Myakka River State Park

Acquisition and Restoration Council Draft
Unit Management Plan

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Recreation and Parks
June 2018

Executive Summary

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

Common Name of Property: Myakka River State Park

Location: Sarasota and Manatee counties

Acreage: 37,198.91 Acres

Acreage Breakdown

Natural Communities	Acres
Mesic Flatwoods	3766.16
Dry Prairie	14771.03
Mesic Hammock	673.43
Scrubby Flatwoods	182.44
Sinkhole	1.98
Basin Swamp	994.75
Baygall	293.40
Depression Marsh	6788.86
Dome Swamp	8.91
Floodplain Marsh	1181.81
River Floodplain Lake	1218.09
Blackwater Stream	142.57
Developed	75.03
Canal/Ditch	7.70
Artificial Pond	27.00
Abandoned Field	48.96
Abandoned Pasture	565.73
Spoil Area	3.14
Utility Corridor	96.57

Lease/Management Agreement Number: 2324

Use: Single Use

Management Responsibilities

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

Responsibility: Public Outdoor Recreation and Conservation

Designated Land Use: Public outdoor recreation and conservation is the designated single use of the property.

Sublease: None

Encumbrances: None

Unique Features

Overview: Myakka River State Park is located east of Sarasota in Sarasota and Manatee Counties Access to the park is from Interstate 75, exit 205 (State Road 72); the entrance is 9 miles east on State Road 72/Clark Rd. The park centers around Myakka River. The park was initially acquired in 1934. Currently, the park comprises 37,198.91 acres.

The purpose of Myakka River State Park is to preserve the natural beauty, wildlife, and historical features of the property, to serve as an important link in the chain of protected lands in the southern portion of the state, and to provide outstanding outdoor recreation and natural resource interpretation for the benefit of the people of Florida. Myakka River State Park is one of the oldest and largest units in the Florida State Park system and is one of the nine ”New Deal” era parks constructed by the Civilian Conservation Corps (CCC). Under the unit classification system, the park is classified as a state park.

Natural: Thirty-four miles of the Myakka River, including all 12 miles within the state park boundaries, were designated by the Florida legislature in 1985 as a State Wild and Scenic River. The Myakka River is the only river in Florida to receive state recognition for its “outstandingly remarkable ecological, fish and wildlife, and recreational values.” The park protects nearly 15,000 acres of Florida dry prairie, a globally imperiled natural community endemic to the state. The park provides habitat for numerous imperiled wildlife species, including Audubon’s crested caracara, Sherman’s fox squirrel, the Florida black bear, and the Florida panther.

Archaeological / Historic: Myakka River State Park contains recorded and unrecorded remnants of the early 20th century cattle ranching industry and features associated with CCC park development and occupation during the late 1930s to early 1940s.

Management Goals, Objectives and Actions

Measurable objectives and actions have been identified for each of the Division’s management goals for Myakka 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 Division of Recreation and Parks utilizes the ten-year management plan to serve as the basic statement of policy and future direction for each park, a number of annual work plans provide more specific guidance for 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 Chapters 253.034 and 259.037, Florida Statutes.

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

Natural Resource Management

Hydrological Management

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

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

Natural Communities Management

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

- *Objective: Within 10 years, have 26,074 acres of the park maintained within the optimum fire return interval.*
- *Objective: Conduct upland habitat/natural community restoration activities on 2,000 acres of* Florida dry prairie, mesic flatwoods and scrubby flatwoods communities over the next 10 years.
- *Objective: Develop a plan for Florida dry prairie restoration of the abandoned pasture south of State Road 72 that identifies priorities, feasibility, and partnership/funding opportunities.*
- *Objective: Conduct aquatic habitat restoration activities on 880 acres of river floodplain lake*.
- *Objective: Develop a desired future conditions map using historical data including pre-settlement land survey plat maps and notes for the area and interpret 1940s aerial photography.*

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

- *Objective: Periodically update imperiled species occurrence inventory lists for plants and animals.*
- *Objective: Monitor and document 55 selected imperiled animal species in the park.*
- *Objective: Monitor and document 17 selected imperiled plant species in the park.*

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

- *Objective: Annually treat a minimum of 45 infested acres (300 gross acres) of exotic plant species in the park.*
- *Objective: Implement control measures on three exotic animal species in the park.*

Cultural Resource Management

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

- *Objective: Assess and evaluate 41 of 41 recorded cultural resources in the park.*
- *Objective: Compile reliable documentation for all recorded historic and archaeological sites.*
- *Objective: Bring 14 of 41 recorded cultural resources into good condition.*

Ten-Year Implementation Schedule and Cost Estimates: See Table 7, pages 145-149.

Acquisition Needs/Acreage: Approximately 5,000 acres has been identified as desirable for addition to Myakka River State Park. These recommended additions will aid hydrologic restoration efforts and protect the Myakka Wild and Scenic River corridor. Identified property also includes the headwaters of both Deer Prairie Slough and Mossy Hammock Slough. Hydrological restoration of these wetlands is essential for successful restoration of thousands of acres of dry prairie in the park. Acquisition of the parcels would also provide a critical buffer from potential agricultural or urban development near the park.

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

Public Involvement: 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 March 2 and 3, 2017 respectively. Meeting notices were published in the Florida Administrative Register [2/20/17, VOL 43/34], 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 Appendix 2).

Summary of Significant Changes in the Management Plan Update

- **Change in Land Use and Recreation Goals:** Myakka River State Park is truly one of the Florida State Park System's flagship parks. Over the long-term gradual redevelopment of the park is needed. A series of public workshops and key stakeholder meetings will be held to develop a new conceptual master plan for the park. The conceptual master plan will be used to guide implementation of the proposed improvements and additions. New recreational opportunities and facilities have been proposed that are appropriate for this park and consistent with the DRP mission. These include:
    - Improved circulation and recreational amenities at the Upper Myakka Lake Day Use Area.
    - Pedestrian boardwalks and fishing platforms at the Myakka River bridge
    - Additional parking and a renovated Visitor Center at the south entrance
    - Redesigned south entrance to aid with traffic congestion.

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INTRODUCTION

Myakka River State Park is located east of Sarasota in Sarasota and Manatee Counties (see Vicinity Map). Access to the park is from Interstate 75, exit 205 (State Road 72); the entrance is 9 miles east on State Road 72/Clark Rd. (see Reference Map). The Vicinity Map also reflects significant land and water resources existing near the park.

Myakka River State Park was initially created in 1934 by the Board of Trustees of the Internal Improvement Trust Fund (Trustees) and the Florida Board of Forestry. The Trustees hold fee simple title to the park and on January 23, 1968, the Trustees leased (Lease Number 2324) the property to DRP under a 99-year lease. The current lease will expire on January 22, 2067. A new lease number (3636) was assigned in 1998 without changing any of the terms and conditions. On March 25, 1997, DRP assumed management of an 8,248.75-acre property owned by the Southwest Florida Water Management District (SWFWMD). Currently, the park comprises 37,198.91 acres.

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

Purpose and Significance of the Park

The purpose of Myakka River State Park is to preserve the natural beauty, wildlife, and historical features of the property, to serve as an important link in the chain of protected lands in the southern portion of the state, and to provide outstanding outdoor recreation and natural resource interpretation for the benefit of the people of Florida.

Park Significance

Myakka River State Park is one of the oldest and largest units in the Florida State Park system. The park's name sake, the Myakka River, winds through the park from north to south, for nearly 12 miles. The Myakka River is designated as a Florida Wild and Scenic River, and is the only river in Florida to receive state recognition for its "outstandingly remarkable ecological, fish and wildlife, and recreational values." The river and associated lakes provide opportunities for boating, paddling, and fishing. Wildlife viewing in the park is exceptional, particularly in the wintertime when groups of white pelicans, flamboyant roseate spoonbills and black-bellied whistling ducks are common.

The park protects nearly 15,000 acres of Florida dry prairie, a globally imperiled ecosystem endemic to the state. Dry prairie was a significant element of Florida's historic landscape, but today most of the original extent of dry prairie within Florida has been converted to housing or agriculture uses. The dry prairie provides critical habitat for 17 imperiled plant species and numerous animal species, including Audubon's crested caracara, Florida sandhill crane, and the Florida Burrowing owl.

A significant portion of the park's dry prairie and a segment of the Myakka State Wild and Scenic River are included within the park's 7,500-acre Wilderness Preserve. Access to the Wilderness Preserve is limited to just 30 visitors per day. This portion of the park has seen little permanent alteration and offers an outstanding opportunity for solitude and a primitive wilderness experience. Located at the south end of Lower Myakka Lake within the Wilderness Preserve is "Deep Hole", the only large sinkhole known to exist in the park. Alligators are extremely plentiful in the park, but especially at Deep Hole where the sink acts as a fish trap during times of low water. Hungry alligators will congregate here to feed, creating quite a magnificent wildlife spectacle.

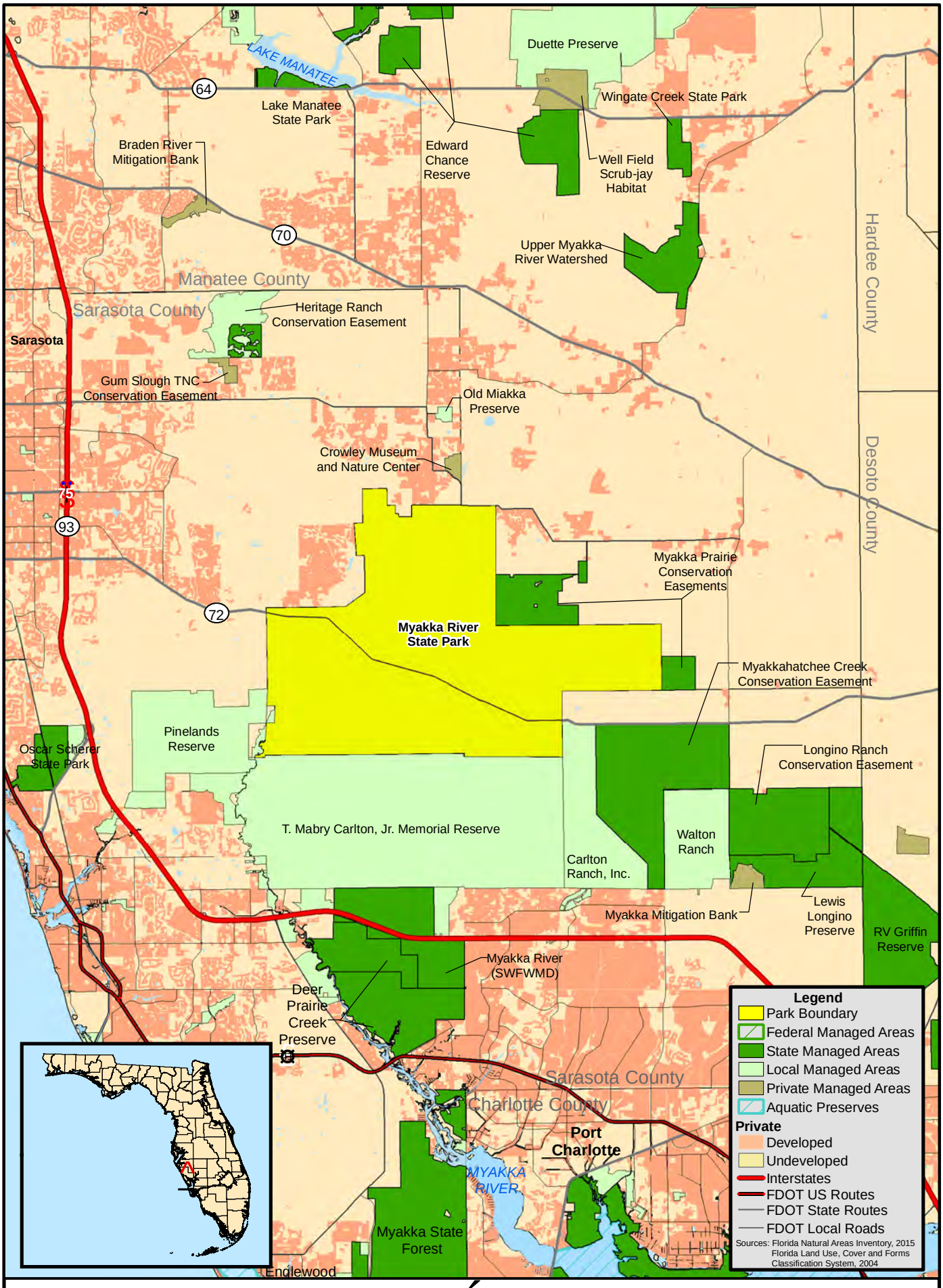
The park's cultural landscape is shaped by the early 20th century cattle ranching industry and features associated with Civilian Conservation Corps (CCC) park development during the late 1930s to early 1940s. Much of what is now the park was a part of "Meadow Sweet Pastures" a cattle ranch owned by Mrs. Potter Palmer, an important figure in the development of cattle ranching in southwest Florida. The Palmer family donated the original 1,920 acres of the park to the State of Florida in 1934.

The most noteworthy of the park's historic structures are the various buildings, features, and other improvements constructed by the CCC. The park contains 19 CCC structures and related features. Many of the park's CCC buildings still serve the public, including 5 original cabbage palm log cabins, that provide comfortable lodging and a unique visitor experience. The CCC activities at the park are significant to the history of Florida's African American population, as the park was one the few Florida parks to be developed with black CCC enrollees.

Purpose and Scope of the Plan

Myakka 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.

This plan serves as the basic statement of policy and direction for the management of Myakka 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 (F.S.), Chapter 18-2, Florida Administrative Code (F.A.C.), and is intended to be consistent with the State Lands Management Plan. With approval, this management plan will replace the 2004 approved plan.

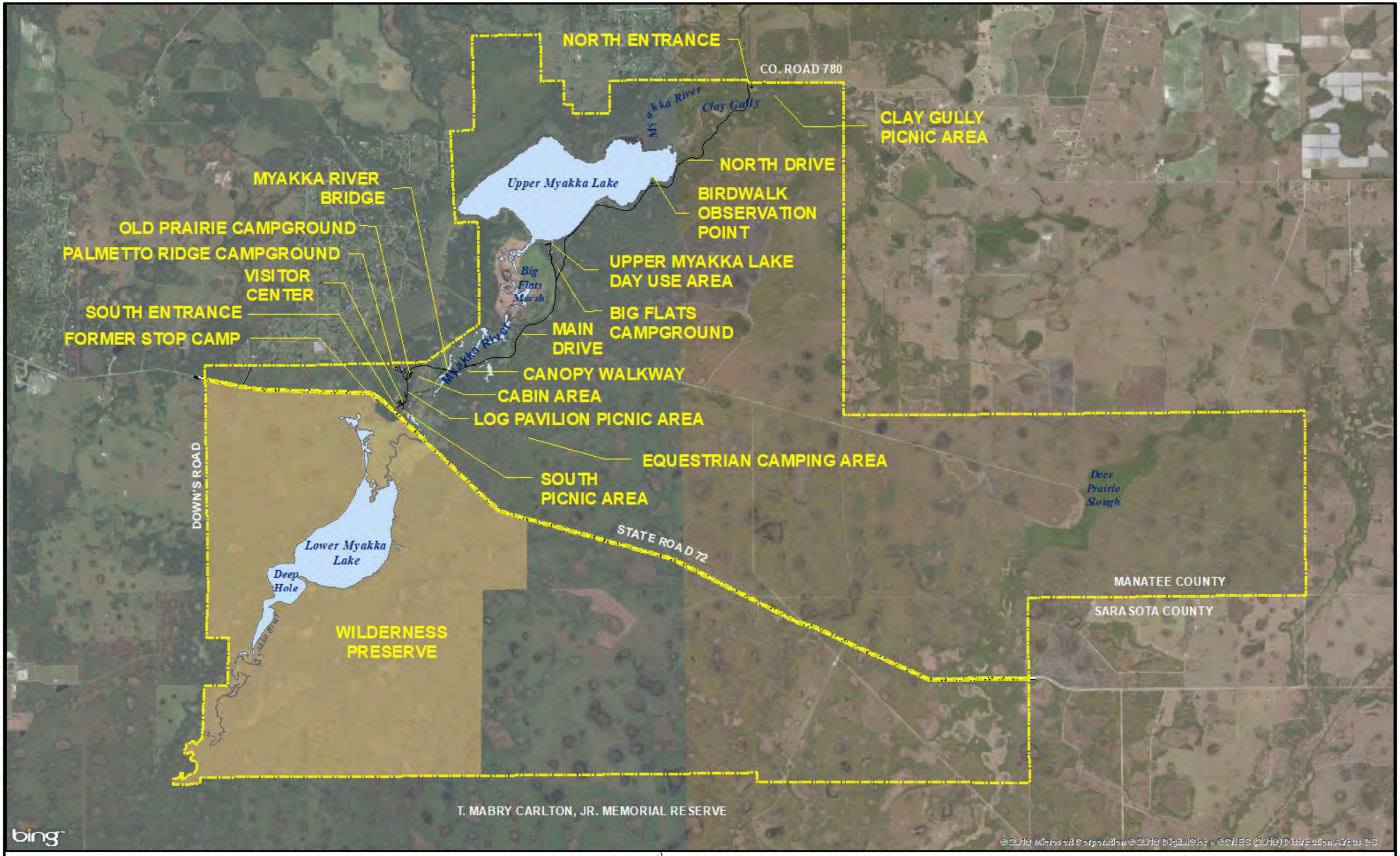


MYAKKA RIVER STATE PARK

0 1.25 2.5 5 Miles

Florida Department of Environmental Protection
Division of Recreation and Parks

VICINITY MAP



MYAKKA RIVER STATE PARK

N

0 0.5 1 2 Miles

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

REFERENCE MAP

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 requirements of the appropriate local, state or federal agencies.

In accordance with Section 253.034 F.S, the potential of the park to accommodate secondary management purposes was analyzed. These secondary purposes were considered within the context of DRP's statutory responsibilities and the resource needs and values of the park. This analysis considered the park's natural and cultural resources, management needs, aesthetic values, visitation and visitor experiences. Pursuant to the analysis required by and in accordance with the provisions of Section 253.034, F.S, it was determined that timber management conducted as part of the park's natural community management and restoration activities could be accommodated in a manner that would be compatible and not interfere with the primary purpose of resource-based outdoor recreation and conservation. This compatible secondary management purpose is addressed in the Resource Management Component of the plan.

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

As required by Section 253.034 F.S, 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 also determined that timber management conducted as part of the park's natural community management and restoration activities would be appropriate at this park as an additional source of revenue for land management since it is compatible with the park's primary purpose of resource-based outdoor recreation and conservation. Generating revenue from consumptive uses that are not a byproduct of resource management activities is not contemplated in this management plan.

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

Management Program Overview

Management Authority and Responsibility

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

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

The Board of Trustees of the Internal Improvement Trust Fund (Trustees) has granted management authority of certain sovereign submerged lands to the DRP under Management Agreement MA 68-086 (as amended January 19, 1988). The

management area includes a 400-foot zone from the edge of mean high water where a park boundary borders sovereign submerged lands fronting beaches, bays, estuarine areas, rivers or streams. Where emergent wetland vegetation exists, the zone extends waterward 400 feet beyond the vegetation. The agreement is intended to provide additional protection to resources of the park and nearshore areas and to provide authority to manage activities that could adversely affect public recreational uses.

Many operating procedures are standardized system-wide and are set by internal direction. These procedures are outlined in the 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 Southwest Florida Water Management

District (SWFWMD) provides aquatic control of invasive exotics along the river and Upper and Lower Myakka Lakes. Sarasota County assists park staff in monitoring water levels and vegetation on the wilderness preserve and southern boundary of the park. In addition, the County is available to assist on prescribed burns along the southern boundary of the park.

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 March 2 and 3, 2017 respectively. Meeting notices were published in the Florida Administrative Register [2/20/17, VOL 43/34], 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 Appendix 2).

Other Designations

Myakka 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. The section of the Myakka River within the park is designated as Class I waters (potable water supplies), and all other surface waters in this park are classified by the Department as Class III waters.

The Florida legislature designated 34 miles of the Myakka River (from County Road 780 south to the Sarasota/Charlotte County line) a Florida Wild and Scenic River in 1985. The Myakka River Wild and Scenic Designation and Preservation Act (Section 258.501, Florida Statutes) provides for the permanent preservation, management and administration of the designated segment of the Myakka River. The entire river portion flowing through Myakka River State Park is included in this wild and scenic river designation.

The Myakka River Management Coordinating Council was established in 1985, by the Myakka River Wild and Scenic Designation and Preservation Act to provide interagency and intergovernmental coordination in the management of the river. The Council holds three meetings per year to review and make recommendations on all proposals for amendments to the Designation Act, Myakka Wild and Scenic River Management Plan, Myakka River Wild and Scenic River Rule (Chapter 62D-15, F.A.C), as well as on other matters which may be brought before the Council by the FDEP, any local government, or any member of the Council. The Council can then render its non-binding advisory opinion to the SWFWMD, the FDEP, and affected local governments.

A management plan for the wild and scenic river was updated in 2011 with input from applicable state agencies, Southwest Florida Water Management District, Tampa Bay and Southwest Florida Regional Planning Councils, affected local governments, agricultural, environmental and landowner interest groups and the public (FDEP 2011). Additional information about the Myakka Wild and Scenic River, including links to the relevant statute and rule, and the current management plan can be found on the webpage for the Myakka River Management Coordinating Council (http://www.myakkarivermanagement.org/).

This park is not within or adjacent to an aquatic preserve as designated under the Florida Aquatic Preserve Act of 1975 (Section 258.35, Florida Statutes).

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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 Appendix 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 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. Myakka River State Park Management Zones			
Management Zone	**Acreage**	**Managed with Prescribed Fire**	**Contains Known Cultural Resources**
MR-01A	984.19	Y	N
MR-01B	243.35	Y	N
MR-02A	1449.83	Y	Y
MR-02B	561.32	Y	Y
MR-02C	210.30	Y	N
MR-02D	352.02	Y	Y
MR-02E	452.52	Y	Y
MR-02F	674.75	Y	Y
MR-03A	936.97	Y	N
MR-03B	242.72	Y	Y
MR-03C	1170.65	Y	N
MR-04A	803.57	Y	N
MR-04B	746.01	Y	N
MR-05A	764.08	Y	Y
MR-05B	698.00	Y	N
MR-05C	396.83	Y	N
MR-05D	173.77	Y	Y
MR-05E	296.45	Y	Y
MR-06	1224.56	Y	Y
MR-07	1382.42	Y	Y
MR-08	1581.48	Y	N
MR-09A	1257.58	Y	N
MR-09B	2256.42	Y	N
MR-10A	1468.59	Y	N
MR-10B	1623.47	Y	N
MR-11A	251.31	Y	N
MR-11B	1007.42	Y	N
MR-11C	386.15	Y	N
MR-11D	522.65	Y	Y
MR-11E	294.58	Y	N
MR-12	975.83	Y	N
MR-13A	1202.81	Y	N
MR-13B	323.58	Y	N
MR-13C	621.00	Y	N
MR-13D	586.73	Y	N

MR-14	205.71	Y	N
MR-15	583.30	Y	N
MR-16	818.88	Y	Y
MR-17	392.97	Y	N
MR-18	1119.81	Y	N
MR-19A	626.15	Y	N
MR-19B	234.47	Y	N
MR-20	1362.88	Y	N
MR-21	688.21	Y	N
MR-22A	561.94	Y	N
MR-22B	254.89	Y	N
MR-23A	311.50	Y	N
MR-23B	786.87	Y	N
MR-24A	865.66	Y	N
MR-24B	260.55	Y	N

Resource Description and Assessment

Natural Resources

Topography

The general topography of Myakka River State Park has been highly influenced in the past by marine processes and solution of underlying limestone. During the Pleistocene epoch (11,700-2.6 million years ago) and during previous epochs, marine sands were deposited in the form of dune ridges and basins. Solution of permeable limestone has caused the formation of shallow sinks and solution troughs. These sinks and troughs form what are commonly referred to as depression marshes and sloughs, respectively. Solution processes are also largely responsible for the formation of Upper Myakka and Lower Myakka lakes.

Some alteration of the terrain by past activities has affected the topography of the park. Roads, drainage ditches, borrow pits, agricultural operations and other notable topographic disturbances on the property have all affected the park in some way or form.

From its origin near Myakka Head, the Myakka River generally flows from northeast to southwest. Dune ridges are found on both sides of the river. From elevations of 14-15 feet above mean sea level (MSL) along the river, these ridges rise gradually to elevations of 25-45 feet. The rise is more precipitous westward to eastward. Between these dune lines are the major sloughs and the numerous depression marshes, many of which will eventually become sloughs due to solution processes.

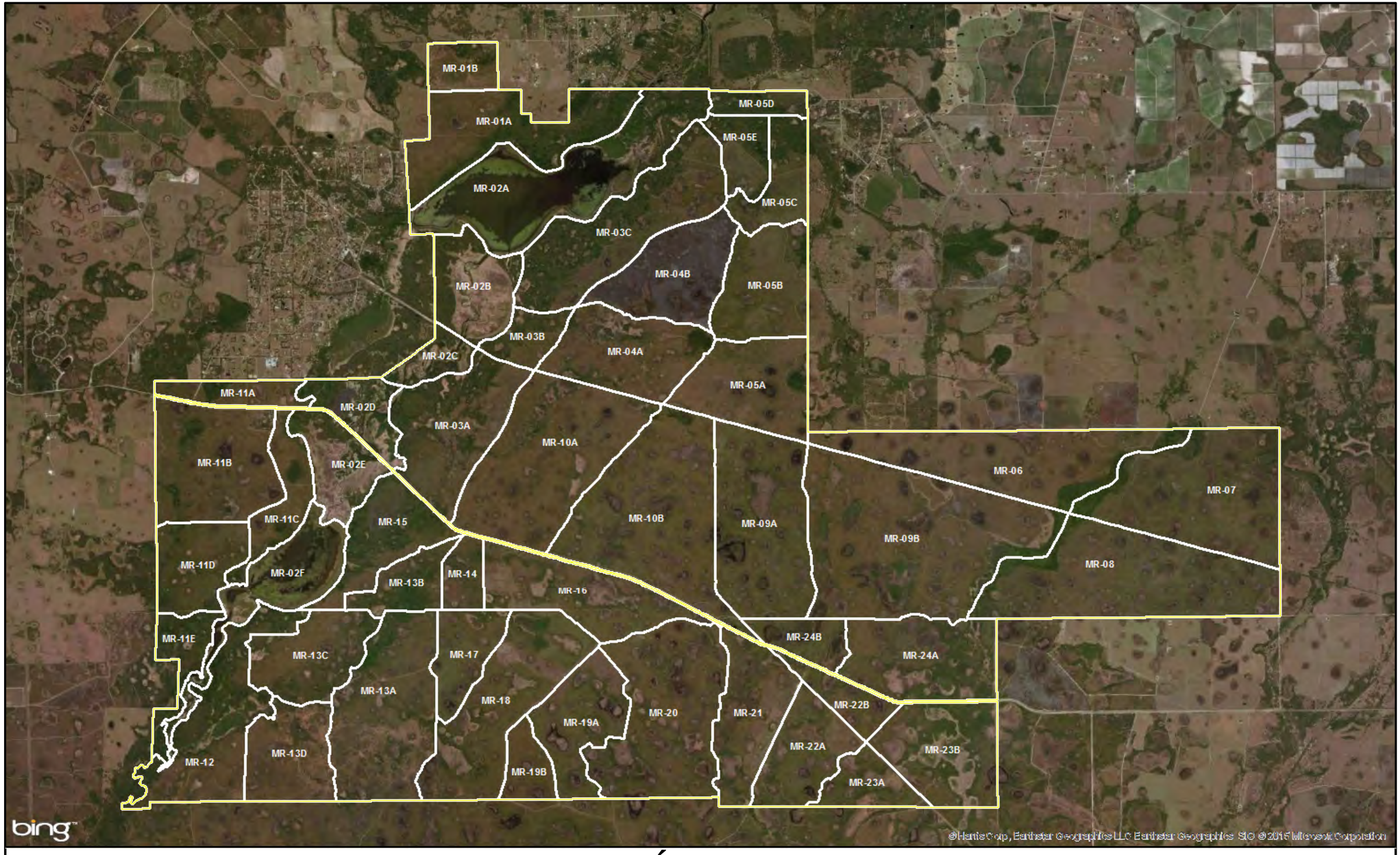
Geology

Myakka River State Park lies within two of the state's prominent physiographic regions: The Gulf Coastal Lowlands and the DeSoto Plain, both recently emerged submarine plains (Randazzo and Jones 1997). Most of the park lies in the Gulf Coastal Lowlands and ascends the slight incline to the DeSoto Plain only at its eastern side (Geraghty and Miller, Inc. 1981). Karst topography accounts for the multitude of shallow sinks (depression marshes) and solution troughs (sloughs). Only one major sinkhole is known to exist in the park. This sink is known as "Deep Hole" and is approximately 295 feet wide. In 2012, researchers conducted a dive into the sink and found it to be 131 feet deep (Culter et al. 2013). The Upper and Lower Lakes and the wide marshes between them also lie in basins that are solution features. Fissures in the underlying limestone have created numerous short creeks known as blind gullies. Most are short in length, varying from one hundred yards to one mile. These gullies are common in flatwoods and dry prairie areas within the park.

Beneath the surface, several distinct geologic formations are present. Layers of clastic sedimentary deposits extend just below the surface to depths of 80 to 120 feet. These clastic layers are composed of sands and clays with interbedded layers of sandy, dolomitic limestone. Collectively, they form the surficial aquifer and the underlying upper confining deposits. Further down, extending to depths of about 250 feet, limestone, dolostone and sands associated with the Hawthorn formation comprise the secondary artesian aquifer (Intermediate Aquifer). Clay lenses, which serve to separate various productive zones within the secondary artesian aquifer, are present in certain areas. Below 250 feet, impermeable layers of limestone, dolostone, sandstones, clays and sands are present, associated with the Tampa formation. These layers form the lower confining deposits that separate the secondary artesian aquifer from the underlying Upper Floridan Aquifer. The Floridan Aquifer occurs just above the Suwannee limestone, at a depth generally greater than 400 feet (Geraghty and Miller, Inc. 1981).

Soils

Dune development is most noticeable on the west side of the Myakka River, from the north end of Upper Myakka Lake to the upper end of Lower Myakka Lake. This dune ridge and other minor dune ridges consist of fine white sand that is characteristically a very sterile environment. An organic "hardpan" under soils in the lower elevations and clays within five to ten feet of the surface at higher elevations create poor drainage throughout the unit. Thirty-four different soil types occur on this unit (see Soils Map) according to the USDA Soil Conservation Service Soil Survey for Sarasota County (1991) and Manatee County (1983). Detailed soil descriptions are listed in Appendix 4. Soils on this unit associated with the river floodplain include Bradenton fine sand (frequently flooded), Delray and Astor soils (frequently flooded), Felda and Pompano fine sands (frequently flooded), and Floridana and Gator soils (frequently flooded).

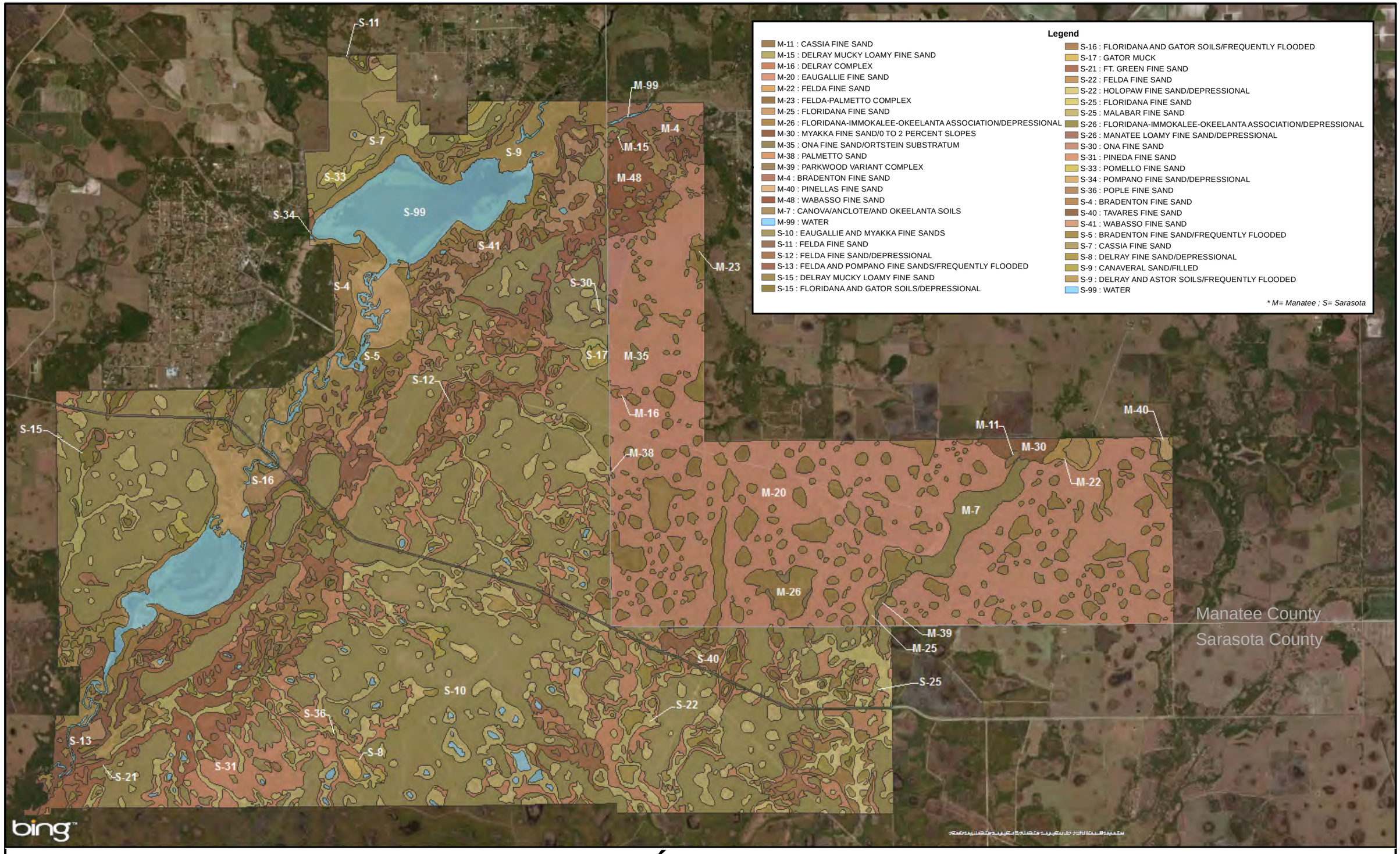


MYAKKA RIVER STATE PARK

0 0.5 1 2 Miles

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

MANAGEMENT ZONES MAP



Legend

- M-11 : CASSIA FINE SAND
- M-15 : DELRAY MUCKY LOAMY FINE SAND
- M-16 : DELRAY COMPLEX
- M-20 : EAUGALLIE FINE SAND
- M-22 : FELDA FINE SAND
- M-23 : FELDA-PALMETTO COMPLEX
- M-25 : FLORIDANA FINE SAND
- M-26 : FLORIDANA-IMMOKALEE-OKEELANTA ASSOCIATION/DEPRESSIONAL
- M-30 : MYAKKA FINE SAND/0 TO 2 PERCENT SLOPES
- M-35 : ONA FINE SAND/ORTSTEIN SUBSTRATUM
- M-38 : PALMETTO SAND
- M-39 : PARKWOOD VARIANT COMPLEX
- M-4 : BRADENTON FINE SAND
- M-40 : PINELLAS FINE SAND
- M-48 : WABASSO FINE SAND
- M-7 : CANOVA/ANCLOTE/AND OKEELANTA SOILS
- M-99 : WATER
- S-10 : EAUGALLIE AND MYAKKA FINE SANDS
- S-11 : FELDA FINE SAND
- S-12 : FELDA FINE SAND/DEPRESSIONAL
- S-13 : FELDA AND POMPANO FINE SANDS/FREQUENTLY FLOODED
- S-15 : DELRAY MUCKY LOAMY FINE SAND
- S-15 : FLORIDANA AND GATOR SOILS/DEPRESSIONAL
- S-16 : FLORIDANA AND GATOR SOILS/FREQUENTLY FLOODED
- S-17 : GATOR MUCK
- S-21 : FT. GREEN FINE SAND
- S-22 : FELDA FINE SAND
- S-22 : HOLOPAW FINE SAND/DEPRESSIONAL
- S-25 : FLORIDANA FINE SAND
- S-25 : MALABAR FINE SAND
- S-26 : FLORIDANA-IMMOKALEE-OKEELANTA ASSOCIATION/DEPRESSIONAL
- S-26 : MANATEE LOAMY FINE SAND/DEPRESSIONAL
- S-30 : ONA FINE SAND
- S-31 : PINEDA FINE SAND
- S-33 : POMELLO FINE SAND
- S-34 : POMPANO FINE SAND/DEPRESSIONAL
- S-36 : POPLE FINE SAND
- S-4 : BRADENTON FINE SAND
- S-40 : TAVARES FINE SAND
- S-41 : WABASSO FINE SAND
- S-5 : BRADENTON FINE SAND/FREQUENTLY FLOODED
- S-7 : CASSIA FINE SAND
- S-8 : DELRAY FINE SAND/DEPRESSIONAL
- S-9 : CANAVERAL SAND/FILLED
- S-9 : DELRAY AND ASTOR SOILS/FREQUENTLY FLOODED
- S-99 : WATER

** M= Manatee ; S= Sarasota*

MYAKKA RIVER STATE PARK

0 0.5 1 2 Miles

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

SOILS MAP

Soils associated with dry prairie and mesic flatwoods on this unit include EauGallie fine sand, EauGallie and Myakka fine sands, Ft. Green fine sand, Myakka fine sand, Ona fine sand, Palmetto sand, Pineda fine sand, Pinellas fine sand, and Wabash fine sand. Soils on this unit commonly associated with scrubby flatwoods include Cassia fine sand and Pomello fine sand.

Soils typical of basin and depression marshes on this unit include Delray complex, Delray fine sand (depressional), Felda fine sand (depressional), Floridana fine sand, Floridana and Gator soils (depressional), Floridana-Immokalee-Okeelanta association, Holopaw fine sand (depressional), and Manatee loamy fine sand (depressional).

Soils commonly associated with baygall, hammocks and sloughs on this unit include Bradenton fine sand, Canova, Anclote and Okeelanta soils, Delray mucky loam fine sand, Felda fine sand, Felda-Palmetto complex, Gator muck, Parkwood Variant complex, and Pople fine sand.

Plant communities associated with a given soil type may vary, depending upon other environmental factors, such as fire, hydrology and disturbances (either natural or man-made). Plant communities identified by soil types are meant only as a guideline and may not necessarily be present, as described above.

Currently, areas of erosion issues at the park are confined to the roads and road shoulders due to periods of heavy rain during the wet season (usually June through September). In 2013, erosion controls along Bee Island Extension were implemented on an experimental basis. A portion of the erosion along the roads is due to yearly burn preparation, which includes disking. To alleviate this issue, disking is implemented on the shoulder of the roads, and the road is mowed. Feral hog (*Sus scrofa*) rooting along the roads has intensified the potential of erosion. There is a hog removal program in progress.

Minerals

No information is available on minerals in this park.

Hydrology

Surface water

The park lies within the Myakka River watershed which encompasses approximately 600 square miles. The Myakka River collects water from numerous creeks and sloughs to provide drainage in the watershed. Four major depressions act as natural water detention areas. They are the Flatford Swamp near Myakka City; Tatum Sawgrass Marsh just north of the park, and the Upper Myakka Lake and the Lower Myakka Lake both of which are contained within the park. Seven sub-basins, or portions of them, have impacts on drainage pattern in the park: Myakka River (including Vanderipe Slough and Big Flats), Clay Gully, Mossy Island Slough, Shiney Town Slough, Deer Prairie Slough, Mud Lake Slough, and Big Slough Canal.

The Myakka River, which is the central natural feature of this park, originates at Myakka Head in east-central Manatee County. Wingate Creek is the first to flow into the Myakka River. Seven additional tributaries (Coker Creek, Boggy Creek, Ogleby Creek, Long Creek, Maple Creek, Young's Creek, and Taylor Creek) meet with the Myakka River shortly after, and this convergence is the basis of the Flatford Swamp. The river channel splits into Clay Gully and the Myakka River. About one-half mile before entering the park, the Myakka River flows through the southeastern part of the Tatum Sawgrass Marsh. The river enters the park in Sarasota County from the north, about 1.3 miles south of County Road 780.

In addition to being an Outstanding Florida Waterway, the 34 miles of the Myakka River within Sarasota County have been designated as a "Wild and Scenic River" by the Florida Legislature. This includes 12 miles of the designated portion of the river that are contained within the park. Additional information on this designation and hydrology of the watershed can be obtained in the Myakka Wild and Scenic River (MWSR) Management Plan (DEP 2011).

The surface waters of the park include the Myakka River and many of its tributaries, Upper Myakka Lake and Lower Myakka Lake, and numerous small depressional wetlands. The Myakka River is a southern blackwater stream. Three critical aspects of the water resource value of the Myakka River are the water quality, the quantity of discharge, and the timing of the discharge. These three variables are not only important to the continued health of the Myakka River, they are also important to the health of downstream estuarine areas of Charlotte Harbor.

Low flow data indicate that groundwater contributions to Myakka River streamflow are small (Hutchinson 1984). Discharge from the surficial aquifer is insufficient to provide base flow to the Myakka River during the dry period (SWFWMD 1989). Streamflow and water quality characteristics indicate that there are negligible natural groundwater contributions to the Myakka River between Myakka City and the outlet to Lower Myakka Lake. The lakes and river channel are underlain by relatively impermeable clays (Flippo et al. 1968).

All non-tidal reaches of streams cease natural flows during droughts and many go dry during most years. During the dry season, drainage from agricultural lands may contribute between 10 and 60 percent of stream discharge. Near zero flow has occurred in the Myakka River for periods of up to six months, and during normal water years the river will experience near zero flow for approximately two months. Dry season discharges (average low flows) in the upper Myakka River watershed have increased during the past three decades and most notably at the State Road 70 USGS streamflow gauge during the mid-1980s because of agricultural irrigation (PBS&J et al. 1998). Minimum discharges generally occur in April, May, or early June.

The quality, quantity, and timing of freshwater input are critical to downstream estuarine areas. However, what is relatively unknown is the critical amount of freshwater necessary to maintain the proper functioning of estuarine areas. The

SWFWMD is currently developing Minimum Flows and Levels (MFL) for the entire Southwest Florida region to quantify the amount of water that can be used for public supply while causing no significant harm to the ecological functions in lakes, streams, and rivers.

A MFL study for the Myakka River was completed during 2005-2006. MFLs have been adopted for the upper freshwater portion of the Myakka River. During the study, the SWFWMD used flow data from 1940-1969 for their study, due to the evidence that dry season flows began to increase in the 1970s. The SWFWMD used a building block approach for establishing MFLs for the Myakka River to maintain or recreate the hydrological conditions under which communities existed prior to flow disturbance, and meet the ecological needs of the river. Block 1 considers the low flow conditions during the dry season, Block 2 considers the base flow period during the cooler portion of the year when evapotranspiration is often lower, and Block 3 considers the high flow period during the wet season. The proposed MFLs are set to "not significantly harm" the water resources or ecology, which is defined as less than 15 percent decline in habitat availability (SWFWMD 2005).

The average annual rainfall in the Myakka watershed is 59 inches, approximately 60 percent of which occurs from June to September (Loper and Morris 2008). Because there is a lag time of river discharge following rains, the maximum river discharge generally occurs from July to October. The discharge of the Myakka River, as measured at the U.S. Geological Survey (USGS) gauging station between the lakes, averaged 253 cubic feet per second annually for the period 1937 to 2008. Inflow of freshwater to Charlotte Harbor from the Myakka River averages 630 cubic feet per second annually.

During the wet season, areas around the river may flood. The flood stage is an elevation of 15.86 feet above sea level (ASL), or a water level of 7 feet or greater read on the USGS gauge in Myakka River State Park.

In the past, several of the park depression marshes were drained by ditching. There has been an active program at the park to fill or plug the ditches to restore the natural hydrology to these wetlands. This work will be continued to restore wetlands and improve sheet flow.

Numerous drainage modifications within the Myakka watershed have been instituted for the conversion of lands to agricultural uses, to control flooding, and for transportation needs. Hydroperiod and the timing of water delivery are fundamental factors that determine natural community structure. Alterations of the natural hydrologic regime have had a negative impact on natural communities within the park and in adjacent conservation lands. Several DEP plans (FDNR 1986; DEP 1999; DEP 2004), the MWSR Management Plan (DEP 2011), as well as the Southwest Florida Water Management District (SWFWMD) Comprehensive Watershed Management Plan (2004) and Charlotte Harbor National Estuary Program Comprehensive Conservation and Management Plan (CHNEP 2013) have all identified specific hydrologic alterations in the Myakka watershed for study and potential restoration.

Starting from the northern part of the watershed, the historic alterations of the natural hydrologic regime that most impact the park include: dry season inputs into Flatford Swamp; the dikes draining Tatum Sawgrass Marsh; the County Road 780 bridge and causeway; the Clay Gully diversion; the dikes at Hidden River; the inputs from Howard Creek; the dike separating Upper Myakka Lake from Vanderipe Slough; the concrete weir where the Myakka River exits the Upper Myakka Lake; the State Road 72 bridge, causeway, and drainage ditches; the railroad grade; ditching and the dike on Deer Prairie Slough; and Down's Dam on the Myakka River near the southern boundary of the park.

Changes to land use starting in the late 1970s have led to increased water inflows to Flatford Swamp, and while relatively distant, produce negative impacts downstream into the park. In a report prepared for the SWFWMD, *Tree Mortality Assessment of the Upper Myakka River Watershed* (Coastal Environmental 1998), researchers assigned the cause of a large tree mortality event in the Upper Myakka River Basin and Flatford Swamp to hydrological stress. This stress was identified as being from an increase in seasonal highwater levels and longer seasonal hydroperiods. The primary contributor was subsurface seepage generated from agricultural irrigation which caused an excess base flow to the swamp. In 1998, the zone of potentially abnormal mortality and stress (area with dead trees) in the Upper Myakka River Watershed (100-year floodplain from State Road 64 downstream to State Road 72) covered approximately 3,740 acres, or about 25 percent. An *Assessment of Tree Conditions in Myakka River State Park* (Ford and Brooks 2000) reported that the increased flows in the Upper Myakka Watershed were causing stress and mortality in trees within the park, most notably upstream of the weir at the outflow of the Upper Myakka Lake. Beyond the tree morality issue, the increased input of water during the dry season has drastically reduced the number "no flow" periods and changed the water chemistry through the addition of mineralized groundwater. These changes have had impacts to natural communities well beyond the river banks and slough systems.

Tatum Sawgrass Marsh was modified by 1974 via a series of dikes to divert water away from the marsh to create agricultural lands and control flooding. Tatum Sawgrass is extremely important as a holding basin during periods of heavy rainfall. It has the capacity to store an equivalent of 1.8 inches of rainfall, which is four times that of the Upper and Lower Myakka Lakes combined. The results of the Tatum Sawgrass diking have reduced the storage capacity of the marsh and increased the potential of downstream flooding by diverting water away from the marsh. As a result of the dike system, flood-peak discharges and flood heights having recurrence intervals of up to 25 years are increased, and approximately 1,200 additional acres along the Myakka River may be flooded during two-year flood conditions. In addition, a 19 percent increase in flood-peak discharge at the County Road 780 Bridge may occur, and a 0.8-foot increase in flood height can result (Hammett et al. 1978).

The raised berm (causeway) for the approach road and associated bridge at County Road 780 over the Myakka River constrict flow south of the Tatum Sawgrass area

especially during peak flow events. Duever and McCollom (1990) note the large width of river floodplain and potential for flow reduction at these points could lead to adverse impacts to natural communities. They also suggest changes are likely minor and localized. There is a potential for future study to determine what hydrologic effects this structure has and what, if any, modifications could be made to enhance hydrologic functions. Sarasota County is scheduled to finish the replacement of the old dilapidated bridge by the Spring of 2018.

Clay Gully was originally a slough system that was ditched to increase drainage around 1900 (Suau 2005). A more formal diversion was constructed in 1949 after it was recommended by Robert Angas in his 1945 *Engineering Report to Florida Forest and Park Service*. The resulting project diverts much of the normal flow of the river through Clay Gully and into Upper Myakka Lake at its northeast corner. Based on measurements made during a UGSG study, 35 percent of the flow goes directly into the lake, bypassing Tatum Sawgrass Marsh (Hammett et al. 1978). This has hastened vegetation changes in the bypassed section of the river, which now stays dry almost half of the year between its juncture with Clay Gully and the point where it enters the Upper Myakka Lake (FDNR 1986).

The dikes at the Hidden River community were originally installed in 1958 to exclude water from the Myakka River to create pasture for cattle. The result of the dikes is increased water input in the Upper Myakka River Watershed via the Myakka River that would have historically flowed into adjacent marsh and bottomlands communities. In 1966, it was platted for a residential community (Suau 2005). The proximity and history of flood issues in the Hidden River community make potential return to the natural hydrologic regime unlikely.

Beginning in the 1950s, land clearing activities in the Howard Creek area for agriculture, and later increases in irrigation have had a net result of increased water input to Upper Myakka Lake. Treated reclaimed wastewater has been used to irrigate several thousand acres of agricultural operations starting in the 1990s (Suau 2005) and continues to the present. Howard Creek discharges into the western tip of Upper Myakka Lake at the western park boundary close to Vanderipe Slough.

A 1,000-foot earthen dike separating Upper Myakka Lake from Vanderipe Slough was constructed by the Civilian Conservation Corps (CCC) and completed around 1940. The structure's purpose was to prevent water from the lake from entering the slough (Historic Property Associates 1989). Due to concerns that excess water from the Upper Myakka Lake was damaging adjacent pasturelands, it was suggested by Robert Angas (1945) that the dike be extended, which was completed in the late 1950s. Resulting impacts from dikes included redirected flow of Howard Creek from Vanderipe Slough into the Upper Myakka Lake.

In 1937-38, the CCC constructed a weir at the main outflow to the Upper Myakka Lake (Historic Property Associates 1989). Flippo and Joyner (1968) reported that in spring 1941 a low concrete weir replaced the previous CCC structure that had been partially washed out. These alternations to the natural hydrology were conducted to

retain water in the Upper Myakka Lake to enhance sport fishing and recreational boating. While certain features may have been enhanced, there were also unintended consequences to plant and animal communities.

The Upper Myakka Lake Weir was bypassed by culverts in November 1974. Six 60-inch culverts were installed just southeast of the dam with the primary purpose of controlling invasive exotic plants in the lake by periodic drawdown (Suau 2005). Since 1979, the culverts have generally been kept open, restricting little to no water flow. In the past, the culvert openings were restricted to slow the flow through the bypass during the dry season, which was perceived to extend the period of operation of the concession airboats. In May of 2016 there was a wash out associated with bypass culverts leaving a 10-foot opening on the east side. Efforts to work with the SWFWMD and FWC to assist in funding a feasibility study of restoration options is underway which ideally would include the adjacent weir as directed in previous Unit Management Plans.

As with County Road 780, State Road 72 and its associated bridges impede natural hydrologic flow. Beginning in late 2006 and continuing through April 2010, four bridges were replaced or improved, including those over Vanderipe Slough, Myakka River, and Deer Prairie Slough. Some efforts were made to improve hydrologic functions, including sheet flow, flood conveyance as well as enhanced stormwater treatment and wildlife crossings. There may be opportunities to improve these functions in the future.

While relatively minor, it is worth mentioning that some remnants from an earthen dam at the south end of the Lower Myakka Lake still exist. Water movement at this point may be near pre-alteration conditions, but some bottleneck effect may be present from the remaining earthen structure on either side. No research has been done on the existing condition and effects of the earthen dam on hydrology. Flippo and Joyner (1968) only mention in passing that the lower lake was dry in 1945 before the structure was in place and “dry in 1950, after the earthen dam at its outlet had washed out.”

Near the south park boundary, a privately constructed dam was built in 1942, locally known as Downs' Dam. During much of the year, this dam can effectively retain water levels upstream above their natural levels, acting as an obstacle to the movement of fish such as American eel (*Anguilla rostrata*), striped mullet (*Mugil cephalus*), Atlantic tarpon (*Megalops atlanticus*), and common snook (*Centropomus undecimalis*). These species may be found in Lower Myakka Lake following prolonged periods of high water. The degree of the dam’s impact is unknown, but may be considered a negative influence on the Myakka River system (FDNR 1986). Since 2012, during high water events, Florida manatees (*Trechichus manatus latirostris*) have been observed regularly in the park north of Downs’ Dam in both the Lower and Upper Myakka Lakes and river. In January 2014, as the water receded, a juvenile manatee stranding occurred on the north side of Downs’ Dam. This led to a discussion of the potential impact this and other structures have on movement of manatees within the park. The dam has a 5-foot-wide by 4-foot-tall notch that was historically used as a gate capable of retaining approximately 4 feet

of water. The owner has agreed to leave the gate open for the time being. Although this does not eliminate the hazard of manatee stranding posed by the dam, it may help.

The railroad grade was constructed from Nocatee (just south of Arcadia) to Sarasota during a 20-year period beginning in 1904. Using heavy equipment, ditches were dug on either side of the railroad to provide fill for the grade. The project was later abandoned, and the railroad company salvaged the structural components during the 1940s. A permanent easement for power transmission lines along the park's western three miles of the abandoned railroad grade was granted in 1949. The elevated grade and associated ditches may hinder sheet flow across the dry prairie. In 1999, a pilot project to lower three miles of the eastern portion of the railroad grade was completed. In 2002, an additional 2.5 miles of the railroad grade were lowered. Soft low-water crossings were established in areas along Railroad Grade that had washouts during high rain events. The projects have proved to be a success, allowing water to move via natural sheet flow from the north to south of Railroad Grade.

The east side of the park drains primarily through Deer Prairie Slough and to a lesser extent through Mud Lake Slough and Big Slough Canal. Deer Prairie Slough enters the Myakka River approximately 11 miles below the park. Channelization of this slough during the last 50 years has altered local surface water flow patterns and resulted in shorter hydroperiods in nearby wetlands. At the north end of this slough where it enters the park, upland ditches also connect to the channelized slough. At the southern border of the park, a dike with culverts was constructed in the 1970s to compensate for the effects of channelization in the slough. In 2001-2002 Sarasota County through a cooperative effort with SWFWMD completed a restoration project south of the park that backfilled approximately 8.4 miles of ditching in Deer Prairie Slough to approximate historic pre-ditching hydrology and improved habitat value.

Additional information on hydrologic alterations and their potential impacts including those that take place below the park boundary can be found in the MWSR Management Plan (2011). As indicated previously, many agency and watershed management comprehensive plans identify the need to study these human alterations, and to look at potential restoration to a more natural hydrological regime, as a priority.

The SWFWMD evaluated potential projects to restore a more natural hydrologic regime as a part of the *Myakka River Watershed Initiatives (MRWI): Restoration Best Management Practices Evaluation Report* (2013). The study covers several specific manmade alterations that impact the park, including Flatford Swamp, the Clay Gully diversion, and the Upper Myakka Lake Weir. Using previous District models, the study examined different alternatives to create more natural hydrologic conditions. The District has no plans to pursue any of these projects at this time, except for continued study of Flatford Swamp restoration options. The March 2013 *Flatford Swamp Hydrologic Restoration Feasibility Study* explores alternatives for the transfer of excess water from Flatford Swamp to help restore Flatford Swamp

and the Myakka River. A pilot project is being considered to pump excess water from Flatford Swamp into the Floridan Aquifer. Results of test pumping will determine the long-term feasibility of the proposal. DRP will continue to work with SWFWMD and other agencies on the potential restoration of altered natural hydrologic systems.

Assessments and actions related to improving the hydrology in the park are listed in the Natural Resource Management Section of this plan. Several hydrologic alterations are proposed for assessment including the weir and bypass culverts on the Upper Myakka Lake, ditch plugging/filling in wetlands and dry prairie, and effects of the dam near the south park boundary on natural resources.

Water Quality

The Myakka River is designated as Class I waters (potable water supplies) from the Manatee County line to Border Road Bridge at river mile 20. As indicated earlier, the portions within the park are also designated as a Wild and Scenic River and as an Outstanding Florida Water. All other surface waters in the park are designated Class III (recreation; propagation and management of fish and wildlife).

The Myakka River Watershed generally has good water quality and supports productive freshwater and estuarine habitats. However, the river is naturally sluggish, often with no net flow during the dry season. Dissolved oxygen levels are typically low. Part of the upper basin drains phosphate-rich areas, which, combined with agricultural and rangeland runoff, elevate the river's nutrient levels. Upper Myakka Lake is eutrophic with low concentrations of dissolved oxygen.

Water quality within the Myakka River varies seasonally. During the wet season when streamflow is mainly surface runoff, specific conductance is lowest and color is darkest. The brown color of the river water is the result of humic, fulvic, and tannic acids from drainage of floodplain swamps. Nutrient concentrations and coliform concentrations tend to increase with increased surface runoff. Dissolved oxygen concentrations are generally higher during the low-flow period. During high-flow periods, dissolved oxygen concentrations are lower due to the input of oxygen-demanding organics included in runoff. Water quality during the dry season may be measurably affected by limited groundwater contributions to base flow and the runoff of groundwater utilized for agricultural irrigation.

Potential sources of nutrient and pollution loads in the Myakka River watershed are generally nonpoint sources. These sources of high nutrients and pollution may include agricultural and rangeland runoff, phosphate mining in the upper watershed, residential areas and related septic tank drain fields, landfills, golf courses, bio-solids and effluent disposal, and other sources of stormwater runoff.

Sarasota County is taking monthly water quality samples from 11 sites throughout the watershed including five sites in the Myakka River.

The Myakka River is on the Florida Department of Environmental Protection's (FDEP) Group 3 Verified Impaired Waters List for Total Maximum Daily Loads

(TMDLs). TMDLs may be forthcoming for various segments of the river for the following parameters: Fecal Coliform, Dissolved Oxygen (DO), Iron, (Fe), and Nutrients. In late 2013 FDEP issued a state-wide TMDL for Mercury in fish tissue. The EPA published a TDML for nutrients for both Owen Creek and Myakka River (WBID 1981B) in March 2013. WBID 1981B is the river section between the Upper Myakka Lake and Lower Myakka Lakes, and a central feature of the park.

The October 2016 FDEP produced a Final List of Assessments in the Group 3 Basins for the Verified List of Impaired Waters. This updated document listed a dozen impairments for waterbodies above or contained within the park in addition to seven in the tidal Myakka River that may have an indirect impact to park resources. Most notable on the updated list are impairments to Howard Creek and Clay Gully which both enter the Upper Myakka Lake. The Upper Myakka Lake (WBID 1981C) is on the list with a nutrient (total Phosphorus) impairment, accompanied by the river section immediately south (WBID 1981B) for nutrient impairments as well. In the 2015 FDEP framework priority document it outlines a schedule that priority impairments be assessed for establishment of TMDLs for Group 3 Impaired Waters starting in 2017.

From 1998 to 2005 (SWFWMD 2005; Charlotte Harbor Environmental Center Inc. 2008), the Myakka River near Sarasota showed statistically significant trends of increasing dry season discharge, annual runoff, annual average nitrite + nitrate, annual average ammonia, and specific conductance, while annual total nitrogen, total organic carbon decreased significantly throughout the watershed. The increases in specific conductance and monthly stream discharge probably resulted from the increased runoff associated with irrigation. Although only a 1 percent increase in agricultural lands has occurred since 1972, a shift from agricultural uses requiring less water (rangeland) to agricultural uses requiring more irrigation (row crops) may have resulted in an increase in runoff and dry season discharge (SWFWMD 2005). The primary source of irrigation water in the watershed is groundwater, which has higher concentrations of chloride, sulfate, and dissolved solids than does surface water. Irrigation water effects are primarily seasonal, with the greatest quantities of water utilized during the dry season (Hammett 1988).

In general, Upper Myakka Lake has been characterized as a highly disturbed ecological system with excessive nutrient concentration. The lake has experienced numerous dissolved oxygen concentrations below the DEP state standards (Chapter 62-302, FAC) primarily during warmer months, and there is a general lack of dissolved oxygen just above the organic sediments of the lake. Total nitrogen in the lake has been found to peak following periods of high inflow from tributaries and following the application of herbicides for the control of aquatic weeds. Lake water quality is influenced primarily from nonpoint source loads contributed by tributary loading (Priede-Sedgewick, Inc. 1983).

