMR-39, LMR-40
<i>Cinnamomun camphora</i> Campher tree	I	2	LMR-37
<i>Colocasia esculenta</i> Wild taro	I	0	LMR-36
		3	LMR-21
<i>Cupaniopsis anacardiodes</i> Carrotwood	I	1	LMR-15, LMR-16, LMR-37
<i>Dioscorea bulbifera</i>	I	1	LMR-050

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and Scientific Name	FLEPPC Category	Distribution	Management Zone (s)
Air-potato		2	LMR-31, LMR-50
		3	LMR-01, LMR-20, LMR-21, LMR-35, LMR-37, LMR-50
<i>Eichhornia crassipes</i> Water-hyacinth	I	0	LMR-R
<i>Epipremnum pinnatum</i> - Pothos	II	3	LMR-43
<i>Hydrilla verticillata</i> Hydrilla	I	0	LMR-R
<i>Hymenachne amplexicaulus</i> West Indian marsh grass	I	1	LMR-21, LMR-16, LMR-17
<i>Imperata cylindrica</i> Cogon grass	I	1	LMR-03, LMR-31, LMR-36, LMR-37, LMR-48, LMR-49 LMR-16, LMR-17, LMR-19, LMR-22, LMR-23, LMR-24, LMR-29
		2	LMR-04, LMR-11, LMR-12, LMR-13, LMR-15, LMR-17, LMR-18, LMR-21, LMR-22, LMR-23, LMR-30, LMR-45, LMR-51, LMR-52, LMR-53, LMR-54, LMR-55, LMR-57

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and Scientific Name	FLEPPC Category	Distribution	Management Zone (s)
		3	LMR-01, LMR-02, LMR-09, LMR-14, LMR-15, LMR-16, LMR-17, LMR-18, LMR-19, LMR-21, LMR-22, LMR-23, LMR-25, LMR-27, LMR-31, LMR-32, LMR-33, LMR-34, LMR-35, LMR-36, LMR-37, LMR-38, LMR-40, LMR-41, LMR-42, LMR-51, LMR-52, LMR-57, LMR-59, LMR-60
		4	LMR-17, LMR-18, LMR-19, LMR-31, LMR-37, LMR-39, LMR-57, LMR-60
<i>Lantana camara</i> Lantana	I	4	LMR-42, LMR-43
<i>Leucaena leucocephala</i> Lead tree	I	1	LMR-31, LMR-32, LMR-40
		2	LMR-40
<i>Lygodium japonicum</i> Japanese climbing fern	I	1	LMR-17, LMR-32, LMR-35, LMR-36, LMR-37, LMR-53, LMR-57
		2	LMR-16, LMR-31, LMR-32, LMR-33, LMR-34, LMR-35, LMR-36, LMR-37, LMR-38, LMR-40, LMR-52
		3	LMR-01, LMR-03, LMR-36, LMR-37, LMR-60
		4	LMR-48, LMR-50, LMR-51

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and Scientific Name	FLEPPC Category	Distribution	Management Zone (s)
<i>Lygodium microphyllum</i> Old World climbing fern	I	3	LMR-15, LMR-40
		4	LMR-48, LMR-50
<i>Melinis repens</i> Natal grass	I	1	LMR-14, LMR-15, LMR-60, LMR-55, LMR-54, LMR-51, LMR-42, LMR-41, LMR-43, LMR-40
<i>Nephrolepis cordifolia</i> Sword fern	I	1	LMR-42, LMR-48
		4	LMR-40, LMR-51
<i>Paederia foetida</i> Skunk vine	I	1	LMR-37, LMR-38, LMR-40
		3	LMR-32, LMR-36, LMR-51
<i>Panicum maximum</i> - Guinea grass	I	2	LMR-20
		3	LMR-31, LMR-55
		4	LMR-51, LMR-60
<i>Panicum repens</i> Torpedo grass	I	4	LMR-08, LMR-17, LMR-28
<i>Psidium cattleianum</i> Strawberry guava	I	1	LMR-01, LMR-02
<i>Psidium guava</i> Guava	I	3	LMR-2
<i>Schinus terebinthifolius</i> Brazilian pepper	I	1	LMR-10, LMR-36, LMR-38
		2	LMR-31, LMR-32, LMR-39, LMR-40, LMR-42, LMR-43, LMR-45, LMR-51, LMR-52, LMR-53, LMR-54, LMR-55, LMR-57, LMR-60
		3	LMR-38, LMR-40, LMR-51
		4	LMR-60
<i>Solanum diphyllum</i> Two-leaf nightshade	II	1	LMR-36, LMR-37
		2	LMR-36

Common and Scientific Name	FLEPPC Category	Distribution	Management Zone (s)
<i>Solanum viarum</i> Tropical soda apple	I	2	LMR-54
		3	LMR-32
<i>Urena lobata</i> Caesar's weed	I	1	LMR-42, LMR-43
		2	LMR-14, LMR-16
		3	LMR-32, LMR-36, LMR-37, LMR-38, LMR-39, LMR-40, LMR-52
		4	LMR-36, LMR-40
<i>Urochloa mutica</i> Para grass	I	3	LMR-31
		4	LMR-21
		5	LMR-17, LMR-36
<i>Broussonetia papyrifera</i> Paper mulberry	II	2	LMR-08A, LMR-12A
<i>Sphagneticola trilobata</i> Wedelia	II	3	LMR-48, LMR-50

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.

Special Natural Features

The Little Manatee River is ranked one the best examples of blackwater stream (SWFWD 1996), and its associated floodplain habitat is some of the best in Hillsborough County.

Cultural Resources

This section addresses the cultural resources present in the park that may include archaeological sites, historic buildings and structures, cultural landscapes and collections. The Florida Department of State (FDOS) maintains the master inventory of such resources through the Florida Master Site File (FMSF). State law requires that all state agencies locate, inventory and evaluate cultural resources that appear to be eligible for listing in the National Register of Historic Places. Addendum 7 contains the FDOS, Division of Historical Resources (DHR) management procedures for archaeological and historical sites and properties on state-owned or controlled properties; the criteria used for evaluating eligibility for listing in the National Register of Historic Places, and the Secretary of Interior's definitions for the various preservation treatments (restoration, rehabilitation, stabilization and preservation). For the purposes of this plan, significant archaeological site, significant structure and significant landscape means those cultural resources listed or eligible for listing in the National Register of Historic Places. The terms archaeological site, historic structure or historic landscape refer to all resources that will become 50 years old during the term of this plan.

Condition Assessment

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

Level of Significance

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

There are no criteria for determining the significance of collections or archival material. Usually, significance of a collection is based on what or whom it may represent. For instance, a collection of furniture from a single family and a particular era in connection with a significant historic site would be considered

highly significant. In the same way, a high quality collection of artifacts from a significant archaeological site would be of important significance. A large herbarium collected from a specific park over many decades could be valuable to resource management efforts. Archival records are most significant as a research source. Any records depicting critical events in the park's history, including construction and resource management efforts, would all be significant.

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

Prehistoric and Historic Archaeological Sites

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

Description: A review of the FMSF data indicate that a total of six archeological surveys, between 1983 and 2004, of varying intensity, coverage and scope have occurred fully or partially within the Little Manatee River Sate Park boundaries, and that the park contains thirteen previously recorded archaeological sites. Of the thirteen sites, none are listed with the FMSF as containing human remains, and two sites, 8Hi4605 and 8HI4607 have been identified as potentially eligible for NRHP listing. Both of these sites were recorded by Calvin Jones during his 1983 survey of the park and have been identified as prehistoric campsites with Middle Archaic cultural associations. 8HI4607 is identified as having Weeden Island components as well.

Archaeological Resource Sensitivity Modelling was done at Little Manatee River in July 2013. Prior to the fieldwork, a digital elevation model for the park was interpolated from aerial LiDAR data. The fieldwork included GPS survey that was conducted using sub-meter instrumentation and GPS camera equipment to ground truth previously recorded information and to prospect in areas of potential site locales.

Condition assessment: During the recent Archaeological Resource Sensitivity Modeling, GPS data was collected at FMSF locations for 8HI4600, 8HI4603, 8HI4606 and 8HI4607 but no cultural materials were visible on the surface of these sites.

General management measures: Today, river erosion, vegetation growth, vandalism and animal burrowing threaten some of the recorded sites. Many of the sites are further threatened by their remote location from frequent staff work locations, easy access by unauthorized visitors, and the resulting difficulties maintaining a park staff presence. Park staff should backfill open pot-hunting pits, animal burrows and erosion channels with sterile sand and close and re-vegetate unauthorized access trails.

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 historical structure at Little Manatee River State Park. The boat ramp, fish camp and old homestead sites need to be evaluated for possible significance.

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: Little Manatee River State Park has little in the way of historic artifacts, and little documentation for these items. Two projectile points are stored at the ranger station, where staff plans to display the points in a shadow box in the ranger station lobby. The details on how and where the points were found is not well documented, except for an oral history among some staff members that should be recorded and stored with the objects before the collection history is lost or forgotten.

Little Manatee River State Park has a small collection of natural objects, including taxidermy specimens, shells, bones and skulls. Except for the most recent taxidermy acquisitions, documentation on the natural objects is lacking, and the origin of many items is unknown. Some of the common shell and bone fragments have been retrieved through occasional chance discovery in the field. Taxidermy specimens include a bobcat, diamondback rattlesnake, and a duck.

Condition assessment: The bobcat and rattlesnake are stored at the Ranger Station, which is climate controlled. The skull and bone collection is stored in plastic storage containers in the former shop office/current storage room inside the maintenance shop. The room is not climate controlled in its current capacity as a storage area, but plans are underway to revert it back to an office, which would result in consistent climate control.

General management measures: Plans for a permanent display case in the Ranger Station lobby would include the bobcat, rattlesnake and possibly other natural

objects with interpretive value. A small collection of common shells and bones include three gopher tortoise and one river cooter shell, a feral hog skull, and a handful of other bones and small mammal skulls

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

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
8Hi4597 LMRSP 1	Archaic, 8500-1000 BCE	Specialized site for procurement of raw materials	NS	G	P
8Hi4598 LMRSP 2	Archaic, 8500-1000 BCE	Artifact scatter low density	NS	G	P
8Hi4599 LMRSP 3	Archaic, 8500-1000 BCE. / Modern, 1950 – present	Artifact scatter low density	NS	G	P
8Hi4600 LMRSP 4	Middle Archaic	Variable density scatter of artifacts	NS	G	P
8Hi4601 LMRSP 5	Archaic, 8500-1000 BCE	Artifact scatter low density	NS	G	P
8Hi4602 LMRSP 6	Archaic, 8500-1000 BCE	Variable density scatter of artifacts	NS	G	P
8Hi4603 LMRSP 7	Archaic, 8500-1000 BCE. / Weeden Island, CE 450 – 1000	Variable density scatter of artifacts	NS	G	P
8Hi4604 LMRSP 8			NE	NE	P
8Hi4605 LMRSP 9	Middle Archaic	Campsite (prehistoric)	NR	G	P
8Hi4606 LMRSP 10	Archaic, 8500-1000 BCE	Campsite (prehistoric)	NS	G	P
8Hi4607 LMRSP 11	Archaic, 8500-1000 BCE / Weeden Island, CE 450 – 1000		NR	NA	P

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
8Hi4608 LMRSP 12	Prehistory pottery / Archaic, 8500 – 1000 BCE / Weeden Island, CE 440 – 1000.	Habitation (prehistoric)	NE	G	P
8Hi9978 Wimauma site			NE	NA	P

Significance:

- NRL National Register listed
- NR National Register eligible
- NE not evaluated
- NS not significant

Condition

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

Recommended Treatment:

- RS Restoration
- RH Rehabilitation
- ST Stabilization
- P Preservation
- R Removal
- N/A Not applicable

Resource Management Program

Management Goals, Objectives and Actions

Measurable objectives and actions have been identified for each of the DRP's management goals for Little Manatee River 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 Asses the park's historical hydrologic patterns.
- Action 2 Assess hydrological impacts of ditches throughout the park.

As funds become available, a hydrological study of the preserve's current surface water features including ditches needs to be conducted. Historical sheet flow of the property needs to be investigated. The feasibility of restoration needs to be determined and the impact of the restoration evaluated. Negative impacts, such as flooding should be assessed and mitigated if possible. A sequential and prioritized hydrological restoration plan should be developed and used as a tool to aid preserve staff in the restoration of the preserve's hydrology.

Objective B: Restore natural hydrological conditions and functions to approximately 8 acres of dome swamp natural community

- Action 1 Asses feasibility of the dome swamp restoration.
- Action 2 Fill ditches surrounding dome swamp to restore historical hydrological conditions.

The natural water retention abilities of the dome swamp in zone 57 have been altered by agricultural ditches. In order for the dome swamp to function as a natural community the hydrology needs to be restored to its historical condition, which may require ditch filling. The flooding impacts of the surrounding communities and roads need to be taken into account and assessed to determine if the project is indeed feasible.

Natural drainage of the surrounding wetland/upland habitats in the north east of the park have been altered by the drainage ditches and canals to what currently exists. Water was managed in the uplands for agricultural purposes. These agricultural activities had been abandoned sometime in the 1970s. The drainage pattern in these ditches is not well known, as access to the area is not easy.

Objective C: Monitor and analyze water resources of the park

- Action 1 Seek assistance from water quality monitoring agencies (Hillsborough County, DEP, SWFWMD, or others) to gather baseline water quality assessments of the flowing tributaries
- Action 2 Seek assistance from water quality monitoring agencies (Hillsborough County, DEP, SWFWMD, or others) to gather baseline water quality assessments of the nearby groundwater wells.

Seek a partnership with agencies that regularly conducts water quality monitoring in the area to gather baseline water quality assessments of Little Manatee as well as Cypress creek and groundwater near or in the park. Water quality monitoring was identified as a need in a previous land management reviews for the park. To

gather baseline information, the water quality should be monitored monthly for one to two years, but preferably longer. Due to storm water runoff from the urban areas to the north, impacts of phosphate mining upstream and water diversion by FPL and the fact that the Little Manatee River is designated Class III Waters by the DEP water quality need to be closely monitored. Parameters to measure will be determined with the assistance of the monitoring partner, and might include nutrients, pesticides, clarity and other measures. Any water quality monitoring program should focus on parameters that, if poor, would cause deleterious effects to visitors or the resources of the park.

Objective D: Construct bridges, low water crossing and culverts to improve access within the park

- Action 1 Construct 6 bridges
- Action 2 Install 11 low water crossings
- Action 3 Install 7 culverts

Access to certain areas of Little Manatee River is severely impeded by ditches, tributaries and flooded areas. Due to the nature of the park, the Little Manatee River and its many drainage features natural resource management and especially prescribed fire cannot be conducted safely and effectively. In order for effective management, staff need to be able to move around the park and access the more remote areas safely. An in house assessment has been done and the needs have been clearly identified.

Objective E: Restore natural hydrological conditions and functions to 2 areas of active erosion

- Action 1 Asses and identify causes of excessive erosion in zone 58
- Action 2 Asses and identify causes of excessive erosion in around canoe launch
- Action 3 Implement erosion control measures identified in the assessment

The youth area boat launch has seen some incredible erosion over the last 10 years. This was mainly due to heavy vehicles been used to launch canoes. This activity had subsequently stopped but the erosion remains. Similarly, in zone 58 a fireline runs downhill in an area which is clearly seepage and subsequently the road has suffered severe erosion. Erosion control measures need to be in place in both these areas.

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

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

Objective A: Within 10 years, have 1433 acres of the park maintained within the optimum fire return interval.

- Action 1 Update the annual burn plan
- Action 2 Manage fire dependent communities by burning between 179 – 522 acres annually.

The foremost management objective is to restore fire-dependent communities to a more characteristic, more diverse, earlier successional stage.

Table 5 contains a list of all fire-dependent natural communities found within the park, their associated acreage and optimal fire return interval, and the annual average target for acres to be burned.

Table 5: Prescribed Fire Management		
Natural Community	Acres	Optimal Fire Return Interval (Years)
Depression Marsh	21.61	2 - 4
Mesic Flatwoods	656.49	2 - 4
Sandhill	20.61	1 - 3
Scrub	452.97	5 - 20
Scrubby Flatwoods	279.14	4 - 8
Wet Flatwoods	9.14	2-4
Annual Target Acreage	179 - 522	

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.

Prescribed fire at Little Manatee River State Park has improved substantially recently. There are 1433 fire type acres in the park and 726 acres are in maintenance. Still there is much to be done and burning at Little Manatee River State Parks has proven difficult with a number of escaped fires. This was due to excessive fuel build up and insufficiently wide fire breaks.

The park is divided into zones based on existing firebreaks and roads (see Management Zones Map). Pre-burn preparation is an important consideration when applying fire to areas that have had fire excluded for long periods. Perimeter and internal firebreaks should be maintained and established according to agency 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 fuel heights adjacent to the fireline is a general guideline for fire line preparation (ten-foot fuel heights adjacent to line = 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.

Fire-dependent communities, such as scrub and sandhill, are threatened by successional changes where fire has been too infrequent. Upland natural communities with natural processes still intact, have become very rare in Hillsborough County, accentuating the regional value of these communities within the park.

The sandhill community at Little Manatee River State Park is at the approximate southern extent of its range (Myers 1990). It will persist only with frequent return of fire. Without the latter, species from surrounding scrub and mixed hardwood forest invade, and fire-adapted species are crowded out. Sandhill has a fire return interval of 1-3 years. Some hardwood removal will have to happen before fire can successfully be reintroduced to this natural community. This does not have to be heavy mechanical treatment as girdling is a good option for this community. This will be discussed further in the Natural Community Improvement section.

There are 656.49 acres identifies as mesic flatwoods at Little Manatee River State Park. It has a fire return interval of 2-4 years, although initial burns, especially in the old pine plantation south of the river, can be conducted as frequently as every 18 months, after which maintenance burns can take place 2-4 years. The 452.97 acres of scrub has a fire return interval of 5-20 years. Some burning has happened in the scrub communities but much is still backlogged. Tree harvests have taken place in some of the scrub areas and it is imperative to burn these areas soon after a harvest. The scrub should be burned in the growing season ideally, but dormant season burning may be required for fuel reduction and desired burning weather conditions. Lower humidity and live fuel moisture content may be needed to ensure combustion of the shrub layer. Prescribed burning is a particularly important aspect of the objectives for creating Florida scrub-jay habitat. There is presently one Florida scrub-jay territory within the park. The 279.14 acres of scrubby flatwoods has a fire return intervals of 4-8 years.

Initial burns for backlogged zones should be done in the non-growing season. After fuels are reduced, maintenance prescribed fires can be conducted in the early growing season. Growing season burning allows for better hardwood reduction because of the greater likelihood of hardwood mortality. Early growing season burning more closely replicates the historic lightning season fire regime, when most fires naturally started, and to which the plants and animals are adapted.

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.

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 done as standard operating procedures such as routine mowing, the 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 abandoned field (see Desired Future Conditions Map).

Objective B: Conduct habitat/natural community restoration activities on 149 acres of abandoned fields to mesic flatwoods and their appropriate ecotone communities.

- Action 1 Develop/update site specific restoration plan for the abandoned fields north of the river
- Action 2 Implement restoration plan

The abandoned fields in the north east of the park will need to be restored before they can function as a natural community. Monitoring efforts should take place to gauge what species are currently using these abandoned fields. If a significant number of listed species are observed within this community, staff will maintain the abandoned fields to provide wildlife habitat. In regards to this change, the long term goal would be to restore to mesic flatwoods as the desired future condition. In the meantime, the abandoned fields would serve as wildlife habitat. This area was previously used for row crops so significant hydrological and groundcover disturbance has occurred and the application of fire and removal of exotics will not be sufficient in restoring this area to desired conditions.

A thorough plan should be developed, if deemed appropriate, that would outline the techniques which would include exotic removal, planting/seeding of native species, documentation, evaluation, and maintenance of the project area. Removal of exotic plant species will likely involve a combination of mechanical and herbicide treatments. Once exotic removal is in place, native groundcover will need to be introduced. This can be done by the planting of seedling plugs or the gathering of seeds and spreading the seed in desired areas. Following groundcover restoration would be planting of native tree cover including longleaf and slash pines. Restoration of these areas would be done in small portions over time. Approximately 30 acres will be initially targeted for restoration. Maintenance of the restored areas will require application of prescribed fire within the recommended fire return interval. Long-term monitoring will be accomplished as part of the burn photo point process.

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 28 acres of sandhill natural community

- Action 1 Conduct hardwood thinning/girdling operations within the sandhill communities
- Action 2 Apply prescribed fire to sandhill natural communities.

Little Manatee River has some long unburned sandhill that may require thinning of hardwoods to help restore natural conditions. Since the area still is relatively pristine, mechanical treatment should be avoided. Girdling of the larger oaks and chainsaw work should be considered to avoid major soil disturbance, since wire grass is still present. Priority would be on the edges of the management zones to help facilitate mowing along the edges to increase the width of the firebreaks. A regime of frequent fire will then maintain the community.

Objective D: Conduct natural community/habitat improvement activities on 375 acres of mesic flatwood natural community

- Action 1 Assess the ratio of longleaf pine to north Florida slash pine in the old pine plantation south of the river.
- Action 2 Apply prescribed fire to old pine plantation
- Action 3 Consider planting longleaf pines to improve recruitment

The eventual goal as outlined in the old plan was the removal of the plantation and restoration to mesic flatwoods with a canopy that is dominated by longleaf pine and slash pine. The timber harvest was completed, with a few pockets of north Florida slash pine and all longleaf pine left in place. Supplemental longleaf pine and native ground cover plantings where needed occurred with the intent to apply prescribed fire. This did not happen in due course which resulted in the recruitment of mostly north Florida slash pine, which consequently shaded out the potential native ground cover.

The old pine plantation south of the river is now been managed with fire and is improving with every prescribed fire that is applied to it. The desired density of north Florida slash pine is being achieved in some areas with fire alone but in certain pockets they are still dominating the landscape. A survey needs to be done to determine the amount of longleaf pine in the area and if said survey results in a low number, then subsequent longleaf pine planting should take place. During the survey the ground cover should be evaluated and if it found to be lacking appropriate planting should take place.

