Myakka River State Park
Unit Management Plan
Appendix 1–12

Appendix 1
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 37,197.68 acres.

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. A legal description of the park property can be made available upon request to the Department of Environmental Protection.

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 8,260.76-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 List and Summary Report

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 Underhill, Chair
Sarasota County Soil and Water
Conservation District

Mike Kemmerer
Regional Biologist
Florida Fish and Wildlife
Conservation Commission

Stephen Giguere, Park Manager
Division of Recreation and Parks
Myakka River State Park

Carmen Sanders
Southwest Florida
Water Management District

Duane Weis, District Manager
Florida Forest Service

Mike Wisenbaker
Archaeology Supervisor, Public Lands
Bureau of Archaeological Research
Division of Historical Resources

Environmental and Cultural Resource Representatives*

Geraldine Swormstedt, Group Chair
Sierra Club – Manatee/Sarasota

Jeanne Dubi, President
Sarasota Audubon Society

Jono Miller, Chair
Myakka River Management
Coordinating Council

John McCarthy
Historical Society of Sarasota County
Historic Spanish Point

Citizen Support Group Representative

Miles Millwee, President
Friends of Myakka River, Inc.

User Group Representatives

Dick Praff, Kayaker

Kevin Webb, President
Myakka River Riders

Bill Martin, Section Leader
Florida Trail Association
Suncoast Chapter

Laurel Schiller, Cyclist

Adjacent Landowner*

Becky Hullinger

*Members required by statute

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 history of 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. He indicated that he was going to restrict his comments to the Advisory Group to the directive he received from the Myakka River Management Coordinating Council. He stated that he was concerned over the trust between the Florida Department of Environmental Protection (FDEP) and the public and that 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. North Florida slash pines could be removed before they mature. Allowing them to mature is contrary to natural community restoration goals. He mentioned there may be concern about snags and scattered trees within prairie habitat becoming perches for raptors but that any revenue generated from removal of these trees would be minimal. Pine stump removal operations is tremendously impactful, as these stumps are imperative for burrowing animals. The problem is the remnant hard pine creates hazards for vehicles while removing these hazards via chainsaws could minimize the hazard. Mr. Miller remarked that there is no known management proposal 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. Mr. Miller commented about the visual experience of the recreational kayaker in regard to infrastructure and there should be consideration of the user experience from the water.

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.

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 regard 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 regard 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 Advisory Group Written 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 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 Recommendations

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

- 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.

The following pages show the written advisory group and public comments received during the two-week review period.

Appendix 2
Advisory Group Written Comments

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.

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.

AFFIDAVIT OF PUBLICATION

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PUBLISHED DAILY
SARASOTA, SARASOTA COUNTY, FLORIDA

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SIGNED Mary Jo Cottingham

SWORN OR AFFIRMED TO, AND SUBSCRIBED BEFORE ME THIS 20 DAY OF February A.D., 2017 BY MARY JO COTTINGHAM WHO IS PERSONALLY KNOWN TO ME.

Notary Public

Appendix 3
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Appendix 4
Soils 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.

Appendix 5
Plant and Animal Species List

PTERIDOPHYTES

Giant leatherfern ..... *Acrostichum danaeifolium*
American waterfern..... *Azolla filiculoides*
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*
Royal fern..... *Osmunda regalis* var. *spectabilis*
Cinnamon fern.....Osmundastrum cinnamomeam
Golden polypody..... *Phlebodium aureum*
Resurrection fern ..... *Pleopeltis polypodioides* var. *michauxiana*
Bracken fern ..... *Pteridium aquilinum*
Water spangles *..... *Salvinia minima*
Swamp fern ..... *Telmatoblechnum serrulatum*
Downy shield fern * ..... *Thelypteris dentata*
Hairy maiden fern ..... *Thelypteris hispidula var. versicolor*
Hottentot fern ..... *Thelypteris interrupta*
Netted chain fern..... *Woodwardia areolata*
Virginia chain fern..... *Woodwardia virginica*
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*
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*

* Non-native species

Purple amaranth * ..... *Amaranthus blitum* subsp*. emarginatus*
Spiny amaranth * ..... *Amaranthus spinosus*
Common ragweed..... *Ambrosia artemisiifolia*
Clusterspike false indigo ..... *Amorpha herbacea*
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*
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 pectinata*
Common carpetgrass ..... *Axonopus fissifolius*
Big carpetgrass ..... *Axonopus furcatus*
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*
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*

* Non-native species

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 americanum*
Scrub Wild Olive ..... *Cartrema floridanum*
Scrub hickory ..... *Carya floridana*
Pignut hickory ..... *Carya glabra*
Love vine ..... *Cassytha filiformis*
Madagascar periwinkle * ..... *Catharanthus roseus*
Hackberry ..... *Celtis laevigata*
Coast sandspur ..... *Cenchrus spiniflex*
Spadeleaf ..... *Centella asiatica*
Spurred butterfly-pea ..... *Centrosema virginianum*
Buttonbrush ..... *Cephalanthus occidentalis*
Coontail ..... *Ceratophyllum demersum*
Partridge pea ..... *Chamaecrista fasciculata*
Sensitive pea ..... *Chamaecrista nictitans* var. *aspera*
Florida Alicia ..... *Chapmannia floridana*
Pineland daisy ..... *Chaptalia tomentosa*
Lambs-quarters * ..... *Chenopodium album*
White fringetree ..... *Chionanthus virginicus*
Florida false beardgrass ..... *Chrysopogon pauciflorus*
Maryland goldenaster ..... *Chrysopsis mariana*
Scrubland goldenaster ..... *Chrysopsis subulata*
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*
Beaked Panicum ..... *Coleataenia anceps*
Redtop Panicum ..... *Coleataenia rigidula*
Bluejoint panicum ..... *Coleataenia tenera*
Wild taro * ..... *Colocasia esculenta*
Dayflower * ..... *Commelina diffusa*
Whitemouth dayflower ..... *Commelina erecta*
Blue mistflower ..... *Conoclinium coelestinium*

* Non-native species

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. *septentrionalis*
Rushfoil..... *Croton michauxii*
Columbian waxweed *..... *Cuphea carthagenensis*
Fiveangled dodder ..... *Cuscuta pentagona*
Bermudagrass * ..... *Cynodon dactylon*
Jointed flatsedge ..... *Cyperus articulates*
Cuban bulrush *..... *Cyperus blepharoleptos*
Shortleaf sedge * ..... *Cyperus brevifolius*
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*
American halfchaff sedge..... *Cyperus neotropicalis*
Fragrant flatsedge ..... *Cyperus odoratus*
Pinebarren flatsedge ..... *Cyperus ovatus*
Manyspike flatsedge..... *Cyperus polystachyos*
Nutgrass *..... *Cyperus rotundus*
Fragrant spikesedge..... *Cyperus sesquiflorus*
Strawcolored flatsedge ..... *Cyperus strigosus*
Smallflower halfchaff sedge..... *Cyperus subsquarrosus*
Tropical flatsedge ..... *Cyperus surinamensis*
Fourangle flatsedge..... *Cyperus tetragonus*
Durban crowfootgrass *..... *Dactyloctenium aegyptium*
Summer farewell ..... *Dalea adenopoda*
Whitetassels..... *Dalea carnea*
Feay's prairieclover ..... *Dalea feayi*
Threadroot orchid ..... *Dendrophylax porrectus* ..... *BS, BG*
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*
Buttonweed ..... *Diodia virginiana*
Air-potato * ..... *Dioscorea bulbifera*

* Non-native species

Persimmon ..... *Diospyros virginiana*
Bearded sprangletop ..... *Diplachne fusca*
Pink sundew..... *Drosera capillaris*
West Indian chickweed * ..... *Drymaria cordata*
Oblongleaf twinflower..... *Dyschoriste oblongifolia*
Mexican tea *..... *Dysphania ambrosioides*
Barnyardgrass * ..... *Echinochloa crus-galli*
Coast cockspur..... *Echinochloa walteri*
False daisy..... *Eclipta prostrata*
Clustered mille graines..... *Edrastima uniflora*
Water-hyacinth *..... *Eichhornia crassipes*
Roadgrass..... *Eleocharis baldwinii*
Algal bulrush..... *Eleocharis confervoides*
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*
Heartleaf sandmat ..... *Euphorbia cordifolia*
Painted leaf..... *Euphorbia cyathophora*
Pillpod sandmat ..... *Euphorbia hirta*
Hyssopleaf sandmat..... *Euphorbia hyssopifolia*
Pineland heliotrope ..... *Euploca polyphylla*
Saltmarsh fingergrass ..... *Eustachys glauca*
Pinewoods fingergrass..... *Eustachys petraea*
Slender flattop goldenrod..... *Euthamia caroliniana*
Strangler fig..... *Ficus aurea*
Weeping fig *..... *Ficus benjamina*
Indian laurel *..... *Ficus microcarpa*