Both Upper and Lower Myakka Lakes and the river between the lakes have had an extensive exotic aquatic vegetation problem in the past. With continued efforts made by SWFWMD, the aquatic weed problem has been controlled in both lakes. The base flow of streams in the Myakka watershed is principally controlled by the

permeability and porosity of the surficial deposits, the interrelations among these deposits and older underlying beds, the relative elevations of the water table and the water surface elevation in streams, soil moisture conditions and evapotranspiration rates, man-induced alterations to drainage systems and water use, and the time distribution of precipitation. The streamflow of the Myakka River is highly variable and mostly dependent on surface runoff during the rainy season.

Groundwater

In the Myakka River watershed, the groundwater system is divided into three main aquifers: Surficial Aquifer, Intermediate Aquifer system, and the Floridan Aquifer system. The Upper Floridan Aquifer system is the principal source of groundwater in Florida. However, the use of this water source in the Myakka River Watershed is generally restricted because of poor water quality. Large withdrawals of water are made from the Upper Floridan Aquifer system and used primarily for agricultural irrigation and large public supplies. Recharge rates of the Upper Floridan Aquifer system are low in this region, and no recharge occurs along the Myakka River.

The water of the Intermediate Aquifer system is generally within DEP primary and secondary drinking water standards. Water quality is best in eastern Sarasota County and degrades towards the southwest and with depth. The Intermediate Aquifer is the most highly developed aquifer in this region and supplies most of the water used for domestic supply and home irrigation. For potable usage, the intermediate aquifer water frequently requires extensive treatment to reduce mineralization.

The uppermost aquifer is the Surficial Aquifer, which generally varies from less than 25 to more than 50 feet in thickness in Manatee County. In Sarasota County, many hundreds of wells tap the Surficial Aquifer, and are used to obtain water for domestic supply, lawn irrigation, and watering livestock. In Manatee County, the Surficial Aquifer is generally undeveloped as a water source and is used only in small volumes for domestic supply, lawn irrigation, and watering livestock. The Surficial Aquifer as a water supply source has low yields and may be limited by drought periods. It is, however, readily recharged by rainfall. It also has the greatest potential for contamination from surface sources (FDEP 2011).

The Myakka River is primarily rain-fed. There is minimal evidence that ground water significantly contributes to the flow of the river. Topography of the area is generally flat to gently sloping. Upland areas generally have a highwater table and poor drainage due to organic hardpan soils (SWFWMD 2004). The natural drainages within the Myakka River watershed are primarily sloughs which form a poorly developed drainage system. Most have small drainage basins, with short channel lengths. Many of the sloughs and swamps have been ditched and channelized to facilitate their drainage efficiency and reduce flooding of upland areas.

Natural Communities

This section of the management plan describes and assesses each of the natural communities found in the state park. It also describes the desired future condition

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

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

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

The park contains 12 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 Appendix 5.

Dry Prairie

Desired future condition: Florida dry prairie will be nearly treeless shrub-grassland with species-rich, herbaceous ground cover. The dry prairie will contain high plant diversity with the bulk of species present being herbaceous and low-growing. The species per square meter will range from 16 to 40 species. Shrub height will range between one and four feet, the majority of shrubs growing less than two feet tall. Shrub height greater than three feet may occur naturally along wetland edges, hammock borders or in small patches of less than 1/2 acre, very widely spaced over the landscape. Woody species cover will range from 10 to 50 percent. There will be few, if any, large trunks of saw palmetto (*Serenoa repens*) along the ground.

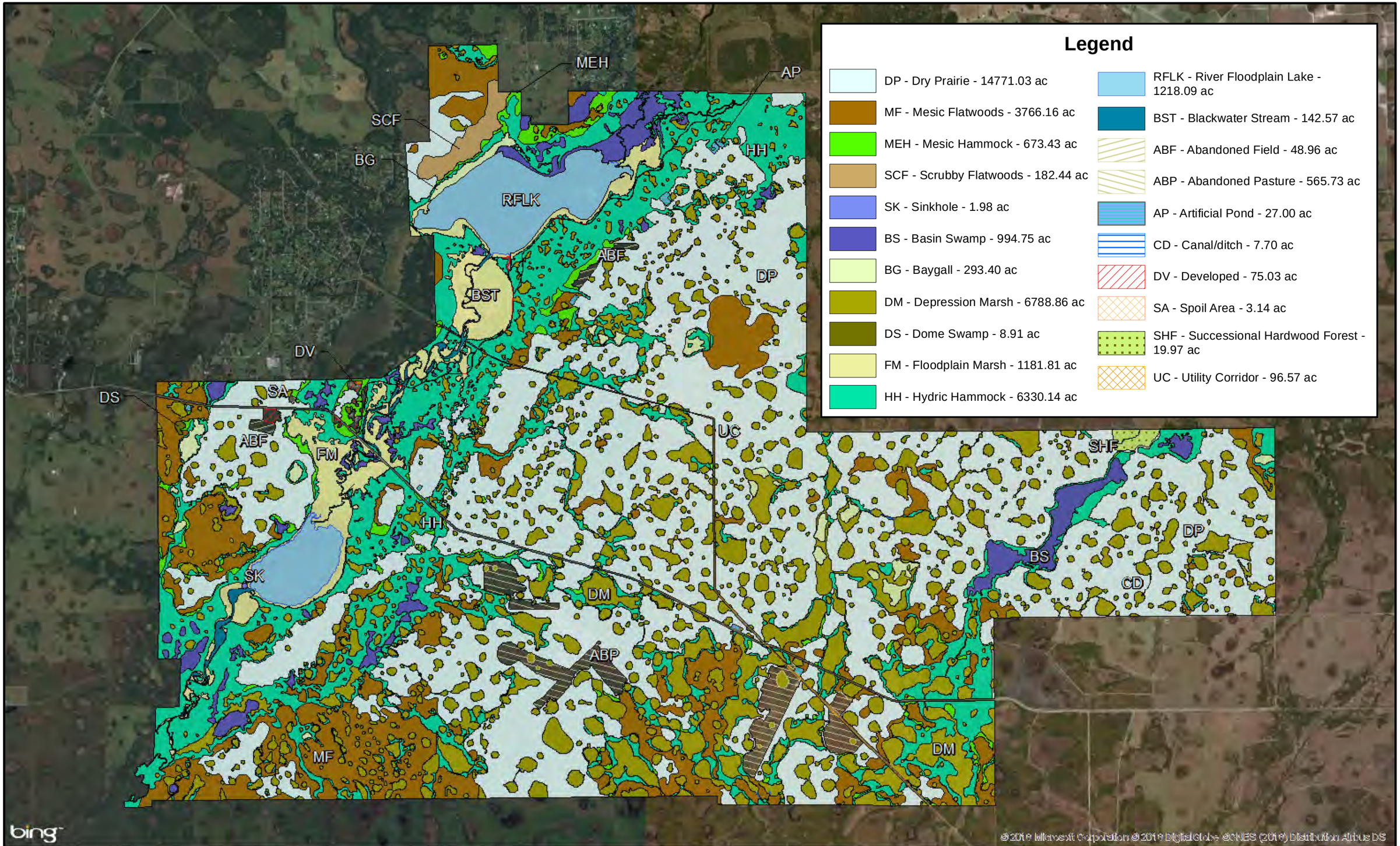
South Florida slash pine (*Pinus elliottii* var*. densa*) may also be present but in extremely low densities. This corresponds with historical prairie descriptions such as those by Roland Harper (1927) and with research conducted by Steve Orzell and Edwin Bridges (1999). The desired future condition is to increase the cover of herbaceous plants while reducing the cover of shrubs, allowing for a fire return interval of one to two years. Coverage of invasive exotic plant species will be less than one percent. Based on the FNAI recommended range for dry prairie the desired future conditions, are as follows:

- Pine basal area: 0 sq. feet per acre
- Average maximum shrub height: <2 feet
- Shrub cover: 5-30 percent
- Average maximum palmetto height: <1.5 feet
- Palmetto cover: 5-20 percent
- Herbaceous/grass cover: >35 percent

Description and assessment: The most extensive community type at the park is considered a globally imperiled habitat (FNAI 2010). It is characterized by low, flat topography and relatively poorly drained, acidic, sandy soil sometimes underlain by an organic horizon (Myers and Ewel 1990). The current composition of flora in the Florida dry prairie at the park is dominated by saw palmetto and shrubs such as gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), and low-lying blueberries (*Vaccinium* spp.) intermixed with various grasses (*Andropogon*, *Aristida* and *Eragrostis* spp.) and many forbs including slender flat-top goldenrod (*Euthamia caroliniana*), purple false foxglove (*Agalinis purpurea*), a variety of goldenrod species (*Solidago* spp.) and several chaffhead species (*Carphephorus* spp.).

Fire was actively excluded or suppressed in the park between 1936 and 1976, degrading the Florida dry prairie in varying degrees. As a result, oaks and South Florida slash pine have become established in the Florida dry prairie, and overall tree and shrub density has increased (Huffman and Blanchard 1991). Some dormant season (winter) burns were introduced to the park in 1974 in Big Flats Marsh and into the dry prairie/mesic flatwoods communities in 1976, and growing season (April-August) burns were initiated in 1980. Shrub height has decreased considerably since the reintroduction of fire, but shrub density is thicker than desired. The fuel conditions in most of the dry prairie will support fire after 18-20 months, however as grass and herbaceous groundcover increases, a fire return interval of one to two years is desired.

Fire exclusion, altered hydrology, planting offsite North Florida slash pines (*Pinus elliottii* var. *elliottii*), and introduction of invasive exotic plants and animals have degraded the Florida dry prairie at the park. The bedding activities associated with the pine plantations and ditching to drain wetlands in the 1920s and 1930s changed the flow of water and the duration of inundation. Pine plantations introduced offsite trees to an area where few to no trees should exist. The pine plantations have been harvested over the years, but a small remnant of North Florida slash pine that were too young to harvest were in zone 1B. Most of these remaining trees were mowed



Legend

- DP - Dry Prairie - 14771.03 ac
- MF - Mesic Flatwoods - 3766.16 ac
- MEH - Mesic Hammock - 673.43 ac
- SCF - Scrubby Flatwoods - 182.44 ac
- SK - Sinkhole - 1.98 ac
- BS - Basin Swamp - 994.75 ac
- BG - Baygall - 293.40 ac
- DM - Depression Marsh - 6788.86 ac
- DS - Dome Swamp - 8.91 ac
- FM - Floodplain Marsh - 1181.81 ac
- HH - Hydric Hammock - 6330.14 ac
- RFLK - River Floodplain Lake - 1218.09 ac
- BST - Blackwater Stream - 142.57 ac
- ABF - Abandoned Field - 48.96 ac
- ABP - Abandoned Pasture - 565.73 ac
- AP - Artificial Pond - 27.00 ac
- CD - Canal/ditch - 7.70 ac
- DV - Developed - 75.03 ac
- SA - Spoil Area - 3.14 ac
- SHF - Successional Hardwood Forest - 19.97 ac
- UC - Utility Corridor - 96.57 ac

MYAKKA RIVER STATE PARK

N

0 0.5 1 2 Miles

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

NATURAL COMMUNITIES MAP

with a tree cutter, and any remaining offsite trees will be cut, and additional recruitment monitored.

Mechanical treatment has reduced competition of light and encouraged the growth of native grasses and forbs. However, the increased occurrence of invasive exotic plants and animals including cogon grass (*Imperata cylindrica*), feral hogs, and red imported fire ants (*Solenopsis invicta*) have negatively impacted the dry prairie.

The alterations to plant composition through the historic suppression of fire, development of pine plantations, and numerous drainage projects caused a loss of prairie animal species such as the crested caracara (*Caracara cheriway*) and the Florida burrowing owl (*Athene cunicularia floridana*) at the park. These two species are only found east of the Mississippi River in Florida. Both species can be found in healthy dry prairie habitat and during the 1930s and 1940s were common at the park. Although they have not made a complete recovery, in recent years both the crested caracara and the Florida burrowing owl have been observed in the park. Other listed species, including the eastern indigo snake (*Drymarchon couperi*) and gopher tortoise (*Gopherus polyphemus*), find favorable habitat in this community. The indigo snake has not been observed recently in the park.

Although there is great variation in the condition of the Florida dry prairie (from poor to good), the overall condition is considered fair.

FNAI identifies Myakka as an exemplary site for dry prairie (FNAI 2010), and has a reference site located at the park (FNAI 2009).

General management measures: Prescribed fire will continue between January and July, with the brunt of it conducted from April through July. The current fire return interval is typically between 20 to 36 months with emphasis on the lightning season, but as fuel conditions improve will be shifted towards a more desirable one to two-year frequency.

Mechanical treatment, including roller chopping and brush-cut mowing, will continue to reduce the coverage and density of shrubs, hardwood trees and saw palmetto to optimal conditions. In addition, where feasible, improving the hydrology of the dry prairie will continue. Sheet flow will be restored by removing manmade ditches that alter the dry prairie's natural drainage and hydroperiods. Remaining offsite North Florida slash pines will be monitored for additional recruitment and removed.

An aggressive survey and treatment (management) program for invasive exotic plants will continue. Damage caused by feral hogs will be lessened by reducing their population through contract trapping and other methods.

Mesic Flatwoods

Desired future condition: Florida mesic flatwoods have the third highest plant diversity in South Florida with 457 native plant species recorded (USFWS 1999).

The canopy coverage of mature mesic flatwoods ranges from 10 to 80 percent (Wade and Hofstetter 1980). In the average Southwest Florida mesic flatwoods, mature pine trees typically attain 30-41 centimeters (12-16 inches) diameter at breast height (DBH), with 23-26 meters (75-85 feet) in height (Beever and Dryden 1998). Based on the FNAI recommended range for mesic flatwoods the desired future conditions, are as follows:

- Pine basal area: 10-50 sq. feet per acre
- Average maximum shrub height: <2 feet
- Shrub cover: <25 percent
- Average maximum palmetto height: ≤3 feet
- Palmetto cover: 10-25 percent
- Herbaceous/grass cover: >25 percent

Since the mesic flatwoods at the park is generally embedded within dry prairie, fire will be frequent with an optimal fire return interval consistent with that of the adjacent dry prairie of one to two years. Coverage of invasive exotic plant species will remain less than one percent.

Description and assessment: The condition of mesic flatwoods within the park ranges from poor to good, with most acreage in fair condition. The park's mesic flatwoods are similar in plant composition to dry prairie, but with a greater density of pines. Vegetation includes scattered South Florida slash pine and/or longleaf pine (*Pinus palustris*) with an understory of saw palmetto, gallberry, fetterbush, wax myrtle (*Morella cerifera*), winged sumac (*Rhus copallina*), wiregrass (*Aristida* spp.), and a variety of other grasses and herbaceous species. Mesic flatwoods generally occur in areas between 15 and 30 feet in elevation at the park. Myakka River State Park has two types of mesic flatwoods; one having South Florida slash as the dominant pine, and the other having longleaf pine as the dominant pine. Most of the South Florida slash mesic flatwoods are found south of State Road 72, within the designated wilderness preserve. The longleaf mesic flatwoods occur at Bee Island (35-40 feet ASL), at a small site on the north end of Deer Prairie Slough, and north of the Upper Myakka Lake.

During the summer, seasonal rains create extremely wet conditions. It is common to have several inches of water standing, or even flowing, during the late summer. In the longleaf pine site, standing water is less frequent. Historic hydrologic ditching has occurred in many of the areas containing mesic flatwoods, thus altering the sheet flow of water and the duration of inundation of water. This has increased the occurrence of invading hardwood trees into the mesic flatwoods.

As with the Florida dry prairie, fire was actively excluded or suppressed at the park between 1936 and 1976, degrading the mesic flatwoods in varying degrees. In the absence of fire, hardwood tree and shrub density increased, and grasses and forbs decreased. Without fire, pine seedlings which require bare mineral soil for germination, were unable to develop. Mature longleaf pine trees are also dying in the park due to lightning strikes, a frequent occurrence. Between 1995 and 2002, Bee Island lost approximately a dozen longleaf pine trees to lightning strikes per

year (Perry, personal observation 1997). Due to the previous 40 years of fire exclusion at the park, the reintroduction of frequent fires has reduced the saw palmetto height but not the density. This higher density increases the fire intensity and may reduce pine seed survival. Those seeds that do survive to become saplings usually succumb to hog rubbing. To compensate, in 2003 nearly 4,000 longleaf seedlings were hand planted in zones 1A, 4B and 5B.

In addition to changes in hydrology and fire frequency, the invasion of exotic plants and animals has stressed the mesic flatwoods. FLEPPC category I plants including cogon grass, and Caesarweed (*Arena lobata*) have invaded the mesic flatwoods. Feral hogs have rooted the vegetation, reduced pine recruitment, and altered the route of fire and water.

FNAI identifies Myakka as an exemplary site for mesic flatwoods (FNAI 2010), and has a reference site located at the park (FNAI 2009).

General management measures: Continue the prescribed fire program for the mesic flatwoods with an emphasis on growing season fires, with fire return intervals consistent with the dry prairie of one to two years. Continue mechanical, or other methods to reduce the coverage and density of shrubs, hardwood trees and saw palmetto, to optimal conditions. Where feasible continue improving the hydrology of the mesic flatwoods by removing barriers to sheet flow, and by filling ditches that change the natural drainage and hydroperiods. Continue an aggressive survey and treatment (management) program for invasive exotic plants. Reduce the damage by feral hogs and improve longleaf pine recruitment by decreasing the hog population through contract trapping and other methods with an emphasis on the Bee Island area.

<u>Mesic Hammock - Prairie Mesic Hammocks</u>

Desired future condition: Prairie mesic hammocks are isolated stands of live oaks (*Quercus virginiana*), cabbage palms (*Sabal palmetto*) and saw palmettos within a matrix of pyrogenic vegetation. Prairie hammocks form along the fringe of freshwater wetlands and prairies. Prairie hammocks are often found in ecotones between wetlands and upland communities. Historically, such hammocks form on the lee (north) side of wetlands that are protected from fire carried by the dominant southerly winds.

The preferred desired future condition of prairie mesic hammock in the park is a canopy of oaks and cabbage palms, with a mix of smaller trees with little understory. The herb layer will be sparse or patchy and consists of various graminoids. Prairie mesic hammock will be open with small components of understory ringing the edge, and little ground cover except for leaf litter. Vines, although common, will not be thick. Abundant epiphytes will be found on live oaks and cabbage palms, as these are a characteristic feature of mesic hammocks. Invasive exotic plants will be less than three percent. Feral hog damage will be eliminated due to the reduction in the hog population through contract trapping and other methods.

Description and assessment: Typically, prairie hammocks consist of live oak, laurel oak (*Quercus laurifolia*), cabbage palm and are often ringed with saw palmetto. Many epiphytic plants are also common, including Spanish moss (*Tillandsia usneoides*), giant airplant (*Tillandsia utriculata*), golden polypody (*Phlebodium aureum*), shoestring fern (*Vittaria lineata*), resurrection fern (*Pleopeltis polypodioides*) and Florida butterfly orchid (*Encyclia tampensis*).

Populations of once abundant epiphytes, the giant airplant and cardinal airplant (*Tillandsia fasciculata*), have been reduced in the park's hammocks by Mexican bromeliad weevils (*Metamasius callizona*), which kills the larger species of airplants resulting in the airplants being listed as imperiled species.

Prairie mesic hammock in the park is characterized by a closed canopy of hardwood species, primarily live oak and cabbage palm, and by an open shrub layer and a sparse, species-poor herb layer. Herb diversity is frequently higher for epiphytes than for groundcover species. Conditions within the hammocks include dense leaf litter, high moisture levels in the litter layer, and higher humidity that make the community fire-resistant. Prairie mesic hammocks burn infrequently because of fire entering from adjacent fire-maintained communities. Infrequent, low-intensity fire is not detrimental to mesic hammocks; however, catastrophic fires, burning through in times of drought, may destroy some hammocks, which may then be invaded by weedy and exotic species (Alexander and Crook 1973).

Prairie mesic hammock at the park is typically found along the wetland to upland ecotone between the prairie hydric hammock of the Myakka River floodplain and other wetland communities and the mesic flatwoods or dry prairie. Isolated mesic hammocks can also be found in the fire shadow of depression marshes.

Due to 40 years of fire exclusion, most of these hammocks have expanded into the surrounding floodplain marsh, basin marsh or dry prairie and cover much more acreage than in 1948 (Huffman and Blanchard 1991). In the prolonged absence of fire in these and neighboring communities, a version of mesic hammock will expand into the adjacent community (pseudo mesic hammock), potentially reducing the fire frequency. Pseudo mesic hammocks that develop as the result of fire suppression and invasion into pyric communities usually contain species associated with the invaded community, such as saw palmetto or slash pine. The unnatural expansion due to lack of fire creates a dense hammock often with a thick understory that does not readily burn. Vines are common and often abundant, occasionally creating a solid groundcover in disturbed hammocks. There are several areas of pseudo mesic hammocks found adjacent to true prairie mesic hammock in the park.

As with many of South Florida's natural communities, the natural species diversity and composition in prairie mesic hammocks is threatened by the encroachment of exotic plant species. Exotic species compete with native plant species, including rare and endangered species, for light and nutrients and may completely overwhelm and eliminate entire vegetative strata within a plant community. Old World climbing fern has become established in a few prairie mesic hammocks. This

exotic plant creates ladder fuel which allows fire to travel into the canopy. Invasive Caesarweed is also commonly found in hammock, especially in areas where hogs have rooted and disturbed the soil. Feral hogs are common in prairie mesic hammocks, where they feed on acorns in the fall and winter or on roots and seedlings in other seasons. Feral hogs pose a threat to native wildlife such as Osceola wild turkey (*Meleagris gallopavo osceola*), white-tailed deer (*Odocoileus virginianus*), and Florida black bear (*Ursus americanus floridanus*) by intensely competing for mast, particularly during a year of mast failure. Their consumption of acorns, roots, and seedlings interferes with natural regeneration of trees and shrubs. Rooting by hogs severely disturbs soil structure and creates conditions that encourage exotic plant invasion. The rooting disturbance also alters the pattern of fire and hydrologic flow. Although there is considerable damage by hogs in this community, hammocks in the park are in good to excellent condition.

General management measures: Continue to mechanically treat the pseudo prairie mesic hammocks containing a dense understory with mowing, where fire alone has not reduced the hardwoods. It is preferred to mechanically treat at least two weeks prior to prescribed burning to allow for drying of the vegetation which will encourage the fire to penetrate deeper than it typically would. The unnatural expansion may be discouraged by removal of the hardwoods. To prevent new pseudo mesic hammock from developing, allow fire to penetrate the ecotone of the system. Continue an aggressive survey and treatment (management) program for invasive exotic plants. Decrease the damage caused by feral hogs by reducing their population through contract trapping and by other methods.

Scrubby Flatwoods

Desired future condition: Typical plants include longleaf pine, South Florida slash pine, myrtle oak (*Quercus myrtifolia*), saw palmetto, staggerbush (*Lyonia fruticosa*) and wiregrass. Scrubby flatwoods are inhabited by many of the same rare animal species found in scrub. These include Florida scrub-jay (*Aphelocoma coerulescens*), eastern indigo snake, gopher tortoise, and associated tortoise commensal species such as the gopher frog (*Lithobates capito*).

Natural fires rarely burn all this community at once, and create a mosaic of scrub habitat types with differing fire return intervals. Therefore, there is no single way a natural scrub or scrubby flatwoods should always appear. The desired condition is to keep the scrubby flatwoods suitable as early successional scrub-jay habitat with oaks and shrubs averaging less than 5.5 feet tall, and having less than two trees greater than 15 feet tall per acre. (FWC 2010).

Description and assessment: Scrubby flatwoods occur along a line of ridges running from northeast to southwest, just northwest of Upper Myakka Lake and small area north of Deer Prairie Slough and the Oak Grove primitive camping area. The site north of Upper Myakka Lake is an open-canopy forests having widely scattered pine trees, a sparse scrubby understory with small scrub oak pockets dispersed throughout, contiguous and even distribution of saw palmetto, and few small bare sand openings. Principal canopy species are longleaf pine and South Florida slash

pine. The shrub layer consists of one or more of the four scrub oaks: sand live oak (*Quercus geminata*), turkey oak (*Quercus laevis*), myrtle oak, and Chapman's oak (*Q. chapmanii*), with typical shrubs of mesic flatwoods including saw palmetto, gallberry, coastalplain staggerbush, fetterbush, and deerberry (*Vaccinium stamineum*). Grasses include wiregrass, broomsedge bluestem, and little bluestem (*Schizachyrium scoparium*); dwarf shrubs include dwarf live oak, dwarf huckleberry (*Gaylussacia dumosa*), gopher apple (*Licania michauxii*), and shiny blueberry (*Vaccinium myrsinites*). A variety of forbs, many typical of drier types of mesic flatwoods, are present, including coastalplain honeycomb-head (*Balduina angustifolia*), narrowleaf silkgrass (*Pityopsis graminifolia*), and Chapman's goldenrod (*Solidago odora* var. *chapmanii*). The small 5-10 acre area of scrubby flatwoods near the Oak Grove Campsite has a more continuous coverage of scrub oaks and shrubs, a lower percentage of saw palmetto, a few bluejack oak (*Quercus incana*) and scrub hickory (*Carya floridana*) in addition to the more prevalent myrtle and sand live oaks. There are also a few bare sand patches scattered in the area.

Much of the planted North Florida slash pine north of the Upper Myakka Lake was removed in 2011, with only remnants left in the northwest corner of zone 1A and the southwest corner of zone 1B, with most of these being mowed with a tree cutter in 2016. In 2003, longleaf pine seedlings were planted in the scrubby flatwoods in zone 1A.

Florida scrub-jays have historically resided north of Upper Myakka Lake. They were last observed in zone 1A in December 2005. The acreage of scrubby flatwoods at the park is not enough to sustain a population of scrub-jays long term, but could support a few families. Exotic plants such as cogon grass have invaded small areas of the scrubby flatwoods. The park's scrubby flatwoods are rated as being in fair to good condition.

General management measures: Prior to the maturation, the young North Florida slash on the northwest corner of zone 1A and the southwest corner of zone 1B, will be removed.

Since the scrubby flatwoods is embedded within the dry prairie the scrubby flatwoods will be treated with prescribed fire at the same interval as the adjacent dry prairie. This should allow it to burn in a mosaic fashion, allowing for a variation of number of years between fires. Most of the scrubby flatwoods will carry fire at an interval of 4 to 8 years. The exotic plants will continue to be monitored and treated as needed.

Basin Swamp

Desired future condition: The flow of water in the basin swamps will be unimpeded. The natural boundary of the basin swamps will return to pre-fire exclusion configurations. Fire will be allowed to burn from the adjacent pyric natural communities to the edge of the basin swamp. Coverage of invasive exotic plant species will be less than three percent. The invasion of Old World climbing fern

along the interior of the basins will be halted and if possible eliminated. There will be little to no damage or disturbance by feral hogs.

Description and assessment: The Park contains several basin swamps. Examples are Deer Prairie Slough, the largest, located in the eastern section of the park and Vanderipe Slough, located west of the park entrance. The Deer Prairie Slough basin includes some very large swamp tupelo (*Nyssa sylvatica* var. *biflora*), red maple (*Acer rubrum*), swamp bay (*Persea palustris*), cabbage palm, and other trees with an affinity for frequently flooded areas. The outer edge of the Deer Prairie Slough basin developed as a result of fire suppression in the marsh community, expanding beyond its natural boundaries. Therefore, with the continued burning effort, the outer edge will be pushed back to its historic boundaries. Basin swamps burn infrequently, perhaps once every 25 years, at which time the accumulated organic matter is reduced and the system can begin again if the natural hydrological pattern is maintained (Duever 1986). The Deer Prairie Slough basin swamp has not had fire infiltrate since the opening of the park, except for the southwest corner of the basin swamp in zone 8 which was impacted by fire in 2012.

Today, Deer Prairie Slough drains an area of approximately 33 square miles beginning north of Myakka River State Park through the Carlton Reserve, with a confluence with the Myakka River north of Warm Mineral Springs. Historically, it was a smaller system that joined other seasonal ponds only during periods of high water. South of the park, it was channelized during the 1950s for cattle grazing that significantly altered hydrological regimes and plant communities associated with it (Perry 1997). The slough was successfully restored south of the park by backfilling the channel in 2001-02.

Old World climbing fern and West Indian marshgrass (*Hymenachne amplexicaulis*) are established along portions of the Deer Prairie Slough basin swamp. Hogs forage in this community when there is no standing water in it. An invasive exotic insect, the Mexican bromeliad weevil (*Metamasius callizona*), has become established on native bromeliads, killing many of them in the tree canopy.

Basin swamp areas provide roosting and breeding sites for many wading birds at the park. Ibis, egret, and heron roosts may be found along the southern shore of the Lower Myakka Lake and the northeast shore of Upper Myakka Lake. A large rookery area in Deer Prairie Slough, inactive for many years in the 1970s, is again being used by herons and egrets, although in lesser numbers. Basin swamps in the park are presently in good to excellent condition.

General management measures: Exotic plants including Old World climbing fern and West Indian marshgrass along the interior of the slough and cogongrass on the edge of the basin swamp are monitored and treated yearly when possible. The water flow is somewhat constricted by Railroad Grade and the road that separates zones 9B and 24A. Impediments from the park roads will be addressed with best management practices which may include, but are not limited to installation of additional culverts. Fire will continue to be utilized to control the expansion of basin swamp associated vegetation beyond its natural boundaries.

Baygall

Desired future condition: A baygall is a forested, peat-filled seepage depression at the base of sandy slopes, edges of floodplains, and in stagnant drainages. Deep peat soils and seepage from uplands or adjacent wetlands work to maintain a constantly saturated but rarely flooded environment. Constant damp conditions limit decomposition of organic material, which in turn keeps available nutrient levels low (FNAI 2010). They are dominated by sweetbay (*Magnolia virginiana*), swamp bay, and loblolly bay (*Gordonia lasianthus*) with an understory of shrubs, ferns, and sphagnum moss. The dominant baygall species are fire-intolerant, and a mature canopy indicates the lack of destructive fire for many years.

Although, the saturated soils and humid conditions within baygalls typically inhibit fire, droughts may create conditions that allow them to burn catastrophically (FNAI 2010).

Baygalls will have intact soils and peat layers, with little to no damage or disturbance by feral hogs. There will be no hydrologic alterations that reduce soil and peat saturation. The coverage of invasive exotic plants will be less than three percent.

Description and assessment: There are a few small areas of baygall in the park. The largest baygall is located on the northwest slope of the basin in which Upper Myakka Lake lies. The baygalls of Myakka River State Park possess an open to dense tree canopy containing loblolly bay, sweetbay, red maple, and/or swamp bay. The understory is comprised of fetterbush, dahoon holly (*Ilex cassine*), wax myrtle, and/or Virginia willow (*Itea virginica*). Vines, especially laurel greenbrier (*Smilax laurifolia*), coral greenbrier (*S. walteri*), and muscadine (*Vitis rotundifolia*), may be abundant and contribute to the often-impenetrable nature of the understory. Herbs are absent or few, and typically consist of ferns such as cinnamon fern (*Osmunda cinnamomea*), netted chain fern (*Woodwardia areolata*), and Virginia chain fern (*W. virginica*). Sphagnum mosses (*Sphagnum* spp.) are common.

Rooting by feral hogs has caused damage to the substrate, which may impede successful tree recruitment. Because of the hog damage to this community, it is only in fair condition.

General management measures: As with other wetlands, baygall communities are best managed with a landscape level focus on maintaining high quality adjacent natural uplands and upland-wetland ecotones. When possible, fires from adjacent communities should be allowed to extinguish naturally at the edges of the baygall to prevent encroachment of bay species into other communities and to maintain open, grassy wetland/upland ecotones (FNAI 2010). The maintenance of natural hydrology is critical to wetland communities, therefore if there are future impediments, they will be addressed with best management practices. Invasive exotic plants will continue to be monitored and treated. Feral hogs will be removed from the system whenever possible.

Depression Marsh

Desired future condition: Depression marshes typically occur in landscapes occupied by fire-maintained matrix communities such as mesic flatwoods, dry prairie, or sandhill. The concentric zones or bands of vegetation are related to length of the hydroperiod and depth of flooding. Depression marshes usually derive most, if not all, of their water from runoff from the immediately surrounding uplands. They have a normal hydroperiod of 50 to 200 days. Periodic fires, typically at the frequency of adjacent upland pyric natural communities, maintain these seasonally wet depressions by inhibiting invasion by trees and shrubs (FNAI 2010). Without fire, tree invasion and peat accumulation would convert a depression marsh into a forested wetland.

Description and assessment: The depression marshes in the park may be inundated seasonally or year-round by precipitation. They are typically shallow, generally round, or elliptical depressions and may be vegetated with concentric bands of hydrophytic herbaceous plants. Depending upon the depth and slope of the depression, an open water zone with or without floating plants may occur at the center. Within the park, the character and plant communities of the thousands of marshes, both large and small, are directly governed by the depth and extent of the solution features they occupy and the porosity of the soil. Vegetation associated with the park's herbaceous wetlands includes pickerelweed (*Pontederia cordata*), maidencane (*Panicum hemitomon*), sandweed (*Hypericum fasciculatum*), sawgrass (*Cladium jamaicense*), various sagittaria (*Sagittaria* spp.), spatterdock (*Nuphar advena*), Tracy's beaksedge (*Rhynchospora tracyi*), and rosy camphorweed (*Pluchea baccharis*). Several species of frogs and salamanders breed regularly in depression marshes, and these constitute an important part of the food supply of wading birds and snakes, including the rare eastern indigo snake. Other rare species using this habitat include the Florida sandhill crane (*Grus canadensis pratensis*) and round-tailed muskrat (*Neofiber alleni*). Wading birds, in addition to feeding in depression marshes, use clumps of willows or other trees in the center for roosting or nesting (FNAI 2010).

For the most part, the depression marshes in the park are in fair to excellent condition with a very small portion in poor condition. The depression marshes assessed as poor have had fire excluded in the past, allowing woody species to invade. In addition to the woody invasion, invasive exotic plants including torpedograss (*Panicum repens*), Peruvian primrose willow (*Ludwigia peruviana*), and West Indian marshgrass have been established. Invasive plant incursion has been made easier due to ground disturbance by feral hogs.

In the 1900s, several depression marshes fell victim to ditching, which was meant to drain the wetlands for additional cattle grazing or mosquito control. Within the last 10 years, many of the ditches have been filled or blocked, allowing for a more natural hydroperiod of the wetlands and hydrologic sheet flow over the landscape during the rainy season. Many ditches still require filling or plugging to repair the natural hydroperiod of the marshes.

Several depression marshes (approximately three acres total) within the park were planted with bald cypress (*Taxodium distichum*) by the CCC. Four of these sites are expected to be restored to depression marshes with repeated treatment by fire. The sixth site is unlikely to expand due to its location within the prairie hammock north of Ranch House Road.

General management measures: Fires in surrounding communities are allowed to burn into depression marshes and extinguish naturally or burn through them. To maintain desired conditions of depression marshes, they should occasionally be burned under drought conditions, which will require exemption to drought burning restrictions. Invasive exotic plants are monitored and treated. New methods of treatment of deeper interior infested sites are being explored. Any remaining ditches that drain the wetlands and alter the hydroperiod are to be filled or blocked where feasible.

Dome Swamp

Desired future condition: The characteristic dome shape is created by smaller trees that grow in the shallower waters of the outer edge, while taller trees grow in the deeper water in the interior of the swamp (FNAI 2010). The dome swamp will have an open understory devoid of all exotic grasses and a re-establishment of bald cypress trees *(Taxodium distichum)* in the interior as well as around the perimeter.

Description and assessment: Six depression marshes (approximately three acres total) within the park were planted with off-site bald cypress by the CCC. Three of the sites have formed domes. The most significant dome is south of State Road 72 along a historic pioneer trail. Its natural occurrence is questionable, although it was present prior to 1940 and the trees appear to be randomly distributed. Prior to 2008, the cypress dome interior had not burned in more than 30 years. In 2008, a prescribed fire burned through the dome, which was not holding water. The fire scorch reached up to 15 feet on several bald cypress. The duff continued to burn for more than a week. The fire along with an extended period of drought had a negative effect on the dome, killing many trees in the interior. West Indian marshgrass became established and is currently found throughout the dome. Fortunately, the Jameson's waterlily (*Nymphaea jamesoniana*), listed as state endangered, was not impacted by the fire. This dome is in poor condition.

General management measures: Treat West Indian marshgrass and all other invasive exotics. Allow fires to burn the perimeter when adequate soil moisture or water is in the interior of the dome to prevent a duff or muck fire.

Floodplain Marsh

Desired future condition: Floodplain marsh is a wetland community occurring in river floodplains and is dominated by herbaceous vegetation and/or shrubs. Sand cordgrass (*Spartina bakeri*), barnyard grass (*Echinochloa* spp.), maidencane, smartweed (*Polygonum* spp.), and tickseed (*Coreopsis* spp.) are common

dominants, but various other herbs may be found distributed along a hydrologic gradient. Broadleaf emergents and floating plants, particularly bulltongue arrowhead (*Sagittaria lancifolia*), bladderworts (*Utricularia* spp.), and pickerelweed occupy the deepest, most frequently flooded sites, and mixed herbaceous stands are found in the somewhat higher portions of the marsh. While the progression from high to low marsh occurs generally from the upland edge to the river edge, these vegetation patches may also be scattered throughout the marsh, which provides a diversity of habitats beneficial to wildlife. Floodplain marsh will contain less than five percent invasive exotic plants.

Description and assessment: Floodplain marsh occurs between the Upper and Lower Myakka Lakes and along the Myakka River. It is an herbaceous wetland on the river floodplain. Much of this community is dominated with two exotic grasses: Paragrass (*Urochloa mutica*) and West Indian marshgrass. West Indian marshgrass was observed in Tatum Sawgrass in the 1970s and became dominant in the park's floodplain marsh after 1987. Paragrass was established much earlier. In 1903, the Ocala Banner reported that a 4000-acre tract in the Myakka Valley was to be planted with paragrass for cattle grazing. Park staff treat this community with prescribed fire to reverse the trend towards succession to hydric hammock and to control the exotic marsh grasses. Over the last few years, the eggs from the exotic island apple snail (*Pomacea maculata*), have been observed on vegetation in the floodplain marsh. The overall condition of the floodplain marsh is fair.

Starting in 2013 in partnership with FWC, the exotic grasses in approximately half of Big Flats Marsh were aerially treated with herbicides and then burned. Re-sprouting exotic grasses in the treatment area were then retreated with herbicides. The results of this approach were promising with native wetland species dominating post-treatment.

General management measures: The floodplain marsh is treated with fire when conditions warrant. Fire maintains a grassy and herbaceous species composition and excludes hardwood trees and shrubs. Newly established invasive exotics such as sicklepod (*Senna obtusifolia*) are treated. Because both paragrass and West Indian marshgrass have been well established for a long period of time, research is being conducted with the FWC's Invasive Plant Management Section and SWFWMD to determine best management practices. Monitor and remove when possible the invasive, exotic island apple snail and eggs.

<u>Hydric Hammock - Prairie Hydric Hammock</u>

Desired future condition: Prairie hydric hammocks are stands of live oaks (*Quercus virginiana*), laurel oaks (*Quercus laurifolia*), American elm (*Ulmus americana*), and cabbage palms. Prairie hydric hammocks form along the fringe of freshwater wetlands and in the river floodplain. Prairie hammocks are often found in ecotones between wetlands and upland communities. Historically, such hammocks form on the lee (north) side of wetlands that are protected from fire carried by the dominant southerly winds.

The desired condition of prairie hydric hammock in the park is a canopy dominated by oaks and cabbage palms, with a mix of other tree species with little understory. The herb layer will be sparse or patchy and consists of various graminoids. Under the canopy, hydric hammocks will be open with small components of shade and flood tolerant understory vegetation, and little ground cover except for leaf litter. Vines, although common, will not be thick. Abundant epiphytes will be found on live oaks and cabbage palms, as these are a characteristic feature of hammocks. Invasive exotic plants will be less than one percent. Feral hog damage will be eliminated due to the reduction in the hog population through contract trapping and other methods.

Description and assessment: Typically, prairie hydric hammocks consist of live oak, laurel oak, cabbage palm located along the Myakka River corridor on frequently flooded wetland soils. Many epiphytic plants are also common, including Spanish moss, giant airplant, golden polypody, shoestring fern, resurrection fern and Florida butterfly orchid.

The prairie hydric hammock transitions to prairie mesic hammock at higher elevation on upland soils. Due to virtually 40 years of fire exclusion, hammocks have expanded into the surrounding floodplain marsh, basin marsh or dry prairie. See the discussion about pseudo mesic hammocks that develop as the result of fire suppression in the prairie mesic hammock description.

Old World climbing fern has become established in a few prairie hydric hammocks. Feral hogs are common in prairie hydric hammocks, where they compete for acorns with other wildlife. Rooting by hogs severely disturbs soil structure and creates conditions that encourage exotic plant invasion, and alters hydrologic flow. Although there is considerable damage by hogs in this community, hammocks in the park are in good to excellent condition.

General management measures: Allow fire to penetrate the ecotone of the system. If there is evidence of alteration of the natural hydrologic flow creating a change in saturation or hydroperiod, it should be addressed. Continue an aggressive survey and treatment program for invasive exotic plants. Decrease the damage caused by feral hogs by reducing their population.

<u>River Floodplain Lake</u>

Desired future condition: Although the occurrence of vegetation in the lakes fluctuate over time, it is preferred that there be a portion of the lakes that contain aquatic plants for the benefit of the native fish and birds. When present, typical plants might include white waterlily (*Nymphaea odorata*), yellow waterlily, spadderdock, frog's bit (*Limnobium spongia*), bladderwort (*Utricularia* spp.), maidencane and softstem bulrush (*Schoenoplectus tabernaemontani*). Native submerged aquatic plants should also be present, including small pondweed (*Potamogeton pusilla*) and coontail (*Ceratophyllum demersum*). Exotic fish and exotic snail populations will be low, and healthy populations of largemouth bass and other native fish and snail species will be present.

Description and assessment: Two shallow depression lakes, the Upper Myakka Lake and Lower Myakka Lake are found within the park. Both lakes have wide-open water. The primary water source is rainfall with additional input from runoff and seepage from surrounding uplands. The water depth varies from approximately 2 feet to 6 feet, depending on rainfall.

The vegetation within the lakes has fluctuated greatly over the last 70 years. During the period between 2001 and 2010, little native aquatic vegetation occurred. In the spring of 2010, yellow waterlily (*Nymphaea mexicana*) was present and continues to persist along with a few other aquatic plants. In the past, both lakes have been inundated with invasive exotic plants such as hydrilla (*Hydrilla verticillata*) and water hyacinth (*Eichhornia crassipes*), but with the efforts made by SWFWMD, the aquatic exotics are being controlled. Although there were several years when vegetation in the Upper Myakka Lake was sparse, currently found are smartweed (*Polygonum setaceum*), softstem bulrush and yellow waterlily. Paragrass and West Indian marshgrass line the edge of lake. Invasive exotic fish including blue tilapia (*Oreochromis aureus*), brown hoplo (*Hoplosternum littorale*), sailfin suckermouth catfish (*Pterygoplichthys* spp.) and walking catfish (*Clarias batrachus*) are well established in the lakes. In 2012, an exotic snail, the island apple snail was found in the Upper Myakka Lake. It is now residing in both the Upper and Lower Myakka Lakes. Common reed (*Phragmites australis*), although considered native, has grown into large bands around 3 sides of the Upper Myakka Lake. Agricultural activities, spray irrigation fields and an effluent treatment system along Howard Creek are possible contributors to the poor water quality of the lakes (Lowrey et al. 1989). These lakes serve as two of the many detention areas within the Myakka River watershed that are nutrient-enriched and exhibit seasonally low dissolved oxygen levels. The condition of the lakes is fair to good.

General management measures: SWFWMD continues to treat the invasive exotic plants found in the lakes. Research is being conducted by the FWC's Invasive Plant Management Section and park staff to determine the best management practice for the reduction of paragrass and West Indian marshgrass along the edge of the lakes. The population trends of the exotic fish are being periodically monitored. Water quality samples are taken monthly as part of the University of Florida's Lakewatch Program. During warm months, the lakes are surveyed for island apple snail eggs. Once found, they are removed. Staff will continue to research and implement best management practices for the reduction of exotic aquatic wildlife.

Sinkhole Lake

Desired future condition: The sinkhole lake is a deep, funnel-shaped depressions in a limestone base. The desired future condition of the sinkhole is to maintain its integrity against erosion.

Description and assessment: Sinkhole lakes are considered endangered in Florida (FNAI 2010). The sinkhole lake at the park is known as Deep Hole. Deep Hole is engulfed by Lower Myakka Lake during the rainy season but can be a stand-alone

feature when water levels in the Lower Myakka Lake are low. There is no vegetation in Deep Hole. Research conducted by Sarasota County in 2012 analyzed water quality parameters and examined its physical properties. It was determined that Deep Hole contained only fresh water, with little to no evidence of spring flow. The water quality was stratified, with poor water quality below 30 to 40 feet. The water at depth is anoxic, cold, turbid and rich in ammonia and sulfur. Water near the surface is dark and rich in iron. The water overall was rich in phosphorus. The temperature of the water is uniformly 58 degrees below 40 feet and the depth is estimated at 131 feet (Culter et al. 2013). Sinkhole lakes are often threatened by erosion, pollution and other threats to the aquifers with which they are connected.

General management measures: There is little active management needed except to limit pedestrian and boat traffic that disturbs wildlife. Deep Hole is an important dry season refuge for American alligators (*Alligator mississippiensis*) and other species, so human disturbance should be limited.

Blackwater Stream

Desired future condition: The desired condition for the Myakka River is an open blackwater stream, devoid of exotic vegetation and exotic fish and wildlife. The river will contain both emergent and floating aquatic vegetation along shallower and slower moving sections, but their presence is often reduced because of typically steep banks and considerable seasonal fluctuations in water level. Typical plants will include goldenclub (*Orontium aquaticum*), smartweed (*Polygonum* spp.), sedges (*Cyperus* spp.), maidencane, and water paspalum (*Paspalum repens*). Typical animals include longnose gar (*Lepisosteus osseus*), gizzard shad (*Dorosoma cepedianum*), lake chubsucker (*Erimyzon sucetta*), channel catfish (*Ictalurus punctatus*), golden topminnow (*Fundulus chrysotus*), blue-spotted sunfish (*Enneaccanthus gloriosus*), Everglades pygmy sunfish (*Elassoma evergladei*), redear sunfish (*Lepomis microlophus*), black crappie (*Pomoxis nigromaculatus*), largemouth bass, American alligator, common snapping turtle (*Chelydra serpintina*), peninsula cooter (*Pseudemys peninsularis*), common musk turtle/stinkpot (*Sternotherus odoratus*), Florida water snake (*Nerodia fasciata pictiventris*), and North American river otter (*Lontra canadensis*).

There will be less than five percent cover of invasive, exotic plants. The invasive aquatic fauna will be reduced to a level that will not affect the natural community. The damage by feral hogs will be significantly reduced by impacting the population through contract trapping and other methods.

Description and assessment: Twelve miles of the Myakka River and less than one mile of Clay Gully, flow within the park. At river mile 43, just north of the park, the river channel splits into Clay Gully and the Myakka River. Both watercourses run into Upper Myakka Lake at approximately river mile 39. There is a concrete weir that blocks a portion of the river from the Upper Myakka Lake. Culverts to one side of the weir, when open, allow water to flow through. These culverts have deteriorated and are no-longer functioning, and in 2016 significant erosion occurred

east of the culverts, separating a popular observation deck from shore. Funding for a feasibility study is being pursued to determine options for restoration.

Downriver from the Upper Myakka Lake, a large marsh known as Big Flats is present. Below State Road 72, the river enters the park's wilderness preserve at approximately river mile 36. At this point, the hammock closes in on the river channel for a short stretch before again opening into marshes at the northern end of Lower Myakka Lake. Downriver from the lower lake, the hammock again closes in on the river channel. The river is a state-designated wild and scenic river within Sarasota County.

The blackwater stream banks are lined with paragrass and West Indian marsh grass. Other aquatic exotics including water hyacinth and water lettuce (*Pistia stratiotes*) which on occasion block the flow of the blackwater stream. Invasive exotic fish including blue tilapia, brown hoplo and walking catfish are well established in the river. The island apple snail can also be found in the river. Florida manatees are now observed annually in the park during high water events in the river. The assessment of the blackwater stream is poor to fair due to the exotic invasion.

General management measures: SWFWMD continues to treat the invasive exotic plants found in the river. The population trends of the exotic fish are being periodically monitored. Staff will research and implement best management practices for the reduction of exotic aquatic wildlife. Research should be completed on the ecological effects of the concrete weir and feasibility of removal. If research and the proposed feasibility study shows removal is warranted, the weir should be removed.

Altered Landcover Types

Developed

Desired future condition: Development will not detract from, nor overshadow the splendor of surrounding natural and cultural resources, but is integrated in such a way as to enhance visitor experiences and provide essential infrastructure. Cover from invasive exotic plants should be less than six percent.

Description and assessment: Parking lots, buildings, maintained lawns, campgrounds, playgrounds, paved roads, recreational, and residential areas are the developed areas in the park.

General management measures: Maintain structures as needed. Treat exotic plants and remove feral hogs.

Canal/Ditch

Desired future condition: Canals and ditches that cause an alteration in the sheet flow of water and in hydroperiod of the marshes will be filled or plugged.

Description and assessment: Drainage ditches were used to connect wetlands to move water off the land for cattle grazing and mosquito control. Several ditches in the Florida dry prairie that were connecting depression marshes have been filled or blocked to restore natural sheet flow across the prairie. There still exists a small number of ditches that need to be plugged.

General management measures: When appropriate, ditches and canals are filled by pushing the adjacent berm materials back into the previously excavated channels.

Artificial Pond

Desired future condition: The park's one artificial pond is functioning as a natural pond, fulfilling ecological functions while supporting native aquatic vegetation and providing habitat for aquatic wildlife. Therefore, there is no need to remove or alter it except to remove invasive exotic plants.

Description and assessment: The artificial pond is a 4-acre rectangle. It is not connected to any other wetlands, and contains many of the same plant species that a natural depression marsh in the park would have, including pickerelweed, maidencane and sandweed. It is also home to the same aquatic wildlife also found in natural wetlands.

General management measures: Staff will continue to treat invasive exotic plants when present.

Pasture – Abandoned and Field - Abandoned

Desired future condition: Restoration of the abandoned pasture and field back to the original natural community, whether Florida dry prairie or mesic flatwoods, is the long-term goal. A restoration strategy must be developed for this extensive project.

Description and assessment: There are more than 560 acres of abandoned pasture scattered throughout the park, most of which are located south of State Road 72. Most of the abandoned pastures can be found on the portion of the park formerly known as the "Myakka Prairie". The pastures are largely comprised of bahiagrass, dogfennel, and wax myrtle. Invasive exotic plants have been found in the pastures, including cogongrass, tropical soda apple (*Solanum viarum*), and twoleaf nightshade (*Solanum diphyllum*). The pastures have been abandoned for more than two decades, and as a result, native early successional shrub and tree species including wax myrtle, silverling (*Baccharis glomeruliflora*), groundsel tree (*Baccharis halimifolia*), and other native species have recruited into these areas.

General management measures: The pasture is burned on the fire return interval of the surrounding natural communities in adjacent management zones, usually every 2 to 4 years. On occasion, the pastures are mowed to improve fire movement. Invasive exotic plants are monitored and treated as needed. A phased restoration

strategy will be developed to convert pasture back to the biologically diverse natural community formerly found there.

Road

Desired future condition: Road shoulders will remain free of exotic plants. Roads will not block natural flow of water and there is adequate water conveyance under them.

Description and assessment: There are approximately seven miles of paved roads and 100 miles of unpaved roads, most of which are used as firebreaks during prescribed fires. The roads have an assortment of invasive exotic plants including torpedo grass, rose natalgrass *(Melinis repens*) and heartland sida *(Sida cordifolia).* Feral hogs *(Sus scrofa)* cause damage by uprooting the substrate of the dirt roads. Due to heavy rains, some of the park's dirt roads are eroded and serve as canals, funneling water in an undesirable direction.

General management measures: The invasive exotic plants are monitored and treated with herbicides. The dirt roads are graded when needed.

Spoil Area

Desired future condition: All FLEPPC Category I and II exotic plants are removed. Native plants found in the adjacent unspoiled area are established. The ground is leveled to the surrounding grade.

Description and assessment: The area was an old sandpit located near Vanderipe Slough. The ground has been disturbed, creating mounds approximately four to six feet tall. There are a wide variety of FLEPPC Category I and II exotic invasive plants that reside in the area, including Old World climbing fern, cogongrass, Guineagrass (*Urochloa maxima*) and air potato (*Dioscorea bulbifera*). Within the site there is very little native ground cover.

General management measures: Continue to treat invasive exotic plants to prevent expansion into the adjacent natural communities.

Successional Hardwood Forest

Desired future condition: Closed-canopied forest dominated live oak, often with remnant pines. These forests are either invaded natural habitat (i.e., mesic flatwoods or scrubby flatwoods) due to lengthy fire-suppression or old fields that have succeeded to forest. The subcanopy and shrub layers of these forests are often dense and dominated by smaller individuals of the canopy species. Successional hardwood forests can contain remnant species of the former natural community

Description and assessment: This 20-acre site was once an old homestead or animal paddock in MR-06 west of Deer Prairie Slough. The area was mostly clear of

vegetation in the 1940s, with a windrow of trees around sections of the perimeter. These abandoned corrals have subsequently been invaded by live oak and allowed to mature. The understory has various pasture grasses like Bahia grass with a few saw palmettos in the midstory. The canopy has epiphytes similar to those seen in the park's hydric and mesic prairie hammocks. The successional hardwood forest resembles the park's mesic hammock with more openings in the canopy allowing more light to groundcover vegetation, and there are fewer cabbage palms.

General management measures: In general, this area will be monitored and treated for exotic plant and animal species and allowed to burn with the surrounding dry prairie, mesic or scrubby flatwoods. Restoration of these forests, if decided upon later, includes mechanical tree removal and reintroduction of fire. Where characteristic herbaceous species (e.g., wiregrass) have been lost, reintroduction via seed or plants may be necessary to restore natural species composition and community function.

Utility Corridor

Desired future condition: The footprint will be limited. The invasive exotic plants growing in and along the corridor will be reduced to less than five percent. Feral hog populations will be significantly reduced, eliminating hog-related damage.

Description and assessment: There are 3 utility corridors in the natural areas of the park. The smaller utility corridor runs into Big Flats marsh. The other two run along Powerline Road and South Powerline Road. The Powerline and South Powerline corridors are used as access roads. There are several invasive exotics growing in and along the roads, including torpedo grass, rose natalgrass and heartland sida. Several low water crossings have been installed along the powerline to improve sheet flow from north to south. One of these crossing was installed too low, so the water can be too deep to cross with vehicles. Plans are in place, and the materials needed to raise the crossing have been purchased to improve vehicular access, but dry-season conditions are needed to conduct the repair. Feral hogs cause damage by uprooting the substrate of the dirt roads along the utility corridors.

General management measures: Staff will monitor and treat invasive exotics, and will limit the footprint of utility corridors. Repair the low water crossing that was installed too deep.

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 welfare of imperiled species is an important concern of the Division. In many cases, these species will benefit most from proper management of their natural

communities. At times, however, additional management measures are needed because of the poor condition of some communities, or because of unusual circumstances that aggravate the problems of a species. To avoid duplication of efforts and conserve staff resources, the Division will consult and coordinate with appropriate federal, state and local agencies for management of designated species. Specifically, data collected by the FWC and United States Fish and Wildlife Service (USFWS) as part of their ongoing research and monitoring programs will be reviewed periodically to inform management of decisions that may have an impact on designated species at the park.

There are 55 designated species recorded at Myakka River State Park (see Table 2 and Appendix 5). While there are no measures specifically designed to protect these species, many current practices serve this end. Park policies prohibiting the removal of plants and animals benefit all species, designated or not. An additional practice is limiting access to the park's wilderness preserve area benefiting reclusive creatures such as the bald eagle. Restoration and best management practices for Florida's ecosystems will maintain the health of habitats that sustain these species.

The bald eagle was removed from the imperiled species list in 2007, but maintains protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), which was enacted in 1940. The act was amended several times since then, but it continues to prohibit anyone without a permit issued by the Secretary of the Interior from "taking" bald eagles, including their parts, nests, or eggs (USFWS). FWC approved a management plan and new eagle rule in 2008, which is being sunset and replaced with a species action plan. Bald eagle nesting success at Myakka River State Park has been monitored by staff and volunteers. Over the last five years, there has been an average of six active nests within the park. The average number of eaglets fledged per year within the park is seven.

A focus of Myakka River State Park is the restoration and maintenance of the park's nearly 15,000 acres of Florida dry prairie. The Florida Natural Areas Inventory designates Florida dry prairie as imperiled, ranking it as G2 and S2. Restoration tools include mechanical treatment, application of prescribed fire, and hydrologic restoration. As a result of the restoration efforts, burrowing owls (*Athene cunicularia floridana*) returned and were observed in the east panhandle of the park in 2013, 2014, and south of SR-72 in 2015. The Florida burrowing owl is classified as a threatened species by the FWC. Historically, the burrowing owl occupied sandy sandhills and prairies with sparse ground cover in central and south Florida. Recently, these populations have decreased because of disappearing habitat (FWC 2013). Burrowing owls live as single breeding pairs or in loose colonies consisting of two or more families. Unlike most owls, burrowing owls are active during both day and night. During the day, they are usually seen standing erect at the mouth of the burrow or on a nearby post. Burrowing owls use burrows year-round, both for roosting during the winter and for raising young during the breeding season (February - July). Florida's burrowing owls typically dig their own burrows but will use gopher tortoise or armadillo burrows. Burrows are typically one foot below the surface, extend 4 to 8 feet in length and are lined with materials such as grass

clippings, feathers, paper, and manure (Stevenson and Anderson 1999). The reoccurrence of the burrowing owls is an indicator that the park's Florida dry prairie is returning to pre-fire exclusion conditions.

Another listed species benefitting from the restoration of the Florida dry prairie is the crested caracara, a federally threatened species. Audubon's crested caracara is a large species of raptor. Florida's caracaras remain year-round on home ranges that consist of the nesting territory and feeding habitat. They exhibit mate fidelity as well (Morrison 2001). Crested caracara observations in and around the park have greatly increased over the last 10 years, and in 2014 and 2015, nesting activity was confirmed in the southeastern portion of the park.

A confirmation of the importance of Florida dry prairie restoration is the decline of the Florida grasshopper sparrow (*Ammodramus savannarum floridanus)*. It is listed as a federally endangered subspecies. In July 1937, a student wildlife technician surveyed a portion of Myakka River State Park and noted two Florida grasshopper sparrows. In 1941, another wildlife technician recorded Florida grasshopper sparrows to be common at Myakka River State Park. It is not known what month in 1941 the Florida grasshopper sparrows were observed, which is relevant because there is another subspecies of grasshopper sparrow that winters in Florida but is not a year-round resident. The natural habitat for the non-migratory subspecies prefers frequently burned dry prairie (Bridges & Reese 1999, as cited by Delaney et al. 2007). The park service policy for more than 40 years until the mid-1970s was to exclude fire whether natural or human-induced, creating a habitat unsuitable for Florida grasshopper sparrows. Despite restoration efforts, the Florida grasshopper sparrow has not been recorded in the park since the 1940s. Optimum dry prairie habitat for this species contains large (>50 acres), treeless, grasslands that are maintained with frequent fire. Suitable prairie is dominated by saw palmetto and dwarf oaks 30 to 70 cm in height. Grasses like bluestem (*Andropogon* spp.), wiregrass, and St. John's wort (*Hypericum* spp.) also can be found in good sparrow habitat (Delany et al. 1985; USFWS 1999). Tree densities of >1 tree per acre are not tolerated. As ground-dwelling birds, they require bare ground (at least 20 percent) for ease of movement and foraging. Cover (i.e., bunchgrasses and low shrubs), however, is important for providing nesting habitat. The conversion of large prairies to sod farms and pastures has been the main factor in the decline of this subspecies. On the remaining natural lands, fire exclusion and alterations to natural drainages also pose threats.

Florida scrub-jays were last observed at the park in 2005. They were in the scrubby flatwoods north of the Upper Myakka Lake. The goal is to maintain the scrubby flatwoods close to optimal conditions through prescribed fire and mechanical treatment to increase the likelihood of Florida scrub-jays returning to Myakka River State Park if there is a population in the area. There are approximately 182 total acres of scrubby flatwoods in the park, which could support several family groups as part of a larger population. However, there is not enough habitat in the park to support a long-term viable population of scrub-jays. Florida scrub-jay territories in scrubby flatwoods north of Upper Myakka Lake were surveyed for nesting activity

several times in the early 1990s (Thaxton 1990, 1991). Three to four families were found to have established territories that overlapped at least some of the scrubby flatwoods in the park. In 1990, one of the six nesting attempts among four families was successful. The nests tended to be located on old fence lines or on immediately adjacent private property. In 2002, the adjacent property owner removed vegetation along the fence line and around several of the wetlands. The scrub-jays were no longer observed in the park until 2004. They survived the hurricanes of the summer of 2005, but were last seen in December of that year.