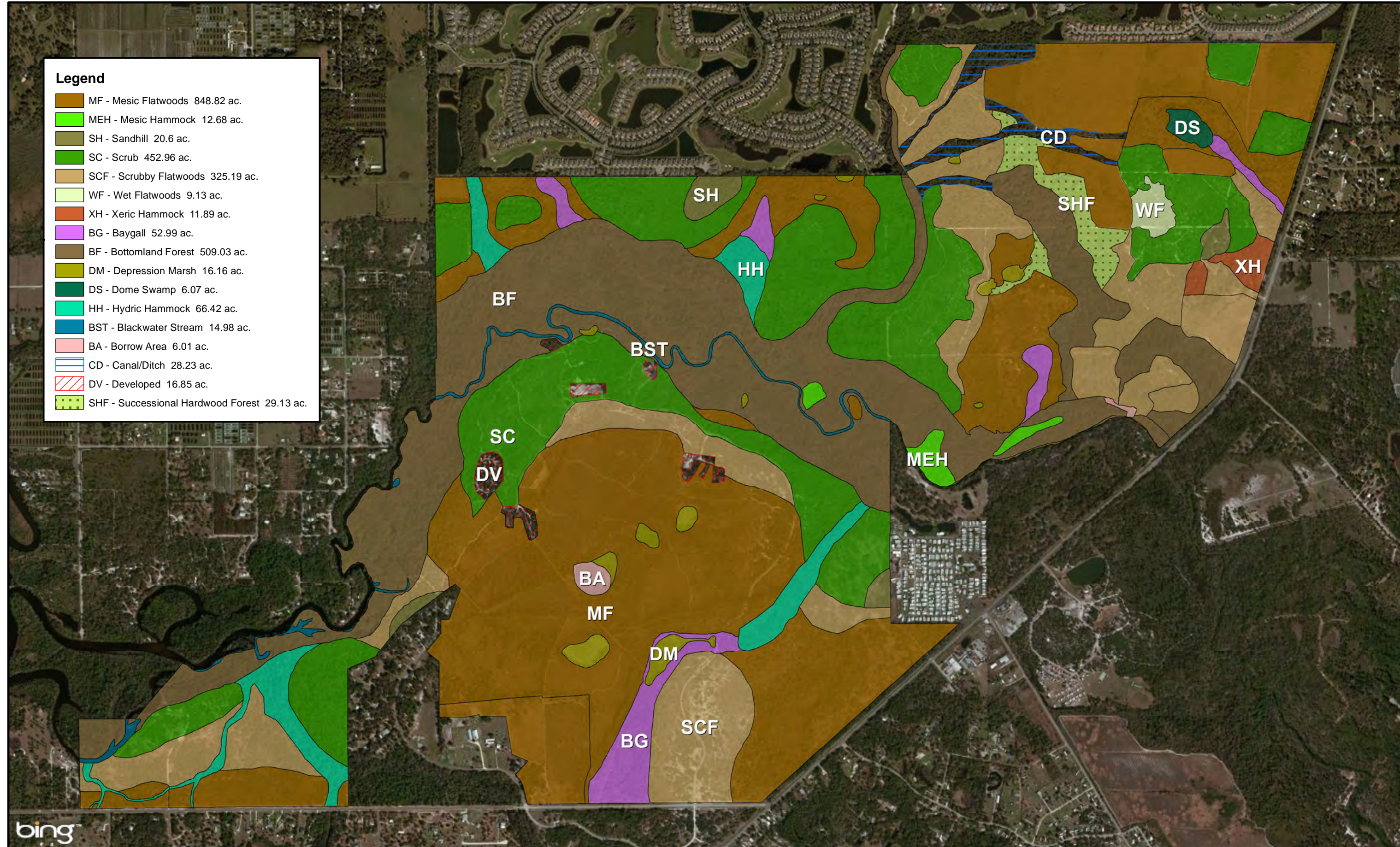
Imperiled Species Management

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.

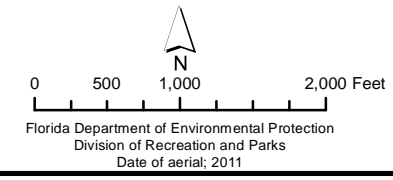
Legend

- MF - Mesic Flatwoods 848.82 ac.
- MEH - Mesic Hammock 12.68 ac.
- SH - Sandhill 20.6 ac.
- SC - Scrub 452.96 ac.
- SCF - Scrubby Flatwoods 325.19 ac.
- WF - Wet Flatwoods 9.13 ac.
- XH - Xeric Hammock 11.89 ac.
- BG - Baygall 52.99 ac.
- BF - Bottomland Forest 509.03 ac.
- DM - Depression Marsh 16.16 ac.
- DS - Dome Swamp 6.07 ac.
- HH - Hydric Hammock 66.42 ac.
- BST - Blackwater Stream 14.98 ac.
- BA - Borrow Area 6.01 ac.
- CD - Canal/Ditch 28.23 ac.
- DV - Developed 16.85 ac.
- SHF - Successional Hardwood Forest 29.13 ac.



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LITTLE MANATEE RIVER
STATE PARK



NATURAL COMMUNITIES DESIRED FUTURE CONDITIONS MAP

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. Those species selected for specific management action and those that will provide management guidance through regular monitoring are addressed in the objectives below.

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

Objective B: Monitor and document 6 selected imperiled animal species in the park.

- Action 1 Implement monitoring protocols for 2 imperiled animal species including the gopher tortoise and the Florida scrub-jay
- Action 2 Document incidental observations of the Florida sandhill crane, Sherman's fox squirrel, West Indian manatee and eastern indigo snake.

Two listed animal species at the park will be monitored. The first, the gopher tortoise population, has been monitored in the past for select management zones. Using the established FWC protocol for estimating gopher tortoise populations, three representative management zones will be monitored post-burn to see if management actions to improve gopher tortoise habitat and result in population change.

The second species to be monitored is the Florida scrub-jay. The annual participation in the Jay Watch Citizen Scientist program, using their established protocols for surveying, will be continued to monitor the number of individual scrub-jays and family groups. The monitoring should document if management actions to improve the scrub and scrubby flatwoods to optimum condition result in an increase in the number of scrub-jays at the park. Assistance and expertise will

be sought from FWC, Archbold Biological Station and other experts on scrub-jays and habitat management.

The Sherman's fox squirrel was described in the last plan as having a healthy population although seen infrequently. Since then, park staff have reported that incidental observations have decreased dramatically and worry that the species is now missing from the park. Florida sandhill cranes have been observed nesting in the depression marshes of the park. Notes and records should be kept of their nesting activity to avoid disturbance with prescribed fire and other resource management activities.

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 Garberia, Florida goldenaster, pine lily and the longbristle beaksedge
- Action 2 Implement monitoring protocols for 4 imperiled plant species including those listed in Action 1 above

Four plant species have been identified for monitoring. A monitoring protocol should be developed for the pine lily. This species responds well to fire and is a good indicator for well-maintained pyric communities. The longbristle beaksedge and the Florida golden aster were picked because of the small native ranges they hold in the state. The longbristle beaksedge are only found in two counties, therefore monitoring this specie is a priority for park service personnel.

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 112 acres of exotic plant species in the park.

- Action 1 Annually develop/update exotic plant management work plan.
- Action 2 Treating 112 acres in park, annually, and continuing maintenance and follow-up treatments, as needed.

Park personnel should annually be treating 112 acres of infested acres at Little Manatee River 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 cut down 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 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 1 exotic animal species in the park.

- Action 1 Develop a hog removal management plan
- Action 2 Implement a hog removal management plan
- Action 3 Pursue USDA contracts and continue in house trapping to lower hog numbers.

One exotic animal species requires special control efforts in the park. The feral hog does extensive damage to natural communities through its propensity to root (i.e. turn the soil and vegetative understory upside down) in search of food. The disturbed soil that is left can be eroded, or provide conditions for invasive exotic plants to become established.

Overall, reduce the total impact of feral hogs to less than three percent coverage in the park. This low coverage (preferably less) should be maintained for the remainder of the planning period. There are a range of techniques for removing feral hogs, and the most success has been accomplished when a mix of approaches were used, since feral hogs are quick to learn what to avoid. A plan specific to the park needs to be researched and defined to establish a baseline number of hogs at the park and set target removal goals. Annual progress should be monitored and evaluated annually. Feral hogs have been controlled at the park by contract removals, a practice which will need to be continued.

Objective: Practice preventative measures to avoid accidental introduction and spreading of invasive exotic plants within the park.

- Action 1 Develop a plan to ensure invasive exotic plant cross accidental introduction does not occur
- Action 2 Implement the plan to ensure invasive exotic plant cross accidental introduction does not occur

Guidelines for mowing, as well as cleaning and inspecting equipment that enters the park are recommended. New infestations of exotics can be prevented by ensuring that contractors such as mowers and loggers clean their equipment before entering the park and do not spread exotics by moving from a contaminated area within the park without cleaning their equipment. Park staff should practice the same measure when moving equipment from known infested areas to others

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.

Arthropod Control Plan

There is no Arthropod Control Plan for Little Manatee River State Park. 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 the 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 Division's adaptive management response to future conditions, including the effects of sea level rise, as they develop.

Within the 10-year planning period of this management plan, however, sea level rise is not anticipated to directly affect the natural or cultural resources of Little Manatee River State Park or the recreation facilities and infrastructure of the park.

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 Little Manatee River 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, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effect. In addition, any demolition or substantial alteration to any historic structure or resource must be submitted to 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 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: Assess and evaluate 13 of 13 recorded cultural resources in the park.

Action 1 Complete 13 assessments/evaluations of archaeological sites.

A review of the FMSF data indicate that a total of six archaeological surveys of varying intensity, coverage and scope have occurred fully or partially within the boundaries of Little Manatee River State Park. An archaeological resource sensitivity model was developed for the park in July 2013. It has identified 17 areas for high and medium sensitivity for cultural resources.

The park intends to have the recorded cultural sites evaluated and condition assessments updated during the plan period. Park staff will attempt to locate sites and provide information to include any threats to the sites such as natural erosion; vehicular damage; horse, bicycle or pedestrian damage; looting; construction including damage from firebreak construction; animal damage; plant or root damage or other factors that might cause deterioration of the site. Site assessments should be documented on appropriate forms and a copy sent to the DHR to be filed in the Florida Master Site Files. A copy of this information should also be maintained at the park and district offices. The park will prioritize preservation projects identified by the assessments/evaluations.

Objective B: 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
- Action 3 Conduct oral history interviews
- Action 4 Assess the fish camp, old home site and boat ramp areas for potential significance.

The general objective for the management of the cultural resources of Little Manatee River State Park is to protect, preserve and interpret the prehistoric and historic resources. Management should arrange for a Level I survey in all areas planned for development and utilize development project funds to accomplish the survey. As funding is available, Level 1 surveys should be conducted for areas identified by the predictive model.

More information is needed with regards to some of the more recent potential historic sites. These include the old homestead, the boat ramp and the old fish camp. The age of these sites and relative significance needs to be determined so they can be appropriately recorded or updated in the Florida Master Site File. Efforts should be made to ensure that there is always at least one staff member who is a certified archaeological monitor. Management should ensure that park personnel are trained in cultural resource management and establish a park library to support the training.

A Scope of Collections will need to be developed and used should the park acquire any collection items. An administrative history is needed for the park that will help interpret the history of the park. Oral histories of local historians and park staff need to be done to help document the park's history.

Objective C: Bring 13 of 13 recorded cultural resources into good condition.

- Action 1 Design and implement regular monitoring programs for 13 cultural sites
- Action 2 Create and implement a cyclical maintenance program for each cultural resource.

All other sites should be monitored on a regular basis. A cyclical maintenance plan should be developed and implemented to help guide the park with needed preservation of its sites. Management measures for cultural resources should include development of a phased plan for managing the currently 13 identified recorded sites in the context of their surroundings. The plan should outline approved methodologies for executing the plan and training staff and volunteers in managing the cultural resources of the park.

Resource Management Schedule

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

Land Management Review

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

Little Manatee River State Park was subject to a land management review on March 17 2015. 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.

Little Manatee River State Park is located within Hillsborough County, about 25 miles northeast of Bradenton in the southwest part of the state. More than 2.7 million people live within 50 miles of the park, which includes the cities of Tampa, Clearwater, St. Petersburg, Brandon, Bradenton, Sarasota, and Lakeland (U.S. Census 2015).

According to U.S. Census data, approximately 47 percent of residents in Hillsborough County identify as black, Hispanic or Latino or another minority group. Just over 36 percent of residents can be described as youth or seniors.

Per capita income in the county is \$27,149 as compared to the statewide average of \$26,236 (U.S. Census 2015).

The park is located in the Central West vacation region, which includes Citrus, Hernando, Hillsborough, Pasco, and Pinellas Counties (Visit Florida 2012). According to the 2012 Florida Visitor Survey, 11 percent of domestic visitors to Florida visited this region. Of the 8.5 million domestic visitors who came to this region in 2012, approximately 82 percent traveled for leisure. Visiting friends and relatives was the most popular activity for those visitors, followed by visiting the beach/waterfront and dining. Spring was the most popular season for visitors. Most visitors traveled by ground transportation (61 percent) reporting an average stay of 4.0 nights and spending an average of \$138 per person per day (Visit Florida 2012).

There are many resource-based recreation areas within 15 miles of the park including Terra Ceia Preserve State Park, Cockroach Bay Preserve State Park, Alafia River State Park, South Fork State Park, Bullfrog Creek Mitigation Park Wildlife and Environmental Area, Apollo Beach Nature Preserve, Wolf Branch Nature Preserve, Balm Scrub Nature Preserve, Balm-Boyette Scrub Nature Preserve, Alafia River Corridor Preserve, Little Manatee River Preserve. These lands and waters support an array of resource-based outdoor activities including hiking, biking, horseback riding, swimming, fishing, picnicking, camping, paddling, wildlife viewing, and nature study. The Hillsborough County Greenways Master Plan incorporates most of the forested wetlands along the Alafia, Hillsborough and Little Manatee Rivers in the county. The greenway's proposed southern hub is Little Manatee River State Park, and future trail connections with the greenway are anticipated. The Little Manatee River is designated as a state paddling trail from the U.S. Highway 301 bridge to a county park just east of I-75. The first five miles of this ten-mile trail flow through the park.

Existing Use of Adjacent Lands

Adjacent land uses to the east, west are mostly low density residential. A residential subdivision known as Sundance is located just south of the park on the south side of Lightfoot Road. Little Manatee Springs is a small mobile home park located on U.S. Highway 301 just south of the Manatee River bridge. A large aquaculture farm is located at the park's northwest corner. Sun City Center and King's Point are mixed-use planned unit developments located on the park's north side.

Planned Use of Adjacent Lands

Future Land Use (FLU) designations for the Kings Point and Sun City Center planned unit developments are Residential 4 (four dwelling units per acre) and Residential 6 (six dwelling units per acre) respectively. The zoning for these properties is Planned Development with the intent of encouraging compatible, mixed-use development for land that is to be developed as a whole in a single

development operation. The majority of the land to the south and west of the park has the FLU designation of Residential 1 (one dwelling unit per acre) with a zoning classification of Planned Development. The property at the park's northeast corner has the FLU designation of Wimauma Village - Residential 2, which allows for two dwelling units per acre provided the development demonstrates a planned village concept on at least 160 acres (Hillsborough County 2008). The zoning classification for this area is Agricultural Rural to protect viable agricultural lands on parcels of at least five acres (Hillsborough County 2014). The park falls within Hillsborough County's "Little Manatee South" community planning zone with the long-term vision of protecting the rural character and sensitive environmental lands of the area. No major road improvements or major developments are planned for this area during the 10 year planning horizon (Hillsborough County 2008).

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

Approximately 75 percent of the park's 2,416 acres are considered uplands, the majority of which are mesic flatwoods, scrub, and abandoned agricultural fields. The terrain is relatively level with some steep bluffs along the river. The flatwoods and old-fields are suitable for a broad array of recreational activities including camping, hiking, biking, and horseback riding. The scrub community is designated as a protected zone in the park as it provides critical habitat for imperiled species such as the Florida scrub-jay. The deep, sandy soils provide limited opportunities for hiking and horseback riding.

Water Area

The Little Manatee River, the primary water feature in the park, is one of the most pristine blackwater streams in Hillsborough County. The river is a

designated state paddling trail, approximately five miles of which flow through the park, providing exceptional opportunities for paddling, fishing, and wildlife observation. Dude Lake, a 3-acre human-made pond is located in the middle of the old pine plantation area on the south side of the river. It offers a scenic destination with wildlife viewing opportunities for park trail users. Fishing opportunities are limited on this water body due to lack of vehicular access and dense shoreline vegetation.

Shoreline

The park contains approximately 5 miles of Little Manatee River shoreline. Steep banks and dense vegetation along the river limit shoreline recreation to primitive camping and fishing.

Natural Scenery

The park's natural scenery is varied. The long park drive winds through flatwoods with open vistas. The camping and day use areas are located in scrub areas with a more enclosed experience. From the main picnic area, visitors can glimpse the river from small clearings at the pavilions. A walk along the river's edge on the Oxbow Trail takes the visitor into a moist, sub-tropical environment where various flowering herbaceous plants are found in conjunction with cattails, sedges, and other aquatic and shoreline vegetation. The paddling experience varies along the river corridor from enclosed, canopied segments on the east side to open sunny stretches as the river widens on the west side. Opportunities for nature photography are abundant.

Significant Habitat

The Florida scrub-jay, West Indian manatee and wood stork are among the listed plant and animal species found at the park. The diversity of listed and non-listed wildlife supported by the natural communities of the park, and the proximity of the river, provide wildlife viewing opportunities at several locations. The most prominent area for wildlife viewing is the river shoreline where manatees are frequently observed.

Natural Features

The significant natural features in the park include both hydrological and vegetative elements. The pristine condition of Little Manatee River and its associated floodplain habitat are important to the interpretation of the natural communities and hydrology of this area. The upland natural communities, especially sandhill and scrub, and the mesic flatwoods are of utmost regional importance, since the park is one of the few remaining areas in the region where these communities remain.

Archaeological and Historical Features

Thirteen pre-historic archaeological sites are located in Little Manatee River State Park. Dating back more than 10,000 years, these sites provide important information for interpreting the history of the earliest inhabitants of the Tampa Bay region.

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

Prior to acquisition by the state, approximately 200 acres located north of the Little Manatee River were used for pasture. South of the river, approximately 400 acres were part of a former pine plantation.

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 park's FLU designation is Natural Preservation (N). This designation recognizes lands of significant environmental importance to be set aside for conservation purposes. No residential use is permitted except for facilities determined necessary for management of the property. All other development is prohibited in these areas except for compatible recreational/educational development (Hillsborough County 2008). The zoning designation follows the Planned Development – Mixed Use category (PD-MU) as described in the comprehensive plan. The goal of this category is to promote a wide range of uses in close proximity to each other within new and existing urban communities (Hillsborough County 2008). There are no expected conflicts between the future land use or zoning designations and typical state park land uses.

Current Recreational Use and Visitor Programs

The recreational uses available at this time include paddling, hiking, horseback riding, picnicking, and camping. Paddlers can bring their own canoes and kayaks, rent from the park, or rent from a nearby concession to enjoy the five miles of the Little Manatee River that flow within the park. The park offers hiking trails on the north side of the river. A nature trail, shared-use trails, and equestrian trails are located on the south side of the river. Bicycles are available for rent at the ranger station. Picnicking opportunities are available at the main picnic area. RV and tent camping are available in the full-service, family

campground and the equestrian campground. The park also offers opportunities for hike-in primitive camping and primitive group camping.

Little Manatee River State Park recorded 51,882 visitors in FY 2014/2015. By DRP estimates, the FY 2014/2015 visitors contributed \$4,759,442 million in direct economic impact, the equivalent of adding 76 jobs to the local economy (FDEP 2015).

Other Uses

Peace River Electric Cooperative, Inc. has a power line easement located within this property. Tampa Port Authority has title to the submerged lands within the park boundaries. The submerged lands are part of Cockroach Bay Aquatic Preserve managed by the Florida Coastal Office of DEP.

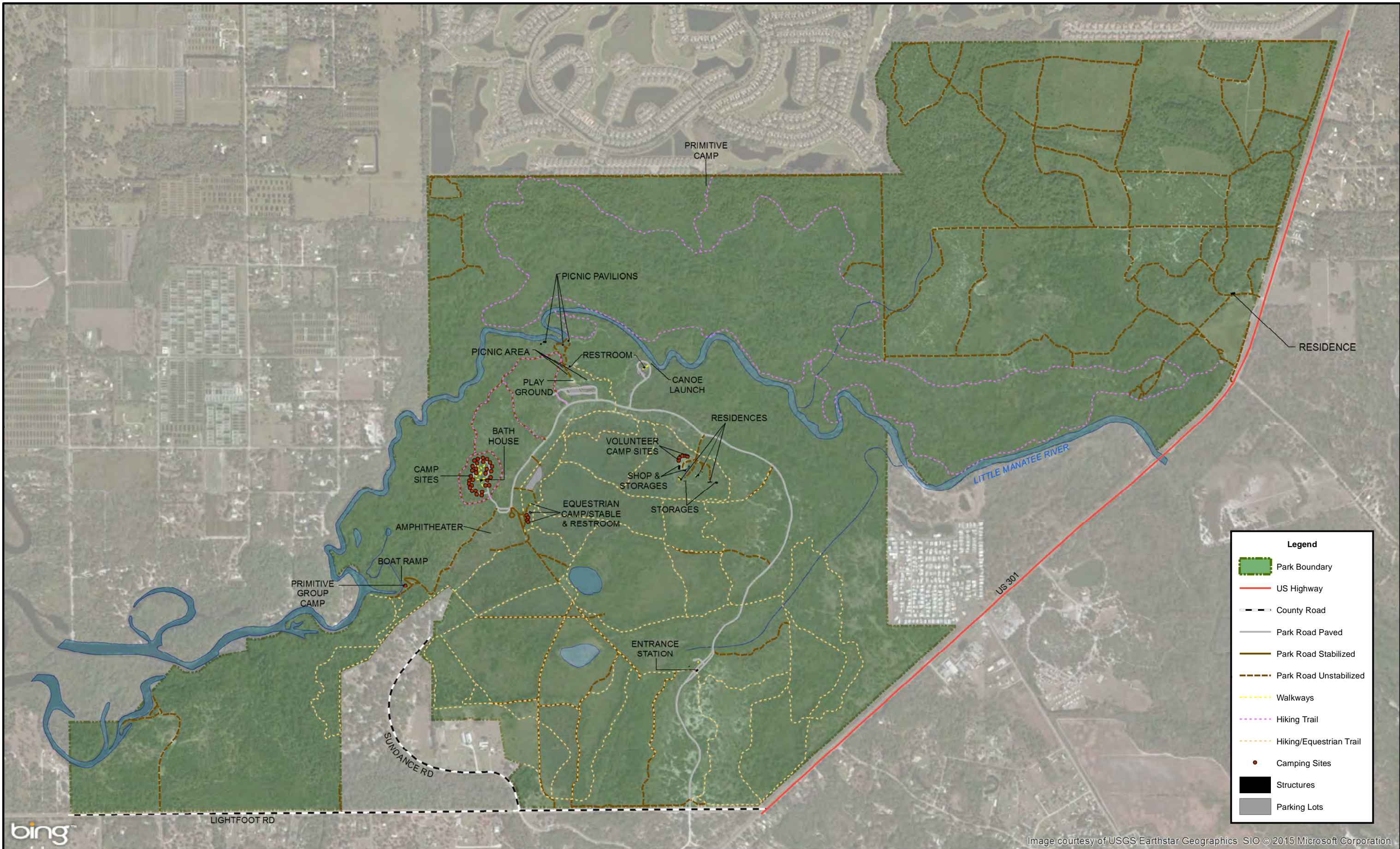
Protected Zones

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 Little Manatee River State Park all wetlands and floodplain and 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

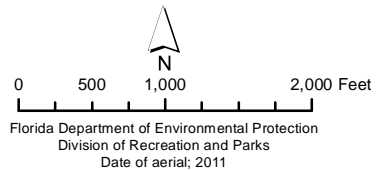
The park offers a seven-mile stacked loop trail on the north side of the river. The Oxbow Nature Trail, accessible from the main picnic area on the south side of the river, makes a one mile loop along scrub ridges that skirt the river and an oxbow wetland. Over 15 miles of equestrian and multi-use trails meander through the southern half of the park. Picnicking opportunities are available at three riverside pavilions in the main picnic area. The campground provides one loop with 30 full-service sites for RV or tent camping. Four full-service sites are available in the equestrian campground. Each equestrian campsite has use of two stalls in the horse stable directly behind the campground. The park also offers a hike-in primitive campsite and a primitive group camp for up to 20 people (see Base Map). The canoe/kayak launch area is currently closed. Undermining of the concrete launching structure by the river has created unsafe conditions for paddlers. The broad steps can still be used by visitors for fishing and as a scenic river overlook. Park support facilities include a ranger station, shop area, and staff residences.



