LAKE MANATEE STATE PARK

UNIT MANAGEMENT PLAN

APPROVED

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Recreation and Parks

October 15, 2004

Department of Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard, MS 140
Tallahassee, Florida 32399-3000
Phone: (850) 245-2784 Fax: (850) 245-2786

Colleen Castille
Secretary

December 7, 2004

Ms. BryAnne White
Office of Park Planning
Division of Recreation and Parks
3900 Commonwealth Blvd.; M.S. 525
Tallahassee, Florida 32399

Re: Lake Manatee State ParkLease #2543

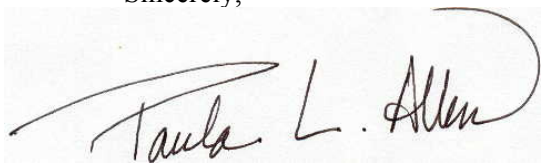
Ms. White:

On **October 15, 2004**, the Acquisition and Restoration Council recommended approval of the **Lake Manatee State Park** management plan.

On **December 7, 2004**, the Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, approved the management plan for the **Lake Manatee State Park**. Pursuant to Section 253.034, Florida Statutes, and Chapter 18-2, Florida Administrative Code this plan's ten-year update will be due on **December 7, 2014**.

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

Sincerely,



Paula L. Allen
Office of Environmental Services
Division of State Lands
Department of Environmental Protection

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INTRODUCTION

Lake Manatee State Park occupies the southern shore of the Lake Manatee reservoir in Manatee County (see Vicinity Map), about 13 miles east of Bradenton. Access to the park is from State Road 64, which runs directly from Interstate Highway 75 to the Park entrance, and then continues along the southern boundary of the Park, crossing the Manatee River just beyond the Park's eastern terminus. The vicinity map also reflects significant land and water resources existing near the park.

Lake Manatee State Park contains 548.78 acres. For this plan, park acreage has been calculated based on the composition of natural communities, in addition to ruderal and developed areas.

At Lake Manatee State Park, public outdoor recreation and conservation is the designated single use of the property. There are no legislative or executive directives that constrain the use of this property. The park was acquired on June 16, 1970 using Bond Proceeds. The park is managed under Lease No. 2543 for a period of ninety-nine (99) years (see Addendum 1).

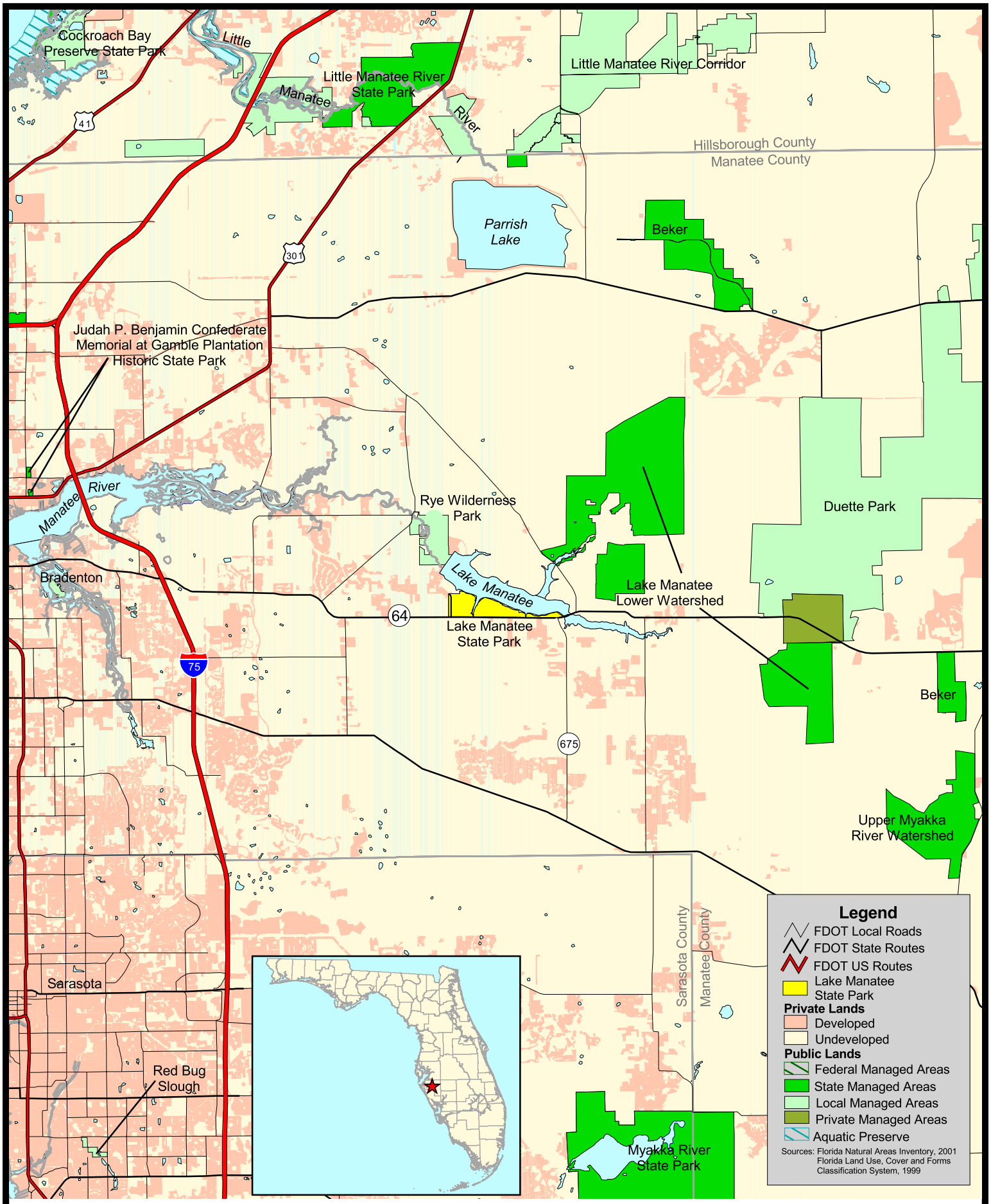
PURPOSE AND SCOPE OF THE PLAN

This plan serves as the basic statement of policy and direction for the management of Lake Manatee State Park as a unit of Florida's state park system. It identifies the objectives, criteria and standards that guide each aspect of park administration, and sets forth the specific measures that will be implemented to meet management objectives. The plan is intended to meet the requirements of Sections 253.034 and 259.032, Florida Statutes, Chapter 18-2, Florida Administrative Code, and intended to be consistent with the State Lands Management Plan. With approval, this management plan will replace the March 20, 1998 approved plan. All development and resource alteration encompassed in this plan is subject to the granting of appropriate permits; easements, licenses, and other required legal instruments. Approval of the management plan does not constitute an exemption from complying with the appropriate local, state or federal agencies.