The Upper Myakka Lake was the summer home to a group of manatees (*Trichechus manatus*) from 2012-2016. Summer rains increased the water level in the river and lakes significantly, making the manatee's travel possible over or around the dam (located at the park's southern boundary) and the weir (located at the south end of the Upper Myakka Lake) possible. All sightings are reported to the FWC's Marine Mammal Pathobiology Lab. There is concern that once summer rains stop and water levels drop, manatees would not be able to traverse the dam and weir. This concern came to fruition in January 2014, when a stranding did occur. A coordinated effort by FWC Manatee Rescue staff, park staff and park neighbors to rescue the manatee was successful. If summer rains continue to increase water levels, enabling manatees to enter the park, future manatee strandings will continue to be a concern; therefore, the benefits of the weir and dam should be reassessed.

In addition to listed animals, the park also contains 17 designated plants. Several of them were negatively affected by the suppression of fire from 1939 until the mid-1970s. Nine of the 17 designated plants were historically found in Florida dry prairie. The pine lily (*Lilium catesbaei*) and the grass pink orchid (*Calopogon multiflorus*) are two of the designated plants found in dry prairie that without fire, could not survive. During the past decade, there has been an increase of sightings for both plants due to the reintroduction of fire.

The giant airplant and cardinal airplant in the park have suffered due to an invasive exotic insect, the Mexican bromeliad weevil. The weevil is now established at the park, and the adult and larvae feed on the larger native airplant species, killing many of them. Myakka River State Park has worked in partnership with the University of Florida as a research site on the *Metamasius callizona* project. Juvenile plants have been observed in the canopy along the Main and North Drive. It would be beneficial to maintain a closer record of the occurrence and health of these species to determine whether further management action is warranted.

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 Appendix 6.

Table 2: Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
PLANTS						
Grass pink *Calopogon multiflorus*			LT	G2G3,S2S3	1,2,4,7	T1
Tampa mock vervain *Glandularia tampensis*			LE	G2, S2	1,2,4,7	T1
Angularfruit milkvine *Gonolobus suberosus*			LT		2	T1
Threadroot orchid *Dendrophylax porrectus*			LT		4	T1
Catesby's lily; Pine lily *Lilium catesbaei*			LT		1,2,4,7	T1
Southern twayblade *Listera australis*			LT		1,2,4,7	T1
Lowland loosestrife *Lythrum flagellare*			LE	G2, S2	4	T1
Jameson's waterlily *Nymphaea jamesoniana*			LE	G5, S2S3	4	T1
Blueflower Butterwort *Pinguicula caerulea*			LT		1,4	T1
Yellow Butterwort *Pinguicula lutea*			LT		1,4	T1
Giant orchid *Pteroglossaspis* ecristata			LT	G2G3, S2	1,2,4,7	T1
Leafless beaked orchid *Sacoila lanceolata*			LT		2	T1
Long lip ladiestresses *Spiranthes longilabris*			LT		1,2,4,7	T1
Northern Needleleaf *Tillandsia balbisiana*			LT		2	T1
Cardinal airplant *Tillandsia fasciculata*			LE			T1
Giant airplant *Tillandsia utriculata*			LE			T1

Table 2: Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Redmargin rain-lily *Zephyranthes simpsonii*			LT	G2G3, S2S3	1,2,4,7	T1
BUTTERFLIES						
Arogos skipper *Atrytone arogos*				G3, T1T2, S1	1	T3
Eastern meskes skipper *Hesperia meskei straton*				G3G4, T3, S2S3	1	T3
REPTILES						
American alligator *Alligator mississippiensis*	FT(S/A)	LT(S/A)		G5, S4	2,4,10	T3
Eastern indigo snake *Drymarchon couperi*	FT	LT		G3, S3	1,2,4,7	T1
Gopher tortoise *Gopherus polyphemus*	LT	C		G3,S3	1,2,4,7	T1
BIRDS						
Florida grasshopper sparrow *Ammodramus savannarum floridanus*	FE	LE		G5T1Q, S1	1,2,4,7	T1, T2
Florida scrub-jay *Aphelocoma coerulescens*	FT	LT		G2, S2	1,2,4,7	T1, T2
Great white heron *Ardea herodias occidentalis*				G5T2, S2	1,2,4,7	T1, T2
Florida burrowing owl *Athene cunicularia floridana*	LT			G4T3, S3	1,2,4,7	T1, T2
Short-tailed hawk *Buteo brachyurus*				G4G5, S1	1,2,4,7	T1, T2

Table 2: Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Crested caracara *Caracara cheriway*	LT	LT		G5, S2	1,2,4,7	T1, T2
Little blue heron *Egretta caerulea*	LT			G5, S4	2,4	T1, T2
Reddish egret *Egretta rufescens*	LT			G4, S2	2,4	T1, T2
Tricolored heron *Egretta tricolor*	LT			G5, S4	2,4	T1, T2
Swallow-tailed kite *Elanoides forficatus*				G5, S2	1,2,4,7	T1, T2
White-tailed kite *Elanus leucurus*				G5, S1	1,2,4,7	T1, T2
Merlin *Falco columbarius*				G5, S2	1,2,4,7	T1, T2
Peregrine falcon *Falco peregrinus*				G4, S2	1,2,4,7	T1, T2
Southeastern American kestrel *Falco sparverius paulus*	LT			G5T4, S3	1,2,4,7	T1, T2
Magnificent frigatebird *Fregata magnificens*				G5, S1	2,4	T1, T2
Florida sandhill crane *Grus canadensis pratensis*	LT			G5T2T3, S2S3	1,2,4,7	T1, T2
American oystercatcher *Haematopus palliatus*	LT			G5, S2	2,4	T1, T2
Worm-eating warbler *Helmitheros vermivorum*				G5, S1	1,2,4,7	T1, T2
Caspian tern *Hydroprogne caspia*				G5, S2	2,4	T1, T2
Wood stork *Mycteria americana*	FT	LT		G4, S2	2,4	T1, T2
Red-cockaded woodpecker *Picoides borealis*	FE	LE		G3, S2	1,2,4,7	T1, T2

Table 2: Imperiled Species Inventory						
Common and Scientific Name	**Imperiled Species Status**				**Management Actions**	**Monitoring Level**
	FWC	**USFWS**	**FDACS**	**FNAI**		
Roseate spoonbill *Platalea ajaja*	LT			G5, S2	2,4	T1, T2
American avocet *Recurvirostra americana*				G5, S2	2,4	T1, T2
Snail kite *Rostrhamus sociabilis*	FE	LE		G4G5T2, S2	1,2,4,7	T1, T2
Black skimmer *Rynchops niger*	LT			G5, S3	2,4	T1, T2
American redstart *Setophaga ruticilla*				G5, S2	1,2,4,7	T1, T2
White-breasted nuthatch *Sitta carolinensis*				G5, S2	1,2,4,7	T1, T2
Least tern *Sternula antillarum*	LT			G4, S3	2,4	T1, T2
Sandwich tern *Thalasseus sandvicensis*				G5, S2	2,4	T1, T2
MAMMALS						
Florida panther *Puma concolor coryi*	FE	LE		G5,T1, S1	1,2,4,7	T1, T2
Sherman's fox squirrel *Sciurus niger shermani*	LS			G5T3, S3	1,2,4,7	T1
Florida manatee *Trichechis manatus latirostris*	FT	LT		G2, T1, S2	2, 4	T1
Florida black bear *Ursus americanus floridanus*				G5T2, S2	1,2,4,7	T1

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 can outcompete, 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.

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

Plants

A little more than one hundred exotic plant species have been identified in the park (see Appendix 4). Most of the exotic plant species are not on the FLEPPC list, but 31 percent of those exotic plants are identified as FLEPPC category I or category II.

Using the FLEPPC designation, all known invasive exotic plants found in the park have been placed into one of three management classifications. These classifications and the suggested management response recommended for each category are listed below. Additions and deletions to the above categories are expected as exotics appear and disappear within the park.

Category I. Invasive and threatening exotic species which are so invasive as to threaten displacement of native plants in natural areas and if left uncontrolled, would become the predominant cover in the area. Park representative species in this category include paragrass, air potato, Old World climbing fern, and cogongrass. The eradication of category I plants often requires several treatments and some category I invasive exotic plants may not be eliminated but only controlled.

Cogongrass has proved to be quite difficult to eliminate. Cogongrass is a perennial grass native to Southeast Asia and considered one of the world's worst weeds. Over the last 10 years, infested sites have gone from 50 to more than 800, albeit many of them small. The best time to treat cogongrass is in the fall and spring. During the fall, treating cogongrass is the priority for the park. During the spring, treating cogongrass is the second priority with conducting prescribed fire the first priority. It is often problematic to find the manpower to treat in the spring because the same people trained to treat exotics are also the same people trained to conduct prescribed burns. There is not enough staff to designate separate exotic and burn teams. Prescribed fire currently takes precedence, but if the park is unable to treat cogongrass for two or more years, the health of the ecosystem is at risk. Cogongrass, if unimpeded, will occupy a site to the detriment of almost all other species. It will displace entire plant and animal communities, including endangered species. Cogongrass has allelopathic effects whereby plants in the proximity will display reduced stem height, leaf length, nitrogen concentration, and root/shoot length, as well as lower survival rates (Sajise and Lales 1975; Brook 1989; Bryson and Carter 1993; Casini et al. 1998 as cited by Alabama Cogongrass Control Center – Final Report 2012). Cogongrass has little wildlife value because of its high silica content and serrated leaf margins, which may harm animals who attempt to feed on it. Small, ground-dwelling animals are displaced by cogongrass due to its minimal forage value and dense foliage (Alabama Cogongrass Control Center – Final Report 2012). It is important that more resources are provided to fight this invasion.

Category II. Invasive but not as threatening. This category includes Guinea grass (*Urochloa maxima*), balsampear (*Momordica charantia*), and two-leaf nightshade. To manage category I and II, a system to record frequency, location coordinates, extent and treatment method has been developed which identifies individual locations and provides documentation for treatment methods and follow-up. The management goal is to treat a minimum of 50 percent once a year. Treatment follows current best management practices.

Non-invasive species that are confined to disturbed areas include yellow nut-grass (*Cyperus esculentus*), pangola grass (*Digitaria decumbens*), and bush mint (*Hyptis mutabilis*). No treatment is given to these exotics.

In addition, SWFWMD herbicides the Upper and Lower Myakka Lakes and the river channel to control water hyacinth, water lettuce, hydrilla and other invasive aquatics which can prohibit navigation of these waterways.

Animals

Like exotic plants, some exotic animals are more deleterious than others are. Exotic animals having the greatest impact on natural communities receive the highest priority for removal. Generally, these are animals that have a high reproductive potential and few natural controls, such as feral hogs and fire ants. Also included in this group are animals whose abundance is directly related to human populations, such as domestic cats and dogs. Although house pets do not typically propagate in the wild, their free-ranging activities on park lands can affect native species which normally would not have to contend with these additional pressures.

Feral hogs occur throughout the park and cause significant ecological damage unless their numbers are kept low. They begin to breed at one year and can produce two litters of 1–13 (usually 5–7) piglets per year (IFAS, publication WEC277). They are predators of ground-nesting birds and snakes, and can dig up large areas looking for tubers and roots. The rooted areas alter fire behavior and hydrologic flow. The upturned soil also provides a planting bed for exotic plant species. Since September 1986, over 26,000 hogs have been removed from the park. It is preferred to utilize the services of hog contractors, but park staff have augmented the hog removal program. The policy of hog removal will be continued to limit the negative ecological effects of the hogs.

Aquatic exotic animals have become more prevalent in the Upper and Lower Myakka Lakes and the Myakka River. Blue tilapia (*Oreochromis aureus*), a fish native to North Africa and the Middle East, is widespread and abundant in Florida. Tilapia are well-established throughout the Myakka River system. Tilapia feed primarily on plankton and small organisms living in or on bottom detritus (FWC 2014), however, Courtenay and Robins (1973), as cited by Nico et al. (2015), reported that certain streams where this species is abundant have lost most vegetation and nearly all native fishes. Male tilapia alter the sandy bottom of the lakes and river by digging large circular nests with their mouths. Several studies found blue tilapia to be a competitor with native species for spawning areas, food, and space (Nico et al. 2015; Buntz and Manooch 1969; Noble and Germany 1986; Muoneke 1988; Zale and Gregory 1990). Extreme cold temperatures for extended periods of time have detrimental effects on tilapia populations, but unfortunately within a couple of years, populations can rebound. Other exotic fish are found in the waters of the park including walking catfish (*Clarias batrachus*), brown hoplo (*Hoplosternum littorale*), vermiculated sailfin catfish (*Pterygoplichthys disjuctivus*), and jewel fish (*Hemichromis letourneuxi*). In addition to recreational fishing, other

methods of removal should be explored. Monitoring will continue for the occurrence of new exotic fish species.

A new exotic resident of Myakka River State Park is the island apple snail (*Pomacea insularum).* The island apple snail is the most common introduced species of snail. It was probably released in South Florida in the early 1980s by persons with the tropical pet industry, and rapidly expanded throughout the state (Bernatis 2006). The park's first observation was in 2012. Mating and egg laying occurs when water temperatures rise above 74º F. When this occurs members of the park staff collect and remove the egg clutches, which may contain over 1,000 pink eggs. Snails are also removed.

Other exotic species that impact native wildlife populations are the red imported fire ant (*Solenopsis invicta*) and Cuban treefrogs (*Osteopilus septentrionalis*). Once populations are established, there are currently no methods to eradicate them. Cold winters with freezing temperatures can reduce Cuban treefrog populations for a short time, but populations quickly rebound. To reduce the spread of Cuban treefrogs from the developed areas to more remote sections of the park, park and contractor vehicles should be inspected and Cuban treefrogs removed.
Several biological controls have been released to reduce fire ant colonies, including the parasitic phorid "decapitating" fly (*Pseudacteon* spp.). Park staff should investigate the feasibility of releasing biological controls to reduce or stress colonies of fire ants, allowing for native ant populations to rebound.

As additional exotic fauna moves onto the park, they will be assessed and best management practices will be utilized to remove them when warranted.

Nuisance Species

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. The Division will consult and coordinate with appropriate federal, state and local agencies for management of designated species that are considered a threat or problem.

Fire exclusion and alterations to hydroperiods have caused the spread of hardwood species in the park. Laurel oak, water locust, pop ash and buttonbush are more common in marshes than in the past. In most cases, returning these marshes to their original condition will require some mechanical removal. Fire only eliminates young encroaching hardwoods; mature trees must be physically removed. Laurel and live oaks have also invaded mesic flatwoods and dry prairies. These, too, will require mechanical removal because of their size and number in areas where fire alone has not reduced the oak density.

Hardwoods have become established on road shoulders wherever fill material was used to elevate roadways. This detracts from scenic vistas on the park drive and in the mesic flatwoods and dry prairie. Priority will be given to removing these hardwoods to reestablish the scenic vistas along elevated grades.

A plant that is thought to be native but has the characteristics of an exotic, the common reed has become problematic in the Upper Myakka Lake. According to the University of Florida's Institute of Food and Agricultural Sciences (IFAS), its status as a native species in the US has been recently questioned. For several years, the plant was found on the north side of the Upper Myakka Lake, but in recent years, it has expanded to the west and south side. The large, tall clumps of common reed have been multiplying, creating dense lines of tall vegetation that have not historically been present. SWFWMD is working in cooperation with FWC's Invasive Plant Management Section and FWC's Habitat and Species Conservation Section to eliminate this plant on the west and south side of Upper Myakka Lake. After reed removal, softstem bulrush and jointed spikerush (*Eleocharis equisetoides*), both historically occurring native species, were planted as part of the aquatic habitat restoration project. Test planting areas have been successful and addition planting are planned.

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. 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 Appendix 5.

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

Common and Scientific Name	FLEPPC Category	Distribution	Management Zone (s)
Rosary pea, *Abrus precatorius*	I	2	MR-02A, MR-02D, MR-02E, MR-05D, MR-11B
Alligator-weed, *Alternanthera philoxeroides*	II	1	MR-02A, MR-02B, MR-02C, MR-02D
Durban crowfootgrass, *Dactyloctenium aegyptium*	II	1	MR-04A, MR-05A
		2	MR-03A
Woman's tongue, *Albizia lebbeck*	I	1	MR-02D, MR-11A
Wild taro, *Colocasia esculenta*	I	1	MR-02D
Air-potato, *Dioscorea bulbifera*	I	2	MR-02D, MR-02E, MR-11A
		3	MR-02D
Water-hyacinth,	I	1	MR-02D

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Eichhornia crassipes		3	MR-02A, MR-02B, MR-02C, MR-02D MR-02E, MR-02F, MR-03B, MR-23
West indian marsh grass, *Hymenachne amplexicaulis*	I	1	MR-02D
		2	MR-02D, MR-03B, MR-04A, MR-05E MR-13B
		3	MR-02A, MR-02B, MR-02C, MR-02D MR-03B, MR-03C, MR-04A, MR-04B MR-05A, MR-05C, MR-05D, MR-06, MR-08, MR-10A, MR-10B, MR-11A, MR-11B, MR-11C, MR-11D, MR-12, MR-14, MR-15, MR-17
		6	MR-04A, MR-04B
Cogon grass, *Imperata cylindrica*	I	1	MR-02C, MR-02D, MR-03A, MR-03B MR-03C, MR-04B, MR-05A, MR-05C MR-05E, MR-09A, MR-10A, MR-10B, MR-11A, MR-11B, MR-11C, MR-11D MR-12, MR-13B, MR-13C, MR-13D, MR-14, MR-15, MR-16, MR-18, MR-19B, MR-21, MR-22B, MR-23B,MR-24B
		2	MR-01A, MR-01B, MR-02A, MR-02B, MR-02D, MR-02E, MR-03A, MR-03B MR-03C, MR-04A, MR-04B, MR-05A MR-05B, MR-05C, MR-05D, MR-05E MR-06, MR-07, MR-08, MR-09A, MR-09B, MR-10A, MR-10B, MR-11A, MR-11B, MR-11C, MR-11D, MR-11E MR-12, MR-13A, MR-13B, MR-13C, MR-13D, MR-14, MR-15, MR-16, MR-17, MR-18, MR-19A, MR-19B, MR-20, MR-21, MR-22A, MR-22B, MR-24A

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
		3	MR-02A, MR-03A, MR-03C, MR-04A MR-04B, MR-05C, MR-05D, MR-05E MR-06, MR-07, MR-08, MR-09B, MR-10A, MR-10B, MR-11C, MR-11D MR-12, MR-13A, MR-13B, MR-13C, MR-13D, MR-15, MR-16, MR-20, MR-21, MR-24A
		4	MR-02A, MR-03A, MR-05E, MR-10B, MR-13B, MR-15, MR-18, MR-21, MR-24A
Peruvian primrosewillow, *Ludwigia peruviana*	I	1	MR-05E, MR-12, MR-13B, MR-13C
		2	MR-02B, MR-02D, MR-02E, MR-03A, MR-03B, MR-03C, MR-04A, MR-07, MR-08, MR-10B, MR-11A, MR-12, MR-13A, MR-20
		3	MR-02D, MR-05A, MR-06, MR-10B
		4	MR-04A, MR-10A, MR-21
		6	MR-04A, MR-05A, MR-06, MR-07, MR-08, MR-09A, MR-9B, MR-10A, MR-10B, MR-11B, MR-11D, MR-11E, MR-15, MR-14, MR-16, MR-22B, MR-23B, MR-24A, MR-24B
Japanese climbing fern, *Lygodium japonicum*	I	2	MR-01A, MR-03A
Old world climbing fern, *Lygodium microphyllum*	I	1	MR-03A, MR-07, MR-10A, MR-10B, MR-11B, MR-12, MR-13B, MR-13C, MR-13D, MR-15, MR-16, MR-21, MR-23B, MR-24B
		2	MR-01A, MR-02D, MR-03A, MR-03B, MR-03C, MR-04A, MR-04B, MR-05A, MR-05E, MR-06, MR-07, MR-08, MR-09B, MR-10B, MR-11C, MR-11D, MR-12, MR-13A, MR-13B, MR-13C, MR-13D MR-15, MR-16, MR-20, MR-23B
		3	MR-03A, MR-03C, MR-07, MR-08, MR-9B, MR-10A, MR-10B, MR-12, MR-15
		4	MR-03A

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Phasey bean; wild bush bean, *Macroptilium lathyroides*	II	2	MR-02D, MR-02C, MR-10B, MR-07, MR-11A, MR-24
Melaleuca, *Melaleuca quinquenervia*	I	1	MR-10A, MR-11B, MR-13A, MR-13B, MR-15
		2	MR-01B, MR-11C, MR-20, MR-21
Natal grass, *Melinis repens*	I	1	MR-04A
		2	MR-05A
Balsam apple, *Momordica charantia*	II	1	MR-2D, MR-04A, MR-05A
Sword fern, *Nephrolepis cordifolia*	I	1	MR-02D, MR-03C
Torpedo grass, *Panicum repens*	I	2	MR-03A, MR-07, MR-09A, MR-10A, MR-10B, MR-11C, MR-13B, MR-13C
		3	MR-03A, MR-03C, MR-04B, MR-10B, MR-12, MR-13A, MR-13B, MR13-C, MR-13D, MR-14, MR-15, MR-16, MR-17, MR-18
		4	MR-02E, MR-03A, MR-09B
		6	MR-04A, MR-04B, MR-05A, MR-05B, MR-05C, MR-06, MR-07, MR-08, MR-09B, MR-11B, MR-11C, MR-11D, MR-21, MR-22
Water-lettuce, *Pistia stratiotes*	I	2	MR-02A, MR-02B, MR-02D, MR-02F, MR-07, MR-08, MR-21
Green shrimp plant, *Ruellia blechum*	II	2	MR-02D, MR-02E
Mexican petunia, *Ruellia simplex* -	I	1	MR-02D, MR-02B
Chinese tallow tree, *Sapium sebiferum*	I	2	MR02A, MR-11B, MR-11D
Brazilian pepper, *Schinus terebinthifolius*	I	1	MR-03C, MR-10A, MR-10B, MR-13A MR-13B, MR-21
		2	MR-02D, MR-03C, MR-11B, MR-11C, MR-11D, MR-12, MR-20
		4	MR-21
Rattlebox, *Sesbania punicea*	II	2	MR-02D, MR-03B, MR-03A, MR-04A, MR-05A, MR-06, MR-07, MR-08, MR-09A, MR-09B, MR-10A, MR-10B

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Two-leaf nightshade, *Solanum diphyllum*	II	2	MR-02A, MR-02B, MR-02D
Tropical soda apple, *Solanum viarum*	I	1	MR-02D, MR-11B, MR-12
Wedelia, *Sphagneticola trilobata*	II	2	MR-02B, MR-02C, MR-02D, MR-05E
		3	MR-05D
Arrowhead vine, *Syngonium podophyllum*	II	3	MR-02D
Caesar's weed, *Urena lobata*	I	2	MR-02A, MR-02B, MR-02C, MR-02D, MR-02E, MR-03A, MR-03B, MR-03C, MR-04A, MR-04B, MR-05E, MR-06, MR-07, MR-09A, MR-10A, MR-10B, MR-11A, MR-12, MR-13A, MR-13B, MR-13C, MR-13D, MR-15, MR-16, MR-18, MR-20, MR-21
		3	MR-02D, MR-03A, MR-03C, MR-04A, MR-05A, MR-05C, MR-05D, MR-05E, MR-08, MR-10B, MR-11B, MR-11C
		6	MR-01A, MR-02A, MR-04B
Para grass, *Urochloa mutica*	I	2	MR-02D, MR-04A, MR-05E, MR-10A, MR-15
		3	MR-02A, MR-02B, MR-02D
		4	MR-03C, MR-02C, MR-02E, MR-02F
		5	MR-02A, MR-02B
Guinea grass, *Urochloa maxima*	II	2	MR-02D, 11A

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

Only one major sinkhole is known to exist in the park. Known as “Deep Hole,” it is estimated to be approximately 300 feet wide and 130 feet deep.

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. Appendix 7 contains the FDOS’s 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 an era relating to 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: According to FMSF, Myakka River State Park contains 17 recorded archaeological sites. Of these sites, five are prehistoric sites, nine are historic sites related to the late nineteenth and early twentieth century, and the remaining two are historic sites dating to the New Deal development of the park by the Civilian Conservation Corps in the late 1930s and 1940s.

The portions of the park in Manatee County and the former Ringling-MacArthur Reserve (now part of the park "Myakka Prairie" and Carlton Reserve) have been subjected to surface inspection and limited subsurface testing in areas with high site-potential. In 1985, Piper Archaeological Research surveyed almost 3,000 acres of the 33,000-acre Ringling-MacArthur Reserve that were identified as possessing a high site potential based on environmental variables, to produce data on cultural sensitivity for Sarasota County. The portion of the park located east of Lower Myakka Lake and south of State Road 72 was included in this survey which resulted in the recordation of three sites now within park boundaries (Piper Archaeological Research, Inc. 1987). In 1991, Piper Archaeology/Janus Research surveyed portions of Manatee County with a high site potential to assist the county with development planning, resulting in the recordation of one site now in the western reaches of the park (Piper Archaeology/Janus Research 1992). A 2013 archaeological sensitivity survey model utilizing LiDAR mapping was created by Dr. Lori Collins at Alliance for Integrated Spatial Technologies, University of South Florida, modeling areas of high, medium and low sensitivity for archaeological sites. Over 78 percent of the park was determined to contain medium to high sensitivity for location of archaeological sites (Collins 2013).

The park has never been comprehensively surveyed for cultural resources, and no surveys have been conducted in the western half of the park. As a result, very little is known about the prehistoric occupation of the area and more could be learned about the various historic activities in the area, including cattle ranching, oil drilling, turpentining, and homesteading.

Prehistoric Archaeological Sites

The settlement model for the interior coastal plain developed and refined by Robert Austin based on the results of the Ringling-MacArthur Reserve survey provides useful information for understanding prehistoric activity in the area and predicting site location (Piper Archaeological Research, Inc. 1987). Like the Ringling-MacArthur Reserve, Myakka River State Park is bisected by the Myakka River and lies within the Gulf Coastal Lowlands and the DeSoto Plain physiographic regions. Prehistoric sites appear to be short-term resource extraction or campsites located primarily on upland slopes adjacent to freshwater sources (wetland depressions, streams, or rivers), and secondarily in oak hammocks adjacent to freshwater swamps. Few, if any, large or permanent habitation sites have been identified. Areas located on the 20-foot contour line appear to have the highest potential for containing sites, while areas with low elevation, poor drainage, poor soil, and no permanent potable water appear to have the lowest potential. While the Myakka River and its lakes are the largest local source of fresh water, erosion and redeposition activity caused by periodic flooding have altered the landscape and likely destroyed many lower elevation sites. According to Austin, this region was occupied most intensively during the middle Archaic period, 5,000–3,000 B.C., and less frequently and intensively in the post-Archaic period.

Myakka River State Park contains five recorded prehistoric sites which provide very limited insight into the prehistory of aboriginal peoples in the area. Two of these sites are represented by only a single artifact, two sites were documented in 1951 based on informant data alone, and two sites were recorded as limited lithic scatters. All the sites are in or immediately adjacent to high site probability areas; two sites (8SO21, 8SO22) are near the southwestern shore of Lower Myakka Lake, one site (8MA810) is near the northern end of Deer Prairie Slough, and two sites (8SO431, 8SO6727) are adjacent to an upland slope. No cultural affiliation or temporal period has been assigned to any of these sites.

Oak Grove/Deep Hole Site (8So21): Surface scatter, including ceramic sherds; flooded annually. Documented by Ripley Bullen in 1951. An associated collection of artifacts is accessioned with the State.

No Name (8So22): Residence mound or kitchen midden; top layer excavated many years ago. Documented by Ripley Bullen in 1951. An associated collection of artifacts is accessioned with the State.

Cow Trail Site/Venice-Arcadia # 2 (8So431): Single coral thinning flake; recovered from the surface of an old cow trail in 1985 during the Ringling-MacArthur Reserve survey. Subsurface testing revealed no additional artifacts.

Deer Prairie Slough Site (8Ma810): Single lithic flake; recovered from a screen shovel test from 75 cm below ground surface in 1991 during the Manatee County archaeological survey. Three additional shovel tests revealed no additional artifacts.

Geo Tracker (8So6727): This site was discovered during a survey for archaeological resources prior to the construction of Palmetto Ridge Campground in 2009. It is described as a low-density prehistoric lithic scatter. Of the nine test holes that were dug, two tested positive for cultural materials (prehistoric lithic debitage) at a depth of 50-90 cm below the surface.

Historic Archaeological Sites

Myakka River State Park contains recorded and unrecorded remnants of the early 20th century cattle ranching industry and features associated with CCC park development and occupation during the late 1930s to early 1940s.

Mrs. Potter Palmer, a “progressive” agri-businesswoman, purchased much of what is now the park in 1910, and owned or controlled approximately 90,000 acres in Sarasota and Manatee Counties at the time of her death in 1918. The extensive dry prairie and wetlands in the region had been used for free-range cattle grazing since the 1840s. Mrs. Palmer, however, fenced and cross-fenced her property, installed dipping vats to eradicate ticks, erected silos and attempted to raise rice and corn for silage, and built several operational structures at her showcase ranch “Meadow Sweet Pastures” (Monroe 1977, Austin 1987). Beef cattle were brought in to improve the scrub-cow lineage, wetlands were connected by ditching to hasten drainage and increase grazing opportunities, earth roads were built, and exotic grasses were introduced to enhance the carrying capacity of the land for cattle. Shortly after the Palmer ranch was established, the Atlantic Coastline Railroad constructed and operated tracks from Nocatee (a small community southwest of Arcadia) to Sarasota, and a depot named Honore after Mrs. Palmer’s brother, Adrian Honore, was constructed for loading cattle. Mrs. Palmer’s death, followed by the great stock market crash a decade later, led to the decline of the cattle ranching industry and railroad operations in the area. The Palmer family donated 1,920 acres to the State of Florida, and the state purchased 17,070 acres from the estate of Adrian Honore in September of 1934.

Remnants of Mrs. Palmer’s ranch include recorded structural remains and their associated archaeological deposits, recorded trash piles, and unrecorded cultural landscape features such as roads and a 12-mile railroad grade that passed the Honore depot. The various structural remains are in portions of the park not typically frequented by visitors. Many of the old roads are presently used as hiking trails or service roads for park maintenance. Half of the railroad grade has been used as a power line right-of-way since 1949. Five and one-half miles of the grade have been lowered to restore the hydrology.

Old Palmer Ranch Site (8So395): Remnants of the ranch headquarters, including footprints and structural elements of the main structure and associated outbuildings, three silo bases, old fencing, wells and debris piles. Documented in 1977 by L. Ross Morrell, SHPO, during relocation of the park camping area. Remnants observed in 2014 include concrete foundation stones and a welcome stone. Upon site visit and Archaeological Site Condition Assessment conducted in 2014, there is evidence of glass and ceramic remains being moved by visitors from the site onto the foundation.

Lincer Site #1 (8So430): Two-acre above ground refuse pile, 1920–1950, adjacent to dirt road, upland slope, and intermittent stream; contains heavy duty, generic food-related artifacts such as glass bottles, jars and ceramic dishware, and structural remains such as clay bricks. Austin hypothesized that the site was associated with a cattle camp, either the result of debris accumulation over time or a single deposition of demolished structure and associated debris. Further research is needed to confirm site's association with the cattle ranching industry. Site remains relatively undisturbed from visitors. There is some hog and armadillo rooting present in the area.

Lincer Site #2 (8So611): Small, scattered refuse pile exposed by earth moving activity, 1930-1960, located on a low rise next to a stream; contains glass bottles and ceramics, similar in type, date range, and spatial proximity to Lincer Site #1. Further research is needed to confirm site's association with the cattle ranching industry. Site integrity has been disturbed by past land clearing activity.

Cattle Dip Vat #2 (8Ma1467): Concrete cattle dip vat poured approximately four feet below grade with concrete drying area and remnant fencing.

Alligator Point Silo Bases (8So6142): These are the remains of two wooden grain silos dating to Mrs. Palmer's ranch. All that is left are concrete bases consisting of concrete pads one foot thick with cylindrical depressions in which the silos would have been constructed. A seasonally-flowing well is located 30 feet from this feature.

Ranch House Silo Bases (8So6144): These are the remains of wooden grain silos dating to Mrs. Palmer's ranch. There are two separate bases at this location: one single and one double concrete base. Both bases consist of concrete pad two feet thick with cylindrical depressions in which the silos would have been constructed.

Youth Area Silo Bases (8So6146): These are the remains of wooden grain silos dating to Mrs. Palmer's ranch. There are two separate bases at this location: one single and one double concrete base. Both bases consist of a concrete pad one foot thick with cylindrical depressions in which the silo would have been constructed.

Two archaeological sites are associated with camping activities which occurred in the park prior to Civilian Conservation Corps (CCC) development of the park.

Campground Well (8So6141): A small well sits by a sabal palm to the east of the boat basin at the Upper Myakka Lake. This is the location of tree houses that were constructed in large oak trees before the park was open. The well was then used to supply water to the campground that was constructed in the area in the late 1930s-1940s.

Harris Camp (So6607): This site is the location of a camp that was frequented by the Harris, Crowley, Wilson and Lowe families from 1889 until the mid-1940s. Harris Camp Monument (So3105) marks this location, located south of Lower Myakka Lake along the Myakka River.

The most prominent of the park's cultural resources are the various structures, features, and other improvements constructed by the CCC between 1935 and 1942. Two recorded archaeological sites are associated with the CCC's occupation of the park.

CCC Boat Graveyard/Dump Site (8So2282): Large refuse pile, 1935–1945, scattered over 0.2 miles along two dirt roads; contains structural/construction debris, machinery and vehicle parts, ceramic dishware, glass bottles, and nine cypress rowboats. Retired park manager, Robert Dye, documented the site in 1993 via narrative text, video, and photography, and salvaged brass screws and oarlocks, and galvanized steel strapping and bow eyes. Site integrity is deteriorating as above ground remains rot and oxidize from exposure to the elements. None of the wooden boats remain visible as they were reported in 1993.

CCC Water Tower #1 (8So6145): Four cement foundation blocks are all that remain of what was once a water tower used to supply water for the CCC Camp in the early 1930s.

Condition assessment: All the archaeological sites in the park appear to be in a stable state and in fair condition. All sites are in remote locations not frequented by park visitors and are not obvious even to professional archaeologists. Site preservation is facilitated by the distance of most sites from public-use areas, park staff's sensitive natural resource management in cultural resources areas and regular site inspections.

Many of the sites were recorded as single or isolated artifact finds which were collected and archived. Revisits to these sites have not yielded additional finds, or could not be specifically located due to the nature of the site itself. Feral hogs are well known for their ground disturbing nature and are found throughout the park. They have the potential to unearth previously undiscovered artifacts at these sites. Two of the sites (8So21 and 8Ma810) have the potential for degradation due to erosion as they are seasonally flooded sites. The rate of degradation would be minimal since they occur within a lake edge (8So21) and within a slough (8Ma810), both of which have gradual rates of water exchange during high and low water level events.

DHR compliance and review of proposed development projects and archaeological resource monitoring of ground-disturbing activity help to protect both recorded and unrecorded cultural resources. The most at-risk archaeological component at the park appears to be above ground metal and organic artifacts which are deteriorating from exposure to the elements at an unknown rate. In 1993, the Park Manager recognized the need for further investigation of the CCC Dump/Boat Graveyard (8So2282) before many of the artifacts deteriorated completely. Unfortunately, none of the wooden boats noted in the 1993 assessment are still visible.

Level of significance: The CCC Boat Graveyard/Dump Site (8So2282) was considered as potentially eligible for the National Register of Historic Places by the surveyor when first surveyed in 1989 as individually significant and as a contributor to a potential CCC archaeological and historic district. However, the site has lost a great deal of integrity due to environmental factors and should be reevaluated. Surveyors of the Oak Grove Campsite (8Ma810) and Geo Tracker (8So6727) sites evaluated the sites as ineligible for the National Register due to extremely limited amounts of recovered material for evaluation and their lack of potential for yielding information to add to the archaeological record. None of the archaeological sites in the park have been formally evaluated by the State Historic Preservation Officer (SHPO) for eligibility for listing in the National Register.

General management measures: Preservation is the preferred treatment for all the archaeological sites in the park. It is recommended that each site is visited at a minimum biannually to monitor conditions. Sites should also be documented with photographic evidence, and a site update form describing existing conditions and any changes since the last update should be submitted to the Division of Historic Resources. A new Archaeological Site Condition Assessment Program was launched in early 2014 and new assessment updates were completed for sites 8SO395 (Old Palmer Ranch Site), 8SO06607 (Harris Camp), and 8SO6142 (Alligator Point Silo Bases) and added to our Master Site Files in February 2014. This program is designed for checking sites to see degradation levels, discerning which factors may threaten the site, and determining what actions to take regarding protecting and preserving them.

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: The most noteworthy of the park's historic structures are the various buildings, features, and other improvements constructed by the Civilian Conservation Corps (CCC) between 1935 and 1942. In 1989, Historic Property Associates, Inc. inventoried, evaluated the significance of, and made National Register of Historic Places nomination and preservation recommendations for structures in Florida's nine New Deal parks, resulting in the recordation of 18 CCC-

related structures and one dump site in Myakka River State Park. The park contains 19 recorded historic structures and several unrecorded CCC-related features, primarily clustered just north of State Road 72 between Upper and Lower Myakka Lakes. In addition to constructing numerous park facilities, the CCC cleared extensive firebreaks, built many miles of all-weather roads, installed weirs below Upper and Lower Myakka Lakes, and planted hundreds of thousands of North Florida slash pines in the dry prairies. While many of the park's CCC buildings still serve the public, most of the other "enhancements" have been, or are being, removed or remedied; while they were well intended, they were not ecologically prudent actions. In addition to providing employment and job training for men during the Great Depression, CCC activities were also intended to improve or restore the degraded landscape, and to develop public recreation facilities according to professionally-drawn plans. The majority of the park's extant CCC buildings are rustic structures that were constructed out of natural materials, including limestone, cabbage palm logs, and timber extracted from the surrounding area.

Latrine (8So2264): One-story, rectangular building with a wooden post-and-girt construction, cypress plank siding, gable roof with cypress shakes, and articulated limestone foundation. Past maintenance repairs and improvements that have altered the structure's historical integrity include installation of skylights and tile flooring in 1981.

Picnic Pavilion (8So2265): One-story shelter with a wooden post-and-girt construction, square hewn logs, crosses gable roof with cypress plank sidings, tripartite corner posts, and carved extended purlins. Its physical integrity is threatened by moisture damage, which is causing rot at the base of its square support beams despite installation of flashing. Past maintenance repairs and improvements that have altered the structure's historical integrity include replacement of rotted wood with mortar. Rot areas were patched with mortar to slow degradation, but wood rot continues nonetheless. Nearly all the support beams show rot and half have severe rot and need to be replaced. The original roof material would have been wooden shake shingles, and in the past, have been replaced with asphalt shingles. Additionally, the structure had been painted from its original natural finish.

Log Picnic Pavilion (8So2266): One-story building with a wooden post-and-girt construction, cross gable roof with cypress shakes and decorative king post trusses and knee bracing in the gable end, palm log exterior walls chinked with asphalt and sawdust composite mortar, carved rafter ends, limestone chimney, and articulated limestone foundation. Its physical integrity is threatened by moisture damage, which is causing limestone to spall and wooden elements such as shingles to deteriorate. Past maintenance repairs and improvements that have altered the structure's historical integrity include replacement of cypress shakes with sawn shingles in 1980 and 1993, repointing of chimney brick, and installation of an ADA ramp circa 1999.

Shed (8So2267): One and one half-story wood frame building with board-and-batten exterior wall fabric and a gable roof with 3-V crimp surfacing.

Ranger's Residence (8So2268): One-story wood frame vernacular residential building with a gable roof, end porch with knee wall and screen, wood weather board drop siding, brick chimney, and 3/1 double hung sash windows; pre-dates the CCC structures and was relocated to the park. The original structure consisted

of a large room with a bedroom in the back; a kitchen, bedroom, and bathroom are later additions. Roof sheathing would have been originally shake shingles and has been replaced with asphalt.

Horse Barn/Interpretive Center (8So2269): Large one and one half-story building with wooden post-and-girt construction, gable roof with cypress shakes, cypress plank exterior wall fabric, cupola, casement windows, and articulated limestone foundation. Its physical integrity is threatened by insects and water damage, which is causing mildew and wood rot. Past maintenance repairs and improvements that have altered the structure's historical integrity include replacement of most of the cypress siding in 1980, replacement of purlins, rotation and replacement of beams and rafters, replacement of cypress roof shakes with fiberglass tab shingles, and addition of reversible restrooms with separate plumbing in 2002.

Caretaker's Cottage (8So2270): One-story building with wooden post-and-girt construction, cross gable roof with cypress plank siding in gable ends, palm log exterior wall secured with heavy gauge wiring and chinked with asphalt and sawdust mortar, decorative shutters, limestone chimney, and limestone foundation piers. Its physical integrity is threatened by long periods of dampness in the lower walls, which is causing pocket rot. Past maintenance repairs and improvements that have altered the structure's historical integrity include replacement of log siding via stapling, addition of metal flashing, and replacement of original shakes with regular shim shingles.

Maintenance Shed/Park Shop (8So2271): One-story building with wooden post-and-girt construction, cross gable roof, articulated limestone foundation, and plywood siding. The building has undergone substantial modifications, and consequently retains little historical integrity.

Cattle Dip Vat #1 (8So2272): One of two concrete cattle dip vats, poured below grade with an associated rough-cut, heart pine draining platform; constructed circa 1917. The vat was recorded as part of the New Deal survey, but is believed to be associated with Mrs. Potter Palmer's ranch. The Florida Department of Environmental Protection analyzed the vat for contaminants, detecting arsenic in the surrounding soil but not the water.

Concrete Dam (8So2273): Dam with limestone walls and cylindrical concrete spillway, approximately 200 feet long, located on the southern edge of Upper Myakka Lake. This structure is degrading and potentially hazardous, with the concrete finish crumbling in many areas, with some exposed holes.

Latrine (8So2274): One-story building with wooden post-and-girt construction, gable roof with cypress shakes, palm log exterior wall secured with heavy gauge wire and chinked with asphalt and sawdust mortar, two stoops, louvered windows, copper and lead flashing, and an articulated limestone foundation. Its physical integrity is threatened by termites. Past maintenance repairs and improvements that have altered the structure's historical integrity include replacement of oak corner beams with cypress beams and brackets.

Cabin 1 (8So2275): One-story, L-shaped building with wooden post-and-girt construction, cross gable roof with decorative king post trusses and knee braces in gable end, palm log exterior wall secured to with heavy gauge wire and chinked with asphalt and sawdust mortar, entrance porch, carved rafter ends, limestone chimney, and limestone foundation piers. Its physical integrity was threatened by periodic flooding, and was elevated in 2015. Past maintenance repairs and improvements that have altered the structure's historical integrity include floor replacement with plywood, and in-fill of the porch to provide ADA accessibility. The original structure originally would have been rectangular with an addition added in the 1940s.

Cabins 2–5 (8So2276–8SO2279): Like Cabin 1, minus ADA alterations.

Earthen Dam/Levee (8So2280): Earthen levee, approximately 1000 feet long and 25 feet high, designed to stop downstream drainage of Upper Myakka River.

Fire Tower (8So2281): Elevated building with a hip roof, steel skeletal frame, and concrete piers. The building is not presently under park management and is under the property of the Florida Forest Service (FFS). This structure was auctioned off by FFS to a private bidder and was removed from the property in December of 2013.

Harris Camp Monument (8So3105): Stone monument erected in 1945 in the location of the Harris Camp (So6607) site to commemorate the Harris, Crowley, Wilson and Lowe families' use of the site as a camp since October 1889. Allen Crowley was the first park manager at Myakka River State Park, and the Wilson and Lowe families were early settlers around Sarasota, then in Manatee County. Condition during the 2014 site assessment, there was evidence of visitor use in the area but no damage or degradation to the monument except normal wear from the elements.

Myakka Shop Building (8SO6992): One-story wood frame vernacular rectangular building with a gable roof. Built in 1935 with wood siding, concrete floor, and asphalt shingles on roof. Shop building has not been moved, altered, or added onto. Overhang from building to cover another concrete slab serves as a maintenance bay. Plaque on outside of building states: "Built by the men of the Civilian Conservation Corp 1934-1941."

Myakka Original Ranger Station (8SO6986): One-story wood frame, concrete block vernacular rectangular building with a gable roof. Wood siding, concrete block, and asphalt shingles on roof. This structure was originally built in 1959 to serve as main

Ranger Station. It was converted to administrative offices in 2002. The original door used to take day use admission was removed and decorative stone was added to match the new Ranger Station. Double pane sliding windows replaced in 2013 from single pane sliding. New windows fitted to old openings. Ornamental limestone on bottom 1/3 of structure added in 2002.

Old Prairie Campground Bathhouse (8SO6989): One-story concrete block vernacular rectangular building with a gable roof. Concrete building with asphalt shingles. Built in 1961 to serve as a bathhouse for the campground. Supply room altered into unisex restroom in 2011.

Big Flats Campground Bathhouse (8SO6991): One-story concrete block, masonry veneer-artificial, and stone vernacular rectangular building with a gable roof. Concrete building with asphalt shingles. Built in 1958 to serve as a bathhouse for the campground. Heavy campground use and poor design have caused the walls to crack and settle. Concrete blocks were stacked on top of each other instead of staggered, which would have given it more support. Rectangular screen windows with wood frames and concrete louvers.

Myakka River State Park North Residence (8SO6988): One-story concrete block vernacular building with a gable roof. T-shaped exterior with wood siding and stone with asphalt shingles on the roof. Two-bedroom 1 bath house with braced wood frame and poured concrete footing. Built in 1962 as a private residence to house the north gate park ranger who collected tolls at the north entrance of the park. It has since housed rangers and assistant park managers. An addition of car port and porch were added later and other alterations are unknown. Single hung sash, metal, paired, 2/2, rectangular windows.

Myakka River State Park North Gatehouse (8SO6990): One-story masonry veneer-artificial vernacular rectangular building with gable roof. Built in 1962 to serve as a gatehouse to collect admission fees to the park. Currently, there is limited use of building as it is only open weekends and state holidays and has very limited public access. Used strictly for collecting admission fees to the park. Concrete slab, braced wood frame, and poured concrete footing. Building has not been moved or added on to. Alterations are not known. Single hung sash, metal, paired, 2/2, rectangular windows.

At least 10 park buildings were constructed during the late 1950s to the mid-1960s and are now considered as historic structures. These buildings should be documented and recorded in the Florida Master Site File. They include the Lake Restroom (BL056018), the Hill Area Ranger Residence (BL056020), the Manager's Residence (BL056021), the Group Area Restroom/Shower (BL056017), the Park Manager's Shed (BL056039), the Grease House (BL056029), the Myakka Residence (BL056044), the Horse Trail Privy (BL056027), and the Equipment Shelter (BL056028).

Condition assessment: The park's CCC structures are generally in good condition, because of vigilant monitoring, maintenance, and retention of historical appearance by park staff. These buildings, the majority of which continue to serve public and park maintenance needs in the original function intended, show the predictable deterioration caused by environmental factors and daily use. Excessive environmental moisture in the form of heavy rainfall and periodic flooding is the largest threat to the structures, causing wood to rot, fungus to bloom, and limestone to spall. Remedial preservation efforts demand frequent repair and periodic replacement of structural elements, application of mildewcides, and consideration of other effective, low risk alternatives to reducing structures' vulnerability to water damage. Pests that nest and feed on structural lumber, such as termites and wasps, also threaten buildings' cosmetic appearance and structural integrity.

A report entitled *Preservation Plan for 7 CCC Structures at Myakka River State Park* was developed by Stevenson Architects Inc. in 2009. The plan documented and assessed existing conditions for the Log Picnic Pavilion (8So2266), the Latrine/Log Restroom (8So2274) and the five CCC cabins (8So2275–8So2279), provided preservation recommendations, and created conceptual designs, prioritizations of work and project budgets. Archival drawings, existing conditions drawings and conceptual design drawings were also created as part of the plan.

Many of the unrecorded historic structures from the 1950s to the mid-1960s are standard park buildings that were not constructed to match or complement the CCC buildings and have been modified from their original construction to keep up with increasing visitor use, changing building codes, updating to meet ADA compliance and general maintenance repairs and renovations. They are in fair to good condition. However, a few of these structures continue to degrade, are near or past the end of their typical life expectancy and are in poor condition.

Level of significance: All the CCC structures were considered as potentially eligible for the National Register of Historic Places by the surveyor when first surveyed in 1989, both individually and as contributors to a potential CCC archaeological and historic district. However, some structures have experienced a loss of material integrity as noted in the Description section above, and may no longer be considered as individually significant, although they still retain a great deal of their historic appearance and contribute to larger historic district. None of the historic structures in the park have been individually evaluated by the State Historic Preservation Officer (SHPO) for eligibility for listing in the National Register; however, the SHPO's office generally considers that all the CCC structures in the park are eligible for the National Register as elements of a potential CCC historic district.

General management measures: All the recorded CCC structures in the park are managed using preservation or a combination of rehabilitation and preservation as the preferred treatments. These buildings are currently being used for their original purposes, although a few have had modifications for safety and ADA purposes.

All the historic CCC structures have been tented and fumigated with Vikane, Sentricon termite monitoring and baiting systems are employed, and physical barriers such as screens have been installed. Park maintenance repairs and improvements, such as new building additions or substitution of new construction material, can adversely impact structures' historical fabric and character. Care must be taken to select appropriate material, methods, and design that meet Secretary of Interior historic preservation standards, to consult with preservation consultants at the Bureau of Natural and Cultural Resources and elsewhere as needed, and to secure Florida Division of Historic Resources' Compliance and Review approval if warranted. Any historical structure requires routine maintenance to preserve its integrity. Historic structures at Myakka River State Park require at times an immense amount of maintenance due to the particularly wet environment.

Ongoing documentation of the preservation treatments applied to each historic structure is one of the park's largest cultural resource management needs. While preservation work ideally increases the longevity, and maintains the integrity of a building, it can also alter the building's historical configuration and composition through the introduction of new treatment applications, structural materials, and building additions. Furthermore, despite highest hopes, some preservation work proves unsuccessful, or is later superseded by more effective or appropriate alternate treatments. Documenting each repair or restoration project is critical to understand and differentiate between the structure's historical and modern composition at any point in time, to learn about the best approaches and products from past efforts and mistakes, and to make sound and informed decisions about future preservation needs.

To mitigate the recurrent flooding threat the five CCC cabins (8So2275 – 8SO2279) were elevated by 24 inches above the current height in 2015, as recommended in the 2009 preservation plan. Flood damaged materials were also repaired or replaced. Elevation of the cabins will prevent exposure to flood waters during most flooding events.

Three park buildings constructed in the late 1950s are under consideration for removal. The cost to repair these buildings is likely to exceed the cost of replacement, and they are standard park buildings with no historic or design association or significance. The old concession building (BL056019) was in a serious state of disrepair and was demolished in June 2017, a replacement concession building was constructed in 2009. Two restroom structures, the Lake Restroom (BL056018) and the Big Flats Restroom (BL056026) are in the process of being evaluated for reuse or replacement. If replacement is determined to be the most feasible option for the buildings, Bureau of Natural and Cultural Resources staff will consult with DHR Compliance staff as to documentation of the buildings prior to their removal.

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: Collections kept within Myakka are limited. There is an existing herbarium collection composed of most plant species found in the park. The visitor center contains numerous natural resource artifacts in the form of taxidermy specimens of represented species in the park.

Condition assessment: The collections are maintained currently in the park visitor center. This includes the herbarium and most taxidermy and is maintained with a central heating and ventilation system. No additional humidity control devices are in place. There are a few taxidermy specimens housed in the ranger station which are maintained with a central heating and ventilation system. All taxidermy specimens are aging and some are badly deteriorating. Their useful life is not expected to extend beyond the life of this plan. Pest control consists of quarterly inspections by contract with Terminex, limited to general pest treatment around the perimeter of the structure in which they are housed.

Level of significance: The collection represents the types of plant and wildlife to be found in the park. Its significance lies in its ability to interpret the park's natural resources.

General management measures: A collections management program was virtually nonexistent until 2013. It was then that a statewide collections management program was initiated for the DRP and the park's collections were inventoried and recorded. It is intended that this information will be stored and available for reference through the Past Perfect software database. There are currently no staff trained in taxidermy care and maintenance. The specimens are housed in enclosed displays in the visitor center and the specimens housed in the ranger station are exposed. It is recommended that these specimens be evaluated for condition, and those which have passed their useful life be de-accessioned, with these displays consolidated and replaced with modern interpretive displays to include the cultural history of the park such as the CCC and cattle ranching.

A Scope of Collections has not been developed for the park. A scope is needed to assist the park in formulating its collections strategy and determining the types of objects that it needs within the park to advance its interpretive and educational purposes.

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**
8Ma810 Oak Grove Campsite	Prehistoric/Unspecified	Archaeological Site	NS	F	P
8Ma1466 Mossy Silo Bases	Historic/American, 1821-1899	Archaeological Site	NE	F	P
8Ma1467 Cattle Dip Vat #2	Historic/American, 1821-1899	Archaeological Site	NE	F	P
8So21 Deep Hole	Prehistoric/Unspecified	Archaeological Site	NE	F	P
8So22 No Name	Prehistoric/Unspecified	Archaeological Site	NE	F	P
8So395 Old Palmer Ranch Site	Historic/American 1821-1899	Archaeological Site	NE	F	P
8So430 Lincer Site	Historic/Twentieth century American, 1900-present	Archaeological Site	NE	F	P
8So431 Cow Trail Site/Venice-Arcadia #2	Prehistoric/Unspecified	Archaeological Site	NE	F	P
8So611 Lincer #2	Unspecified	Archaeological Site	NE	F	P
8So2264 Latrine (South Restroom)	Historic/New Deal Era	Historic Structure	NR	G	P
8So2265 South Picnic Pavilion	Historic/New Deal	Historic Structure	NR	F	P
8So2266 Log Picnic Pavilion	Historic/New Deal	Historic Structure	NR	G	P

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture / Period**	**Description**	**Significance**	**Condition**	**Treatment**
8So2267 Shed	Historic/New Deal	Historic Structure	NR	F	P
8SO2268 Ranger's Residence	Historic/New Deal	Historic Structure	NR	G	P
8So2269 Interpretive Center	Historic/New Deal	Historic Structure	NR	G	P
8So2270 Caretaker's Cottage	Historic/New Deal	Historic Structure	NR	G	P
8So2271 Maintenance Shed	Historic/New Deal	Historic Structure	NR	G	P
8So2272 Cattle Dip Vat #1	Historic/WWI and Aftermath	Historic Structure	NR	F	P
8So2273 Concrete Weir and Dam	Historic/New Deal	Historic Structure	NR	F	P
8So2274 Latrine (Log Restroom)	Historic/New Deal	Historic Structure	NR	G	P
8So2275 Cabin 1	Historic/New Deal	Historic Structure	NR	G	P
8So2276 Cabin 2	Historic/New Deal	Historic Structure	NR	G	P
8So2277 Cabin 3	Historic/New Deal	Historic Structure	NR	G	P
8So2278 Cabin 4	Historic/New Deal	Historic Structure	NR	G	P
8So2279 Cabin 5	Historic/New Deal	Historic Structure	NR	G	P

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture / Period**	**Description**	**Significance**	**Condition**	**Treatment**
8So2280 Earthen Dam/Levee	Historic/New Deal	Historic Structure	NR	F	P
8So2281 Fire Tower	Historic/New Deal	Historic Structure	N/A	N/A	R
8So2282 Boat Graveyard	Historic/New Deal	Archaeological Site	NR	F	P
8So3105 Harris Camp Monument	Historic/New Deal	Historic Structure	NE	G	P
8So6141 Campground Well	Historic-Unspecified	Archaeological Site	NE	F	P
8So6142 Alligator Point Silo Bases	Historic/American, 1821-1899	Archaeological Site	NE	F	P
8So6144 Ranch House Silo Bases	Historic/American 1821-1899	Archaeological Site	NE	F	P
8So6145 CCC Water Tower #1	Historic/New Deal	Archaeological Site	NE	F	P
8So6146 Youth Area Silo Bases	Historic/American, 1821-1899	Archaeological Site	NE	F	P
8So6607 Harris Camp	Historic/American, 1821-1899	Archaeological Site	NE	F	P
8So6727 Geo Tracker	Prehistoric/Unspecified	Archaeological Site	NS	G	P
8SO6992 Myakka Shop Building	Historic/New Deal	Historic Structure	NS	F	P

Table 4. Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	**Culture / Period**	**Description**	**Significance**	**Condition**	**Treatment**
8SO6986 Myakka Original Ranger Station	Historic/American 1950s-1960s	Historic Structure	NS	F	P
8SO6989 Old Prairie Campground Bathhouse	Historic/American 1950s-1960s	Historic Structure	NS	F	P
8SO6991 Big Flats Campground Bathhouse	Historic/American 1950s-1960s	Historic Structure	NS	F	P
8SO6988 Myakka River State Park North Residence	Historic/American 1950s-1960s	Historic Structure	NS	F	P
8SO6990 Myakka River State Park North Gatehouse	Historic/American 1950s-1960s	Historic Structure	NS	F	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 Myakka 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	Conduct an assessment and feasibility study of the effects of the weir, failing culverts adjacent to the weir and the private dam on the hydrologic flow, flora and fauna within the Myakka River system
Action 2	Pending the outcome of the assessment in Action 1, and if it is determined as feasible to do so, remove or modify structures to improve hydrology
Action 3	Monitor the water inflow to Myakka River State Park from adjacent sources, including any associated storm water runoff. DRP should continue to support all entities that monitor water resources for the park.
Action 4	Continue water quality monitoring through the University of Florida's Lakewatch Program.
Action 5	Conduct a more inclusive detailed water quality assessment on a yearly basis.
Action 6	Restore hydrologic sheet flow and natural hydroperiod by filling ditches that were created to connect and drain wetlands.

During periods of high water level, manatees have been sighted in the Lower and Upper Myakka Lakes. During periods of low water level, the weir and dam have proven to be an obstacle to manatees traversing the river. In January 2014, a stranding of a juvenile manatee occurred. It is important to understand the influence of the two man-made structures to improve natural hydrologic processes and restore ecosystem health.

The concession has requested, during periods of low water level, to close the culverts adjacent to the Upper Myakka Lake weir. The alteration of water flow during this period may influence the flora and fauna both downstream and upstream. The conclusion of the assessment may influence management practices. A feasibility study for the removal or modification of the weir, bypass culverts, and dam should be conducted with funding pursued through partnerships with SWFWMD, FWC, Charlotte Harbor National Estuary Program and others.

Over the last decade there has been several landscape alterations and land use changes, which may affect the quality and quantity of water within the park. Understanding these effects will enable better management decisions. SWFWMD,

USGS, Manatee and Sarasota Counties have programs that monitor land use changes and water resources. Staff should continue to review water quality and quantity reports as they relate to the park's water resources and natural systems.

The park participates in the LAKEWATCH program and water samples are collected monthly. Lakewatch analyzes the water samples on a monthly to bi-monthly basis dependent on funding. Total phosphorus (TP), total nitrogen (TN), chlorophyll, water clarity and depth are analyzed. From the data collected, the Upper Myakka Lake is considered eutrophic with a high level of biological productivity (Lakewatch).

As mentioned in Action 5, LAKEWATCH analysis includes TP, TN and chloride. A more thorough analysis to include but not limited to dissolved oxygen, pH, total alkalinity and chloride, should be conducted to give a more detailed report on water parameters and an assessment of river/lake health. Management decisions would benefit from more detailed understanding of the water resources in the park.

Manmade ditches that drain wetlands or alter the natural sheet flow of water, should be mapped and where feasible should be plugged or filled-in to improve hydroperiods in wetlands and across the landscape.

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 community 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 ecosystems. Prescribed burning increases the abundance and health of many wildlife species. Many of Florida's imperiled plant and animal species 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.

The park contains several natural communities that rely on fire to maintain its plant composition and structure. Within these communities exist flora and fauna that could not persist without fire. The fire dependent communities include Florida dry

prairie, mesic flatwoods and scrubby flatwoods. Florida dry prairie and mesic flatwoods cover the greatest area of the park.