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LITTLE MANATEE RIVER
STATE PARK



BASE MAP

Recreation Facilities

Canoe/Kayak Launch Area

Canoe/kayak launch
Restroom (1)
Parking (25 spaces)

Picnic Area

Large picnic shelters (3)
Picnic tables and grill
Playground
Restroom (1)
Parking (60 spaces)

Campground

Standard sites (30)
Bathhouse (1)
Laundry shelter (1)
Amphitheater

Primitive Group Camp

Primitive Campsite

Picnic table
Fire Ring

Equestrian Campground

Standard sites (4)
Stalls (8)

Trails

Nature trail (0.5 mi.)
Hiking trails (7 mi.)
Equestrian trails (11 mi.)
Shared-Use trails (3 mi.)

Support Facilities

Entrance Area

Ranger Station

Shop/Residence Area

Water treatment plant
Shop building
Flammable storage shed
Mower shed
Storage building
Volunteer campsites (5)
Staff residences (3)

Parkwide

Staff residence (1)
Park road (2 mi.)
Service roads (2.5 mi.)

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/or improved activities and programs are also recommended and discussed below.

Objective: Maintain the park's current recreational carrying capacity of 1,100 users per day.

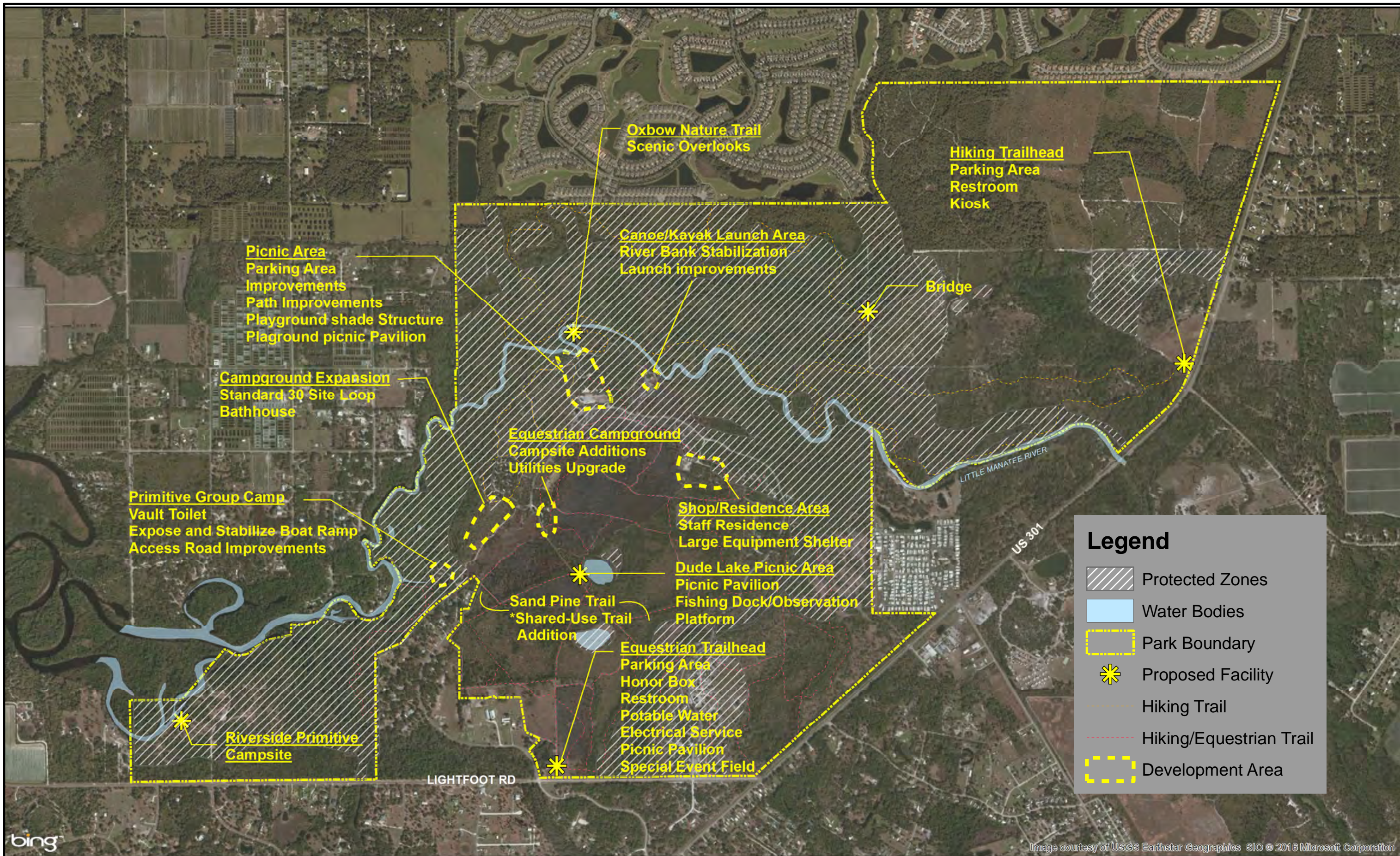
The park will continue to provide opportunities for picnicking, family camping, primitive group camping, primitive camping, equestrian camping, paddling, fishing, biking, hiking, horseback riding and nature/interpretive walks.

Objective: Expand the park's recreational carrying capacity by 354 users per day.

Considering the popularity and relatively high occupancy rate of the Little Manatee River State Park campground, camping opportunities will be expanded in the family camping area. The primitive group camping area will be relocated to expand and enhance opportunities for that type of camping. Primitive camping will be expanded with the addition of a paddle-in campsite south of the river.

Objective: Continue to provide the current repertoire of 4 interpretive, educational and recreational programs on a regular basis.

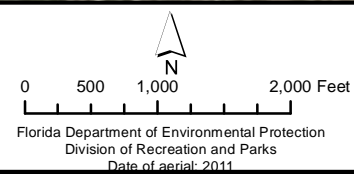
The park offers guided nature walks on a weekly basis during peak visitation season. Evening programs are offered in several formats, from hosting guest speakers and specialists, to staff developed campfire programs, and most



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LITTLE MANATEE RIVER
STATE PARK



CONCEPTUAL LAND USE PLAN

recently taking the format of a series of monthly programs with a different night theme each month. The programs include night hikes and presentations with topics on nocturnal wildlife, bats, owls, night sounds, the night sky, and the river at night. By scheduling programs outside normal daylight operating hours, visitors have the opportunity to experience the natural environment in new and exciting ways, and the park is able to expand the audience for park programs, and improve park visitation.

The park staff provides a variety of programs both in and outside the park by request, for students and organized groups. The park has developed powerpoint programs on fire, invasive species, and the gopher tortoise. These have been offered in the park as campfire programs and special events and outside the park at the public library, homeowner's association meetings, schools, and for residential communities by request. The park supports several local events and festivals by setting up a park information booth. The park maintains a relationship with Camp Bayou, an environmental education center on the river, and hosts an activity and information booth at the theme-based open houses for this organization, among others. The park's interpretation committee holds monthly meetings designed to evaluate and enhance currently offered opportunities for natural resource- based interpretation and education.

Objective: Develop 5 new interpretive, educational and recreational programs.

The park will develop at least two additional interpretive programs including a self-guided program, in the form of a trail brochure or GPS geo-guided park tour featuring stops at unique points of interest with an interpretive brochure description. Featured topics may include the Florida scrub, the Little Manatee River, oxbows and wetlands, river critters, and endangered and threatened species. The park should also develop activities and programs that tie in to the Junior Ranger program. Each activity sheet can be a launching pad for development of an educational program or activity that goes with it. The park should develop at least one short educational activity for each category of Jr. Ranger sheets that pertain to the park.

The park should develop one natural resource based event to be held annually. The "Backforty Music and Arts Festival" held in the fall and the "Spring Fling" are two events the park has hosted, and can build upon in the future. The park should pick one focal event for the park to focus on environmental education and preservation by drawing attention to the natural resources unique to the park, including the Little Manatee River, the upland scrub, endangered and threatened species, fire dependent natural communities, and invasive species. One of the primary goals of interpretation and educational programming in the park is to encourage greater park visitation, and ultimately appreciation for the park resources. Park staff should continue to seek out new opportunities for outreach, and build on existing relationships within the community in both the public and private sector. The park should pursue cross-organization program development and program packages, by tapping into the multitude of

environmental education programs at Camp Bayou, researching historical programs and train excursions offered at the Train Museum in Parrish, and envisioning ways to develop programs in collaboration with other agencies and private organizations' programs and events in the future.

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. The following is a summary of improved and new facilities needed to implement the conceptual land use plan for Little Manatee River 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 9 existing facilities and .5 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.

Campground: An additional 30 site campground loop will be provided adjacent to the existing campground. Each site will be provided with a picnic table, fire ring, water, and electrical hook-up. An additional bathhouse will be provided with this campground expansion. A new playground will also be provided for the campground.

Equestrian Camping Area: Two additional campsites will be provided in the equestrian camping area. Utilities for all of the sites will be upgraded.

Primitive Group Camp Area: This area will be enhanced with the installation of a vault toilet. Improvements will be made to the access road to mitigate the impacts of stormwater runoff. The old boat ramp will be uncovered and stabilized for use by campers.

Canoe/Kayak Launch Area: River undermining and erosion in this area will be corrected. The existing launching facility will be repaired, improved, and made ADA-compliant.

Picnic Area: The parking lot will be improved by replacing some of the asphalt spaces with pervious options. A picnic pavilion and a shade structure will be provided for the playground area to enhance the use of this facility. Paths throughout the area will be stabilized where necessary to improve accessibility. The grounds and riverbank at one of the picnic pavilions are suffering from erosion. Water flowing down the access path and from the large metal roof has deeply scoured the soil around the pavilion's concrete floor. Erosion control measures will be implemented to improve the situation. This picnic shelter is located on an advancing cut bank. The structure will be removed if and when river undercutting causes it to become unsafe. The temporary canoe/kayak launch area located behind the screened pavilion will be discontinued and moved upriver once improvements are made to the permanent launch facility.

Oxbow Nature Trail: Up to three scenic overlooks will be constructed along the banks of the Little Manatee River. The overlooks will be located at eroded areas along the trail where hikers have climbed down the banks to gain access to the river.

Sand Pine Trail: Biking, hiking, and horseback riding opportunities can be expanded with the addition of approximately two miles of existing service roads into this three mile shared-use trail system.

Hiking Trailhead: Improvements proposed for this area include a stabilized parking area, restroom, and interpretive kiosk.

Shop/Residence Area: Improvements proposed for this area include the replacement of one staff residence and the addition of a large equipment shelter.

Parkwide: It is recommended that a vehicular bridge be constructed across Cypress Creek to provide more convenient access to the northwest corner of the park to improve resource management and protection in that area. New and improved interpretive displays and signs are needed throughout the park including at each trailhead, at designated points along the trails, picnic areas, camping areas, and at each water access area.

Objective: Construct 3 new facility.

Riverside Primitive Campsite: A new primitive campsite is proposed for the south side of the Little Manatee River. This site will provide a paddle-in camping opportunity for canoers and kayakers.

Dude Lake Picnic Area: Facilities proposed for this area include a picnic pavilion and a small fishing dock that will also serve as an observation platform.

Equestrian Trailhead: This use area will be located on Lightfoot Road just west of the main park entrance. Proposed facilities include a parking area, honor box, potable water, electrical service, restroom, a large picnic pavilion, and a special event field.

Facilities Development

Preliminary cost estimates for these recommended facilities and improvements are provided in the Ten-Year Implementation Schedule and Cost Estimates (Table 7) 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:

Campground

Standard campsites (30)
Bathhouse
Playground

Equestrian Campground

Campsites (2)
Electrical upgrade

Primitive Group Camp

Access road improvements
Expose and stabilize boat ramp
Vault toilet

Riverside Primitive Campsite

Picnic table
Fire ring

Picnic Area

Parking area improvements
Path improvements
Playground shade structure
Playground picnic pavilion

Dude Lake Picnic Area:

Picnic pavilion
Fishing dock/observation platform

Parkwide

Vehicular bridge
Interpretive display and sign upgrades

Sand Pine Trail

Shared-use trail addition (2 mi.)

Oxbow Nature Trail

Scenic overlooks (3)

Hiking Trailhead

Parking area
Restroom
Kiosk

Equestrian Trailhead

Parking area
Honor box
Restroom
Potable water
Picnic pavilion
Electrical service
Special event field

Canoe/Kayak Launch Area

River bank stabilization
Launch improvements

Shop/Residence Area

Staff residence
Large equipment shelter

Recreational Carrying Capacity

Carrying capacity is an estimate of the number of users a recreation resource or facility can accommodate and still provide a high quality recreational experience and preserve the natural values of the site. The carrying capacity of a unit is determined by identifying the land and water requirements for each recreation activity at the unit, and then applying these requirements to the unit's land and water base. Next, guidelines are applied which estimate the physical capacity of the unit's natural communities to withstand recreational uses without significant degradation. This analysis identifies a range within which the carrying capacity most appropriate to the specific activity, the activity site and the unit's classification is selected (see Table 6).

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

Table 6. Recreational Carrying Capacity

Activity/Facility	Existing Capacity*		Proposed Additional Capacity		Estimated Recreational Capacity	
	One Time	Daily	One Time	Daily	One Time	Daily
Camping						
Standard	240	240	240	240	480	480
Equestrian	32	32	16	16	48	48
Primitive Group	20	20	10	10	30	30
Primitive	8	8	8	8	16	16
Picnicking	120	240			120	240
Canoe/Kayaking	50	100			50	100
Trails						
Hiking	50	100			50	100
Equestrian	100	200			100	200
Nature	10	40			10	40
Shared-Use	30	120	20	80	50	200
TOTAL	660	1100	294	354	954	1454

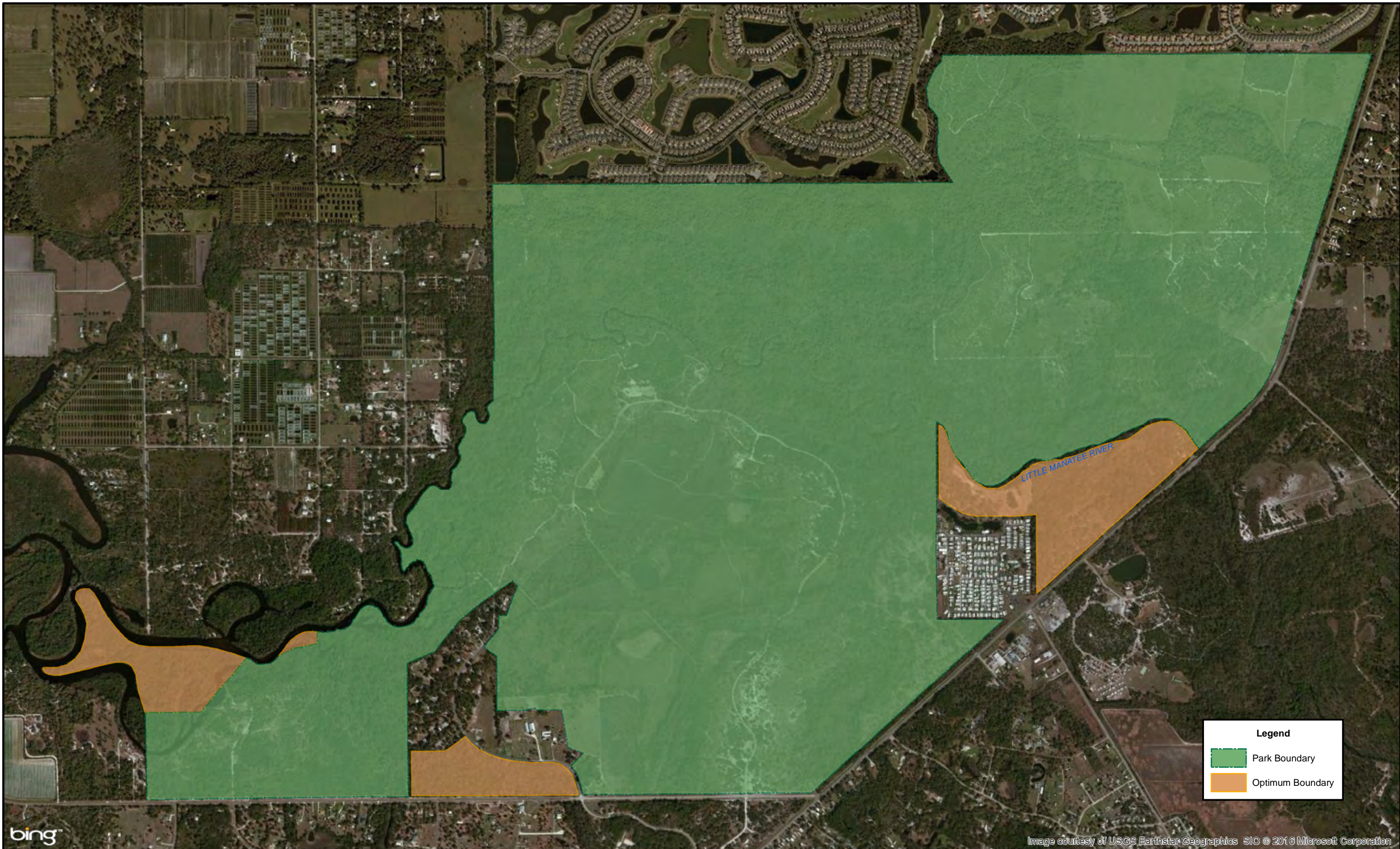
*Existing capacity revised from approved plan according to DRP guidelines.

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.

The optimum boundary for Little Manatee River State Park includes five parcels of land, totaling approximately 200 acres, on the park's eastern, southern, and western boundaries (see Optimum Boundary Map). These acquisitions would enhance the park's resource base and improve park operations and management.



Legend

- Park Boundary
- Optimum Boundary

N

0 500 1,000 2,000 Feet

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

LITTLE MANATEE RIVER
STATE PARK

OPTIMUM BOUNDARY

bing™

Image courtesy of USGS Earthstar Geographics SIO © 2010 Microsoft Corporation

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 Little Manatee River 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 two of the five general categories that encompass the mission of the park and the DRP.

Resource Management

Natural Resources

- Received \$10,000 grant from The Nature Conservancy for natural community restoration activities.
- Received grant from Tampa Bay Estuary to purchase water monitoring equipment.
- Received CISMA grant for resource management.

Park Facilities

- Renovated ranger station.
- Renovated manager's residence.
- Renovated one large picnic pavilion – added screens and fans.
- Replaced water well.
- Added campsites in the main campground.
- Made improvements to the campground dump station.
- Added stalls in the horse barn.
- Paved the road from the picnic area to campground.
- Installed native landscaping in the campground.

MANAGEMENT PLAN IMPLEMENTATION

This management plan is written for a timeframe of ten years, as required by Section 253.034 Florida Statutes. The Ten-Year Implementation Schedule and Cost Estimates (Table 7) summarizes the management goals, objectives and actions that

are recommended for implementation over this period, and beyond. Measures are identified for assessing progress toward completing each objective and action. A 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 7 may need to be adjusted during the ten-year management planning cycle.