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

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

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



Lake Manatee State Park

Vicinity Map

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.

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

The potential for generating revenue to enhance management was also analyzed. Visitor fees and charges are the principal source of revenue generated by the park. It was determined that entrance fees, concessions and similar measures would be appropriate at this park as additional sources of revenue for land management since they are compatible with the park's primary purpose of resource-based outdoor recreation and conservation.

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

MANAGEMENT PROGRAM OVERVIEW

Management Authority and Responsibility

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

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

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

Many operating procedures are standard system wide and are set by policy. These procedures are outlined in the Division Operations Procedures Manual (OPM) and cover such areas as personnel management, uniforms and personal appearance, training, signs, communications,

fiscal procedures, interpretation, concessions, camping regulations, resource management, law enforcement, protection, safety and maintenance.

In the management of Lake Manatee State Park, emphasis is placed on maximizing the area's recreational potential; however, preservation of resources remains important. Depletion of a resource by any recreational activity is not permitted. In order to realize the unit's recreational potential, development in the park is aimed at providing facilities that are accessible, convenient and safe, as needed, to support recreational use or the unit's natural, aesthetic, and educational attributes.

Park Goals and Objectives

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

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

Natural and Cultural Resources

1. Restore and maintain historic, fire-dependent natural communities.
- **A.** Use fire and plantings to promote re-colonization of agriculturally disturbed land with a diversity of species and habitats present historically.
- **B.** Use fire, mechanical treatment, and harvesting of sand pines, as necessary, to maintain species diversity in natural habitats.

2. Eradicate invasive exotic plants such as Brazilian pepper, downy rose-myrtle, and cogongrass.
- **A.** Monitor and eradicate new invasions by downy rose-myrtle, air potato, cogongrass, and other exotic plants.
- **B.** Continue to work towards eradication of Brazilian pepper from natural habitats.

3. Provide adequate protection for listed species.
- **A.** Maintain habitat suitable for the species listed in Addendum 6.
- **B.** Monitor the responses of listed species to habitat management practices such as burning and exotic removal, as well as the impacts of recreational use.

Recreational Goals

4. Continue to provide quality resource based outdoor recreational and interpretive programs and facilities at the state park.
- **A.** Design park facilities to facilitate and appropriately manage visitor use of the park.
- **B.** Continue to provide opportunities for picnicking, swimming, camping, boating, hiking, bicycling, and horseback riding.
- **C.** Maintain the trail system of the park, including routine maintenance of trail

markers and interpretive materials.

5. Seek funding to expand recreational and interpretive opportunities through the improvement of programs and the development of new use areas and facilities, as outlined in this management plan.
   - **A.** Improve the swimming area.
   - **B.** Provide interpretive signage at day use areas to educate visitors about the surrounding natural communities.
   - **C.** Establish a trailhead area near the maintenance area to support hikers, bicyclists, and horseback riders on the shared use trail.
   - **D.** Coordinate efforts with Manatee County to accommodate their proposed greenway trail, which circumnavigates Lake Manatee.

Management Coordination

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

The Department of Agriculture and Consumer Services, Division of Forestry (DOF), assists Division staff in the development of wildfire emergency plans and provides the authorization required for prescribed burning. The Florida Fish and Wildlife Conservation Commission (FFWCC), assists staff in the enforcement of state laws pertaining to wildlife, freshwater fish and other aquatic life existing within park boundaries. In addition, the FFWCC aids the Division with wildlife management programs, including the development and management of Watchable Wildlife programs. The Department of State, Division of Historical Resources (DHR) assists staff to assure protection of archaeological and historical sites. The Department of Environmental Protection (DEP), Office of Coastal and Aquatic Managed Areas (CAMA) aids staff in aquatic preserves management programs. The DEP, Bureau of Beaches and Wetland Resources aids staff in planning and construction activities seaward of the Coastal Construction Line. In addition, the Bureau of Beaches and Wetland Resources aid the staff in the development of erosion control projects. Emphasis is placed on protection of existing resources as well as the promotion of compatible outdoor recreational uses.

Southwest Florida Water Management District and Manatee County are working with Lake Manatee State Park in establishing a contiguous greenway encompassing county and state lands. These efforts will give multiple users a much broader experience through various habitats on a safer trail system.

Public Participation

The Division provided an opportunity for public input by conducting a public workshop and an advisory group meeting. A public workshop was held on May 5, 2004. The purpose of this meeting was to present this draft management plan to the public. A DEP Advisory Group meeting was held on May 6, 2004. The purpose of this meeting was to provide the Advisory Group members the opportunity to discuss this draft management plan.

Other Designations

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

All waters within the unit have been designated as Outstanding Florida Waters, pursuant to Chapter 62-302 Florida Administrative Code. Surface waters in this unit are also classified as Outstanding Florida Waters by DEP. This unit is not within or adjacent to an aquatic preserve

as designated under the Florida Aquatic Preserve Act of 1975 (section 258.35, Florida Statutes).

RESOURCE MANAGEMENT COMPONENT

INTRODUCTION

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

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

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

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

RESOURCE DESCRIPTION AND ASSESSMENT

Natural Resources

Topography

Lake Manatee State Park is located in the coastal lowlands, a major topographic division that extends inland from the coast to about the 100-foot contour line. The limestone substrate beneath the park is a juncture of two Miocene formations: the Hawthorn and the Bone Valley. The entire park lies on a southern slope of the Manatee River valley, and the soils suggest former marine terraces and shorelines. A reservoir has been created by damming the Manatee River downstream of the western park boundary, and the southern shoreline of this reservoir forms the northern boundary of the park. The elevation of the park ranges from 40 to 70 feet (NGVD of 1929) above sea level.

Geology

The park lies on a relatively flat terrace of probable submarine origin known as the DeSoto Plain (White 1970). The Terraced Coastal Lowlands are a subdivision of the Coastal Plain Province (Vernon 1951). Rocks of the Cretaceous Period occur from 5,000 to 10,000 ft below sea level. They consist of interbedded shale, limestone, and anhydrite, and contain highly mineralized water. At depths of 10,000 ft, water contains more than 100,000 PPM of chloride, compared to less than 20,000 PPM found in seawater.