Florida dry prairie is the largest fire-dependent community in the park. The natural fire frequency in Florida dry prairie is approximately 1 to 2 years. The higher frequency of fire, followed by the long hydroperiod are probably the primary factors that limit pine recruitment (FNAI 2010). When fire regimes are altered or fires are suppressed, saw palmetto can proliferate, leading to significant changes in the ecosystem, particularly the herbaceous vegetation (Willcox and Guiliano 2010). An increase of pine, hardwoods, and palmetto, with a decrease in grasses and herbaceous plants, was the result of fire suppression for more than 40 years in the park. Fire-dependent species such as the state-listed many-flowered grasspink and the pine lily were not able to survive the thick overstory that ensued. Both plants require open ground and nutrient reloading that occurs after a fire. Another result of fire exclusion was the elimination of the state and federally endangered Florida grasshopper sparrow from the park. The Florida grasshopper sparrow is a ground-inhabiting sparrow endemic to the Florida dry prairie, requiring open grassy areas to nest and to forage (Pranty and Tucker 2006). Alterations to the habitat due to changes to fire seasonality and frequency, and alterations of hydrology are the primary causes of its decline. It is unlikely that Florida grasshopper sparrows will return to the park due to their extremely low population and the immense distance from where they are currently found. However, the park has two other bird species that have more promising futures. During the period of fire exclusion, the crested caracara (federally threatened) and the Florida burrowing owl (state threatened) were not observed residing in the park. Thanks in part to the reintroduction of fire, both the crested caracara and the burrowing owl have returned to the park's dry prairies. Because of decades of fire suppression in Myakka's dry prairie, and the current density of woody shrubs and saw palmetto the minimum successful fire return intervals achieved are 18 months to 2 years and during natural community restoration efforts the fire return interval may range from 2 to 3 years on average. As fuel conditions improve through mechanical treatment and frequent fire during dry growing-season conditions, the optimum fire return interval will be one to two years.

Mesic flatwoods are the park's second largest upland fire-dependent natural community. Mesic flatwoods require frequent fire; all its constituent plant species recover rapidly from fire and several species require fire to reproduce. South Florida slash and longleaf pines have thick bark to protect them from fire, and their seeds need the mineral-rich soil and open sunlight that fire provides to germinate. Both pine species undergo a grass stage for several years after germination that is resistant to fire. Wiregrass, along with many other characteristic herbs such as whitetop aster (*Oclemena reticulata*) and many-flowered grasspink, requires fire to flower (FNAI 2010). Without fire in mesic flatwoods, increases in saw palmetto height, cover, and density have become a concern, potentially resulting in the loss of many grass and forb species and causing declines in the species-rich herbaceous ground layer (Wade et al. 1980; Huffman and Blanchard 1991; Robbins and Myers 1992; Olson and Platt 1995 as cited by Willcox and Guiliano 2010). Such changes threaten the integrity of pine flatwoods and their suitability for many wildlife

species of conservation concern. These include a variety of mammals, birds, amphibians, and reptiles such as Sherman's fox squirrel (*Sciurus niger shermanii*), Florida black bear, and gopher tortoise.

Fire was reintroduced in the park in the late 1970s. The restoration of long unburned dry prairie favors growing-season burns to reduce woody species. Three growing-season burns (two in May and one in June) in the space of six years were successful at killing mature live oaks that had invaded dry prairie at Myakka River State Park during 46 years of fire exclusion (Huffman and Blanchard 1991). Studies examining shrub communities indicate regrowth is lower after growing-season burns than dormant-season burns because of reduced shrub resprouting (Lewis and Harshbarger 1976; Fitzgerald 1990; Huffman and Blanchard 1991; Olson and Platt, 1995; Drewa et al. 2002 as cited by Willcox and Guiliano 2010). However, reducing dense palmetto cover and increasing herbaceous cover in long fire-excluded prairie is more challenging (FNAI 2010). The height of the palmetto is reduced with fire, but the density will have to be addressed by mechanical treatment, which will be discussed in the Natural Community Restoration section.

Prescribed fire is not conducted in the fall, during the season of grass seed production. Fires occurring during fall when the grass seeds are held on the stem usually destroy most of them (USGS/NPWRC 2013). With the goal of increasing the native grass component to the dry prairie and mesic flatwoods in mind, burns are conducted during winter, spring and early summer. Most of the park's burns are conducted in spring. The reintroduction of fire has been successful in reducing height of palmetto/shrubs and has reduced the number of hardwoods encroaching into dry prairie and mesic flatwoods. The invasion of pine into the prairie has also been reduced. There are now known pairs of crested caracara residing in the park, and in 2013, a pair of burrowing owls were observed near a burrow within the park. These sightings are an indication that the burn program has been successful and must continue to improve the park's fire-dependent communities.

Objective A: Within 10 years, have 26,074 acres of the park maintained within the optimum fire return interval.

Action 1	Update burn plan on a yearly basis.
Action 2	Manage fire-dependent communities by burning between 11,131–25,938 acres annually.
Action 3	Continue and improve monitoring fire effects on successional dry prairie, mesic flatwoods and scrubby flatwoods.
Action 4	Firebreaks will be maintained.

Based on the Park Service Fire Management Standards, burn plans are developed to provide strong guidance to the park, but modifications may occur throughout the year for a variety of reasons. Determining whether a zone should be burned or not in the next annual cycle is a matter of considering fire return intervals for each community type, present fuel load, resource management objectives, and strategic location. It is very important to consider how each zone fits into the overall scheme of accomplishing a number of burns at each park. Each year, the burn plan will

include a selection of zones that meet different weather parameters to increase the chance of being able to burn under a variety of conditions. To the greatest extent possible, zones are planned in a sequence so that each burn makes the next burn easier by reducing the amount of holding required to burn each zone (i.e. plan to burn into recently burned zones). The overall mosaic of burned zones in the park is considered, avoiding extreme large expanses of burned areas. This may be alleviated by the timing of the burn. The annual plan considers season of burn with an emphasis placed on growing-season burning as the ideal objective. The frequency of burning is determined by the natural communities found in the zone and its natural fire frequency. The annual park fire plan includes zones to be burned, burnable acreage, preferred season of burn, and identification of backlogged acreage.

With the omission of the natural process of fire, fire-dependent communities change over time. There is an increase of hardwoods and palmettos in both the Florida dry prairie and mesic flatwoods communities. With the increase in canopy cover, native grasses and herbaceous plants can't compete for sunlight and eventually disappear. Ground nesters such as the Florida grasshopper sparrow can no longer survive. This occurred at Myakka River State Park, but since the mid-1970s, the park has been reintroducing fire back to its fire-dependent communities. Over the last 14 years (July 2003 – June 2017), the park has burned an average of 7,513 acres per year. This number is lower than the yearly minimum goal because of drought conditions during this timeframe. Prior to this plan update the minimum target acreage to burn was 7,700, which was exceeded during eight of the 13 years listed above.

There are multiple benefits to introduction of fire as a management tool:

- Restoration or preservation of fire-adapted natural communities.
- Restoration or preservation of habitat for rare plant and animal species.
- Creation of a vegetation mosaic by varying intensity, frequency, and season of burn within each maintained natural community.
- Promotion of diversity within natural communities.
- Stimulation of flowering in herbs, forbs, and other vascular plants.
- Reduction of potentially hazardous fuels.
- Maintenance of natural transition zones between vegetation types.
- Reduction of wildfires and resulting smoke management problems through management of fuel loads.

The Day of Burn Report is submitted after each burn, noting fire behavior, fire effects on wetlands, wildlife observed during the fire and issues that may have occurred during the fire. A copy of the report stays in the park and another is sent to the district. Reports are reviewed prior to the next burn. A six month and/or one-year post-fire evaluation would be a useful tool as well and should be incorporated into the program.

Firebreaks will be maintained at an effective width to minimize spot fires during prescribed burns. Minimum width of firebreaks should generally be at least 2 times

as wide as the height of adjacent receptive fuels. Firebreaks are disked to mineral to stop the movement of flames.

Depression marshes dividing management zones or along fence lines may be used when conditions warrant as a firebreak, but there can be complications when the soils on the edge of the marshes are too saturated to traverse or when the marshes are too dry to contain the fire. Therefore, there is a need to establish wetland go-arounds used as firebreaks.

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 acreage to be burned.

Table 5: Prescribed Fire Management

Natural Community	Acres	Optimal Fire Return Interval (Years)
Florida Dry Prairie	14,771	1-2 2-3 (restoration)
Mesic Flatwoods	3,766	1-2 2-4 (restoration)
Scrubby Flatwoods	182	4-8
Depression Marsh	6,789	1-4
Pasture-Abandoned	566	1-4
Annual Target Acreage	11,131-25,938	

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 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.

To track fire management activities, the DRP maintains a statewide burn records in the Natural Resource Tracking System (NRTS) 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, mechanical treatment, etc. The database is also used for annual burn planning and determining goals for the year which are usually set within the target acreage range of 11,131-25,938 acres. The database allows DRP to document fire management goals and objectives on an annual basis. Each quarter, the database is updated and reports are produced that track progress towards meeting annual burn objectives.

Natural 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 conditions, including the reestablishment 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.

The following are the natural community/habitat restoration and maintenance actions recommended to create the desired future conditions in the Florida dry prairie, mesic flatwoods and scrubby flatwoods communities.

***Objective B: Conduct upland habitat / natural community restoration activities on 2,000 acres of* Florida dry prairie, mesic flatwoods and scrubby flatwoods communities over the next 10 years.**

Action 1	Develop/update site-specific restoration plan. Each fiscal year, the natural communities are assessed.
Action 2	Implement restoration plan.
Action 3	Update and maintain a comprehensive mechanical treatment map.

When an area is designated as a potential restoration site, it is assessed more closely through vegetation transects. This practice will continue. Once an area is designated as a restoration area, the best method of mechanical treatment available to reach the objective is determined and implemented.

Most of the restoration/enhancement activity for this objective is roller-chopping dry prairie and mesic flatwoods to reduce the density of saw palmetto. In fiscal 2016-17 nearly 2,300 acres were roller-chopped, but additional chopping acreage is needed to move additional prairie and flatwoods towards optimum conditions.

Park staff should continue to map areas that have been mechanically treated and maintain a comprehensive mechanical treatment map as a reference, emphasizing the history of areas roller-chopped.

Objective C: Develop a plan for Florida dry prairie restoration of the abandoned pasture south of State Road 72 that identifies priorities, feasibility, and partnership/funding opportunities.

Action 1 Develop a restoration plan which outlines the desired outcome, documents the existing conditions, and identifies potential restoration projects.

Action 2 Determine the feasibility of the projects, outline a budget for each project and phase, prioritize project schedules, and establish a list of potential partnership and funding opportunities.

Action 3 After Actions 1 and 2 are met, implement the project(s).

Restore 566 acres of abandoned pastures back to historic natural communities to regain the natural ecological function of the project areas, benefitting wildlife while enhancing the visitors' experience of the "real" Florida.

***Objective D: Conduct aquatic habitat restoration activities on 880 acres of river floodplain lake*.**

Action 1 Identify, develop, and implement comprehensive aquatic habitat management of the Upper Myakka Lake by collaborating with FWC's Habitat and Species Conservation section, FWC's Invasive Plant Management section and SWFWMD's Vegetation Management section.

Action 2 Continue to coordinate with FWC's Invasive Plant Management section and SWFMWD's Vegetation Management section to control the spread of aquatic invasive plants in the Upper Myakka Lake, Lower Myakka Lake, and the Myakka River.

Management includes removal/treatment of invasive and nuisance plants and replacing with native plants historically established in the park. Work is underway with FWC AHRES program to treat the invasive common reed and plant natives including soft-stem bulrush and jointed spike-rush.

Objective E: Develop a desired future conditions map using historical data including pre-settlement land survey plat maps and notes for the area and interpret 1940s aerial photography.

A desired future conditions map should be developed using historical aerial photography and land survey maps. This map could be used as a baseline to guide natural community enhancement and restoration activities in the park. Decades of fire exclusion allowed pines and hardwoods to become established in dry prairie and other fire dependent natural communities. This work could also be used to guide restoration of the abandoned pasture listed in Objective C.

Imperiled Species Management

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

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

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

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

Action 1 Update the inventory as needed during the planning period.

The baseline imperiled species occurrence inventory lists are complete for the 2017 Management Plan revision. The inventory lists will be updated as needed during the next 10 years.

Objective B: Monitor and document 55 selected imperiled animal species in the park.

Action 1	Develop monitoring protocols for three selected imperiled animal species: crested caracara, burrowing owl and sandhill crane.
Action 2	Implement monitoring protocols for imperiled animal species including those listed in Action 1 above and the bald eagle, Florida scrub-jay, gopher tortoise and butterflies.
Action 3	Determine best management practices in relation to reducing the impacts of human disturbance on alligators at Deep Hole.

All imperiled wildlife species are monitored at the Tier 1 level, which includes non-targeted observation and documentation through casual/passive observation during routine park activities implemented daily by staff members. In addition, avian species have been monitored at a level of tier 2. Volunteer bird interpreters record the presence of bird species (many include the number of individuals observed) at the Bird Walk on Upper Myakka Lake, during the months of November through May. Moreover, Myakka River State Park has participated with the Christmas Bird Count since 1959, recording the species and numbers observed on the third Monday in December.

Alligators in the Upper Myakka Lake are monitored at a tier 2 level through the FWC's Alligator Management Program. The Upper Myakka Lake and the section of Myakka River between the weir and the Main Park Drive Bridge are surveyed. The number present and size of the alligators are recorded. This survey should continue to identify population and demographic trends. Human disturbance to alligators at Deep Hole should be monitored during the dry season, and steps taken to limit boat and pedestrian access to the sink hole.

The Florida panther is the target of periodic surveys led by FWC's Florida Panther Project and FWC's Landowner Assistance Program. A remote-sensing trail camera has been set to record all the wildlife crossing a trail in expectation of capturing a Florida panther image. FWC shares all data collected with the park biological staff. The park will continue to work with FWC to continue survey efforts.

The Florida manatee has been observed in the Upper and Lower Myakka Lakes and the Myakka River during the summer months when water levels are high. Due to the possibility of stranding when the water level recedes, the DRP collaborates with the FWC Manatee Section to ensure the safety of the manatees.

The swallow-tailed kite, crested caracara and the burrowing owl nest in the park. Monitoring of the birds' nesting success can indicate whether the park's management practices are effective.

Since 1986, bald eagle nesting has been monitored each year from October through May by staff and volunteers. Over the last five years, there has been an average of six active nests with a total average of seven eaglets fledged. Monitoring of nest success will continue.

Florida scrub-jays have periodically resided in the northern section of the park's scrubby flatwoods. Monitoring efforts were implemented in the late 1990s until 2002, when the last bird disappeared. Monthly monitoring was resumed in August 2004 after a pair was discovered and continued to September 2007, at which time it was confirmed the pair was no longer present. Due to improvement of the scrubby flatwoods, the area should be monitored on a bi-annual basis to determine presence/absence of the scrub-jays. If scrub-jays are discovered, monthly monitoring should recommence.

Gopher tortoises are often observed in Florida dry prairie, mesic flatwoods and scrubby flatwoods. Periodic Global Positioning System (GPS)-based censuses, using established FWC protocols for gopher tortoise population surveys will be conducted to track population trends and burrow distribution. This will ensure the necessary population viability data is collected. The plan will determine if resource management actions to improve gopher tortoise and other listed species habitat result in changes to the tortoise population.

Since 2010, butterflies have been surveyed in the spring and fall by volunteer butterfly hobbyists affiliated with the North American Butterfly Association (NABA). The data are maintained by the park and are posted on the NABA website for public viewing. The surveys document species presence and numbers observed. Surveys will continue if butterfly experts are available.

Objective C: Monitor and document 17 selected imperiled plant species in the park.

Action 1	Maintain the herbarium which was established in 1986s; continue to add new species as they are found.
Action 2	Develop monitoring protocols for the cardinal airplant and the giant airplant along the main paved roads in the park.
Action 3	Implement monitoring protocols for the cardinal airplant and the giant airplant along the main paved roads in the park.

The herbarium collection provides a representation of the park's flora. This collection is important for research purposes, as well as for interpretation of the park's rich biodiversity. The herbarium is particularly valuable as a comprehensive record of plant species that occur or have occurred in the park. The herbarium includes specimens that were collected in the 1940s.

The giant airplant and cardinal airplant in the park have suffered due to an invasive exotic insect, the Mexican bromeliad weevil, which has become established in the park. The adult and larvae feed on these airplants, killing many of them. Myakka River State Park has worked in partnership with the University of Florida as a research site on the *Metamasius calzone* project. Juvenile plants have been observed in the canopy along the Main and North Drive. It would be beneficial to maintain a closer record of the occurrence and health of these species to determine whether further management action is warranted.

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 most ecological damage. Removal techniques may include mechanical treatment, herbicides, or biocontrol agents.

Objective A: Park staff will annually treat a minimum of 45 infested acres (300 gross acres) of invasive exotic plant species in the park.

Action 1	Annually develop/update the park's exotic plant management work plan.
Action 2	Implement an annual work plan, utilizing both staff and additional resources, to treat infestations within the park, and continuing maintenance and follow-up treatments as needed.
Action 3	Continue to seek grants and additional funding for the treatment of FLEPPC category 1 and 2 exotic plants.

The park is broken into 50 management zones. Each year an annual work plan is developed for the treatment of invasive exotic plants with emphasis on cogon grass management.

Park staff, Florida Conservation Corps (Americorps) and volunteers receive written instructions with the zone number, GPS coordinates, and last known size of the infestation. Staff and volunteers traverse the area searching for the exotic plant and when found, use the best management method and herbicide to treat the infested area.

To track invasive exotic plant management activities, the DRP maintains statewide exotic treatment records in the NRTS database. The database allows DRP to update exotic plant surveys and distribution within each management zone of the park; set annual exotic plant treatment goals; and update treatment records.

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

Action 1	Authorized staff and contractors will participate in the feral hog removal program as resources permit.
Action 2	Continue the island apple snail and egg mass removal program.
Action 3	Research best management practice to reduce the population of exotic fish and exotic amphibian species and implement if feasible.

Work with FWC's Division of Freshwater Fisheries Management (DFFM), Fish and Wildlife Research Institute, and others, to determine the best management

practices to reduce the number of exotic fish species in the Myakka River and Lakes and seek methods to control Cuban treefrogs.

Feral hogs are a significant problem at Myakka River State Park. Feral hog control activities will focus on areas where hogs are causing the most damage, including any threatened cultural resources.

Island apple snail egg removal will occur during warmer months when water temperatures are above 74º Fahrenheit, when egg laying occurs.

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 Myakka 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's Division of Historical Resources (DHR) for review and comment prior to undertaking the proposed project. Recommendations may include, but are not limited to concurrence with the project as submitted, pre-testing of the project site by a certified archaeologist, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects. 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 41 of 41 recorded cultural resources in the park.

Action 1	Complete 17 assessments/evaluations of archaeological sites.
Action 2	Complete 11 Historic Structures Reports (HSR's) for historic buildings and cultural landscape. Prioritize stabilization, restoration and rehabilitation projects.

Assessments of the 17 known archaeological sites in Table 4 will be conducted every two years. Such assessments should include an examination of each site with a discussion of any threats to the site's condition such as natural erosion; vehicular damage; horse, bicycle or pedestrian damage; looting; construction including damage from firebreak construction; animal damage; plant or root damage, other factors that might cause deterioration of the site, and if the site could be relocated. This evaluation should attempt to compare the current condition with previous evaluations using photo points, high resolution scanning, or similar techniques to prioritize the need for preservation and stabilization projects.

Historic Structures Reports are recommended for the remaining 11 recorded CCC/New Deal structures that were not included within the *Preservation Plan for 7 CCC Structures at Myakka River State Park* (Stevenson 2009). Such reports are necessary to prioritize repair, rehabilitation, and preservation projects and to determine whether more detailed documentation and preservation plans need to be developed for certain structures.

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	Conduct Level 1 archaeological survey for two priority areas identified by the predictive model.
Action 3	Develop and adopt a Scope of Collections Statement.

The park needs to record the 1950s to mid-1960s buildings which are now considered historic. They are the Lake Restroom (BL056018), the Hill Area Ranger Residence (BL056020), the Manager's Residence (BL056021), the Group Area Restroom/Shower (BL056017), the Park Manager's Shed (BL056039), the Grease House (BL056029), the Myakka Residence (BL056044), the Horse Trail Privy (BL056027), and the Equipment Shelter (BL056028).

A predictive model (archaeological sensitivity model) has been completed for the park. A Level 1 archaeological survey will be conducted in at least two priority areas identified by the predictive model and located within areas of proposed future development. A Scope of Collections Statement will be developed and adopted in accordance with Chapter 12 of the DRP Operations Manual and in coordination with BNCR staff.

Objective C: Bring 14 of 41 recorded cultural resources into good condition.

Action 1	Design and implement regular monitoring programs for 17 cultural sites.
Action 2	Create and implement a cyclical maintenance program for each cultural resource.

Monitoring programs of the 14 known archaeological sites in Table 4 will be designed and implemented based on the results of the archaeological evaluations/assessments conducted in accordance with Objective A. Such evaluations will help guide the frequency that each site is monitored and identify which sites can be brought to "good" condition.

A cyclical maintenance program shall be designed and implemented for each cultural resource. Archaeological site maintenance shall be guided by the results of the assessment and evaluation of the sites. Historic structure maintenance shall be determined in conjunction with regular park building maintenance schedules and guided by the Secretary of the Interior's Standards for Historic Preservation.

Most of the recorded historic structures in the park are in good condition. Implementation of the preservation recommendations in the *Preservation Plan for 7 CCC Structures at Myakka River State Park* (Stevenson 2009) for the Log Picnic Pavilion (8So2266), the Latrine/Log Restroom (8So2274) and the five CCC cabins (8So2275 – 8SO2279) was completed in 2016.

Special Management Considerations

Timber Management Analysis

If the DRP determines that timber management does not conflict with the primary management objectives of the land, on all parcels larger than 1,000 acres, Florida Statutes - Chapters 253 and 259 require:

1) An analysis of the multiple-use potential of the parcel. Such analysis shall include the potential of the parcel to generate revenues to enhance the management of the parcel.
2) An assessment of the feasibility of managing timber resources for conservation and revenue generation purposes through a stewardship ethic that embraces sustainable forest management practices in land management plans.

The MRSP is designated as a single-use park. The feasibility of harvesting timber at MRSP during the period covered by the UMP was considered pursuant to the DRP statutory responsibilities to analyze 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, except in those forest communities specifically managed as early successional. Timber management is utilized to restore or improve current habitat conditions and enhance the overall integrity of the natural community. Revenue generation from timber management is not the goal but rather, a by-product of taking such actions to help restore/improve target conditions of specific natural communities. In all situations, forest/stand/timber management activities undertaken will adhere to the current Florida Silvicultural Best Management Practices and Florida Forestry Wildlife Best Management Practices for State Imperiled Species.

A subset of the natural communities evaluated at MRSP had pine or hardwood overstory stocking levels at, or above, the upper limits for corresponding Florida Natural Areas Inventory (FNAI) Reference Sites. The majority of areas not in compliance have slightly overstocked conditions in the non-pine components. Overstory thinning is a management tool that may be utilized in areas which have overstocked conditions. Activities related to stand improvement, including palmetto and midstory reduction, are ongoing and still needed in many areas.

A timber management analysis for the park was completed in August 2017 (see Appendix 8). This analysis has been evaluated and found to be consistent with the recommendations found in the subject RMC.

Arthropod Control Plan

All DRP lands are designated as "environmentally sensitive and biologically highly productive" in accordance with Ch. 388 and Ch. 388.4111 Florida Statutes. If a local mosquito control district proposes a treatment plan, the DRP works with the local mosquito control district to achieve consensus. 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.

Currently, there is an Arthropod Control Plans for this park with Sarasota County Mosquito Management Services, that allows for ground spraying the visitor use areas if requested, but no other treatment. There is no Arthropod Control Plan with Manatee County Mosquito Control District because they do not intend to treat mosquitos within the park boundary. Updated maps of the park boundary have been made available to both agencies.

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 Myakka River State Park or the recreation facilities and infrastructure of the park.

Wilderness Preserve

A 7,500-acre tract in the southwest corner of the park has been designated as a Wilderness Preserve. Wilderness Preserve designations are typically reserved for large, undeveloped areas within parks that have retained their principal character and influence without permanent alteration. They are protected and managed in a manner to preserve this natural appeal and value. The number of visitors allowed into a Wilderness area is limited to maintain the wilderness quality. The characteristics of a Wilderness Preserve are as follows:

- Generally, appears to have been affected primarily by the forces of nature, with human impacts substantially unnoticeable;
- Offers outstanding opportunities for solitude, or a primitive and unconfined type of recreation;
- Is expansive and sufficient in size to make preservation and use in an unimpaired condition practical;
- May also contain ecological, archaeological, or other features of scientific, educational, scenic, or historic value.

Uses are limited, passive in nature, and related to the aesthetic, educational and scientific enjoyment of the features and conditions maintained. Other uses may be permitted if fully compatible. Activities that are generally recognized as being compatible within the Preserve are trail use, canoeing/kayaking, nature study and natural scenery appreciation. Facilities are limited to those considered essential for management and appropriate forms of public use.

Only 30 visitors per day are allowed access to the preserve. Permits are required for boaters, paddlers and hikers. Permits are issued on a first come first serve basis at the ranger station. Permits are in high demand and all available permits will frequently be issued by as early as 9 am on busy days.

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, are in the Implementation Component of this management plan.

Land Management Review

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

Myakka River State Park was subject to a land management review on June 6, 2014. 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

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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.

Myakka River State Park is located within the unincorporated area of Sarasota and Manatee counties, about nine miles east of the City of Sarasota and within approximately 10 miles of Venice and North Port, in the southwest part of the state. The main access to the park is by way of State Road 72. The park is bounded to the east by unincorporated Sarasota and Manatee counties and the Myakka Prairie Conservation Easement, and to the north and west by unincorporated Sarasota County and Pinelands Reserve and to the South by T. Mabry Carlton, Jr. Memorial Preserve. Approximately 1 million people live within 30 miles of the park (U.S. Census 2015).

The population of Sarasota and Manatee counties reflect slightly different demographic characteristics. According to U.S. Census data, approximately eighty four percent of residents in Sarasota County identify as white, with approximately nine percent identifying as Hispanic or Latino and five percent as black. Over thirty four percent of residents can be described as seniors, over 65, with approximately sixteen percent as being under 18 years of age. In Manatee County seventy-two percent of residents in the county identify as white, with approximately sixteen percent identifying as Hispanic or Latino and nine percent as black. Over twenty-five percent of residents can be described as seniors, over 65, with approximately nineteen percent as being under 18 years of age (U.S. Census 2015). Sarasota County ranked fourth statewide in per capita personal income at $46,494, while Manatee County ranked fifteenth with a per capita income of 35,531 (U.S. Bureau of Economic Analysis 2016).

The park is in the Southwest Vacation Region, which includes Manatee, Sarasota, Desoto, Charlotte, Glades, Lee, Hendry and Collier counties. According to the 2015 Florida Visitor Survey, approximately nine percent of domestic visitors to Florida visited this region. Of the domestic visitors who came to this region, approximately 94 percent traveled for leisure. Visiting the beach/waterfront and visiting friends/relatives were the most popular activities for those visitors to the region. Winter was the most popular season for visitors, with the spring season being a very close second. Most visitors traveled by non-air (62 percent), reporting an average stay of 5.7 nights and spending an average of $138 per person per day (VISIT FLORIDA 2015).

There are considerable publicly-owned or managed resource-based recreation opportunities within ten miles of the park. Pinelands Reserve and T. Mabry Carlton, Jr. Memorial Reserve and Carlton Ranch adjoin the Myakka River State Park to the southwest and south, and are managed by Sarasota County. They provide picnicking, hiking and paved trails, picnic area, restrooms, primitive camping, and opportunities for bird watching and other wildlife viewing. The T. Mabry Carlton, Jr. Memorial Reserve has over 80 miles of trails. Located North of the Park is Old Miakka Preserve, managed by Sarasota County; and the Crowley Museum and Nature Center, a private non-profit organization that provides the opportunity to explore Florida's early pioneer history through educational programming, a boardwalk and hiking trail, and pioneer buildings and interpretive exhibits.

There are additional state managed lands to the west and south of the park including Myakka Prairie Conservation Easement, Myakkahatchee Creek Conservation Easement, Longino Ranch Conservation Easement, Lewis Longino Preserve, and Deer Prairie Creek Preserve. The uses allowed on these properties range from limited access based on easements to nature based recreation, camping, equestrian activities, hiking and trails, picnicking, and wildlife viewing.

Several of the park's trails are included in the Sarasota/Manatee Metropolitan Planning Organization's Bicycle, Pedestrian and Trails Master Plan (2013). The main

park drive is designated as the Myakka River State Park Trail. This multi-use trail connects to the proposed Old Myakka Greenway and the Duette Myakka Trail at the north entrance and to the proposed Clark Road Trail at the south entrance. The Myakka Island Wilderness Trail traverses north to south through the park and the T. Mabry Carlton, Jr. Reserve and supports a hiking/off-road bicycling segment and an equestrian segment.

Existing Use of Adjacent Lands

Adjacent land uses surrounding the park are generally conservation lands, agriculture use, and rural residential uses. To the southwest and south of the park are additional conservation areas such as the Pineland Reserve, T. Mabry Carlton, Jr. Memorial Reserve and the Carlton Ranch. To the east of the park is mainly agricultural use and some areas of low density residential. Where Manatee County adjoins the park to the east there is a buffer of conservation land, low density residential, and agricultural uses. To the north and north east of the park are areas still in agricultural use, low density rural residential uses, and the Triangle Ranch Conservation Easement.

Planned Use of Adjacent Lands

Sarasota County currently has one of the higher populations of the counties in southwest Florida (399,538), its recent growth has been steady with a population increase of 5% from 2010 to 2016. Manatee County has a population of 339,545, with a population increase of 11% from 2010 to 2016. Sarasota County is projected to grow approximately 22% by 2045, while Manatee County is anticipated to grow by approximately 53% by 2045 (BEBR 2016). The future development patterns in the area will reflect those identified in both Counties plans. The Sarasota County 2050 plan is based on the six Resource Management Areas (RMA) in the Plan, reflecting the principles of interconnected open space, new urbanism/compact walkable development and fiscal neutrality based on development that does not add financial burden to existing residents. Manatee County's Plan is based on balancing competing interests to reach community consensus. Shared community desires are given expression via Plans, Policies, and Strategies. This ensures that short term decisions are made in perspective of the long-term good.

Currently, the Sarasota County Comprehensive Plan (2014) indicates that the future land use designation of lands adjacent to the southeast, south, and southwest of the park are Public Conservation/Preservation (defined as areas of high ecological value that are managed to preserve habitat and may be open to the public for public purposes) and Rural (allows 1 dwelling unit per 5 acres or 1 dwelling unit per 10 acres and some additional uses within Resource Management Areas). To the east in Manatee County, the land use is Agriculture Rural (agricultural uses and 0.2 dwelling units per acre) and Conservation (primarily for conservation of the natural resource). To the north and northeast of the park, the designation is Rural.

The zoning designations of adjacent land are consistent with the future land use designation. The areas immediately adjacent to the park to the southeast, south and southwest are zoned Government Use (GU) which applies to lands where national, state and local government activities are conducted. Any lawful government activity is permitted in the district and specific development should be appropriate to the nature of the site and surrounding area. The Open Use Conservation (OUC) category also adjoins the park and allow uses that are restricted to conservation, and some limited recreation uses and other uses not contrary to the open space character of the district. To the east in Manatee County the zoning is Conservation (CON) which preserves and protects large areas of open space and Agriculture (A), which is intended to preserve agriculture uses and allow 0.2 dwelling units per acre. To the north and east of the park the zoning is a mix of Open Use Estate (OUE) and Open Use Rural (OUR) which allow 1 dwelling unit per 5 acres to 1 dwelling unit per 10 acres, both districts are intended to retain the open character of the land. Uses are limited to conservation, agriculture and very low density residential uses.

A review of proposed comprehensive plan amendments and proposed developments in Sarasota County showed several proposed developments in the area which may potentially impact the park. The Clark Road Properties Comprehensive Plan Amendment west of the park was recently approved. This amendment revises the South Village Resource Management Area to allow additional density for development. It will be important for DRP staff to participate in the review of all comprehensive plan amendments, proposed zoning changes and development plans that may impact the park in the future.

Florida Greenways and Trails System (FGTS)

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

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

While there are no priority corridors within the park there are four land trail opportunity corridors and one paddling trail opportunity corridor within or adjacent

to the park boundary. These include Clark Road Trail, Old Miakka Greenway, Myakka Island Wilderness Trail, Duette Myakka Trail and the Myakka River.

The Sarasota and Manatee County trails described above connect to the FGTS Opportunity land trail corridors. The connection between local and statewide planning efforts provide a collaborative approach to connecting the state park to communities and other local destinations via trails.

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 Upland areas of the park are dominated by dry prairie. The remainder consists of mesic flatwoods, scrubby flatwoods, and prairie mesic hammock. This extensive area can accommodate a wide variety of land-based recreational opportunities including hiking, off-road biking, horseback riding, camping, wildlife viewing, and nature study. Patterns of movement across the land are influenced by the mosaic of small, depression marshes which are dotted throughout the park. During the rainy season (June through September) much of the dry prairie can become saturated and difficult to traverse.

Water Area

The Myakka River, designated as a Florida Wild and Scenic River, winds through the park for about 12 miles from north to south. The Upper and Lower Myakka Lakes are located along the river’s course. The river and associated lakes provide opportunities for boating, paddling, fishing, and wildlife viewing. Water levels in the river can become quite low, which restricts watercraft to relatively shallow draft vessels. Portions of the river, including lower Myakka Lake, dry up completely during periods of extended drought.

Natural Scenery

The mosaic of river, lakes, prairies, marshes, flatwoods and hammocks makes this one of Florida’s most scenic landscapes. The visual sequence alternates between

spacious vistas of open water and marsh and the enclosed experience of the hammock. The park provides critical protection for the viewshed of the Myakka Wild and Scenic River. The largest extent of the river viewshed occurs at Upper Myakka Lake, and expansive views generally occur all along the river corridor within the park. The scenery is particularly exceptional during peak wildflower blooming season in the prairie. The park offers exceptional opportunities for nature photography.

Significant Habitat

Wildlife viewing opportunities in the park are exceptional and the entire park can be considered significant habitat. During the winter season, migratory birds may reach spectacular concentrations. Herons, egrets, roseate spoonbills, woodstorks, and sandhill cranes are common. Alligators are extremely plentiful along the river corridor while the dry prairie is home to the crested caracara, burrowing owl, indigo snake, gopher frog and gopher tortoise. Bald eagles nest within the park and evidence of the Florida panther has been recorded. Wildlife viewing opportunities in the park are plentiful.

Natural Features

Located at the south end of Lower Myakka Lake within the Wilderness Preserve is “Deep Hole”, the only large sinkhole known to exist in the park. The sink is approximately 300 feet wide and recorded depths of up to 130 feet. The sink acts as a fish trap during times of low water supporting a very large number of hungry alligators and excellent wildlife viewing.

The dry prairie is the most extensive natural community in the park. This globally imperiled naturally community has the potential to be sustained at the landscape level especially when cooperatively managed with the adjacent conservation lands. Most of the original extent of dry prairie within the state has been lost to land use conversions, and much of the remainder is fragmented, degraded, or isolated, and cannot function on a large scale. The remnant prairies at Myakka River State Park provide valuable opportunities for interpreting a significant element of Florida’s historic landscape.

Archaeological and Historical Features

Myakka River State Park contains cultural resources that span Florida’s history from prehistoric times through the period of the original development of a state park system in Florida, during the Depression Era. These cultural resources include aboriginal sites and a significant example of early Florida cattle ranching in the Meadow Sweet Pastures area. The park’s best-known cultural resources stem from its development as one of the New Deal Era parks in the Florida state park system. The park structures constructed by the Civilian Conservation Corps provide a unique opportunity to educate visitors about this federal works program and its role in establishing some of the first units in the Florida Park Service system.

Assessment of Use

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

Past Uses

The Myakka Valley was used as open range for cattle ranch operations as early as 1843. Many changes took place during the early 1900s. Ms. Potter Palmer established Meadow Sweet Pastures, a large cattle ranching operation, and the Atlantic Coastline Railroad laid tracks for a line from Nocatee to Sarasota through land now within the park. After acquisition of park property by the state, the CCC began construction of park facilities, and were active at Myakka from 1934-1941.

The Department of Juvenile Justice subleased a five-acre tract on the northeast corner of the wilderness area from 1977 to 2003 to operate a wilderness youth camp as part of the Short Term Offenders Program (STOP). This facility is no longer in operation.

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 Myakka River state park is located in both Sarasota and Manatee counties. The Sarasota County Comprehensive Plan (2016) indicates that the future land use designation of the portion of the park in Sarasota County is Public Conservation/Preservation. This category is defined as areas of high ecological value that are acquired and are managed to preserve habitat and maintained primarily for environmental protection and may be dedicated for public open space and recreation. The Manatee County Comprehensive Plan (2017) shows future land use designation as Conservation. This category is intended for major publicly or privately held lands which are reserved for the primary purpose of the preservation of natural resources.

The park falls under both Sarasota and Manatee County zoning regulations. In Sarasota County, the park is zoned Government Use (GU) which applies to lands where national, state and local government activities are conducted. Any lawful government activity is permitted in the district and specific development should be appropriate to the nature of the site and surrounding area. In Manatee County, the zoning is Conservation (CON), which is intended to preserve and protect large areas of open space, vegetative habitat, natural drainage systems, aquifer recharge areas, soils and wildlife habitats in areas of major public or privately held lands as desired by the property owner which are intended primarily for the purpose of preserving natural resources.

Section 258.501, Florida Statutes established the Myakka River as a Florida Wild and Scenic River. This designation includes the Wild and Scenic Protection Zone, a 220-foot corridor of uplands along the river established “to buffer the river area and its resource values against impacts from adjoining land uses. Sarasota County and the city of North Port have adopted the protection zone into the local land development code (FDEP 2011).

Current Recreational Use and Visitor Programs

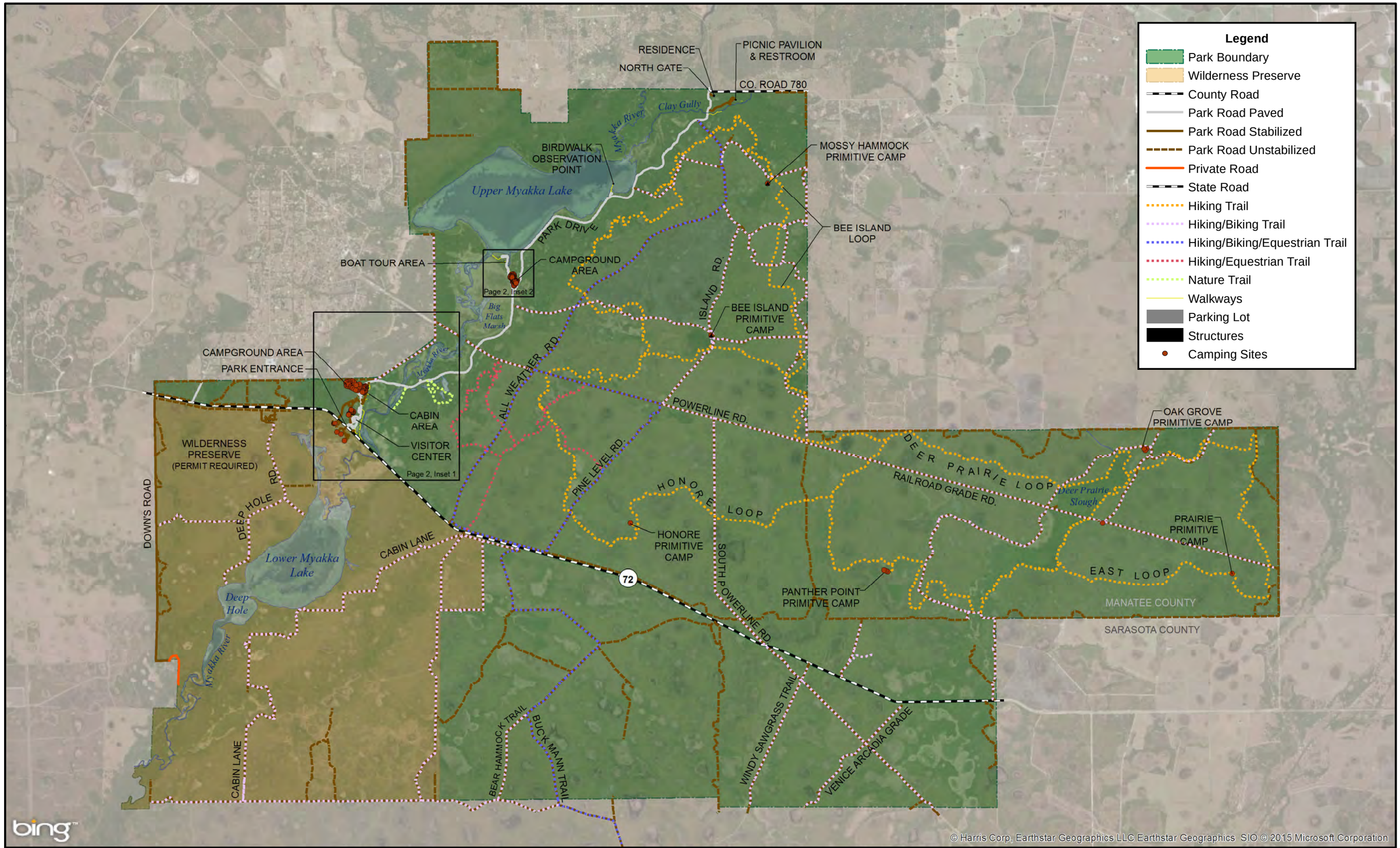
Myakka River State Park provides a wide range of outdoor activities including hiking, nature study, photography, fishing, boating, wildlife observation, picnicking, canoeing, horseback riding, bicycling, camping (both full facility and primitive), and overnight cabins. Interpretive opportunities are enhanced by a visitor center and guided airboat and tram tours conducted by one of the park’s concessionaires. The park’s canopy walkway, is an elevated boardwalk that provides visitors with close-up views of the forest canopy and panoramic views of the entire park. Use of the Myakka River Wilderness Preserve requires a backcountry permit and recreational use is limited to 30 people per day.

Myakka River State Park recorded 387,119 visitors in FY 2016/2017. By DRP estimates, the FY 2016/2017 visitors contributed over $37million dollars in direct economic impact, the equivalent of adding 593 jobs to the local economy (FDEP 2017). The park’s peak season is winter. The park’s unique palm log CCC era cabins and the park’s campground are popular especially during the winter season. The park offers exceptional wildlife viewing and has been designated by the Florida Fish and Wildlife Conservation Commission as part of the Great Florida Birding and Wildlife Trail.

During the winter and spring seasons, the level of visitation is very high. On occasion cars waiting to enter the park at the South Entrance will stack up on to SR 72. Bicycle traffic along the main park drive is also increasing and can be especially heavy on weekends. Additionally, the lack of pedestrian facilities along the park drive forces many visitors to walk in the road. As a result, certain sections of the park drive and the day use area at Upper Myakka Lake can become congested with vehicles, pedestrians and cyclists. The park drive along with many of the park’s CCC era amenities were constructed within the river’s wide floodplain; in wet seasons, the park drive and the park’s day use areas are subject to flooding.This may cause portions of the park to be closed to visitors.

Other Uses

Sarasota County maintains several water monitoring wells in the park on the south side of State Road 72. The Florida Power and Light Company holds an easement through the property allowing them to construct, operate, and maintain overhead and underground electric utilities on a portion of the park.



MYAKKA RIVER STATE PARK

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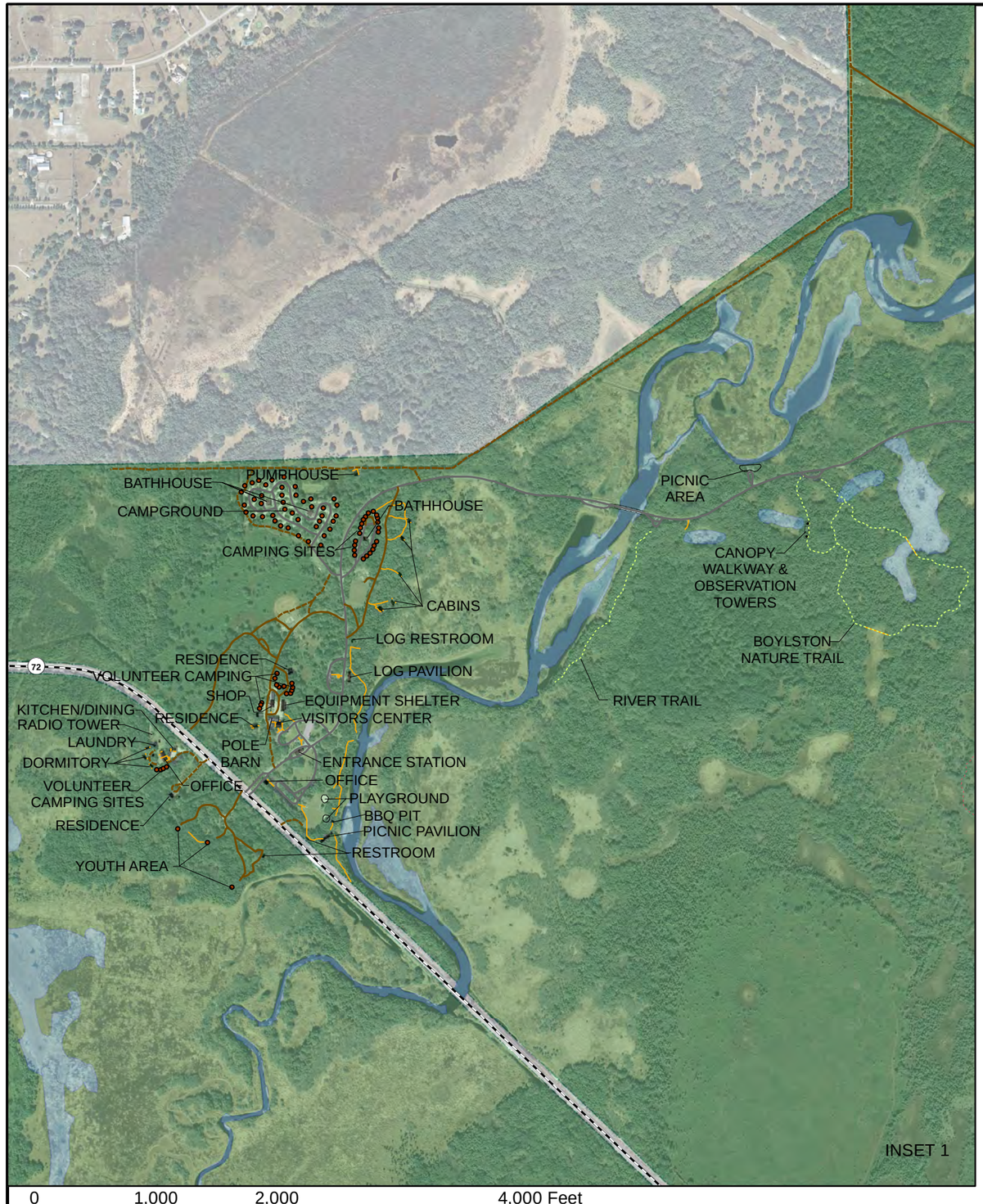
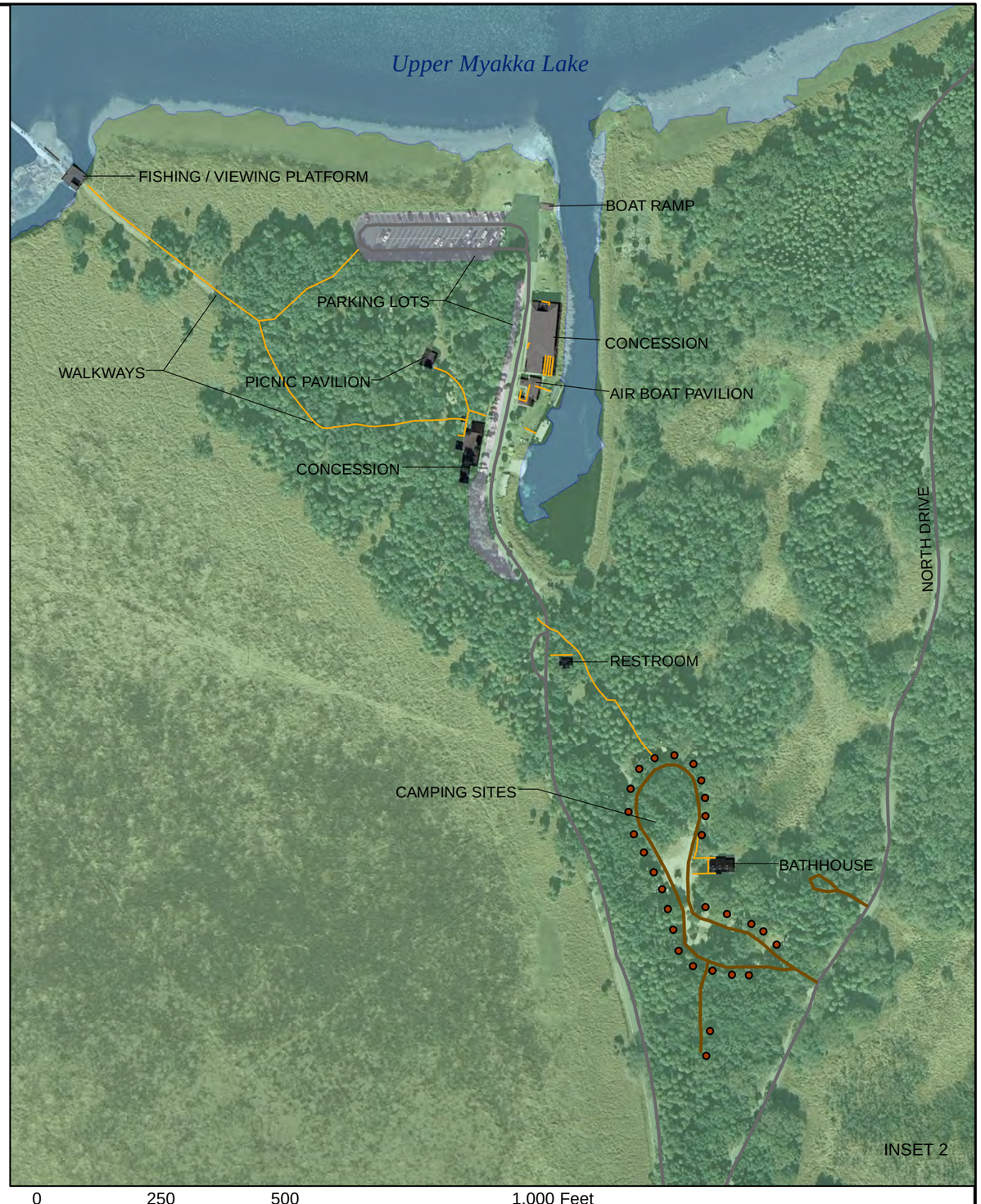
Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2011

BASE MAP PAGE 1





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MYAKKA RIVER STATE PARK

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BASE MAP PAGE 2

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2014

Protected Zones

The protected zone is an identified area of high sensitivity or outstanding character within the park from which most types of development are excluded as a protective measure. A protected zone does not include existing developed areas within the park as the land use has already been determined.

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 Myakka River State park all wetlands and floodplain as well as depression and floodplain marshes, river floodplain lakes, basin swamps, blackwater streams, baygalls, domes, hydric hammocks, scrubby flatwoods, dry prairies and known imperiled species habitat have been designated as protected zones. Please note that the protected zone includes only a general representation of the park floodplain based on topography and natural community composition. A true depiction of a park's floodplain would require a specific engineering study.

The above protection zone criteria are independent from the Myakka River Protection Zone, an upland buffer to the Myakka River that limits certain activities as defined in 62D-15.

Additionally, the 7,500 acre Wilderness Preserve in the park's southwest corner is managed to provide opportunity for solitude and a remote wilderness experience. Visitor access and recreational uses are carefully managed to protect the wilderness experience. The park's current protected zone and Wilderness Area are delineated on the Conceptual Land Use Plan.

Existing Facilities

Two entrances provide access to the park (see Base Map). The primary entrance is located off State Road 72 in the west-central part of the park. A second entrance off State Road 780 provides access from the north and is open only on weekends and holidays. A paved park drive extends nearly seven miles between entrances and provides access to picnic areas, campgrounds, cabins and the boat basin. The State Road 72 entrance area includes the park administrative offices, the main ranger station and visitor center. A portion of the visitor center provides office space for park staff. Four picnic areas provide ample picnicking opportunities throughout the park. Opportunities for extended stays are available at three full facility campgrounds and the CCC-era palm log cabins. Six hike-in primitive campsites and an equestrian camping area enhance backcountry access. A primitive group camp serves youth or other organized groups interested in camping together. Water access is provided at Upper Myakka Lake where a boat ramp and concession

facilities are located. Canoes and kayaks are available for rental and airboat tours of Upper Myakka Lake are provided by the concessionaire. The Birdwalk is a boardwalk on Upper Myakka Lake that enhances views of the lake, provides interpretive information and is a popular birding spot.

A concession operated tram tour takes visitors into the park interior using existing dirt roads. Additional opportunities for exploring the park interior are available via the park's extensive network of hiking, biking and equestrian trails. Trails on the Myakka Prairie portion of the park are linked to the Carlton Trail and the T. Mabry Carlton, Jr. Memorial Reserve. The Myakka Canopy Walkway is unique to the state park system and allows visitors to ascend into the treetops of a prairie hammock. An 84-foot long suspension bridge is supported by two towers, the tallest of which rises 74 feet above the forest canopy. Access to the Canopy Walkway is provided from the Boylston Nature Trail.

The park shop area is located due north of the visitor center, and contains multiple structures to meet park maintenance, operations and housing needs. Additional park residences are concentrated off State Road 72 a short distance west of the park entrance. Facilities associated with the defunct STOP Camp are located on the south side of State Road 72. Two sewage treatment plants handle wastewater in the park, and water is supplied by a 45,000 GPD chlorinating plant. The Clay Gully water plant provides water to the Clay Gully Picnic Area and facilities at the north entrance.

The following is a comprehensive listing of facilities at Myakka River State Park:

Recreation Facilities

South Entrance Area

Entrance station

Administrative office

Visitor center

Parking (30 spaces)

North Entrance Area

Entrance station

Parking

Residence

Picnic Areas

South Picnic Area

Large picnic pavilion

BBQ pit

Playground equipment

Scattered tables and grills

Restroom

Parking (41 spaces)

Event Stage

Log Pavilion Picnic Area

Stone memorial

Amphitheater

Log Pavilion

Scattered tables and grills

- Restroom
- Parking

Clay Gully Picnic Area
- Large picnic pavilion
- Restroom
- Scattered tables and grills
- Playground equipment
- Parking

Camping and Cabins

Old Prairie Campground
- Full facility campsites (22)
- Bathhouse
- Sewage treatment plant

Big Flats Campground
- Full facility campsites (22)
- Tent campsites (4)
- Bathhouse
- Sewage treatment plant

Palmetto Ridge Campground
- Full facility campsites (42)
- Bathhouse (2)
- Rental cabins (5)

Primitive Group Camp
- Campsites (3)
- Restroom
- Fire circle

Equestrian Camping Area
- Fenced paddock
- Pit latrine
- Water hand pump

Prairie Primitive Campsites (3)
- Water hand pump
- Fire rings

Panther Point Primitive Campsites (3)
- Water hand pump
- Fire rings

Honore Primitive Campsites (3)
- Water hand pump
- Fire rings

Bee Island Primitive Campsites (3)
- Water hand pump
- Fire rings

Oak Grove Primitive Campsites (3)
- Water hand pump
- Fire rings

Mossy Hammock Primitive Campsites (3)
- Fire rings

Upper Myakka Lake Use Area

Concession Building

Picnic Area
- Large picnic pavilion
- Scattered tables and grills

Boat Ramp

Paddling Launch

Restroom

Parking (145 spaces)

Trails and Interpretation

Birdwalk boardwalk

Native Tree Walk

Equestrian trails (16 miles)

Hiking trails (39 miles)

Nature trail and canopy walkway (.6 mile)

Biking trails (45 miles)

Support Facilities

Shop Area

4-bay pole barn

6-bay pole barn

Maintenance shed/park shop

2-bay shop

Storage buildings (4)

Residences (2)

Volunteer laundry

Volunteer campsites (7)

Volunteer office (portable trailer)

Water treatment plant

STOP Camp

Residence (1)

STOP Camp

- Cabins (3)
- Restrooms/Shower/Laundry
- Meeting room/Training building
- Storage buildings
- Basketball court
- Sewer lift station
- Volunteer Campsites (4)

Hill Residence Area

Residences (7)

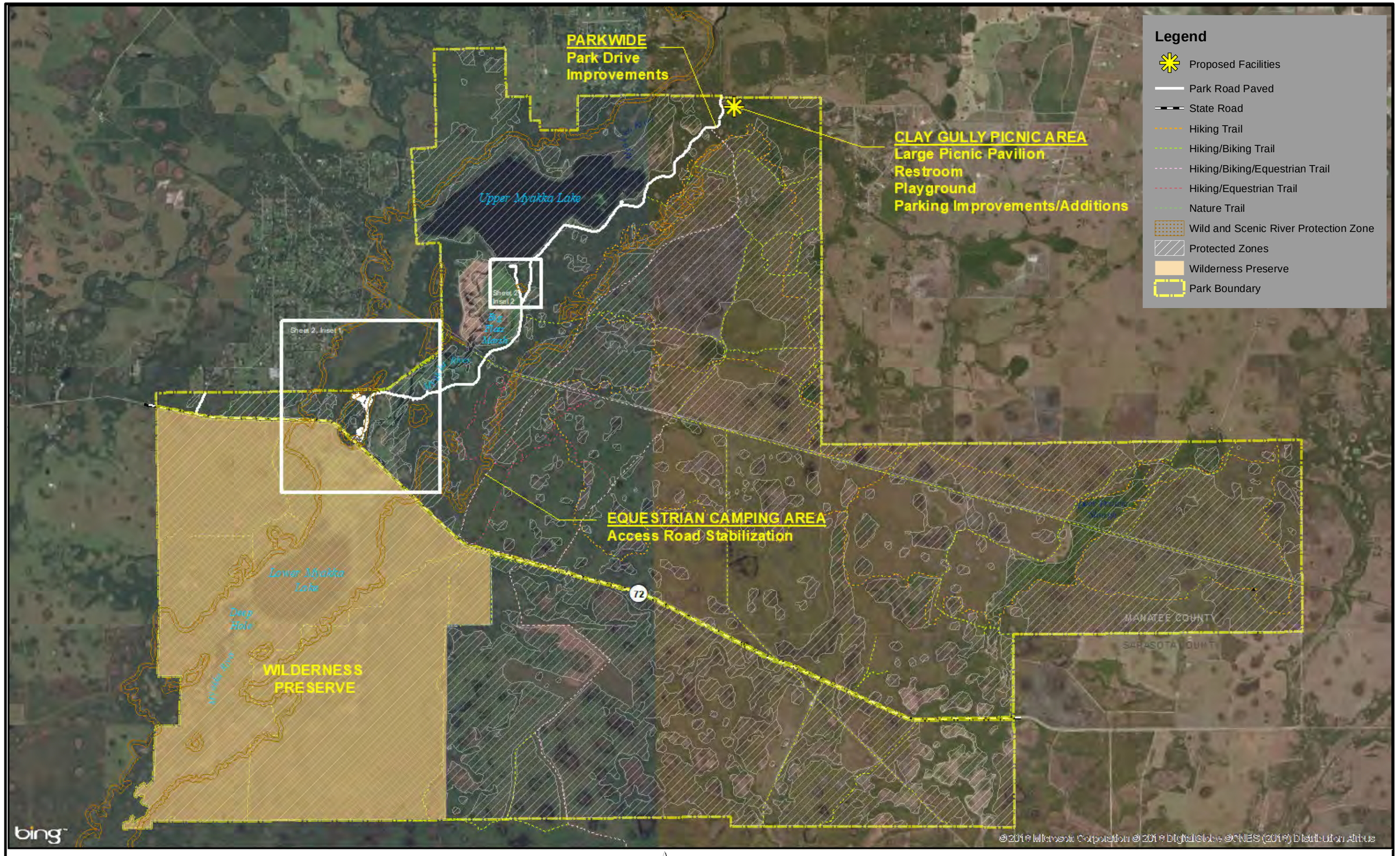
Volunteer campsites (1)

Storage building

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, 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



MYAKKA RIVER STATE PARK

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CONCEPTUAL LAND USE PLAN
SHEET ONE

INSET 1

INSET 2

Legend

- Redevelopment Area
- Proposed Facilities
- Main Drive
- Wild and Scenic River Protection Zone
- Protected Zones
- Wilderness Preserve
- Park Boundary

CANOPY WALKWAY TRAILHEAD
Parking Improvements/Additions

MYAKKA RIVER BRIDGE AREA
Pedestrian Boardwalks
Fishing Platforms
Parking Improvements/Additions

SHOP AREA
Large Pole Barn
Shop Building
Renovation

FORMER SPOIL AREA
Future park facilities

OLD PRAIRIE CAMPGROUND
Bathhouse
Accessible Campsite
Road Paving

LOG PAVILION PICNIC AREA
Parking Improvements/Additions

SOUTH ENTRANCE AREA
Traffic Lane Addition
Tollbooth
Visitor Center Improvements
Parking Improvements/Additions

SOUTH PICNIC AREA
Restroom
Playground
Parking Improvements/Additions

STOP CAMP
Trailhead Improvements
Expanded Interpretive Programming
Landscape and Parking Improvements

WILDERNESS PRESERVE

PRIMITIVE GROUP CAMP
Large Picnic Pavilion
Restroom

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Upper Myakka Lake

Wildlife Viewing Platform

UPPER MYAKKA LAKE DAY USE AREA
Canoe/Kayak Launch Upgrade
Road and Parking Improvements
Restroom
Large Picnic Pavilions

BIG FLATS CAMPGROUND
Bathhouse
Camping Pad Upgrades
Road Paving
Screen Planting

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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MYAKKA RIVER STATE PARK

CONCEPTUAL LAND USE PLAN
SHEET TWO

Florida Department of Environmental Protection
Division of Recreation and Parks
Date of aerial; 2014

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 A: Maintain the park's current recreational carrying capacity of 4,202 users per day*.**

The park will continue to provide opportunities for camping (both full facility and primitive), cabin lodging, hiking, wildlife viewing/nature study, fishing, boating, canoeing/kayaking, picnicking, horseback riding, and bicycling. Interpretive exhibits and programs will continue to be offered at the visitor center and by guided tours provided by the park's concessionaire.