* Non-native species

Slender fimbry	*Fimbristylis autumnalis*	
Carolina fimbry	*Fimbristylis caroliniana*	
Hurricane-grass	*Fimbristylis cymosa*	
Ditch fimbry *	*Fimbristylis schoenoides*	
Marsh fimbry	*Fimbristylis spadicea*	
Carolina buckthorn	*Frangula caroliniana*	
Pop ash, Water ash	*Fraxinus caroliniana*	
Cottonweed	*Froelichia floridana*	
Dwarf umbrellasedge	*Fuirena pumila*	
Southern umbrellasedge	*Fuirena scirpoidea*	
White twinevine	*Funastrum clausum*	
Elliott's milkpea	*Galactia elliottii*	
Pursh's milkpea	*Galactia purshii*	
Eastern milkpea	*Galactia volubilis*	
Stiff marsh bedstraw	*Galium tinctorium*	
Delicate everlasting	*Gamochaeta antillana*	
Pennsylvania cudweed	*Gamochaeta pensylvanica*	
Dwarf huckleberry	*Gaylussacia dumosa*	
Blue huckleberry	*Gaylussacia frondosa*	
Yellow jessamine	*Gelsemium sempervirens*	
Gopher apple	*Geobalanus oblongifolius*	
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*	
Branched hedgehyssop	*Gratiola ramosa*	
Chapman's skeletongrass	*Gymnopogon chapmanianus*	
False reinorchid	*Habenaria floribunda*	
Waterspider false reinorchid	*Habenaria repens*	
Firebush	*Hamelia patens*	
Bitterweed; Spanish daisy	*Helenium amarum*	
Southeastern sneezeweed	*Helenium pinnatifidium*	
Southeastern sunflower	*Helianthus agrestis*	
Swamp sunflower	*Helianthus angustifolius*	
Camphorweed	*Heterotheca subaxillaris*	
Poor joe	*Hexasepalum teres*	
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*	
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*	

* Non-native species

Marsh St. John's-wort ..... *Hypericum virginicum*
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 hirsute*
Moonvine ..... *Ipomoea alba*
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 savannarum*
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*
Lesser creeping rush ..... *Juncus repens*
Needlepod rush ..... *Juncus scirpoides*
Pineland waterwillow ..... *Justicia angusta*
Warty Panicgrass ..... *Kellochloa verrucosa*
Saltmarsh mallow ..... *Kosteletzkya pentacarpos*
Redroot ..... *Lachnanthes caroliana*
Whitehead bogbutton ..... *Lachnocaulon anceps*
Grassleaf lettuce ..... *Lactuca graminifolia*
Dotted duckeed * ..... *Landoltia punctata*
Shrub verbena * ..... *Lantana strigocamara*
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*
Garber's gayfeather ..... *Liatris garberi*
Slender gayfeather ..... *Liatris gracilis*
Savanna gayfeather ..... *Liatris savannensis*
Shortleaf gayfeather ..... *Liatris tenuifolia* var. *quadriflora*
Pine lily ..... *Lilium catesbaei* ..... DP, MF
Frog's-bit ..... *Limnobium spongia*
Canadian toadflax ..... *Linaria canadensis*
Savannah false pimpernel ..... *Lindernia grandiflora*
Stiff yellow flax ..... *Linum medium* var. *texanum*
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*

* Non-native species

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
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*
Wax myrtle ..... *Morella cerifera*
Red mulberry ..... *Morus rubra*
Hairawn muhly ..... *Muhlenbergia capillaris*
Nakedstem dewflower * ..... *Murdannia nudiflora*
Dwarf banana * ..... *Musa acuminata*
Parrot feather * ..... *Myriophyllum aquaticum*
Twoleaf watermilfoil ..... *Myriophyllum heterophyllum*
Myrsine ..... *Myrsine cubana*
Peppervine ..... *Nekemias arborea*
Southern twayblade ..... *Neottia bifolia* ..... *MEH*
Spatterdock ..... *Nuphar advena*
Jameson's waterlily ..... *Nymphaea jamesoniana* ..... DM, DS
Yellow waterlily ..... *Nymphaea mexicana*
American White waterlily ..... *Nymphaea odorata*
Tropical day-flowering waterlily* *Nymphaea x daubenyana*
Big floating heart ..... *Nymphoides aquatica*
Swamp Tupelo ..... *Nyssa biflora*
Whitetopped aster ..... *Oclemena reticulata*
Cutleaved eveningprimrose ..... *Oenothera laciniate*
Southern beeblossom ..... *Oenothera similans*
Flattop mille graines * ..... *Oldenlandia corymbosa*
Woodsgrass; Basketgrass ..... *Oplismenus setarius*
Prickly pear ..... *Opuntia humifusa*
Goldenclub ..... *Orontium aquaticum*
Giant orchid ..... *Orthochilus ecristatus* ..... MF, SCF
Leafless swallowwort ..... *Orthosia scoparia*
Creeping woodsorrel ..... *Oxalis corniculata*

* Non-native species

Butterweed ..... *Packera glabella*
Coastalplain palafoxia..... *Palafoxia integrifolia*
Fall Panicgrass..... *Panicum dichotomiflorum*
Maidencane..... *Panicum hemitomon*
Torpedograss * ..... *Panicum repens*
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*
Denseflower knotweed ..... *Persicaria glabra*
Mild waterpepper..... *Persicaria hydropiperoides*
Dotted smartweed ..... *Persicaria punctata*
Bog smartweed ..... *Persicaria setacea*
Florida false sunflower..... *Phoebanthus grandiflorus*
Senegal date palm * ..... *Phoenix reclinata*
Oak Mistletoe ..... *Phoradendron leucarpum*
Common Reed ..... *Phragmites berlandieri*
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*
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*
Baldwin's milkwort ..... *Polygala balduinii*
Drumheads ..... *Polygala cruciata*

* Non-native species

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 ..... *Polygonum delopyrum*
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 tenuifolia*
Blackroot ..... *Pterocaulon pycnostachyum*
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*
Water oak ..... *Quercus nigra*
Running oak ..... *Quercus pumila*
Live oak ..... *Quercus virginiana*
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*
Largeflower Mexican clover * ... *Richardia grandiflora*

* Non-native species

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*
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 lanceolate*..... MF
Smallflower mock buckthorn .... *Sageretia minutiflora*
Narrow-leaved sagittaria..... *Sagittaria graminea*
Bulltongue;
Lanceleaf arrowhead ..... *Sagittaria lancifolia*
Duckpotato ..... *Sagittaria latifolia*
Carolina willow ..... *Salix caroliniana*
Lyreleaf sage ..... *Salvia lyrata*
Elderberry..... *Sambucus nigra* subsp. *canadensis*
Water pimpernel..... *Samolus ebracteatus*
Pineland pimpernel ..... *Samolus valerandi* subsp. *parviflorus*
Lizard's tail ..... *Saururus cernuus*
Brazilian pepper *..... *Schinus terebinthifolius*
Little bluestem ..... *Schizachryium stoloniferum*
Drooping bulrush ..... *Scirpus lineatus*
Threesquare bulrush ..... *Schoenoplectus pungens*
Softstem bulrush ..... *Schoenoplectus tabernaemontani*
Baldwin's Nutrush ..... *Scleria baldwinii*
Fewflower nutrush ..... *Scleria ciliata*
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*

* Non-native species

Common wireweed ..... *Sida ulmifolia*
Florida Bully ..... *Sideroxylon reclinatum*
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*
Rough hedgehyssop..... *Sophronanthe hispida*
Shaggy hedgehyssop ..... *Sophronanthe pilosa*
Yellow indiangrass ..... *Sorghastrum nutans*
Lopsided indiangrass..... *Sorghastrum secundum*
Johnsongrass * ..... *Sorghum halepense*
Sand cordgrass ..... *Spartina bakeri*
Woodland false buttonweed ..... *Spermacoce remota*
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*
Gaping Panicum..... *Steinchisma hians*
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*
Bahaman aster..... *Symphyotrichum bahamense*
Climbing aster ..... *Symphyotrichum carolinianum*
Rice button aster ..... *Symphyotrichum dumosum*
Yellow hatpins ..... *Syngonanthus flavidulus*
American evergreen * ..... *Syngonium podophyllum*
Sprawling hoarypea ..... *Tephrosia hispidula*
Spiked hoarypea..... *Tephrosia spicata*
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*

* Non-native species

Giant airplant	*Tillandsia utriculata*	BS, BG, MEH
Malayasian false pimpernel *	Torenia crustacea	
Poison ivy	*Toxidendron radicans*	
Spiderwort; Bluejacket	*Tradescantia ohiensis*	
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 lobate*	
Guineagrass *	*Urochloa maxima*	
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 haw	*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*	
Common blue violet	*Viola sororia*	
Summer grape	*Vitis aestivalis*	
Scuppernong, Muscadine	*Vitis rotundifolia*	
Calloose grape	*Vitis shuttleworthii*	
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

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*
Tropical checkered-skipper..... *Pyrgus oileus*
Little yellow ..... *Pyrisitia lisa*
Oak hairstreak..... *Satyrium favonius*
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*

* Non-native species

FISH

White catfish	Ameiurus catus
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*
Channel catfish	*Ictalurus punctatus*
Flagfish	*Jordanella floridae*
Brook silverside	*Labidesthes sicculus*
Longnose gar	*Lepisosteus osseus*
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*
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*