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	\$438,000
Objective B	Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.	Administrative support expanded	UFN	\$140,000
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 restoration needs.	Assessment conducted	LT	\$150,000
Action 1	Asses the park's historical hydrologic patterns.	Study acquired	C	\$75,000
Action 2	Assess hydrological impacts of ditches throughout the park.	Study acquired	UFN	\$75,000
Objective B	Restore natural hydrological conditions and function to approximately 8 acres of dome swamp natural community.	# Acres restored or with restoration underway	UFN	\$30,000
Action 1	Asses feasibility of the dome swamp restoration.	Plan developed	LT	\$5,000
Action 2	Fill ditches surrounding dome swamp to restore historical hydrological conditions.	Plan implemented	UFN	\$25,000
Objective C	Monitor and analyze water resources of the park	Monitoring programs designed and implemented	C	\$10,000
Action 1	Seek assistance from water quality monitoring agencies to gather baseline water quality assessments from flowing tributaries	Baseline information obtained	C	\$5,000
Action 2	Seek assistance from water quality monitoring agencies to gather baseline water quality assessments from nearby groundwater wells.	Baseline information obtained	C	\$5,000
Objective D	Construct bridges, low water crossings and culverts to improve access within the park.	Access improvements completed	UFN	\$370,000
Action 1	Construct 6 bridges.	Bridges constructed	UFN	\$225,000
Action 2	Install 11 low water crossings	Low water crossings installed	UFN	\$75,000
Action 3	Install 7 culverts	Culverts installed	UFN	\$70,000
Objective E:	Restore natural hydrological conditions and functions to 2 areas of active erosion	Erosion controlled	UFN	\$11,000
Action 1	Asses and identify causes of excessive erosion	Areas Assessed	ST	\$1,000
Action 2	Implement erosion control measures identified in the assessment	Control measures implemented	UFN	\$10,000

* 2015 Dollars

ST = actions within 2 years

LT = actions within 10 years

C = long term or short term actions that are continuous or cyclical

UFN = currently unfunded need

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.				
Goal 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 1433 acres of the park maintained within the optimum fire return interval.	# Acres within fire return interval target	LT	\$236,000
Action 1	Update the annual burn plan	Plan updated	C	\$2,000
Action 2	Manage fire dependent communities by burning between 249 –687 acres annually.	Average # acres burned	C	\$234,000
Objective B	Conduct habitat/natural community restoration activities on 149 acres of abandoned fields to mesic flatwoods and their appropriate ecotone communities.	# Acres restored or with restoration underway	UFN	\$316,000
Action 1	Develop/update site specific restoration plan	Restoration plan developed/updated	ST	\$16,000
Action 2	Implement restoration plan	Restoration plan implemented	UFN	\$300,000
Objective C	Conduct natural community/habitat improvement activities on 28 acres of sandhill natural community	# Acres improved or with improvements underway	UFN	\$19,000
Action 1	Conduct hardwood thinning/girdling operations within the sandhill communities	Thinning/girdling operations completed	UFN	\$15,000
Action 2	Apply prescribed fire to sandhill natural communities.	Prescribed fire applied	C	\$4,000
Objective D	Conduct natural community/habitat improvement activities on 375 acres of mesic flatwood natural community	# Acres improved or with improvements underway	UFN	\$101,000
Action 1	Assess the ratio of longleaf pine to north Florida slash pine in the old pine plantation south of the river.	Assessment conducted	ST	\$2,000
Action 2	Apply prescribed fire.	Prescribed fire applied	C	\$94,000
Action 3	Consider planting longleaf pines to improve recruitment	Longleaf pines planted	UFN	\$5,000

* 2015 Dollars

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LT = actions within 10 years

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UFN = currently unfunded need

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.				
Goal IV: Maintain, improve or restore imperiled species populations and habitats in the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Develop/update baseline imperiled species occurrence inventory lists for plants and animals.	Baseline update completed	C	\$10,000
Objective B	Monitor and document 6 selected imperiled animal species in the park.	# Species monitored	C	\$10,000
Action 1	Implement monitoring protocols for 2 imperiled animal species including the gopher tortoise and the Florida scrub-jay	# Protocols developed	ST	\$500
Action 2	Document incidental observations of the Florida sandhill crane, Sherman's fox squirrel, West Indian manatee and eastern indigo snake	# Species monitored	C	\$9,500
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 112 acres of exotic plant species in the park.	# Acres treated	C	\$353,000
Action 1	Annually develop/update exotic plant management work plan.	Plan developed/updated	C	\$16,000
Action 2	Implement annual work plan by treating 112 acres in park, annually, and continuing maintenance and follow-up treatments, as needed.	Plan implemented	C	\$337,000
Objective B	Implement control measures on 1 exotic animal species in the park.	Control measures implemented	C	\$92,000
Action 1	Develop a hog removal management plan	Management plan developed	ST	\$16,000
Action 2	Implement a hog removal management plan	Management plan implemented	UFN	\$60,000
Action 3	Pursue USDA contracts and continue in house trapping to lower hog numbers	Contracts obtained	C	\$16,000

* 2015 Dollars

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UFN = currently unfunded need

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.				
Objective C	Practice preventative measures to avoid the accidental introduction and spread of invasive exotic plants in the park.	Measures developed and implemented	C	\$7,000
Action 1	Develop a plan to ensure invasive exotic plant cross accidental introduction does not occur	Plan developed	ST	\$2,000
Action 2	Implement the plan to ensure invasive exotic plant cross accidental introduction does not occur	Plan implemented	C	\$5,000
Goal VI: Protect, preserve and maintain the cultural resources of the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Assess and evaluate 13 of 13 recorded cultural resources in the park.	Assesments complete	LT	\$1,000
Action 1	Complete 13 assessments/evaluations of archaeological sites. Prioritize preservation and stabilization projects.	Assessments complete	LT	\$1,000
Objective B	Compile reliable documentation for all recorded historic and archaeological resources.	Documentation complete	LT	\$8,000
Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.	# Sites recorded or updated	ST	\$1,000
Action 2	Conduct Level 1 archaeological survey for 12 priority areas identified by predictive modeling	# Sites surveyed	UFN	\$3,000
Action 3	Develop and adopt a Scope of Collections Statement	Scope of Collections statement developed	ST	\$2,000
Action 4	Conduct oral history interviews	Oral history interviews	UFN	\$500
Action 5	Assess the fish camp, old homesite and boat ramp areas for potential significance	Fish camp and boat ramp areas assessed	LT	\$1,500
Objective C	Bring 13 of 13 recorded cultural resources into good condition.	# Sites in good condition	C	\$1,000
Action 1	Design and implement regular monitoring programs for 13 cultural sites.	Monitoring programs designed and implemented	C	\$500
Action 2	Create and implement a cyclical maintenance program for each cultural resource.	Programs implemented	C	\$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 1,100 users per day.	# Recreation/visitor	C	\$1,170,000
Objective B	Expand the park's recreational carrying capacity by 354 users per day.	# Recreation/visitor	UFN	\$377,000
Objective C	Continue to provide the current repertoire of 4 interpretive, educational and recreational programs on a regular basis.	# Interpretive/education programs	C	\$20,000
Objective D	Develop 5 new interpretive, educational and recreational programs.	# Interpretive/education programs	UFN	\$35,000

* 2015 Dollars

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LT = actions within 10 years

C = long term or short term actions that are continuous or cyclical

UFN = currently unfunded need

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

Goal 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	\$730,000
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	\$50,000
Objective C	Improve and/or repair 9 existing facilities and .5 miles of road as identified in the Land Use Component.	# Facilities/Miles of Road	UFN	\$5,469,000
Objective D	Construct 3 new facilities as identified in the Land Use Component.	# Facilities	UFN	\$443,000
Objective E	Expand maintenance activities as existing facilities are improved and new facilities are developed.	Facilities maintained	UFN	\$122,000

Summary of Estimated Costs

Management Categories	Total Estimated Manpower and Expense Cost* (10-years)
Resource Management	\$1,800,000
Administration and Support	\$578,000
Capital Improvements	\$5,962,000
Recreation Visitor Services	\$2,454,000
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.

* 2015 Dollars
 ST = actions within 2 years
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 UFN = currently unfunded need

Addendum 1—Acquisition History

Little Manatee River State Park Acquisition History

Purpose of Acquisition:

The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees) has acquired Little Manatee River State Park to preserve, develop, operate, and maintain the property for outdoor recreational, park, conservation, and related purposes.

Sequence of Acquisition:

On August 2, 1974, the Trustees purchased a 126-acre property constituting the initial area of Little Manatee River State Park. The Trustees purchased the property from Eugene Waldman for \$214,000. This purchase was funded with Land Acquisition Trust Fund (LATF) Bond Proceeds. Since this initial purchase, the Trustees acquired several individual parcels under LATF, donation, and Preservation 2000 Addition and Inholdings (P2000/ A&I) and added them to Little Manatee River State Park. Presently the park comprises 2,416.40 acres.

Title Interest:

The Trustees hold fee simple title to Little Manatee River State Park.

Lease Agreement:

On April 10, 1975, the Trustees leased Little Manatee River State Park to the Division of Recreation and Parks (DRP) under Lease No. 2806. The lease is for a period of ninety-nine (99) years, which will expire on April 9, 2074.

Special Conditions on Use:

Little Manatee River State Park is designated single-use to provide resource-based public outdoor recreation and other park related uses. Uses such as water resource development projects, water supply projects, storm-water management projects, and linear facilities and sustainable agriculture and forestry are not consistent with the purposes for which the DRP manages the property.

Outstanding Reservations:

There are no outstanding rights, reservations and encumbrances that apply to Little Manatee River State Park.

Little Manatee River State Park Acquisition History

Addendum 2—Advisory Group Members and Report

**Little Manatee River State Park
Advisory Group and Report**

The Honorable Stacy White County
Commissioner, District 4
Hillsborough County Board of
County Commissioners

Mark Rachal
Hillsborough County Environmental
Lands and Protection Program

Mark Proctor, Chair
Hillsborough Soil and Water
Conservation District

Joe Howard, Manager
Little Manatee River State Park

Robert Makowski
Florida Forest Service

Jennifer Myers, Conservation
Biologist
Florida Fish and Wildlife
Conservation Commission

Randy Runnells, Manager
Cockroach Bay Aquatic Preserve

Christopher Cooley, Director
Environmental Department
Tampa Port Authority

Marilyn Hett, Manager
Hillsborough County Tourist
Development Council

Heidi McCree, President
Tampa Bay Conservancy

Mary Keith, President
Tampa Audubon Society

Hank Brooks, Regional Director
Florida Paddling Trail Association

Kevin Webb, President
Myakka River Riders

Cathy Moore, Vice President
Friends of Little Manatee River
State Park

Tim Richards, President
Sundance Association

Little Manatee River State Park Advisory Group and Report

The Advisory Group meeting for Little Manatee River State Park was held at the Sun City Center Chamber of Commerce on July 28, 2016. Jackie Vizzi represented Kevin Webb. Randy Runnells and Heidi McCree were unable to attend. All other Advisory Group members were in attendance. Attending staff were Valinda Subic, Chris Becker, Matthew Hodge, Joe Howard, Martha Robinson, and David Copps. Mary Keith, Jennifer Myers, and Cathy Moore submitted written comments after the meeting.

Mr. Copps began the meeting by explaining the purpose of the Advisory Group, reviewing the meeting agenda, and summarizing the comments from the public hearing that was held the previous evening. Mr. Copps then asked each member of the Advisory Group to express his or her comments on the draft plan.

Summary of Advisory Group Comments

Robert Makowski (Florida Forest Service) stated that he will review the draft management plan and submit written comments after the meeting.

Mark Proctor (Hillsborough Soil and Water Conservation District) said that he was at the meeting to monitor the discussion and report his findings back to the SWC District board and staff.

Cathy Moore (Friends of Little Manatee River State Park) said that the CSO is always looking for opportunities to recruit new members. She stated the need for a park wayfinding sign on US Highway 301 and for improvements to the entrance gate to better accommodate equestrian rigs. Ms. Moore said that the playground in the picnic area needs a shade structure to protect children from the sun. She described the need for a picnic pavilion near the playground so that parents will have a comfortable place to sit while watching their children. Ms. Moore recommended that the laundry room at the campground be improved/upgraded. She said that the Reserve America campground reservation system is problematic for local equestrians who tend not to plan ahead and often find that the equestrian campsites are booked up. She said that the equestrian event field is not utilized to its fullest. She recommended that this site be improved with the addition of electric service and a restroom. Ms. Moore said that the park needs a new tractor and recommended the addition of a nature center to interpret the park's natural and cultural resources for visitors who may find it difficult to get out on the trails. She recommended the addition of a pier and pavilion for Dude Lake to enhance opportunities for wildlife viewing and photography. Ms. Moore recommended that the park provide a dog park to attract more visitors. She said that this facility would encourage many local residents to obtain yearly park passes. Ms. Moore recommended more interpretation of the park's cultural/archaeological sites.

Chris Cooley (Tampa Port Authority) encouraged the park to seek grants from the Hillsborough Environmental Protection Commission to help fund natural communities restoration efforts. He said that Keep Tampa Bay Beautiful has many

Little Manatee River State Park Advisory Group and Report

volunteers and recommended that the park explore a partnership for river cleanup projects.

Jennifer Myers (Florida Fish and Wildlife Conservation Commission) stated that she would like to see more information and discussion in the plan on the scrub and scrubby flatwoods natural communities and imperiled species including Florida mice and gopher tortoise. She said that oldfields and abandoned pastures can be very productive wildlife habitat and recommended maintaining some of these rather than restoring them to mesic flatwoods. She said that the time and money saved could be used on other higher priority resource management projects. Ms. Myers said that the objective on page 63 to develop monitoring protocols for the indigo snake and fox squirrel may not provide useful information at the park level since they are wide-ranging species.

Tim Richards (Sundance) said that the Sundance community is supportive of the park. He stated his concern about the proposed population growth for the surrounding area and the potential negative impacts that this might have on the park and the Little Manatee River. He said that Sundance wants to be a good neighbor and help the park when needed.

Marilyn Hett (Hillsborough County Tourist Development Council) stated that the plan should broaden its scope by describing visitor experiences in a wider regional context to more effectively market the park's recreational opportunities. She said that the park could do a better job of marketing on the WEB and social media. Ms. Hett recommended a collaboration with Hillsborough Community College where students might work on projects to better tell the park's story through the integration of WEB, social media, and mapping technologies. She noted that Florida Fairgrounds may be a good partner for generating revenue for equestrian events and facilities. She said that more detailed information should be provided in the plan on ADA access and recommended that the park work with a landscape architect to develop an ADA access plan. Ms. Hett discussed the upcoming Florida Birding and Nature Trail Festival on October 16, 2016 and described a 16 page newspaper insert, funded by Visit Florida, that will describe the region's natural areas, wildlife, and conservation lands. Cathy Moore said that the park is hosting its annual Mystery Map Festival the following day and recommended that marketing/promotion for both festivals be coordinated. Ms. Hett said that the clustering of events is a good way to attract visitors to the area for multiple day stays.

Mark Rachal (Hillsborough County Environmental Lands and Protection Program) recommended that the park's burn program take into account scrub-jay habitat requirements. He said that the Suwannee cooter has been observed in the Little Manatee River and recommended that the imperiled species list be updated to reflect this. Mr. Rachal said that funding should be increased to hire more park staff for resource management as in-house services are usually better than contracting out. He stated that, in addition to hog control, the park should also work to control feral cats when and if they become a problem. He said the park should make sure

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that bordering residents don't throw yard debris into the park. Mr. Rachal recommended that all equestrian trails be well maintained and signed to keep horses on existing trails so they don't stray and create new ones. He said that the park serves as an important wildlife corridor and that visitors should be educated about wildlife movements through the park and region.

Mary Keith (Tampa Audubon Society) stated that the park should put a high priority on removing exotic invasive plants and animals. She noted that the park's burrowing owls are hard to find. Ms. Keith stated the importance of the park in providing scrub-jay habitat and recommended a partnership with Scrub-Jay Watch volunteers to cut down sand pines for habitat improvement. She stated that park trails need better wayfinding signs and improved maintenance. She said the park's trail system needs to provide access to all of the natural communities to provide more interest for park visitors. Ms. Keith cautioned that the proposed overlooks along the river should be located in more open areas to avoid broken fishing lines and lost lures hanging from trees that could snag birds. She recommended that the park work with the Kings Point neighborhood to the north to mitigate the impacts of stormwater runoff. Ms. Keith commended the park on good equestrian trail management. She stated that cattle grazing should never take place in this park.

Jackie Vizzi (Myakka River Riders) said that the park is well used by the Myakka River Riders and that the members are encouraged to volunteer to help out when needed. She recommended that the park add a dog park and locate it near the campground. She also recommended the addition of a children's playground near the campground with access to shade and drinking water. Ms. Vizzi said that the equestrian event field should be promoted for use by other clubs and organizations. She said that water and electricity should be provided for this facility. Ms. Vizzi said that she doesn't think cattle grazing or timbering is appropriate in any state park. She said that a variety of trail experiences is very desirable.

Joe Howard (Little Manatee River State Park) said that the park tries to accommodate many uses for the benefit of all visitors. He said that volunteers are always welcome and much appreciated. He stated that all comments and recommendations will be considered by the Florida Park Service.

Summary of Written Comments

Jennifer Myers (Florida Fish and Wildlife Conservation Commission) recommended more specifics in the Desired Future Condition descriptions for scrub and scrubby flatwoods relative to what is ideal for scrub jays. She said that the discussion of timber management on page 26 should address how the slash pine monoculture will be dealt with in order to promote flourishing groundcover. She requested that the plan provide more information about the scrub-jay population in the park including how many family groups and population trends. Ms. Myers asked how land management in sandhill and scrub will be tailored to benefit gopher tortoises. She asked about the status of the gopher tortoise population in the park and asked for more information on past and planned future monitoring for this species. Ms. Myers

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recommended that more information be provided on the monitoring and management of imperiled species and the park's role in supporting them. She stated that the abandoned fields and pastures in the northeast corner of the park provide valuable wildlife habitat including several imperiled species. She recommended that these areas be maintained and not restored to mesic flatwoods. For sandhill restoration, Ms. Myers recommended a combination of girdle/chemical treatment and also cutting down trees and chemically treating stumps. She recommended that the park not develop monitoring protocols for Sherman's fox squirrels and indigo snakes as the information obtained would not be particularly useful to determine population trends for these wide-ranging species.

Mary Keith (Tampa Audubon Society) recommended that all invasive exotic plants and animals be managed as aggressively as possible. She said that all recognized management techniques should be used to manage for threatened/endemic/endangered wildlife. Ms. Keith recommended that hiking and multi-use trails be maintained, improved, and increased. She said that trails should lead visitors through a variety of habitats. She asked that the park explore and address stormwater mitigation measure with the owners/managers of the neighborhoods on the north side of the park. Ms. Keith recommended that fishing only be allowed in cleared areas along the Oxbow Nature Trail to avoid tree snagged fishing line and lures that are a threat to wildlife. She requested posting signs at fishing areas to warn against wildlife feeding to prevent them being snagged and killed. Ms. Keith recommended that the park coordinate with upstream landowners and agencies to prevent the movement of garbage and exotic plants and animals downriver. She commended the park and equestrians about the current sharing of multi-use trails. She stated that cattle grazing should be avoided at the park.

Summary of Public Comments

Ralph Greenlee discussed traffic safety issues at the US 301/Lightfoot Road intersection and recommended that the DRP work with the Florida Department of Transportation to get turn lanes installed at this dangerous location. He recommended that park staff come more often to meet and talk with the residents of the Sundance community to foster good communication and relationship building. He said that the community wants to work with the park for the benefit of all. Mr. Howard said that he embraces better communication with the community and looks forward to more regular meetings. Mr. Greenlee said that a parking area should be developed on Lightfoot Road to provide access to the equestrian event field. He discussed the possible future development of the 23,000 acre area just west of the park known as Little Manatee South. He recommended that the plan include a discussion of the potential impacts that such development would have on the park.

Chris Deno said that she was pleased about the plan's discussion of scrub-jay habitat improvement and improvements to the canoe/kayak launching area.

Don Deno recommended that security can be improved at all canoe/kayak access areas by keeping the vegetation trimmed back for better visibility.

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Paul Thibault said that the area surrounding park is expected to experience very significant development and population growth in the future. He said that this high rate of growth is a threat to the character of Little Manatee River State Park and recommended that the plan address these future land use changes and their potential impacts on the park. He said that the park is an important sanctuary and serves as a favorite destination and learning center for Sierra Club sponsored outings particularly for urban children.

Staff Recommendations

Comments received at the Advisory Group meeting resulted in the following modification to the draft management plan:

- Language will be added to provide more information on the monitoring and management of imperiled species (including scrub-jays, gopher tortoise, manatees, and Florida mice, indigo snake, and Sherman's fox squirrel) and better describe the park's role in supporting the species.
- Language will be added regarding maintenance of abandoned fields as wildlife habitat as an interim management strategy.
- A shade structure and a picnic pavilion will be provide for the Picnic Area playground.
- An additional playground will be provided at the Campground.
- A small fishing dock and a picnic pavilion will be provided at Dude Lake.
- An Equestrian Trailhead will be developed on Lightfoot Road. Proposed facilities for this new area include a stabilized parking lot, honor box, restroom, potable water, electrical service, a large picnic pavilion, and a special event field.

With this modification, DRP staff recommends approval of the proposed management plan for Paynes Creek Historic State Park.

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

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

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Addendum 3—References Cited

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Addendum 4—Soil Descriptions

Little Manatee River State Park Soil Descriptions

28 - Archbold Sand, 0-5% Slopes - This nearly level to gently sloping, moderately well drained soil is on moderately high ridges in the ridge part of the county. The mapped areas are irregular in shape and range from 15 to 75 acres. The slopes are smooth to convex.

Typically, the surface layer is gray sand about 4 inches thick. The underlying material to a depth of 80 inches or more is white sand.

Included with this soil in mapping are small areas of Duette, Orsino, Paola, Pomello, St. Lucie, and Satellite soils. In most areas, the included soils make up 10 to 15 percent of the map unit.

The available water capacity of this Archbold soil is very low. The permeability is very rapid. The water table is at a depth of 40 to 60 inches during the summer rainy season. It recedes to a lower depth during the rest of the year.

Most areas of this soil remain in native scrub forests. Small areas have been cleared for citrus crops and improved pasture. The natural vegetation consists of sand pine, south Florida slash pine, Chapman oak, myrtle oak, and sand live oak. The understory consists of saw palmetto and scattered pineland threeawn.

Without irrigation, this Archbold soil has very severe limitations for cultivated crops. Droughtiness and rapid leaching of plant nutrients reduce the potential yields.

Citrus trees are moderately well suited to this soil if a good irrigation system is installed and maintained. To maximize yields, management practices should include proper cover between rows and timely applications of lime and fertilizer because of rapid leaching.

The potential of this soil for production of improved pasture grasses and hay crops is low. Fertilizer and lime are needed. Grazing should be controlled to maintain plant vigor.

The potential of this soil for production of pine trees is low. Equipment use and seedling mortality are the main concerns in management. Sand, slash, south Florida slash, and longleaf pines are the preferred trees for planting.

The potential of this soil for the production of range plants is very low. The plant community consists of a dense woody understory, which is seldom grazed by cattle. The dominant forage is pineland threeawn. This soil is in the Sand Pine Scrub range site.

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This soil has moderate limitations for most urban and recreational uses because of the sandy texture and also because the seasonal high water table is between depths of 40 and 60 inches. For the most part, these limitations are easily overcome by special designs and soil reclamation, such as surfacing with suitable topsoil in conjunction with continued maintenance.

This Archbold soil is in capability subclass Vis

03 - Arents, nearly level. [4, 1989]

This consists of nearly level, heterogeneous soil material. This material has been excavated, reworked and reshaped by earthmoving equipment. Arents are near urban centers, phosphate-mining operations, major highways and sanitary landfills.

They do not have an orderly sequence of soil layers. This map unit is not associated with or confined to a particular kind of soil. They are variable and contain discontinuous lenses, pockets or streaks of black, gray, grayish brown, brown or yellowish brown sandy or loamy fill material. The thickness of the fill material ranges from 30 to 80 inches or more. Also included are small areas of soil that has slope that ranges from 0 to 5 percent. Most soil properties are variable. The depth to the seasonal high water table varies with the amount of fill material and artificial drainage. Permeability and the available water capacity vary widely from one area to another. In most areas, the soil in the map unit has been left idle or is used for home sites, recreation and urban development. In a few areas, the soil is used for pasture. Where reclamation has been attempted, the overburden soils tend to be compacted from the heavy machinery used. Surface layers tend to become encrusted upon drying, preventing root penetration by young trees in the spring and fall dry seasons. Compaction further hinders water and root penetration. An individual assessment of each site is necessary to determine its potential for different uses. The soils in this map unit have not been assigned to a capability subclass, a woodland group, or range site.