Objective B: Expand the park's recreational carrying capacity by 160 users per day.

At Myakka River State Park, picnicking opportunities will be expanded with the addition of picnic pavilions at the Clay Gully Picnic Area and Upper Myakka Lake Day Use Area. Wildlife observation opportunities and interpretation can be expanded and improved with new interpretive exhibits an updated visitor center and facilities like a proposed viewing platform at the Upper Myakka Lake Day Use Area. New and expanded recreational opportunities are discussed in further detail below.

Objective C: Continue to provide the current repertoire of 30 interpretive, educational and recreational programs on a regular basis.

Myakka River State Park currently offers 30 interpretive, recreational, and educational programs and events. Programs are offered on a daily, weekly, and monthly basis, some

seasonally (winter/spring) and others throughout the year. The interpretive and educational programs focus primarily on the park's natural resources, with programs on the history of the park playing an important but smaller role. The goal of these programs is to foster an appreciation and understanding of the natural and cultural resources within Myakka River State Park.

Current programs offered by park rangers, the citizen support organization, and the concessionaire include bird and wildlife identification walks, history walks, natural community tours, campfire presentations, and special guest presentations. Interpretive exhibits and displays are located at the visitor center, the canopy walkway, the birdwalk observation area, Meadow Sweet Pastures historic site, and nature trails. The Junior Ranger Program provides an opportunity for young people to learn about and protect the park's natural and cultural resources through a series of self-paced activity worksheets and ranger led programs. Educational and curriculum-based programs on a variety of topics are provided upon request for area schools and special groups.

Recreational programming offered at the park gives visitors a chance to have outdoor adventures and learn about potential new hobbies and activities. Currently the park's recreational programs include guided kayak and canoe tours, a fishing clinic, guided bicycle tours, and a concert series.

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

The park plans to develop an interpretive master plan to guide the development of new interpretive programs for the next ten years. Examples include living history programs focused on the role of the Myakka region in Florida history, and a "Link to the Past" interpretive trail throughout the use areas of the park featuring stories from the Civilian Conservation Corp (CCC) at Myakka. The park also plans to upgrade exhibits and displays within the current visitor center. The "Myakka Movies" film series will be updated and new exhibits will be provided to better interpret the park's significant, cultural history and the natural processes of the park's diverse ecosystems.

The park would also like to pursue long-term partnerships with area schools and organizations through coordination with teachers/organizers to develop targeted continuing; educational, interpretive programing that promotes environmental stewardship. An example might include a water-monitoring program for students, highlighting the Florida-designated Myakka Wild and Scenic River.

To provide staff and volunteers with appropriate training opportunities and conduct yearly park interpretive need assessments; the park will conduct regular in-park interpretive training/development workshops and pursue other training opportunities from outside sources. Myakka River State Park also plans to improve accessibility to existing and newly created interpretive programs and exhibits for persons with special needs and special populations.

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 or renovated and/or new facilities needed to implement the conceptual land use plan for Myakka River State Park.

Objective A: 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 B: Improve and repair existing facilities and construct new facilities that will promote safety, protect park resources, and enhance resource-based recreational activities.

Action 1 *Hold public workshops and key stakeholder meetings to gather input and develop conceptual master site plan for the park in 2018.*

Action 2 *Finalize and adopt conceptual master plan for Myakka River State Park to guide the future redevelopment and improvement of park facilities.*

Major repair projects for park facilities may be accomplished within the ten-year term of this management plan, if continued funding is made available. The modification of existing park facilities to improve accessibility is a top priority for all facilities maintained by DRP.

Over the next several years, efforts will focus on repairs and renovations to address maintenance, accessibility and public safety. 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). To conserve the park's dark skies the development of all new park facilities will comply with the lighting standards set forth by the International Dark-Sky Association. Implementation of all proposed park improvements will need to carefully evaluate potential impacts to the viewshed of the Myakka Wild and Scenic Impacts. Designs should minimize the intrusion of manmade elements into the river's critical viewshed.

Myakka River State Park is truly one of the Florida State Park System's flagship parks. Current recreational demand indicates that over the long-term, gradual

redevelopment of the park's existing use areas will be needed to maintain the balance between safe public access and protection of park resources. To address this challenge DRP will create a comprehensive vision for the park through the development of a new conceptual master plan. The master plan will address potential redesign of the park's most popular day use destinations through careful consideration of interpretative programming, recreational activities, park operations, pedestrian and bicycle circulation, accessibility, critical viewsheds, and potential impacts to the park's natural and cultural resources. The DRP will develop the new conceptual master plan with public input received through public workshops and key stakeholder meetings. The conceptual master plan will then be used to guide the implementation of any proposed improvements and additions. No site improvements or additions will be made until the public workshops are held and a new conceptual master plan for the park is developed and adopted by the DRP.

The master plan will work within the limits of existing developed or disturbed areas. These areas as well as potential improvements and needed repairs to existing facilitates are identified on the Conceptual Land Use Plan and discussed here by use area within the park:

Clay Gully Picnic Area: Several upgrades are proposed for this area to enhance the picnicking experience. These include the potential addition of one large picnic pavilion to better accommodate large groups, replacement of the aging restroom and playground, and redesign of the parking area to provide better circulation and more efficient use of the space.

Upper Myakka Lake Day Use Area: A number of improvements are recommended to enhance the visitor experience at this very popular destination. The area should be redesigned to provide for better visitor circulation, pedestrian safety, and improved integration of facilities. The proposed redesign of this day use area should also provide improved paddling access to the river and greater protection of the critical viewshed of the Myakka Wild and Scenic River. The old restroom at the south end of the area needs replaced and additional large picnic pavilions are needed. Other suggested improvements include creating an observation area at the weir for wildlife viewing pending DRP final action on the weir as determined by the park's resource management objectives.

Big Flats Campground: Although the number of campsites was significantly reduced when the new Palmetto Ridge Campground was opened, the lack of vegetative buffering between sites is a problem. To bring this campground up to state park standards, it is recommended that screening vegetation be planted between all sites and protected with temporary fencing during the establishment phase. Additional improvements include paving the campground road, replacing the old bathhouse, and upgrading camping pads for all sites.

The campground sewage treatment plant also services the Upper Myakka Lake Day Use Area restrooms. The treatment plant should be upgraded as necessary to

accommodate the replacement of the campground bathhouse and restroom at the Upper Myakka Lake Day Use Area.

Old Prairie Campground: Recommended improvements include paving the campground road and replacing the existing bathhouse. An accessible campsite should be provided with an accessible route to the new bathhouse.

Canopy Walkway Trailhead Area: The park drive often becomes very congested in this area as canopy walkers and trail users compete for parking spaces on high-use days. Parking improvements are recommended for this area with a design that improves circulation and safety while expanding the number of parking spots with a more efficient use of the existing space.

Myakka River Bridge Area: The bridge over the Myakka River on the park drive is a popular spot for fishing and wildlife observation. The mix of pedestrians, bicycles, and vehicles on the bridge during busy days poses public safety concerns. Enhancements are needed to address public safety while maintaining public access. Options to consider include striping of the bridge, pedestrian safety signage and the addition pedestrian boardwalks and fishing platforms on either side of the bridge. Proposed bridge enhancements should be designed to minimize impacts to the viewshed of Myakka Wild and Scenic River.

Log Pavilion Picnic Area: This area has the potential to serve as the location for small to medium scale special events such as weddings and family reunions. To better accommodate these functions, the area could be redesigned to provide better circulation and more efficient use of the existing parking area and facilitate the placement of an accessible restroom.

South Entrance Area and South Picnic Area: Traffic congestion is often a problem in this area of the park throughout peak season. Additional traffic lanes and a tollbooth are proposed at the park entrance. Also recommended is the redesign and potential expansion of the current parking facilities to improve circulation and encourage greater visibility and connectivity of the park's visitor center and south picnic area. Expansion of parking facilities could alleviate unauthorized parking that occurs along the shoulder of the park drive between here and the Upper Myakka Lake use area. For example, this area could serve as a location where visitors could leave their cars and take a shuttle or tram to popular use areas within the park. Use of this parking area and the tram could even be required on certain peak days. Additional improvements needed in this area include upgrades to the interpretive exhibits and displays within the visitor center and the restroom and playground in the South Picnic Area need replaced. Careful site planning will be required to minimize potential impacts to rare plant species documented within this use area.

Primitive Group Camp Area: Recommended improvements for this area include the replacement of the restroom and the addition of one large picnic pavilion.

Equestrian Camping Area: The access road from State Road 72 to the parking/corral area should be improved and stabilized or paved as appropriate to better accommodate equestrian truck/trailer rigs.

Boating Access Areas: The two primary paddling launches at Upper Myakka Lake, and the Bridge Area should be improved and stabilized as necessary. Informational and wayfinding signs should be provided at all launches to inform paddlers of the opportunities and constraints posed by changing water levels.

Shop Area: A large pole barn should be added in this area to improve equipment maintenance operations. The existing shop building should be renovated for adaptive reuse. Support facilities and equipment storage currently located within the existing shop area could be relocated to the former spoil area located north of SR72.

Residence Areas and Volunteer Campsites: New staff residences are needed in the park to replace aging, maintenance-prone structures. Up to five new residences will be considered for the next planning period. Pending park improvements, some or all the existing volunteer campsites may need to be relocated.

STOP Camp Area: The meeting facility at the former STOP Camp area could be used to expand the range of programming available at the park. This facility can support an array of special activities, meetings and programs, that feature the ecosystems, wildlife, and history of the park and surrounding region. Improvements to the trailhead for the Wilderness Preserve are needed and include improved interpretive signage as well as a source for potable water. The Stop Camp area should be redesigned to provide greater separation between public areas, staff residences and the volunteer campsites. Any proposed development or expanded programming at the former STOP Camp Area will be constrained by its physical proximity to the Wilderness Preserve and the current limit of 30 visitors per day.

Spoil Area: This disturbed area north of SR 72 and just west of Vanderipe Slough was a former sandpit. The ground has been heavily disturbed and the area is dominated by exotic invasive plants. Ecological restoration of this area is not practical and it could be well suited for future expansion of park facilities. The spoil area will be explored as a possible location for support facilities or visitor services during development of the master plan.

Parkwide: An engineering study is needed to guide improvements to the park drives including road raising, road resurfacing, installation of culverts and culvert replacement. The study should also consider the addition of suitable bicycle and pedestrian infrastructure where appropriate along the park drive to create a safer and more enjoyable bicycling and hiking experience for visitors.

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:

South Entrance Area

Traffic lane addition

Tollbooth

Parking improvements

Visitor center upgrades

South Picnic Area

Restroom

Playground

Parking improvements

Clay Gully Picnic Area

Large picnic pavilion

Restroom

Playground

Parking improvements

Log Pavilion Picnic Area

Parking improvements

Accessible restroom

Big Flats Campground

Screening vegetation planting

Bathhouse

Camping pad upgrades

Road paving

Old Prairie Campground

Bathhouse

Accessible campsite

Road paving

Equestrian Camping Area

Access road improvements

Primitive Group Camp

Large picnic pavilion

Restroom

Upper Myakka Lake Day Use Area

Parking and circulation improvements

Restroom

Large picnic pavilion (2)

Wildlife viewing platform

Canopy Walkway Trailhead

Parking improvements

Myakka River Bridge Area

Safety signage

Pedestrian boardwalks

Fishing platforms

Boating Access Areas (Upper Myakka Lake, Bridge Area)

Paddling launch improvements

Shop Area

Large pole barn

Shop building renovation

Residence Areas

Staff residences (5)

STOP Camp

Trailhead improvements

Redesign to improve separation between public facilities and support functions

Parkwide

Park drive improvements (7 miles)

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.

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.

Objective C: Support the efforts of the Myakka River Management Coordinating Council to determine an appropriate recreational carrying capacity for segments of the Myakka River located within the park.

Action 1 *Conduct a recreational carrying capacity study for the segment of the Myakka Wild and Scenic River within the park.*

Action 2 *Continue to monitor recreational use on the river during patrols of the river as part of the monthly wildlife survey***.**

The 2011 Myakka Wild and Scenic River Management Plan (MWSRMP) identified the need to determine and monitor the amount and kinds of recreational uses that are permitted on the Myakka Wild and Scenic River. For the purposes of determining a carrying capacity of the Myakka River the MWSRMP identifies four distinct river segments. The first segment consists of the state park, including Upper Myakka Lake, and the Lower Myakka Lake to the southern state park boundary.

For the river segment within the park and north of SR72, the current carrying capacity was established by estimating the number of recreational uses that could physically occur on the river at one time with enough spacing between them to avoid overcrowding. The remaining portion of this segment located south of SR72 is within the Wilderness Preserve and has an established carrying capacity based on a wilderness experience. In this segment, recreational use by all users (hiking, boating, and canoeing/kayaking) is limited to only 30 people per day. This approach is consistent with the recommendations of the MWSRMP. Boating access in the remaining portions of the park will remain limited to the park's existing boat ramp and paddling launches. Parking, ingress, and egress at undesignated access points along the lakeshores, the park road, and State Road 72 is strongly discouraged.

According to the MWSRMP, the current carrying capacity as established would be far more than the current use levels on the river and there is no segment of the river on which the physical capacity has been attained (FDEP 2011). However, there is a need to establish a more accurate recreational carrying capacity that includes greater consideration of the appropriate social and ecological values for the wild and scenic segment of the Myakka River.

Table 6. Recreational Carrying Capacity						
	Existing Capacity*		Proposed Additional Capacity		Estimated Recreational Capacity	
Activity / Facility	One Time	Daily	One Time	Daily	One Time	Daily
Camping						
Standard	744	744			744	744
Group	60	60			60	60
Primitive	48	48			48	48
Primitive equestrian	30	30			30	30
Cabin	30	30			30	30
Trails						
Nature	24	96			24	96
Hiking	156	312			156	312
Biking	450	900			450	900
Equestrian	160	160			160	160
Picnicking	400	800	80	160	480	960
Boating						
Canoe/kayak	120	240			120	240
Unlimited power	132	132			132	132
Concession Tours						
Airboat	70	210			70	210
Tram	70	210			70	210
Wilderness Preserv	30	30			30	30
Visitor Center	50	200			50	200
TOTAL	**2574**	**4202**	**80**	**160**	**2654**	**4362**
*Existing capacity revised from approved plan according to DRP guidelir						

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 Down's parcel consists of approximately 235 acres (S12-T38S-R19E) along the southwestern corner of the park. The Myakka River abuts this property for nearly one mile. Inclusion in the optimum boundary identifies the importance of securing the health of the Wild and Scenic River corridor within the park. Acquisition would also facilitate removal of a dam on the river and more thorough hydrologic restoration of the river and park.

The Gulsby parcel consists of approximately 65 acres (S2-T37S-R20E) along the northern park boundary. The property is significant for a large red maple swamp and seepage slope from which drainage flows into the park. It is also one of the few locations in Sarasota County that has surficial exposed limestone outcrops associated with seeps. Fire management and restoration of the park property north of Upper Myakka Lake will be greatly aided if this property is obtained.

The Lanier parcel (Sheps' Island) consists of approximately 710 acres (S9-T37S-R20E) on the western boundary of the park. Acquisition of this parcel would allow for the restoration of Vanderipe Slough.

The multi-ownership parcel abutting the park "panhandle" consists of approximately 3,900 acres (S15-17and S20-S24-T37S-R21E) along nearly 7.5 miles of shared boundary. Fire management is currently very difficult along this boundary owing to the many large wetlands, which flow into the park and are bisected by the boundary. The headwaters of both Deer Prairie Slough and Mossy Hammock Slough are within this recommended parcel. Hydrological restoration of these wetlands is essential for successful restoration of thousands of acres of dry prairie in the park. The level of disturbance on this property is readily revertible through sound hydrologic and fire management measures.

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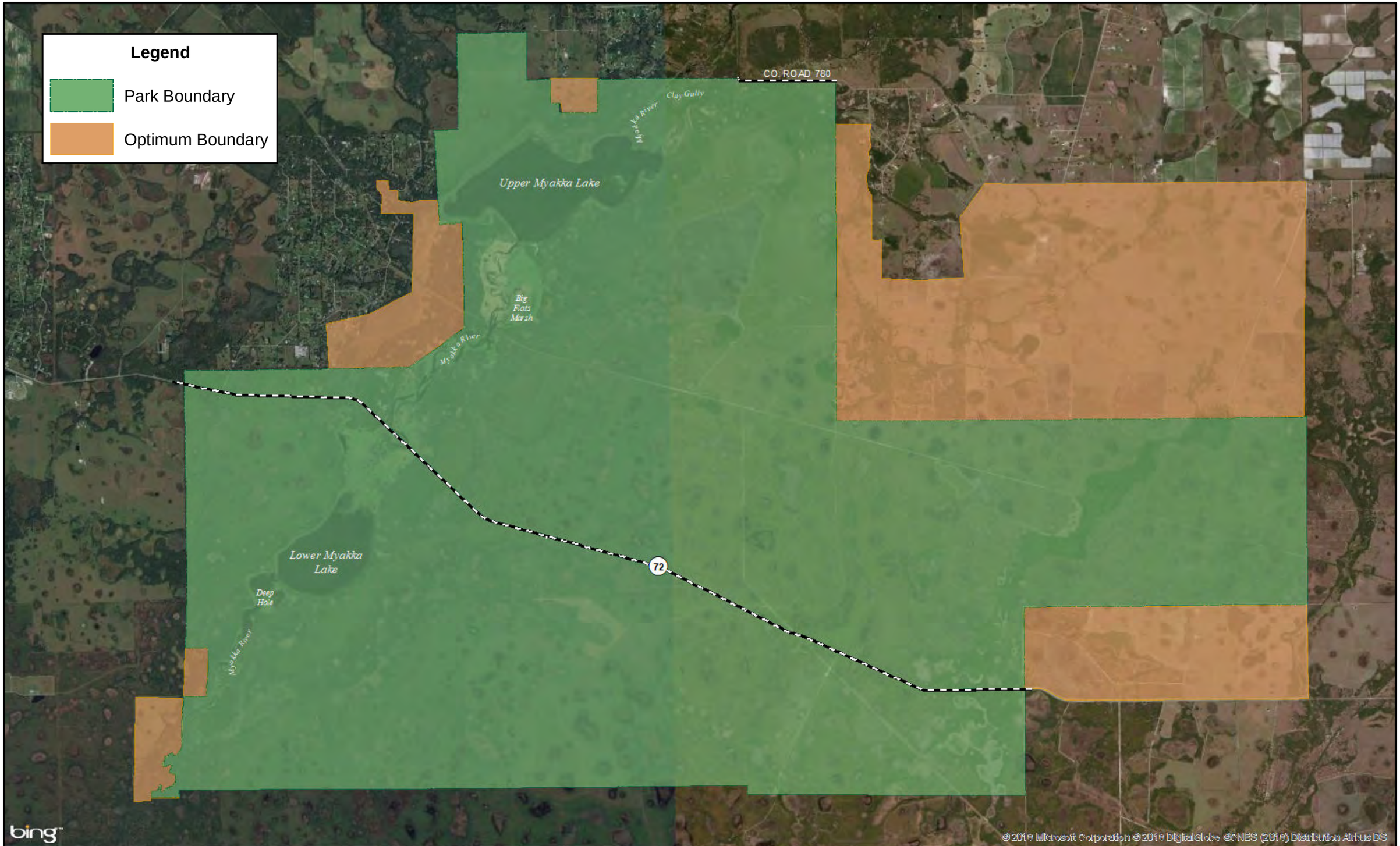

MYAKKA RIVER STATE PARK

N

0 0.5 1 2 Miles

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

OPTIMUM BOUNDARY MAP

IMPLEMENTATION COMPONENT

The resource management and land use components of this management plan provide a thorough inventory of the park's natural, cultural and recreational resources. They outline the park's management needs and problems, and recommend both short and long-term objectives and actions to meet those needs. The implementation component addresses the administrative goal for the park and reports on the 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 Myakka 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 three of the five general categories that encompass the mission of the park and the DRP.

Park Administration and Operations

- During the last ten years, park volunteers contributed over 225,000 hours of volunteer service.
- The park's Citizen Support Organization (CSO), Friends of Myakka, Inc., has provided the park with:
    - funding for education, research, publications and a new website;
    - specialized equipment for park operations/resource management, including computer equipment, firefighting equipment, mowers and other needed equipment; and
    - funding for canopy walkway repairs.
- The CSO has also held numerous nature classes and special events at the park to raise funds for some of the items listed above.

Resource Management

Natural Resources

- Equipment purchased for natural community restoration activities, including tractor/loader/tree cutter.
- Prescribed fire management conducted on 82,000 acres.
- 3,400 acres treated for exotic plants.
- 8,950 exotic animals were removed from the park, including 8,600 feral hogs.

- In terms of hydrologic restoration, six additional culverts were placed under SR72. Also, two low-water crossings and three culverts were repaired. Three new culverts were added, and three unpaved roads were improved to allow for sheet flow.
- Nine blocked or failing culverts were repaired or replaced or repaired along the park drive. A timber project was conducted for habitat improvement on mesic flatwoods and scrubby flatwoods natural communities. 196 acres of planted pine were removed, and 1404 acres were thinned.
- Mechanical treatment (roller chopping or tree-cut mowing) conducted on 4,878 acres for habitat improvement to Florida dry prairie.
- Bi-annual butterfly survey has been added to park's monitoring.

Cultural Resources

- A preservation plan was completed in May 2009 for seven CCC structures.
- A Partnerships in Parks project was completed to restore the seven CCC structures which include all five cabins, the log pavilion and the log restroom.).
- Added six buildings to the Florida Master Site File.
- Replaced roof on four CCC structures.
- Completed Archaeological Resource Sensitivity Modeling for park.

Recreation and Visitor Services

- The concessionaire, Myakka Outpost, continued to provide food, souvenirs and rental services for the enjoyment of park visitors.
- Myakka Wildlife Tours continued to provide interpretive airboat tours on the Upper Myakka Lake and tram tours to the Florida Dry Prairie and other ecosystems for park visitors.
- The park offers a Canopy Walkway, which includes a suspension bridge and 74' tower. This is very popular with the visitors.
- A self-guided Native Tree Walk is provided, which allows the visitors to learn about the native trees of the park.
- There is a Visitor Center, located in an historical CCC barn, where the visitors can watch 5 mini-movies about Myakka and see many taxidermies of the animals we have at the park including a Florida Panther.
- The Friends of Myakka continued to host Moon Over Myakka concerts during the winter months. These concerts are Myakka's biggest events of the year.
- We provide guided Full Moon Bike Rides once a month. The guides lead the participants along the main drive during evening hours to watch the sunset and view wildlife under the full moon.
- Weekly ranger guided walks and campfire programs are scheduled for park visitors and campers (December-March).
- A weekly, walking tour to Deep Hole is offered during the fall and winter months.
- During the busy months of the year, a bird naturalist is at the birdwalk on certain days of the week. The naturalist has a scope, bird guides, and birding experience handy for the visitors' use.

- A Myakka River Clean Up was organized and led by our interpretive chairperson.
- Weekly Camper Coffees and Ice Cream Socials are organized by volunteers for park visitors and campers (December-March).
- Every two weeks, story time is provided in the Log Pavilion for campers. This is a time when rangers and volunteers tell stories or read poems about Myakka and Florida history.
- The park serves as host to many weddings, private events and family gatherings.
- The park is listed as a site on the Great Florida Birding Trail.
- Myakka Half Marathon fundraiser event for families affected by Alzheimer's (annual, started in 2015)

Park Facilities

- Post-flooding repairs to facilities, roads and infrastructure (2004 and 2014)
- Upgraded electric to 50 amp service in Old Prairie Campground
- Upgrade youth area with water service
- Built event stage for concerts
- Replaced eleven roofs on park buildings
- New residence for park manager
- New 6,400-square-foot concession building
- Removed old concession building
- New campground
- Road repairs/repaving
- Repaired Clay Gully Bridge
- Replaced lift station at Stop Camp
- Upgrades to tour boat landing and services
- Tied in Administration office, south restroom, shop building, and two residences at the shop to main wastewater system and abandoned three failing septic systems
- Added commercial water softener system to main water plant to address drinking water concerns
- Replaced two failing drain fields

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	**$247,000**
Objective B	**Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.**	Administrative support expanded	C	**$16,000**
Goal II: Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Conduct/obtain an assessment of the park's hydrological needs.**	Assessment conducted	LT	**$663,000**
Action 1	Conduct an assessment and feasibility study of the effects of the weir, blocked culverts adjacent to the weir and the private dam on the hydrologic flow, hydro-period, flora and fauna within the Myakka River system; pending the outcome of the assessment	Assessment conducted	UFN	$250,000
Action 2	Pending the outcome of the assessment in Action 1, and if it is determined as feasible to do so, remove or modify structures to improve hydrology	Removal of structures	UFN	$350,000
Action 3	Monitor the water inflow to Myakka River State Park from adjacent sources, including any associated storm water runoff. DRP should continue to support all entities that track water sources for the park.	Data collected	C	$6,000
Action 4	Continue water quality monitoring through the University of Florida's Lakewatch Program.	Data collected	C	$29,000
Action 5	Conduct a more inclusive water quality assessment on a yearly basis.	Data collected	UFN	$12,000
Action 6	Restore hydrologic sheet flow and natural hydroperiod by filling ditches that were created to connect and drain wetlands	# Miles of ditches filled	UFN	$16,000
Goal III: Restore and maintain the natural communities/habitats of the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Within 10 years have 26,074 acres of the park maintained within optimal fire return interval.**	# Acres within fire return interval target	LT	**$1,548,000**
Action 1	Update annual burn plan on a yearly basis	Plan updated	C	$16,000
Action 2	Manage fire-dependent communities by burning between 11,131–25,938 acres annually.	Average # acres burned annually	C	$618,000
Action 3	Continue and improve monitoring fire effects on successional dry prairie, mesic flatwoods and scrubby flatwoods	# Acres moniotred/ data collected	C	$16,000

* 2016 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.				
Action 4	Firebreaks will be maintained	# Miles of firebreaks maintained	C	$898,000
Objective B	**Conduct habitat/natural community restoration activities on 2,000 acres of dry prairie, mesic flatwoods and scrubby flatwoods communities over the next 10 years.**	# Acres restored or with restoration underway	C	**$189,000**
Action 1	Develop/update site-specific restoration plan. Each fiscal year, the natural communities are assessed	Plan developed/updated	C	$16,000
Action 2	Implement restoration plan	# Acres with restoration underway	UFN	$157,000
Action 3	Update and maintain a comprehensive mechanical treatment map.	Map complete	C	$16,000
Objective C	**Develop a plan for Florida dry prairie restoration of the abandoned pasture south of State Road 72, that identifies priorities, feasibility, and partnership/funding opportunities**	Plan developed/updated	UFN	**$1,298,000**
Action 1	Develop a restoration plan which outlines the desired outcome; documents the existing conditions; identifies potential restoration projects.	Plan developed/updated	UFN	$16,000
Action 2	Determine the feasibility of the projects; outline a budget for each project and phase;prioritize project schedule; and establish a list of potential partnership and funding opportunities	Budget determined; partnership & funding available	UFN	$82,000
Action 3	After Actions 1 and 2 are met, implement the project(s)	# of Acres pastures restored to historic natural community	UFN	$1,200,000
Objective D	**Conduct aquatic habitat restoration activities on 880 acres of river floodplain lake that identifies priorities, feasibility and partnership/funding.**	# Acres improved or with improvements underway	UFN	**$29,000**
Action 1	Identify, develop, and implement comprehensive aquatic habitat management of the Upper Myakka Lake by collaborating with FWC Aquatic Habitat Restoration and Enhancement Subdivision of Habitat and Species Conservation (AHRE), FWC Invasive Plant Management Section and Southwest Florida Water Management District (SWFWMD) Vegetation Management	Comprehensive aquatic management implemented	LT	$27,000
Action 2	Continue to coordinate with FWC Invasive Plant Management Section and SWFWMD Vegetation Management to control the spread of aquatic invasive plants in the Upper Myakka Lake, the Lower Myakka Lake and the Myakka River.	# Acres invasive aquatic plants treated	C	$2,000
Objective E	**Develop a desired future conditions map using historical data including pre-settlement land survey plat maps and notes for the area and interpret 1940s aerial photography**	Map complete	ST	**$10,000**

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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	**Periodically update imperiled species occurrence inventory lists for plants and animals.**	List [developed] updated	C	**$11,000**
Objective B	**Monitor and document 55 selected imperiled animal species in the park.**	# Species monitored	C	**$68,000**
Action 1	Develop monitoring protocols for 3 selected imperiled animal species, including crested caracara, burrowing owl and sandhill cranes.	# Protocols developed	ST	$18,000
Action 2	Implement monitoring protocols for imperiled animal species including those listed in Action 1 above and the bald eagle, Florida scrub jay, gopher tortoise and butterflies.	# Species monitored	C	$32,000
Action 3	Determine best management practice in relation to reducing the impacts of human disturbance on alligators at Deep Hole and implement.	Reduction of impacts by visitors at Deep Hole	C	$18,000
Objective C	**Monitor and document 17 selected imperiled plant species in the park.**	# Species monitored	C	**$5,000**
Action 1	Maintain the herbarium which was established in 1940's; continue to add new species as they are found.	Intact herbarium	C	$3,500
Action 2	Develop monitoring protocols for the cardinal airplant and the giant airplant along the main paved roads in the park.	# Protocols developed	ST	$500
Action 3	Implement monitoring protocols for the cardinal airplant and the giant airplant along the main paved roads in the park.	# Species monitored	C	$1,000
Goal V: Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Annually treat a minimum of 45 infested acres (300 gross acres) of exotic plant species in the park.**	# Acres treated	C	**$109,000**
Action 1	Annually develop/update exotic plant management work plan.	Plan developed/updated	C	$14,000
Action 2	Implement annual work plan by treating 20-25 zones in park, annually, and continuing maintenance and follow-up treatments, as needed.	Plan implemented	C	$79,000
Action 4	Continue to seek out grants and additional funding for the treatment of FLEPPC category 1 and 2 exotic plants	# of funding dollars received	C	$16,000
Objective B	**Implement control measures on 3 exotic animal species in the park.**	# Species for which control measures implemented	C	**$63,000**
Action 1	Authorized staff and contractors will participate in the feral hog removal program as resources permit.	# of hogs removed; # improved habitat acres/ # miles of roads	C	$38,000
Action 2	Continue the island apple snail and egg mass removal program.	# of island apple snails and eggs removed	C	$5,000
Action 3	Research best management practice to reduce the population of exotic fish and exotic amphibian species and implement if feasible.	Best management practice identified and implemented	C	$20,000

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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 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 41 of 41 recorded cultural resources in the park.**	Documentation complete	LT	**$2,007,000**
Action 1	Complete 17 assessments/evaluations of archaeological sites.	Assessments complete	LT, ST	$207,000
Action 2	Complete 11 Historic Structures Reports (HSRs) for historic buildings and cultural landscape. Prioritize stabilization, restoration and rehabilitation projects.	Reports and priority lists completed	LT	$1,800,000
Objective B	**Compile reliable documentation for all recorded historic and archaeological sites.**	Documentation complete	LT	**$4,902,000**
Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.	# Sites recorded or updated	ST	$414,000
Action 2	Conduct Level 1 archaeological survey for area within proposed future development and identified by predictive model	Probability Map completed	ST	$30,000
Action 3	Develop and adopt a Scope of Collections Statement.	Document completed	ST	$4,458,000
Objective C	**Bring 16 of 41 recorded cultural resources into good condition.**	# Sites in good condition	LT	**$700,000**
Action 1	Design and implement regular monitoring programs for 14 cultural sites	# Sites monitored	C	$35,000
Action 2	Create and implement a cyclical maintenance program for each cultural resource.	Programs implemented	C	$665,000
Goal VII: Provide public access and recreational opportunities in the park.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective A	**Maintain the park's current recreational carrying capacity of 4,202 users per day.**	# Recreation/visitor opportunities per day	C	**$4,567,000**
Objective B	**Expand the park's recreational carrying capacity by 160 users per day.**	# Recreation/visitor opportunities per day	UFN	**$299,200**
Objective C	**Continue to provide the current programming of 30 interpretive, educational and recreational programs on a regular basis.**	# Interpretive/education programs	C	**$210,000**
Objective D	**Develop 5 new interpretive, educational and recreational programs.**	# Interpretive/education programs	UFN	**$80,000**
Action 1	Develop and implement Interpretive Master Plan.	Plan implemented	UFN	$20,000
Action 2	Develop 5 new interpretive programs.		UFN	$60,000

* 2016 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 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	**$4,937,000**
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	**$1,000,000**
Objective C	**Improve and repair existing facilities and construct new facilities that will promote safety, protect park resources, and enhance resource-based recreational activities.**	# Facilities/Miles of Road	UFN	**$9,002,759**
Action 1	Develop conceptual master plan by July 1, 2018	Document completed	ST	**$5,000**
Objective E	**Expand maintenance activities as existing facilities are improved and new facilities are developed.**	Facilities maintained	UFN	**$500,000**

Summary of Estimated Costs

Management Categories	**Total Estimated Manpower and Expense Cost* (10-years)**
Resource Management	**$11,602,000**
Administration and Support	**$263,000**
Capital Improvements	**$10,502,759**
Recreation Visitor Services	**$10,593,200**
Law Enforcement Activities[1]	

1 Law enforcement activities in Florida State Parks are conducted by the FWC Division of Law Enforcement and by local law enforcement agencies.

* 2016 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

Appendix 1—Acquisition History

Myakka River State Park Acquisition History

Purpose of Acquisition:

The Board of Trustees of the Internal Improvement Fund (Trustees) of the State of Florida acquired the initial area of Myakka River State Park for the establishment of a park area to provide public, resource-based recreation.

Sequence of Acquisition:

In 1934,1,920 acres was donated to the State of Florida by the Potter family. The Florida Board of Forestry (FBF), predecessor in interest to Florida Board of Parks and Historic Memorials (FBPHM), purchased approximately purchased 17,070 acres from the estate of Adrian Honore. Since this initial donation and initial purchase, several parcels have been acquired through dedication, management agreement, and Florida Forever/Additions and Inholdings (FF/A & I) and added to Myakka River State Park. Presently the park contains 37,198.91acres.

Title Interest:

The Trustees and the Southwest Florida Water Management District (SWFWMD) hold title to different portions of Myakka River State Park.

Lease Agreement:

On January 23, 1968, the Trustees leased Myakka River State Park to the Florida Board of Parks and Historic Memorials, predecessor to the Division of Recreation and Parks (DRP), under Lease number 2324. This 99-year lease will expire on January 22, 2067. According to the lease, the DRP manages the park for the purpose of public outdoor recreation, park, conservation, historic and related purposes.

In 1998, the Trustees assigned a new lease number, Lease No. 3636, to the Myakka River State Park, without changing any of the terms and conditions of Lease No. 2324. On March 25, 1997, the DRP assumed management of an 8,248.75-acre property owned by the SWFWMD.

According to the lease, the DRP manages Myakka River State Park for the purposes of developing, improving, operating, maintaining and otherwise managing said land for public outdoor recreational, park, historic conservation and related purposes. The DRP manages the SWFWMD property as part of Myakka River State Park for the purpose of water management, natural resource management, and outdoor recreational and related public purposes.

Special Conditions on Use:

At Myakka River State Park, public outdoor recreation and conservation is the designated single-use of the property. 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 park.

Outstanding Reservations:

The following is a list of outstanding rights, reservations and encumbrances that apply to Myakka River State Park.

Type of Instrument:…… Deed (No. 21926)
Grantor:…… TIITF
Grantee:…… FBPHM
Beginning Date:…… September 30, 1958
Ending Date:…… When no longer used for its intended purpose.
Outstanding Reservation: The deed states that this property will be used solely for public park purposes. If the property is ceased to be used for the intended purposes, it shall revert to the grantor or grantor's successor in interest.

Appendix 2—Advisory Group Members and Report

Myakka River State Park
Advisory Group Members

***Elected Officials**
The Honorable Michael Moran,
Chair, Sarasota County Board of
County Commissioners

The Honorable Betsy Banac, Chair,
Manatee County Board of County
Commissioners

Business Representatives
Vanessa Baugh, Chair,
Manatee County Tourism
Development Council

Ken Harrison,
Local Businessman

***Agency Representatives**
Jennifer Brunty., Chair,
Manatee River Soil and Water
Conservation District

Todd Underhilll, Chair,
Sarasota County Soil and Water
Conservation District

Mike Kemmerer,
Regional Biologist,
Florida Fish and Wildlife
Conservation Commission

Stephen Giguere, Manager,
Myakka River State Park

Carmen Sanders,
Southwest Florida Water
Management District

Duane Weis, District Manager,
FL Forest Service – Myakka District

Mike Wisenbaker, Archaeology
Supervisor - Public Lands
Bureau of Archaeological Research

***Environmental and Cultural Resource Representatives** -
Geraldine Swormstedt,
Group Chair,
Sierra Club-Manatee-Sarasota
Group

Jeanne Dubi, President,
Sarasota Audubon Society

Jono Miller, Chair,
Myakka River Management
Coordinating Council

John McCarthy,
Historical Society of Sarasota
County/Historic Spanish Point

CSO Representative
Miles Millwee, President,
Friends of Myakka River, Inc.

User Group Representatives
Mr. Dick Ptaff Kayaker

Kevin Webb, President
Myakka River Riders

Bill Martin, Section Leader
Florida Trail Association
Suncoast Chapter

Laurel Schiller (Bicyclists)

***Adjacent Landowners**
Becky Hullinger

*Members required by statute.

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The advisory group meeting to review the proposed unit management plan (UMP) for Myakka River State Park was held at the Myakka River State Park Training Room in Sarasota on Friday, March 3, 2017, at 9:00 AM.

Jon Robinson represented Commissioner Michael Moran for Sarasota County. Michael Elswick represented Commissioner Betsy Banac for Manatee County. Bill Lewis represented Geraldine Swormstedt for the Manatee-Sarasota Sierra Club. Steve Shattler represented Mike Kemmerer for the Florida Fish and Wildlife Conservation Commission (FWC). Harold Joslin represented Miles Millwee for the Friends of Myakka River. John O'Conor represented Jennifer Brunty (Manatee County Soil and Water District) Mike Wisenbaker (Florida Department of State – Division of Historic Resources (DHR) was not in attendance, but submitted email comments on the proposed UMP. Vanessa Baugh (Manatee County Tourist Development Council),Todd Underhill (Sarasota County Soil and Water Conservation District), Carmen Sanders (Southwest Florida Water Management District), and Jeanne Dubi (Sarasota Audubon Society) did not attend or submit comments, although a member from the Sarasota Audubon Society did speak during the public comment period. All other appointed advisory group members were present at the meeting.

Division of Recreation and Parks (DRP) staff members who attended the meeting included Sine Murray, Jason Mahon, Stephen Giguere, Valinda Subic, David Copps, Chris Becker, Chris Oliver and Parks Small. Greg Vaughn (Atkins) and Gene Stillman (F4 Tech) were also in attendance to facilitate the meeting on behalf of DRP.

Mr. Vaughn began the meeting by explaining the purpose of the advisory group and reviewing the meeting agenda. He then afforded advisory group members an opportunity to introduce themselves. Following introductions, he provided a brief overview of the DRP's planning process and asked Ms. Murray to provide opening remarks and an overview of the proposed UMP.

Ms. Murray commented on the public meeting held the previous night and how well attended it was with 260 people. She commented how she appreciated the passion and support of those in attendance. Many of the comments were directed at the language associated with secondary use resources generating revenue from consumptive uses. She added that this analysis is required by statute and that the Florida Park Service (FPS) will not remove timber or anything else unless it is directly related to restoration objectives. The FPS's primary goal is restoration and not generating revenue. Based on the confusion related to this, the language in the UMP will be revised to provide better clarification of its intent.

Key Goals of this UMP update include:

- Monitoring and assessing the hydrologic situation of the park
- Prescribed fire

- Natural community restoration
- Monitoring and protection of imperiled species
- Protection of cultural resources
- Management of nuisance and invasive species
- Peak visitation management
- Widen park road for pedestrian and cyclist safety
- Encourage parking at a satellite location
- Provide tram service to encourage a safe visitor experience and reduce traffic congestion
- Ecolodge for meetings and tour groups
- Ranger led tours
- Focus on park improvements
  Relocate Visitor Center to Upper Myakka Day Use Lake Area since many visitors bypass the existing Visitor Center and proceed to Upper Myakka Lake (too much congestion).

She continued by commenting on the format of the previous night's public meeting, stating that an open house is a common planning forum. Staff were located at each station and there are "pros" and "cons" to the meeting format. Public comments are accepted for two weeks after the meeting. The open house format of the public meeting was meant to provide additional opportunity for comment by having staff available to establish a dialogue. This format has led to FPS receiving more public input and hearing from a broader audience than a traditional public hearing format.

During the two-week public comment period following the advisory group meeting, the DRP received numerous comments from members of the public about the Myakka River State Park unit management plan. The major themes of these comments are as follows:

- Members of the public opposed language in the plan referring to potential revenue generation and secondary management purposes such as timber harvesting, stump harvesting, and palmetto frond harvesting due to potential impacts to the park's wildlife and natural communities.

- Many comments concerned the lack of funding provided to public land managers for park operations and resource management efforts.

- Some members of the public expressed support for the land use concepts presented in the plan but many members of the public were concerned about the possible overdevelopment, overcrowding and over commercialization of the park.

- Many comments urged DRP to recognize the unique character of the park and to maintain the park in its current condition.

SUMMARY OF ADVISORY GROUP COMMENTS

Bill Martin (Florida Trail Association – Suncoast Chapter) indicated that he spends most of his time in the back country at the park and is concerned with the consumptive use issue. Would like to see the park move back to what it must have been like when Desoto was in Florida and away from a "city" park. He was not in favor of consumptive uses for picking berries or palm fronds. He commented that things should not be placed in the back country that do not belong there and FPS should leave things alone.

Bill Lewis (Manatee-Sarasota Sierra Club) mentioned that he supported the purpose of the park and stated that Myakka has set the example for prescribed burning and continues to be very effective with this management activity. He had concerns with the consumptive use language and wants the secondary uses removed from the new UMP, specifically timber harvesting. Mr. Lewis also expressed concerns with development at the Stop Camp and felt that it would be better to build a conference center adjacent to the park versus within the park. Interpretive center needs to be located near the park entrance to identify educational opportunities and set the tone for visitors to the park. Discussion within the UMP concerning invasive plant and wildlife is inadequate and needs to be strengthened to show more aggressive monitoring of species. Mr. Lewis stated that plowing of the firelines creates opportunities for alien and invasive species. When considering infrastructure needs, the FPS should consider/monitor visitor viewshed, citing Bee Island now has cell phone towers. He also commented that the use of contractors has increased for various things given the lack of available resources, and language should be included in the UMP to ensure that park staff have control over contractors at all times and are allowed to closely monitor their activities.

Kevin Webb (Myakka River Riders) commented that improvements are needed to All Weather Road and he was glad to see that they are included in the UMP. He also suggested parking areas to accommodate larger horse trailers.

Steve Shattler (FWC) said that Myakka River State Park is great and offers an amazing landscape. The park also provides wildlife viewing and interpretation opportunities. He suggested improving the discussion concerning monitoring listed species. Citizen science is an opportunity to improve educational opportunities at the park and monitoring of species. He is in support of having fire completed safely as a wildlife management tool. He stated that fire management is the most cost effective form of habitat management and the large burn units located at Myakka are good. However, he also mentioned that mechanical management methods should be considered when appropriate. Mr. Shattler said that limited timber harvests

should be left in the "toolbox" for FPS to utilize for the management of natural communities.

Jon Robinson (Sarasota County) acknowledged that overall there is a lot to like about the proposed UMP, but there are a lot of inconsistencies throughout the document. Mr. Robinson provided multiple examples of the updates that were needed throughout the UMP. He mentioned that the current and historical staffing levels need to be updated. Visitation trend data is not current. Major projects shown as pending in the proposed UMP have already been completed. The lease for property owned by the Southwest Florida Water Management District (SWFWMD) ends soon and should be referenced. The UMP should also mention potential shared use of resources from SWFWMD for better management, as well as the significance of volunteers to the management of the park. Suggested the evaluation of restoration of the Upper Myakka and removal of the weir. Mr. Robinson commented that he did not feel the Resource Management and the Land Use Components worked well together within the UMP. He was in favor of the Visitor Center relocation for potential tram use and asked for consideration of the relocation to the dredge spoil site of the park, following the National Park Service Model. Mr. Robinson was concerned with the consumptive use language and stated that it should be revised to ensure that it is conducted for resource management purposes only. He added that it is not necessary to remove stumps, as vehicles driven in the park create more impacts. Mr. Robinson went throughout the draft UMP and cited several locations where information was dated, incomplete, or inconsistent. He expressed concerns over plans to increase visitation to Upper Myakka Lake. He stated that recreational carrying capacity shown in the UMP is inaccurate and only parking capacity can accurately reflect carrying capacity. He was supportive of the idea of partnering with the local school district to create new interpretive programs and mentioned the need for Americans with Disabilities Act (ADA) facility upgrades. Mr. Robinson mentioned that the optimum boundary does not mention Sheps Island. He commented that the cultural resource data listed in the plan is out of date and the sites cannot be managed with the current staffing levels. He also mentioned that the UMP states the property was acquired in 1936, when it was actually acquired in 1934. He stated that the UMP needs to be updated in order to improve the document. He also commented that discussion about the firelines within the UMP is awkwardly worded. Expansion of firebreaks can reduce hedge effect. Disking lines over and over can increase soil erosion and potentially sedimentation into adjacent water bodies. Language should be improved to explain their need and to consider disking on one side and mowing on the other and then switched.

John O'Connor (Manatee River Soil and Water Conservation District) was concerned with the visibility and understanding of the maps within the document. Specifically, the vicinity map and reference maps were confusing regarding county lines. He also commented that within the UMP there is no reference to coordination with Manatee County. Mr. O'Connor commented

that one of the cattle vats listed in the cultural resources table was not evaluated for the National Register of Historic Places.

Mr. O'Connor mentioned that the Optimum Boundary map is hard to read and does not identify the target properties by name. He suggested that the report needs a general listing of abbreviations utilized within the UMP, as well as a map of tributaries and other referenced water resources. Mr. O'Connor had questions regarding the status of trees and general hydrology within the park and wanted to see more about what was being done with Tatum Sawgrass Marsh. He commented that there are several reports mentioned within the UMP and wanted to know if copies of these referenced reports could be obtained. He also questioned references within the UMP of runoff from phosphate mining.

Ken Harrison (Local Businessman) commented how he grew up in the area and is proud of the park, as it provides a glimpse of what the area used to be. He believed that the FPS is doing a good job and the park is well managed. The burn program utilized by the park is great and enough vegetation is generated within two years. Suggested more monies to be spent on fighting invasive species, specifically cogon grass. Mr. Harrison expressed support of efforts to control wild hog population, including the use of helicopters. He indicated that he was in favor of the multiple use designation as stated within the draft UMP as part of the land management "toolbox".

Becky Hullinger (Local Private Property Owner) commented how she owns property that abuts the state park and the park does an outstanding job communicating when a prescribed burn event is occurring. She mentioned how she loves the wildlife in the area, as many people come to her property for the deer and turkey, but she is concerned with wild hogs. While she is in favor or controlling their population, she expressed concerns over the park's use of helicopters to hunt hogs, especially on the opening day of hunting season. Ms. Hullinger indicated that she could be open to the use of helicopters if they were utilized outside traditional hunting seasons.

Jono Miller (Myakka River Management Coordinating Council) spoke about his involvement with the park, dating back to 1974. He expressed strong opposition to harvesting within the state park. Mr. Miller expressed his concern that he and other individual citizens did not have the opportunity to speak at the public meeting and regretted that he felt he had been asked to limit restrict his comments to the Advisory Group to the direction he received from the Myakka River Management Coordinating Council. (see motion passed by the MRMCC) Citing the reluctance of the UMP to remove reproducing non-native North Florida Slash Pine, he stated that he was concerned that the trust between the Florida Department of Environmental Protection (FDEP) and the public could be eroded because allowing them to mature and create another generation of unwanted trees is contrary to established natural community restoration goals. Therefore, the lure of

marketable revenue from state parks could skew management decisions. He stated that language concerning secondary uses has created suspicion and these types of activities erode confidence. He mentioned any revenue generated from removal of snags would be minimal. Pine stump removal operations are tremendously impactful, as these stumps are important for burrowing animals. Citing his Master's thesis on cabbage palms, Mr. Miller emphasized that there is no known management goal that palm frond harvesting would benefit, and therefore, there was no legitimate need to remove fronds from the park. He is concerned that these proposals create a situation where managers are tempted to make decisions based on revenue instead of the best management practice for maintaining the resource. Later, Mr. Miller expressed the need to address the visual user experience of the recreational paddler, arguing that the UMP needs to consistent with the plan and goals of the Myakka Wild and Scenic River Legislation.

Harold Joslin (Friends of Myakka River, Inc.) stated that he wanted to see the new language concerning consumptive use once it was updated. However, he also stated that consumptive use is not compatible with his organization's goals.

John McCarthy (Historical Society of Sarasota County/Historic Spanish Point) commented that throughout the UMP there are numerous mentions to eligibility for the National Register of Historic Places, but there appears to be no plan for submitting an application to the Florida Department of State to get these sites named to the National Register. He would like to see the UMP updated with a plan to have these sites, especially the Civilian Conservation Corps (CCC) sites, added to the National Register. He commented that the park has never had a systematic archaeological/historical society survey completed and would like to see that added to the UMP. Mr. McCarthy suggested that training was needed to help park staff and volunteers identify archaeological sites. He commented that he did not see within the UMP, any references to the African American CCC workers which had been instrumental back in the 1930s. This provides a great interpretive opportunity for the park. He expressed concerns with how the FPS is communicating with and weaving the history into the overall park experience. He expressed concerns with the architectural style of any new buildings to ensure that it is consistent with and does not detract from the historical character of existing facilities. He questioned the location of historical items that have been collected from the park, who is curating them, and according to what procedure. Mr. McCarthy questioned if this curation plan could not be included in the UMP. Remaining turpentine pine trees with cat-faced scars are living history. He commented about increasing historical interpretation opportunities for the general public, especially pre-historic time period. FPS needs to investigate and identify opportunities for partnerships in managing cultural and historic resources. Consider identifying and designating an informal advisory panel to assist with overarching issues (i.e., removal of the weir). He also pointed out ownership inconsistencies within the draft UMP. Mr. McCarthy commented that the park is a world-class resource, but is not

being managed in that same manner. He expressed concerns of consumptive uses within the park and potential impacts to historical resources. He mentioned that widening the roadway within the park will not reduce the speed and will not increase public safety. He also expressed opposition to the open house format of the public hearing.

Laurel Schiller (Recreational User Group – Bicyclist) expressed her passion for recreational bicycling in the park. She commented how she was fearful of the secondary uses for the park and that FPS needed to provide clarification to the public. She addressed the lack of mapping within the park and suggested some enhancements to get people out of their cars and onto the trails. She suggested that each trailhead should have a large graphic map and individual paper maps to take out on the trail. Many people come to the park and are afraid to leave the paved road. Need a better mapping system that identifies the level of difficulty for each trail (i.e., family friendly trails). The park also needs to improve maintenance of the existing trails, particularly the more popular ones.

Dick Pfaff (Recreational User Group – Kayaker) expressed his history of recreational paddling on the Myakka River and commented about how special the Myakka River is for recreational paddling. Exotic species can cause problems on the river and can shut it down for paddling. Mr. Pfaff expressed the need for better education from the concessionaire to individuals regarding the well-being and physical condition or requirements of potential paddlers. He suggested signage and/or charts along the river to provide guidance to safe “pull offs”. Perhaps, the FPS should identify a “stopping off point” where wildlife can be observed and identified. He commented about the need for an ADA-compatible launch near the airboat docks and a better location for the current trash container. Lastly, he suggested increased education and outreach about the river, including education on what to do when encountering alligators.

Duane Weis (Florida Forest Service – Myakka District) complimented the FPS on the use of fire ecology. Firebreaks are imperative for the execution of the fire program. Mr. Weis supported the intent for the inclusion of consumptive uses, particularly timbering, but supported the FPS updating the language within the UMP to provide clarification. He remarked that the park should not select only one management option given that it may result in revenue, but instead identify and implement the method that best meets the overall natural resource management goal.

Following comments from the advisory group, **Sine Murray** offered follow-up remarks addressing questions related to the Optimum Boundary map, land acquisition, and the suggestion to include FPS plans/policies in the UMP.

There was also general discussion about the hydrology of Lake Myakka.

It was stated that all public comments received as part of the public hearing and advisory group meeting will be placed on FDEP's website, as will the advisory group summary report.

SUMMARY OF PUBLIC COMMENTS

Steven Schaefer (Concerned Citizen) volunteers at the park to kill melaleuca and expressed concerns over consumptive use. He stated that the park is a single-use site. Multiple use sites are treated differently than single use properties, and single use properties do not need to address secondary uses. Mr. Schaefer stated that the consumptive use discussion should be addressed and asked if the updated UMP language regarding consumptive use would be made available to the public prior to submittal of the UMP to the Acquisition and Restoration Council. Ms. Murray responded that the update to the draft UMP will be published on FDEP's website.

Adam Wiegand (Florida Trail Association) commented that the park should be a single use property and natural areas around the trails should be maintained.

Mike Cosentino (Concerned citizen) commented that the meeting format for the public hearing held the previous evening night was a disgrace and was designed to squelch public input. He expressed concern with the process and suggested that the FPS was only concerned with revenue generating potential and not the management of the natural resources. He also commented that there are errors within the Draft UMP that should be addressed. He read a passage from Ken Burn's book "The National Parks: America's Best Idea", adding that we in regards to our parks, we should "take nothing but pictures and leave nothing but footprints".

Ernie Winn (Concerned Citizen) expressed concerns with the designated Wilderness Area within the park and placing an ecolodge within it, adding that action would not be appropriate. He stated his concerns on conducting eco-tours and the impact of the carrying capacity of the park within the Wilderness Area. Mr. Winn also stated that he felt there are currently enough vendors within the park.

In response to Mr. Winn's concerns, Ms. Murray discussed Ranger-led hikes and taking advantage of existing resources. She acknowledged the special designation for the Wilderness Area, which limits the carrying capacity of this area and stated that the FPS would continue to limit capacity in this area of the park.

Paula Benshoff (Concerned Citizen) expressed concerns that contractors, not park staff, are making decisions in regards to prescribed burns, invasive species, etc. According to Ms. Benshoff, park staff does not write or review prescriptions. Removal of invasive cogon grass at the park requires local park

management input and not just contractors and park management needs to have control over their contractors. She commented that Sheps Island is not on the acquisition list and should be included. She also stated that the last hydrological study was completed in the early 1980s and needs to be updated.

Rob Wright (Sarasota Audubon/Concerned Citizen) stated that he agreed with a lot of what had been suggested during the advisory group meeting. He supported efforts to maintain the area as "Wild and Scenic" and felt that should be the main priority. He expressed concerns to hear that wildlife habitat is being removed to increase parking and suggested consideration of options for temporary parking to save long-term impacts to wildlife. He expressed support for moving the Visitor Center and making it more educational. However, focus of the park should be on wildlife and not making it easier for people who come to the park.

Becky Ayech (Environmental Confederation of Southwest Florida) stated that she agreed with the comments expressed by advisory group member, Jon Robinson of Sarasota County. After providing some history of Old Miakka and the establishment of the park, she stated her concerns over providing a conference center and its light pollution. She also expressed her opinions regarding the open house format of the previous night's public hearing, stating that it did not provide good communication. She expressed that the proposed expansion of Clay Gully was ridiculous. She also expressed concerns with potential noise impacts to adjoining neighborhoods from timbering and stump removal operations. She stated that she does not want to dodge cars and buses, and supports less traffic and development. She is concerned with traffic impacts in adjacent neighborhoods if vehicular traffic increases and is opposed to the idea of utilizing a tram system for park visitors. Ms. Ayech also expressed concerns with utilizing helicopters for hog removal and the impact the noise will have on nearby sheep and horses. She added that the park is significantly understaffed and needs additional staff to handle the additional responsibilities. As a person who lives near the park, she stated that she does not want to live next door to Disney World and asked that the FPS not place more development in the floodplain.

Tamara Williams (Concerned Citizen) expressed concerns that the UMP is this far along in the process and the advisory group is just now providing feedback. She commented on how it is our responsibility to preserve the eco-system and cultural resources within the park for future generations. Ms. Williams also stated that she would like to see public involvement earlier in the planning process.

Terri Lewis (Myakka Wildlife Tours) commented on the removal of headwaters which would lead to Myakka Lake drying up. She commented on the benefit the tours could provide by affording the public an opportunity to learn about the natural resources. Myakka Lake is getting shallow and filling up with silt. She commented on hydrological concerns of Myakka Lake (silt,

removal of the weir). Ms. Lewis expressed concerns that "Tallahassee" is making decisions for the park and they are not good decisions.

Mark Finehout (Concerned Citizen) provided some comments concerning the history of the area and his involvement with Myakka.
Mr. Finehout stated that the CCC placed the weir for recreational benefits. Clay Gully was built by original settlers to drain fields for cows. He also praised the FPS for their management of the natural resources of the park and expressed support for efforts to increase and enhance visitation in the park. Mr. Finehout also expressed support for improvements to trails within the park.

Frank Levey (Concerned Citizen) explained that he moved to the area in 1974. He stated that fire is an essential part of the ecology of the area and was supportive of public educational efforts about the benefits of prescribed burnings. Mr. Levey suggested a boating safety course for those who rent boats on the lake. He also discussed the benefits of placement of the Visitor Center off site on newly acquired land and visitors taking a tram to the park to minimize parking impacts.

After public comments, there was discussion about next steps in the planning process, specifically concerning updates to the UMP and distribution of the advisory group summary report. Ms. Murray said the summary report from the advisory group meeting could be available in a couple of weeks and DRP staff will be able identify sections of the UMP which will be updated based on comments from the public and the advisory group. The current schedule has the UMP going before the Acquisition and Restoration Council in Tallahassee in October 2017 and there is public comment at that meeting. However, the updated UMP will be submitted and available online three months prior to the October 2017 meeting. Ms. Murray stated that she appreciated everyone's comments and that public input is a hallmark of the planning process utilized by DRP. Updates and information concerning the revised UMP will be available on FDEP's website so everyone can follow the scheduled timeline.

SUMMARY OF WRITTEN ADVISORY GROUP COMMENTS

Bill Lewis (Manatee-Sarasota Sierra Club) submitted written comments that further detailed the comments he made during the advisory group meeting (see attached).

Jono Miller (Myakka River Management Coordinating Council) asked that the official motion of the Myakka River Management Coordinating Council concerning Myakka River State Park draft unit management plan be included with the advisory group staff report (see attached).

Jon Robinson (Sarasota County) submitted written comments that further detailed the comments he made during the advisory group meeting(see attached).