* Non-native species

Squirrel treefrog	*Hyla squirella*	
Gopher frog	*Lithobates capito*	
American Bullfrog	*Lithobates catesbeianus*	
Pig frog	*Lithobates grylio*	
Southern leopard frog	*Lithobates sphenocephalus*	
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 (Aspidoscelis) sexlineatus*	
Indo-Pacific gecko*	*Hemidactylus garnotii*	
Tropical house gecko *	*Hemidactylus mabouia*	
Brown anole *	*Norops (Anolis) sagrei*	
Eastern slender glass lizard	*Ophisaurus attenuatus longicaudus*	
Island glass lizard	*Ophisaurus compressus*	
Eastern glass lizard	*Ophisaurus ventralis*	
Southeastern five-lined skink	*Plestiodon (Eumeces) inexpectatus*	
Ground skink	*Scincella lateralis*	
Florida softshell	*Apalone ferox*	
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 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*	
Common kingsnake	*Lampropeltis getula*	
Scarlet kingsnake	*Lampropeltis elapsoides*	
Striped crayfish snake	*Liodytes alleni*	
South Florida swamp snake	*Liodytes pygaea cyclas*	
Eastern coachwhip	*Masticophis (Coluber) flagellum*	
Eastern coral snake	*Micrurus fulvius*	
Florida water snake	*Nerodia fasciata pictiventris*	
Florida green water snake	*Nerodia floridana*	
Brown water snake	*Nerodia taxispilota*	
Florida rough green snake	*Opheodrys aestivus carinatus*	
Eastern rat snake	*Pantherophis alleghaniensis*	
Corn snake	*Pantherophis guttata*	
Pine woods snake	*Rhadinaea flavilata*	
Dusky pigmy rattlesnake	*Sistrurus miliarius barbouri*	
Florida brown snake	*Storeria victa*	
Peninsula ribbon snake	*Thamnophis saurita sackenii*	
Common garter snake	*Thamnophis sirtalis sirtalis*	

* Non-native species

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*
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*
Least sandpiper..... *Calidris minutilla*
Semipalmated sandpiper ..... *Calidris pusilla*
Chuck-will's-widow..... *Caprimulgus carolinensis*

* Non-native species

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
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 palliates*	RFLK
Southern bald eagle	*Haliaeetus leucocephalus leucocephalus*	

* Non-native species

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*	
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*	

* Non-native species

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*	
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*	

* Non-native species

American robin ..... *Turdus migratorius*
Gray kingbird ..... *Tyrannus dominicensis*
Scissor-tailed flycatcher..... *Tyrannus forficatus*
Eastern kingbird ..... *Tyrannus tyrannus*
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*
Southern fox squirrel..... *Sciurus niger*
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*
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

Appendix 6
Imperiled Species Ranking Information

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.

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
S?	Not yet ranked (temporary)
N	Not currently listed, nor currently being considered for listing, by state or federal agencies.

LEGAL STATUS

Federal—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—FWC (Animals)

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.

State—FDACS (Plants)

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
Management Procedures for Cultural Resources

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/

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.

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/

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

National Register of Historic Places Eligibility Criteria

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.

Preservation Treatments

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.

Appendix 8
Timber Management Analysis

Inventory Data

MRSP comprises 37,198 acres in Manatee and Sarasota Counties. Upland natural communities total 18,696 acres consisting of 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 the condition of the overstory timber resources at MRSP. Site photographs were also taken and used, in conjunction with publicly-available aerial photographs, to generally assess conditions in areas with limited access. No canopy is desired for dry prairie, therefore no data was collected over these acres.

This timber assessment was based on GIS data (management zone and natural community boundary data) provided by DRP in June 2016. Given the dynamic nature of property ownership and land management activities at MRSP, together with the time frame required to create or update a UMP, it is possible that some tabular data may be dated. Therefore, natural community acreages and recent treatments that occurred after the June 2016 period may not be reflected in the tables herein.

The following contains a general description of each management zone within MRSP that contains forested upland natural communities as well as their general condition.

Mesic Flatwoods (3,766 acres)

The preferred tree species in MRSP mesic flatwoods are South Florida slash (*P. elliottii var. densa*) or longleaf pine (*Pinus palustris*). The following table shows management zones that contain mesic flatwoods.

**Un-sampled upland areas are present in this analysis and could require vegetation management in the future.*

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
MR-23B	130	5	5	--	11.2
MR-24A	104	9	9	--	11.5
MR-24B	17	3	3	--	9.3

Appendix 9
Land Management Review–DRP Response

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 LPS
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

Appendix 10
Myakka Wild and Scenic River Designation and Preservation Act

MYAKKA RIVER WILD AND SCENIC DESIGNATION AND PRESERVATION ACT

258.501 Myakka River; wild and scenic segment.--

(1) SHORT TITLE.--This section may be cited as the "Myakka River Wild and Scenic Designation and Preservation Act."

(2) LEGISLATIVE DECLARATION.--The Legislature finds and declares that a certain segment of the Myakka River in Manatee, Sarasota, and Charlotte Counties possesses outstandingly remarkable ecological, fish and wildlife, and recreational values which are unique in the State of Florida. These values give significance to the river as one which should be permanently preserved and enhanced for the citizens of the State of Florida, both present and future. The permanent management and administration of the river involves a complex interaction of state, regional, and local interests which require balancing and coordination of purpose. It is the intention of the Legislature to provide for the permanent preservation of the designated segment of the Myakka River by way of development of a plan for permanent administration by agencies of state and local government which will ensure the protection necessary but retain that degree of flexibility, responsiveness, and expertise which will accommodate all of the diverse interests involved in a manner best calculated to be in the public interest.

(3) DEFINITIONS.--As used in this section, the term:
(a) "Activity" means the doing of any act or the failing to do any act, whether by a natural person or a corporation.
(b) "Agreement" means the interagency operating agreement between the department, the Department of Community Affairs, and Sarasota County or the City of North Port.
(c) "Coordinating council" means the council created by subsection (7).
(d) "Department" means the Department of Environmental Protection.
(e) "Division" means the Division of Recreation and Parks of the Department of Environmental Protection.
(f) "Major infrastructure facility" means a manmade structure which serves the common needs of the population, such as a central sewage disposal system, potable water system, potable water well serving a system, solid waste disposal site or retention area, stormwater system, utility, causeway, marina, bridge, or roadway.
(g) "Person" means an individual, corporation, governmental agency or institution thereof, business trust, estate, trust, partnership, association, two or more persons having a joint or common interest, or other legal entity.
(h) "Resource value" means any one or more of the specific economic, scenic, recreational, geologic, fish and wildlife, historic, cultural, or ecological features associated with the river area as determined by the coordinating council.
(i) "River area" means that corridor of land beneath and surrounding the Myakka River from river mile 7.5 to river mile 41.5, together with a corridor including the maximum upland extent of wetlands vegetation as determined by the former Department of Environmental Regulation pursuant to chapter 403 and chapters 17-3 and 17-312, Florida Administrative Code.

(j) "Wild and scenic protection zone" means an area which extends 220 feet landward from the river area.

(4) DESIGNATION OF WILD AND SCENIC RIVER.--
(a) The corridor of land surrounding and beneath the Myakka River between river mile 7.5 and river mile 41.5 is hereby designated as a Florida wild and scenic river for the purposes of this section and is subject to all of the provisions of this section. Such designated portion is more particularly described as that portion of the Myakka River located between State Road 780 in Sarasota County and the Sarasota-Charlotte County line.
(b) The governments of Sarasota County and the City of North Port shall manage the Myakka River wild and scenic protection zone under their existing authorities for comprehensive planning, the regulation of land development activities, and other necessary or appropriate ordinances and in conformance with this section, the management plan required under subsection (5), and the agreements adopted by the department and the Department of Community Affairs with the city and county pursuant to this section.

(5) DEVELOPMENT OF MANAGEMENT PLAN.--
(a) The department and the coordinating council shall jointly develop a proposed management plan for the designated segment of the Myakka River, subject to and consistent with the provisions of this section.
(b) The development of the proposed management plan shall be by public hearing and shall include participation by all appropriate state agencies and by all appropriate or interested local governments and private organizations.
(c) The proposed management plan shall include provision for:
1. Permanent protection and enhancement of the ecological, fish and wildlife, and recreational values within the river area, primary emphasis being given to protecting agricultural, aesthetic, scenic, historic, archaeologic, and scientific features.
2. Continuation of land uses and developments on private lands within the river area which are in existence on January 1, 1986.
3. Periodic studies to determine the quantity and mixture of recreation and other public uses which can be permitted without adverse impact on the resource values of the river area.
4. Regulation, control, and distribution of public access where necessary to protect and enhance the resource values of the river area.
5. Consideration of need for basic facilities to absorb user impact on the river area, including necessary toilet or refuse containers, but if found to be necessary, located in order to minimize their intrusive impact.
6. Restriction of motorized travel by land vehicle or boat where necessary to protect the resource values in the river area.
7. Agricultural and forestry practices similar in nature to those in the river area on January 1, 1986.
8. Resource management practices for the protection, conservation, rehabilitation, or enhancement of river area resource values.
9. Monitoring of existing water quality.

10. Continuance of existing drainage and water management practices, unless such existing practices will adversely affect, degrade, or diminish existing water quality or existing resource values in the river area, and allowance of new water resource management practices which will not have an adverse impact on resource values in the river area.
11. Review and regulation of all activities conducted or proposed to be conducted within the river area which will or may have an adverse impact on any of the resource values in the river area as provided in this section.
12. Review and regulation, by Sarasota County and the City of North Port under their respective authorities, of activities within the wild and scenic protection zone; and subsequent prohibition, or approval with or without conditions, of such activities in order to minimize potential adverse physical and visual impacts on resource values in the river area and to minimize adverse impacts on private landowners' use of land for residential purposes.
(d) To the extent not inconsistent with this section, the proposed management plan may also include any other provisions deemed by the department to be necessary or advisable for the permanent protection of the river as a component of the Florida Wild and Scenic Rivers System.