Above the Cretaceous deposits are limestone of the Paleocene Epoch, which are about 2000 ft thick and include the fossiliferous Cedar Keys formation. Above this are limestone of the Eocene, Oligocene and Miocene Epochs. The Tampa formation is early Miocene limestone that yields large quantities of artesian water. Above this is the Hawthorn formation, which

consists of clay and marl interbedded with sandy limestone, silt, sand and shells. Formations of the latest Tertiary Epoch (Pliocene), including the Bone Valley formation, overlay the Hawthorn. Above these are the Pleistocene and Recent deposits of sand, shells, and limestone. Deposits of Pleistocene and probably Pliocene age are exposed at the surface throughout Manatee County (Peek 1958).

Soils

In general, the soils of Lake Manatee State Park are those of sandy ridges and knolls (Tavares-Cassia-Zolfo), consisting of nearly level to gently sloping sandy soils with or without a subsoil (Hyde and Huckle 1981). Citrus and vegetable crops have been grown on soils now within the park. Where crops were present, soil disturbance is reflected in the low diversity of vegetative cover. Plant communities in other portions of the park have been altered by historical use of the land for pasture. For example, bahiagrass is a dominant species in the ground layer in some of these communities.

Fifteen soil types are recognized within the boundaries of the park (see Soils Map). The predominant types are Duette fine sand (19) and Pomello find sand (42) on the higher and dryer sites, and Myakka fine sand (30, 31) along the shore of Lake Manatee. Currently, there are no soil conservation or erosion issues at this park. Addendum 3 contains detailed soil descriptions for all the soil types found within the park.

Minerals

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

Hydrology

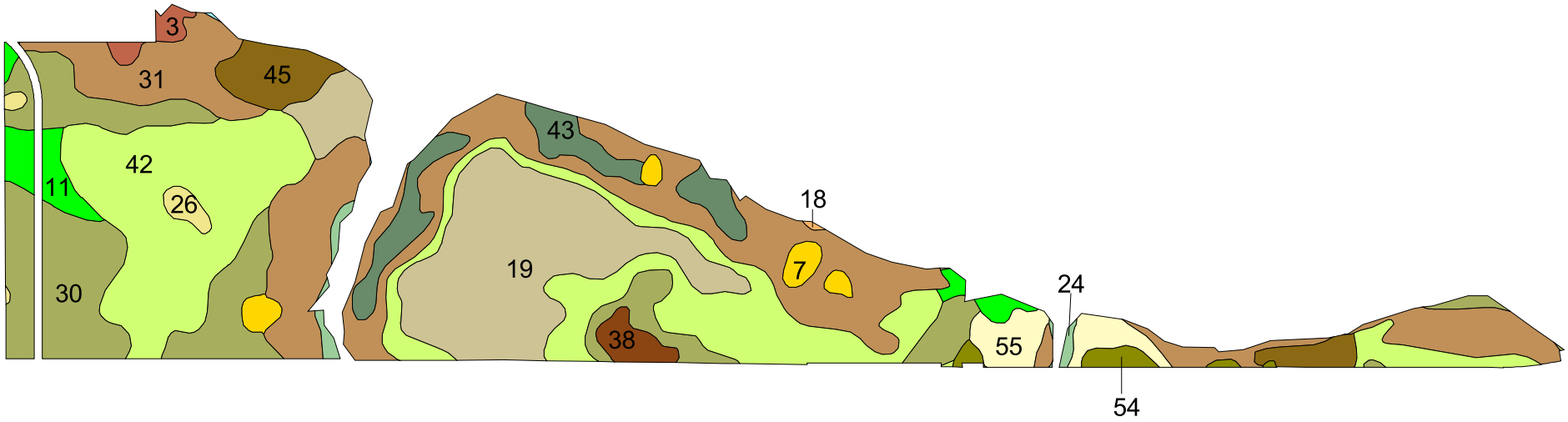
There is no permanent surface water in the park. Ephemeral ponds in the form of depression marshes are present. These marshes are subject to disturbance from feral hogs, and would benefit from removal of this exotic animal from the park. Along the shore of Lake Manatee, the 40-foot contour line is the boundary between state and private (Manatee County) lands. Land that is waterward of the 40-foot contour line would be claimed by the State if the waterway was navigable at the time of Statehood (Wilkinson 1993), but these lands are not within the park.

Natural Communities

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

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

Mesic flatwoods. This and scrub are the predominant community types in the park. This community type contains both slash pine and longleaf pine in its canopy, and saw palmetto dominates in the shrub layer. Beginning with 2000 trees in 1977, longleaf pines were re-planted in agriculturally disturbed habitat. During the latter years of the project, longleaf pine was planted at the rate of 1000/year. The last plantings were done in the eastern portion of the



LEGEND

- 3-Braden fine sand
- 7-Canaova, Anclote, and Okeelanta soils
- 11-Cassia fine sand
- 18-Delray-Pomona complex
- 19-Duette fine sand, 0 to 5 percent slopes
- 24-Felda-Wabasso association, frequently flooded
- 26-Floridana fine sand
- 30-Myakka fine sand, 0 to 2 percent slopes
- 31-Myakka fine sand, 2 to 5 percent slopes
- 38-Palmetto sand
- 42-Pomello fine sand, 0 to 2 percent slopes
- 43-St. Johns fine sand, 2 to 5 percent slopes
- 45-Tavares fine sand, 0 to 5 percent slopes
- 54-Zolfo fine sand, 0 to 2 percent slopes
- 55-Zolfo fine sand, 2 to 5 percent slopes
- Water

N

900 0 900 1800 Feet

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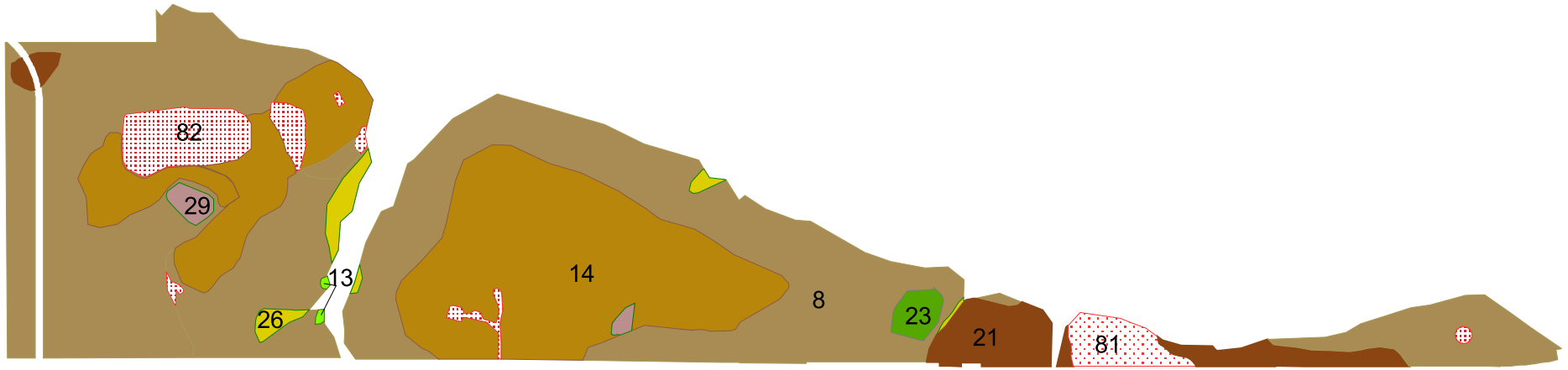
Florida Department of Environmental Protection
Division of Recreation and Parks
Office of Park Planning