5 - Basinger, Holopaw and Samsula soils, depressional - The soils in this map unit are nearly level and very poorly drained. They are in swamps and depressions on the flatwoods. Generally, Basinger soil is along the exterior of swamps or in shallow depressions. Holopaw and Samsula soils are in the interior areas of the swamps or in deeper depressions. Undrained areas are frequently ponded for very long periods. The slope is 0 to percent.

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In 90 percent of the areas of this map unit, Basinger, Holopaw and Samsula soils, depressional, and similar soils make up 78 to 96 percent of the mapped areas, and dissimilar soils make up about 4 to 22 percent of the mapped areas. Generally, the mapped areas consist of about 35 percent Basinger soil and similar soils, 31 percent Holopaw soil and similar soils, and 18 percent Samsula soil and similar soils. The individual soils are generally in large enough areas to be mapped may be suited to the production of cypress and hardwoods through natural regeneration.

If these soils are used for building site development or for onsite waste disposal, ponding is the main limitation. Drainage is needed to lower the water table, and fill material is needed in most areas. While surface drainage helps to control ponding, the seasonal high water table is continuing limitation.

The soils in this map unit are in capability subclass VIIw. Basinger and Holopaw soils are in woodland group 2W. Samsula soil has not been assigned to a woodland group. This soils in this map unit are in the Freshwater Marshes and Ponds range.

7 - Candler fine sand, 0 to 5 percent slopes - This soil is nearly level to gently sloping and excessively drained. It is on the uplands.

In 95 percent of the areas mapped as Candler fine sand, 0 to 5 percent slopes, the Candler soil and similar soils make up 82 to 96 percent of the mapped areas. Dissimilar soils make up 4 to 18 percent of the mapped areas.

Typically, this soil has a surface layer of dark gray fine sand about 6 inches thick. The upper part of the subsurface layer, to a depth of about 35 inches, is light yellowish brown fine sand. The middle part, to a depth of about 72 inches, is very pale brown fine sand. The lower part to a depth of about 80 inches is a mixture of very pale brown fine sand and strong brown loamy sand lamellae that are about one-sixteenth to one-quarter of an inch thick and 2 to 6 inches long. In some places, similar soils included in the mapped areas do not have lamellae in the lower part of the subsurface layer. Other similar soils, in some areas, have a subsurface layer that consists of 5 to 10 percent silt and clay; and some similar soils also included in mapping, in some of the lower parts of the landscape, are well drained.

Dissimilar soils included in mapping are Kendrick and Millhopper soils in small areas. Kendrick soils are well drained, and Millhopper soils are moderately well drained. Also included are areas of unnamed soils on

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upper side slopes that are well drained and have a sandy clay loam subsoil within 40 to 80 inches of the surface.

A seasonal high water table is at a depth of more than 80 inches. Permeability is rapid. The available water capacity is very low.

The natural vegetation consists of bluejack oak, Chapman oak, scrub live oak, and turkey oak. The understory includes indiagrass, hairy panicum, panicum, and running oak. In most areas, this Candler soil is used for citrus crops. In a few areas, it is used for pasture or for homesite or urban development.

15 - Felda fine sand - This soil is nearly level and poorly drained. It is on broad sloughs on the flatwoods. The slope is 0 to 2 percent.

In 95 percent of the areas mapped as Felda fine sand, the Felda soil and similar soils make up 90 to 99 percent of the mapped areas. Dissimilar soils make up 1 to 10 percent of the mapped areas.

Typically, this soil has a surface layer of very dark gray fine sand about 5 inches thick. The upper part of the subsurface layer, to a depth of about 18 inches, is dark gray, mottled fine sand. The lower part, to a depth of about 22 inches, is dark grayish brown, mottled fine sand. The subsoil to a depth of about 45 inches, is light brownish gray, mottled sandy clay loam. The substratum to a depth of about 80 inches is light gray loamy sand that contains many shell fragments. Similar soils included in mapping have a subsoil at a depth of more than 40 inches of the surface.

Dissimilar soils included in mapping are Pinellas and Wabasso soils in small areas. Pinellas soils are calcareous in the upper part of the subsoil. Wabasso soils have a sandy subsoil above a loamy subsoil.

A seasonal high water table fluctuates from the soil surface to a depth of about 10 inches for 2 to 6 months in most years. Permeability is rapid in the surface and subsurface layers and is moderate in the subsoil. The available water capacity is moderate.

In most areas, this Felda soil is used for pasture. In a few areas, it is used for cultivated crops or for homesite or urban development or it has been left idle in natural vegetation. The natural vegetation consists of cabbage palm and slash pine. The understory includes saw palmetto, pineland threeawn, and waxmyrtle.

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If a water control system is established and maintained and soil-improving measures applied, this soil is well suited to most cultivated crops. If suitable outlets are available, lateral ditches and tile drains can be used to lower the water table. Returning all crop residue to the soils and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility.

This soil is suited to pasture. Wetness limits the choice of plants that can be grown and restricts grazing during rotation, and timely deferment of grazing help keep the pasture in good condition.

The potential of this soil for the production of slash pines is moderately high. The main management concern for producing and harvesting timber is seedling mortality. Water-tolerant trees should be planted. Planting and harvesting operations should be scheduled during dry periods. Bedding of rows helps to minimize the excessive wetness limitation.

If this soil is used for building site development, the main management concern is excessive wetness. Population growth has resulted in increased construction of houses on this soil. Drainage is needed to lower the high water table, and fill material is needed in most areas. Septic tank absorption fields need to be moved in most areas.

This Felda soil is in capability subclass, IIIw, in woodland group 10W, and in the Slough range site.

27 - Malabar fine sand [27, 1989]

This soil is nearly level and poorly drained. It is in low-lying sloughs and shallow depressions on the flatwoods. The slope is 0 to 2 percent.

Typically, this soil has a surface layer of dark gray fine sand about 4 inches thick. The subsurface layer, to a depth of about 12 inches, is light brownish gray fine sand. The upper part of the subsoil, to a depth of about 30 inches, is brownish yellow fine sand. The next layer, to a depth of about 50 inches, is pale brown fine sand. The lower part, to a depth of about 66 inches, is gray, mottled fine sandy loam. The substratum to a depth of about 80 inches is grayish brown fine sand.

In most years, a seasonal high water table fluctuates from the soil surface to a depth of about 10 inches for 2 to 6 months. Permeability is rapid in the surface and subsurface layers, slow in the subsoil, and moderately rapid or rapid in the substratum. The available water capacity is very low or low. The depressions are subject to shallow flooding during heavy rains.

In most areas, this Malabar soil has been left idle in native vegetation. In some areas, the soil has been drained and is used for

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cultivated crops or pasture or for homesite or urban development. The natural vegetation consists of cabbage palm, longleaf pine, and slash pine. The understory includes broomsedge, bluestem, inkberry, maidencane, saw palmetto, and waxmyrtle.

The potential of this soil for the production of slash pines is moderately high. Seedling mortality and the equipment use limitation are the main limitations. Water-tolerant trees should be planted. Planting and harvesting operations should be scheduled during dry periods. Bedding of rows helps to minimize the excessive wetness limitation. Wetness limits the use of equipment.

This Malabar soil is in capability subclass IVw, in woodland group 10W, and in the Slough range site. Reaction ranges from strongly acid to moderately alkaline throughout.

29 - Myakka fine sand - This soil is nearly level and poorly drained. It is on broad plains on the flatwoods. The slope is 0 to 2 percent.

In 95 percent of the areas mapped as Myakka fine sand, the Myakka soil and similar soils make up 84 to 93 percent of the mapped areas. Dissimilar soils make up 7 to 16 percent of the mapped areas.

Typically, this soil has a surface layer of very dark gray fine sand about 5 inches thick. The subsurface layer, to a depth of about 20 inches, is gray fine sand. The upper part of the subsoil, to a depth of about 25 inches, is black fine sand. The middle part, to a depth of 30 inches, is dark reddish brown fine sand. The lower part to a depth of about 38 inches, is brownish yellow fine sand. The upper part of the substratum, to a depth of about 55 inches, is very pale brown sand. The lower part to depth of about 80 inches is dark grayish brown fine sand. Similar soils included in mapping, in some areas, have a surface layer that is more than 8 inches thick. Other similar soils, in some planes, have a subsoil within 20 inches of the surface, and some included similar soils have a subsoil at a depth of more than 30 inches or have a brown or dark brown subsoil, or both.

Dissimilar soils included in mapping are Basinger and Wabasso soils in small areas. Basinger soils are very poorly drained. Wabasso soils have a loamy subsoil below a sandy subsoil.

In most years a seasonal high water table fluctuates from the soil surface to a depth of 10 inches for 1 to 4 months and recedes to a depth of 40 inches during prolonged dry periods. Permeability is rapid in the surface and subsurface layers, moderate or moderately rapid in the subsoil, and rapid in the substratum. The available water capacity is low.

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In most areas, this Myakka soil is used for native pasture or cultivated crops. In a few areas, it is used for improved pasture or citrus crops, or it is used for homesite or urban development. The natural vegetation consists of longleaf pine and slash pine. The understory includes gallberry, running oak, saw palmetto, pineland threeawn, and waxmyrtle.

If a water control system is established and maintained and soil-improving measures applied, this soil is suited to most cultivated crops, citrus crops, and pasture. Proper arrangement and bedding of tree rows, lateral ditches or tile drains, and well constructed outlets will help lower the water table. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility. Frequent applications of fertilizer and lime are generally needed to improve soil quality.

If a water control system is established and maintained, this soil is well suited to pasture. Wetness limits the choice of plants that can be grown and restricts grazing during periods of excessive wetness. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and the soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

The potential of this soil for the production of slash pines is moderate. The main management concerns for producing and harvesting timber are the equipment use limitations and seedling mortality. Equipment use limitations are a concern if the soil is not properly drained. Water-tolerant trees should be planted. Planting and harvesting operations should be scheduled during dry periods. Bedding of rows helps to minimize the excessive wetness limitation.

If this soil is used for building site development, the main management concerns are excessive wetness, possible contamination of the ground water, and instability of cutbanks. Population growth has resulted in increased construction of houses on this soil. Drainage is needed to lower the high water table, and fill material is needed in most areas. Septic tank absorption fields need to be mounded in most areas. If the density of housing is moderate to high, a community sewage system can help to prevent contamination of water supplies by seepage. Cutbanks are not stable and are subject to slumping.

This Myakka soil is in capability subclass IVw, in woodland group 8W, and in the South Florida Flatwoods range site.

36 - Orsino fine, 0 to 5% slopes. [36, 1989]

This soil is nearly level to gently sloping and moderately well drained. It is on the uplands and along slope breaks to stream channels.

Typically, this soil has a surface layer of gray fine sand about 2 inches thick. The upper part of the subsurface layer, to a depth of about 15 inches, is light gray fine sand. The lower part, to a depth of about 31 inches, is white fine sand. The upper part of the subsoil, to a depth of about 48 inches, is brownish yellow and very dark grayish brown fine sand. The lower part, to a depth of 72 inches, is yellow, mottled fine sand. The substratum to a depth of about 80 inches is pale brown fine sand.

In most years, a seasonal high water table is at a depth of 40 to 60 inches for more than 6 months and recedes to a depth of more than 60 inches during prolonged dry periods. Permeability is very rapid. The available water capacity is low or very low.

In most areas, this Orsino soil is used for pasture. In a few areas, it is used for homesite or urban development or is left in natural vegetation. The natural vegetation consists of turkey oak, sand pine, and slash pine. The understory includes sand heath, pineland threeawn, saw palmetto, and pricklypear cactus.

This Orsino soil is in capability subclass IVs, in woodland group 8S, and in the Sand Pine Scrub range site. Reaction ranges from extremely acid to medium acid throughout.

38 – Pinellas fine sand

41 - Pomello fine sand, 0 to 5% slopes. [41, 1989]

This soil is nearly level to gently sloping and moderately well drained. It is on low ridges on the flatwoods. Typically, this soil has a surface layer of very dark gray fine sand about 3 inches thick. The subsurface layer, to a depth of about 43 inches is light gray fine sand. The upper part of the subsoil, to a depth of about 46 inches, is dark brown fine sand. The lower part, to a depth of about 55 inches, is brown fine sand. The substratum to a depth of about 80 inches is grayish brown fine sand. Similar soils included in mapping, in some places, have a subsoil within 30 inches of the surface.

In most years, a seasonal high water table is at a depth of 24 to 40 inches for 1 to 4 months and recedes to a depth of 40 to 60 inches during dry periods. Permeability is very rapid in the surface and subsurface layers, moderately rapid in the subsoil, and rapid in the substratum. The available water capacity is very low.

In most areas, this Pomello soil is used for native pasture. The natural vegetation consists of longleaf pine, sand pine and slash pine. The understory includes creeping bluestem, lopsided indiagrass,

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running oak, saw palmetto and pineland threeawn. This soil is poorly suited to pasture.

The potential of this soil for the production of sand pines and slash pines is moderate. The main management concerns for producing and harvesting timber are the equipment use limitations and seedling mortality.

This Pomello soil is in capability subclass VIs, in woodland group 8S, and in the Sand Pine Scrub range site. Reaction ranges from very strongly acid to medium acid throughout.

46 - St. Johns fine sand. [46, 1989]

This soil is nearly level and poorly drained. It is on low-lying plains on the flatwoods. The slope is 0 to 2 percent. Typically, the upper part of the surface layer is black fine sand about 6 inches thick. The lower part, to a depth of about 12 inches, is very dark grayish brown fine sand. The subsurface layer, to a depth of about 29 inches, is light brownish gray fine sand. The upper part of the subsoil, to a depth of about 36 inches, is black fine sand. The middle part, to a depth of about 46 inches, is dark reddish brown fine sand. The lower part, to a depth of about 50 inches, is dark yellowish brown fine sand. The substratum to a depth of about 80 inches is light brownish gray fine sand.

In most years, a seasonal high water table fluctuates from the soil surface to a depth of 15 inches for 2 to 6 months and recedes to a depth of 15 to 30 inches during prolonged dry periods. Permeability is rapid in the surface and subsurface layers, moderately slow or moderate in the subsoil, and rapid in the substratum. The available water capacity is moderate.

In most areas, this St. Johns soil is used for native pasture.

The natural vegetation consists of longleaf pine and slash pine. The understory includes gallberry, running oak, saw palmetto, pineland threeawn and waxmyrtle.

The potential of this soil for the production of slash pines is moderately high. Equipment use limitations and seedling mortality are the main limitations.

This St. Johns soil is in capability subclass IIIw, in woodland group 10W, and in the South Florida Flatwoods range site. Reaction ranges from extremely acid to strongly acid throughout.

59 - Winder fine sand - This soil is nearly level and poorly drained. It is on broad, low-lying sloughs on the flatwoods. The slope is 0 to 2 percent.

In 95 percent of the areas, mapped as Winder fine sand, the Winder soil and similar soils make up 88 to 99 percent of the mapped areas. Dissimilar soils make up 1 to 12 percent of the mapped areas.

Little Manatee River State Park Soil Descriptions

Typically, this soil has a surface layer of very dark gray fine sand about 4 inches thick. The subsurface layer, to a depth of about 10 inches, is grayish brown fine sand. The upper part of the subsoil, to a depth of about 14 inches, is dark grayish brown, mottled sandy loam and gray fine sand. The lower part of the subsoil, to a depth of about 30 inches, is gray sandy clay loam. The upper part of the substratum, to a depth of about 58 inches, is light gray, mottled sandy clay loam. The lower part to a depth of about 80 inches is gray sandy loam. Similar soils included in mapping, in some areas, have subsoil at a depth of more than 20 inches. Other similar soils, in some areas, have a thin discontinuous strata of fragmented limestone in the upper part of the subsoil.

Dissimilar soils included in mapping are Basinger, Myakka, and Wabasso soils in small areas. Basinger soils are very poorly drained. Myakka soils have a dark color sandy subsoil. Wabasso soils have a dark color sandy subsoil above a loamy subsoil.

In most years, a seasonal high water table fluctuates from the soil surface to a depth of about 10 inches for 2 to 6 months. Permeability is rapid in the surface and subsurface layers. It is slow or very slow in the subsoil and in the substratum. The available water capacity is moderate.

In most areas, this Winder soil is used as pasture. In a few areas, it is used for cultivated crops or for homesite or urban development. The natural vegetation consists of live oak, cabbage palm, and slash pine. The understory includes saw palmetto, pineland threeawn, and waxmyrtle.

If a water control system is established and maintained and soil-improving measures applied, this soil is well suited to most cultivated crops. If suitable outlets are available, lateral ditches and tile drains can be used to lower the water table. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility. Frequent applications of fertilizer and lime are generally needed to improve crop production.

This soil is suited to pasture. Wetness limits the choice of plants that can be grown and restricts grazing during periods of excessive wetness. Proper stocking, pasture rotation, and timely deferment of grazing help keep the pasture in good condition.

Little Manatee River State Park Soil Descriptions

The potential of this soil for the production of slash pines is high. This soil has few limitations for woodland use and management. Equipment use limitation is a concern if the soil is not properly drained. Water-tolerant trees should be planted. Planting and harvesting operations should be scheduled during dry periods.

If this soil is used for building site development, the main management concerns are excessive wetness and slow to very slow permeability of the subsoil and substratum. Population growth has resulted in increased construction of homes on this soil. The slow or very slow permeability of the subsoil and substratum and the high water table increase the possibility that the septic tank absorption fields will not function properly. The slow or very slow permeability limitation can be minimized by increasing the size of the absorption field. Drainage is needed to lower the high water table, and fill material is needed in most areas.

This Winder soil is in capability subclass IIIw, in woodland group 11W, and in the Cabbage Palm Hammocks range site.

61 - Zolfo fine sand. [61, 1989]

This soil is nearly level and somewhat poorly drained. It is on broad, low ridges on the flatwoods. The slope is 0 to 2 percent. Typically, this soil has a surface layer of very dark gray fine sand about 3 inches thick. The upper part of the subsurface layer, to a depth of about 15 inches, is grayish brown, mottled fine sand. The middle part, to a depth of about 51 inches, is light gray, mottled fine sand. The lower part, to a depth of about 60 inches, is grayish brown fine sand. The subsoil to a depth of about 80 inches is dark brown fine sand.

In most years, a seasonal high water table is at a depth of 24 to 40 inches for more than 2 to 6 months and recedes to a depth of 60 inches during prolonged dry periods. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The available water capacity is low.

In most areas, this Zolfo soil is used for citrus crops or pasture or for homesite or urban development. In a few areas, it is used for the cultivated crops or is left in natural vegetation. The natural vegetation consists of live oak, turkey oak, longleaf pine, and slash pine. The understory includes broomsedge, bluestem, lopsided indiagrass, saw palmetto and pineland threeawn.

This soil is moderately well suited to pasture. Proper stocking, pasture rotation, and timely deferment of grazing help keep the pasture in good condition.

Little Manatee River State Park Soil Descriptions

The potential of this soil for the production of slash pines is moderately high. This soil has few limitations for woodland use and management.

This Zolfo soil is in capability subclass IIIw, in woodland group 10W, and in the Upland Hardwood Hammocks range site. Reaction ranges from very strongly acid to neutral in the A and E horizons and from extremely acid to slightly acid in the Bh horizon.

Addendum 5—Plant and Animal List

Little Manatee River State Park Plants

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

Rosary pea *	<i>Abrus precatorius</i>	
Earleaf acacia *	<i>Acacia auriculiformis</i>	
Slender copperleaf	<i>Acalypha gracilens</i>	
Red maple	<i>Acer rubrum</i>	
Giant leather fern	<i>Acrostichum danaeifolium</i>	
Shyleaf	<i>Aeschynomene americana</i>	
Indian jointvetch *	<i>Aeschynomene indica</i>	
Sticky jointvetch	<i>Aeschynomene viscidula</i>	
Beach false-foxglove	<i>Agalinis fasciculata</i>	
Hammock snakeroot	<i>Ageratina jucunda</i>	
Mimosa *	<i>Albizia julibrissin</i>	
Yellow colicroot	<i>Aletris lutea</i>	
Alligatorweed *	<i>Alternanthera philoxeroides</i>	
Sessile joyweed *	<i>Alternanthera sessilis</i>	
Southern amaranth	<i>Amaranthus australis</i>	
Slender amaranth *	<i>Amaranthus viridis</i>	
Common ragweed	<i>Ambrosia artemisiifolia</i>	
Pepper-vine	<i>Ampelopsis arborea</i>	
Blue maidencane	<i>Amphicarpum muhlenbergianum</i>	
Shortspike bluestem	<i>Andropogon brachystachyus</i>	
Florida bluestem	<i>Andropogon floridanus</i>	
Purple bluestem	<i>Andropogon glomeratus</i> var. <i>glaucopsis</i>	
Bushy bluestem	<i>Andropogon glomeratus</i> var. <i>pumilus</i>	
Splitbeard bluestem	<i>Andropogon ternarius</i>	
Broomsedge bluestem	<i>Andropogon virginicus</i>	
Broomsedge bluestem	<i>Andropogon virginicus</i> var. <i>decipiens</i>	
Chalky bluestem	<i>Andropogon virginicus</i> var. <i>glaucus</i>	
Coral vine *	<i>Antigonon leptopus</i>	
Groundnut	<i>Apios americana</i>	
Jack-in-the-pulpit	<i>Arisaema triphyllum</i>	
Corkscrew threeawn	<i>Aristida gyrans</i>	
Threeawn	<i>Aristida purpurascens</i>	
Hillsborough threeawn	<i>Aristida purpurascens</i> var. <i>tenuispica</i>	
Bottlebrush threeawn	<i>Aristida spiciformis</i>	
Wiregrass	<i>Aristida stricta</i> var. <i>beyrichiana</i>	
Florida milkweed	<i>Asclepias feayi</i>	
Savannah milkweed	<i>Asclepias pedicellata</i>	
Swamp milkweed	<i>Asclepias perennis</i>	
Butterflyweed	<i>Asclepias tuberosa</i>	
Showy milkwort	<i>Asimeia violacea</i>	
Netted pawpaw	<i>Asimina reticulata</i>	
Sprenger's asparagus-fern *	<i>Asparagus aethiopicus</i>	
Carolina Mosquito fern	<i>Azolla caroliniana</i>	