(6) AMENDMENT OF REGULATIONS AND COMPREHENSIVE PLANS.--
(a) Sarasota County and the City of North Port shall amend their comprehensive plans so that the parts of such plans that affect the wild and scenic protection zone conform to, or are more stringent than, this section, the river management plan, and management guidelines and performance standards to be developed and contained within agreements to be adopted by the department, the Department of Community Affairs, and the city and county. The guidelines and performance standards must be used by the department and the Department of Community Affairs to review and monitor the regulation of activities by the city and county in the wild and scenic protection zone. Amendments to those comprehensive plans must include specific policies and guidelines for minimizing adverse impacts on resources in the river area and for managing the wild and scenic protection zone in conformance with this section, the river management plan, and the agreement. Such comprehensive plans must be amended within 1 year after the adoption date of the agreement, and thereafter, within 6 months following an amendment to this section, the river management plan, or the agreement, as may be necessary. For the purposes established in this subsection, such amendments need not conform to statutory or local ordinance limitations on the frequency of consideration of amendments to local comprehensive plans.
(b) Sarasota County and the City of North Port shall adopt or amend, within 1 year after the department and the Department of Community Affairs adopt with the city and with the county agreements for regulating activities in the wild and scenic protection zone, any necessary ordinances and land development regulations so that those ordinances and regulations conform to the purposes of this section, the river management plan, and the agreement. Thereafter, following any amendment to this section, the river management plan, or the agreement, the city and county must amend or adopt, within 1 year, appropriate ordinances and land development regulations to maintain such local ordinances and regulations in conformance with this section, the river management plan,

and the agreement. Those ordinances and regulations must provide that activities must be prohibited, or must undergo review and either be denied or permitted with or without conditions, so as to minimize potential adverse physical and visual impacts on resource values in the river area and to minimize adverse impacts on private landowners' use of land for residential purposes. The resource values of concern are those identified in this section and by the coordinating council in the river management plan. Activities which may be prohibited, subject to the agreement, include, but are not limited to, landfills, clear cuttings, major new infrastructure facilities, major activities that would alter historic water or flood flows, multifamily residential construction, commercial and industrial development, and mining and major excavations. However, appurtenant structures for these activities may be permitted if such structures do not have adverse visual or measurable adverse environmental impacts to resource values in the river area.
(c) If the Department of Community Affairs determines that the local comprehensive plan or land development regulations, as amended or supplemented by the local government, are not in conformance with the purposes of this section, the river management plan, and the agreement, the Department of Community Affairs shall issue a notice of intent to find the plan not in compliance and such plan shall be subject to the administrative proceedings in accordance with s. 163.3184.

(7) MANAGEMENT COORDINATING COUNCIL.--
(a) Upon designation, the department shall create a permanent council to provide interagency and intergovernmental coordination in the management of the river. The coordinating council shall be composed of one representative appointed from each of the following: the department, the Department of Transportation, the Fish and Wildlife Conservation Commission, the Department of Community Affairs, the Division of Forestry of the Department of Agriculture and Consumer Services, the Division of Historical Resources of the Department of State, the Tampa Bay Regional Planning Council, the Southwest Florida Water Management District, the Southwest Florida Regional Planning Council, Manatee County, Sarasota County, Charlotte County, the City of Sarasota, the City of North Port, agricultural interests, environmental organizations, and any others deemed advisable by the department.
(b) The coordinating council shall review and make recommendations on all proposals for amendments or modifications to this section and to the permanent management plan, as well as on other matters which may be brought before the council by the department, any local government, or any member of the council, and shall render its nonbinding advisory opinion to the Southwest Florida Water Management District, the department, and affected local governments.
(c) The council may adopt bylaws to provide for election of such officers as it deems necessary, removal of officers for just cause, meetings, quorum, procedures, and other such matters as its members may deem advisable in the conduct of its business. Such bylaws shall be approved by the department.
(d) Such professional staff as the coordinating council may require shall be provided by the department.

(8) PRESERVATION OF EXISTING GOVERNMENTAL AUTHORITY.--
(a) Nothing contained in this section shall operate to divest any agency, water management district, municipality, county, or special district of any authority or jurisdiction in existence on January 1, 1986.
(b) Notwithstanding paragraph (a), Sarasota County and the City of North Port must, in exercising their authority and jurisdiction over any part of the wild and scenic protection zone, act in conformance with this section, the management plan, and the agreements entered into pursuant to this section.

(9) RULEMAKING AUTHORITY.--
(a) The department is authorized to adopt rules to regulate activities within the river area which have adverse impact on resource values as adopted by the coordinating council within the river area.
(b) The department shall coordinate all activities related to rule adoption and enforcement with the regulatory and management programs of other agencies in order to avoid to the maximum extent possible any conflicts or duplication arising therefrom.
(c) The department and the Department of Community Affairs must enter into agreements with the City of North Port and Sarasota County that provide for guiding and monitoring the regulation of activities by the city and county, in accordance with subsection (6). Such agreements shall include guidelines and performance standards for regulating proposed activities so as to minimize adverse environmental and visual impacts of such activities on the resource values in the river area, and to minimize adverse impacts to landowners' use of land for residential purposes.

(10) PERMITTING AUTHORITY.--
(a) No person or entity shall conduct any activity within the river area which will or may have an adverse impact on any resource value in the river area without first having received a permit from the department.
(b) A permit may be granted only after a finding by the department that the activity for which a permit has been requested will not have an adverse impact on resource values in the river area.
(c) The department may adopt an application fee schedule providing for payment of reasonable fees to defray the cost of processing applications.

(11) NOTIFICATION BY REGULATORY AGENCIES.--All state, regional, and local regulatory agencies shall provide to the department notification of applications received by the agency for approval to conduct activities in the river area and protection zone.

(12) LEGAL STATUS OF COMPREHENSIVE PLAN AMENDMENTS.--It is the intent of this section that the city and county amend their comprehensive plans, land development regulations, and other appropriate ordinances and regulations to be in conformance with this section, the river management plan, and guidelines and performance standards to be developed and adopted by agreement pursuant to this section. Such amendments shall have legal status as provided under s. 163.3194 and must be implemented through appropriate local regulations in accordance with s. 163.3201.

(13) STANDING TO ENFORCE AMENDED COMPREHENSIVE PLANS.--It is the intent of this section that any aggrieved or adversely affected person may maintain an action for injunction or other relief against the city or county to prevent any such local government from taking action in regulating activities not consistent with the comprehensive plan, land development regulations, and other appropriate ordinances and regulations, as amended, pursuant to this section and s. 163.3215.

(14) PERMITTED ACTIVITIES.--
(a) Nothing in this section shall be construed to prohibit or regulate any activity taking place outside the river area and the wild and scenic protection zone for which necessary permits and licenses are obtained as required by other provisions of federal, state, or local law.
(b) Nothing in this section shall be construed to prohibit or limit public utilities from improving, maintaining, modifying, or expanding existing facilities or constructing new facilities in the river area or the wild and scenic protection zone, provided the necessary federal, state, and local permits and licenses are obtained.

(15) PROHIBITED ACTIVITY.--Airboats are prohibited from operating in the river area north of U.S. Highway 41 (State Road 45), except for uses officially allowed by government agencies.

(16) ENFORCEMENT.--Officers of the department shall have full authority to enforce any rule adopted by the department under this section with the same police powers given them by law to enforce the rules of state parks and the rules pertaining to saltwater areas under the jurisdiction of the Florida Marine Patrol.

(17) PENALTIES.--Violation of this section or of any rule adopted under this section constitutes a misdemeanor of the second degree, punishable as provided in s. 775.082 or s. 775.083. Continuing violation after notice constitutes a separate violation for each day so continued.

History.--ss. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, ch. 85-363; s. 30, ch. 86-163; s. 1, ch. 90-173; s. 101, ch. 94-356; s. 79, ch. 99-245.

Appendix 10
Myakka Wild and Scenic River Designation
The Myakka River Rule: Chapter 62D-15 FAC

62D-15.002 Definitions.

(1) "Act" means the Myakka River Wild and Scenic Designation and Preservation Act.

(2) "Activity" means the doing of any act or the failing to do any act by a person.

(3) "Adverse impact" means the permanent, long-term or significant degradation, impairment, or loss of resource values in the river area caused by the conduct of activities, practices, or land uses.

(4) "Coordinating Council" means the Myakka River Management Coordinating Council created by Section 258.501(7), Florida Statutes.

(5) "Department" means the Department of Environmental Protection.

(6) "Division" means the Division of Recreation and Parks of the Department of Environmental Protection.

(7) "Dock" means a fixed or floating structure, including moorings, used for the purpose of berthing buoyant vessels, either temporarily or indefinitely, or used as structures for participating in recreational activities.

(8) "Dredging" means the excavating of materials, by any method, in the river area.

(9) "Executive Director" means the Executive Director of the Department of Environmental Protection.