LAKE MANATEE STATE PARK

SOILS MAP



LEGEND

- 8 - Mesic Flatwoods-319.90 ac.
- 13 - Sandhill-0.42 ac.
- 14 - Scrub-154.90 ac.
- 21 - Upland Mixed Forest-26.34 ac.
- 23 - Xeric Hammock-4.37 ac.
- 26 - Baygall-7.41 ac.
- 29 - Depression Marsh-3.72 ac.
- 81 - Ruderal-9.77 ac.
- 82 - Developed-21.95 ac.

N

900 0 900 1800 Feet

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

LAKE MANATEE STATE PARK

NATURAL COMMUNITIES MAP

park in 1986 and 1987. Other species characteristic of this community type in the park includes gallberry, wax myrtle, wiregrass, pennyroyal, grape vine, sumac, paw-paw, and runner oak. The mesic flatwoods is generally too wet to support gopher tortoise burrows. Uphill, the community grades into sand pine scrub or ruderal habitat. Downhill, the shoreline of Lake Manatee intercepts this community type. Most of the mesic flatwoods community has been burned at least once during the last eight years. However, the density of palmetto is greater than it may have been under natural conditions. Mechanical treatment would benefit some portions of the habitat where palmetto is most dense. Invasion of exotic plants in this community type is being controlled, and overall, the mesic flatwoods are in fair condition. A radio tower and associated equipment are located in mesic flatwoods on the eastern side of the park.

Sandhill. Relict sandhill habitat occurs on several small acreages within the park boundary. These are found along the Poley Branch of Lake Manatee, and are characterized by turkey oak, longleaf pine, hog plum, gopher apple, and wiregrass. Relatively high densities of gopher tortoise burrows occur on the sites. This community is in fair to poor condition due to fire exclusion and the small size of the areas.

Scrub. Sand pine scrub occurs on the higher, well-drained portions of the park. Almost all park facilities have been placed in this community type, including picnic grounds, a playground, the campground, the park shop and other support facilities, and park residences. Hence, prescribed burning presents special challenges, and the sand pine scrub has not been burned, except for patches burned accidentally, since the park was established. Where sand pine dominates the canopy, the shrub layer is characterized by saw palmetto, hog plum, sand live oak, and a few myrtle oaks. The ground cover is sparse and dominated by ground lichens, wiregrass, and greenbrier. Scrub is recovering on land disturbed by crop farming, with the re-entry of sand pines and ground cover species. However, vegetative cover is still sparse at these sites. Outside-developed areas are in good condition.

Upland mixed forest. This community type occurs on former pasture where oaks have grown, but the canopy has remained open and ground cover has responded to the surrounding light levels. Live and laurel oaks are both present. In the shrub layer, palmetto, hog plum, cabbage palm, greenbrier, and red bay are present. The ground layer includes bahiagrass, as well as native grasses, and a few seedling longleaf pine in the grass stage. A few mature pines are also present. Although somewhat atypical due to its origins in agricultural disturbance, this community type is in fair condition.

Xeric hammock. In a portion of scrub dominated by oaks, succession has resulted in a xeric hammock community type. The canopy is relatively low, open, and dominated by sand live oak. A shrub layer dominated by saw palmetto and hog plum is present. Ground cover is sparse, but includes wiregrass. It has probably been protected from fire for many years.

Baygall. This community type is sparsely present along some of the shoreline of Lake Manatee where drainage enters the Lake from the park. It is characterized by water oak, laurel oak and loblolly bay in the canopy, and saw palmetto, wax myrtle, and greenbrier in the shrub layer. Ferns, sedges, and occasional ground orchids are found in the ground layer. This community is in fair condition due to rooting by feral pigs.

Depression marsh. This type of marsh is found at only two locations in the present-day park. It tends to have a peripheral zone composed of gallberry, wax myrtle, and an occasional loblolly bay, and a central zone composed of grasses such as *Andropogon spp*. The limited pattern of zonation probably reflects disturbance to hydroperiod, fire exclusion, and damage from rooting pigs.

Ruderal. Much of the park was previously used as agricultural cropland. Some citrus trees are still present on land that was formerly a grove. Additional portions of the park were previously cultivated for tomatoes. These sites are recovering slowly, and in some places, ground cover still tends to be dominated by pioneering species. The site of one abandoned citrus grove has had only minimal recovery of natural habitat, and was designated ruderal.

Developed. A picnic area, playground, parking lots, campground, shop, residences, and storage areas have been established in scrub habitat.

Designated Species

Designated species are those that are listed by the Florida Natural Areas Inventory (FNAI), U.S. Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FFWCC), and the Florida Department of Agriculture and Consumer Services (FDA) as endangered, threatened or of special concern. Addendum 5 contains a list of the designated species and their designated status for this park. Management measures will be addressed later in this plan.

There are five designated plant species and 24 designated animal species. The latter include five species of reptiles, 16 species of birds, and three species of mammals.

Special Natural Features

Although it possesses globally endangered scrub habitat, and the designated species mentioned above, Lake Manatee State Park does not possess any special natural features that are unique.

Cultural Resources

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

Several archaeological sites have been found along the northeastern shore of Lake Manatee (i.e. Florida Master Site File sites Ma830, Ma831, and Ma832), but these are not within the park. No known cultural resources occur in the park, but a comprehensive survey has never been done.

RESOURCE MANAGEMENT PROGRAM

Special Management Considerations

Timber Management Analysis

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

coastal strand.

A timber management analysis was not conducted for this park. The total acreage for the unit is below the 1,000-acre threshold established by Florida Statutes. Timber management will be reevaluated during the next revision of this management plan.

Additional Considerations

There are no additional considerations at this park.

Management Needs and Problems

The greatest management needs are:

1. prescribed burning to maintain natural communities adapted to fire,
2. monitoring for and control of invasive exotic plant species, and
3. monitoring of the responses of designated species to resource management activities.