Little Manatee River State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Groundsel tree.....	<i>Baccharis halimifolia</i>	
Lemon bacopa.....	<i>Bacopa caroliniana</i>	
Herb-of-Grace.....	<i>Bacopa monnieri</i>	
Coastalplain honeycombhead....	<i>Balduina angustifolia</i>	
Pineland wild indigo.....	<i>Baptisia lecontei</i>	
Wax begonia *.....	<i>Begonia cucullata</i>	
Tarflower.....	<i>Bejaria racemosa</i>	
Beggarticks.....	<i>Bidens alba</i> var. <i>radiata</i>	
Smallfruit beggarticks.....	<i>Bidens mitis</i>	
Toothed midorus fern.....	<i>Blechnum serrulatum</i>	
False-nettle.....	<i>Boehmeria cylindrica</i>	
Smallhead doll's-daisy.....	<i>Boltonia diffusa</i>	
Beardgrass.....	<i>Bothriochloa ischaemum</i> var. <i>songarica</i>	
Paper mulberry *.....	<i>Broussonetia papyrifera</i>	
American bluehearts.....	<i>Buchnera americana</i>	
Capillary hairsedge.....	<i>Bulbostylis ciliatifolia</i>	
American beautyberry.....	<i>Callicarpa americana</i>	
Florida scrub roseling.....	<i>Callisia ornata</i>	
Florida bellflower.....	<i>Campanula floridana</i>	
Trumpet creeper.....	<i>Campsis radicans</i>	
Golden canna.....	<i>Canna flaccida</i>	
Bittermint *.....	<i>Cantinoa mutabilis</i>	
Pennsylvania bittercress.....	<i>Cardamine pensylvanica</i>	
Prickly bog sedge.....	<i>Carex atlantica</i> subsp. <i>capillacea</i>	
Long's sedge.....	<i>Carex longii</i>	
False hop sedge.....	<i>Carex lupuliformis</i>	
Florida hammock sedge.....	<i>Carex vexans</i>	
Florida paintbrush.....	<i>Carphephorus corymbosus</i>	
False vanillaleaf.....	<i>Carphephorus odoratissimus</i> var. <i>subtropicanus</i>	
Hairy chaffhead.....	<i>Carphephorus paniculatus</i>	
Wild olive.....	<i>Cartrema americana</i>	
Scrub wild olive.....	<i>Cartrema floridana</i>	
Scrub hickory.....	<i>Carya floridana</i>	
Pignut hickory.....	<i>Carya glabra</i>	
Australian-pine *.....	<i>Casuarina equisetifolia</i>	
Madagascar periwinkle *.....	<i>Catharanthus roseus</i>	
Sugarberry.....	<i>Celtis laevigata</i>	
Slender sandpur.....	<i>Cenchrus gracillimus</i>	
Coastal sandspur.....	<i>Cenchrus spinifex</i>	
Spadeleaf coinwort.....	<i>Centella asiatica</i>	
Spurred butterfly pea.....	<i>Centrosema virginianum</i>	
Buttonbush.....	<i>Cephalanthus occidentalis</i>	
Rosemary.....	<i>Ceratiola ericoides</i>	
Hornwort; coontail.....	<i>Ceratophyllum demersum</i>	
Watersprite *.....	<i>Ceratopteris thalictroides</i>	
Partridge pea.....	<i>Chamaecrista fasciculata</i>	

Little Manatee River State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Sensitive pea.....	<i>Chamaecrista nictitans</i> var. <i>aspera</i>	
Limestone sandmat	<i>Chamaesyce blodgettii</i>	
Pillpod sandmat	<i>Chamaesyce hirta</i>	
Hyssopleaf sandmat	<i>Chamaesyce hyssopifolia</i>	
Florida alicia	<i>Chapmannia floridana</i>	
Woolly sunbonnets	<i>Chaptalia tomentosa</i>	
Slender wood oats	<i>Chasmanthium laxum</i>	
White fringetree.....	<i>Chionanthus virginicus</i>	
Pygmy fringetree	<i>Chionanthus pygmaeus</i>	
Jack-in-the-bush.....	<i>Chromolaena odorata</i>	
Florida goldenaster.....	<i>Chrysopsis floridana</i>	SC,SCF,SH,XH
Maryland goldenaster	<i>Chrysopsis mariana</i>	
Schrubland goldenaster	<i>Chrysopsis subulata</i>	
Water hemlock	<i>Cicuta maculata</i>	
Camphortree *	<i>Cinnamomum camphora</i>	
Purple thistle	<i>Cirsium horridulum</i>	
Nuttall's thistle	<i>Cirsium nuttallii</i>	
Tangerine *	<i>Citrus reticulata</i>	
Sour orange *	<i>Citrus xaurantium</i>	
Lemon *	<i>Citrus xlimon</i>	
Sawgrass	<i>Cladium jamaicense</i>	
Swamp leatherflower	<i>Clematis crispa</i>	
Virgin's-bower	<i>Clematis virginiana</i>	
Java glory bean *	<i>Clerodendrum xspeciosum</i>	
Tread-softly.....	<i>Cnidocolus stimulosus</i>	
Wild taro *	<i>Colocasia esculenta</i>	
Common dayflower *	<i>Commelina diffusa</i>	
Erect dayflower.....	<i>Commelina erecta</i>	
John Charles bittermint *	<i>Condea verticillata</i>	
Dwarf Canadian horseweed	<i>Conyza canadensis</i> var. <i>pusilla</i>	
Coastalplain tickseed	<i>Coreopsis gladiata</i>	
Leavenworth's tickseed.....	<i>Coreopsis leavenworthii</i>	
Swamp dogwood.....	<i>Cornus foemina</i>	
String-lily.....	<i>Crinum americanum</i>	
Pinebarren frostweed.....	<i>Crocantemum corymbosum</i>	
Lanceleaf rattlebox *	<i>Crotalaria lanceolata</i>	
Pale or smooth rattlebox *	<i>Crotalaria pallida</i> var. <i>obovata</i>	
Rabbitbells	<i>Crotalaria rotundifolia</i>	
Showy rattlebox *	<i>Crotalaria spectabilis</i>	
Vente croton	<i>Croton glandulosus</i> var. <i>septentrionalis</i>	
Michaux's croton	<i>Croton michauxii</i>	
Columbian waxweed *	<i>Cuphea carthagenensis</i>	
Bigseed alfalfa dodder	<i>Cuscuta indecora</i>	
Peruvian dodder.....	<i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	
Sago palm *	<i>Cycas revoluta</i>	
Marsh parsley *	<i>Cyclosporum leptophyllum</i>	

Little Manatee River State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Leafless swallowwort	<i>Cynanchum scoparium</i>	
Bermudagrass *	<i>Cynodon dactylon</i>	
Haspan flatsedge	<i>Cyperus haspan</i>	
Leconte's flatsedge	<i>Cyperus lecontei</i>	
Pinebarren flatsedge	<i>Cyperus ovatus</i>	
Manyspike flatsedge	<i>Cyperus polystachyos</i>	
Tropical flatsedge	<i>Cyperus surinamensis</i>	
Fourangle flatsedge	<i>Cyperus tetragonus</i>	
Crowfootgrass *	<i>Dactyloctenium aegyptium</i>	
Feay's prairieclover	<i>Dalea feayi</i>	
Western tansymustard	<i>Descurainia pinnata</i>	
Zarzapacoa comun *	<i>Desmodium incanum</i>	
Dixie ticktrefoil *	<i>Desmodium tortuosum</i>	
Threeflower ticktrefoil *	<i>Desmodium triflorum</i>	
Needle-leaf witchgrass	<i>Dichantherium aciculare</i>	
Variable witchgrass	<i>Dichantherium commutatum</i>	
Cypress witchgrass	<i>Dichantherium dichotomum</i>	
Cypress witchgrass	<i>Dichantherium ensifolium</i>	
Cypress witchgrass	<i>Dichantherium ensifolium</i> var. <i>unciphyllum</i>	
Erect-leaf witchgrass	<i>Dichantherium erectifolium</i>	
openflower witchgrass	<i>Dichantherium laxiflorum</i>	
Hemlock witchgrass	<i>Dichantherium portoricense</i>	
Carolina ponysfoot	<i>Dichondra caroliniensis</i>	
Southern crabgrass	<i>Digitaria ciliaris</i>	
Slender crabgrass	<i>Digitaria filiformis</i>	
Indian crabgrass *	<i>Digitaria longiflora</i>	
Poor Joe	<i>Diodia teres</i>	
Virginia buttonweed	<i>Diodia virginiana</i>	
Air potato *	<i>Dioscorea bulbifera</i>	
Persimmon	<i>Diospyros virginiana</i>	
Dwarf sundew	<i>Drosera brevifolia</i>	
Pink sundew	<i>Drosera capillaris</i>	
West Indian chickweed	<i>Drymaria cordata</i>	
Swamp snakeherb	<i>Dyschoriste humistrata</i>	
Twinflower	<i>Dyschoriste oblongifolia</i>	
Mexican tea *	<i>Dysphania ambrosioides</i>	
Jungle rice *	<i>Echinochloa colona</i>	
Coast cockspur	<i>Echinochloa walteri</i>	
False daisy	<i>Eclipta prostrata</i>	
Common water hyacinth *	<i>Eichhornia crassipes</i>	
Roadgrass	<i>Eleocharis baldwinii</i>	
Yellow spikerush	<i>Eleocharis flavescens</i>	
Viviparous spikerush	<i>Eleocharis vivipara</i>	
Tall elephantsfoot	<i>Elephantopus elatus</i>	
Indian goosegrass *	<i>Eleusine indica</i>	
Pan-American balsamscale *	<i>Elionurus tripsacoides</i>	

Little Manatee River State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Florida tasselflower *	<i>Emilia fosbergii</i>	
Florida butterfly orchid	<i>Encyclia tampensis</i>	
Earpod tree *	<i>Enterolobium contortisiliquum</i>	
Green-fly orchid	<i>Epidendrum conopseum</i>	
Golden pothos *	<i>Epipremnum pinnatum</i>	
Feather lovegrass *	<i>Eragrostis amabilis</i>	
Thalia lovegrass *	<i>Eragrostis atrovirens</i>	
Gophertail lovegrass *	<i>Eragrostis ciliaris</i>	
Elliott lovegrass	<i>Eragrostis elliottii</i>	
Coastal lovegrass	<i>Eragrostis virginica</i>	
Fireweed	<i>Erechtites hieraciifolius</i>	
Oakleaf fleabane	<i>Erigeron quercifolius</i>	
Ten-angled pipewort	<i>Eriocaulon decangulare</i>	
Fragrant eryngo	<i>Eryngium aromaticum</i>	
Baldwin's eryngo	<i>Eryngium baldwinii</i>	
Rattlesnake master	<i>Eryngium yuccifolium</i>	
Wild coco	<i>Eulophia alta</i>	
Dogfennel	<i>Eupatorium capillifolium</i>	
Mohr's thoroughwort	<i>Eupatorium mohrii</i>	
Falsehorehound; Boneset	<i>Eupatorium rotundifolium</i>	
Lateflowering thoroughwort	<i>Eupatorium serotinum</i>	
Florida pineland spurge	<i>Euphorbia inundata</i> var. <i>garrettii</i>	
Lesser Florida spurge	<i>Euphorbia polyphylla</i>	
Fourspike fingergrass	<i>Eustachys neglecta</i>	
Pinewoods fingergrass	<i>Eustachys petraea</i>	
Slender flattop goldenrod	<i>Euthamia caroliniana</i>	
Flattop goldenrod	<i>Euthamia graminifolia</i> var. <i>hirtipes</i>	
Slender fimbry	<i>Fimbristylis autumnalis</i>	
Hurricanegrass	<i>Fimbristylis cymosa</i>	
Pop ash; Carolina ash	<i>Fraxinus caroliniana</i>	
Drug fumitory *	<i>Fumaria officinalis</i>	
Southern umbrellasedge	<i>Fuirena scirpoidea</i>	
Elliott's milkpea	<i>Galactia elliottii</i>	
Eastern milkpea	<i>Galactia regularis</i>	
Downy milkpea	<i>Galactia volubilis</i>	
Stiff marsh bedstraw	<i>Galium tinctorium</i>	
Narrowleaf purple everlasting ...	<i>Gamochoaeta antillana</i>	
Pennsylvania everlasting *	<i>Gamochoaeta pennsylvanica</i>	
Garberia	<i>Garberia heterophylla</i>	SC, SCF, SH, XH
Dwarf huckleberry	<i>Gaylussacia dumosa</i>	
Blue huckleberry	<i>Gaylussacia frondosa</i> var. <i>tomentosa</i>	
Yellow jessamine	<i>Gelsemium sempervirens</i>	
Wild geranium: Cranesbill	<i>Geranium carolinianum</i>	
Globe amaranth *	<i>Gomphrena serrata</i>	
Anglefruit milkvine; anglepod ...	<i>Gonolobus suberosus</i>	MEH, HH, BF, WF, FS
Loblolly-bay	<i>Gordonia lasianthus</i>	

Little Manatee River State Park Plants

Primary Habitat Codes
(for imperiled species)

Common Name

Scientific Name

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Rough hedge-hyssop	<i>Gratiola hispida</i>	
Shaggy hedge-hyssop	<i>Gratiola pilosa</i>	
Branched hedge-hyssop.....	<i>Gratiola ramosa</i>	
Round-fruit hedge-hyssop	<i>Gratiola virginiana</i>	
Toothpetal false reinorchid	<i>Habenaria floribunda</i>	
Waterspider false reinorchid	<i>Habenaria repens</i>	
Spanish daisy; bitterweed	<i>Helenium amarum</i>	
Narrowleaf sunflower.....	<i>Helianthus angustifolius</i>	
Camphorweed	<i>Heterotheca subaxillaris</i>	
Hawkweed	<i>Hieracium gronovii</i>	
Coastal plain hawkweed.....	<i>Hieracium megacephalon</i>	
Round-leaf bluet	<i>Houstonia procumbens</i>	
Manyflower marsh pennywort ...	<i>Hydrocotyle umbellata</i>	
Whorled pennywort	<i>Hydrocotyle verticillata</i>	
Georgia spider-lily.....	<i>Hymenocallis crassifolia</i>	
Roundpod St. John's-wort	<i>Hypericum cistifolium</i>	
Peelbark St. John's-wort	<i>Hypericum fasciculatum</i>	
St. Andrew's-cross	<i>Hypericum hypericoides</i>	
Dwarf St. John's-wort.....	<i>Hypericum mutilum</i>	
Myrtleleaf St. John's-wort	<i>Hypericum myrtifolium</i>	
Atlantic St. John's-wort.....	<i>Hypericum tenuifolium</i>	
Fourpetal St. John's-wort	<i>Hypericum tetrapetalum</i>	
Yellow stargrass.....	<i>Hypoxis curtissii</i>	
Fringed yellow stargrass	<i>Hypoxis juncea</i>	
Carolina holly	<i>Ilex ambigua</i>	
Dahoon holly	<i>Ilex cassine</i>	
Possumhaw.....	<i>Ilex decidua</i>	
Gallberry.....	<i>Ilex glabra</i>	
Yaupon.....	<i>Ilex vomitoria</i>	
Cogongrass *	<i>Imperata cylindrica</i>	
Carolina indigo	<i>Indigofera caroliniana</i>	
Hairy indigo *	<i>Indigofera hirsuta</i>	
Trailing indigo *	<i>Indigofera spicata</i>	
Moonflower	<i>Ipomoea alba</i>	
Tievine	<i>Ipomoea cordatotriloba</i>	
Prairie iris	<i>Iris hexagona</i>	
Virginia-willow	<i>Itea virginica</i>	
Forked rush.....	<i>Juncus dichotomus</i>	
Soft rush.....	<i>Juncus effusus</i> subsp. <i>solutus</i>	
Grassleaf rush	<i>Juncus marginatus</i>	
Bighead rush	<i>Juncus megacephalus</i>	
Needlepod rush.....	<i>Juncus scirpoides</i>	
Eastern redcedar.....	<i>Juniperus virginiana</i>	
Pineland waterwillow	<i>Justicia angusta</i>	
Virginia saltmarsh mallow	<i>Kosteletzkya pentacarpos</i>	
Virginia dwarf dandelion	<i>Krigia virginica</i>	

Little Manatee River State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Low spikesedge	<i>Kyllinga pumila</i>	
Asian spikesedge *	<i>Kyllinga squamulata</i>	
Carolina redroot.....	<i>Lachnanthes carolina</i>	
Whitehead bogbutton	<i>Lachnocaulon anceps</i>	
Grass-leaf lettuce.....	<i>Lactuca graminifolia</i>	
Indian crapemyrtle *	<i>Lagerstroemia indica</i>	
Dotted duckweed *	<i>Landoltia punctata</i>	
Shrub verbena *	<i>Lantana camara</i>	
Nodding pinweed	<i>Lechea cernua</i>	SC
Deckert's pinweed.....	<i>Lechea deckertii</i>	
Piedmont pinweed.....	<i>Lechea torreyi</i>	
Southern cutgrass.....	<i>Leersia hexandra</i>	
Lesser duckweed.....	<i>Lemna aequinoctialis</i>	
Little duckweed.....	<i>Lemna obscura</i>	
Valdivia duckweed.....	<i>Lemna valdiviana</i>	
Virginia pepperweed.....	<i>Lepidium virginicum</i>	
White leadtree *	<i>Leucaena leucocephala</i>	
Chapman's blazing-star	<i>Liatris chapmanii</i>	
Slender blazing-star	<i>Liatris gracilis</i>	
Shortleaf blazing-star	<i>Liatris tenuifolia</i>	
Shortleaf blazing-star	<i>Liatris tenuifolia</i> var. <i>quadriflora</i>	
Gopher apple.....	<i>Licania michauxii</i>	
Pine lily.....	<i>Lilium catesbaei</i>	MF,WP,WF
Canadian toadflax	<i>Linaria canadensis</i>	
Apalachicola toadflax	<i>Linaria floridana</i>	
Savannah false-pimpernel.....	<i>Lindernia grandiflora</i>	
Sweetgum.....	<i>Liquidambar styraciflua</i>	
Bay lobelia	<i>Lobelia feayana</i>	
Glade lobelia	<i>Lobelia glandulosa</i>	
Tall fescue *	<i>Lolium arundinaceum</i>	
Ryegrass *	<i>Lolium perenne</i>	
Japanese honeysuckle *	<i>Lonicera japonica</i>	
Coral honeysuckle.....	<i>Lonicera sempervirens</i>	
Piedmont primrosewillow	<i>Ludwigia arcuata</i>	
Yerba de jicotea.....	<i>Ludwigia erecta</i>	
Narrowleaf primrosewillow	<i>Ludwigia linearis</i>	
Seaside primrosewillow.....	<i>Ludwigia maritima</i>	
Mexican primrosewillow	<i>Ludwigia octovalvis</i>	
Marsh seedbox	<i>Ludwigia palustris</i>	
Peruvian primrosewillow *	<i>Ludwigia peruviana</i>	
Creeping primrosewillow	<i>Ludwigia repens</i>	
Skyblue lupine	<i>Lupinus diffusus</i>	
Rose-rush	<i>Lygodesmia aphylla</i>	
Japanese climbing fern *	<i>Lygodium japonicum</i>	
Old World climbing fern *	<i>Lygodium microphyllum</i>	
Rusty staggerbush	<i>Lyonia ferruginea</i>	

Little Manatee River State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Coastalplain staggerbush	<i>Lyonia fruticosa</i>	
Maleberry.....	<i>Lyonia ligustrina</i> var. <i>foliosiflora</i>	
Fetterbush	<i>Lyonia lucida</i>	
Piedmont staggerbush	<i>Lyonia mariana</i>	
Winged angle loosestrife	<i>Lythrum alatum</i> var. <i>lanceolatum</i>	
Wild bushbean *	<i>Macroptilium lathyroides</i>	
Sweetbay.....	<i>Magnolia virginiana</i>	
Japanese mazus *	<i>Mazus pumilus</i>	
Axil-flower	<i>Mecardonia acuminata</i> subsp. <i>peninsularis</i>	
Baby Jumpup	<i>Mecardonia procumbens</i>	
Black medic *	<i>Medicago lupulina</i>	
White sweetclover *	<i>Melilotus albus</i>	
Natalgrass *	<i>Melinis repens</i>	
Creeping cucumber	<i>Melothria pendula</i>	
Shade mudflower	<i>Micranthemum umbrosum</i>	
Florida Key hempvine	<i>Mikania cordifolia</i>	
Climbing hempvine.....	<i>Mikania scandens</i>	
Sensitive brier	<i>Mimosa quadrivalvis</i> var. <i>angustata</i>	
Powderpuff.....	<i>Mimosa strigillosa</i>	
Four-o'clock	<i>Mirabilis jalapa</i>	
American partridgeberry	<i>Mitchella repens</i>	
Balsam pear *	<i>Momordica charantia</i>	
Latex plant *	<i>Morrenia odorata</i>	
Nakedstem dewflower *	<i>Murdannia nudiflora</i>	
Asiatic dewflower *	<i>Murdannia spirata</i>	
Simpson's stopper.....	<i>Myrcianthes fragrans</i> (planted).....	SCF,XH,RH
Wax myrtle	<i>Myrica cerifera</i>	
Parrot feather *	<i>Myriophyllum aquaticum</i>	
Tuberous sword fern *	<i>Nephrolepis cordifolia</i>	
Wild Boston fern	<i>Nephrolepis exaltata</i>	
Spatterdock	<i>Nuphar advena</i>	
Swamp tupelo	<i>Nyssa sylvatica</i> var. <i>biflora</i>	
Whitetop aster.....	<i>Oclemena reticulata</i>	
Southern beeblossum	<i>Oenothera simulans</i>	
Flat-top mille grains *	<i>Oldenlandia corymbosa</i>	
Clustered mille graines	<i>Oldenlandia uniflora</i>	
Stalked adder's-tongue.....	<i>Ophioglossum petiolatum</i>	
Woodsgrass.....	<i>Oplismenus hirtellus</i>	
Prickly pear	<i>Opuntia humifusa</i>	
Goldenclub	<i>Orontium aquaticum</i>	
Cinnamon fern.....	<i>Osmunda cinnamomea</i>	
Royal fern	<i>Osmunda regalis</i> var. <i>spectabilis</i>	
Yellow wood-sorrel	<i>Oxalis corniculata</i>	
Pink wood-sorrel *	<i>Oxalis debilis</i>	
Butterweed	<i>Packera glabella</i>	
Skunk-vine *	<i>Paederia foetida</i>	

Little Manatee River State Park Plants

Primary Habitat Codes
(for imperiled species)