(10) "Filling" is the deposition, by any means, of materials in the river area.

(11) "Government agency" means all federal and state agencies, the Southwest Florida Water Management District, and local governments.

(12) "Idle speed/no-wake" means a watercraft speed not greater than that speed which is necessary to maintain steerageway.

(13) "Impacted areas" means portions of the river area that have been disturbed prior to the effective date of this rule by the placement of manmade structures or conduct of activities.

(14) "Marina" means a commercial docking facility that provides facilities for mooring or storage of watercraft, or making watercraft available for use, for revenue generating purposes.

(15) "Maximum upland extent of wetlands vegetation" means for purposes of determining the extent of the department's permitting jurisdiction, those areas defined by the Department of Environmental Protection as "wetlands" pursuant to Section 373.019, Florida Statutes, and is determined as specified in Sections 373.421 and 373.4211, Florida Statutes, and Rule 62-340, Florida Administrative Code, as of April, 1990, except that the term shall not include tributaries of the Myakka River, and shall not include isolated wetlands.

(16) "Myakka Wild and Scenic River Management Plan" or "Plan" means the plan described in subsection 258.501(5), Florida Statutes, as developed by the department and the Coordinating Council and as accepted on May 22, 1990 by the Governor and Cabinet sitting as head of the Department of Natural Resources.

(17) "Native vegetation" means a plant which is indigenous to the river area.

(18) "Nuisance species" means any species of flora or fauna whose noxious characteristics or presence in sufficient number, biomass, or areal extent that prevents, or interferes with, uses or management of resources, and which are native or naturalized in the area where it occurs.

(19) "Person" means an individual, corporation, governmental agency or institution thereof, business trust, estate, trust, partnership, association, two or more persons having a joint or common interest, or other legal entity.

(20) "Pollutant" means any substance, contaminant, noise, or artificial condition which is or may be potentially harmful or injurious to human health and welfare, animal or plant life, or property, or which interferes with the enjoyment of life, or property, or outdoor recreation.

(21) "Preempted area" means the portion of the river area occupied by a dock or docks or other structures, the area between the docks or other structures and including any mooring pilings, and the area between the docks or other structures and the shoreline.

(22) "Private multi-family docking facility" means a docking facility located on or adjacent to upland property having riparian access that is or will be developed to accommodate multiple living units. The term is applied only in reference to residential subdivisions and yacht clubs whose owners or members have real property interest in the upland property having riparian access.

(23) "Public interest" means demonstrable environmental, social, and economic benefits which would accrue to the public at large as a result of a proposed action, and which would clearly exceed all demonstrable environmental, social, and economic impacts of the proposed action.

(24) "Public utility" means the utilities defined in subsection 366.02(1), Florida Statutes.

(25) "Renovation" means activities undertaken to restore a structure when 50 percent or more of the materials or construction have been damaged or destroyed, or if use of the structure has been discontinued and 50 percent or more of the structure must be

replaced in order to make it functional for its intended purpose or safely useable.

(26) "Repair" means activities undertaken to maintain structures in a safely useable and functional condition which result in the repaired structure being within the same footprint and of the same dimensions as the original structure.

(27) "Resource value" means any one or more of the specific economic, scenic, recreational, geologic, fish and wildlife, historic, cultural, or ecological features associated with the river area as determined by the Coordinating Council and as set forth in the Myakka Wild and Scenic River Management Plan.

(28) "River area" means that corridor of land beneath and surrounding the Myakka River from river mile 7.5 to river mile 41.5, together with a corridor including the maximum upland extent of wetlands vegetation which is or will be delineated by the Department of Environmental Protection pursuant to its authority under Chapter 403, Florida Statutes, and Chapter 62-340, Florida Administrative Code.

(29) "Shore protection structure" means a type of construction designed to minimize erosion. Such construction includes any work or activity which is likely to have an effect on existing conditions or natural shore or riverbank processes.

(30) "Slow/minimum wake" means a speed such that watercraft must not be on a plane, must be level in the water, and not be operating at a speed greater than that which is reasonable and prudent to avoid an excessive wake or condition under the existing circumstances as specified in Rule 62D-15.012, Florida Administrative Code.

(31) "Structure" means something built, erected, assembled or installed, or the arrangement of natural or artificial materials in an ordered scheme.

(32) "Tributary" means a stream or watercourse whether natural or artificial which flows into the Myakka River, directly or indirectly, continuously or intermittently.

(33) "Unimpacted areas" means portions of the river area largely in their natural state not disturbed prior to the effective date of this rule by land uses, activities, practices, or the placement of manmade structures except those structures that have been permitted or are exempt under these rules.

(34) "Vessel" means any type of boat or floating craft and includes watercraft.

(35) "Watercraft" means any type of boat or floating craft which is propelled or powered by an engine or motor.

(36) "Water-dependent activity" means an activity which can only be conducted on, in, over, or adjacent to, water areas because the activity requires primary and direct access to the water body for transportation, recreation, energy production or transmission, or that uses the river as a source of water and where the use of the water is an integral part of the activity.

Specific Authority 258.501 FS. Law Implemented 258.501 FS. History–New 7-22-91, Formerly 16D-15.002.

62D-15.003 Statement of Purpose and Applicability.

(1) The purpose of this chapter is to implement a regulatory program which includes a permit program to protect and enhance the resource values as identified in the Myakka Wild and Scenic River Management Plan as adopted by the Governor and Cabinet on May 22, 1990, which is hereby incorporated by reference. Copies of the Plan may be obtained by writing to the Bureau Chief, District 4 Administration, Division of Recreation and Parks, 1843 South Tamiami Trail, Osprey, Florida 34229, or contacting the Bureau Chief at (941) 483-5944.

(2) The rules governing prohibitions, permits, and exemptions, as set forth in this part apply to any activity as further delineated in Rules 62D-15.005, 62D-15.006, and 62D-15.007, Florida Administrative Code, within the river area, which will adversely impact resource values in the river area.

(3) Standards for the issuance or denial of permits for the conduct of activities and practices, and construction of structures are provided.

Specific Authority 258.501 FS. Law Implemented 258.501 FS. History–New 7-22-91, Formerly 16D-15.003.

62D-15.004 Delineation of Regulatory Responsibilities and Jurisdiction.

(1) The conduct of any activity by a person within the river area which will have an adverse impact on any resource values in the river area shall be regulated by the department.

(2) The "maximum upland extent of wetlands vegetation" for purposes of determining the landward boundary of the river area, is defined by a corridor which shall be determined pursuant to the methodology set forth in Sections 373.421 and 373.4211, Florida Statutes, and Chapter 62-340, Florida Administrative Code, for determining the "landward extent of surface waters of the State," but

shall not include tributaries of the Myakka River or isolated wetlands. Existing wetland jurisdictional determinations or validations on specific parcels by the Department of Environmental Protection established, under its authority to delineate wetlands, in accordance with Chapter 62-340, Florida Administrative Code, are effective and enforceable for the purposes of defining the maximum upland extent of wetlands vegetation. The boundary of the river area where it crosses a tributary shall be the shortest and most direct continuation of the line demarcating the maximum upland extent of vegetation of the river area on either side of the tributary.

Specific Authority 258.501 FS. Law Implemented 258.501 FS. History–New 7-22-91, Formerly 16D-15.004.

62D-15.005 Prohibitions.

The activities in this rule, conducted by a person, are presumed to have adverse impacts on resource values in the river area and will be prohibited unless otherwise provided by law. However, persons may submit permit applications in accordance with Rules 62D-15.006, 62D-15.009 and 62D-15.011, Florida Administrative Code, for the following prohibited activities, with required non-refundable fees, for review and consideration of applications by the department as specified under Rules 62D-15.006 and 62D-15.008, Florida Administrative Code:

(1) Discharging, through a pipe, ditch or similar conveyance, pollutants, including but not limited to domestic and industrial wastes or effluents, or untreated stormwater;

(2) Removing or cutting native vegetation except as a function of an activity permitted under Rule 62D-15.006, Florida Administrative Code, or that has received a Myakka River Permit prior to the effective date of this rule, and except for the minimum required to provide riparian ingress and egress necessary for docking, boating, bathing and fishing access;

(3) Constructing, in unimpacted areas, new road or bridge crossings, or utility crossings except crossings by public utilities as that term is defined in subsection 366.02(1), Florida Statutes, and those crossings that would not adversely impact resource values;

(4) Excavating minerals or drilling for gas or oil;

(5) Constructing, erecting, or installing any form of structure not related to a water-dependent activity;

(6) Constructing roads or utilities, except for facilities of public utilities as that term is defined in subsection 366.02(1), Florida Statutes, to islands where such access did not previously exist;

(7) Operating airboats north (upstream) of U.S. Highway 41, except for uses officially allowed by governmental agencies;

(8) Constructing new marinas;

(9) Engaging in any other activity or practice which adversely impacts resource values in the river area, and for which no permit has been obtained under Rule 62D-15.006, Florida Administrative Code;

(10) Nothing in this rule shall be construed to prohibit or limit public utilities from improving, maintaining, modifying, or expanding existing facilities or constructing new facilities in the river area or the wild and scenic protection zone, provided the necessary federal, state, and local permits and licenses are obtained.

Specific Authority 258.501 FS. Law Implemented 258.501 FS. History–New 7-22-91, Formerly 16D-15.005.