Management Objectives

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

1. The most important natural resource management objective is continuation of an effective prescribed burning program.
2. The objective for controlling invasive exotic plants such as Brazilian pepper, cogongrass and air potato includes monitoring and control. Exotic plants are few, and the problem is quite manageable at its present level. The efforts of one park ranger and volunteers at the park are adequate to keep the exotic plant problem at a minimum.
3. The objective of monitoring designated plant species and other aspects of the natural resource is to better define their response to management activities at the park. When resource management problems are identified, they can then be corrected to the benefit of designated species, as well as to the resource as a whole. Where monitoring data suggest it may be beneficial, appropriate protective measures can be applied.

Management Measures for Natural Resources

Hydrology

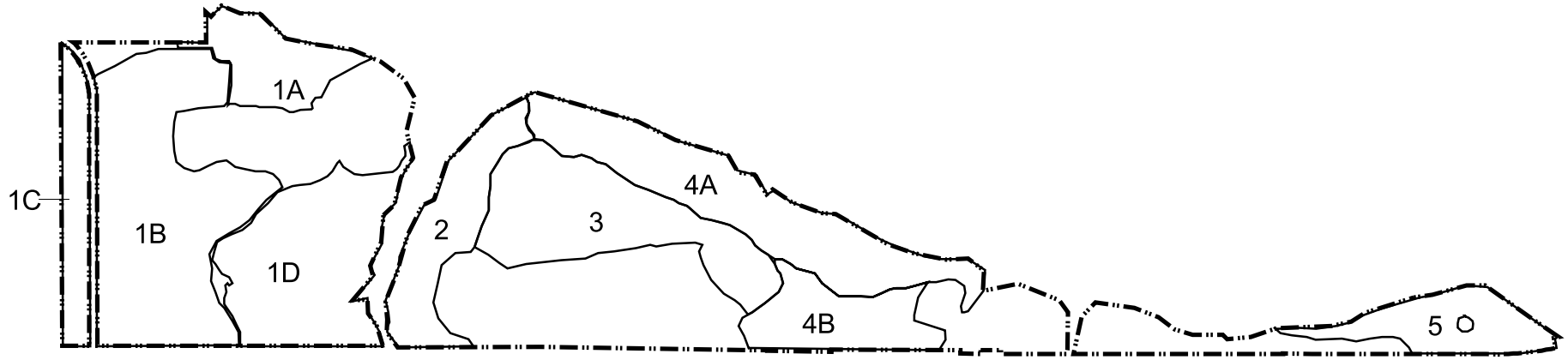
There are no permanent surface bodies of water at Lake Manatee State Park, and no description of conservation measures is applicable. There is also no soil erosion problem at the park.

Prescribed Burning

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

The park has been divided into five burn zones (see Burn Zones Map), varying in size from 46 to 306 acres. These are further subdivided as necessary to facilitate prescribed burning.

Zone 1 is 306 acres, and includes all fire-adapted habitat west of the Poley Branch of Lake Manatee. This includes mesic flatwoods, scrub, sandhill and depression marsh. Due to the presence of development, this zone is typically subdivided into sections bordered by trails and



LEGEND
Park boundary
Burn zones

N

1000 0 1000 2000 Feet

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

LAKE MANATEE STATE PARK

BURN ZONE MAP

the main road into the park. This entire zone outside the picnic area has been burned in recent years. The picnic area contains a stand of mature sand pine, and burning here is probably impractical.

The mesic flatwoods between the Poley Branch of Lake Manatee and the scrub on the higher land to the east comprises zone 2. It covers 46 acres.

Zone 3 includes all the scrub community (101 acres) east of Poley Branch and west of Little Deep Creek, both of which stretch from Lake Manatee to south of State Road 64. Zone 4 includes 106 acres of mesic flatwoods in the same portion of the park. It has been burned twice in the last 8 years. Saw palmetto is predominant in the latter community, as well as in contiguous portions of zone 2, and may require mechanical treatment in the near future to decrease its cover. Aside from a wildfire that burned about 10 acres, the scrub (sand pine) has not been burned, and will probably require logging of trees to reduce the hazard of a catastrophic fire before it is burned. It should be burned within the next 10-20 years.

Zone 5 includes 61 acres of mesic flatwoods, upland mixed forest, and ruderal habitat in the eastern portion of the park.

A Prescribed Burn Plan has been in place for Lake Manatee State Park since 1989, and it appears to be appropriate to the needs of the park. Smoke sensitive areas are increasing along the perimeter of the park as development of adjacent property continues. State Road 64 is particularly smoke sensitive and limits burning to those days when there is a southerly wind direction.

Designated Species Protection

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

There has been no indication that special protective measures are needed for designated plant and animal species found at Lake Manatee State Park. However, the response of these species to management activities needs to be monitored.

Exotic Species Control

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

Exotic plant control at Lake Manatee State Park has been adequate under current management practices. Cogongrass has appeared in the park, and state-of-the-art control methods have been implemented to control and eliminate it. Monitoring and removal will continue as in the past. These methods include mowing and application of herbicide during the season when the plants are most vulnerable to treatment. There are no large infestations that require a detailed plan. Removal of Brazilian pepper and other exotics will continue as previously done. This usually involves removing or treating the plants with herbicide as soon as they are found. This approach should provide adequate control of exotic plants into the future. Exotic animal control should include removal of wild pigs in the park.

Problem Species

Problem species are defined as native species whose habits create specific management

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

No problem species have been identified at Lake Manatee State Park.

Management Measures for Cultural Resources

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

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

No cultural resources are known in the park. A comprehensive survey for archaeological sites within the park needs to be done.

Research Needs

Natural Resources

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

A thorough inventory of both plant and animal species, including gopher tortoise burrow locations, is needed at Lake Manatee State Park. This is especially important given the amount of development, agricultural and residential, occurring near the park. Population dynamics of designated species found in the park should be investigated to aid management. Finally, restoration research could be conducted at the park on sites that still have a ruderal aspect.

Cultural Resources

The park should be surveyed for the occurrence of any archeological sites.

Resource Management Schedule

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

Land Management Review

Section 259.036, Florida Statutes, established land management review teams to determine whether conservation, preservation, and recreation lands titled in the name of the Board of Trustees of the Internal Improvement Trust Fund (board) are being managed for the purposes for which they were acquired and in accordance with a land management plan adopted pursuant to s. 259.032, the board of trustees, acting through the Department of Environmental Protection (department). The managing agency shall consider the findings and recommendations of the land management review team in finalizing the required update of the management plan. A land management review of this park has not been conducted.