Common Name

Scientific Name

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Feay's palafox	<i>Palafoxia feayi</i>	
Beaked panicum	<i>Panicum anceps</i>	
Maidencane	<i>Panicum hemitomom</i>	
Gaping panicum	<i>Panicum hians</i>	
Guineagrass *	<i>Panicum maximum</i>	
Torpedograss *	<i>Panicum repens</i>	
Redtop panicum	<i>Panicum rigidulum</i>	
Warty panicum	<i>Panicum verrucosum</i>	
Switchgrass	<i>Panicum virgatum</i>	
Florida pellitory	<i>Parietaria floridana</i>	
Virginia creeper	<i>Parthenocissus quinquefolia</i>	
Bull crown grass	<i>Paspalum boscianum</i>	
Blue crowngrass	<i>Paspalum caespitosum</i>	
Sour paspalum	<i>Paspalum conjugatum</i>	
Bahiagrass *	<i>Paspalum notatum</i> var. <i>saurae</i>	
Brownseed paspalum	<i>Paspalum plicatulum</i>	
Thin paspalum	<i>Paspalum setaceum</i>	
Vaseygrass *	<i>Paspalum urvillei</i>	
Corky-stemmed passionflower ..	<i>Passiflora suberosa</i>	
Spreading cinchweed	<i>Pectis prostrata</i>	
Green arrow arum	<i>Peltandra virginica</i>	
Many-flower beardtongue	<i>Penstemon multiflorus</i>	
Red bay	<i>Persea borbonia</i>	
Silk bay	<i>Persea borbonia</i> var. <i>humilis</i>	
Swamp bay	<i>Persea palustris</i>	
Golden polypody	<i>Phlebodium aureum</i>	
Florida false sunflower	<i>Phoebanthus grandiflorus</i>	
Oak mistletoe	<i>Phoradendron leucarpum</i>	
Red chokeberry	<i>Photinia pyrifolia</i>	
Fog fruit	<i>Phyla nodiflora</i>	
Mascarene Island leafflower * ...	<i>Phyllanthus tenellus</i>	
Chamberbitter *	<i>Phyllanthus urinaria</i>	
Cut-leaf ground-cherry	<i>Physalis angulata</i>	
Cypress-head ground-cherry	<i>Physalis arenicola</i>	
Slenderleaf false dragonhead....	<i>Physostegia leptophylla</i>	
Pokeweed	<i>Phytolacca americana</i>	
Wild pennyroyal	<i>Piloblephis rigida</i>	
Sand pine	<i>Pinus clausa</i>	
Slash pine	<i>Pinus elliotii</i>	
Longleaf pine	<i>Pinus palustris</i>	
Narrowleaf silkgrass	<i>Pityopsis graminifolia</i>	
Common plantain *	<i>Plantago major</i>	
Virginia plantain	<i>Plantago virginica</i>	
Resurrection fern	<i>Pleopeltis polypodioides</i> var. <i>michauxiana</i>	
Rosy camphorweed	<i>Pluchea baccharis</i>	
Sweetscent	<i>Pluchea odorata</i>	

Little Manatee River State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Orange milkwort	<i>Polygala lutea</i>	
Candyroot	<i>Polygala nana</i>	
Yellow milkwort	<i>Polygala rugelii</i>	
Coastal plain milkwort	<i>Polygala setacea</i>	
Hairy jointweed	<i>Polygonella ciliata</i>	
October flower	<i>Polygonella polygama</i>	
Large-flower jointweed	<i>Polygonella robusta</i>	
Swamp smartweed.....	<i>Polygonum hydropiperoides</i>	
Curlytop knotweed	<i>Polygonum lapathifolium</i>	
Dotted smartweed.....	<i>Polygonum punctatum</i>	
Rustweed.....	<i>Polypermum procumbens</i>	
Pickernelweed	<i>Pontederia cordata</i>	
Pink purslane.....	<i>Portulaca pilosa</i>	
Pouzol's bush *	<i>Pouzolzia zeylanica</i>	
Praxelis *	<i>Praxelis clematidea</i>	
Combleaf mermaidweed.....	<i>Proserpinaca pectinata</i>	
Chickasaw plum.....	<i>Prunus angustifolia</i>	
Black cherry	<i>Prunus serotina</i>	
Sweet everlasting	<i>Pseudognaphalium obtusifolium</i>	
Strawberry guava *	<i>Psidium cattleianum</i>	
Guava *	<i>Psidium guajava</i>	
Shortleaf wild coffee.....	<i>Psychotria sulzneri</i>	
Lacy bracken	<i>Pteridium aquilinum</i> var. <i>caudatum</i>	
Tailed bracken	<i>Pteridium aquilinum</i> var. <i>pseudocaudatum</i>	
Blackroot	<i>Pterocaulon pycnostachyum</i>	
Giant orchid	<i>Pteroglossaspis ecristata</i>	MF,SCF,SH,WF
Chapman's oak	<i>Quercus chapmanii</i>	
Sand live oak.....	<i>Quercus geminata</i>	
Bluejack oak.....	<i>Quercus incana</i>	
Turkey oak.....	<i>Quercus laevis</i>	
Laurel oak; diamond oak.....	<i>Quercus laurifolia</i>	
Dwarf live oak	<i>Quercus minima</i>	
Myrtle oak.....	<i>Quercus myrtifolia</i>	
Water oak	<i>Quercus nigra</i>	
Running oak	<i>Quercus pumila</i>	
Live oak.....	<i>Quercus virginiana</i>	
Pale meadowbeauty	<i>Rhexia mariana</i>	
Nash's meadowbeauty.....	<i>Rhexia nashii</i>	
Nuttall's meadowbeauty.....	<i>Rhexia nuttallii</i>	
Fringed meadowbeauty.....	<i>Rhexia petiolata</i>	
Swamp azalea	<i>Rhododendron viscosum</i>	
Winged sumac	<i>Rhus copallinum</i>	
Michaux's snoutbean	<i>Rhynchosia michauxii</i>	
Bunched beaksedge	<i>Rhynchospora cephalantha</i>	
Starrush whitetop	<i>Rhynchospora colorata</i>	
Fascicled beaksedge.....	<i>Rhynchospora fascicularis</i>	

Little Manatee River State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Fernald's beaksedge.....	<i>Rhynchospora fernaldii</i>	
Pinebarren beaksedge	<i>Rhynchospora intermedia</i>	
Sandyfield beaksedge.....	<i>Rhynchospora megalocarpa</i>	
Longbristle beaksedge	<i>Rhynchospora megaplumosa</i>	SC,SCF,MF
Bunched beaksedge	<i>Rhynchospora microcephala</i>	
Plumed beaksedge	<i>Rhynchospora plumosa</i>	
Wright's beaksedge	<i>Rhynchospora wrightiana</i>	
Rough Mexican-clover *	<i>Richardia scabra</i>	
Southern marsh yellowcress.....	<i>Rorippa teres</i>	
Swamp rose	<i>Rosa palustris</i>	
Lowland toothcup.....	<i>Rotala ramosior</i>	
Sand blackberry.....	<i>Rubus cuneifolius</i>	
Sawtooth blackberry.....	<i>Rubus pensilvanicus</i>	
Southern dewberry.....	<i>Rubus trivialis</i>	
Britton's wild petunia; Mexican Bluebell *	<i>Ruellia simplex</i>	
Curly dock *	<i>Rumex crispus</i>	
Heartwing dock.....	<i>Rumex hastatulus</i>	
Fiddle dock *	<i>Rumex pulcher</i>	
Swamp dock.....	<i>Rumex verticillatus</i>	
Scrub palmetto	<i>Sabal etonia</i>	
Dwarf palmetto.....	<i>Sabal minor</i>	
Cabbage palm	<i>Sabal palmetto</i>	
Shortleaf rosegentian	<i>Sabatia brevifolia</i>	
Largeflower rosegentian.....	<i>Sabatia grandiflora</i>	
Narrow plumegrass	<i>Saccharum baldwinii</i>	
India cupscale *	<i>Sacciolepis indica</i>	
American cupscale	<i>Sacciolepis striata</i>	
Grassy-leaf arrowhead.....	<i>Sagittaria graminea</i>	
Bull-tongue arrowhead	<i>Sagittaria lancifolia</i>	
Duck-potato	<i>Sagittaria latifolia</i>	
Carolina willow	<i>Salix caroliniana</i>	
Tropical sage	<i>Salvia coccinea</i>	
Lyreleaf sage.....	<i>Salvia lyrata</i>	
Water spangles *	<i>Salvinia minima</i>	
Elderberry	<i>Sambucus nigra</i> subsp. <i>canadensis</i>	
Pineland pimpernel.....	<i>Samolus valerandi</i> subsp. <i>parviflorus</i>	
Lizard's-tail	<i>Saururus cernuus</i>	
Sand spike-moss.....	<i>Selaginella arenicola</i>	
Brazilian pepper *	<i>Schinus terebinthifolius</i>	
Little bluestem.....	<i>Schizachyrium scoparium</i>	
Giant bulrush.....	<i>Scirpus californicus</i>	
Softstem bulrush	<i>Scirpus tabernaemontani</i>	
Fewflower nutrush.....	<i>Scleria ciliata</i>	
Tall nutgrass	<i>Scleria triglomerata</i>	
Sweetbroom; licorice-weed	<i>Scoparia dulcis</i>	

Little Manatee River State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Florida scrub skullcap	<i>Scutellaria arenicola</i>	
Helmet skullcap	<i>Scutellaria integrifolia</i>	
Sand spikemoss	<i>Selaginella arenicola</i>	
Coffeeweed	<i>Senna obtusifolia</i>	
Saw palmetto	<i>Serenoa repens</i>	
Bladderpod	<i>Sesbania vesicaria</i>	
Coastal foxtail	<i>Setaria corrugata</i>	
Yellow bristlegrass	<i>Setaria parviflora</i>	
Piedmont black senna	<i>Seymeria pectinata</i>	
Llima *	<i>Sida cordifolia</i>	
Indian hemp	<i>Sida rhombifolia</i>	
Common wireweed	<i>Sida ulmifolia</i>	
Milk-buckthorn; Florida bully	<i>Sideroxylon reclinatum</i>	
Narrowleaf blue-eyed grass	<i>Sisyrinchium angustifolium</i>	
Nash's blue-eyed grass	<i>Sisyrinchium nashii</i>	
Ear-leaf greenbrier	<i>Smilax auriculata</i>	
Saw greenbrier	<i>Smilax bona-nox</i>	
Cat greenbrier	<i>Smilax glauca</i>	
Laurel greenbrier	<i>Smilax laurifolia</i>	
Sarsaparilla vine	<i>Smilax pumila</i>	
Common nightshade	<i>Solanum americanum</i>	
Black nightshade	<i>Solanum chenopodioides</i>	
Two-leaf nightshade	<i>Solanum diphyllum</i>	
Pinebarren goldenrod	<i>Solidago fistulosa</i>	
Chapman's goldenrod	<i>Solidago odora</i> var. <i>chapmanii</i>	
Wand goldenrod	<i>Solidago stricta</i>	
Twistedleaf goldenrod	<i>Solidago tortifolia</i>	
Spiny sowthistle *	<i>Sonchus asper</i>	
Common sowthistle *	<i>Sonchus oleraceus</i>	
Lopsided indiagrass	<i>Sorghastrum secundum</i>	
Marshhay cordgrass	<i>Spartina alterniflora</i>	
Sand cordgrass	<i>Spartina bakeri</i>	
Saltmeadow cordgrass	<i>Spartina patens</i>	
Gulf cordgrass	<i>Spartina spartinae</i>	
Prostrate false buttonweed	<i>Spermacoce prostrata</i>	
Woodland false-buttonweed	<i>Spermacoce remota</i>	
Shrubby false-buttonweed *	<i>Spermacoce verticillata</i>	
Roughfruit scaleseed	<i>Spermolepis divaricata</i>	
Creeping oxeye *	<i>Sphagneticola trilobata</i>	
Prairie wedgescale	<i>Sphenopholis obtusata</i>	
Spring ladies'-tresses	<i>Spiranthes vernalis</i>	
Smutgrass *	<i>Sporobolus indicus</i>	
West Indian dropseed *	<i>Sporobolus indicus</i> var. <i>pyramidalis</i>	
Pineywoods dropseed	<i>Sporobolus junceus</i>	
Florida hedgenettle	<i>Stachys floridana</i>	
Blue porterweed; joe *	<i>Stachytarpheta jamaicensis</i>	

Little Manatee River State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Osceola's plume.....	<i>Stenanthium densum</i>	
Queensdelight	<i>Stillingia sylvatica</i>	
Pineland scalypink.....	<i>Stipulicida setacea</i> var. <i>lacerata</i>	
Hairy dawnflower	<i>Stylisma villosa</i>	
American snowbell	<i>Styrax americanus</i>	
Bahaman aster	<i>Symphyotrichum bahamense</i>	
Climbing aster	<i>Symphyotrichum carolinianum</i>	
Rice button aster	<i>Symphyotrichum dumosum</i>	
Walter's aster	<i>Symphyotrichum walteri</i>	
Yellow hatpins	<i>Syngonanthus flavidulus</i>	
American evergreen *	<i>Syngonium podophyllum</i>	
Caribbean trumpet-tree *	<i>Tabebuia aurea</i>	
Common dandelion *	<i>Taraxacum officinale</i>	
Bald-cypress	<i>Taxodium distichum</i>	
Cape honeysuckle *	<i>Tecoma capensis</i>	
Rugel's hoarypea	<i>Tephrosia rugelii</i>	
Downy maiden fern *	<i>Thelypteris dentata</i>	
Hottentot fern.....	<i>Thelypteris interrupta</i>	
Widespread maiden fern	<i>Thelypteris kunthii</i>	
Marsh fern	<i>Thelypteris palustris</i> var. <i>pubescens</i>	
Toothed lattice-vein fern	<i>Thelypteris serrata</i>	BF,FS,HH,BST,STS
Cardinal airplant	<i>Tillandsia fasciculata</i>	SCF,HH,DS,FS,WF,BF
Ballmoss	<i>Tillandsia recurvata</i>	
Southern needleleaf	<i>Tillandsia setacea</i>	
Airplant	<i>Tillandsia simulata</i>	
Spanish moss	<i>Tillandsia usneoides</i>	
Giant airplant	<i>Tillandsia utriculata</i>	DS,FS,MF,MEH,HH,STS
Eastern poison ivy.....	<i>Toxicodendron radicans</i>	
Confederate jasmine *	<i>Trachelospermum jasminoides</i>	
Forked bluecurls	<i>Trichostema dichotomum</i>	
Tall redtop	<i>Tridens flavus</i>	
White clover *	<i>Trifolium repens</i>	
Eastern gamagrass.....	<i>Tripsacum dactyloides</i>	
Southern cattail	<i>Typha domingensis</i>	
Caesarweed *	<i>Urena lobata</i>	
Paragrass *	<i>Urochloa mutica</i>	
Zigzag bladderwort	<i>Utricularia subulata</i>	
Sparkleberry	<i>Vaccinium arboreum</i>	
Highbush blueberry	<i>Vaccinium corymbosum</i>	
Darrow's blueberry.....	<i>Vaccinium darrowii</i>	
Shiny blueberry	<i>Vaccinium myrsinites</i>	
Deerberry	<i>Vaccinium stamineum</i>	
Florida valerian	<i>Valeriana scandens</i>	
Brazilian vervain *	<i>Verbena brasiliensis</i>	
Purpletop vervain *	<i>Verbena incompta</i>	
Sandaper vervain.....	<i>Verbena scabra</i>	

Little Manatee River State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
White crownbeard	<i>Verbesina virginica</i>	
Walter's viburnum.....	<i>Viburnum obovatum</i>	
Fourleaf vetch	<i>Vicia acutifolia</i>	
Hairy pod cowpea	<i>Vigna luteola</i>	
Long-leaf violet	<i>Viola lanceolata</i>	
Primrose-leaved violet	<i>Viola primulifolia</i>	
Summer grape	<i>Vitis aestivalis</i>	
Muscadine; fox grape	<i>Vitis rotundifolia</i>	
Caloose grape.....	<i>Vitis shuttleworthii</i>	
Shoestring fern.....	<i>Vittaria lineata</i>	
Netted chain fern	<i>Woodwardia areolata</i>	
Virginia chain fern.....	<i>Woodwardia virginica</i>	
Arrowleaf elephant ear *	<i>Xanthosoma sagittifolium</i>	
Tallowwood; hog-plum	<i>Ximenia americana</i>	
Coastal plain yellow-eyed grass	<i>Xyris ambigua</i>	
Short-leaf yellow-eyed grass	<i>Xyris brevifolia</i>	
Carolina yellow-eyed grass.....	<i>Xyris caroliniana</i>	
Elliott's yellow-eyed grass	<i>Xyris elliotii</i>	
Richard's yellow-eyed grass * ...	<i>Xyris jupicai</i>	
Oriental false hawk's-beard * ...	<i>Youngia japonica</i>	
Adam's needle	<i>Yucca filamentosa</i>	
Atamasco-lily.....	<i>Zephyranthes atamasca</i> var. <i>treatiae</i>	MF,WF,WP,BS
Soldier's orchid *	<i>Zeuxine strateumatica</i>	

Little Manatee River State Park Animals

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

American eel	<i>Anguilla rostrata</i>	
River goby	<i>Awaous banana</i>	BST
Common snook	<i>Centropomus undecimalis</i>	BST
Walking catfish *	<i>Clarias batrachus</i>	BST, DM
Banded pygmy sunfish	<i>Ellasoma zonatu</i>	BST, DM
Bluespotted sunfish	<i>Enneacanthus gloriosus</i>	BST, DM, CD, IAP
Lake chubsucker	<i>Erimyzon sucetta</i>	BST, DM, CD, IAP
Swamp darter	<i>Etheostoma fusiforme</i>	BST, DM, CD, IAP
Golden topminnow	<i>Fundulus chysotus</i>	BST, DM, CD, IAP
Seminole killifish	<i>Fundulus seminolis</i>	BST, DM, CD, IAP
Western mosquitofish	<i>Gambusia affinis</i>	BST, DM, CD, IAP
Eastern mosquitofish	<i>Gambusia affinis holbrooki</i>	BST, DM, CD, IAP
Naked goby	<i>Gobiosoma bosc</i>	BST, DM, CD, IAP
Least killifish	<i>Heterandria formosa</i>	BST, DM, CD, IAP
Flagfish	<i>Jordanella floridae</i>	BST, DM, CD, IAP
Brook silverside	<i>Labidesthes sicculus</i>	BST, DM, CD, IAP
Longnose Gar	<i>Lepisosteus osseus</i>	BST, CD, IAP
Florida gar	<i>Lepisosteus platyrincus</i>	BST, CD, IAP
Redbreast sunfish	<i>Lepomis auritus</i>	BST, DM, CD, IAP
Warmouth	<i>Lepomis gulosus</i>	BST, DM, CD, IAP
Bluegill	<i>Lepomis macrochirus</i>	BST, DM, CD, IAP
Dollar sunfish	<i>Lepomis marginatus</i>	BST, DM, CD, IAP
Redear sunfish	<i>Lepomis microlophus</i>	BST, DM, CD, IAP
Spotted sunfish	<i>Lepomis punctatus</i>	BST, DM, CD, IAP
Bluefin killifish	<i>Lucania goodie</i>	BST, DM, CD, IAP
Rainwater killifish	<i>Lucania parva</i>	BST, DM, CD, IAP
Largemouth bass	<i>Micropterus salmoides</i>	BST, DM, CD, IAP
Asian swamp eel *	<i>Monopterus albus</i>	BST, DM, CD, IAP
Striped mullet	<i>Mugil cephalus</i>	BST, DM, CD, IAP
Golden shiner	<i>Notemigonus crysoleucas</i>	BST, DM, CD, IAP
Iron-colored shiner	<i>Notropis chalybaeus</i>	BST, DM, CD, IAP
Tail-light shiner	<i>Notropis maculatus</i>	BST, DM, CD, IAP
Tadpole madtom	<i>Noturus gyrinus</i>	BST, DM, CD, IAP
Coastal shiner	<i>Notropis petersoni</i>	BST, DM, CD, IAP
Sailfin molly	<i>Pecilia latipinna</i>	BST, DM, CD, IAP
Hogchoker	<i>Trinectes maculatus</i>	BST, DM, CD, IAP

AMPHIBIANS

Oak toad	<i>Anaxyrus quercicus</i>	MF, SCF, SC, XH
Southern toad	<i>Anaxyrus terrestris</i>	MTC
Greenhouse frog *	<i>Eleutherodactylus planirostris</i>	BG, BF, HH
Barking tree frog	<i>Hyla gratiosa</i>	BG, BF, HH

Little Manatee River State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Pine woods treefrog.....	<i>Hyla femoralis</i>	DM, BF, BG, HH
Squirrel treefrog	<i>Hyla squirella</i>	MF, DM, WF
Bullfrog.....	<i>Lithobates catesbeianus</i>	
Pig frog.....	<i>Lithobates gryllo</i>	DS, DM, BF
Southern leopard frog.....	<i>Lithobates sphenoccephalus</i>	DM
Cuban treefrog *	<i>Osteophilus septentrionalis</i>	DM, CD
Little grass frog	<i>Pseudacris ocularis</i>	DM, CD

REPTILES

Red-headed agama *	<i>Agama agama</i>	DV
Florida cottonmouth	<i>Agkistrodon piscivorus conanti</i>	BF, DM, CD, IAP
American alligator	<i>Alligator mississippiensis</i>	IAP, CD, BST, DM
Green anole	<i>Anolis carolinensis</i>	MTC
Cuban brown anole *	<i>Anolis sagrei</i>	MTC
Florida softshell	<i>Apalone ferox</i>	DM, CD, IAP
Six-lined racerunner	<i>Aspidoscelis sexlineata</i>	MTC
Florida snapping turtle.....	<i>Chelydra serpentina osceola</i>	DM, CD, IAP
Southern Black Racer	<i>Coluber constrictor priapus</i>	MTC
Eastern diamondback rattlesnake.....	<i>Crotalus adamanteus</i>	MF, SCF, SC, BF
Florida chicken turtle	<i>Deirochelys reticularia chrysea</i>	DM, CD, IAP
Southern ringneck snake	<i>Diadophis punctatus punctatus</i>	MTC
Eastern indigo snake	<i>Drymarchon couperi</i>	SH, MF, SCF, S, XH
African spur thigh tortoise *	<i>Geochelone sulcata</i>	MTC
Gopher tortoise.....	<i>Gopherus polyphemus</i>	MF, SCF, S, XH, SH
Mediterranean gecko *	<i>Hemidactylus turcicus turcicus</i>	DV
Florida mud turtle	<i>Kinosternon subrubrum steindachneri</i> DM,CD,BF,IAP	
Florida kingsnake	<i>Lampropeltis getulus floridana</i>	MTC
Scarlet kingsnake.....	<i>Lampropeltis elapsoides</i>	MTC
Eastern coachwhip	<i>Masticophis flagellum flagellum</i> MF,SCF,SC, XM, SH	
Eastern coral snake	<i>Micrurus fulvius fulvius</i>	BF, XH
Florida water snake	<i>Nerodia fasciata pictiventris</i>	BF, DM, CD, IAP
Rough green snake	<i>Opheodrys aestivus</i>	MTC
Eastern glass lizard	<i>Ophisaurus ventralis</i>	MF, SCF, S, XH, SH
Eastern rat snake.....	<i>Pantherophis alleghaniensis</i>	MTC
Eastern corn snake; red rat snake.....	<i>Pantherophis guttatus</i>	MTC
Florida pine snake.....	<i>Pituophis melanoleucus mugitus</i>	MTC
Peninsula cooter	<i>Pseudemys peninsularis</i>	BST, DM, CD, IAP
Florida worm lizard.....	<i>Rhineura floridana</i>	MTC
Ground skink.....	<i>Scincella lateralis</i>	MTC
Dusky pigmy rattlesnake.....	<i>Sistrurus miliarius barbouri</i>	MF, SCF, SC, XH, SH
Florida box turtle	<i>Terrapene carolina bauri</i>	DM, CD, IAP
Peninsula ribbon snake	<i>Thamnophis sauritus sackenii</i>	MTC
Eastern garter snake	<i>Thamnophis sirtalis sirtalis</i>	MTC