62D-15.006 Permits.

(1) A Myakka River permit is required from the department before a person may engage in certain activities. An application form titled, State of Florida Joint Application for Permit, DEP FORM 62-312.900(1), November 30, 1982, which is incorporated by reference, may be obtained from and submitted to: Bureau Chief, District 4 Administration, Division of Recreation and Parks, 1843 South Tamiami Trail, Osprey, Florida 34229.

(2) Activities, structures or practices for which permit applications must be submitted for review include any of the following within the river area:

(a) Dredging or filling;

(b) Creating, repairing, or maintaining shore protection structures;

(c) Maintaining existing navigational channels and aids to navigation or installing new aids to navigation;

(d) Constructing, installing, expanding, or renovating marinas, landings, boat ramps, docks, mooring buoys, pilings, dolphins, decks, or piers;

(e) Renovating, replacing, or expanding facilities required for utilities, bridges, or roads;

(f) Removing or cutting native vegetation only for riparian ingress and egress necessary for docking, boating, bathing and fishing access;

(g) Relocation or setting of bulkhead lines waterward of mean high water;

(h) Engaging in agricultural and forestry practices and activities not conducted prior to the effective date of the rule within the river area on the subject site;

(i) Engaging in water resource management practices not conducted prior to the effective date of this rule including constructing stormwater management systems as that term is defined in Section 373.403, Florida Statutes, or other drainage discharges, except that the water management district, under emergency conditions, may submit an application after-the-fact;

(j) Constructing or creating after the effective date of this rule utility, bridge or road crossings in impacted areas, or utility crossings in unimpacted areas;

(k) Constructing, erecting, installing any form of structure related to a water-dependent activity, or any other structures in the river area;

(l) Replacing or reconstructing any damaged or destroyed exempted structure, land use or activity;

(m) Establishing recreational facilities on publicly owned portions of the river area; and

(n) Any other activity not subject to Rule 62D-15.006, Florida Administrative Code, conducted or proposed to be conducted after the effective date of this rule within the river area which adversely impacts resource values in the river area.

(3) The existence of provisions for exemptions or permits under other rules of the department or of other government agencies does not eliminate the requirement for a Myakka River permit for an activity in the river area. Exemptions from, or the issuance of permits under, this rule may not relieve persons from complying with requirements for permits under other department or government agency rules.

(4) The department shall not deny a permit to a public utility if the public utility has provided a letter with supporting documentation that demonstrates that it is not feasible or practicable to meet all applicable criteria of Rule 62D-15, Florida Administrative Code.

Specific Authority 258.501 FS. Law Implemented 258.501 FS. History–New 7-22-91, Formerly 16D-15.006.

62D-15.007 Exemptions.

(1) Activities that have not been prohibited, or subject to permit review may be conducted within the river area without a Myakka River permit unless the activities will have adverse impacts on resource values in the river area. If there is evidence produced or observed by department staff based on standards and factors specified in Rule 62D-15.008, Florida Administrative Code, that an activity, subject to this paragraph adversely impacts resource values, the department will notify the appropriate persons conducting the activity, that they must submit a permit application within 14 days to the department. For exempted activities submitted for permit review that were conducted prior to the effective date of this rule, the department shall approve these activities with or without conditions based on standards and factors specified in Rule 62D-15.008, Florida Administrative Code. Activities subject to this paragraph conducted after the effective date of this rule, must be submitted for permit review as specified in Rules 62D-15.008 and 62D-15.009 Florida Administrative Code. The department will approve with or without conditions, or deny the activity pursuant to Rules 62D-15.008 and 62D-15.009, Florida Administrative Code, and procedures set forth in Section 120.60, Florida Statutes, governing licensure. Applications to conduct exempted activities or to replace damaged structures, under this section, in existence prior to the effective date of this rule will not be subject to permit application fees under Rule 62D-15.011, Florida Administrative Code.

(2) In the event that an exempted structure in existence prior to the effective date of this rule is damaged or destroyed by 50 percent or more of materials or construction, and is no longer suitable to safely serve its intended purpose, the person owning or operating such structure, in order to re-establish the structure, must submit a permit application for review and approval as specified under Rules 62D-15.008, and 62D-15.009, Florida Administrative Code. The department shall review, and approve the application with or without conditions, as specified in Rules 62D-15.008, and 62D-15.009, Florida Administrative Code, for reestablishment of the damaged structure.

(3) The following activities may be conducted by persons without having submitted a permit application unless the activity will adversely impact resource values as evidenced or observed by department staff under this section, subsection (1):

(a) Commercial fishing;

(b) Maintenance or repair, but not including expanding, remodeling or renovation, of existing structures;

(c) Continuation of yard maintenance activities such as mowing, trimming or pruning of vegetation only to prevent or minimize potential damage to existing structures or for the continuation of activities which had been conducted prior to the effective date of this rule;

(d) Structures, land uses and water-dependent activities on public and private lands in existence at the effective date of this rule within the river area, including but not limited to docks and associated mooring pilings, boat ramps, shore protection structures, fences, other structures;

(e) Continuation of existing agricultural and forestry practices or activities similar in nature to those existing on the site, within the river area, at the effective date of this rule;

(f) Continuation of existing drainage and water management practices, including but not limited to, repair or maintenance of impoundments, dams, diversions, pumping operations, swales, ditches, pipes, or canals;

(g) Resource management practices of government agencies including but not limited to, prescribed burning or exotic and nuisance species control, for the protection, conservation, rehabilitation, or restoration of resource values;

(h) Installation of devices for measuring water quality, water quantity, hydrologic conditions, or other ecological conditions by governmental agencies, private not-for-profit research organizations, and persons who are required to install such devices as a requirement of obtaining a permit from a governmental agency;

(i) Continuation of existing facilities and easements for utilities and roads, including repair and maintenance, but not including increasing the size of easements or structures of such facilities which shall be subject to Rules 62D-15.006 and 62D-15.008, Florida Administrative Code;

(j) Renovating or replacing facilities or structures by a public utility so long as the footprint of the facility or structure is not materially enlarged or the facility or structure is not relocated; and,

(k) Mowing, trimming, pruning, removing or cutting native vegetation to the extent required to maintain or construct public utility facilities or structures.

Specific Authority 258.501 FS. Law Implemented 258.501 FS. History–New 7-22-91, Formerly 16D-15.007

62D-15.008 Standards for Issuance or Denial of a Permit.

(1) In accordance with Section 258.501(10), Florida Statutes, no permit shall be issued unless the department finds that the proposed activity will not adversely impact resource values in the river area. The department will review completed applications for permits submitted as specified under Rules 62D-15.005, 62D-15.006 and 62D-15.009, Florida Administrative Code, and will evaluate applications using the standards and factors contained in this section. Additional information on the standards and factors used in evaluating applications may be obtained from the department at the address location provided in Rule 62D-15.006, Florida Administrative Code. Applications will be processed in accordance with procedures specified in Section 120.60, Florida Statutes.

(2) Factors to be considered by the department in determining whether the activity will adversely impact the resource values include:

(a) Whether the activity is consistent with the Act, this rule, and management principles, objectives and actions of the Myakka Wild and Scenic River Management Plan.

(b) Whether the activity will affect resource values by:

1. Increasing the amount of fertilizers, nutrients, pesticides and herbicides, soil or soil conditioners, or biological and artificial substances discharged into the river area;

2. Increasing impervious surface area or stormwater runoff;

3. Causing discharge of pollutants or increasing pollution impacts from land development, septic tanks, underground storage tanks, sanitary landfills, and wastewater treatment or disposal;

4. Causing or contributing odors or noise;

5. Increasing water use;

6. Increasing water resource impacts;

7. Encouraging erosion or shoaling;

8. Creating an impediment to navigation;

9. Causing upstream penetration of saline water into the river;

10. Causing a drawdown of surface or aquifer water levels;

11. Inhibiting the natural storage and detention functions of floodplains;

12. Reducing wetland buffers or wetland filtrative functions;

13. Altering natural hydrologic characteristics of the river area;

14. Altering the flow rate, timing, volume, or water quality of freshwater flowing into downstream reaches of the river area so as to affect the growth and productivity of brackish-saltwater marine life and vegetation;

15. Causing or contributing to overfishing;

16. Increasing access to the Myakka River through construction of roads, utility corridors, except facilities of public utilities as public utility is defined in Section 366.02, Florida Statutes, or recreation sites;

17. Decreasing recreational opportunities, including but not limited to fishing, boating, canoeing, picnicking, nature study, or photography;

18. Causing or contributing to overuse of the river's recreational resources;

19. Blocking, obstructing, lessening or otherwise interfering with the scenic and natural views as seen within the river area, including but not limited to open water, broad marshes, forested horizons, mangrove swamps, bluffs, riverbanks and bars;

20. Increasing litter;

21. Increasing visibility of storage, dilapidated or unmaintained structures;

22. Increasing the visual intrusion of tall structures;

23. Increasing intrusion caused by artificial light;

24. Impacting the conservation and preservation of fish and wildlife including endangered or threatened species or their habitats, feeding or breeding grounds;

25. Impacting listed threatened or endangered species of flora or plant communities or groupings considered to be of special ecological significance by the Florida Department of Agriculture and Consumer Services and the Florida Natural Areas Inventory;

26. Encouraging infestation or propagation of exotic or nuisance aquatic or terrestrial species such as Brazilian pepper, melaleuca, Australian pine, hydrilla, paragrass, parrotfeather, alligator weed, water hyacinth or cattail;

27. Affecting wildlife corridors or waterfowl flyways;

28. Reducing aquatic habitat, other than nuisance species, including, but not limited to, grassbeds, marshes or mangroves;

29. Increasing the density or intensity of development permitted on the subject property at the time the permit application is submitted;

30. Causing or contributing to unsafe conditions for boats or boaters;

31. Encouraging unauthorized use of public and private lands; and

32. Damaging or destroying archaeological, cultural or historic sites or their artifacts.

(3) Certain structures or activities must also comply with the following restrictions:

(a) Docks shall be located and designed to avoid adverse impacts to resource values. At a minimum, to the extent that new docks or expansions to docks or marinas are approved, they shall meet the following standards and criteria:

1. No dock or marina and its associated pilings, shall extend waterward of the mean or ordinary high water line more than 20 feet or 10 percent of the width of the waterbody at that particular location, whichever is less. Special consideration will be given to extension of these limits in instances where riparian access would be precluded due to insufficient water depths. A water depth of minus three feet mean low water shall be deemed sufficient water depth for purpose of special consideration.