LAND USE COMPONENT

INTRODUCTION

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

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

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

EXTERNAL CONDITIONS

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

Lake Manatee State Park is located within Manatee County about 15 miles east of Bradenton near the Tampa Bay area of Florida's Gulf Coast. The populations of Manatee County and the adjacent Hillsborough, Pinellas and Sarasota Counties have grown 15% since 1990, and are projected to grow an additional 14% by 2010 (BEBR, University of Florida, 2002). As of 2002, 18% of residents in these counties were in the 0-14 age group, 39% in the 15-44 age group, 24% in the 45-64 age group, and 20% were aged 65 and over, which is slightly older than the state average for these groupings (BEBR, University of Florida, 2002). Nearly 2.9 million people reside within 50 miles of the park, which includes the cities of Tampa, Lakeland, Clearwater, St. Petersburg, Bartow, Bradenton, and Sarasota (Census, 2000).

Lake Manatee State Park recorded 56,012 visitors in 2002-2003. This represents a net increase over the last five years. By Division estimates, these visitors contributed $1,687,731 in direct economic impact and the equivalent of 33.8 jobs to the local economy (Florida Department of Environmental Protection, 2003).

Existing Use of Adjacent Lands

Lake Manatee State Park is bounded to the north by the shoreline of the reservoir, and to the south by State Road 64. Large tracts of land surrounding Lake Manatee State Park and the lake itself are currently being used for agricultural purposes, including citrus production. There are some private single-family residences scattered around the unit. Less than half a mile from the main entrance of the state park, across State Road 64, is a racetrack that holds

regularly scheduled racing events (auto, motorcycle, etc). This activity which occurs mainly on Friday and Saturday nights, causes considerable noise pollution during the races, thus taking away from the natural setting of the state park.

Manatee County provides numerous resource-based recreational opportunities at parks located throughout the county. One such county park, Rye Wilderness Park, is located about 3 miles northwest of Lake Manatee State Park. It has a boat ramp, canoe launch, hiking trails, horse trails, bike trails, nature trails, tent camping, fishing, and picnicking. Duette Park, located about 15 miles east of Lake Manatee, is another county park which provides opportunities for hiking, biking, horseback riding, nature study, tent camping, hunting, and picnicking. Other State Parks within Manatee County include Judah P. Benjamin Confederate Memorial at Gamble Plantation Historic State Park, Madira Bickel Mound State Archaeological Site, Skyway Fishing Pier State Park, Beker, and Myakka River State Park. Collectively, these parks offer opportunities for fishing, boating, canoeing, hiking, biking, horseback riding, camping, cabins, nature study, wildlife observation, birding, historical and archaeological appreciation, and picnicking.

Planned Use of Adjacent Lands

The majority of the land surrounding Lake Manatee State Park is designated as "Agriculture/Rural" on the Future Land Use Map (Manatee County, 1999). This designation limits future development to agriculture, agro-industrial, commercial uses related to agriculture, rural residential, mining, and recreational uses. The southwest corner of the lake is home to a water filtration station in an area designated as "Major Public/Semi-Public". Other land adjacent to the Park is designated as an "Urban Fringe" residential area. The property around Lake Manatee is expected to undergo additional residential development as the population of the region continues to increase. This could have adverse effects on the lake, as additional development would increase stormwater runoff. In addition, any development along the north shore of Lake Manatee would be in the viewshed of the state park, and thus would detract from the natural scenery.

PROPERTY ANALYSIS

Effective planning requires a thorough understanding of the unit's natural and cultural resources. This section describes the resource characteristics and existing uses of the property. The unit's recreation resource elements are examined to identify the opportunities and constraints they present for recreational development. Past and present uses are assessed for their effects on the property, compatibility with the site, and relation to the unit's classification.

Recreation Resource Elements

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

Land Area

Lake Manatee State Park contains 616.14 acres and is adjacent to the Lake Manatee reservoir. Topography of the site is characteristic of the coastal lowlands of western Florida. Two creeks, which flow northward through the park, physically separate the property into three segments. Plant communities at the park include scrub, mesic flatwoods, depression marsh, floodplain marsh, baygall, and xeric hammock. Except for the last two, these are fire maintained communities. At Lake Manatee State Park, the scrub, mesic flatwoods, and xeric hammock communities offer the greatest opportunities for outdoor recreation. These communities contain sufficient uplands for recreational activities such as camping, hiking,

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

Water Area

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

Shoreline

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

Natural Scenery

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

Significant Wildlife Habitat

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

Archaeological and Historical Features

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

Assessment of Use

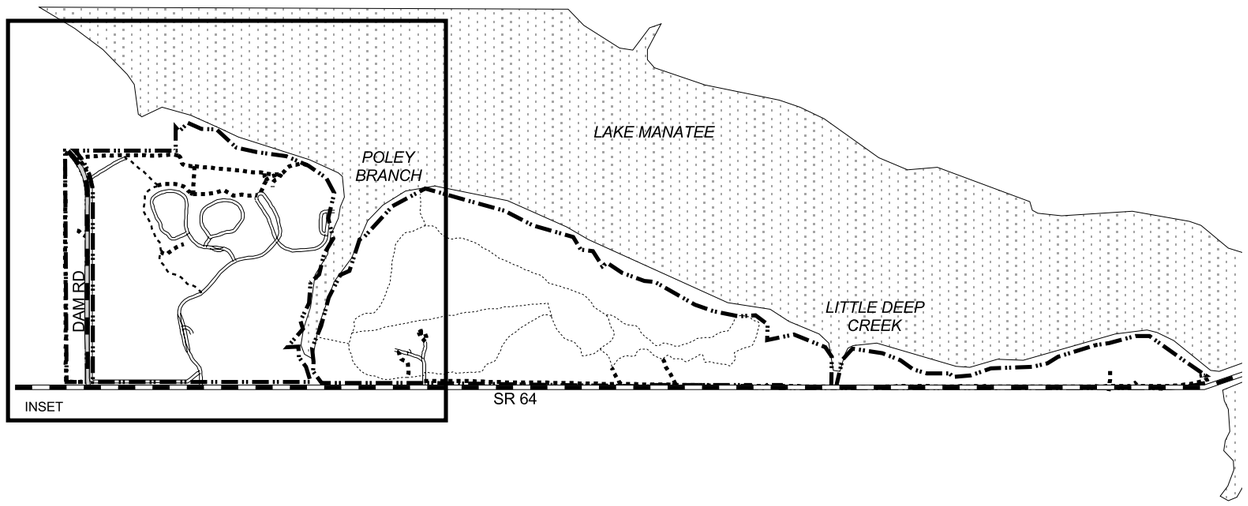
All legal boundaries, significant natural features, structures, facilities, roads, trails and easements existing in the unit are delineated on the base map (see Base Map). Specific uses made of the unit are briefly described in the following sections.