Mike Wisenbaker (Florida Department of State – DHR) provided email comments on February 24, 2017 (see attached). Mr. Wisenbaker commended the FPS for meeting several of its cultural resource goals from the previous plan. He also pointed out discrepancies in the number of archaeological and historic sites within the state park based on their records. Mr. Wisenbaker concurred with FPS efforts to record all buildings within the park that are now considered historic and encouraged the park staff to monitor all archaeological sites as frequently as possible, preferably annually. Lastly, Mr. Wisenbaker encouraged the FPS to pursue interpretation of historic resources within the park, especially those sites connected with the CCC and/or the Works Progress Administration.

STAFF RECOMENDATIONS

- Dated, incomplete, and inconsistent information in the plan will be updated and revised.
- Plan language will be clarified to describe the Florida statute requirement that single-use designated state parks over 1,000 acres consider secondary management purposes that could support resource management objectives.
- The reference to fuel and stump harvesting and palm or palmetto frond harvesting as secondary management purposes or as potential sources of revenue will be removed from the plan.
- Florida Park Service policy regarding the use of helicopter hunting to remove feral hogs will be clarified.
- Sheps Island will be included on the Optimum Boundary Map.
- Management plan maps will be revised to clarify county boundaries and add significant tributaries.
- Cultural resource information will be updated and made consistent with information in the Florida Master Site File.
- Language will be added to address the potential listing of the park's cultural resources on the National Register of Historic Places.
- Land-use proposals for an ecolodge/meeting facility and the relocation of the current visitor center will be re-evaluated. All land use concepts will be further evaluated through a public visioning workshop to be scheduled in the Spring of 2018.
- The addition of an improved trailhead and trail wayfinding information will be provided in the plan.
- Paddling facility improvements such as an accessible launch at the Upper Myakka Lake Day Use Area and pull-offs with wayfinding information along the Myakka River will be added to the plan.
- The fishing platform proposed for the Clay Gulley Picnic Area will be removed from the plan.

NOTES ON COMPOSITION OF THE ADVISORY GROUP

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

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

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

should be the main priority. He expressed concerns to hear that wildlife habitat is being removed to increase parking and suggested consideration of options for temporary parking to save long-term impacts to wildlife. He expressed support for moving the Visitor Center and making it more educational. However, focus of the park should be on wildlife and not making it easier for people who come to the park.

Becky Ayech (Environmental Confederation of Southwest Florida) stated that she agreed with the comments expressed by advisory group member, Jon Robinson of Sarasota County. After providing some history of Old Miakka and the establishment of the park, she stated her concerns over providing a conference center and its light pollution. She also expressed her opinions regarding the open house format of the previous night's public hearing, stating that it did not provide good communication. She expressed that the proposed expansion of Clay Gully was ridiculous. She also expressed concerns with potential noise impacts to adjoining neighborhoods from timbering and stump removal operations. She stated that she does not want to dodge cars and buses, and supports less traffic and development. She is concerned with traffic impacts in adjacent neighborhoods if vehicular traffic increases and is opposed to the idea of utilizing a tram system for park visitors. Ms. Ayech also expressed concerns with utilizing helicopters for hog removal and the impact the noise will have on nearby sheep and horses. She added that the park is significantly understaffed and needs additional staff to handle the additional responsibilities. As a person who lives near the park, she stated that she does not want to live next door to Disney World and asked that the FPS not place more development in the floodplain.

Tamara Williams (Concerned Citizen) expressed concerns that the UMP is this far along in the process and the advisory group is just now providing feedback. She commented on how it is our responsibility to preserve the eco-system and cultural resources within the park for future generations. Ms. Williams also stated that she would like to see public involvement earlier in the planning process.

Terri Lewis (Myakka Wildlife Tours) commented on the removal of headwaters which would lead to Myakka Lake drying up. She commented on the benefit the tours could provide by affording the public an opportunity to learn about the natural resources. Myakka Lake is getting shallow and filling up with silt. She commented on hydrological concerns of Myakka Lake (silt, removal of the weir). Ms. Lewis expressed concerns that "Tallahassee" is making decisions for the park and they are not good decisions.

Mark Finehout (Concerned Citizen) provided some comments concerning the history of the area and his involvement with Myakka.
Mr. Finehout stated that the CCC placed the weir for recreational benefits. Clay Gully was built by original settlers to drain fields for cows. He also praised the FPS for their management of the natural resources of the park and expressed support for efforts to increase and enhance visitation in the

park. Mr. Finehout also expressed support for improvements to trails within the park.

Frank Levey (Concerned Citizen) explained that he moved to the area in 1974. He stated that fire is an essential part of the ecology of the area and was supportive of public educational efforts about the benefits of prescribed burnings. Mr. Levey suggested a boating safety course for those who rent boats on the lake. He also discussed the benefits of placement of the Visitor Center off site on newly acquired land and visitors taking a tram to the park to minimize parking impacts.

After public comments, there was discussion about next steps in the planning process, specifically concerning updates to the UMP and distribution of the advisory group summary report. Ms. Murray said the summary report from the advisory group meeting could be available in a couple of weeks and DRP staff will be able identify sections of the UMP which will be updated based on comments from the public and the advisory group. The current schedule has the UMP going before the Acquisition and Restoration Council in Tallahassee in October 2017 and there is public comment at that meeting. However, the updated UMP will be submitted and available online three months prior to the October 2017 meeting. Ms. Murray stated that she appreciated everyone's comments and that public input is a hallmark of the planning process utilized by DRP. Updates and information concerning the revised UMP will be available on FDEP's website so everyone can follow the scheduled timeline.

SUMMARY OF WRITTEN ADVISORY GROUP COMMENTS

Jon Robinson (Sarasota County) submitted a written version that further detailed the comments he made during the advisory group meeting(see attached).

Mike Wisenbaker (Florida Department of State – DHR) provided email comments on February 24, 2017 (see attached). Mr. Wisenbaker commended the FPS for meeting several of its cultural resource goals from the previous plan. He also pointed out discrepancies in the number of archaeological and historic sites within the state park based on their records. Mr. Wisenbaker concurred with FPS efforts to record all buildings within the park that are now considered historic and encouraged the park staff to monitor all archaeological sites as frequently as possible, preferably annually. Lastly, Mr. Wisenbaker encouraged the FPS to pursue interpretation of historic resources within the park, especially those sites connected with the CCC and/or the Works Progress Administration.

STAFF RECOMENDATIONS

- Dated, incomplete, and inconsistent information in the plan will be updated and revised.

- Plan language will be clarified to describe the Florida statute requirement that single-use designated state parks over 1,000 acres consider secondary management purposes that could support resource management objectives.
- The reference to fuel and stump harvesting and palm or palmetto frond harvesting as secondary management purposes or as potential sources of revenue will be removed from the plan.
- Florida Park Service policy regarding the use of helicopter hunting to remove feral hogs will be clarified.
- Sheps Island will be included on the Optimum Boundary Map.
- Management plan maps will be revised to clarify county boundaries and add significant tributaries.
- Cultural resource information will be updated and made consistent with information in the Florida Master Site File.
- Language will be added to address the potential listing of the park's cultural resources on the National Register of Historic Places.
- Land-use proposals for an ecolodge/meeting facility and the relocation of the current visitor center will be re-evaluated. All land use concepts will be further evaluated through a public visioning workshop to be scheduled in the Spring of 2018.
- The addition of an improved trailhead and trail wayfinding information will be provided in the plan.
- Paddling facility improvements such as an accessible launch at the Upper Myakka Lake Day Use Area and pull-offs with wayfinding information along the Myakka River will be added to the plan.
- The fishing platform proposed for the Clay Gulley Picnic Area will be removed from the plan.

NOTES ON COMPOSITION OF THE ADVISORY GROUP

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

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

Advisory groups that are composed in compliance with these requirements complete the review of State park management plans. Additional members may be appointed to the groups, such as a representative of the park's Citizen Support Organization (if one exists), representatives of the recreational activities that exist in or are planned for the park, or representatives of any agency with an ownership interest in the property. Special issues or conditions that require a broader representation for

adequate review of the management plan may require the appointment of additional members. DRP's intent in making these appointments is to create a group that represents a balanced cross-section of the park's stakeholders. Decisions on appointments are made on a case-by-case basis by DRP staff.

To whom it may Concern:

Thank you for the opportunity to serve on the Advisory Board. Please find below my summarized comments regarding the Draft Myakka River Unit Management Plan.

General Comments:

- It would be helpful to best understand the plan if more historical information could be included. Some helpful topics would be information on current and historical staffing, visitation trends, budget and revenue trends, etc. This is particularly necessary in regards the park's Carrying Capacity. The Florida Park Service states "Carrying Capacities are established for each park unit within the park's unit management plan. The purpose of carrying capacities is to determine the number of people an individual park or facility can accommodate at any given time **to preclude the degradation to resources, facilities or visitor experience.**" The challenge is that, in most cases, the Florida Park Service does not enforce their carrying capacities. To my knowledge, only the parks with very specific parking requirements, primarily beach parks, actively enforce the carrying capacity. Based on the attendance data collected, it should be fairly easy to determine how many days, in any given period, Myakka exceeded their carrying capacity. If this is bench marked with real time observations of park conditions, a determination could be made as to the degradation to resources, facilities or visitor experiences. A more appropriate way to increase visitation for this very popular park would be to concentrate on building visitation during the shoulder seasons.
- When reading the document the Land Use Component and the Resource Management Component seem to have two different authors and do not work well together. For example, if all topics in the Resource Management Component are achieved, the Upper Myakka Lake Day Use Area may no longer be the "hub" of the park.
- Most information is at least 2 years old and in many cases inconsistently stated throughout the plan.
- The Plan would benefit from more openly addressing Accessibility, both in regards to facilities and programming.
- The plan fails to address the lease between FDEP and SWFWMD regarding the Myakka Prairie. To the best of my recollection, this lease expires in 2017. Prior to extending the lease, FDEP should get a commitment for assistance with management costs of this parcel.
- I don't believe the plan goes into enough detail regarding hydrological restoration. Without this information the remainder of the plan cannot be fully considered.
- The Sarasota County Comprehensive plan was updated in 2016. Any references should be to the current plan.
- Although mentioned briefly in the plan, the aging park infrastructure is not equipped to keep up with the growing popularity. The park's water and wastewater treatment plants are currently operating at maximum capacity. Numerous changes have been implemented to stretch their capacity, but any additional development needs to start with this critical infrastructure.

Conceptual Thoughts:

- Language regarding "compatible secondary management purposes" needs to be cleaned up. Although it was mentioned in the Public Meeting and the Advisory Group Meeting that it was not the intent to complete these activities as revenue generation activities. The plan language is confusing. It should be clear these uses would be strictly for approved resource management projects, any revenue received would be of secondary benefit.
- Thoughts regarding the relocation of the Nature Center to the Upper Myakka Lake Day Use Area may make conceptual sense, but due to flooding issues, construction costs, overcrowding, and potential changes in use patterns this does not make practical sense. In fact a DEP representative stated "we would not normally build a park in a floodplain." I agree with the statement and would also say we should not invest in a major capital addition in a floodplain. Another option would be to follow the National Park Service model. Placing Visitor Centers outside of the entrance, allowing potential visitors to find out about the park prior to entering. There is potential to relocate the Visitor Center to a location on State Road 72. Two possible locations include the already disturbed area just west of Vanderipe Slough (known as the dump) or the area of fragmented habitat just west of Myakka Valley Trail.
- I applaud the idea of a tram, but based on societal norms, it will not be utilized unless it is mandatory. If the appropriate location, along SR 72, is utilized, a mandatory tram for day-use visitors could go a long way towards helping with congestion challenges.

Specific Comments:

- Page 9 Management Coordination. SWFWMD does NOT control aquatic invasive exotics on the Myakka Prairie.
- Page 79, third paragraph. The elevation of the CCC cabins was completed in late 2015/early 2016. This information is out of date.
- Page 88, fourth paragraph. Old data, not consistent with 2010 FNAI, not consistent with information on page 91.
- Page 104, third paragraph. Only a small portion of the Pineland Reserve is open to the public. The Crowley Museum and Nature Center is privately owned.
- Page 106, second paragraph. The development spreading towards the park will have significant impacts on resource management techniques. **It is imperative park and district staff be involved in reviews and making sure appropriate "Notice of Proximity" is provided to future land owners.**
- Page 108, Natural Features. A recent study of Deep Hole by Sarasota County and Mote showed a depth of 140 feet, page 14 indicates 130 feet deep. Please maintain consistency.
- Page 113, Current Recreational Use and Visitor Programs. Please update this section. Information is several years out of date.
- Page 115, South Picnic Area. Recreation Facilities is inconsistent. In some places it mentions Sewage Treatment Plants and Lift Stations and in other places fails to mention them.

- Pages 121, Potential Uses are inconsistent. One says maintain current recreational carrying capacity. The very next one says increase by 660 per day. This is inconsistent with page 128, table 6 showing proposed additional capacity of 360 and also with Table 7, Sheet 4 of 5. Where it shows an increase of 260.
- PAGE 122, Develop 5 new interpretive, educational and recreational programs. Excellent section. All good ideas.
- Page 124, Big Flats Campground. If significant work is planned, the campground should be master planned. If a new bathhouse is planned, it should be centrally located. This would allow for an additional campsite or two. Also the sewage treatment plant should be better buffered for sight and noise. Planting vegetative buffers has been attempted many times. Due to flooding and heavy usage the plantings have never flourished.
- Page 124, Myakka River Bridge. Striping will not help. All other options are good suggestions.
- Page 124, South Entrance Area. Please see General Comments above.
- Page 125, Boating Access Areas. Strongly recommend creating an accessible paddling launch both on the Upper Myakka Lake and along the Myakka River.
- Page 125 Residence Areas and Volunteer Campsites should have locations identified. Mentioning in such a general format does not build confidence that this is a priority.
- PAGE 125, Lodging and Conference Center. Has there been any research to determine if this is a needed facility? I spoke to Visit Sarasota, the local experts in this regard, and they were unfamiliar with the need. Also, what impacts would this have on the existing uses of the STOP Camp? Current uses for training center, volunteer sites, Americorps and researcher housing have added to the success of the park. Losing these options, without adequate replacement would be detrimental.
- Page 129, Optimum Boundary. Shep's Island is not identified in this section. It is probably one of the most important properties to acquire/protect to maintain the character of the Park. A significant portion, 160 acres, of the former Down's Parcel, now the ObarO Ranch is currently protected through a conservation easement with Sarasota County.
- Page 133 Management Progress. I question the data. The time frame is not specific and most date is from 2015 and earlier. This should be verified for accuracy.
- Page 134 Cultural Resources section is outdated.
- Page 135, first sentence of the last paragraph. I question the statement that many of the actions of the plan can be completed using "existing staff." As fantastic as the staff is at "doing more with less" they are at their limits on what they can accomplish. Also I believe staffing has been reduced since the statement was written.
- Table 7 indicates all projected costs are in 2015 dollars. This should be updated. Costs are rapidly increasing, why start with two year old data.
- Table 7, Goal II, Objective A, Action 2. Somewhere in the plan it should acknowledge the conflict between natural resource management and cultural resource management. The weir at the Upper Myakka Lake is a cultural resource. Which is going to take precedence? Also, there may be a conflict between restoring historical sheet flow and historical recreational use. Which is going to take precedence? The plan should address these topics.

- Table 7, sheet 3 of 5, Goal V Objective A is not aggressive enough or may need clarification. Is there any language indicating the current level of infestation?

Sincerely:

Jon M. Robinson, Natural Area Parks, Preserve, and Trails Division Manager

Sarasota County Parks, Recreation and Natural Resources

From: Barber, Alicia W
Sent: Friday, February 24, 2017 2:28 PM
To: Vaughn, Greg A
Subject: FW: Myakka River State Park - Advisory Group
Attachments: MRSPArc.xlsx; MYRSPHS.xlsx

See below.

From: Wisenbaker, Mike [mailto:Mike.Wisenbaker@DOS.MyFlorida.com]
Sent: Friday, February 24, 2017 2:15 PM
To: Barber, Alicia W <Alicia.Barber@atkinsglobal.com>
Cc: Duggins, Julia <Julia.Duggins@DOS.MyFlorida.com>; O'Donoughue, Jason M. <Jason.ODonoughue@dos.myflorida.com>; McFadden, Paulette S. <Paulette.McFadden@dos.myflorida.com>
Subject: RE: Myakka River State Park - Advisory Group

Good afternoon, Alicia

First, we commend the Florida Park Service for inviting us to participate as an advisory group member for preparing the draft management plan for Myakka River State Park. As usual, the Florida Park Service has done a good job in preparing this document and appear to have a very good handle on the archaeological and historical resources found within the park boundaries. They also did well in preparing their narrative in which they describe and explain these resources. Our comments and suggestions on this plan are as follows:

1) On page 68, the plan states 16 archaeological sites exist there whereas our recent GIS analysis of the park reveals 17, according to the Florida Master Site File, archaeological sites as being partially or wholly within Myakka River State Park. In this vein, we also are showing 26 recorded historic structures as being located within the park. Please see the two attached spread sheets that were derived by searching the FMSF.

2) With regard to mentioning the potential National Register nomination on page 73, the Public Lands Archaeology program in the DHR is currently working to assist the Florida Park Service in nominating the CCC/WPA structures into the National Register of Historic Places. Also, the plan mentions here that there are 19 recorded historic resources within the park whereas our analysis revealed that there are currently 26 of these historic resources within the park. Please see above comment and spread sheet.

3) Regarding Table IV, the plan shows 16 archaeological sites whereas we are showing 17 based on our GIS analyses. Beyond that, for some reason we are not showing MA1433 as being within the park. Conversely, this table does not show either MA1466 (Mossy Silo Bases) or SO611 (Lincer 2) as being in the park but our data indicate that they are. There are similar discrepancies in Table IV regarding historic structures: the table shows that SO2282, SO6141, SO6144, SO6145, SO6146 and SO6607 are within the park but they do not show up in our GIS data analysis of the park. On the other hand, our analysis shows the following sites: SO6986, SO6988, SO6989, SO6990, SO6992 and SO7028 as being with the park but they do not appear in Table IV. Again, we here at PLA in DHR are not sure why these differences of inventory exist. For that reason, we suggest that the Florida Park Service work directly with our Florida Master Site File to fix, or at least provide a good explanation, as to with these apparent discrepancies are occurring.

4) On page 98, we strongly concur that FPS should follow up with recording (in the FMSF) all buildings in the park that are now considered historic.

5) As for monitoring archaeological sites (page 99), we recommend that the park monitor all its archaeological sites as frequently as possible—preferably monitor all of them at least annually.

6) We encourage the Florida Park Service to pursue interpretation of historical resources (page 122)at Myakka River State Park—especially those sites and features associated with the Civil Conservation Corps and/or the Works Progress Administration.

7) We are pleased to see that the park has made considerable progress in meeting several of its cultural resource goals at MRSP.

Please let us know if you have any questions or concerns regarding our comments.

Regards,

Mike Wisenbaker
Public Lands Archaeology
Division of Historical Resources

From: Barber, Alicia W [mailto:Alicia.Barber@atkinsglobal.com]
Sent: Thursday, February 16, 2017 9:39 AM
To: Wisenbaker, Mike; Wisenbaker, Mike
Subject: Myakka River State Park - Advisory Group

The Florida Park Service has compiled an advisory group as part of the update to the management plan for the Myakka River State Park. Per our phone conversation, you have been designated to serve as a representative of your organization or agency.

Management plan advisory groups for Florida State Parks are composed of elected officials, staff from other land management agencies, managers of state parks, representatives of environmental groups, park volunteers, adjacent land owners, and representatives of recreational user groups. We find a focus group review of our plans to be very beneficial to both our long-term visioning process and short-term planning for state parks.

The advisory group for the Myakka River State Park will meet only one time, for about three hours, on **Friday, March 3, 2017, at 9:00 AM (EST) at the Myakka River State Park Training Room located at 13208 State Road 72, Sarasota, Florida 34241.** The meeting agenda and a digital copy of the draft management plan (hard copy may be provided upon request) are attached for your review prior to the meeting. An official appointment letter will also be sent via U.S. Postal Service.

Staff of the Division of Recreation and Parks will answer questions and discuss the plan at the meeting. The advisory group will be asked to participate by providing comments and contributing their knowledge of the park and surrounding environment. After the meeting, each member will receive a report summarizing the group's comments and the Division's staff recommendation on any proposed changes to the draft management plan. Any additional comments by advisory group members would need to be provided in writing. This is the extent of the obligation for appointed advisory group members.

Please let me know if you or an alternate are unable to participate. If no member of your organization or agency is able to attend, we can certainly gather input via phone, email, or conventional mail. Your review of the plan will be much appreciated.

McKee, Debbie

From: Bill Lewis <billewis78@gmail.com>
Sent: Saturday, March 11, 2017 7:41 PM
To: FL_StateParkPlanning
Subject: Myakka River State Park Updated Management Plan
Attachments: MRSP Manatee Sierra Club 03-12-2017.docx

Attached are comments from the Manatee Sarasota Sierra Club regarding the Updated Management Plan for Myakka River State Park. Please let me know when the next draft is available and how I can review it.

Thank you,
Bill Lewis

William Lewis, Representative
Manatee-Sarasota Sierra Club
P.O. Box 3485
Sarasota FL 34236

Myakka River State Park Updated Management Plan

To: Office of Park Planning
Florida Department of Environmental Protection
Divison of Recreation and Parks
3900 Commonwealth Boulevard, MS 525
Tallahassee, FL 32399-3000
FL_StateParkPlanning@dep.state.fl.us

March 10, 2017

Myakka River State Park is a unique resource that was set aside to meet a critical purpose as stated on page 1 of the Plan: "The purpose of Myakka River State Park is to preserve the natural beauty, wildlife, and historical features of the property, to serve as an important link in the chain of protected lands in the southern portion of the state, and to provide outstanding outdoor recreation and natural resource interpretation for the benefit of the people of Florida." Within the plan there are many elements that work towards this goal. However, there are some areas of serious concern that you will be able to address in your revisions.

Some of the most important elements include the ongoing restoration of the prairie habitat, emphasizing a wilderness experience for recreational users, improved visitor center, use of a tram to alleviate traffic congestion and other visitor items. Modifications to these items include:

1) For restoration fire is the most critical element. The fire frequencies should mimic what Florida Natural Areas Inventory (FNAI) recommends which are different from what is written in the plan.
2) The language on firelanes should not be a road with a plowed area on both sides. That is much too wide for the height of the vegetation, disrupts the visitor experience, inhibits small bird and mammal movement and opens up areas to greater infestation of invasive and alien plant species.
3) Carefully work to protect the experience for users by limiting viewshed obstructions from the trails and river. Language needs to be inserted to define and require this. This would include moving the dumpster away from the edge of the upper lake.
4) As mentioned in the last update of the management plan a continuously running tram during peak visitation months would alleviate traffic and minimize infrastructure costs for parking and vehicles. This would need to be linked to the new interpretive center – see next point.
5) All new infrastructure should avoid native habitats. The native habitats are the reason visitors come to the park, not to see parking areas and buildings.
6) A new interpretive center should be at the entrance to the park where visitors would be oriented as they begin their experience. The areas around the entrance station have significant parking areas and other impacted zones which could be effectively used for this. From this location a tram could take visitors along the park drive with stops at key visitor points. The proposal to build a new interpretive center at the lakeside is not appropriate. The area floods frequently, native hammock would be adversely impacted or destroyed, and most visitors would have already stopped several times before ever being oriented to the park.

7) Recreational uses did not fully recognize the Myakka Island Trail which crosses the entire park and the adjacent T. Mabry Carlton Preserve. This trail has been identified as a possible link that could extend to the Peace River.
8) At this time the projected population of Florida and increased tourism will bring significant increases in visitors over the next decade. Therefore, there does not need to be anything done to 'market' the park to entice more visitors.

There are other areas that are serious problems. These include:

1) On page 7 of the draft plan it states: "For this park it was determined that timber harvesting, fuel and stump harvesting, and palm or palmetto frond harvesting could be accommodated." These are not compatible with protection of the natural resources and recreation as stated in the purpose of the park. This language should either be deleted in it's entirety or re-phrased to state that these uses have been evaluated and could **not** be accommodated without damaging the natural resources and visitor experience.
2) There is a proposal to build a conference center/lodge in the designated wilderness area. To put this in the wilderness area is absolutely not appropriate. In addition, this is an expensive and risky business proposal. Many conference centers and lodges struggle financially. If this were a feasible profit generating opportunity, a private vendor could acquire land adjacent to the park and work with the park for reasonable visitor access. This would avoid the millions of dollars needed to build such a facility and eliminate the ongoing operating costs. Once built the park would have to maintain the facility regardless of whether it made a profit or not.
3) The plan would allow up to 6% of the habitat to be overrun with invasive alien species. This would be over 2,000 acres and effectively prevents these species from being controlled or eradicated. Theses invasives damage habitat, crowd out native species and disrupt wildlife. The percentage needs to be much lower with a very aggressive goal.
4) Due to the hydrology of the lower lake and the Myakka River, Vanderipe Slough and Sheps Island should be included as part of the optimum boundary. Currently the park only owns half of Sheps Island.
5) On the maps that show adjacent lands several significant parcels are omitted. The map should include Myakka Conservancy property which borders the park and has significant river frontage and Tatum Sawgrass which is a conservation easement just north of the park.
6) The use of contractors and vendors are important relationships for the park. However, there is often a challenge for staff to manage and adjust the role or actions of a contractor. Strong language giving staff this responsibility would be important to include.
7) Finally, much of the historical data in the plan is not consistent or accurate. In addition, the management guidelines for natural habitats should mimic FNAI guidelines. This document will guide the park management until at least the next plan is finalized which could be up to 20 years. The accuracy is vital to a usable and effect plan.

We appreciate the opportunity to provide input into the planning process. If you need further clarification or have any questions on these items, please do not hesitate to contact me. Otherwise, we look forward to seeing these revisions in the next draft.

Sincerely,

William Lewis
Representative
Manatee Sarasota Sierra Club
(941)355-2156
Billewis78@gmail.com

Myakka River Management Coordinating Council
SWFWMD Sarasota Service Office
6750 Fruitville Road
Sarasota, FL 34240
February 24, 2017
9:30 A. M. – 12:30 P.M.

MINUTES

The meeting began at 9:30 A. M. with Jono Miller presiding. This meeting was advertised in the Herald Tribune on Friday, February 10, 2017.

MEMBERS IN ATTENDANCE

Jono Miller – Sierra Club
Mike Chouinard – Homeowner
Tara Poulton – SWFWMD
Gillian Carney – City of Venice
Allain Hale – ECOSWF
Elizabeth Wong – City of North Port
Heather Young – TBRPC
Bill Byle – Charlotte County
Jennifer Hecker – CHNEP
Tim Walker-SW Regional Planning Council
Steven Schaefer – Friends of Myakka River
Corky Pezzati – SC LWV
Marlene Guffey - Homeowner
Rob Wright- Sarasota Audubon
Howard Berna - SCNR
Steve Giguere- FDEP/FPS
Glenn Compton – ManaSota-88
Greg Blanchard – Manatee County
Lee Amos – CFGC
Eric Strickland - FFS
Bob Clark – Venice Area Audubon
Juliette Jones – Friends of WMS

INTERESTED PARTIES

Chris Oliver – FDEP/FPS
Chris Becker – FDEP/FPS
Jean Blackburn - citizen
Lisann Morris - SWFWMD
Jon Meyer – FDEP/FPS/Myakka River State Park
Nadine Hallenbeck – FDEP/FPS
Diana Donaghy – Sarasota County
Becki Babb - citizen
Donald Ellis – SWFWMD

- **Call to Order was made**.
- **Approval of the Meeting Minutes from December 2, 2016 Council Meeting**. Glenn Compton moved adoption of the Minutes. Steve Schaefer seconded. The Minutes were adopted.

OLD BUSINESS:
Jono updated everyone on the letter he sent to the Sarasota County Commission. He met with all five commissioners. He has two copies of the letter available to read.

Chris Oliver gave an update on the pilot rowing program at Senator Bob Johnson's Landing. Shawn Yeager advised Chris that Sarasota County has not submitted an application for a permit

for this activity to the (FDEP) South District Regulatory Office yet. They are still considering their options and reviewing options for rowing activities for that area.

NEW BUSINESS:
The new members introduced themselves. Rob Wright is the conservation chair with Sarasota Audubon Society. They are becoming more active in environmental issues within Sarasota, Manatee and Charlotte Counties.

Bob Clark is the representative for the Venice Area Audubon Society. They cover North Port up through Nokomis. They are trying to get representation in the North Port area.

Lee Amos is with the Conservation Foundation of the Gulf Coast. They are a private, not for profit land conservancy based in Osprey. One of their focus areas is the Myakka River watershed. Their goal is to protect another 10,000 acres on the Myakka in the next 5 years. Triangle Ranch was completed in 2016 and Orange Hammock Ranch should be completed in 2017.

Juliette Jones is one of the directors of the Friends of Warm Mineral Springs. Their mission is to preserve, protect and educate people about Warm Mineral Springs as well as other springs in Florida. They are members of the Florida Springs Institute, which is an educational organization run by scientists, environmentalists and educators from the University of Florida.

Chris added that Dixie Resnick will represent Crowley Museum and Nature Center.

Updates:

Howard Berna-Sarasota County Update:
Howard had nothing new to report.

Jono asked if he knew what the status of acquiring the oyster bar.

Howard does not have any new information on that.

Greg Blanchard-Manatee County Update:
The board approved the rezone of the Master Mine Plan for the Wingate Mine expansion. The county is waiting for the operating permit before moving forward. This should occur within a year.

Jono asked when the money from Mosaic was going to be given to acquire land along the Myakka River

Greg stated that he was not sure.

Bill Byle-Charlotte County Community Development Update:
Charlotte County is considered one of the fastest growing areas. There is a lot of new development happening on the West side of the Myakka River below the 776 bridge. This area

is called South Gulf Cove. It has canals with locks and is monitored very carefully, even though, the county did not choose to be part of the (Wild and Scenic River) program. As this area grows, they are expecting more interest in removing the locks. He suggested the Council keep an eye on this issue.

Glen Compton asked what Charlotte County's take on Mosaic was.

Bill replied that at one time the county may have made comments on Mosaic's purposed activities but they met with the county commission and came up with an agreement where the county would stop criticizing phosphate mining.

Discussion continued about mining in the watershed.

Elizabeth Wong-City of North Port Update:

They are working with USGS to install a gage to measure the flow at Warm Mineral Springs. SWFWMD is funding half of it. They are going to constantly monitor the flow and see how it is changing over time.

Juliette asked if the gage is measuring total content.

Elizabeth replied it is measuring flow in terms of CFS (cubic feet per second) from the whole spring.

Jono asked if it will measure temperature or water quality.

Elizabeth stated that it will measure temperature and conductivity. She discussed that the septic system has been abandoned and the site is connected to the central sewer now. Low impact development is very important to North Port. A new garden with native Florida vegetation and new playground with all pervious material, including the connecting sidewalks is being put in. A new walking trail, in pervious concrete, at Pine Park is being put in. An old nature trail along the Myakkahatchee Creek on the East side is being restored.

Bob asked about connecting Center Road in Venice and Price Boulevard in North Port.

Elizabeth replied it is not in the city's 5-year plan but they are trying to widen Price Boulevard.

Bill asked if there are any water quality studies being done at WMS. His concern was with the radioactive materials in the first 100 feet of the land due to the geothermals coming up through the layers.

Elizabeth replied that she is not sure. The Department of Health monitors the water quality of the springs but she does not know if they monitor the radioactivity as well.

Gillian Carney-City of Venice Update:

The total of 1377 units were approved for the Venice Golf and River Club (VGRC) and the last 12 units are currently under way. They expect to be completed by the end of 2017. The Woods property has been rezoned as PUD, nothing has been submitted yet for preliminary plan review.

Marlene raised a concern about draining 1300 homes into the Myakka River.

Chris clarified by adding that the VGRC drains into a stormwater system, which is a group of connected vegetative lakes for treatment.

Marlene was concerned that the Council is not being heard about impacts on the river and asked about the developments that are being purposed for Border Road near Jacaranda Boulevard area (the Neal Communities parcels).

Elizabeth explained that with a stormwater pond, nothing goes directly into the river. The ponds store the water so the pollutants can settle to the bottom.

Marlene questioned what will be done when the river comes up and floods the ponds.

Jono noted that he does not agree with the assessment but the designers of the purposed stormwater system would say that area is slow to flood, explaining that it takes days for water to come down from Tatum Sawgrass and the Myakka Lakes, so by the time that area does receive these flood waters, the stormwater ponds will be low enough to accommodate the extra water.

Discussion continued on regulation on flooding, nutrient pollution, and stormwater BMPs; as well as, ways to change policies and rules at the local and state levels.

Glen asked about the City's comprehensive plan update. He also asked about any changes to existing protections noting that he heard some were being deleted and combined.

Gillian stated she is not involved in that process and does not have any information on that. She offered to email Chris so it could be distributed to the members so they may comment.

Glen requested that the City of Venice Comprehensive Plan be placed on the next agenda so the Council can receive an update.

Jono encouraged members to draft a document with any concerns they have and, at future meetings, it can be voted on.

Allain suggested that the Council contact Neal (Communities) and SWFWMD and ask them to come to the next meeting as a starting point.

Gillian advised that the planning commission is meeting on March 7, 2017 at 1:30 p.m. and there are workshops planned for March 13th and 16th and a public hearing on April 12th. (**Editor's note:** the March 16th workshop was changed to 22nd after the meeting. Current information may be found on City's website at: http://venicegov.com/Municipal_links/Plann_zoning/CompPlanUpdate.asp.)

Jennifer Hecker-Charlotte Harbor National Estuary Program (CHNEP) Update:
The CHNEP has a brand-new website and Facebook page. They will be sponsoring a biodiversity conference at the Florida Gulf Coast University on March 7-9. The Charlotte Harbor Watershed Summit is 3/28-3/30. This is where scientific experts throughout the region are brought together to present the latest scientific information on water resources and aquatic life. The event is free but you have to pay for lunch. They are planning a sea level rise workshop for local governments in June 2017. The CHNEP from Venice to Bonita Springs to Winter Haven was designated in 1995 and, as a result, over half a million dollars was received every year for scientific research and restoration projects. If future funding is cut for this program it would be a great loss to the community.

Tara Poulton-SWFWMD (WMD) Update:
The WMD is working closely with Sarasota County on the Dona Bay project and staff could come in a future meeting from SWFWMD to discuss the project in detail.

Eric Strickland-Florida Forest Service:
Tom Mallet is now with Sarasota County. His position is currently open but they are actively looking for someone to fill it. The state forest had 10,430 day-use visitors since November 2016. There have been 1,394 overnight primitive campers. They have had 1,001 acres of prescribed burns. The hog removal program has had 31 hogs removed, 26.4 acres of cogon grass, 184 acres of melaleuca and 1.2 acres of rosary peas have been treated.

Allain asked about the restoration of long leaf pine habitats.

Eric replied that the Long Leaf Alliance has been an asset in getting that ecosystem improved.

Bill asked if there have been any panthers or red-cockaded woodpeckers in the forest.

Eric replied that he has not seen any of either and added that he does not anticipate seeing any red-cockaded woodpeckers because they need large pines which the state forest does not have.

Chris Oliver-Myakka Wild & Scenic River (MWSR) Update:
The MWSR Program continues to work with the South District Regulatory Office on existing applications and permits with compliance issues. The program recently submitted a Cooperative Funding application to the WMD to study the Upper Myakka Lake bypass and weir area. The bypass culvert area was blown out from rains in May of 2016. The application has been withdrawn, but they are looking with the WMD and FWC about other possibilities to fund a feasibility study. Water conditions remain low, since November 2016 the range has been between 2 feet and 1.75 feet. This is good for the wildlife. On February 21, 2017, state park staff burned the Big Flats Marsh area. The burn was 227 acres and there were 1,800 visitors that day. The closure period on the Myakka Rookery/Critical Wildlife Area has been moved recently from March 1st to January 1st. On January 19, 2017, there were already 134 birds including 111 wood storks. They were already preparing nest and mating. In February, there were approximately 80 nests.

Glen asked with the increase in coyotes is there a decline in feral hogs.

Steve Giguere replied that the state park continues to actively trap and remove hogs. They are not seeing as much hog sign as they have historically. A combination of resource management activities, outside predators, and poor food conditions due to long flood periods in previous years may be suppressing feral hog populations.

Lee mentioned there was some illegal vegetation cutting at the Tarpon Point Landing area and wondered if Chris had seen anything else like this along the river.

Chris responded that usually happens between Border Road and above Laurel toward the South boundary of Myakka River State Park. He passed Tarpon Point Landing on February 14th but did not see clear signs of illegal cutting. He suggested they coordinate with the sheriff range deputies and the FWC.

Break 10:57 a.m. - 11:12 a.m.

PRESENTATIONS

Flatford Swamp Update: Lisann Morris (Project Manager), Senior Professional Engineer and Don Ellison (Technical Lead), Senior Hydrogeologist

Lisann asked how many people were aware of the issues in Flatford Swamp. She explained that there is excess water effecting the swamp. A few years ago, they were looking to send the excess water up to the Mosaic mine to be used instead of ground water. That option was deemed unfeasible. They are now doing a feasibility study of aquifer recharge instead.

Mike Choinard asked why that was unfeasible.

Lisann replied that the cost outweighed the benefit but she would cover that more later.

Lisann showed a PowerPoint presentation regarding the proposal starting with a brief overview of Flatford Swamp which is located in the upper portion of the Myakka River Watershed in Eastern Manatee County, 2300 acres of it is owned by the WMD. In the 80s and 90s, abnormal tree die off was being reported, studies were done and it was revealed that there was too much excess water due to agricultural irrigation, land use changes and hydraulic alterations, like ditching that effected the rise and fall of water levels in the swamp. She explained that the swamp is like a series of bowls at the bottom of a hill. The Myakka River comes in from the North, tributaries come in from the East and the West and the river leaves and heads South. In the surrounding area, not far from the surface, is a spodic layer, which is like a coffee filter that has been clogged. When water infiltrates and hits the spodic layer, soil starts to fill up and the water starts to go down gradient. The WMD's water budget model for the Upper Myakka River Watershed indicated that excess flows, depending on if in the dry or wet season, could range from 7 to 30 mgd.

Construction of diversion structures is proposed at the Myakka River at Maple Creek and the confluence of Coker and Ogleby Creeks. By maintaining the minimum aquifer level, they can slow down and reduce the rate of saltwater intrusion inland. They are looking at recharging the excess water at Flatford into the aquifer, so they can see the rise in the ground water levels for

the SWIMAL wells and help the swamp hydroperiod. A consultant has been charged with exploring the permeability of recharge and optimizing the diversion structures. The feasibility study is done, they are waiting for the final deliverables and a draft FDEP permit has been submitted for a test well with a zone of discharge. DEP has been granting a zone of discharge for certain projects such as aquifer recharge and aquifer recharge and recovery. A zone of discharge is where the permittee must meet water quality standards at their property boundary. The public meeting was January 9, 2017. The test well is located off Wauchula Road and Taylor Road in the Flatford Swamp. The proposed recharge well would be drilled approximately 1,000 feet down. The source water will be the excess water coming in to Flatford Swamp. There are two monitor wells. One drilled down into the recharge zone and the other one is about 600 feet in the zone above. There are some domestic and irrigation wells within a one mile radius but they are deeper than 800 feet. None of these wells are in the recharge zone.

The water quality must be tested and a request to DEP will be made for approval prior to starting the recharge of the surface water down the well. The source water has to be tested for primary and secondary drinking water standards. So far, coliform is the only one above the drinking water standards but that is where the zone of discharge comes in and die off occurs within 90 days.

They will begin with very small quantities, less than 1 mgd, and work up from there depending on the results during the test recharge protocol. The permit requires two monitor wells but they are considering another one, 350 feet away, to keep better track of what is happening, as well as, testing the water quality more often.

Some modeling was done to get a better idea of how long the water will take to get to the property boundary, ranging from 1 year to 5 years.

The recharge well will be cased down 950 feet and the drilling will be 1,000 feet or more. They also wanted to see what kind of results they would get in the SWIMAL wells. If they recharge 10 mgd at Flatford, they found they can get .819 feet. The deficit in the minimum aquifer level is about 1 foot. There is the possibility for great gains in meeting the minimum aquifer level that would reduce the rate of salt water intrusion inland.

The process for this project was to submit the permit application, the private and agricultural well users were contacted, one on one meetings with stakeholders were held, presentations to the advisory committees were done and the public meeting for the permit was held in January. There is additional information at watermatters.org/Flatford. Once the WMD receives the permit, the test well and monitor wells will be drilled. Then the water quality will be tested and we may determine aquifer recharge characteristics to see if what is in the field is what the modeling predicted. DEP was contacted for permission to move forward to recharging surface water. The testing period is anticipated to go on for about 2 years.

Allain asked what this has to do with the Wild & Scenic designation of the Myakka River.

Jono replied that this project would move hydroperiods to more historic levels below.

Marlene asked if a study has been done on what chance that the aquifer will be contaminated by doing this.

Don Ellison replied that there has been. The goal is to eject lightly treated surface water. The water needs to meet drinking water quality standards. The naturally occurring coliform is the only one they have to contend with and it is not necessarily dangerous. This bacteria has been studied extensively in Australia and at USF. The City of North Port is doing an ASR project and putting water into their aquifer storage and recovery well. They are not detecting the coliform bacteria, which is an indicator bacteria. If there is oil, grease or gas, then the project is off.

Bill questioned if the problem was too much pumping of ground water that is used for agriculture, why not address the source of the problem rather figuring out how to get rid of the excess through such a process with taxpayers paying to put it back.

Lisann responded that it is not just ground water withdrawal but other sources too. She gave an example of natural habitat cleared for crops stating that this decreases evapotranspiration rates and increases streamflow. The modeling shows build out for that area is low density residual which will also produce excess water but with a different seasonality.

Jono added that Bill is right, the fact is there were no laws in place to protect the Flatford Swamp back when these uses were allowed. Now is too difficult to change the laws. It is too difficult to require the vegetation to be put back or limit water use permits. So, they are trying to do a fix and intercept the water to put it back in the ground in order resolve the problem.

Discussion continued regarding the issues with excess water, water use permits, and existing WMD efforts to have solutions to these problems.

Draft Unit Management Plan (UMP) Review

Jono mentioned that on March 2, 2017 at the Suncoast Community Church Activity Center, there will be an open house meeting relating to the draft UMP for Myakka River State Park (MRSP) at 5 pm. On March 3, 2017, there will be an advisory group meeting. Public comment will be allowed at both meetings but a court reporter will be at the March 2, 2017 meeting so public comment would be more effective at that meeting. Comments can also be submitted by email, phone or regular mail until March 16, 2017. Jono will be representing the MRMCC and he would like input from the members on the stance on different areas of the draft UMP.

The proposed language is MRSP is designated single-use in accordance with 253.034(2)a F. S. to provide “public outdoor recreation and other park-related uses”, which would replace language from the 2004 UMP that MRSP would “public outdoor recreation and conservation” as a designated single use of the property.

From page 7, “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 or the management purposes of the park.” Jono clarified that this means that cattle and water supply development will not be moving forward in the park. They are required to

consider secondary management by statute, however. "Timber harvesting, fuel and stump harvesting and palm or palmetto frond harvesting would be appropriate as additional sources of revenue since the draft would be compatible and not interfere with the primary purpose of resource based recreation and conservation." The former chief naturalist of the Florida State Park system is critical of this. With the exception of fishing, the parks have been non-consumptive for more than 80 years and allowing people to take stuff out for profit is contrary to that. Former chief biologist for the Florida park service said that park staff have gone through all potential uses and refused them all and the same could be done at Myakka.

If it is more than 1,000 acres, then timber management assessments are required. In 2014, work was done on timber management issues that would be reevaluated at this time. A former Park Specialist said that an area of North Florida slash (pines) were removed. It is best to remove them young because if they are left to mature they are going to produce seeds and then more North Florida slash pines would have to be dealt with. In Myakka, these pines are so widely scattered that it would not be profitable for a timber company to harvest them.

On stump removal, they are a non-renewable resource which provides significant wildlife value. Jonathan Dickinson and Lake Kissimmee State Parks have denied the harvest of stumps deeming it inappropriate.

No justification was provided for the removal of palm fronds. This practice weakens the tree and reduces their roles for wildlife. Getting to the site and removing them creates impacts and compromises the aesthetics and health of the tree so that should be removed.

Jono stated that harvesting the stumps and cutting the fronds reduces the habitat value and most of the pines have already been dealt with so doing those things is not about improving the resources. Manatee and Sarasota Counties are already sending $35 million a year to Tallahassee as part of the doc stamp transactions and some of the money is coming back and helping management at Myakka River State Park. Adjustments to seasonal camping rates or rates for large RVs would bring in far more dollars to the park than these limited harvests proposed. This is about establishing a premise that it is appropriate to take natural resources from the park and converting those exported resources into private dollars.

There is concerned about the fire interval, the impacts of widening the fire lanes and impacts on wildlife.

At the South entrance, there is a proposal to add a tollbooth and tram to take people to Upper Myakka Lake (UML). They want the visitor center to be relocated from the South entrance to the UML area, remove the old concession building. There is a concern that the Myakka Wild & Scenic River (MWSR) Management Plan says that "Any manmade or man-induced artifact that provides a visual impact to or impairment of the otherwise natural setting within the viewshed of the Myakka River is considered to be aesthetically offensive." It is possible that adding all these facilities adjacent to the lake is contrary to the (MWSR) plan. Another concern is that by moving the visitor center, people have to drive half-way through the park to find out what the opportunities are. During high water periods, parts of the park are closed so the interpretive center would be inaccessible if it was at the UML.

Jono briefly discussed the optimum boundary section of the UMP and that the Stop Camp may be converted to an eco-lodge before the topic moved back to Council business (prior to losing a quorum).

Chris noted in the by-laws and statute there is language that encourages specific type of membership on the Council. There are agencies that are statutorily designated including the FDEP, WMD and the local municipalities. Environmental organizations, business organizations and agricultural organizations can be added at the Council's discretion through a nomination process. This can only be done at the first meeting of each year. Currently there are no business or agricultural interests on the committee. There are 3 homeowners, there have been 4 in the past, so adding another homeowner could be considered.

Steven Schaeffer asked if any interest has been shown from an agricultural or business group.

Chris replied that the O Bar O Ranch has expressed interest. Chuck Johnston, the ranch manager, has attended a couple recent meetings.

Jono asked how everyone felt about adding the ranch.

(The topic was switched back to the officer elections and Chris summarized the election process from the adopted bylaws.)

Lee Amos nominated Jono Miller as chair, Marlene Guffey seconded. No other nominations were made. Jono was voted chair unanimously.

Steven nominated Jim Beever as co-chair, Tim Walker seconded. No other nominations were added. Jim was voted co-chair unanimously.

(Discussion returned to potential new Council nominees)

The Council voted unanimously to approach O Bar O Ranch for membership.

Lee suggested Thomas Ranch.

Discussion occurred about Thomas Ranch noting that Marty Black currently represents the ranch and has served on the Council for the City of Venice in the past.

The Council voted unanimously to approach Thomas Ranch for membership.

Tara asked about Mosaic's interest in joining the Council.

Chris replied that nomination was reviewed by the legal department in Tallahassee and, because of the heavy level of regulation, the nomination was not confirmed.

Lee also suggested the consideration of the concessionaire at Snook Haven (Park).

There was discussion and a consensus could not be reached. Jono suggested a motion be made.

Motion:

Lee Amos motioned to send an invitation to the concessionaire at Snook Haven to the serve on the Myakka River Management Coordinating Council. Greg Blanchard seconded. The Motion failed.

Marlene suggested the manufactured home associations South of U.S.41 on the East side of the river be approached about serving on the Council.

Mike added that they do not own the property on the river, they are leasing it and if properties on the river are going to be added they should be land owners.

Steven added that different perspectives should be allowed to serve on the Council to educate the other members and add a different viewpoint.

Discussion continued regarding the best make-up of the Council. Then discussion returned to the draft UMP for MRSP.

Jono summarized the main concerns in the draft UMP as: (1) allowing the harvest of natural resources that belong to the public for sale to private parties – people view this a change in the perspective. Then there are questions about (2) increasing development at the Upper Lake, and (3) the idea of putting an eco-lodge at the Stop Camp in the wilderness area. If I had to pick just a few things, this would be the biggest.

Diana Donaghy brought up that part of the stump discussion during planning (for UMP development) with the goal of meeting natural resource objectives – I think here for restoration. That is the portion that is missing from the harvesting language. If you fight against it completely then you may be hampering efforts to restore. She then suggested more specific language for when you can use those types of tools, as opposed to just commercial gain.

Jono said he did not think anyone has said that the park should be prohibited from removing stumps or North Florida Slash pine. I think what people were objecting to the finding that we are going to do it for financial reasons.

Diana replied that she believed that verbiage is in the section for restoration of natural habitats.

Jono read (from the Draft UMP) “it was determined that these activities would be appropriate as additional sources of revenue” noting it does not say it was determined these activities will improve the land management.

Diana added that the language indicates only as compatible with natural resource management. She suggested to take out “sources of revenue” but keep in for the primary purpose of resources based conservation.

Jono asked Diana if there is any known natural resource objective by removing palm fronds.

Diana responded no, not commercially based amount or for sale.

Marlene stated that our state park can support themselves other ways besides harvesting our resources.

Diana noted that there are times when stump removal does serve an ecological purpose in parks.

Chris Becker added that timber harvesting and roller chopping are consumptive but necessary tools to maintain the parks. He stated that the language here confuses the situation. In order to meet our desired future conditions in the plan, we need these tools to get the job done.

Steven stated that the focus here is that these activities would be appropriate as additional "sources of revenue", but it should not be done for revenue – unless it is peripheral.

Steve Giguere – as part of revenue generation, when consumptive resources are taken out of the park. The money stays in the land use proceeds (fund) which goes back into the resource program for that park. It does not go to Tallahassee.

Jono replied that there are two sides to this. Someone pays the park to take a resource. They are taking that resource and making money. Taking the public resources and park's landscape and exporting them, while some of the money is going into account for MRSP, some of that money goes to enriching private vendors. The reason why people are upset about this is because this has not been a part of earlier recent UMP updates, this is showing up first at Myakka. There are 174 park units, people feel like allowing this at Myakka is not simply impacting Myakka but setting a precedent for this sort of thing. There is not a lot of money to be made by these activities with fronds and stumps or even with North Florida slash pine. You would have to wait ten years for them to be big enough to be merchantable. Even then not much money would come to the park.

Discussion continued on historic timbering practices at the park.

Bob brought up the draft UMP language about harvesting and read aloud the section on page 7; "For this park, it was determined that timber harvesting, fuel and stump harvesting, and palm or palmetto frond harvesting could be accommodated in a manner that would be compatible and not interfere with the primary purpose of resource-based outdoor recreation and conservation." Bob then stated even in this (language) there is an implication that this is not in primary interest of the park. It is to accommodate another interest to do something for a profit in the park. He then moved to authorize Jono to advocate for not including this language in the plan or any other language against the primary purpose of the park.

Discussion continued on the topic of profit from park resources.

Jono stated that by saying that it is "additional sources of revenues", it does not sound like it is offsetting costs, it sounds like it's allowing outside people to come in and make money off public resources.

Elizabeth proposed that the language be modified by deleting the part about "additional sources of revenue" and changing the following sentence to "would be appropriate at this park as compatible with the parks primary purpose of resource based outdoor recreation and conservation. If these activities result in revenue generation, such revenue shall be used for land management in the same park."

Juliette replied that you do not want to open the door and set a precedent for outside companies to come in and make money from park resources.

Jono added that it also opens the door for people to start taking things like Spanish moss that have no effect on the resource management objectives.

Marlene suggested that a vote be taken to see who is in favor of harvesting resources from the park and who is not.

Discussion continued to motion language on the issue. Lee Amos proposed a motion.

Motion:

The Myakka River Management Coordinating Council directs Jono Miller to work with park service staff to wordsmith sections of the management plan in order to limit consumptive sources of revenue to those that are consistent with the ecological health of the park's natural resources.

Allain Hale seconded.

Discussion continued on the motion. The motion failed.

Motion:

The Myakka River Management Coordinating Council directs Jono Miller to advocate for no harvesting activities as an additional revenue source for the park.

Bob Clark made the motion and Marlene Guffey seconded. The motion passed.

Steve Giguere requested that people come to the public hearing to voice their opinions.

The Meeting was adjourned at 12:30 p.m.

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Appendix 4—Soil Descriptions

(4) Bradenton fine sand - This is a poorly drained soil on low-lying ridges and hammocks in both Manatee and Sarasota counties. Slopes are smooth and range from 0 to 2 percent.

Typically, the surface layer is dark gray fine sand about 4 inches thick. The subsurface layer is grayish brown fine sand 5 inches thick. The subsoil is dark gray and gray fine sand loam about 18 inches thick. Below the subsoil there is a layer of gray loamy fine sand 11 inches thick, and below that, there is a light gray marl to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Parkwood, Floridana, Chobee, Felda, and Manatee soils. Aslo included are a few areas where the subsoil is finer textured than that of this Bradenton soil and a few areas where a brown sandy layer overlies the subsoil.

If this Bradenton soil is not drained, the water table is within 10 inches of the surface for 2 to 6 months out of the year and at a depth between 10 and 40 inches for much of the remainder of the year. In dry seasons the water table recedes to a depth of 40 inches. Permeability is rapid in the surface and the subsurface layers and moderate in the subsoil and substratum. The available water capacity is low in the surface layer and substratum, very low in the subsurface layer, and medium in the subsoil.

In many areas this soil is used for citrus and for urban development. In some areas the soil is in vegetables, and in some areas it is in improved pasture. The native vegetation consists of slash pine, laurel and live oak, cabbage palm, wax myrtle, magnolia, bluestem, saw palmetto and various vines.

(7) Canova Anclote, and Okeelanta soils - This Manatee map unit consists of nearly level, very poorly drained mineral and organic soils in freshwater swamps and in broad, poorly defined drainageways. In a typical mapped area, Okeelanta soils are in the lowest places; Anclote soils in the highest places, generally near the edges; and Canova soils in an intermediate position. In the poorly defined drainageways, the Anclote soils and to a lesser extent the Canova soils are adjacent to the streams. Slopes are less than 2 percent.

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

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

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

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

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

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

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

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

(11) Cassia fine sand - This is a nearly level, somewhat poorly drained soil, on low ridges and knolls that are slightly higher than the adjacent flatwoods found in Manatee and Sarasota counties. Slopes range from 0 to 2 percent.

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

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

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

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

(8) Delray fine sand, depressional - This nearly level, very poorly drained soil is in depressions on flatwoods in Sarasota County. Individual areas are oval, irregularly shaped, or elongated and range from 5 to 200 accres in size. Slopes are concave and are less than 2 percent.

Typically, the surface layer is black fine sand about 30 inches thick. The subsurface layer is light brownish gray fine sand to a depth of about 54 inches. The subsoil to a depth of 80 inches or more is olive gray fine sandy loam.

Included with this soil in mapping are small areas of Astor, Felda, Gator, and Pompano soils. Also included are soils that are similar to the Delray soil but have a thin surface layer of muck.

Under natural conditions, the Delray soil is ponded for 6 to 9 months or more each year. For much of the remainder of most years, the seasonal high water table is within a depth of 12 inches. Permeability is rapid in the surface layer and subsurface layer and moderate or moderately rapid in the subsoil. The available water capacity is moderate. Natural fertility is medium, and the organic matter content is moderate or high.

Most areas of this soil support natural vegetation of cypress, pickerelweed, maidencane, arrowhead, cutgrass, sand cordgrass, sedges, ferns, and other water-tolerant grasses. This soil provides excellent habitat for wading birds and other wetland wildlife.

(9) Delray and Astor soils, frequently flooded - These level and nearly level, very poorly drained soils are on the flood plain along the Myakka River and in the swamps adjacent to park's lakes in Sarasota County. The soils are frequently flooded after prolonged heavy rains. Individual areas are irregularly shaped or elongated and range from 10 to 100 acres in size. Slopes are smooth or concave and range from 0 to 2 percent.

There is no regular and repeating pattern in this map unit. Some areas are entirely Delray and similar soils, some are entirely Astor and similar soils, and some are made up of Delray, Astor, and other soils.

Typically, the surface layer of the Delray soil is black fine sand about 30 inches thick. The subsurface layer is dark gray fine sand to a depth of about 54 inches. The subsoil to a depth of 80 inches or more is gray sandy loam.

Typically, the surface layer of the Astor soil is 32 inches thick. The upper 2 inches is black mucky fine sand. The next 20 inches is very dark gray mucky

fine sand. The lower 10 inches is very dark gray fine sand. The underlying material extends to a depth of about 80 inches or more. The upper 15 inches is grayish brown loamy sand. The next 7 inches is light brownish gray loamy sand. The lower 26 inches or more is light brownish gray fine sand.

Included with these soils in mapping are small areas of Felda and Floridana soils. The Delray and Astor soils have a seasonal high water table at or above the surface during the summer rainy season. During dry periods the water table may recede to a depth of 30 inches or more. Sheet flow occurs during periods of heavy rainfall. The duration and extent of flooding vary, depending on the intensity and frequency of rainfall. Permeability is rapid in the Astor soil and moderate or moderately rapid in the subsoil of the Delray soil. The available water capacity is moderate in both soils. Natural fertility is high in both soils, and the organic matter content is very high or high.

Most areas of these soils support natural vegetation of cypress, sweet gum, water and laurel oak, red maple, cabbage palm, wax myrtle, greenbrier, poison ivy, maidencane, chalky bluestem, sedges, and other water-tolerant grasses.

These soils provide habitat for wetland and woodland wildlife. Shallow water areas can be easily developed, and the vegetation provides abundant food and shelter.

(16) Delray complex - This complex consists of several nearly level, very poorly drained soils on flats and in sloughs that are moderately broad, low, and grassy in Manatee County. The soils are so intermixed that they could not be shown separately at the scale selected for mapping.

Typically, the surface layer of Delray soils is black fine sand about 15 inches thick. The subsurface layer is grayish brown and light brownish gray fine sand to a depth of about 55 inches. The subsoil is grayish brown and greenish gray fine sandy loam and sandy clay loam to a depth of 80 inches or more.

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

The natural vegetation consists mainly of water-tolerant grasses such as bluestem, lopsided indiangrass, maidencane, and pineland threeawn. In some places it also consists of wax myrtle and widely spaced gum and cypress.

(15) Delray mucky loam fine sand - This is a very poorly drained, nearly level soil in shallow depressions in flatwoods in Manatee County. Individual areas are irregularly shaped. Slopes are 0 to 2 percent.

Typically, the surface layer is black. In the upper part it is mucky loamy fine sand 8 inches thick. In the lower part it is loamy fine sand 8 inches thick. A thin layer of muck and litter on the surface is common. The subsurface layer is fine sand. The upper 5 inches is grayish brown, the next 22 inches is light brownish gray, and the lower 5 inches is grayish brown. The subsoil in the upper 3 inches is grayish brown fine sandy loam. In the next 15 inches it is grayish brown sandy clay loam. In the next 9 inches it is greenish gray sandy clay loam. Below that, to a depth of 80 inches or more it is grayish brown sandy clay loam.

Included with this soil in mapping are small areas of Felda, Floridana, Manatee, and Chobee soils.

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

The natural vegetation in some places is maidencane and sawgrass in dense stands. In other places it is bay, sweet gum, and maple.

(10) EauGallie and Myakka fine sands - These nearly level, poorly drained soils are on broad flatwoods in Sarasota County. Individual areas are long and broad or are irregular in shape and range from 20 to more than 700 acres in size. Slopes are smooth and range from 0 to 2 percent.

There is no regular and repeating pattern in this map unit. Some areas are entirely EauGallie and similar soils, some are entirely Myakka and similar soils, and some are made up of EauGallie, Myakka, and other soils.

Typically, the surface layer of the EauGallie soil is black fine sand. The subsurface layer is gray fine sand to a depth of about 22 inches. The subsoil extends to a depth of about 66 inches. The upper 22 inches is fine sand coated with organic matter. It is dark reddish brown grading to dark brown. The next 4 inches is light gray fine sand. The lower 18 inches is grayish brown sandy loam. The substratum to a depth of about 80 inches or more is gray fine sandy loam.

Typically, the surface layer of the Myakka soil is dark grayish brown fine sand about 6 inches thick. The subsurface layer is light gray fine sand about 18 inches thick. The subsoil to a depth of 60 inches is fine sand. The upper 11

inches is very dark gray, and the lower 18 inches is light yellowish brown. The substratum to a depth of 80 inches or more is pale brown fine sand.

Included with these soils in mapping are areas of Ona, Smyrna, and Wabasso soils. Also included are small areas of soils that are similar to the EauGallie and Myakka soils but have a subsoil that is low in content of organic matter and is less than 12 inches thick.

Under natural conditions, the EauGallie and Myakka soils have a seasonal high water table at a depth of 6 to 18 inches for 1 to 3 months and within a depth of 40 inches for 2 to 6 months. The water table recedes to a depth of more than 40 inches during the extended dry periods. The available water capacity is low in both soils. Natural fertility also is low. Permeability is rapid in the sandy surface layer, subsurface layer, and substratum. It is moderate or moderately rapid in the sandy subsoil of both soils and slow or moderatley slow in the loamy part of the EauGallie soil.