2. The dock will extend out from the shoreline no further than a length that reaches a water depth not exceeding minus three feet (mean low water).

3. Docks and expanded marinas shall only be approved in locations having adequate water depths in the vessel mooring, turning basin, access channels, and other such areas in order to insure that a minimum of one foot clearance is provided between the deepest draft of a vessel and the bottom at mean low water.

4. Dredging to obtain navigable water depths for docks or for expanded marinas is prohibited.

5. Terminal platform size shall be no more than 120 square feet and the length of the platform shall be no more than 12 feet and the width shall be no more than 10 feet.

6. Any main access dock shall be limited to a maximum width of four feet.

7. No more than one dock shall be permitted for a lot or parcel of land, except no dock shall be permitted where riparian lot owners have acquired access to, or conveyed or transferred their riparian dock rights for, the use of a common, private multi-family

docking facility. No dock for a single family lot may be designed, constructed or used to moor more than two vessels.

8. The dock decking design and construction shall provide maximum light penetration, with full consideration of safety and practicality.

9. New docks, renovations, remodeling or expansions to existing docks or facilities may be subject to requirements for identifying ways to improve or mitigate adverse environmental impacts caused by previous activities on the subject property. If deemed necessary to improve an existing condition which is creating an adverse impact on the river area, permit conditions may be imposed requiring that the permittee conduct certain activities that will minimize impacts to resource values in the river area.

10. Where local governments have more stringent standards and criteria for docks and marinas, the more stringent standards for the protection and enhancement of the river area shall prevail.

11. The submerged lands area preempted by expanded marinas or private multi-family docks shall not exceed the square footage amounting to 10 times the applicant's contiguous riparian waterfront footage. A conservation easement or other such use restriction acceptable to the department must be placed on the riparian shoreline, used for the calculation of the 10:1 threshold, to conserve and protect shoreline resources and subordinate/waive any further riparian rights.

(b) Dredging or filling. Dredging or filling shall be permitted only upon a determination by the department that the proposed activity will not adversely impact resource values and is clearly in the public interest.

(c) Water management practices. Water management practices must not adversely affect, diminish, or degrade existing water quality or resource values in the river area.

(4) A permit shall contain specific conditions for approval, as necessary, to assure that the activity will not adversely impact resource values in the river area.

(5) In denying a permit application, the department shall specifically identify which resource values will be adversely impacted by the activity sought to be undertaken by the applicant.

(6) Permit applications shall be processed, and notification of the granting or denial of permits will be provided to applicants by the department, in accordance with Section 120.60, Florida Statutes, governing licensure.

(7) The approval of the permit application shall be based upon a finding by the department that the activity will not adversely impact resource values in the river area. Within thirty (30) days of its approval, the department shall issue the permit.

(8) A Myakka River permit is not an operating permit but is issued for purposes of repairing, reconstructing, renovating, replacing, maintaining, expanding, constructing, dredging or filling, engaging in new activities or practices, or removing or cutting of vegetation and shall be valid for two years from date of issuance except where another permit period is determined by the department as a condition for approval, or upon completion of construction. Once construction is completed, or activities and practices have begun, a structure, practice or activity is not subject to a termination or revocation of its permit unless a violation of the permit conditions occurs.

(9) A request for an extension of a permit will be considered and shall be approved if the extension of the permit will not result in adverse impacts to resource values. An extension of up to two years from the date of issuance may be granted by the department, if, based on standards included in Rule 62D-15.008, Florida Administrative Code, resource values will not be adversely impacted. Extensions will be renewed no more than two times. An application for an extension must be submitted by form to the department at least sixty days prior to expiration of the permit. An application form titled, Myakka Wild and Scenic River Application for Permit Extension, DEP 46-051, May 28, 1991, which is incorporated by reference, may be obtained from and submitted to the District Manager at the address location included in Rule 62D-15.006, Florida Administrative Code. The application must be submitted and made complete before the expiration date of the permit in order for the permit to be considered for an extension. Applications for permit extensions will be processed and approved or denied in accordance with Section 120.60, Florida Statutes.

Specific Authority 258.501 FS. Law Implemented 258.501 FS. History–New 7-22-91, Formerly 16D-15.008.

62D-15.009 Permit Application Form.

An applicant shall make application for a Myakka River permit on the Joint Dredge and Fill Application Form as specified in Rule 62D-15.006, Florida Administrative Code. The application form must be completed with all pertinent information required in instructions attached with the application form. The applicant shall also include, as part of the application, a detailed explanation of how the proposed project is consistent with the Act, the Plan, and this rule. The application must also be accompanied by a letter from any other appropriate government agency indicating the status of such other government agency approvals necessary for the

proposed activity. In its review of the application, the department may request other technical information in support of the application. The application and all supportive information must be filed in duplicate with the Division of Recreation and Parks at the address specified in Rule 62D-15.006, Florida Administrative Code.

Specific Authority 258.501 FS. Law Implemented 258.501 FS. History–New 7-22-91, Formerly 16D-15.009.

62D-15.010 Transfer of Permits.

Within 30 days following the sale or legal transfer of a permitted facility or activity, the new owner of the permitted facility or activity must register by form with the department. A registration form titled, Myakka Wild and Scenic River Registration for Transfer of Permit, DEP 46-052, May 28, 1991, which is incorporated by reference, may be obtained from and submitted to the Bureau Chief at the address location included in Rule 62D-15.006, Florida Administrative Code. The registration form for the new owner will certify that the new owner will conform to all conditions under which the permit was approved.

Specific Authority 258.501 FS. Law Implemented 258.501 FS. History–New 7-22-91, Formerly 16D-15.010.

62D-15.011 Permit Application Fees.

Each application for a permit to be considered by the department pursuant to Section 258.501, Florida Statutes, and Rules 62D-15.005, 62D-15.006 and 62D-15.007, Florida Administrative Code, unless where otherwise provided in this chapter, shall be accompanied by a non-refundable processing fee to help defray the cost of processing the application. The fee structure is as follows:

(1) For the removal or cutting of native vegetation for riparian ingress and egress, conducting activities, or for constructing structures for which the fair market value of either the materials or labor to be used for the activity or structure does not exceed Four Hundred Dollars ($400.00), the fee is $50.00.

(2) For all other activities the fee is $200.00.

Specific Authority 258.501 FS. Law Implemented 258.501 FS. History–New 7-22-91, Formerly 16D-15.011.

62D-15.012 Boating Regulations.

(1) Watercraft shall not exceed a slow/minimum wake speed in any part of the river area upstream of U.S. Highway 41 except for the official government agency use of watercraft. A watercraft in an area designated as a slow/minimum wake zone is traveling at a slow/minimum wake if:

(a) It is not operating on a plane;

(b) It is not in the process of coming off plane and settling into the water, which action creates more than no or minimum wake;

(c) It produces no wake or minimum wake; and

(d) It is completely off plane, has settled into the water with neither the bow elevated nor the stern depressed, and is proceeding without wake or with minimum wake.

(2) Watercraft shall not exceed an idle/no-wake speed within 500 feet of marinas, boat ramps, docks, and other structures near navigable channels, and in other locations where the river is designated and posted as being too narrow to safely accommodate two-way traffic. A watercraft in an area designated as a idle/no-wake zone is traveling at a speed no faster than necessary to be steered.

Specific Authority 258.501 FS. Law Implemented 258.501 FS. History–New 7-22-91, Formerly 16D-15.012.

Appendix 11
Local Government Comprehensive Plan Compliance

SARASOTA COUNTY
"Dedicated to Quality Service"

July 20, 2018

Demi P. Baxley
Government Operations Consultant
Division of Recreation and Parks
Florida Department of Environmental Protection
3800 Commonwealth Blvd., MS#525
Tallahassee, FL 32399

RE: Myakka State Park Unit Master Plan, Consistency with the Sarasota County Comprehensive Plan

Dear Ms. Baxley,

Thank you for the request for a comprehensive plan consistency analysis for the proposed update to the Myakka State Park Unit Master Plan.