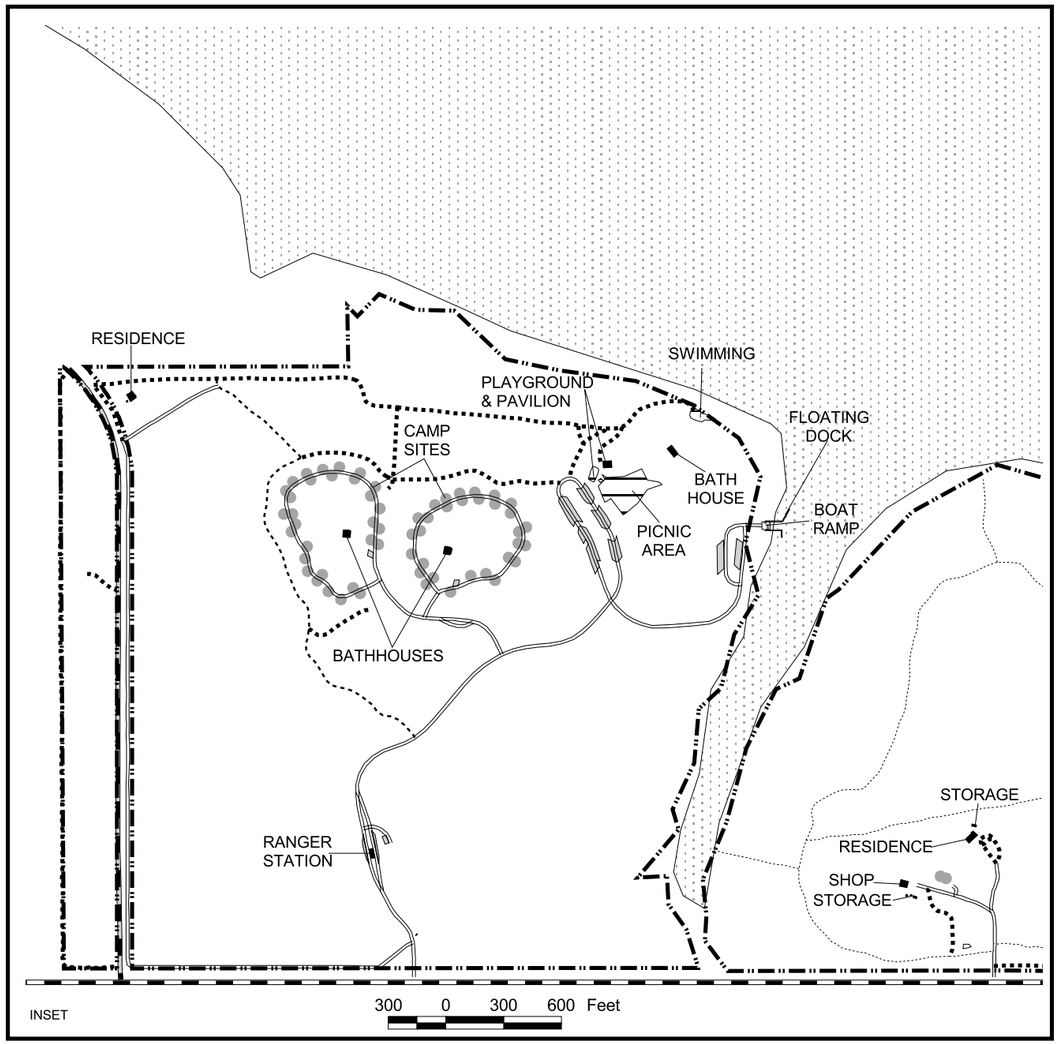
Past Uses

The state acquired the property for Lake Manatee State Park from Manatee County in 1970. The county had entered into a contract with the federal government for a grant to acquire open-space land. Before the county acquired the property, it was used as a ranch for raising cattle.

Recreational Uses

The existing forms of recreation at Lake Manatee State Park include camping, hiking, horseback riding, bicycling, picnicking, swimming, fishing, and boating.





LEGEND

- Park Boundary
- State Road
- County Road
- Park Road Paved
- Park Road Unpaved
- Hiking Trail
- Shared-Use Trail
- Structures
- Special Use Areas
- Parking Lots
- Camp Sites
- Marinestructure.shp
- Water Bodies

N

1000 0 1000 2000 Feet

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

LAKE MANATEE STATE PARK

BASE MAP

Other Uses

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

The Florida Wildlife Commission has a sublease for a 480 feet diameter circle on the eastern corner of the state park property. They maintain a radio communications tower within this subleased parcel.

Protected Zones

A protected zone is an area of high sensitivity or outstanding character from which most types of development are excluded as a protective measure. Generally, facilities requiring extensive land alteration or resulting in intensive resource use, such as parking lots, camping areas, shops or maintenance areas, are not permitted in protected zones. Facilities with minimal resource impacts, such as trails, interpretive signs and boardwalks are generally allowed. All decisions involving the use of protected zones are made on a case-by-case basis after careful site planning and analysis.

At Lake Manatee State Park, the depression marsh, baygall, sandhill, and scrub communities have been designated as protected zones as delineated on the Natural Communities Map.

Existing Facilities

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

Support facilities. The support facilities at this park consist of a shop building, flammable storage building, two ranger residences, and entrance station.

CONCEPTUAL LAND USE PLAN

The following narrative represents the current conceptual land use proposal for this park. As new information is provided regarding the environment of the park, cultural resources, recreational use, and as new land is acquired, the conceptual land use plan may be amended to address the new conditions (see Conceptual Land Use Plan). A detailed development plan for the park and a site plan for specific facilities will be developed based on this conceptual land use plan, as funding becomes available.

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

POSSIBLE CONNECTION TO MANATEE COUNTY GREENWAY

CAMPFIRE CIRCLE

IMPROVED SWIMMING AREA

EQUIPMENT SHELTER

TRAILHEAD

LAKE MANATEE

EQUESTRIAN ROUTE

BOARDWALK

PROPOSED TRAIL

LEGEND

- PROPOSED FACILITY
- PROPOSED TRAIL
- EQUESTRIAN ROUTE
- PROTECTED ZONE
- STRUCTURES
- PARKING LOTS
- MARINE STRUCTURES
- TRAIL/UNPAVED PARK ROAD
- PARK ROAD PAVED
- STATE ROAD
- PARK BOUNDARY

LAKE MANATEE STATE PARK

N

1000 0 1000 2000 Feet

PREPARED BY: FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF RECREATION AND PARKS
OFFICE OF PARK PLANNING

CONCEPTUAL LAND USE PLAN

design of all new park facilities consistent with the universal access requirements of the Americans with Disabilities Act (ADA). After new facilities are constructed, the park staff monitors conditions to ensure that impacts remain within acceptable levels.