The natural vegetation is slash pine, longleaf pine, and scattered cabbage palm and oak. The understory includes inkberry, saw palmetto, chalky bluestem, creeping bluestem, pineland threeawn, and various other grasses.

(20) EauGallie fine sand - This somewhat poorly drained sandy soil of the saw palmetto prairies and pine flatwood forests in Manatee County, has a characteristic organic pan layer below 30 inches. It developed from thick stratified beds of acid sands in flat or nearly level areas. Runoff is very slow. Internal drainage is slow to rapid and is influenced seasonally by the high water table.

The ground cover on Eaugallie fine sand consists mostly of saw palmetto, gallberry, runner oak, huckleberry, and wiregrass and other grasses. The principal trees are longleaf pine and slash pine.

(13) Felda and Pompano fine sand, frequently flooded - These nearly level, poorly drained soils are on floodplains throughout Sarasota County. They are frequently flooded following prolonged, heavy rains. Individual areas are elongated and range from 10 to more than 100 acres in size. Slopes are smooth or concave and range from 0 to 2 percent.

There is no regular and repeating pattern in this map unit. Some areas are entirely Felda and similar soils, some are entirely Pompano and similar soils, and some are made up of Felda, Pompano, and other soils.

Typically, the surface layer of the Felda soil is very dark gray fine sand about 4 inches thick. The subsurface layer is dark grayish brown fine sand to a depth of about 24 inches. The subsoil to a depth of 65 inches is sandy clay loam. The upper 24 inches is dark grayish brown, and the lower 17 inches is grayish brown. The substratum to a depth of about 80 inches is light gray loamy sand.

Typically, the surface layer of the Pompano soil is black fine sand about 3 inches thick. The underlying material to a depth of about 80 inches is gray, light brownish gray, and grayish brown fine sand.

Included with these soils are areas of Astor, Bradenton, Delray, and Holopaw soils. Also included are a few areas of soils that are similar to the Felda soil but have an organic surface layer as much as 15 inches thick.

The Felda and Pompano soils have a seasonal high water table within 12 inches of the surface for 2 to 6 months in most years. These soils usually are flooded every year and more than once in most years. The duration and extent of flooding vary, depending on the intensity and frequency of rainfall. Permeability is rapid or very rapid in the sandy layers and moderate or moderately rapid in the loamy layers. The available water capacity is low. Natural fertility also is low.

The natural vegetation is bald cypress, laurel and water oak, pond pine, slash pine, longleaf pine, and cabbage palm. The understory vegetation is wax myrtle, pineland threeawn, maidencane, greenbrier, poison ivy, and other water-tolerant grasses.

(22) Felda fine sand - This is a nearly level, poorly drained soil on low hammocks in Manatee and Sarasota counties. Slopes are generally smooth and range from 0 to 2 percent.

Typically, the surface layer is very dark gray fine sand about 3 inches thick. The subsurface layer is grayish brown fine sand 21 inches thick. It is mottled with gray and brown. The subsoil is 40 inches thick. It is mottled with brown and yellow. The upper 3 inches is grayish brown fine sandy loam, the next 6 inches is gray sandy clay loam, and the lower 29 inches is light gray sandy clay loam. Below the subsoil there is light gray sandy loam to a depth of 80 inches or more.

Included with this soil in mapping are small areas of Bradenton soil.

In most years, if this Felda soil is not drained, the water table is within a depth of 10 inches for 2 to 4 months out of the year and at a depth of 10 to 40 inches for about 6 months out of the year. It recedes to a depth of more than 40 inches in dry seasons. Permeability is rapid in the surface and subsurface layers and moderate to moderatley rapid in the subsoil. The available water capacity is very low in the surface and subsurface layers and medium in the subsoil.

The natural vegetation consists of live oak, cabbage palm, slash pine, pineland threeawn,, and bluestem.

(23) Felda-Palmetto complex - This complex consists of soils in broad sloughs where stream channels are poorly defined and soils around some of the larger ponds in the eastern and central parts of Manatee County. Felda and Pompano soils are so intricately mixed that they could not be mapped separately for mapping. Slopes are less than 2 percent.

Typically, the surface layer of Felda soils is very dark gray fine sand about 3 inches thick. The subsurface layer is grayish brown fine sand 21 inches thick. The subsoil in the upper part is grayish brown fine sandy loam 3 inches thick. In the middle part it is gray sandy clay loam 6 inches thick, and in the lower part it is light gray sandy clay loam 29 inches thick. The substratum is at a depth of about 62 inches and is light gray sandy loam.

Felda soils are poorly drained. In most years, if the soils are not drained, the water table is within a depth of 10 inches for 2 to 4 months out of the year and at a depth of 10 to 40 inches for about 6 months out of the year. It recedes to below a depth of 40 inches in dry seasons. Permeability is rapid in the surface and subsurface layers and moderate to moderately rapid in the subsoil. The available water capacity is very low in the surface and the subsurface layers and medium in the subsoil.

Typically, the surface layer of Palmetto soils is black sand about 8 inches thick. The subsurface layer is dark gray or gray sand to a depth of 25 inches. The subsoil is dark grayish brown and very dark grayish brown sand to a depth of 45 inches. It is grayish brown and dark grayish brown sandy clay loam and sandy loam to a depth of about 64 inches and dark grayish brown loamy sand to a depth of 68 inches. The soils that are similar to Palmetto soils have a thicker, dark colored surface layer.

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

The most common minor soils included in the complex are the Myakka, Delray, and Floridana soils.

The natural vegetation consists of slash pine, water and live oak, saw palmetto, runner's oak, gallberry, and pineland threeawn.

(15) Floridana and Gator soils, depressional - These very poorly drained, nearly level soils are in depressions in Sarasota County. They are subject to ponding. Individual areas are oval or irregular in shape and range from 5 to about 100 acres in size. Slopes are dominately concave and are less than 2 percent.

There is no regular and repeating pattern in this map unit. Some areas are entirely Floridana and similar soils, some are entirely Gator and similar soils, and some are made up of Floridana, Gator, and other soils.

Typically, the surface layer of the Floridana soil is about 14 inches of black mucky fine sand and fine sand. The subsurface layer to a depth of about 22 inches is gray and light gray fine sand. The subsoil to a depth of about 52 inches is grayish brown sandy clay loam.

Typically, the surface layer of Gator soil is very dark brown muck about 22 inches thick. The upper 4 inches of the underlying material is very dark gray loamy sand, the next 34 inches is dark gray sandy clay loam, and the lower part to a depth of 80 inches is greenish gray sand.

The Floridana and Gator soils are ponded for 6 to 9 months during most years. The water table is within 12 inches of the surface for much of the remainder of the year. Permeability is rapid in the surface layer and subsurface layer and moderately slow or very slow in the loamy subsoil and underlying material. The available water capacity is dominately moderate to very high.

Natural fertility is medium.

Most areas of these soils support natural vegetation of sand cordgrass, maidencane, St. John's wort, scattered wax myrtle, and other water-tolerant herbaceous plants. They provide excellent habitat for wading birds and other wetland wildlife.

(16) Floridana and Gator soils, frequently flooded - These poorly drained, nearly level soils are on Sarasota County's floodplains. They are frequently flooded after prolonged, heavy rains. Individual areas are oblong or are narrow and elongated. They range from 5 to 60 acres in size. Slopes are smooth or concave and range from 0 to 2 percent.

There is no regular and repeating pattern to this map unit. Some areas are entirely Floridanna and similar soils, some are entirely Gator and similar soils, and some are made up of Floridana, Gator, and other soils.

Typically, the surface layer of the Floridana soil is about 14 inches of very dark gray mucky fine sand and fine sand. The subsurface layer is gray and grayish brown fine sand to a depth of about 36 inches. The subsoil to a depth of about 52 inches is grayish brown fine sandy loam. The substratum to a depth of 80 inches or more is grayish brown sandy loam.

Typically, the surface layer of the Gator soil is very dark brown muck about 22 inches thick. The upper 4 inches of the underlying material is very dark gray

laomy sand. The next 34 inches is dark gray sandy clay loam. The lower part to a depth of 80 inches is greenish gray sand.

The Floridana and Gator soils are frequently flooded during the rainy season in most years. The water table is within 12 inches of the surface for much of the year. Permeability is rapid in the surface and subsurface layers and slow or very slow in the loamy subsoil and underlying material. The available water capacity is moderate or high. Natural fertility is medium.

The natural vegetation is black gum, red maple, sweet gum, cabbage palm, cypress, laurel and water oak, and loblolly bay. The understory is smartweed, fern, sedges and other water-tolerant grasses.

(25) Floridana fine sand - This is a nearly level, very poorly drained soil in the low flats that have been drained by ditches and channels in many places in Manatee County. Slopes are smooth to concave and are less than 2 percent.

Typically, the surface layer is about 15 inches thick, In the upper part it is black fins sand 4 inches thick, and in the lower part it is very dark gray fine sand 11 inches thick. The subsurface layer is gray fine sand 17 inches thick. The subsoil is dark sandy clay loam to a depth of 44 inches and gray sandy loam to a depth of 65 inches. The substratum is light gray fine sand to a depth of 80 inches or more. Included with this soil are areas of Delray and Felda soils and a few areas of organic soils.

In most years, if this Floridana soil is not drained, the water table is at a depth of less than 10 inches for about 6 months out of the year. Permeability is rapid in the surface and subsurface layers and slow in the subsoil. The available water capacity is medium in the surface layer and subsoil and low in the subsurface layer.

The natural vegetation consists of cattails and dense stands of maidencane and sawgrass.

(26) Floridana-Immokalee-Okeelanta association - This map unit consists of nearly level, very poorly drained Floridana soils, poorly drained Immokalee soils, and very poorly drained Okeelanta soils. These soils are in small to large shallow grassy ponds mainly in the central and eastern parts of Manatee County. Generally, Okeelanta soils are in the lowest places near in the center of the ponds; Floridana soils are in an intermediate position; and Immokalee soils are along the edges of ponds. Slopes are less than 2 percent. Areas of the individual soils are large enough to map separately, but in considering the present and predicted use they were mapped as one unit. Most of the mapped areas are circular or oblong. The composition of this map unit is more variable than that of most other map units in Manatee County; nevertheless, valid interpretations for expected uses of the soil can still be made.

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

In most years, in undrained areas Floridana soils are ponded for 6 to 9 months of more out of the year. The water table is at a depth within 40 inches for the rest of the year except in extended dry periods. Permeability is rapid in the surface layer, subsurface layer, and substratum; it is slow in the subsoil. The available water capacity is medium in the surface layer and subsoil and low in the other layers.

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

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

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

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

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

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

(21) Ft. Green fine sand - This deep, nearly level, poorly drained soil is on broad flatwoods in Sarasota County. Individual areas range from 10 to 150 acres in size. Slopes are smooth and range from 0 to 2 percent.

Typically, the surface layer is dark gray fine sand about 3 inches thick. The subsurface layer is light brownish gray and grayish brown fine sand to a depth of about 80 inches. It is gray cobbly sandy loam in the upper 12 inches, gray and light gray sandy clay loam in the next 10 inches, and light gray sandy loam in the lower 32 inches. Small areas of EuGallie, Holopaw, Malabar, and Wabasso soils are included with this soil. Also included are wet soils in scattered small depressions.

The water table is at a depth of 6 to 18 inches for 2 to 4 months during the wet periods and within a depth of 40 inches for more than 6 months. Permeability is rapid in the surface and subsurface layers and slow or moderately slow in the subsoil. The water capacity is low. Natural fertility is also low.

Natural vegetation consist of slash and longleaf pine, cabbage palm, saw palmetto, inkberry, rusty lyonia, blackroot, pennyroyal, pineland threeawn, chalky bluestem, panicum, and other herbaceous plants.

(27) Gator muck - This is a very poorly drained, nearly level soil in depressions in Manatee County. Slopes are 1 percent or less. Typically, the surface layer is black muck about 18 inches thick. Below the surface layer there is a light gray, dark grayish brown, and grayish brown sandy loam to a depth of 55 inches. Below that, there is grayish brown loamy sand to a depth of 72 inches and stratified layers of light gray sand and loamy sand to a depth of 80 inches or more.

Included with this soil are small areas of Chobee, Bradenton and Floridana soils. Also included are soils with sandy layers between the organic layers and the loamy substratum and soils where the organic material is less than 16 inches thick or more than 40 inches thick.

The soil ponds or the water table is within a depth of 10 inches except in extended dry seasons. The available water capacity is very high in the organic layers, medium in the loamy layers, and low in the underlying sandy material. Permeability is rapid in the organic layer and moderate in the loamy layer. Natural fertility is medium to high.

Natural vegetation consists of willows, red maple, sawgrass, pickerelweed, sedges, ferns, maidencane, and other water-tolerant grasses.

(22) Holopaw fine sand - Occurring in depressions in Sarasota County, this fine sand is underlain by sandy loam or sandy clay loam at depths of 30 to 42 inches. It developed from moderately thick deposits of sandy sediments. For a few months each year the soil is normally covered with shallow water.

Most areas of Holopaw Fine Sand are treeless. They have a sparse to moderate growth of St. John's wort, broomsedge, rushes' and other

herbaceous plants having a tolerance for long hydroperiods or waterlogged substrate.

(26 in Sarasota) Manatee loamy fine sand, depressional - This nearly level, very poorly drained soil is in depressions in Sarasota County. Slopes are concave and are less than 1 percent.

Typically, the surface layer is black loamy fine sand about 18 inches thick. The subsoil is very dark gray sandy loam in the upper 11 inches and light gray sandy loam in the lower 13 inches. The substratum to a depth of 80 inches is gray and dark greenish gray sandy loam, sandy clay loam, and fine sand. Small areas of Felda, Floridana, Holopaw, Malabar, and Pineada soils are included in this soil.

This soil is ponded for 6 to 9 months or more during most years. The water table is within 12 inches of the surface the remainder of the year. Permeability is moderatley rapid in the surface layer and moderate in the subsoil and substratum. The available water capacity is moderate, natural fertility is medium, and the organic content is high.

Natural vegeatation consists of sawgrass, maidencane and pickerelweed. Some areas support red maple, cypress, black gum, cabbage palm, loblolly bay, sweet bay, scattered wax myrtle, sedges, and ferns. Areas of this soil provide excellent habitat for wading birds and other wetland wildlife.

(30) Myakka fine sand, 0 To 2 Percent Slopes - This is a nearly level, poorly drained soil in areas of broad flatwoods in Manatee County. Slopes are smooth to concave.

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

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

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

(35) Ona fine sand - This is a nearly level, poorly drained soil that is in areas of broad flatwoods in Manatee County. Slopes are smooth and range from 0 to 2 percent.

Typically, the surface layer is black fine sand about 5 inches thick. The subsoil in the upper part is very dark brown and ddark reddish brown fine sand 11 inches thick. The next layer is brown and light brownish gray fine sand 36 inches thick. The subsoil in the lower part is black fine sand that is weakly cemented to a depth of 68 inches and black friable fine sand to a depth of 80 inches. Included with this soil are small areas of Myakka, Pompano, St Johns, Waveland, and Wauchula soils.

A water table is at a depth of 10 to 40 inches for 4 to 6 months out of the year. It rises to a depth of less than 10 inches for 1 to 2 months a year. It may recede to a depth of more than 40 inches in very dry seasons. Permeability is moderate in the upper part of the subsoil, slow or very slow in the lower part of the subsoil, and rapid in the other layers. The available water capacity is medium in the surface layer and subsoil, and low in the layer between the two parts of the subsoil.

Native vegetation consists of pine trees and an understory of saw palmetto, runner's oak, pineland threeawn, and gallberry.

(38) Palmetto sand - This is nearly level, poorly drained soil in flatwoods in Manatee County. The soil is in sloughs, in poorly drained drainageways, and in narrow bands around some ponds. Slopes are smooth to slightly concave and are less than 2 percent. Included with this soil are areas of similar soils that have a yellowish subsurface layer, that do not have a loamy subsoil, or that have a slightly more developed, brownish subsurface layer. Also included are small areas of Delray soils.

The water table is within 10 inches of the surface for 2 to 6 months a year. In some areas the soil may be ponded briefly asfter a heavy rainfall. Permeability is rapid in the surface and subsurface areas and moderately slow in the subsoil. The available water capacity is low to medium in the surface and subsurface layers and medium in the subsoil.

The native vegetation consists of chalky bluestem, blue maidencane, sand cordgrass, pineland threeawn, low panicums, scattered slash pines and clumps of saw palmetto.

(39) Parkwood Variant complex - This complex consists of nearly level, poorly drained, and very poorly drained soils on cabbage palm hammocks, in

drainageways, and around the edges of ponds in Manatee County. The soils are intermixed and could not be mapped separately.

The water table is within 10 inches of the surface for 2 to 4 months during the rainy season. The available water capacity is low in the surface layer and medium in the subsoil. Permeability is very rapid in the surface layer and moderately rapid in the subsoil. Natural fertility is medium.

The natural vegetation consists of cabbage palm, a few live oak, slash pine, water oak, magnolia and an undergrowth of shrubs, vines, grasses and saw palmetto.

(31) Pineda fine sand - A poorly drained soil closely associated with flatwoods and very similar to EauGallie fine sand except that it has developed from beds of sand 42 inches or more deep that overlie finer textured alkaline materials. This soil is found in Sarasota County.

(40) Pinellas fine sand - This is a nearly level, poorly drained soil in the areas of flatwoods bordering sloughs and depressions in Manatee County. Slopes are smooth. Included in this map unit are small areas of similar soil that have a subsoil at a depth of more than 40 inches, areas of similar soils that have a dark colored surface layer more than 6 inches thick, and areas of soils that have a yellowish layer above the subsoil and limestone below. Also included are small areas of Bradenton, Broward Variant, EauGallie, and Wabasso soils.

The water table is at a depth within 10 inches of the surface for less than 3 months out of the year and at a depth of 10 to 40 inches for 4 to 6 months out of the year. It may recede to a depth of more than 40 inches during extended dry periods. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The available water capacity is very low in the surface layer and medium in the subsurface layer and subsoil. Natural fertility and the content of the organic matter are low.

The natural vegetation consists of slah pine, cabbage palm, saw palmetto, wax myrtle, gallberry, broomsedge, chalky bluestem, blue maidencane, lopsided indiangrass, sand cordgrass, and pineland threeawn.

(42) Pomello fine sand - This moderately well drained to somewhat excessively drained soil of the flatwoods in Manatee County, has a well-developed organic pan at depths greater than 42 inches. Its parent materials were thick beds of unconsolidated, acid sand. Pomello fine sand occurs on a nearly level to level relief along with Immokalee, Leon, Ona, and St. Lucie soils.

Moisture conditions are more favorable than those in St. Lucie fine sand. Ona, Leon and Immokalee soils have a pan layer at higher levels than Pomello fine sand and are darker in the surface soil.

Little rainfall flows from the surface; most of the moisture soaks into the ground and drains downward. During some rainy periods the soil is saturated to the surface. During dry months the moisture content may be low and the soil droughty.

The native cover consists principally of saw palmetto, pine, runner oak, pricklypear cactus, small scrub oak, gallberry, and wiregrass.

(36) Pople fine sand - This nearly level, poorly drained soil is on low hammocks and in poorly defined drainageways and broad sloughs in Sarasota County. Slopes are smooth or concave and range from 0 to 2 percent.

Typically, the surface layer is very dark grayish brown fine sand about 4 inches thick. The subsurface layer is light brownish gray fine sand about 3 inches thick. The subsoil is brown and brownish yellow fine sand in the upper 21 inches and gray fine sandy loam in the lower 28 inches.

Included in this soil are small areas of Bradenton, EauGallie, and Wabasso soils. Also included are areas of soils that have a weakly stained layer of organic material above the subsoil and extending into the subsoil and areas of soils that have small fragments of iron-cemented sandstone or calcareous material at a depth of 10 to 30 inches.

The water table is within 12 inches of the surface for 1 to 6 months and at a depth of 12 to 40 inches for more than 6 months. It recedes to a depth of more than 40 inches during extended dry periods and is above the surface for short periods after a heavy rainfall. The water capacity is low. Permeability is rapid in the surface and subsurface layers, slow or very slow in the loamy part of the subsoil, and moderate or moderately slow in the substratum. Natural fertility and the organic matter content are low.

Natural vegetation includes slash and longleaf pine, cabbage palm, wax myrtle, scattered saw palmetto, laurel oak, blue maidencane, pineland threeawn, creeping bluestem, sand cordgrass, and low panicum.

(48) Wabasso fine sand - This is a nearly level, poorly drained soil in areas of broad flatwoods in Manatee County. slopes are less than 2 percent. Included in this map unit are small areas of EauGallie and Felda soils.

The water table is within 10 to 40 inches of the surface for more than 6 months a year. It is at a depth of less than 10 inches for less than 60 days in wet seasons and at a depth of more than 40 inches in very dry seasons. The available water capacity is low in the sandy layers and medium in the loamy

subsoil. Permeability is rapid in the sandy surface and subsurface layers, slow in the loamy layers, and very rapid in the substratum. The natural fertility is low.

The nat vegetation consists of lonfleaf and slash pines, scattered cabbage palms, and an understory of saw palmetto, inkberry, wax myrtle, creeping bluestem, indiangrass, little bluestem, Florida paspalum, pineland threeawn, panicums, deertongue, grassleaf goldaster, huckleberry, and runner's oak.

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Appendix 5—Plant and Animal List

Myakka River State Park Plants

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

PTERIDOPHYTES

Giant leatherfern	*Acrostichum danaeifolium*
American waterfern	*Azolla filiculoides*
Swamp fern	*Blechnum serrulatum*
Long strap fern	*Campyloneurum phyllitidis*
Water horn fern	*Ceratopteris pteridoides*
Southern wood fern	*Dryopteris ludoviciana*
Foxtail club-moss	*Lycopodiella alopecuroides*
Southern bog club-moss	*Lycopodiella appressa*
Nodding club-moss	*Lycopodiella cernua*
Japanese climbing fern *	*Lygodium japonicum*
Old World climbing fern; Small-leaf climbing fern *	*Lygodium microphyllum*
Marianna maiden fern *	*Macrothelypteris torresiana*
Tuberous sword fern *	*Nephrolepis cordifolia*
Sword fern	*Nephrolepis exaltata*
Stalked adder's-tongue	*Ophioglossum petiolatum*
Cinnamon fern	*Osmunda cinnamomea*
Royal fern	*Osmunda regalis* var. *spectabilis*
Golden polypody	*Phlebodium aureum*
Resurrection fern	*Pleopeltis polypodioides* var. *michauxiana*
Bracken fern	*Pteridium aquilinum*
Water spangles *	*Salvinia minima*
Downy shield fern *	*Thelypteris dentata*
Hairy maiden fern	*Thelypteris hispidula var. versicolor*
Hottentot fern	*Thelypteris interrupta*
Shoestring fern	*Vittaria lineata*

GYMNOSPERMS

Red cedar	*Juniperus virginiana*
Sand pine	*Pinus clausa*
South Florida slash pine	*Pinus elliottii* var. *densa*
Longleaf pine	*Pinus palustris*
Bald-cypress	*Taxodium distichum*

ANGIOSPERMS

Rosary pea *	*Abrus precatorius*
Slender threeseed mercury	*Acalypha gracilens*
Red maple	*Acer rubrum*
Shyleaf	*Aeschynomene americana*
Indian jointvetch *	*Aeschynomene indica*
Seminole false foxglove	*Agalinis filifolia*

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Flaxleaf false foxglove	*Agalinis linifolia*	
Purple false foxglove	*Agalinis purpurea*	
Hammock snakeroot	*Ageratina jucunda*	
Woman's tongue *	*Albizia lebbeck*	
Yellow colicroot	*Aletris lutea*	
Alligatorweed *	*Alternanthera philoxeroides*	
Southern amaranth	*Amaranthus australis*	
Purple amaranth *	*Amaranthus blitum* subsp. *emarginatus*	
Spiny amaranth *	*Amaranthus spinosus*	
Common ragweed	*Ambrosia artemisiifolia*	
Clusterspike false indigo	*Amorpha herbacea*	
Peppervine	*Ampelopsis arborea*	
Blue maidencane	*Amphicarpum muhlenbergianum*	
Chaffweed	*Anagallis minima*	
Purple bluestem	*Andropogon glomeratus* var. *glaucopsis*	
Bushy bluestem	*Andropogon glomeratus* var. *pumilus*	
Elliott's Bluestem	*Andropogon gyrans*	
Splitbeard bluestem	*Andropogon ternarius*	
Chalky bluestem	*Andropogon virginicus* var. *glaucus*	
Broomsedge bluestem	*Andropogon virginicus*	
Groundnut	*Apios americana*	
Nodding nixie	*Apteria aphylla*	
Marlberry	*Ardisia escallonioides*	
Mexican pricklypoppy	*Argemone mexicana*	
Jack-in-the-pulpit	*Arisaema triphyllum*	
Woollysheath threeawn	*Aristida lanosa*	
Tall threeawn	*Aristida patula*	
Hillsboro threeawn	*Aristida purpurascens* var. *tenuispica*	
Arrowfeather threeawn	*Aristida purpurascens* var. *virgata*	
Bottlebrush threeawn	*Aristida spiciformis*	
Wiregrass	*Aristida stricta* var. *beyrichiana*	
Ovateleaf indian plantain	*Arnoglossum ovatum*	
Largeflower milkweed	*Asclepias connivens*	
Scarlet milkweed *	*Asclepias curassavica*	
Florida milkweed	*Asclepias feayi*	
Swamp milkweed	*Asclepias incarnata*	
Fewflower milkweed	*Asclepias lanceolata*	
Savannah milkweed	*Asclepias pedicellata*	
Swamp milkweed	*Asclepias perennis*	
Butterflyweed	*Asclepias tuberosa*	
Showy milkwort	*Asemeia violacea*	
Smallflowered pawpaw	*Asimina parviflora*	
Netted pawpaw	*Asimina reticulata*	
Fernleaf yellow false foxglove	*Aureolaria pedicularia* var. *pectinata*	
Common carpetgrass	*Axonopus fissifolius*	
Big carpetgrass	*Axonopus furcatus*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Silverling	*Baccharis glomeruliflora*	
Groundsel tree	*Baccharis halimifolia*	
Blue waterhyssop	*Bacopa caroliniana*	
Tropical waterhyssop	*Bacopa innominata*	
Herb-of-grace	*Bacopa monnieri*	
Coastalplain honeycombhead	*Balduina angustifolia*	
Bamboo *	*Bambusa* sp.	
White screwstem	*Bartonia verna*	
Tarflower	*Bejaria racemosa*	
Rattan vine	*Berchemia scandens*	
Beggarticks	*Bidens alba* var. *radiata*	
Spanish needles	*Bidens bipinnata*	
Burrmarigold	*Bidens laevis*	
Smallfruit beggarticks	*Bidens mitis*	
Pineland Rayless goldenrod	*Bigelowia nudata* subsp. *australis*	
Bog hemp; false nettle	*Boehmaria cylindrica*	
Smallhead doll's daisy	*Boltonia diffusa*	
Rape *	*Brassica rapa*	
American Blueheart	*Buchnera americana*	
Capillary hairsedge	*Bulbostylis ciliatifolia*	
Sandyfield hairsedge	*Bulbostylis stenophylla*	
Bluethread	*Burmannia biflora*	
Southern bluethread	*Burmannia capitata*	
American beautyberry	*Callicarpa americana*	
Florida scrub roseling	*Callisia ornata*	
Manyflowered grasspink	*Calopogon multiflorus*	DP, MF
Pale grasspink	*Calopogon pallidus*	
Straggler daisy *	*Calyptocarpus vialis*	
Florida bellflower	*Campanula floridana*	
Trumpet creeper	*Campsis radicans*	
Golden canna	*Canna flaccida*	
Giant sedge	*Carex gigantea*	
Long's sedge	*Carex longii*	
False Hop sedge	*Carex lupuliformis*	
Walter's sedge	*Carex stipata*	
Warty sedge	*Carex verrucosa*	
Florida paintbrush	*Carphephorus corymbosus*	
False vanillaleaf	*Carphephorus odoratissimus* var. *subtropicanus*	
Hairy Chaffhead	*Carphephorus paniculatus*	
American Devilwood	*Cartrema americana*	
Pignut hickory	*Carya glabra*	
Love vine	*Cassytha filiformis*	
Madagascar periwinkle *	*Catharanthus roseus*	
Hackberry	*Celtis laevigata*	
Coast sandspur	*Cenchrus spiniflex*	
Spadeleaf	*Centella asiatica*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Spurred butterfly-pea	*Centrosema virginianum*	
Buttonbrush	*Cephalanthus occidentalis*	
Coontail	*Ceratophyllum demersum*	
Partridge pea	*Chamaecrista fasciculata*	
Sensitive pea	*Chamaecrista nictitans* var. *aspera*	
Heartleaf sandmat	*Chamaesyce cordifolia*	
Pillpod sandmat	*Chamaesyce hirta*	
Hyssopleaf sandmat	*Chamaesyce hyssopifolia*	
Florida Alicia	*Chapmannia floridana*	
Pineland daisy	*Chaptalia tomentosa*	
Lambs-quarters *	*Chenopodium album*	
Mexican tea *	*Chenopodium ambrosioides*	
White fringetree	*Chionanthus virginicus*	
Maryland goldenaster	*Chrysopsis mariana*	
Scrubland goldenaster	*Chrysopsis subulata*	
Florida false beardgrass	*Chrysopogon pauciflorus*	
Spotted Water hemlock	*Cicuta maculata*	
Camphortree *	*Cinnamomum camphora*	
Purple thistle	*Cirsium horridulum*	
Nuttall's thistle	*Cirsium nuttallii*	
Sour orange *	*Citrus* x aurantium	
Lemon *	*Citrus* x limon	
Sawgrass	*Cladium jamaicense*	
Pine hyacinth	*Clematis baldwinii*	
Leather flower	*Clematis crispa*	
Turk's turban *	*Clerodendrum indicum*	
Tread-softly	*Cnidoscolus stimulosus*	
Carolina jointtailgrass	*Coelorachis cylindrica*	
Wrinkled jointtailgrass	*Coelorachis rugosa*	
Wild taro *	*Colocasia esculenta*	
Dayflower *	*Commelina diffusa*	
Whitemouth dayflower	*Commelina erecta*	
Blue mistflower	*Conoclinium coelestinium*	
Canadian horseweed	*Conyza canadensis*	
Florida tickseed	*Coreopsis floridana*	
Leavenworth's tickseed	*Coreopsis leavenworthii*	
Swamp dogwood	*Cornus foemina*	
String-lily	*Crinum americanum*	
Pinebarren frostweed	*Crocanthemum corymbosum*	
Smooth rattlebox *	*Crotalaria pallida* var. *obovata*	
Rabbitbells	*Crotalaria rotundifolia*	
Vente Conmigo	*Croton glandulosus* var. *glandulosus*	
Rushfoil	*Croton michauxii*	
Columbian waxweed *	*Cuphea carthagenensis*	
Fiveangled dodder	*Cuscuta pentagona*	
Leafless swallowwort	*Cynanchum scoparium*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Bermudagrass *	*Cynodon dactylon*	
Jointed flatsedge	*Cyperus articulatus*	
Poorland flatsedge	*Cyperus compressus*	
Baldwin's flatsedge	*Cyperus croceus*	
Swamp flatsedge	*Cyperus distinctus*	
Redroot flatsedge	*Cyperus erythrorhizos*	
Yellow nutgrass *	*Cyperus esculentus*	
Wiry flatsetge	*Cyperus filiculmis*	
Haspan flatsedge	*Cyperus haspan*	
Swamp flatsedge	*Cyperus ligularis*	
Fragrant flatsedge	*Cyperus odoratus*	
Pinebarren flatsedge	*Cyperus ovatus*	
Manyspike flatsedge	*Cyperus polystachyos*	
Nutgrass *	*Cyperus rotundus*	
Strawcolored flatsedge	*Cyperus stenolepis*	
Tropical flatsedge	*Cyperus surinamensis*	
Fourangle flatsedge	*Cyperus tetragonus*	
Durban crowfootgrass *	*Dactyloctenium aegyptium*	
Whitetassels	*Dalea carnea*	
Feay's prairieclover	*Dalea feayi*	
Summer farewell	*Dalea pinnata* var. *adenopoda*	
Western tansymustard	*Descurainia pinnata*	
Zarzabacoa comun *	*Desmodium incanum*	
Panicled ticktrefoil	*Desmodium paniculatum*	
Slimleaf ticktrefoil	*Desmodium tenuifolium*	
Dixie ticktrefoil *	*Desmodium tortuosum*	
Threeflower ticktrefoil *	*Desmodium triflorum*	
Needleleaf witchgrass	*Dichanthelium aciculare*	
Variable witchgrass	*Dichanthelium commutatum*	
Cypress witchgrass	*Dichanthelium dichotomum*	
Cypress witchgrass	*Dichanthelium ensifolium*	
Erectleaf witchgrass	*Dichanthelium erectifolium*	
Hemlock witchgrass	*Dichanthelium portoricense*	
Roughhair witchgrass	*Dichanthelium strigosum*	
Ponysfoot	*Dichondra caroliniensis*	
Sixangle foldwing	*Dicliptera sexangularis*	
Southern crabgrass	*Digitaria ciliaris*	
Pangolagrass *	*Digitaria eriantha*	
Blanket crabgrass	*Digitaria serotina*	
Poor joe	*Diodia teres*	
Buttonweed	*Diodia virginiana*	
Air-potato *	*Dioscorea bulbifera*	
Persimmon	*Diospyros virginiana*	
Pink sundew	*Drosera capillaris*	
West Indian chickweed *	*Drymaria cordata*	
Oblongleaf twinflower	*Dyschoriste oblongifolia*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Barnyardgrass *	*Echinochloa crus-galli*	
Coast cockspur	*Echinochloa walteri*	
False daisy	*Eclipta prostrata*	
Water-hyacinth *	*Eichhornia crassipes*	
Roadgrass	*Eleocharis baldwinii*	
Slim spikerush	*Eleocharis elongata*	
Jointed spikerush	*Eleocharis equisetoides*	
Yellow spikerush	*Eleocharis flavescens*	
Canada spikerush	*Eleocharis geniculata*	
Black spikerush *	*Eleocharis nigrescens*	
Viviparous spikerush	*Eleocharis vivipara*	
Tall elephantsfoot	*Elephantopus elatus*	
Indian goosegrass *	*Eleusine indica*	
Florida tasselflower *	*Emilia fosbergii*	
Lilac tasselflower *	*Emilia sonchifolia*	
Florida butterfly orchid	*Encyclia tampensis*	
Thalia lovegrass *	*Eragrostis atrovirens*	
Elliott lovegrass	*Eragrostis elliottii*	
Teal lovegrass	*Eragrostis hypnoides*	
Purple lovegrass	*Eragrostis spectabilis*	
Fireweed	*Erechtites hieraciifolius*	
Centipedegrass *	*Eremochloa ophiuroides*	
Oakleaf fleabane	*Erigeron quercifolius*	
Early whitetop fleabane	*Erigeron vernus*	
Flattened pipewort	*Eriocaulon compressum*	
Tenangle pipewort	*Eriocaulon decangulare*	
Ravenel's pipewort	*Eriocaulon ravenelii*	
Fragrant eryngo	*Eryngium aromaticum*	
Baldwin's eryngo	*Eryngium baldwinii*	
Button rattlesnakemaster	*Eryngium yuccifolium*	
Coralbean	*Erythrina herbacea*	
Eucalyptus *	*Eucalyptus* sp.	
White stopper	*Eugenia axillaris*	
Surinam cherry *	*Eugenia uniflora*	
Wild coco	*Eulophia alta*	
Dogfennel	*Eupatorium capillifolium*	
Falsefennel	*Eupatorium leptophyllum*	
Mohr's boneset	*Eupatorium mohrii*	
False hoarhound	*Eupatorium rotundifolium*	
Lateflowering thoroughwort	*Eupatorium serotinum*	
Saltmarsh fingergrass	*Eustachys glauca*	
Pinewoods fingergrass	*Eustachys petraea*	
Slender flattop goldenrod	*Euthamia caroliniana*	
Strangler fig	*Ficus aurea*	
Weeping Fig *	*Ficus benjamina*	
Slender fimbry	*Fimbristylis autumnalis*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Carolina fimbry	*Fimbristylis caroliniana*	
Hurricane-grass	*Fimbristylis cymosa*	
Ditch fimbry *	*Fimbristylis schoenoides*	
Marsh fimbry	*Fimbristylis spadicea*	
Pop ash, Water ash	*Fraxinus caroliniana*	
Cottonweed	*Froelichia floridana*	
Dwarf umbrellasedge	*Fuirena pumila*	
Southern umbrellasedge	*Fuirena scirpoidea*	
Elliott's milkpea	*Galactia elliottii*	
Downy milkpea	*Galactia regularis*	
Eastern milkpea	*Galactia volubilis*	
Stiff marsh bedstraw	*Galium tinctorium*	
Delicate everlasting	*Gamochaeta antillana*	
Pennsylvania cudweed	*Gamochaeta pensylvanica*	
Southern beeblossom	*Gaura angustifolia*	
Dwarf huckleberry	*Gaylussacia dumosa*	
Blue huckleberry	*Gaylussacia frondosa* var. *tomentosa*	
Yellow jessamine	*Gelsemium sempervirens*	
Cranesbill	*Geranium carolinianum*	
Tampa mock vervain	*Glandularia tampensis*	DP, MF
Water locust	*Gleditsia aquatica*	
Prostrate globe amaranth *	*Gomphrena serrata*	
Angularfruit milkvine	*Gonolobus suberosus*	MEH, FS
Loblolly bay	*Gordonia lasianthus*	
Rough hedgehyssop	*Gratiola hispida*	
Shaggy hedgehyssop	*Gratiola pilosa*	
Branched hedgehyssop	*Gratiola ramosa*	
Chapman's skeletongrass	*Gymnopogon chapmanianus*	
False reinorchid	*Habenaria floribunda*	
Waterspider false reinorchid	*Habenaria repens*	
Firebush	*Hamelia patens*	
Threadroot orchid	*Harrisella porrecta*	BS, BG
Bitterweed; Spanish daisy	*Helenium amarum*	
Southeastern sneezeweed	*Helenium pinnatifidium*	
Southeastern sunflower	*Helianthus agrestis*	
Swamp sunflower	*Helianthus angustifolius*	
Pineland heliotrope	*Heliotropium polyphyllum*	
Camphorweed	*Heterotheca subaxillaris*	
Swamp rosemallow	*Hibiscus grandiflorus*	
Coastalplain hawkweed	*Hieracium megacephalon*	
Innocence	*Houstonia procumbens*	
Hydrilla *	*Hydrilla verticillata*	
Floating marshpennywort	*Hydrocotyle ranunculoides*	
Manyflower marsh pennywort	*Hydrocotyle umbellata*	
Whorled marshpennywort	*Hydrocotyle verticllata*	
Skyflower	*Hydrolea corymbosa*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
West Indian marshgrass *	*Hymenachne amplexicaulis*	
Alligatorlily	*Hymenocallis palmeri*	
Florida spiderlily	*Hymenocallis tridentata*	
Coastal plain St. John's wort	*Hypericum brachyphyllum*	
Roundpod St. John's-wort	*Hypericum cistifolium*	
St. Peter's-wort	*Hypericum crux-andreae*	
Sandweed	*Hypericum fasciculatum*	
Pineweeds	*Hypericum gentianoides*	
St. Andrew's cross	*Hypericum hypericoides*	
Dwarf St. John's-wort	*Hypericum mutilum*	
Myrtleleaf St. John's-wort	*Hypericum myrtifolium*	
Atlantic St. John's-wort	*Hypericum tenuifolium*	
Fourpetal St. John's-wort	*Hypericum tetrapetalum*	
Common yellow stargrass	*Hypoxis curtissii*	
Fringed yellow stargrass	*Hypoxis juncea*	
Musky mint	*Hyptis alata*	
Bush mint *	*Hyptis mutabilis*	
Carolina holly; Sand holly	*Ilex ambigua*	
Dahoon holly	*Ilex cassine*	
Inkberry; Gallberry	*Ilex glabra*	
Cogon grass *	*Imperata cylindrica*	
Hairy indigo *	*Indigofera hirsuta*	
Tievine	*Ipomoea cordatotriloba*	
Man-of-the-earth	*Ipomoea pandurata*	
Cypressvine *	*Ipomoea quamoclit*	
Saltmarsh morning-glory	*Ipomoea sagittata*	
Juba's bush	*Iresine diffusa*	
Prairie iris	*Iris hexagona*	
Virginia willow	*Itea virginica*	
Piedmont marshelder	*Iva microcephala*	
Forked rush	*Juncus dichotomus*	
Soft rush	*Juncus effusus* var. *solutus*	
Shore rush	*Juncus marginatus*	
Bighead rush	*Juncus megacephalus*	
Manyhead rush	*Juncus polycephalos*	
Lesser creeping rush	*Juncus repens*	
Needlepod rush	*Juncus scirpoides*	
Pineland waterwillow	*Justicia angusta*	
Saltmarsh mallow	*Kosteletzkya pentacarpos*	
Shortleaf sedge *	*Kyllinga brevifolia*	
Fragrant spikesedge	*Kyllinga odorata*	
Redroot	*Lachnanthes caroliana*	
Whitehead bogbutton	*Lachnocaulon anceps*	
Grassleaf lettuce	*Lactuca graminifolia*	
Dotted duckeed *	*Landoltia punctata*	
Shrub verbena *	*Lantana camara*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Drysand pinweed	*Lechea divaricata*	
Pineland pinweed	*Lechea sessiliflora*	
Piedmont pinweed	*Lechea torreyi*	
Southern cutgrass	*Leersia hexandra*	
Little duckweed	*Lemna obscura*	
Valdivia duckweed	*Lemna valdiviana*	
Virginia pepperweed	*Lepidium virginicum*	
Bearded sprangletop	*Leptochloa fusca* subsp. *fasicicularis*	
Savanna gayfeather	*Liatris savannensis*	
Garber's gayfeather	*Liatris garberi*	
Slender gayfeather	*Liatris gracilis*	
Shortleaf gayfeather	*Liatris tenuifolia* var. *quadriflora*	
Gopher apple	*Licania michauxii*	
Pine lily	*Lilium catesbaei*	DP, MF
Frog's-bit	*Limnobium spongia*	
Canadian toadflax	*Linaria canadensis*	
Malayasian false pimpernel *	*Lindernia crustacea*	
Savannah false pimpernel	*Lindernia grandiflora*	
Stiff yellow flax	*Linum medium* var. *texanum*	
American halfchaff sedge	*Lipocarpha maculata*	
Smallflower halfchaff sedge	*Lipocarpha micrantha*	
Southern twayblade	*Listera australis*	MEH
Bay lobelia	*Lobelia feayana*	
Glade lobelia	*Lobelia glandulosa*	
Pineland lobelia	*Lobelia homophylla*	
White lobelia	*Lobelia paludosa*	
Piedmont primrosewillow	*Ludwigia arcuata*	
Yerba de jicotea	*Ludwigia erecta*	
Lanceleaf primrosewillow	*Ludwigia lanceolata*	
Anglestem primrosewillow	*Ludwigia leptocarpa*	
Southeastern primrosewillow	*Ludwigia linifolia*	
Seaside primrosewillow	*Ludwigia maritima*	
Smallfruit primrosewillow	*Ludwigia microcarpa*	
Mexican primrosewillow	*Ludwigia octovalvis*	
Marsh seedbox	*Ludwigia palustris*	
Peruvian primrosewillow *	*Ludwigia peruviana*	
Hairy primrosewillow	*Ludwigia pilosa*	
Creeping primrosewillow	*Ludwigia repens*	
Shrubby primrosewillow	*Ludwigia suffruticosa*	
Southern watergrass	*Luziola fluitans*	
Rose-rush, Skeletonplant	*Lygodesmia aphylla*	
Rusty lyonia, Staggerbush	*Lyonia fruticosa*	
Maleberry	*Lyonia ligustrina* var. *foliosiflora*	
Shiny lyonia, Fetterbush	*Lyonia lucida*	
Winged loosestrife	*Lythrum alatum* var. *lanceolatum*	
Lowland loosestrife	*Lythrum flagellare*	DM, FM, RFLK

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Wild Bushbean *	*Macroptilium lathyroides*	
Sweetbay	*Magnolia virginiana*	
Axilflower	*Mecardonia acuminata* subsp. *peninsularis*	
Black medic *	*Medicago lupulina*	
Punktree *	*Melaleuca quinquenervia*	
Snow squarestem	*Melanthera nivea*	
White sweetclover *	*Melilotus albus*	
Rose Natalgrass *	*Mellinis repens*	
Bretonica peluda	*Melochia spicata*	
Creeping cucumber	*Melothria pendula*	
Manatee mudflower	*Micranthemum glomeratum*	
Florida Keys hempvine	*Mikania cordifolia*	
Climbing hempvine	*Mikania scandens*	
Powderpuff	*Mimosa strigillosa*	
Four-o' clock *	*Mirabilis jalapa*	
Partridge berry; Twinberry	*Mitchella repens*	
Swamp Hornpod	*Mitreola sessilifolia*	
Balsampear; balsam apple *	*Momordica charantia*	
Red mulberry	*Morus rubra*	
Hairawn muhly	*Muhlenbergia capillaris*	
Nakedstem dewflower *	*Murdannia nudiflora*	
Dwarf banana *	*Musa acuminata*	
Wax myrtle	*Myrica cerifera*	
Parrot feather *	*Myriophyllum aquaticum*	
Twoleaf watermilfoil	*Myriophyllum heterophyllum*	
Myrsine	*Myrsine cubana*	
Spatterdock	*Nuphar advena*	
Jameson's waterlily	*Nymphaea jamesoniana*	DM, DS
Yellow waterlily	*Nymphaea mexicana*	
American White waterlily	*Nymphaea odorata*	
Big floating heart	*Nymphoides aquatica*	
Swamp Tupelo	*Nyssa sylvatica* var. *biflora*	
Whitetopped aster	*Oclemena reticulata*	
Cutleaved eveningprimrose	*Oenothera laciniata*	
Flattop mille graines *	*Oldenlandia corymbosa*	
Clustered mille graines	*Oldenlandia uniflora*	
Woodsgrass; Basketgrass	*Oplismenus hirtellus*	
Prickly pear	*Opuntia humifusa*	
Goldenclub	*Orontium aquaticum*	
Creeping woodsorrel	*Oxalis corniculata*	
Cuban bulrush *	*Oxycaryum cubense*	
Butterweed	*Packera glabella*	
Coastalplain palafoxia	*Palafoxia integrifolia*	
Beaked Panicum	*Panicum anceps*	
Fall Panicgrass	*Panicum dichotomiflorum*	
Maidencane	*Panicum hemitomon*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Gaping Panicum	*Panicum hians*	
Guineagrass *	*Panicum maximum*	
Torpedograss *	*Panicum repens*	
Redtop Panicum	*Panicum rigidulum*	
Bluejoint panicum	*Panicum tenerum*	
Warty Panicgrass	*Panicum verrucosum*	
Switch grass	*Panicum virgatum*	
Florida pellitory	*Parietaria floridana*	
Virginia creeper	*Parthenocissus quinquefolia*	
Egyptian paspalidium	*Paspalidium geminatum*	
Blue crowngrass	*Paspalum caespitosum*	
Sour paspalum	*Paspalum conjugatum*	
Mudbank crowngrass	*Paspalum distichum*	
Florida paspalum	*Paspalum floridanum*	
Field paspalum	*Paspalum laeve*	
Bahia grass *	*Paspalum notatum*	
Early paspalum	*Paspalum praecox*	
Water paspalum	*Paspalum repens*	
Thin paspalum	*Paspalum setaceum*	
Vaseygrass *	*Paspalum urvillei*	
May-pop passionflower	*Passiflora incarnata*	
Corkystemmed passionflower	*Passiflora suberosa*	
Florida cinchweed	*Pectis linearifolia*	
Spreading cinchweed	*Pectis prostrata*	
Green arrow arum	*Peltandra virginica*	
Manyflower beardtongue	*Penstemon multiflorus*	
Hale's pentodon	*Pentodon pentandrus*	
Red bay	*Persea borbonia*	
Swamp bay	*Persea palustris*	
Florida false sunflower	*Phoebanthus grandiflorus*	
Senegal date palm *	*Phoenix reclinata*	
Oak Mistletoe	*Phoradendron leucarpum*	
Common Reed	*Phragmites australis*	
Turkey Tangle fogfruit	*Phyla nodiflora*	
Mascarene Island leafflower *	*Phyllanthus tenellus*	
Chamber bitter *	*Phyllanthus urinaria*	
Cutleaf groundcherry	*Physalis angulata*	
Cypresshead groundcherry	*Physalis arenicola*	
Husk tomato	*Physalis pubescens*	
Walter's groundcherry	*Physalis walteri*	
Eastern false dragonhead	*Physostegia purpurea*	
American pokeweed	*Phytolacca americana*	
Wild pennyroyal	*Piloblephis rigida*	
Blueflower butterwort	*Pinguicula caerulea*	MF, DM
Yellow butterwort	*Pinguicula lutea*	MF, DM
Small butterwort	*Pinguicula pumila*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Florida Needlegrass	*Piptochaetium avenacioides*	
Pitted stripeseed	*Piriqueta cistoides* subsp. *caroliniana*	
Water-lettuce *	*Pistia stratiotes*	
Narrowleaf silkgrass	*Pityopsis graminifolia*	
Common plantain *	*Plantago major*	
Southern plantain	*Plantago virginica*	
Rosy camphorweed	*Pluchea baccharis*	
Sweetscent	*Pluchea odorata*	
Painted leaf	*Poinsettia cyanthophora*	
Baldwin's milkwort	*Polygala balduinii*	
Drumheads	*Polygala cruciata*	
Tall pinebarren milkwort	*Polygala cymosa*	
Procession flower	*Polygala incarnata*	
Orange milkwort	*Polygala lutea*	
Candyroot	*Polygala nana*	
Low pinebarren milkwort	*Polygala ramosa*	
Yellow milkwort	*Polygala rugelii*	
Coastal plain milkwort	*Polygala setacea*	
Hairy jointweed	*Polygonella ciliata*	
Denseflower knotweed	*Polygonum glabrum*	
Mild waterpepper	*Polygonum hydropiperoides*	
Dotted smartweed	*Polygonum punctatum*	
Bog smartweed	*Polygonum setaceum*	
Rabbitfootgrass *	*Polypogon monspeliensis*	
Rustweed	*Polypremum procumbens*	
Pickerelweed	*Pontederia cordata*	
Pink purslane	*Portulaca pilosa*	
Small pondweed	*Potamogeton pusillus*	
Marsh mermaidweed	*Proserpinaca palustris*	
Combleaf mermaidweed	*Proserpinaca pectinata*	
Carolina laurelcherry	*Prunus caroliniana*	
Dogs-tongue *	*Pseudelephantopus spicatus*	
Guava *	*Psidium guajava*	
Wild coffee	*Psychotria nervosa*	
Shortleaf wild coffee	*Psychotria sulzneri*	
Blackroot	*Pterocaulon pycnostachyum*	
Giant orchid	*Pteroglossaspis ecristata*	MF, SCF
Mock bishop's weed	*Ptilimnium capillaceum*	
Desertchickory	*Pyrrhopappus carolinianus*	
Chapman's oak	*Quercus chapmanii*	
Sand live oak	*Quercus geminata*	
Bluejack oak	*Quercus incana*	
Turkey oak	*Quercus laevis*	
Laurel oak	*Quercus laurifolia*	
Dwarf live oak	*Quercus minima*	
Myrtle oak	*Quercus myrtifolia*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Water oak	*Quercus nigra*	
Running oak	*Quercus pumila*	
Live oak	*Quercus virginiana*	
Buckthorn	*Rhamnus caroliniana*	
West Indian meadowbeauty	*Rhexia cubensis*	
Pale meadowbeauty	*Rhexia mariana*	
Nuttall's meadowbeauty	*Rhexia nuttallii*	
Fringed meadowbeauty	*Rhexia petiolata*	
Winged sumac	*Rhus copallinum*	
Michaux's snoutbean	*Rhynchosia michauxii*	
Anglestem beaksedge	*Rhynchospora caduca*	
Bunched beaksedge	*Rhynchospora cephalantha*	
Chapman's beaksedge	*Rhynchospora chapmanii*	
Fringed beaksedge	*Rhynchospora ciliaris*	
Starrush whitetop	*Rhynchospora colorata*	
Shortbristle horned beaksedge	*Rhynchospora corniculata*	
Fascicled beaksedge	*Rhynchospora fascicularis*	
Threadleaf beaksedge	*Rhynchospora filifolia*	
Horned beaksedge	*Rhynchospora inundata*	
Giant whitetop	*Rhynchospora latifolia*	
Sandyfield beaksedge	*Rhynchospora megalocarpa*	
Southern beaksedge	*Rhynchospora microcarpa*	
Bunched beaksedge	*Rhynchospora microcephala*	
Millet beaksedge	*Rhynchospora miliacea*	
Baldrush	*Rhynchospora nitens*	
Fragrant beaksedge	*Rhynchospora odorata*	
Plumed beaksedge	*Rhynchospora plumosa*	
Tracy's beaksedge	*Rhynchospora tracyi*	
Tropical Mexican clover *	*Richardia brasiliensis*	
Rough Mexican clover *	*Richardia scabra*	
Rouge plant	*Rivinia humilis*	
Southern marsh yellowcress	*Rorippa teres*	
Toothcup	*Rotala ramosior*	
Sawtooth blackberry	*Rubus pensilvanicus*	
Southern dewberry	*Rubus trivialis*	
Blackeyed Susan	*Rudbeckia hirta*	
Browne's blechum *	*Ruellia blechum*	
Carolina wild petunia	*Ruellia caroliniensis*	
Britton's wild petunia *	*Ruellia simplex*	
Hastateleaf dock	*Rumex hastatulus*	
Fiddle dock *	*Rumex pulcher*	
Swamp dock	*Rumex verticillatus*	
Dwarf palmetto	*Sabal minor*	
Cabbage palm	*Sabal palmetto*	
Shortleaf rosegentian	*Sabatia brevifolia*	
Bartam's rosegentian	*Sabatia decandra*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Lanceleaf rosegentian	*Sabatia difformis*	
Largeflower rosegentian	*Sabatia grandiflora*	
Rose-of-Plymouth	*Sabatia stellaris*	
Sugarcane plumegrass	*Saccharum giganteum*	
India cupscale *	*Sacciolepis indica*	
American cupscale	*Sacciolepis striata*	
Leafless beaked orchid	*Sacoila lanceolata*	MF
Smallflower mock buckthorn	*Sageretia minutiflora*	
Narrow-leaved sagittaria	*Sagittaria graminea*	
Bulltongue; Lanceleaf arrowhead	*Sagittaria lancifolia*	
Duckpotato	*Sagittaria latifolia*	
Water arrowhead	*Sagittaria subulata*	
Carolina willow	*Salix caroliniana*	
Lyreleaf sage	*Salvia lyrata*	
Elderberry	*Sambucus nigra* subsp. *canadensis*	
Water pimpernel	*Samolus ebracteatus*	
Pineland pimpernel	*Samolus valerandi* subsp. *parviflorus*	
White twinevine	*Sarcostemma clausum*	
Lizard's tail	*Saururus cernuus*	
Brazilian pepper *	*Schinus terebinthifolius*	
Little bluestem	*Schizachryium scoparium*	
Drooping bulrush	*Scirpus lineatus*	
Threesquare bulrush	*Schoenoplectus pungens*	
Softstem bulrush	*Schoenoplectus tabernaemontani*	
Baldwin's Nutrush	*Scleria baldwinii*	
Fewflower nutrush	*Scleria ciliata* var. *pauciflora*	
Slenderfruit nutrush	*Scleria georgiana*	
Netted nutrush	*Scleria reticularis*	
Whip nutrush	*Scleria triglomerata*	
Sweetbroom	*Scoparia dulcis*	
Helmet skullcap	*Scutellaria integrifolia*	
Privet wild sensitive plant	*Senna ligustrina*	
Sicklepod	*Senna obtusifolia*	
Coffee senna *	*Senna occidentalis*	
Saw palmetto	*Serenoa repens*	
Whitetop aster	*Sericocarpus tortifolius*	
Danglepod	*Sesbania herbacea*	
Bladderpod	*Sesbania vesicaria*	
Foxtail, Giant bristlegrass	*Setaria magna*	
Knotroot foxtail	*Setaria parviflora*	
Senna	*Seymeria pectinata*	
Llima; Heartleaf sida *	*Sida cordifolia*	
Indian hemp	*Sida rhombifolia*	
Common wireweed	*Sida ulmifolia*	
Florida Bully	*Sideroxylon reclinatum*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Blue-eyed grass	*Sisyrinchium angustifolium*	
Earleaf greenbrier	*Smilax auriculata*	
Saw Greenbrier	*Smilax bona-nox*	
Cat greeenbrier	*Smilax glauca*	
Bamboo vine; laurel greenbrier	*Smilax laurifolia*	
Sarsaparilla vine	*Smilax pumila*	
Hogbrier	*Smilax tamnoides*	
Coral greenbrier	*Smilax walteri*	
Common nightshade	*Solanum americanum*	
Soda apple	*Solanum capsicoides*	
Black nightshade	*Solanum chenopodioides*	
Twoleaf Nightshade *	*Solanum diphyllum*	
Tropical soda apple *	*Solanum viarum*	
Pinebarren goldenrod	*Solidago fistulosa*	
Chapaman's goldenrod	*Solidago odora* var. *chapmanii*	
Wand goldenrod	*Solidago stricta*	
Twistedleaf goldenrod	*Solidago tortifolia*	
Common sowthistle *	*Sonchus oleraceus*	
Yellow indiangrass	*Sorghastrum nutans*	
Lopsided indiangrass	*Sorghastrum secundum*	
Johnsongrass *	*Sorghum halepense*	
Sand cordgrass	*Spartina bakeri*	
Woodland false buttonweed	*Spermacoce assurgens*	
Wedelia; creeping oxeye *	*Sphagneticola trilobata*	
Prairie wedgescale	*Sphenopholis obtusata*	
Giantspiral ladiestresses	*Spiranthes longilabris*	DM
Fragrant ladiestresses	*Spiranthes odorata*	
Greenvein ladiestresses	*Spiranthes praecox*	
Spring ladiestresses	*Spiranthes vernalis*	
Smutgrass *	*Sporobolus indicus*	
Pineywoods dropseed	*Sporobolus junceus*	
Florida Betony; Hedgenettle	*Stachys floridana*	
Sweet shaggytuft	*Stenandrium dulce*	
Crowpoison	*Stenanthium densum*	
St. Augustine grass	*Stenotaphrum secundatum*	
Queen's delight	*Stillingia sylvatica*	
Pineland scalypink	*Stipulicida setacea* var. *lacerata*	
American snowbell	*Styrax americanus*	
Scaleleaf aster	*Symphyotrichum adnatum*	
Climbing aster	*Symphyotrichum carolinianum*	
Rice button aster	*Symphyotrichum dumosum*	
Annual satmarsh aster	*Symphyotrichum subulatum*	
Yellow hatpins	*Syngonanthus flavidulus*	
American evergreen *	*Syngonium podophyllum*	
Sprawling hoarypea	*Tephrosia hispidula*	
Spiked hoarypea	*Tephrosia spicata*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Wood sage	*Teucrium canadense*	
Fireflag, Alligatorflag	*Thalia geniculata*	
Water cowbane	*Tiedemannia filiformis*	
Northern Needleleaf	*Tillandsia balbisiana*	BS, BG, MEH
Cardinal airplant	*Tillandsia fasciculata*	BS, BG, MEH
Ballmoss	*Tillandsia recurvata*	
Southern Needleleaf	*Tillandsia setacea*	
Spanish moss	*Tillandsia usneoides*	
Giant airplant	*Tillandsia utriculata*	BS, BG, MEH
Poison ivy	*Toxidendron radicans*	
Spiderwort; Bluejacket	*Tradescantia ohiensis*	
Marsh St. John's-wort	*Triadenum virginicum*	
Forked bluecurls	*Trichostema dichotomum*	
Tall redtop, Purpletop	*Tridens flavus*	
White clover *	*Trifolium repens*	
Eastern gammagrass	*Tripsacum dactyloides*	
Southern cattail	*Typha domingensis*	
Broadleaf cattail	*Typha latifolia*	
American elm	*Ulmus americana*	
Caesarweed *	*Urena lobata*	
Paragrass *	*Urochloa mutica*	
Browntop millet *	*Urochloa ramosa*	
Horned bladderwort	*Utricularia cornuta*	
Leafy bladderwort	*Utricularia foliosa*	
Humped bladderwort	*Utricularia gibba*	
Floating bladderwort	*Utricularia inflata*	
Southern bladderwort	*Utricularia juncea*	
Eastern purple bladderwort	*Utricularia purpurea*	
Little floating bladderwort	*Utricularia radiata*	
Zigzag bladderwort	*Utricularia subulata*	
Sparkleberry	*Vaccinium arboreum*	
Highbush blueberry	*Vaccinium corymbosum*	
Glaucous blueberry	*Vaccinium darrowii*	
Shiny blueberry	*Vaccinium myrsinites*	
Deerberry	*Vaccinium stamineum*	
Brazilian vervain *	*Verbena brasiliensis*	
Harsh verbena	*Verbena scabra*	
Frostweed	*Verbesina virginica*	
Florida Ironweed	*Vernonia blodgettii*	
Possum aw	*Viburnum nudum*	
Small-leaf Viburnum	*Viburnum obovatum*	
Fourleaf vetch	*Vicia acutifolia*	
Yellow cowpea	*Vigna luteola*	
Bog white violet	*Viola lanceolata*	
Early blue violet	*Viola palmata*	
Primroseleaf violet	*Viola primulifolia*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Common blue violet	*Viola sororia*	
Summer grape	*Vitis aestivalis*	
Scuppernong, Muscadine	*Vitis rotundifolia*	
Calloose grape	*Vitis shuttleworthii*	
Algal bulrush	*Websteria confervoides*	
Netted chain fern	*Woodwardia areolata*	
Virginia chain fern	*Woodwardia virginica*	
Tallow wood, Hog plum	*Ximenia americana*	
Coastalplain yelloweyed grass	*Xyris ambigua*	
Shortleaf yelloweyed grass	*Xyris brevifolia*	
Carolina yelloweyed grass	*Xyris caroliniana*	
Elliott's yelloweyed grass	*Xyris elliottii*	
Fringed yelloweyed grass	*Xyris fimbriata*	
Savannah yelloweyed grass	*Xyris flabelliformis*	
Florida yelloweyed grass	*Xyris floridana*	
Richard's yelloweyed grass	*Xyris jupicai*	
Small's yelloweyed grass	*Xyris smalliana*	
Oriental false hawksbeard *	*Youngia japonica*	
Spanish bayonet; Aloe yucca	*Yucca aloifolia*	
Adam's needle	*Yucca filamentosa*	
Wild lime	*Zanthoxylum fagara*	
Redmargin zephyrlily	*Zephyranthes simpsonii*	MF, DM
Lawn orchid *	*Zeuxine strateumatica*	