Staff has reviewed the Unit Master Plan and has compared it to the intent of the adopted goals, objectives, and policies of the Sarasota County Comprehensive Plan and find that the Unit Master Plan is consistent with and is supported by numerous goals, objectives, and policies in the Comprehensive Plan. The attached analysis is a listing of each applicable County goal, objective, or policy that is supportive of each of the 8 Unit Master Plan goals, and associated objectives and actions.

Sarasota County appreciates the opportunity to review this Unit Master Plan. If you have any questions, please feel free to contact our office.

Sincerely,

Jane H. Grogg, Manager
Neighborhood Services & Long Range Planning
Planning & Development Services
Sarasota County Government

Sarasota County Planning and Development Services — 1660 Ringling Blvd., Sarasota, FL 34236
Phone: 941-861-5000 — FAX: 941-861-5593

From: Joshua Dan [mailto:joshua.dan@mymanatee.org]
Sent: Tuesday, January 29, 2019 10:13 AM
To: Maldonado, Tyler <Tyler.Maldonado@dep.state.fl.us>
Cc: Robert Knable <robert.knable@mymanatee.org>; Lisa Barrett <lisa.barrett@mymanatee.org>
Subject: RE: MANATEE COUNTY - Request to Review Myakka River State Park's Draft Unit Management Plan for Compliance w/Comprehensive Plan

Hi Tyler,

I have reviewed the Land Use Component of the Myakka River State Park Draft Unit Management Plan. It appears to show uses that are consistent with the existing uses, either expanding or improving the existing facilities, and appears to comply with the zoning and FLUC. Please keep in mind that any future development may require site plan, construction plan, and building permit approvals.

I hope this addresses your questions and let me know if I can be of further assistance.
Thank you,

Josh Dan
Planner I
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Appendix 12
Roller-Chopping Guidelines

History: The roller-chopper had its debut in Florida State Parks in 1987 at Myakka River State Park (MRSP). After much research and debate, this highly controversial activity was approved only with significant alterations to standard roller-chop practices and limitations to its use. "Restoration Roller-chopping" was introduced to counteract changes in saw palmetto vegetative structure that occurred as a result of 30 to 40 years of fire exclusion. Saw palmetto, in many areas, had developed woody above and belowground trunks that prevented the survival of herbaceous plant species necessary to fuel frequent fires. Permanent vegetation transects were set up in each management zone for long term monitoring. Vegetation transects and pre- and post-chop photos were also required for treatment sites.

Definition: Restoration roller-chopping differs significantly from other types of roller-chopping methods, such as forestry site-prep, site clearing, agricultural and pasture roller-chopping. The prescription calls for lighter, non-weighted drums, single-pass, single occasion, with little to no ground disturbance. Other types of roller-chopping are infamous for destroying native groundcover. The same risk exists for this process if it is misapplied by land managers.

Goal: The goal of mechanical roller-chopping at MRSP is to restore the aspect and woody/herbaceous ratio to within the range of non-fire-excluded prairie and flatwoods, while preserving existing original groundcover and opening up areas for colonization of herbaceous prairie plants. Shrub height in good condition prairie and flatwoods varies between one and four feet in height with the majority of shrubs between one and two feet high. Shrub height greater than 3 feet usually occurs naturally along wetland or hammock borders or in small patches of less than one-half acre, widely spaced over the landscape. One way we can surmise the historical random occurrence of small areas of 4'-high, dense palmetto is via the accounts of large populations of vultures encountered in the Myakka River region prior to fire exclusion. Turkey and black vultures utilize the tall palmetto thickets for nesting.

Roller-chopping alone does not increase species diversity in highly degraded prairie or flatwood but increases soil surface sunlight to allow herbaceous species to colonize when combined with other strategies and prescribed fire. These strategies include chopping sites adjoining those with adequate seed source, selecting chop sites upwind of the prevailing SE/SW winds, scheduling treatment to benefit from peak seeding periods, and collecting and planting seeds harvested from the same region.

Assess the need: Restoration roller-chopping should only be prescribed for long fire-excluded dry prairie and flatwoods that has atypically high-density saw palmetto. Under this condition the palmetto excludes the natural diversity of shrubs, grasses and forbs. The primary indicator that a site could benefit from the process is the presence of a near monoculture of palmetto with large trunks, often referred to as gator-back palmettos, along and above the ground. This condition can prevent the reestablishment of a natural fire frequency and plant diversity. Roller-chopping should not be prescribed to reduce woody vegetation. It can actually increase the incidence of woody stems. Blueberries, gallberry, fetterbush, oaks and other characteristic flatwoods and prairie shrubs produce many additional stems when cut. The goal of restoration chopping is not to remove saw palmetto or shrubs, but rather to encourage herbaceous plants by decreasing cover of saw palmetto. woody growth. Repetition of frequent growing season burns is the best prescription for decreasing shrubs and increasing the cover of herbaceous plants.

Methodology—When considering use of restoration roller-chopping the following steps should be taken:

1. Get more than one informed opinion (individuals skilled in evaluating undisturbed groundcover) before deciding to roller chop.

2. Establish monitoring protocols to track the results of management actions that include vegetation transects and photo-monitoring points.

3. Select an appropriate reference site to act as an example of the desired condition you want the restoration site to resemble.

4. Be sure that your site has been burned at least two times within the appropriate burn return of 2-3 years, but still has atypically dense palmetto with above-ground palmetto trunks.

5. Select appropriate equipment. A double, offset 24", unweighted spiral-blade aerator (with a few gallons of oil in the drums to prevent rust) has been shown to be most effective for better penetration of saw palmetto trunks with less soil disturbance. Never use a heavier chopper than required for the job since it is more likely to cause destructive soil disturbance. The key is to only cut the horizontal above and ground level trunks thus avoiding ground cover and soil disturbance.

6. Select appropriate time:

   A. Chopping less than 1 year after a fire will minimize dead fuels on the ground so the next fire will have a faster rate of spread, lower temperatures at the soil surface, and prevent loss of the seed bank.

   B. Research has shown that restoration roller-chopping provides the most favorable results when conducted during the growing season. The additional stress on saw palmetto when it is producing new growth can achieve greater palmetto reductions than dormant season chops. Additionally, sites chopped under wet conditions, though not so wet as to cause tractor tires to slip, result in better penetration of saw palmetto, trunks with less soil disturbance.

7. The faster you can safely go, the better penetration of palmetto trunks and less ground disturbance because there is limited "kickout."

8. Never roller-chop through wetlands, or invasive plants.

9. Avoid chopping large areas at a time. Leave a mosaic of chopped and unchopped for diversity, just as you would ideally with a prescribed burn. There is no need to overlap passes.

10. Care must be taken not to double-chop, by chopping over previously chopped areas. Over chopping or re-chopping an area can result in irreparable damage to valuable and sensitive groundcover plants and cause soil disturbance that facilitates the establishment and spread of invasive plant and animal species.

Roller-chopping, in conjunction with a frequent fire return interval, can through time, greatly aid in regaining the low aspect and diversity of healthy Florida dry prairie such as was historically maintained by frequent lightning fires and an unimpaired hydroperiod.

*** Note:** See Instructions for Roller Chopper Operators on next page.

Instructions for Roller Chopper Operators

Plan your pattern so as to prevent double chopping (chopping repeatedly over the same area). Avoid sharp turns that cause unnecessary ground disturbance. Give pine trees plenty of clearance to avoid nicks in roots and bark that can lead to tree mortality.

Try to achieve a mosaic of chopped and unchopped area similar to the prescribed fire objective of a natural mosaic of burned and unburned. There is no specific mathematical formula for obtaining the right balance but rather a general guideline for mimicking natural processes. Leave unchopped islands of 1 to 4 acres per ten-acre parcel treated. Areas with lower saw palmetto height and greater diversity should have a higher proportion of unchopped islands than those with higher saw palmetto and limited diversity.

It is preferable to chop small patches of no more than 100 acres. The selected chop sites should be upwind of prevailing SE/SW winds and shaped as elongated ovals or strips to better receive seed dispersal.

Do not chop wetlands. When chopping wetland edges consider and preserve fire shadow effect. Fire shadow can be found on any side of a wetland (depending upon other natural features in the area) but occurs most frequently on the North side of wetlands. If you are not sure you can distinguish fire shadow from artificial effects of fire exclusion, ask someone knowledgeable to go out with you and show you specific examples before you begin chopping.

Be attentive for exotics such as cogongrass, tropical soda apple and climbing fern. The chopper can spread them to other areas. Chopping will open more surface area to sunlight and trigger growth spurts in many exotic plants. Keep flagging tape with you; flag and GPS exotics so they can be relocated and treated.

Fill out chopping observation forms on the first and last day of your assignment. Include maps so the information can be added to the chop map. Provide written notes for anything unusual you encounter such as animal sightings (burrowing owl, numerous gopher tortoises feeding during the day, strange animal behavior, etc) or plant associations not described on the chop field notes log (a large monoculture of runner oak or witch grass, 100% saw palmetto if you have previously described areas with more diversity, etc).

Chopping results are greatly influenced by how wet the area is when it is chopped. Better cutting of saw palmetto trunks occurs when they are wet. The more cutting, the greater the reduction of saw palmetto cover and height. If the blades are not penetrating the woody growth, check for sharpness. Carry an angle grinder in the field with a portable generator at least once per week to maintain sharpness.