Little Manatee River State Park Animals

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for imperiled species)
BIRDS		
Cooper's hawk	<i>Accipiter cooperii</i>	MTC
Red-winged blackbird	<i>Agelaius phoeniceus</i>	DM, IAP, BST, OF
Wood duck	<i>Aix sponsa</i>	IAP, DM, BST, OF
Mottled duck	<i>Anas fulvigula</i>	IAP, DM, BST, OF
Mallard	<i>Anas platyrhynchos</i>	IAP, DM, BST, OF
Anhinga	<i>Anhinga anhinga</i>	DM, IAP, BST
Florida scrub jay	<i>Aphelocoma coerulescens</i>	SCF, SC
Limpkin	<i>Aramus guarauna</i>	MTC
Ruby-throated hummingbird.....	<i>Archilochus colubris</i>	MTC
Great egret	<i>Ardea alba</i>	DM, CD, IAP, BST
Great blue heron.....	<i>Ardea herodias</i>	DM, CD, IAP, BST
Florida burrowing owl	<i>Athene cunicularia floridana</i>	MF, SCF, SC
Tufted titmouse	<i>Baeolophus bicolor</i>	MTC
Cedar waxwing	<i>Bombycilla cedrorum</i>	MTC
Great horned owl	<i>Bubo virginianus</i>	MF
Cattle egret *	<i>Bubulcus ibis</i>	MTC
Red-tailed hawk.....	<i>Buteo jamaicensis</i>	OF
Red-shouldered hawk	<i>Buteo lineatus</i>	MTC
Broad-winged hawk.....	<i>Buteo platypterus</i>	OF
Muscovy duck.....	<i>Cairina moschata</i>	IAP
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	MTC
Eastern whip-poor-will	<i>Caprimulgus vociferus</i>	MTC
Northern cardinal	<i>Cardinalis cardinalis</i>	MTC
Turkey vulture	<i>Cathartes aura</i>	MTC
Hermit thrush.....	<i>Catharus guttatus</i>	MTC
Chimney swift.....	<i>Chaetura pelagica</i>	MTC
Killdeer	<i>Charadrius vociferus</i>	DM, CD, IAP
Common nighthawk	<i>Chordeiles minor</i>	MTC
Northern harrier.....	<i>Circus cyaneus</i>	DM
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	IAP
Northern flicker.....	<i>Colaptes auratus</i>	MF, SCF, SC, WF
Northern bobwhite	<i>Colinus virginianus</i>	MF, SCF
Common ground-dove	<i>Columbina passerina</i>	MTC
Black vulture	<i>Coragyps atratus</i>	MTC
American crow.....	<i>Corvus brachyrhynchos</i>	MTC
Blue jay	<i>Cyanocitta cristata</i>	MTC
Black-bellied whistling duck.....	<i>Dendrocygna autumnalis</i>	OF
Pileated woodpecker.....	<i>Dryocopus pileatus</i>	MF, SCF, SH
Gray catbird	<i>Dumetella carolinensis</i>	MTC
Little blue heron.....	<i>Egretta caerulea</i>	BST, DM, CD, IAP
Snowy egret.....	<i>Egretta thula</i>	BST, DM, CD, IAP

Little Manatee River State Park Animals

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for imperiled species)
Tricolored heron.....	<i>Egretta tricolor</i>	BST, DM, CD, IAP
Swallow-tailed kite	<i>Elanoides forficatus</i>	OF
Least flycatcher	<i>Empidonax minimus</i>	MTC
White ibis.....	<i>Eudocimus albus</i>	BST, DM, CD, IAP
Merlin	<i>Falco columbarius</i>	SCF, SC
Peregrine falcon.....	<i>Falco peregrinus</i>	SC
American kestrel.....	<i>Falco sparverius</i>	MTC
Wilson's snipe.....	<i>Gallinago delicata</i>	BST, DM, CD, IAP
Common moorhen or gallinule ..	<i>Gallinula galeata</i>	BST, DM, CD, IAP
Common yellowthroat.....	<i>Geothlypis trichas</i>	MTC
Florida sandhill crane.....	<i>Grus canadensis pratensis</i>	MTC
Bald eagle	<i>Haliaeetus leucocephalus</i>	MTC
Barn swallow	<i>Hirundo rustica</i>	OF
Loggerhead shrike.....	<i>Lanius ludovicianus</i>	MF, SCF, SC, SH, XH
Laughing gull.....	<i>Leucophaeus atricilla</i>	OF
Belted kingfisher.....	<i>Megaceryle alcyon</i>	BST, DM, CD, IAP
Eastern screech-owl	<i>Megascops asio</i>	MTC
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	MTC
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	MTC
Wild turkey	<i>Meleagris gallopavo</i>	MTC
Northern mockingbird.....	<i>Mimus polyglottos</i>	MTC
Black and white warbler.....	<i>Mniotilta varia</i>	MF, MH
Brown-headed cowbird	<i>Molothrus ater</i>	MTC
Wood stork	<i>Mycteria americana</i>	BST, DM, CD, IAP
Great crested flycatcher.....	<i>Myiarchus crinitus</i>	MTC
Great-crested flycatcher	<i>Myiarchus crinitus</i>	MH, BF
Osprey	<i>Pandion haliaetus</i>	OF
Indigo bunting	<i>Passerina cyanea</i>	MTC
American white pelican	<i>Pelecanus erythrorhynchos</i>	OF
Bachman's sparrow	<i>Peucaea aestivalis</i>	MF, SCF, SH
Downy woodpecker	<i>Picoides pubescens</i>	MF, SCF, SH
Hairy woodpecker (southern) ...	<i>Picoides villosus</i>	MF, SCF, SH
Eastern towhee.....	<i>Pipilo erythrophthalmus</i>	MF, SCF, SH
Summer tanager.....	<i>Piranga rubra</i>	SH
Roseate spoonbill.....	<i>Platalea ajaja</i>	BST, DM, DAP
Glossy ibis.....	<i>Plegadis falcinellus</i>	MTC
Pied-billed grebe	<i>Podilymbus podiceps</i>	IAP, CD
Carolina chickadee	<i>Poecile carolinensis</i>	MTC
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>	MTC
Purple gallinule	<i>Porphyrio martinica</i>	BST, DM, CD, IAP
Purple martin	<i>Progne subis</i>	OF
Prothonotary warbler.....	<i>Protonotaria citrea</i>	MTC
Parakeet sp. *	Psittacine group	DV, OF
Boat-tailed grackle	<i>Quiscalus major</i>	MTC
Common grackle	<i>Quiscalus quiscula</i>	MTC

Little Manatee River State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Ruby-crowned kinglet	<i>Regulus calendula</i>	MTC
Eastern phoebe.....	<i>Sayornis phoebe</i>	MTC
Ovenbird.....	<i>Seiurus aurocapilla</i>	BF
Northern parula	<i>Setophaga americana</i>	MTC
Hooded warbler	<i>Setophaga citrina</i>	MTC
Yellow-rumped warbler	<i>Setophaga coronata</i>	MTC
Yellow-throated warbler	<i>Setophaga dominica</i>	MTC
Palm warbler	<i>Setophaga palmarum</i>	MTC
Chestnut-sided warbler	<i>Setophaga pensylvanica</i>	MTC
Pine warbler	<i>Setophaga pinus</i>	MTC
Black-throated green warbler ...	<i>Setophaga virens</i>	MTC
Eastern bluebird	<i>Sialia sialis</i>	MTC
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	MF, SCF, SH, XH
American goldfinch.....	<i>Spinus tristis</i>	MTC
Chipping sparrow	<i>Spizella passerina</i>	MTC
Eurasian collared dove *	<i>Streptopelia decaocto</i>	MTC
Barred owl	<i>Strix varia</i>	BG, BF, MH, XH
Eastern meadowlark.....	<i>Sturnella magna</i>	MF, WF, SCF
Tree swallow	<i>Tachycineta bicolor</i>	OF
Carolina wren	<i>Thryothorus ludovicianus</i>	MTC
Brown thrasher.....	<i>Toxostoma rufum</i>	MTC
Greater yellowlegs	<i>Tringa melanoleuca</i>	BST, DM
American robin	<i>Turdus migratorius</i>	MTC
Eastern kingbird	<i>Tyrannus tyrannus</i>	
Barn owl	<i>Tyto alba</i>	BF, MH, CH, SH
Blue-winged warbler.....	<i>Vermivora cyanoptera</i>	MTC
White-eyed vireo	<i>Vireo griseus</i>	MTC
Blue-headed vireo.....	<i>Vireo solitarius</i>	MTC
Mourning dove.....	<i>Zenaida macroura</i>	MTC

MAMMALS

Axis deer; chital *	<i>Axis axis</i>	SC, SCF
Dog *	<i>Canis familiaris</i>	MTC
Coyote.....	<i>Canis latrans</i>	MTC
Nine-banded armadillo *	<i>Dasypus novemcinctus</i>	MTC
Virginia opossum	<i>Didelphis marsupialis</i>	MTC
Domestic cat *	<i>Felis catus</i>	MTC
Southeastern pocket gopher.....	<i>Geomys pinetis</i>	SH, MF, SCF, SC
Southern flying squirrel	<i>Glaucomys volans</i>	MTC
River otter	<i>Lontra canadensis</i>	BST, DM, CD
Bobcat.....	<i>Lynx rufus</i>	MTC
White-tailed deer	<i>Odocoileus virginianus</i>	MTC
Cotton mouse.....	<i>Peromyscus gossypinus gossypinus</i>	MTC

Little Manatee River State Park Animals

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for imperiled species)
Florida mouse.....	<i>Podomys floridanus</i>	MF, SCF, S, SH, XH
Raccoon.....	<i>Procyon lotor</i>	MTC
Eastern gray squirrel *	<i>Sciurus carolinensis</i>	MTC
Sherman's fox squirrel.....	<i>Sciurus niger shermani</i>	MF, SCF, XH, SH
Hispid cotton rat	<i>Sigmodon hispidus</i>	MTC
Eastern spotted skunk	<i>Spilogale putorius</i>	MTC
Wild pig *	<i>Sus scrofa</i>	MTC
Eastern cottontail.....	<i>Sylvilagus floridanus</i>	MTC
Marsh rabbit	<i>Sylvilagus palustris</i>	MTC
West Indian manatee	<i>Trichechus manatus</i>	BST
Gray fox	<i>Urocyon cinereoargenteus</i>	MTC
Red fox *	<i>Vulpes vulpes</i>	MTC

Primary Habitat Codes

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

Primary Habitat Codes

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

Primary Habitat Codes

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

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.

FNAL 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)

Imperiled Species Ranking Definitions

- 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.

Imperiled Species Ranking Definitions

- 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.

Imperiled Species Ranking Definitions

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.

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised March 2013)

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

Eligibility Criteria for National Register of Historic Places

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

- 1) Districts, sites, buildings, structures, and objects may be considered to have significance in American history, architecture, archaeology, engineering, and/or culture if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
 - a) are associated with events that have made a significant contribution to the broad patterns of our history; and/or
 - b) are associated with the lives of persons significant in our past; and/or
 - c) embody the distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and/or
 - d) have yielded, or may be likely to yield, information important in prehistory or history.

- 2) Ordinarily cemeteries, birthplaces, or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved significance within the past 50 years shall not be considered eligible for the *National Register*. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
 - a) a religious property deriving its primary significance from architectural or artistic distinction or historical importance; or
 - b) a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
 - c) a birthplace or grave of an historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or
 - d) a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, distinctive design features, or association with historic events; or

Eligibility Criteria for National Register of Historic Places

- e) a reconstructed building, when it is accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and no other building or structure with the same association has survived; or a property primarily commemorative in intent, if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
- f) a property achieving significance within the past 50 years, if it is of exceptional importance.

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

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

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

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

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

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

Addendum 8 —Land Management Review



**FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**

MARJORY STONEMAN DOUGLAS BUILDING
3900 COMMONWEALTH BOULEVARD
TALLAHASSEE, FLORIDA 32399-3000

RICK SCOTT
GOVERNOR

CARLOS LOPEZ-CANTERA
LT. GOVERNOR

JONATHAN P. STEVERSON
INTERIM SECRETARY

MEMORANDUM

TO: Aric Larson, Governmental Operations Consultant III
Division of State Lands

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

Lew Scruggs, Chief, Office of Park Planning
Division of Recreation and Parks

SUBJECT: Response to Draft Land Management Review (LMR)
Little Manatee River State Park

DATE: July 10, 2015

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

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

CONSENSUS RECOMMENDATIONS

- 1. The team recommends that DRP / park staff conduct a park-wide evaluation of hydrologic features in an effort to address erosion issues, as well as access issues that hinder park resource management. (6+, 0-)**
Managing Agency Response: Agree. A park-wide evaluation of hydrological features and erosion issues needs to be addressed to improve access for resource management activities. A hydrological restoration plan will be developed with prioritized projects for funding, or other assistance.
- 2. The team recommends that DRP / park staff coordinate with county and Port Authority officials to make the boat launch area safer and to provide better access for visitors. (6+, 0-)**
Managing Agency Response: Agree. The park and district staff will coordinate with the Tampa Port Authority, SWFWMD and county officials on future improvements to the boat/kayak launch area and provide better access for park visitors.
- 3. The team recommends that DRP / park staff implement measures to more accurately count visitors entering the park from all major entrance locations. (6+, 0-)**

Managing Agency Response: Disagree. The division has recently implemented a new approved process to count park visitors.

- 4. The team recommends that DRP consider requesting additional resource management staff at this park to help meet management goals. (6+, 0-)**

Managing Agency Response: Agree. If it is determined that additional staff are needed at the time of the next unit management plan revision, it will be included in the plan. However, no new staff can be assigned to this or any other park unit unless they are appropriated by the Legislature or reassigned from other units. Funding is determined annually by the Florida Legislature.

- 5. The team recommends that DRP / park staff consider implementing an improved trail marking system at the park. (6+, 0-)**

Managing Agency Response: Agree. The park staff will coordinate with other local and state entities to improve trail markings and maintenance. The Florida Trails Association could be a beneficial partner in this endeavor.

- 6. The team recommends that DRP / park staff coordinate with the appropriate agencies in identifying potential water quality issues in the park. (6+, 0-)**

Managing Agency Response: Agree. Park and district staff will not be able to maintain a water quality monitoring program on their own. Instead, staff will attempt to enlist assistance of the Water Management District (or local Water Authority or local health department) to assist the park in regular water quality/quantity monitoring.

- 7. The team recommends that DRP / park staff inventory, evaluate, delineate, and monitor linear features (trails, service roads, firebreaks) to reduce fragmentation in the park while maintaining quality trails, safe fire units, adequate access, and appropriate use of resources. (6+, 0-)**

Managing Agency Response: Agree. This process is already underway with service roads and fire lines being removed or identified for removal in the management zone consolidation/improvement project being completed for the management plan update.

FIELD REVIEW

- 1. The maintenance condition of the Natural Communities, specifically sandhill and blackwater stream, received below average scores. The review team is asked to evaluate, based on their perspective, what percent of the natural community is in maintenance condition. The scores range from 1 to 5, with 1 being 0-20% in maintenance condition, 2 being 21-40%, 3 being 41-60%, 4 being 61-80% and 5 being 81-100%.**

Managing Agency Response: Sandhill agree; blackwater stream disagree. The sandhill at Little Manatee State Park, which constitutes about 1% of the park, is in a late successional stage and will require hardwood removal and prescribed fire to improve it. The pockets of sandhill are isolated and adjacent to high fuel loads on neighboring property. Restoration needs of sandhill will be identified in the management plan update. The blackwater stream natural community within the park is in generally good condition with a natural and dynamic shoreline and shallow water areas dominated by native trees, shrubs, emergent, submerged, and floating vegetation and intact floodplain. The stream was identified through the Total Maximum Daily Load (TMDL) water quality program for coliform bacteria, which exceeded the EPA standard. Water quality improvements will be addressed through the TMDL program on a watershed level.

- 2. Restoration, specifically longleaf pine, received a below average score. The review team is asked to evaluate, based on their perspective, whether restoration efforts are adequate.**
Managing Agency Response: Agree. Park and district staff will continue to work with agency partners to restore areas previously damaged by pine plantation activities.
- 3. Forest Management, specifically site preparation, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether forest management is sufficient.**
Managing Agency Response: Agree. The park staff will continue to use prescribed fire to prepare areas for pine regeneration.
- 4. Hydrologic/Geologic function (Hydro-Alteration), specifically roads/culverts and ditches, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether consideration of past and present hydrologic and geologic functions is sufficient.**
Managing Agency Response: Agree. Park and district staff will work on identifying hydrological improvement projects and seek funding to implement them.
- 5. Surface Water Monitoring, specifically water quality and quantity, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether surface water monitoring considerations are sufficient.**
Managing Agency Response: Agree. Park and district staff will not be able to maintain a water quality monitoring program on their own. Instead, staff will attempt to enlist assistance of the Water Management District, TMDL program, local governments, or local health department, to assist the park in regular water quality/quantity monitoring.
- 6. Resources Protection, specifically boundary survey and gates & fencing, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether resources are sufficient to protect the property.**
Managing Agency Response: Agree. Boundary surveys, gates and fencing are always a priority. Park and district staff will continue to work to have surveys completed and to secure the park boundary as needed.
- 7. Public Access & Education, specifically boat access, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether public access is sufficient.**
Managing Agency Response: Agree. Park, district and division staff are coordinating with the Tampa Port Authority, SWFWMD and county officials on improvements to the boat/canoe launch area to improve park visitor access.
- 8. Environmental Education & Outreach, specifically pertaining to interpretive facilities and signs, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether environmental education & outreach are sufficient.**
Managing Agency Response: Agree. Interpretation has an important role at Little Manatee River State Park. Park staff will continue to provide interpretive programs and improve interpretation signage/facilities as staffing and the budget allows.

- 9. Management Resources, specifically staff and funding, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether management resources are sufficient.**

Managing Agency Response: Agree. If it is determined that additional staff are needed at the time of the next unit management plan revision, it will be included in the plan. However, no new staff can be assigned to this or any other park unit unless they are appropriated by the Legislature or reassigned from other units. Funding is determined annually by the Florida Legislature. The updated unit management plan will address land management funding needs. However, division funding is determined annually by the Florida Legislature and funds are allocated to the 171 state parks and trails according to priority needs.

PLAN REVIEW

- 1. Natural Communities, specifically blackwater stream, received a below average score. This is an indication that the management plan does not sufficiently address current or desired condition and/or future management actions to protect or restore.**

Managing Agency Response: Agree. Natural communities including blackwater stream will be more thoroughly addressed in the next plan update. The current management plan was reviewed by the relevant agencies and was in full compliance with Chapters 253 and 259, F.S. and Chapter 18-2 F.A.C. when it was approved by ARC. The next update of this plan will be in full compliance with changes made to the statutes noted above by the Florida Legislature in 2008.

- 2. Non-native, Invasive & Problem Species, specifically control of pests/pathogens, received a below average score. This is an indication that the management plan does not sufficiently address control of pests/pathogens.**

Managing Agency Response: Agree. Non-native, invasive and Problem Species including prevention of pests/pathogens and control of plants and pests/pathogens will be more thoroughly addressed in the next management plan update. The current management plan was reviewed by the relevant agencies and was in full compliance with Chapters 253 and 259, F.S. and Chapter 18-2 F.A.C. when it was approved by ARC. The next update of this plan will be in full compliance with changes made to the statutes noted above by the Florida Legislature in 2008.

- 3. Hydrologic/Geologic function (Hydro-Alteration), specifically roads/culverts and ditches, received below average scores. This is an indication that the management plan does not sufficiently address protection and preservation of hydrologic and geologic function.**

Managing Agency Response: Agree. Hydrologic/Geologic function, Hydro-Alteration including roads/culverts and ditches will be more thoroughly addressed in the next management plan update. The current management plan was reviewed by the relevant agencies and was in full compliance with Chapters 253 and 259, F.S. and Chapter 18-2 F.A.C. when it was approved by ARC. The next update of this plan will be in full compliance with changes made to the statutes noted above by the Florida Legislature in 2008.

- 4. Ground Water Monitoring, specifically ground water quantity, received a below average score. This is an indication that the management plan does not sufficiently address ground water quantity monitoring.**

Managing Agency Response: Agree. Ground water monitoring for quantity will be more thoroughly addressed in the next management plan update. The current management plan was reviewed by the relevant agencies and was in full compliance with Chapters 253 and 259, F.S. and Chapter 18-2

F.A.C. when it was approved by ARC. The next update of this plan will be in full compliance with changes made to the statutes noted above by the Florida Legislature in 2008.

5. Surface Water Monitoring, specifically quality and quantity, received a below average score. This is an indication that the management plan does not sufficiently address surface water monitoring.

Managing Agency Response: Agree. Surface water monitoring for quality and quantity will be more thoroughly addressed in the next management plan update. The current management plan was reviewed by the relevant agencies and was in full compliance with Chapters 253 and 259, F.S. and Chapter 18-2 F.A.C. when it was approved by ARC. The next update of this plan will be in full compliance with changes made to the statutes noted above by the Florida Legislature in 2008.

6. Resource Protection, specifically gates & fencing, signage and law enforcement presence, received below average scores. This is an indication that the management plan does not sufficiently address resource protection.

Managing Agency Response: Agree. Resource Protection needs including gates & fencing, signage and law enforcement presence will be more thoroughly addressed in the next management plan update. The current management plan was reviewed by the relevant agencies and was in full compliance with Chapters 253 and 259, F.S. and Chapter 18-2 F.A.C. when it was approved by ARC. The next update of this plan will be in full compliance with changes made to the statutes noted above by the Florida Legislature in 2008.

Thank you for your attention.

/ca

cc: Valinda Subic, Chief, Bureau of Parks District 4
Ezell (BJ) Givens, Assistant Chief, Bureau of Parks District 4
Joe Howard, Park Manager, Little Manatee River State Park
Chris Becker, Environmental Specialist, Bureau of Parks District 4