* Non-native Species

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

BUTTERFLIES AND MOTHS

Sleepy orange	*Abaeis nicippe*	
Gulf fritillary	*Agraulis vanillae*	
White peacock	*Anartia jatrophae*	
Delaware skipper	*Anatrytone logan*	
Monk skipper	*Asbolis capucinus*	
Great southern white	*Ascia monuste*	
Sachem	*Atalopedes campestris*	
Arogos skipper	*Atrytone arogos*	DP
Polydamas swallowtail	*Battus polydamas*	
Brazilian skipper	*Calpodes ethlius*	
Red-banded hairstreak	*Calycopis cecrops*	
Southern skipperling	*Copaeodes minima*	
Queen	*Danaus gilippus*	
Monarch	*Danaus plexippus*	
Horace's duskywing	*Erynnis horatius*	
Juvenal's duskywing	*Erynnis juvenalis*	
Zarucco duskywing	*Erynnis zarucco*	
Palmetto skipper	*Euphyes arpa*	
Palatka skipper	*Euphyes pilatka*	
Barred yellow	*Eurema daira*	
Zebra swallowtail	*Eurytides marcellus*	
Zebra longwing	*Heliconius charithonia*	
Ceraunus blue	*Hemiargus ceraunus*	
Eastern meskes skipper	*Hesperia meskei straton*	DP
Fiery skipper	*Hylephila phyleus*	
Common buckeye	*Junonia coenia*	
Clouded skipper	*Lerema accius*	
Dainty sulphur	*Nathalis iole*	
Twin-spot skipper	*Oligoria maculata*	
Ocola skipper	*Panoquina ocola*	
Giant swallowtail	*Papilio cresphontes*	
Eastern tiger swallowtail	*Papilio glaucus*	
Palamedes swallowtail	*Papilio palamedes*	
Black swallowtail	*Papilio polyxenes*	
Spicebush swallowtail	*Papilio troilus*	
Orange barred sulphur	*Phoebis philea*	
Cloudless sulphur	*Phoebis sennae*	
Phaon crescent	*Phyciodes phaon*	
Pearl crescent	*Phyciodes tharos*	
Aaron's skipper	*Poanes aaroni*	
Tawny-edged skipper	*Polites themistocles*	
Whirlabout	*Polites vibex*	
Checkered white	*Pontia protodice*	
Common checkered skipper	*Pyrgus communis*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Tropical checkered-skipper	*Pyrgus oileus*	
Little yellow	*Pyrisitia lisa*	
Oak hairstreak	*Saturium favonius*	
Gray hairstreak	*Strymon melinus*	
Gray hairstreak	*Strymon melinus*	
Viceroy	*Limenitis archippus*	
Dorantes longtail	*Urbanus dorantes*	
Long-tailed skipper	*Urbanus proteus*	
Red Admiral	*Vanessa atalanta*	
American lady	*Vanessa virginiensis*	
Southern broken-dash	*Wallengrenia otho*	
Southern dogface	*Zerene cesonia*	

FISH

Yellow bullhead	*Ameiurus natalis*	
Brown bullhead	*Ameiurus nebulosus*	
Bowfin	*Amia calva*	
American eel	*Anguilla rostrata*	
Common snook	*Centropomus undecimalis*	
Walking catfish *	*Clarias batrachus*	
Grass carp *	*Ctenopharyngodon idella*	
Gizzard shad	*Dorosoma cepedianum*	
Everglades pigmy sunfish	*Elassoma evergladei*	
Blue-spotted sunfish	*Enneacanthus gloriosus*	
Lake chubsucker	*Erimyzon sucetta*	
Swamp darter	*Etheostoma fusiforme*	
Golden topminnow	*Fundulus chrysotus*	
Seminole killifish	*Fundulus seminolis*	
Eastern mosquitofish	*Gambusia holbrooki*	
African jewelfish *	*Hemichromis letourneuxi*	
Least killifish	*Heterandria formosa*	
Brown hoplo *	*Hoplosternum littorale*	
White catfish	*Ictalurus catus*	
Channel catfish	*Ictalurus punctatus*	
Flagfish	*Jordanella floridae*	
Brook silverside	*Labidesthes sicculus*	
Florida gar	*Lepisosteus platyrhincus*	
Warmouth	*Lepomis gulosus*	
Bluegill	*Lepomis macrochirus*	
Dollar sunfish	*Lepomis marginatus*	
Redear sunfish	*Lepomis microlophus*	
Spotted sunfish	*Lepomis punctatus*	
Bluefin killifish	*Lucania goodei*	
Atlantic Tarpon	*Megalops atlanticus*	
Largemouth bass	*Micropterus salmoides*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Golden shiner	*Notemigonus crysoleucas*	
Iron-colored shiner	*Notropis chalybaeus*	
Tailight shiner	*Notropis maculatus*	
Tadpole madtom	*Noturus gyrinus*	
Blue tilapia *	*Oreochromis aureus*	
Sailfin molly	*Poecilia latipinna*	
Black crappie	*Pomoxis nigromaculatus*	
Vermiculated sailfin catfish *	*Pterygoplichthys disjunctivus*	
Hogchoker	*Trinectes maculatus*	

AMPHIBIANS

Two-toed amphiuma	*Amphiuma means*	
Dwarf salamander	*Eurycea quadridigitata*	
Peninsula newt	*Notophthalmus viridescens piaropicola*	
Everglades dwarf siren	*Pseudobranchus striatus belli*	
Eastern lesser siren	*Siren intermedia*	
Greater siren	*Siren lacertina*	
Oak toad	*Anaxyrus quercicus*	
Southern toad	*Anaxyrus terrestris*	
Greenhouse frog *	*Eleutherodactylus planirostris*	
Eastern narrowmouth toad	*Gastrophryne carolinensis*	
Green treefrog	*Hyla cinerea*	
Pinewoods treefrog	*Hyla femoralis*	
Barking treefrog	*Hyla gratiosa*	
Squirrel treefrog	*Hyla squirella*	
Florida gopher frog	*Lithobates capito*	DP, MF
American Bullfrog	*Lithobates catesbeiana*	
Pig frog	*Lithobates grylio*	
Southern leopard frog	*Lithobates sphenocephala*	
Cuban treefrog *	*Osteopilus septentrionalis*	
Southern chorus frog	*Pseudacris nigrita*	
Little grass frog	*Pseudacris ocularis*	
Eastern spadefoot toad	*Scaphiopus holbrooki*	

REPTILES

American alligator	*Alligator mississippiensis*	MTC
Green anole	*Anolis carolinensis*	
Six-lined racerunner	*Cnemidophorus sexlineatus*	
Indo-Pacific gecko*	*Hemidactylus garnotii*	
Tropical house gecko *	*Hemidactylus mabouia*	
Brown anole *	*Norops sagrei*	
Eastern slender glass lizard	*Ophisaurus attenuatus longicaudus*	
Island glass lizard	*Ophisaurus compressus*	
Eastern glass lizard	*Ophisaurus ventralis*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Southeastern five-lined skink	*Plestiodon inexpectatus*	
Ground skink	*Scincella lateralis*	
Florida softshell	*Apalone ferox*	
Florida snapping turtle	*Chelydra serpentina osceola*	
Gopher tortoise	*Gopherus polyphemus*	DP, MF, SCF
Striped mud turtle	*Kinosternon bauri*	
Florida mud turtle	*Kinosternon subrubrum steindachneri*	
Peninsula cooter	*Pseudemys peninsularis*	
Florida redbelly turtle	*Pseudemys nelsoni*	
Stinkpot	*Sternotherus odoratus*	
Florida box turtle	*Terrapene carolina bauri*	
Florida cottonmouth	*Agkistrodon piscivorus conanti*	
Florida scarlet snake	*Cemophora coccinea*	
Southern black racer	*Coluber constrictor priapus*	
Eastern diamondback rattlesnake	*Crotalus adamanteus*	
Southern ringneck snake	*Diadophis punctatus*	
Eastern indigo snake	*Drymarchon couperi*	MTC
Eastern mud snake	*Farancia abacura*	
Florida kingsnake	*Lampropeltis getula floridana*	
Scarlet kingsnake	*Lampropeltis elapsoides*	
Eastern coachwhip	*Masticophis flagellum*	
Eastern coral snake	*Micrurus fulvius*	
Florida water snake	*Nerodia fasciata pictiventris*	
Florida green water snake	*Nerodia floridana*	
Brown water snake	*Nerodia taxispilota*	
Rough green snake	*Opheodrys aestivus*	
Corn snake	*Pantherophis guttata*	
Eastern rat snake	*Pantherophis alleghaniensis*	
Striped crayfish snake	*Regina alleni*	
Pine woods snake	*Rhadinaea flavilata*	
Black swamp snake	*Seminetrix pygaea*	
Dusky pigmy rattlesnake	*Sistrurus miliarius barbouri*	
Florida brown snake	*Storeria victa*	
Peninsula ribbon snake	*Thamnophis sauritus sackeni*	
Common garter snake	*Thamnophis sirtalis sirtalis*	

BIRDS

Cooper's hawk	*Accipiter cooperii*	
Sharp-shinned hawk	*Accipiter striatus*	
Spotted sandpiper	*Actitis macularius*	
Red-winged blackbird	*Agelaius phoeniceus*	
Bachman's sparrow	*Aimophila aestivalis*	
Wood duck	*Aix sponsa*	
Saltmarsh sparrow	*Ammodramus caudacutus*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Grasshopper sparrow	*Ammodramus savannarum pratensis*	
Florida grasshopper sparrow	*Ammodramus savannarum floridanus*	DP
Northern pintail	*Anas acuta*	
American wigeon	*Anas americana*	
White-cheeked pintail	*Anas bahamensis*	
Northern shoveler	*Anas clypeata*	
Green-winged teal	*Anas crecca*	
Cinnamon teal	*Anas cyanoptera*	
Blue-winged teal	*Anas discors*	
Mottled duck	*Anas fulvigula*	
Eurasian wigeon	*Anas penelope*	
Mallard	*Anas platyrhynchos*	
American black duck	*Anas rubripes*	
Gadwall	*Anas strepera*	
Anhinga	*Anhinga anhinga*	
Great white-fronted goose	*Anser albifrons*	
American pipit	*Anthus rubescens*	
Florida scrub-jay	*Aphelocoma coerulescens*	SCF
Golden eagle	*Aquila chrysaetos*	
Limpkin	*Aramus guarauna*	FM, RFLK, BST
Ruby-throated hummingbird	*Archilochus colubris*	
Great egret	*Ardea alba*	
Great blue heron	*Ardea herodias*	
Great white heron	*Ardea herodias occidentalis.*	BM, DM, FM, RFLK, BST
Florida burrowing owl	*Athene cunicularia floridana*	DP
Lesser scaup	*Aythya affinis*	
Redhead	*Aythya americana*	
Ring-necked duck	*Aythya collaris*	
Canvasback	*Aythya valisineria*	
Cedar waxwing	*Bombycilla cedrorum*	
American bittern	*Botaurus lentiginosus*	
Canada goose	*Branta canadensis*	
Great horned owl	*Bubo virginianus*	
Cattle egret	*Bubulcus ibis*	
Bufflehead	*Bucephala albeola*	
Short-tailed hawk	*Buteo brachyurus*	
Red-tailed hawk	*Buteo jamaicensis*	
Red-shouldered hawk	*Buteo lineatus*	
Broad-winged hawk	*Buteo platypterus*	
Green heron	*Butorides virescens*	
Muscovy duck*	*Cairina moschata*	
Lapland longspur	*Calcarius lapponicus*	
Dunlin	*Calidris alpina*	
Stilt sandpiper	*Calidris himantopus*	
Western sandpiper	*Calidris mauri*	
Pectoral sandpiper	*Calidris melanotos*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Least sandpiper	*Calidris minutilla*	
Semipalmated sandpiper	*Calidris pusilla*	
Chuck-will's-widow	*Caprimulgus carolinensis*	
Whip-poor-will	*Caprimulgus vociferus*	
Crested caracara	*Caracara cheriway*	DP
Northern cardinal	*Cardinalis cardinalis*	
American goldfinch	*Carduelis tristis*	
Purple finch	*Carpodacus purpureus*	
Turkey vulture	*Cathartes aura*	
Veery	*Catharus fuscescens*	
Hermit thrush	*Catharus guttatus*	
Gray-cheeked thrush	*Catharus minimus*	
Swainson's thrush	*Catharus ustulatus*	
Chimney swift	*Chaetura pelagica*	
Semipalmated plover	*Charadrius semipalmatus*	
Snow goose	*Chen caerulescens*	
Black tern	*Chlidonias niger*	
Lark sparrow	*Chondestes grammacus*	
Common nighthawk	*Chordeiles minor*	
Northern harrier	*Circus cyaneus*	
Marsh wren	*Cistothorus palustris*	
Sedge wren	*Cistothorus platensis*	
Yellow-billed cuckoo	*Coccyzus americanus*	
Northern flicker	*Colaptes auratus*	
Northern bobwhite	*Colinus virginianus*	
Rock pigeon*	*Columba livia*	
Common ground-dove	*Columbina passerina*	
Olive-sided flycatcher	*Contopus cooperi*	
Eastern wood-pewee	*Contopus virens*	
Black vulture	*Coragyps atratus*	
American crow	*Corvus brachyrhynchos*	
Fish crow	*Corvus ossifragus*	
Blue jay	*Cyanocitta cristata*	
Black-bellied whistling-duck	*Dendrocygna autumnalis*	
Fulvous whistling-duck	*Dendrocygna bicolor*	
Bobolink	*Dolichonyx oryzivorus*	
Pileated woodpecker	*Dryocopus pileatus*	
Gray catbird	*Dumetella carolinensis*	
Little blue heron	*Egretta caerulea*	BM, DM, FM, RFLK, BST
Reddish egret	*Egretta rufescens*	BM, DM, FM, RFLK, BST
Snowy egret	*Egretta thula*	BM, DM, FM, RFLK, BST
Tricolored heron	*Egretta tricolor*	BM, DM, FM, RFLK, BST
Swallow-tailed kite	*Elanoides forficatus*	DP, MF, BM, DM, FM, RFLK
White-tailed kite	*Elanus leucurus*	BM, DM, FM
Acadian flycatcher	*Empidonax virescens*	
White ibis	*Eudocimus albus*	MTC

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Rusty blackbird	*Euphagus carolinus*	
Brewer's blackbird	*Euphagus cyanocephalus*	
Merlin	*Falco columbarius*	DP, BM, DM
Peregrine falcon	*Falco peregrinus tundrius*	MTC
American kestrel	*Falco sparverius*	
Southeastern American kestrel	*Falco sparverius paulus*	DP, BM, DM, FM
Magnificent frigatebird	*Fregata magnificens*	OF
American coot	*Fulica americana*	
Wilson's snipe	*Gallinago delicata*	
Common gallinule	*Gallinula chloropus*	
Gull-billed tern	*Gelochelidon nilotica*	
Common yellowthroat	*Geothlypis trichas*	
Florida sandhill crane	*Grus canadensis pratensis*	DP, MF, BM, DM, FM
Greater sandhill crane	*Grus canadensis tabida*	
American oystercatcher	*Haematopus palliatus*	RFLK
Southern bald eagle	*Haliaeetus leucocephalus leucocephalus*	
Worm-eating warbler	*Helmitheros vermivorum*	MEH
Black-necked stilt	*Himantopus mexicanus*	
Barn swallow	*Hirundo rustica*	
Caspian tern	*Hydroprogne caspia*	FM, RFLK
Wood thrush	*Hylocichla mustelina*	
Baltimore oriole	*Icterus galbula*	
Least bittern	*Ixobrychus exilis*	
Loggerhead shrike	*Lanius ludovicianus*	
Herring gull	*Larus argentatus*	
Ring-billed gull	*Larus delawarensis*	
Bonaparte's gull	*Larus philadelphia*	
Laughing gull	*Leucophaeus atricilla*	
Short-billed dowitcher	*Limnodromus griseus*	
Hooded merganser	*Lophodytes cucullatus*	
Belted kingfisher	*Megaceryle alcyon*	
Red-bellied woodpecker	*Melanerpes carolinus*	
Eastern screech-owl	*Megascops asio*	
Red-headed woodpecker	*Melanerpes erythrocephalus*	
Osceola wild turkey	*Meleagris gallopavo osceola*	
Swamp sparrow	*Melospiza georgiana*	
Song sparrow	*Melospiza melodia*	
Common merganser	*Mergus merganser*	
Red-breasted merganser	*Mergus serrator*	
Northern mockingbird	*Mimus polyglottos*	
Black-and-white warbler	*Mniotilta varia*	
Brown-headed cowbird	*Molothrus ater*	
Wood stork	*Mycteria americana*	RFLK, BST
Great crested flycatcher	*Myiarchus crinitus*	
Yellow-crowned night-heron	*Nyctanassa violacea*	
Black-crowned night-heron	*Nycticorax nycticorax*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Connecticut warbler	*Oporornis agilis*	
Ruddy duck	*Oxyura jamaicensis*	
Osprey	*Pandion haliaetus*	
Northern waterthrush	*Parkesia noveboracensis*	
Tufted titmouse	*Parus bicolor*	
House sparrow*	*Passer domesticus*	
Savannah sparrow	*Passerculus sandwichensis*	
Painted bunting	*Passerina ciris*	
Blue grosbeak	*Passerina caerulea*	
Indigo bunting	*Passerina cyanea*	
American white pelican	*Pelecanus erythrorhynchos*	
Brown pelican	*Pelecanus occidentalis*	RFLK
Cliff swallow	*Petrochelidon pyrrhonota*	
Double-crested cormorant	*Phalacrocorax auritus*	
Great cormorant	*Phalacrocorax carbo*	
Ring-necked pheasant*	*Phasianus colchicus*	
Rose-breasted grosbeak	*Pheucticus ludovicianus*	
Greater flamingo*	*Phoenicopterus ruber*	
Red-cockaded woodpecker	*Picoides borealis*	MF
Downy woodpecker	*Picoides pubescens*	
Southern hairy woodpecker	*Picoides villosus audubonii*	
Eastern towhee	*Pipilo erythrophthalmus*	
Roseate spoonbill	*Platalea ajaja*	RFLK, BST
Glossy ibis	*Plegadis falcinellus*	
Black-bellied plover	*Pluvialis squatarola*	
Horned grebe	*Podiceps auritus*	
Pied-billed grebe	*Podilymbus podiceps*	
Blue-gray gnatcatcher	*Polioptila caerulea*	
Vesper sparrow	*Pooecetes gramineus*	
Purple gallinule	*Porphyrio martinica*	
Sora	*Porzana carolina*	
Purple martin	*Progne subis*	
Prothonotary warbler	*Protonotaria citrea*	
Vermilion flycatcher	*Pyrocephalus rubinus*	
Boat-tailed grackle	*Quiscalus major*	
Common grackle	*Quiscalus quiscula*	
King rail	*Rallus elegans*	
Virginia rail	*Rallus limicola*	
Clapper rail	*Rallus longirostris*	
American avocet	*Recurvirostra americana*	FM, RFLK
Ruby-crowned kinglet	*Regulus calendula*	
Golden-crowned kinglet	*Regulus satrapa*	
Bank swallow	*Riparia riparia*	
Snail kite	*Rostrhamus sociabilis*	BM, DM, FM
Black skimmer	*Rynchops niger*	FM, RFLK
Eastern phoebe	*Sayornis phoebe*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
American woodcock	*Scolopax minor*	
Ovenbird	*Seiurus aurocapilla*	
American redstart	*Setophaga ruticilla*	MTC
Black-throated blue warbler	*Setophaga caerulescens*	
Yellow-rumped warbler	*Setophaga coronata*	
Prairie warbler	*Setophaga discolor*	
Yellow-throated warbler	*Setophaga dominica*	
Magnolia warbler	*Setophaga magnolia*	
Palm warbler	*Setophaga palmarum*	
Northern parula	*Setophaga americana*	
Yellow warbler	*Setophaga petechia*	
Pine warbler	*Setophaga pinus*	
Blackpoll warbler	*Setophaga striata*	
Cape May warbler	*Setophaga tigrina*	
Black-throated green warbler	*Setophaga virens*	
Eastern bluebird	*Sialia sialis*	
Red-breasted nuthatch	*Sitta canadensis*	
White-breasted nuthatch	*Sitta carolinensis*	MF
Brown-headed nuthatch	*Sitta pusill*	
Yellow-bellied sapsucker	*Sphyrapicus varius*	
Dickcissel	*Spiza americana*	
Chipping sparrow	*Spizella passerina*	
Field sparrow	*Spizella pusilla*	
Northern rough-winged swallow	*Stelgidopteryx serripennis*	
Least tern	*Sternula antillarum*	FM, RFLK
Forster's tern	*Sterna forsteri*	
Common tern	*Sterna hirundo*	
Royal tern	*Thalasseus maximus*	
Sandwich tern	*Thalasseus sandvicensis*	FM, RFLK
Eurasian collared dove *	*Streptopelia decaocto*	
Ringed turtle-dove *	*Streptopelia risoria*	
Barred owl	*Strix varia*	
Eastern meadowlark	*Sturnella magna*	
European starling*	*Sturnus vulgaris*	
Tree swallow	*Tachycineta bicolor*	
Carolina wren	*Thryothorus ludovicianus*	
Brown thrasher	*Toxostoma rufum*	
Lesser yellowlegs	*Tringa flavipes*	
Greater yellowlegs	*Tringa melanoleuca*	
Willet	*Tringa semipalmatus*	
Solitary sandpiper	*Tringa solitaria*	
House wren	*Troglodytes aedon*	
American robin	*Turdus migratorius*	
Gray kingbird	*Tyrannus dominicensis*	
Scissor-tailed flycatcher	*Tyrannus forficatus*	
Eastern kingbird	*Tyrannus tyrannus*	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Western kingbird	*Tyrannus verticalis*	
Barn owl	*Tyto alba*	
Yellow-throated vireo	*Vireo flavifrons*	
White-eyed vireo	*Vireo griseus*	
Red-eyed vireo	*Vireo olivaceus*	
Blue-headed vireo	*Vireo solitarius*	
Orange-crowned warbler	*Vermivora celata*	
Nashville warbler	*Vermivora ruficapilla*	
Hooded warbler	*Wilsonia citrina*	
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	
Mourning dove	*Zenaida macroura*	
White-throated sparrow	*Zonotrichia albicollis*	
White-crowned sparrow	*Zonotrichia leucophrys*	

MAMMALS

Short-tailed shrew	*Blarina brevicauda*	
Coyote *	*Canis latrans*	
Least shrew	*Cryptotis parva*	
Nine-banded armadillo *	*Dasypus novemcinctus*	
Virginia opossum	*Didelphis virginiana*	
Southern flying squirrel	*Glaucomys volans*	
River otter	*Lontra canadensis*	
Bobcat	*Lynx rufus*	
Striped skunk	*Mephitis mephitis*	
House mouse *	*Mus musculus*	
Florida long-tailed weasel	*Mustela frenata peninsula*	
Round-tailed muskrat	*Neofiber alleni*	
Eastern woodrat	*Neotoma floridana*	
Evening bat	*Nycticeius humeralis*	
White-tailed deer	*Odocoileus virginianus*	
Marsh rice rat	*Oryzomys palustris*	
Cotton mouse	*Peromyscus gossypinus*	
Old-field mouse	*Peromyscus polionotus*	
Raccoon	*Procyon lotor*	
Florida panther	*Puma concolor coryi*	MTC
Eastern harvest mouse	*Reithrodontomys humulis*	
Eastern mole	*Scalopus aquaticus*	
Gray squirrel	*Sciurus carolinensis*	
Sherman's fox squirrel	*Sciurus niger shermani*	MF, MEH
Hispid cotton rat	*Sigmodon hispidus*	
Southeastern shrew	*Sorex longirostris longirostris*	
Eastern spotted skunk	*Spilogale putorius*	
Feral hog; wild pig *	*Sus scrofa*	
Eastern cottontail	*Sylvilagus floridanus*	
Marsh rabbit	*Sylvilagus palustris*	

* Non-native Species

Myakka River State Park Animals

Common Name	*Scientific Name*	Primary Habitat Codes (for imperiled species)
Brazilian free-tailed bat	*Tadarida brasiliensis*	
Florida manatee	*Trichechus manatus latirostris*	RFLK, BST
Gray fox	*Urocyon cinereoargenteus*	
Florida black bear	*Ursus americanus floridanus*	MTC
Red fox *	*Vulpes vulpes*	

* Non-native Species

TERRESTRIAL

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

PALUSTRINE

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

Wet Prairie ..... WP

LACUSTRINE

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

RIVERINE

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

SUBTERRANEAN

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

ESTUARINE

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

MARINE

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

ALTERED LANDCOVER TYPES

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

MISCELLANEOUS

Many Types of Communities	MTC
Overflying	OF

Appendix 6—Imperiled Species Ranking Definitions

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

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

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

FNAI GLOBAL RANK DEFINITIONS

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

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

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

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

G5 ..... demonstrably secure globally

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

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

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

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

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

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

G#Q..... rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
G#T#Q..... same as above, but validity as subspecies or variety is questioned.
GU ..... due to lack of information, no rank or range can be assigned (e.g., GUT2).
G?..... Not yet ranked (temporary)
S1..... Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
S2..... Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
S3..... Either very rare or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
S4..... apparently secure in Florida (may be rare in parts of range)
S5..... demonstrably secure in Florida
SH ..... of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
SX..... believed to be extinct throughout range
SA..... accidental in Florida, i.e., not part of the established biota
SE..... an exotic species established in Florida may be native elsewhere in North America
SN ..... regularly occurring but widely and unreliably distributed; sites for conservation hard to determine
SU ..... due to lack of information, no rank or range can be assigned (e.g., SUT2).
S?..... Not yet ranked (temporary)
N ..... Not currently listed, nor currently being considered for listing, by state or federal agencies.

LEGAL STATUS

FEDERAL

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

LE ..... Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species that is in danger of extinction throughout all or a significant portion of its range.
PE ..... Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.
LT ..... Listed as Threatened Species. Defined as any species that is likely to become an endangered species within the near future throughout all or a significant portion of its range.

PT ..... Proposed for listing as Threatened Species.
C ..... Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants. Defined as those species for which the USFWS currently has on file sufficient information on biological vulnerability and threats to support proposing to list the species as endangered or threatened.
E(S/A) ..... Endangered due to similarity of appearance.
T(S/A) ..... Threatened due to similarity of appearance.
EXPE, XE..... Experimental essential population. A species listed as experimental and essential.
EXPN, XN .... Experimental non-essential population. A species listed as experimental and non-essential. Experimental, nonessential populations of endangered species are treated as threatened species on public land, for consultation purposes.

STATE

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

FE ..... Federally-designated Endangered

FT ..... Federally-designated Threatened

FXN..... Federally-designated Threatened Nonessential Experimental Population

FT(S/A) ..... Federally-designated Threatened species due to similarity of appearance

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

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

LE ..... Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973,as amended.

LT ..... Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered.

Appendix 7—Cultural Information

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

A. General Discussion

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

B. Agency Responsibilities

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

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

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

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

C. Statutory Authority

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

D. Management Implementation

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

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

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

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

E. Minimum Review Documentation Requirements

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

* * *

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

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

Phone: (850) 245-6425

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

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

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

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

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

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

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

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

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

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

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Appendix 8—Timber Management Analysis

1. *Management Context and Best Management Practices*

Timber management prescriptions and actions at MRSP are based on the desired future condition (DFC) of a stand or natural community as determined by guidelines established by the DRP. In most cases, the DFC will be closely related to the historic natural community. However, it is important to note, that in areas where the historic community has been severely altered by past land use practices, the DFC may not always be the same as the historic natural community. All forest/stand/timber management activities undertaken will adhere to the current Florida Silvicultural Best Management Practices and Florida Forestry Wildlife Best Management Practices for State Imperiled Species. DRP is responsible for managing timber resources within corresponding management zones. This timber assessment was conducted by F4 Tech on behalf of DRP.

2. *Purpose of Timber Management Activities*

Timber management activities will be conducted to help restore and/or improve current conditions so that the associated DFC (typically an historic condition) can be achieved or maintained. Timber management will primarily be conducted in pine-dominated natural communities. Upland communities typically include mesic flatwoods, sandhill, upland pine, upland mixed woodland, and altered landcover areas such as successional hardwood forest and pine plantations. Other historically hardwood-dominated natural communities will likely have little to no scheduled timber management activities. In some circumstances, actions may be conducted to remove overstory invasive/exotic trees, e.g. melaleuca, Chinese tallow, Brazilian pepper, occupying contiguous areas to help restore or maintain natural communities.

3. *Potential Silvicultural Treatments*

Several silvicultural treatments may be considered and utilized over the next ten years to achieve the long-term DFC for candidate natural communities at the MRSP. These treatments include timber harvests, timber stand improvement, and reforestation. The various types of timber harvests may include pine thinning, targeted hardwood removal, and clearcutting. Silvicultural treatments should be implemented to minimize disturbance to non-target vegetation, soil, and wildlife.

Thinning is conducted to reduce the basal area (BA) or density of stems in a stand to improve forest health and growth conditions for residual trees. The “opening up” of high density forest stands increases tree and stand vigor, which helps mitigate the potential for damaging insect outbreaks. Thinning also increases sunlight reaching the forest floor, which when combined with routine prescribed fire, can increase groundcover vegetation abundance, species richness, and overall ecological diversity. The disruption of a historic natural fire regime and/or fire return interval can often result in the need to remove undesirable or overstocked hardwood stems that currently occupy growing space in the canopy and sub-canopy. Tree removal/harvest also increases groundcover vegetation, ecological diversity, and fine fuels that facilitate consistent fire return intervals and responses.

Clearcutting supports restoration goals by removing offsite pine or hardwood species and is a precursor to establishing site-appropriate species. It is also used to control insect infestations that are damaging or threatening forest resources and ecosystem conditions on or off site. A tangible by-product of conducting timber harvests for restoring or improving forested communities is the generation of revenue.

Stand or natural community improvement activities are often conducted to reduce unwanted hardwood, palm or palmetto competition. Stand improvement treatments reduce fuel or fuel height, which can improve groundcover conditions and aid in maintaining proper prescribed burning return intervals. The two main stand improvement activities used on park property are herbicide treatments and mechanically cutting vegetation. Herbicide may be applied aerially, by mechanized ground-based equipment, or via backpack sprayers. Herbicides are used to reduce the amount of hardwood competition in areas that are unable to carry sufficient prescribed fire due to shading and lack of adequate groundcover fuels. Mechanical cutting is used to reduce the height of smaller shrub and hardwood competition, allowing for the establishment of fire-dependent herbs and grasses. Decreasing fuel loadings and enhancing groundcover allows prescribed fire to be reintroduced safely into a stand that has been unable to carry fire adequately. In select areas, mechanical or chemical control is also used to control excessive palm density promoted by past disturbance or fire exclusion to the same ends described above. Unlike hardwoods, these areas can burn with too much intensity under certain conditions.

Reforestation is used to establish the appropriate southern pine species in areas that have been harvested and lack sufficient natural regeneration in terms of abundance (seedlings/acre) and/or species composition. Reforestation candidate areas can also include those that are fire suppressed or have been recently impacted by natural events such as windthrow, bark beetle attack, or wildfire. The two methods used to reestablish the overstory will be natural and artificial regeneration. Both methods may require site preparation to facilitate survival of the desired species. Site preparation activities may include the use of prescribed fire, herbicides, and/or mechanical treatments such as roller chopping. Site preparation technique(s) will be selected that address the current vegetative cover type and condition, and the need to minimize seedling competition while avoiding/minimizing any long-term impacts to native groundcover species and native wildlife. Natural generation may be used in areas where artificial regeneration is not needed, such as areas that have an adequate seed source of the desired tree species located on site or in the immediate vicinity. Artificial regeneration may include machine or hand planting. Hand planting is preferred on wetter sites, rougher sites, and/or sites where groundcover protection is a concern and a more natural appearance of randomly spaced trees is desired. Machine planting generally allows for more consistent planting and often allows higher survival rates if the site is properly prepared.

4. *Inventory Data and Potential Actions per Area of Interest or Management Zone*

MRSP comprises 37,198 acres in Manatee and Sarasota Counties. A total of 18,696 acres are associated with three upland natural communities that are potential candidates for timber management. For this region, upland natural communities include mesic flatwoods, scrubby flatwoods, and dry prairie. In August 2017, an inventory based on plots and remotely sensed imagery was conducted across and within these areas to quantify overstory, midstory and understory conditions. Site photographs were also taken and used, in conjunction with publicly-available aerial photographs, to generally assess conditions in areas with limited access. Table 1 below provides general statistics generated by the MRSP inventory. Table 2 below provides current stocking levels and potential management activities of candidate management zones and natural communities.

This timber assessment was based on GIS data (management zone and NatCom boundary data) provided by DRP in June 2016. This assessment identifies opportunities for potential actions over the next 10-year UMP planning horizon (2017-2027) based on current conditions compared against desired future conditions. It is not intended to be prescriptive. State park staff responsible for developing operational plans should view this timber assessment and all supporting data as a guide for potential actions to consider. Given the dynamic nature of property ownership and land management activities at MRSP, together with the timeframe required to create or update a UMP, it is possible that some tabular data may be dated. Therefore, NatCom acreages and recent treatments that occurred after the June 2016 period may not be reflected in the tables herein.

A review and analysis of this data suggests that current ecological conditions for multiple management zones and associated forested communities could benefit from vegetation treatments. This assessment was based on a comparison of current conditions and the corresponding natural community analog or target conditions as defined per FNAI Reference Site descriptions. In general, inventory data indicates that upland habitats in some management zones have a non-pine component which is outside the acceptable range for the DFC of the NatCom types. Some natural communities considered may require midstory and overstory control to become, or remain, in compliance with FNAI defined ranges for palmetto and non-pine midstory. Stands with low stocking levels or a complete lack of preferred tree species would likely benefit from midstory control and artificial regeneration. In areas where planting is deemed necessary, the site should be assessed for site preparation needs including midstory/understory reduction.

The following contains a general description of each management zone within the MRSP that contains upland natural communities as well as their general condition and need for restoration and/or improvement actions via timber management.

Table 1. General summary statistics for MRSP

Number of Management Zones within the Park	50
Number of Management Zones needing timber management	50
Number of unique upland Natural Communities (split by management zone)	310
Number of unique upland Natural Communities potentially needing timber management	310
Upland Natural Community acres	18,696
Acres potentially needing timber management	18,696

Mesic Flatwoods (3,766 acres)

Dominant pine in mesic flatwoods in the region are South Florida slash (*P. elliottii* var. *densa)* or longleaf pine (*Pinus palustris*). Native herbaceous groundcover will cover at least 50% of the area at a height of less than three feet. Saw palmetto (*Serenoa repens*) will comprise less than 25% of the total shrub cover, also at a height of less than three feet. Other common shrub species may include gallberry (*Ilex glabra*), winged sumac (*Rhus copallinum*), fetterbush (*Lyonia lucida*), wax myrtle (*Morella cerifera*). The optimal fire return interval for this community is one to three years. The preferred pine species, as determined by FNAI reference sites, is slash pine or longleaf pine and should be stocked at a level of 10 to 50 square feet per acre BA while non-pine species should remain between 0 and 26.2 stems or trees per acre. The following management zone(s) contain mesic flatwoods which could be considered for some form of timber management including overstory removal, midstory mitigation, site preparation, and planting of preferred pine species.

Management Zone(s)	Mesic Flatwoods (Acres)	Basal Area (ft^2/acre)	Basal Area Preferred Species	Basal Area Non-Preferred Species	Average Diameter at breast height (inches)
MR-01A	114	4	4	--	13.9
MR-01B	162	1	1	--	12
MR-02B*	16	--	--	--	--
MR-03A	36	5	5	--	10.4
MR-03B	32	13	12	0	19.3
MR-03C	19	15	14	0	8.5
MR-04A	15	12	8	3	16.1
MR-04B*	3	--	--	--	--
MR-05A	117	5	5	--	10.6
MR-05B	157	11	11	--	13.1
MR-06	11	7	7	--	14
MR-07	44	2	2	--	15.8
MR-08	40	8	8	--	13.4
MR-09A	10	0	0	--	11.1
MR-09B	134	10	10	--	10.6
MR-10A	59	3	3	--	16
MR-10B	23	3	3	--	12.1
MR-11A	45	<1	<1	--	13.3
MR-11B	243	1	1	--	10.8
MR-11C	16	3	3	--	14.7
MR-11D	273	1	1	--	10.3
MR-12	195	4	4	--	11.8
MR-13A	555	5	5	--	12
MR-13B	25	6	6	--	11.8
MR-13C	83	6	6	--	11.8
MR-13D	301	9	9	--	11
MR-14	17	11	11	--	14.7
MR-15*	26	--	--	--	--
MR-17	16	3	3	--	11.8
MR-18	96	2	2	--	12.3
MR-19A	16	8	8	--	11.6
MR-20	389	4	4	--	9.9
MR-21	86	2	2	--	10.1
MR-22A	24	5	5	--	12.8
MR-22B	28	15	15	--	16.6
MR-23A	70	4	4	--	11.1

Management Zone(s)	Mesic Flatwoods (Acres)	Basal Area (ft^2/acre)	Basal Area Preferred Species	Basal Area Non-Preferred Species	Average Diameter at breast height (inches)
MR-23B	130	5	5	--	11.2
MR-24A	104	9	9	--	11.5
MR-24B	17	3	3	--	9.3

*Un-sampled upland areas are present in this analysis and could require vegetation management in the future.

Scrubby Flatwoods (182 acres)

The dominant tree in the scrubby flatwoods of the region will usually be South Florida slash (*P. elliottii* var. *densa)* or longleaf pine (*Pinus palustris).* The shrub layer consists of one or more of the four scrub oaks: sand live oak (*Quercus geminata*), turkey oak (*Quercus laevis*), myrtle oak (*Q. myrtifolia*), and Chapman's oak (*Q. chapmanii*), with typical shrubs of mesic flatwoods including saw palmetto, gallberry, coastalplain staggerbush (*lyonia fruticose*), fetterbush, and deerberry (*Vaccinium stamineum*). The optimal fire return interval for this community is five to fifteen years. Areas may be burned as frequently as every three to eight years when burn prescriptions are designed to achieve a mosaic of burned and unburned areas. Scrubby flatwoods are inhabited by many of the same rare animal species found in scrub, including the Florida scrub-jay (*Aphelocoma coerulescens*). Recommendations include having 70 percent of potential scrub-jay territories in optimal condition and the rest of the potential territories either too short due to recent management or slightly too tall (e.g., 5.5-10 feet). Optimal conditions for scrub-jays at the territory scale include: at least 10 percent 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 percent bare sand open ground; less than one tree greater than 15 feet tall per acre; and a 1,000-foot non-forested buffer between a territory and the forest edge (FWC 2010). In this region, BA should remain between under 5. The following management zone(s) contain scrubby flatwoods which could be considered for some form of timber management including overstory removal, midstory mitigation, site preparation, and planting of preferred pine species.

Management Zones	Scrubby Flatwoods (Acres)	Basal Area (ft^2/acre)	Basal Area Preferred Species	Basal Area Non-Preferred Species	Average Diameter at breast height (inches)
MR-01A	173	3	3	--	13.2
MR-01B	9	5	5	--	7.6
MR-06*	20	--	--	--	--

*Un-sampled upland areas are present in this analysis and could require vegetation management in the future.

Dry Prairie (14,771 acres)

Florida dry prairie will be a nearly treeless shrub-grassland with species-rich, herbaceous ground cover. Shrub height will range between one and four feet, with the majority of shrubs growing less than two feet tall. The DFC is to increase the cover of herbaceous plants while reducing the cover of shrubs, allowing for a fire return interval of one to two years. South Florida slash pine may also be present but in extremely low densities. In this region, the preferred species, as determined by FNAI reference sites, is slash pine and should be stocked at a level near 0 square feet per acre BA. The following management zone(s) contain dry prairie which could be considered for some form of timber management including overstory removal, midstory mitigation, site preparation, and planting of preferred pine species.

Management Zones	Dry Prairie (Acres)	Basal Area (ft^2/acre)	Basal Area Preferred Species	Basal Area Non-Preferred Species	Average Diameter at breast height (inches)
MR-01A*	193	--	--	--	--
MR-01B*	2	--	--	--	--
MR-02D*	21	--	--	--	--
MR-02E*	1	--	--	--	--
MR-02F*	<1	--	--	--	--
MR-03A*	283	--	--	--	--
MR-03B*	43	--	--	--	--
MR-03C*	298	--	--	--	--
MR-04A*	436	--	--	--	--
MR-04B*	586	--	--	--	--
MR-05A*	512	--	--	--	--
MR-05B*	446	--	--	--	--
MR-05C*	202	--	--	--	--
MR-05D*	28	--	--	--	--
MR-05E*	104	--	--	--	--
MR-06*	822	--	--	--	--
MR-07*	854	--	--	--	--
MR-08*	1019	--	--	--	--
MR-09A*	829	--	--	--	--
MR-09B*	1252	--	--	--	--
MR-10A*	1026	--	--	--	--
MR-10B*	1073	--	--	--	--
MR-11A*	120	--	--	--	--

Management Zones	Dry Prairie (Acres)	Basal Area (ft^2/acre)	Basal Area Preferred Species	Basal Area Non-Preferred Species	Average Diameter at breast height (inches)
MR-11B*	433	--	--	--	--
MR-11C*	218	--	--	--	--
MR-11D*	83	--	--	--	--
MR-12*	112	--	--	--	--
MR-13A*	213	--	--	--	--
MR-13B*	55	--	--	--	--
MR-13C*	223	--	--	--	--
MR-13D*	114	--	--	--	--
MR-14*	91	--	--	--	--
MR-15*	160	--	--	--	--
MR-16*	371	--	--	--	--
MR-17*	256	--	--	--	--
MR-18*	550	--	--	--	--
MR-19A*	333	--	--	--	--
MR-19B*	190	--	--	--	--
MR-20*	277	--	--	--	--
MR-21*	114	--	--	--	--
MR-22A*	235	--	--	--	--
MR-22B*	90	--	--	--	--
MR-23A*	73	--	--	--	--
MR-23B*	58	--	--	--	--
MR-24A*	246	--	--	--	--
MR-24B*	86	--	--	--	--

*Un-sampled upland areas are present in this analysis and could require vegetation management in the future.

Table 2. Summary of potential timber management actions for upland natural community (NatCom) types to help restore or improve ecosystem conditions.

Management Zones (MZ)	MZ (acres)	Candidate NatComs	Candidate NatComs (acres)	Current Average Overstory Pine BA (ft^2/AC)	Target Overstory Pine BA (ft^2/AC)	Current Non-Pine Overstory TPA	Target Non-Pine Overstory TPA	Potential Actions/Treatments			
								Harvest or Thin	Stand Improvement*	Site Prep	Plant
MR-01A	984	Mesic Flatwoods	114	2	10 - 50	2	0 – 0	Y	Y	Y	Y
MR-01B	243	Mesic Flatwoods	162	0	10 - 50	1	0 – 0	Y	Y	Y	Y
MR-02B**	561	Mesic Flatwoods	16	--	10 - 50	--	0 – 0	N	N	N	N
MR-03A	936	Mesic Flatwoods	36	1	10 - 50	5	0 – 0	Y	Y	Y	Y
MR-03B**	242	Mesic Flatwoods	32	--	10 - 50	6	0 – 0	Y	Y	N	N
MR-03C	1170	Mesic Flatwoods	19	8	10 - 50	3	0 – 0	Y	Y	Y	Y
MR-04A	803	Mesic Flatwoods	15	1	10 - 50	6	0 - 0	Y	Y	Y	Y
MR-04B**	746	Mesic Flatwoods	3	--	--	--	--	N	N	N	N
MR-05A	764	Mesic Flatwoods	117	5	10 - 50	--	0 - 0	N	N	Y	Y
MR-05B	697	Mesic Flatwoods	157	11	10 - 50	--	0 - 0	N	N	N	N
MR-06	1224	Mesic Flatwoods	11	7	10 - 50	--	0 - 0	N	N	Y	N
MR-07	1382	Mesic Flatwoods	44	2	10 - 50	--	0 - 0	N	N	Y	Y

Management Zones (MZ)	MZ (acres)	Candidate NatComs	Candidate NatComs (acres)	Current Average Overstory Pine BA (ft^2/AC)	Target Overstory Pine BA (ft^2/AC)	Current Non-Pine Overstory TPA	Target Non-Pine Overstory TPA	Potential Actions/Treatments			
								Harvest or Thin	Stand Improvement*	Site Prep	Plant
MR-08	1581	Mesic Flatwoods	40	5	10 - 50	1	0 - 0	Y	Y	Y	Y
MR-09A**	1257	Mesic Flatwoods	10	--	10 - 50	1	0 - 0	Y	Y	N	N
MR-09B	2256	Mesic Flatwoods	134	8	10 - 50	2	0 - 0	Y	Y	Y	Y
MR-10A	1468	Mesic Flatwoods	59	3	10 - 50	--	0 - 0	N	N	Y	Y
MR-10B	1623	Mesic Flatwoods	23	3	10 - 50	--	0 - 0	N	N	Y	Y
MR-11A	251	Mesic Flatwoods	45	0	10 - 50	--	0 - 0	N	N	Y	Y
MR-11B	1007	Mesic Flatwoods	243	<1	10 - 50	<1	0 - 0	N	Y	Y	Y
MR-11C	386	Mesic Flatwoods	16	3	10 - 50	--	0 - 0	N	N	Y	Y
MR-11D	522	Mesic Flatwoods	273	1	10 - 50	--	0 - 0	N	N	Y	Y
MR-12	975	Mesic Flatwoods	195	3	10 - 50	<1	0 - 0	N	Y	Y	Y
MR-13A	1202	Mesic Flatwoods	555	4	10 - 50	1	0 - 0	Y	Y	Y	Y
MR-13B	323	Mesic Flatwoods	25	1	10 - 50	6	0 - 0	Y	Y	Y	Y
MR-13C	621	Mesic Flatwoods	83	4	10 - 50	3	0 - 0	Y	Y	Y	Y

Management Zones (MZ)	MZ (acres)	Candidate NatComs	Candidate NatComs (acres)	Current Average Overstory Pine BA (ft^2/AC)	Target Overstory Pine BA (ft^2/AC)	Current Non-Pine Overstory TPA	Target Non-Pine Overstory TPA	Potential Actions/Treatments			
								Harvest or Thin	Stand Improvement*	Site Prep	Plant
MR-13D	586	Mesic Flatwoods	301	7	10 - 50	5	0 - 0	Y	Y	Y	Y
MR-14	205	Mesic Flatwoods	17	7	10 - 50	2	0 - 0	Y	Y	Y	Y
MR-15	583	Mesic Flatwoods	26	2	10 - 50	--	0 - 0	N	N	Y	Y
MR-17	392	Mesic Flatwoods	16	2	10 - 50	1	0 - 0	Y	Y	Y	Y
MR-18	1119	Mesic Flatwoods	96	1	10 - 50	1	0 - 0	Y	Y	Y	Y
MR-19A	626	Mesic Flatwoods	16	8	10 - 50	--	0 - 0	N	N	Y	Y
MR-20	1362	Mesic Flatwoods	389	3	10 - 50	<1	0 - 0	N	Y	Y	Y
MR-21	688	Mesic Flatwoods	86	0	10 - 50	3	0 - 0	Y	Y	Y	Y
MR-22A	561	Mesic Flatwoods	24	1	10 - 50	5	0 - 0	Y	Y	Y	Y
MR-22B	254	Mesic Flatwoods	28	2	10 - 50	6	0 - 0	Y	Y	Y	Y
MR-23A	311	Mesic Flatwoods	70	1	10 - 50	3	0 - 0	Y	Y	Y	Y
MR-23B	786	Mesic Flatwoods	130	2	10 - 50	4	0 - 0	Y	Y	Y	Y
MR-24A	865	Mesic Flatwoods	104	7	10 - 50	1	0 - 0	Y	Y	Y	Y

Management Zones (MZ)	MZ (acres)	Candidate NatComs	Candidate NatComs (acres)	Current Average Overstory Pine BA (ft^2/AC)	Target Overstory Pine BA (ft^2/AC)	Current Non-Pine Overstory TPA	Target Non-Pine Overstory TPA	Potential Actions/Treatments			
								Harvest or Thin	Stand Improvement*	Site Prep	Plant
MR-24B	260	Mesic Flatwoods	17	1	10 - 50	1	0 - 0	Y	Y	Y	Y
MR-01A	984	Scrubby Flatwoods	173	2	20 - 60	2	0 - 26	N	N	Y	N
MR-01B	243	Scrubby Flatwoods	9	0	20 - 60	1	0 - 26	N	N	Y	N
MR-01A	984	Dry Prairie	193	--	0 - 0	--	0 - 0	N	Y	N	N
MR-01B	243	Dry Prairie	2	--	0 - 0	--	0 - 0	N	Y	N	N
MR-02D	352	Dry Prairie	21	--	0 - 0	--	0 - 0	N	Y	N	N
MR-02E	453	Dry Prairie	1	--	0 - 0	--	0 - 0	N	Y	N	N
MR-02F	675	Dry Prairie	0	--	0 - 0	--	0 - 0	N	Y	N	N
MR-03A	937	Dry Prairie	283	--	0 - 0	--	0 - 0	N	Y	N	N
MR-03B	243	Dry Prairie	43	--	0 - 0	--	0 - 0	N	Y	N	N
MR-03C	1171	Dry Prairie	298	--	0 - 0	--	0 - 0	N	Y	N	N
MR-04A	804	Dry Prairie	436	--	0 - 0	--	0 - 0	N	Y	N	N
MR-04B	746	Dry Prairie	586	--	0 - 0	--	0 - 0	N	Y	N	N

Management Zones (MZ)	MZ (acres)	Candidate NatComs	Candidate NatComs (acres)	Current Average Overstory Pine BA (ft^2/AC)	Target Overstory Pine BA (ft^2/AC)	Current Non-Pine Overstory TPA	Target Non-Pine Overstory TPA	Potential Actions/Treatments			
								Harvest or Thin	Stand Improvement*	Site Prep	Plant
MR-05A	764	Dry Prairie	512	--	0 - 0	--	0 - 0	N	Y	N	N
MR-05B	698	Dry Prairie	446	--	0 - 0	--	0 - 0	N	Y	N	N
MR-05C	397	Dry Prairie	202	--	0 - 0	--	0 - 0	N	Y	N	N
MR-05D	174	Dry Prairie	28	--	0 - 0	--	0 - 0	N	Y	N	N
MR-05E	296	Dry Prairie	104	--	0 - 0	--	0 - 0	N	Y	N	N
MR-06	1225	Dry Prairie	822	--	0 - 0	--	0 - 0	N	Y	N	N
MR-07	1382	Dry Prairie	854	--	0 - 0	--	0 - 0	N	Y	N	N
MR-08	1581	Dry Prairie	1019	--	0 - 0	--	0 - 0	N	Y	N	N
MR-09A	1258	Dry Prairie	829	--	0 - 0	--	0 - 0	N	Y	N	N
MR-09B	2256	Dry Prairie	1252	--	0 - 0	--	0 - 0	N	Y	N	N
MR-10A	1469	Dry Prairie	1026	--	0 - 0	--	0 - 0	N	Y	N	N
MR-10B	1623	Dry Prairie	1073	--	0 - 0	--	0 - 0	N	Y	N	N
MR-11A	251	Dry Prairie	120	--	0 - 0	--	0 - 0	N	Y	N	N

Management Zones (MZ)	MZ (acres)	Candidate NatComs	Candidate NatComs (acres)	Current Average Overstory Pine BA (ft^2/AC)	Target Overstory Pine BA (ft^2/AC)	Current Non-Pine Overstory TPA	Target Non-Pine Overstory TPA	Potential Actions/Treatments			
								Harvest or Thin	Stand Improvement*	Site Prep	Plant
MR-11B	1007	Dry Prairie	433	--	0 - 0	--	0 - 0	N	Y	N	N
MR-11C	386	Dry Prairie	218	--	0 - 0	--	0 - 0	N	Y	N	N
MR-11D	523	Dry Prairie	83	--	0 - 0	--	0 - 0	N	Y	N	N
MR-12	976	Dry Prairie	112	--	0 - 0	--	0 - 0	N	Y	N	N
MR-13A	1203	Dry Prairie	213	--	0 - 0	--	0 - 0	N	Y	N	N
MR-13B	324	Dry Prairie	55	--	0 - 0	--	0 - 0	N	Y	N	N
MR-13C	621	Dry Prairie	223	--	0 - 0	--	0 - 0	N	Y	N	N
MR-13D	587	Dry Prairie	114	--	0 - 0	--	0 - 0	N	Y	N	N
MR-14	206	Dry Prairie	91	--	0 - 0	--	0 - 0	N	Y	N	N
MR-15	583	Dry Prairie	160	--	0 - 0	--	0 - 0	N	Y	N	N
MR-16	819	Dry Prairie	371	--	0 - 0	--	0 - 0	N	Y	N	N
MR-17	393	Dry Prairie	256	--	0 - 0	--	0 - 0	N	Y	N	N
MR-18	1120	Dry Prairie	550	--	0 - 0	--	0 - 0	N	Y	N	N

Management Zones (MZ)	MZ (acres)	Candidate NatComs	Candidate NatComs (acres)	Current Average Overstory Pine BA (ft^2/AC)	Target Overstory Pine BA (ft^2/AC)	Current Non-Pine Overstory TPA	Target Non-Pine Overstory TPA	Potential Actions/Treatments			
								Harvest or Thin	Stand Improvement*	Site Prep	Plant
MR-19A	626	Dry Prairie	333	--	0 - 0	--	0 - 0	N	Y	N	N
MR-19B	234	Dry Prairie	190	--	0 - 0	--	0 - 0	N	Y	N	N
MR-20	1363	Dry Prairie	277	--	0 - 0	--	0 - 0	N	Y	N	N
MR-21	688	Dry Prairie	114	--	0 - 0	--	0 - 0	N	Y	N	N
MR-22A	562	Dry Prairie	235	--	0 - 0	--	0 - 0	N	Y	N	N
MR-22B	255	Dry Prairie	90	--	0 - 0	--	0 - 0	N	Y	N	N
MR-23A	311	Dry Prairie	73	--	0 - 0	--	0 - 0	N	Y	N	N
MR-23B	787	Dry Prairie	58	--	0 - 0	--	0 - 0	N	Y	N	N
MR-24A	866	Dry Prairie	246	--	0 - 0	--	0 - 0	N	Y	N	N
MR-24B	261	Dry Prairie	86	--	0 - 0	--	0 - 0	N	Y	N	N

*Stand improvement, per Section 3 above, includes palmetto/midstory reduction. While inventory data was not used to estimate this metric, remotely sensed images and on-site observations have indicated that the selected areas could benefit from such treatments.

**Un-sampled upland areas are present in this analysis and could require vegetation management in the future.

Appendix 9 —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

HERSCHEL T. VINYARD JR.
SECRETARY

MEMORANDUM

TO: Keith Singleton, Land Acquisition and Management Planner
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) Myakka River State Park

DATE: October 10, 2014

The Land Management Review draft report provided to DRP determined that management of Myakka 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.

The team recommends that the Park Service conduct a timber assessment and inventory at the park. (6+, 0-)

Managing Agency Response: *Agree. One month after the LMR, In July 2014, staff met with a FFS forester regarding the feasibility of timber management activities in the park. It was determined that the primary management objectives of the unit could be met without conducting timber management activities for this management plan cycle. Timber management will be re-evaluated during the next revision of the management plan.*

The team recommends that park efforts be augmented through contracting for exotic species control. (6+, 0-)
Managing Agency Response: *Agree. Although the park's exotic species control program has made good strides in the effort of combatting the problem, additional contracting will be of great value. Grant funding will be pursued and costs for contracting exotic species control will be included in the Unit Management Plan, but can only be allocated as funds become available on a statewide priority needs basis.*

The team recognizes the increased visitation to the area, and the team recommends that carrying capacity and infrastructure needs be studied, and solutions be explored. (6+, 0-)
Managing Agency Response: *Agree. A study of the park's carrying capacity and infrastructure needs will be addressed in the next Unit Management Plan. Costs associated with the study will be included in the plan, but can only be allocated as funds become available on a statewide priority needs basis.*

The team recommends that a scientific study be conducted to understand the hydrological and ecological impacts of removing the weir and dam structures and restoring the hydrologic regime of the river. (6+, 0-)
Managing Agency Response: *Agree. A scientific study of the hydrological and ecological impacts of removing the weir and dam structure will be of great benefit in determining the best course of action. The study will be addressed in the next Unit Management Plan. Costs associated with the study will be included in the plan, but can only be allocated as funds become available on a statewide priority needs basis.*

FIELD REVIEW
Forest Management, specifically timber inventory, 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 - Forest management activities, timber thinning and clearing of planted pine occurred during fiscal year 2010-2011 as suggested by the timber assessment of the 2004 Unit Management Plan. In July 2014, staff met with a FFS forester regarding the feasibility of timber management activities in the park. It was determined that the primary management objectives of the unit could be met without conducting timber management activities for this management plan cycle. Timber management will be re-evaluated during the next revision of the management plan.*

Resources Protection, specifically law enforcement presence, received a below average score. 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 - The Unit Management Plan update will address law enforcement needs. The Division must request additional assistance through Florida Fish and Wildlife Conservation Commission or from a local law enforcement agency.*

Public Access & Education, specifically road, parking and boat access, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether public access & education are sufficiently.
Managing Agency Response: *Agree – Roads, parking areas and boat access receive high visitor use, conditions will be evaluated, taking into consideration the environmental constraints, during the next management plan update.*

Management Resources, specifically buildings, equipment 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- The updated unit management plan will address buildings, equipment and funding. 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

Non-native, Invasive & Problem Species, specifically prevention of pests/pathogens, received a below average score. This is an indication that the management plan does not sufficiently address prevention of invasive species.
Managing Agency Response: *Non-native, invasive and problem species 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 FAC 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.*

Resource Protection, specifically law enforcement presence, received a below average score. This is an indication that the management plan does not sufficiently address resource protection.
Managing Agency Response: *Resource protection related to 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 FAC 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.*

Adjacent Property Concerns, specifically discussion of potential surplus land determination, received a below average score. This is an indication that the management plan does not sufficiently address surplus lands.
Managing Agency Response: *Adjacent property concerns and the determination of surplus lands will 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 FAC 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.

/gk

CC: Valinda Subic, Chief, Bureau of Parks District 4
Ezell (BJ) Givens, Assistant Chief, Bureau of Parks District 4
Jon Robinson, Park Manager, Myakka River State Park
Chris Becker, Environmental Specialist, Bureau of Parks District 4