Potential Uses and Proposed Facilities

Lake Manatee State Park is intended to meet the more active recreation needs of the public. The existing forms of recreation are appropriate and should be continued. In addition, the following park development is recommended:

Recreation Facilities

Swimming Area Improvements. There is a constant struggle to keep the swimming area free of aquatic vegetation. In an effort to keep this area clear for swimmers, a net and buoy system is recommended to prevent the majority of these plants from moving in. A few picnic tables and an interpretive display are also recommended for the swimming area to enhance its appearance and inform visitors of the reservoir's use as the local water source.

Interpretive Displays. Currently, this park has no signs to interpret the natural communities, exotic and endangered species, restoration efforts, resource management, or recreational opportunities. Interpretive displays are recommended for the picnic area, the swimming area, and the new trailhead area to address these topics.

New Trailhead. The existing service roads have become a popular trail facility for equestrians and other users. A trailhead is needed to add parking and solve congestion problems along the road leading to the maintenance area. The following development is proposed for the trailhead area: stabilized parking, small restroom, medium picnic shelter, interpretive sign, hitching post, water trough, and bike rack. A composting restroom should be provided in the interim.

Trail Extension. The existing trail system in the eastern portion of the state park should be linked to the existing day use areas and camping area in the western portion. Linking these areas will require the construction of a boardwalk across Poley Branch, one of the creeks that flows into Lake Manatee from the south. The boardwalk should be constructed wide enough to allow maintenance equipment to cross.

Linkage to Proposed Manatee County Greenway Trail System. Manatee County has identified the need to develop and implement a countywide, non-motorized, shared-use greenway trail network connecting to a regional system. Their greenway master plan identifies Lake Manatee State Park as an excellent trailhead due to the existing amenities that can support the trail system. One segment of the proposed greenway system will connect Manatee County's Rye Wilderness Park to the Lake Manatee State Park. From the state park, this trail will head south to the Sarasota County line. Another segment of the proposed trail system heads east through the state park then makes a nine mile loop around Lake Manatee back to the Rye Wilderness Park. Greenway users arriving from the northwest corner of the state park should be routed along existing service roads to the picnic/swimming area. Equestrians should be provided with a hitching post an appropriate distance from other visitors due to public health and safety concerns. From this day-use area, hikers and bikers can follow the paved park road to the proposed trail extension to access the east side of the state park. Equestrians should be routed along another service road, behind the camping area, across the main park road and join the proposed trail extension at the Poley Branch boardwalk crossing.

Support Facilities

New Equipment Shelter. A three-bay equipment shelter is needed in the maintenance area to store park vehicles and other equipment.

Facilities Development

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

Recreation Facilities

Picnic Area
Interpretive Display

Swimming Area
Net and Buoy System
Interpretive Display
Picnic Tables

Trailhead Area
Stabilized Parking (10 vehicles)
Small Restroom
Medium Picnic Shelter
Interpretive Sign
Hitching Post
Water Trough
Bicycle Rack

Trail Extension
Boardwalk (400 feet)

Support Facilities

3-Bay Equipment Shelter

Existing Use and Optimum Carrying Capacity

Carrying capacity is an estimate of the number of users a recreation resource or facility can accommodate and still provide a high quality recreational experience and preserve the natural values of the site. The carrying capacity of a unit is determined by identifying the land and water requirements for each recreation activity at the unit, and then applying these requirements to the unit's land and water base. Next, guidelines are applied which estimate the physical capacity of the unit's natural communities to withstand recreational uses without significant degradation. This analysis identifies a range within which the carrying capacity most appropriate to the specific activity, the activity site and the unit's classification is selected (see Table 1).

The optimum carrying capacity for this park is a preliminary estimate of the number of users the unit could accommodate after the current conceptual development program has been implemented. When developed, the proposed new facilities would approximately increase the unit's carrying capacity as shown in Table 1.

Optimum Boundary

As additional needs are identified through park use, development, research, and as adjacent land uses change on private properties, modification of the unit's optimum boundary may occur for the enhancement of natural and cultural resources, recreational values and management efficiency.

At this time, no lands are considered surplus to the needs of the park. At this time, no additional lands are identified for acquisition.

Table 1--Existing Use and Optimum Carrying Capacity

	Existing Capacity		Proposed Additional Capacity		Estimated Optimum Capacity	
Activity/Facility	**One Time**	**Daily**	**One Time**	**Daily**	**One Time**	**Daily**
Camping	240	240			240	240
Multi-Use Trails	20	80	16	32	36	112
Swimming/Picnicking	215	430	8	16	223	446
Boating						
Limited Power	60	120			60	120
No Power	40	80			40	80
Fishing						
Dock	20	40			20	40
TOTAL	**355**	**750**	**24**	**48**	**379**	**798**

Addendum 1—Acquisition History and Advisory Group Staff Report

Purpose of Acquisition
The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees) has acquired Lake Manatee State Park to manage the property in such a way as to protect and restore the natural and cultural values of the property and provide the greatest benefit to the citizens of the state.

Sequence of Acquisition
On June 16, 1970, the Trustees purchased a 548.78-acre property, which later became Lake Manatee State Park, from Manatee County. The purchase was funded under "Bond Proceeds Account."

Lease Agreement
On June 30, 1971, the Trustees conveyed management authority of Lake Manatee State Park to the Division of Recreation and Parks (Division) under Lease No. 2543. The lease is for a period of ninety-nine (99) years, which will expire on June 30, 2070.

According to Lease No. 2543, the Division manages Lake Manatee State Park to preserve, develop, operate and maintain and use the property for out-door recreational, park, conservation and related purposes.

Title Interest
The Trustees hold fee simple to Lake Manatee State Park.

Special Conditions on Use
Lake Manatee State Park is designated single-use to provide resource-based public outdoor recreation and other park related uses. Uses such as, water resource development projects, water supply projects, 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.

Outstanding Reservations
Following is a listing of outstanding rights, reservations, and encumbrances that apply to Lake Manatee State Park.

Instrument:	County Deed
Instrument Holder:	Manatee County
Beginning Date:	June 16, 1970
Ending Date:	No specific ending date is given
Outstanding Rights, Uses, Etc.:	The instrument holder reserves unto itself a flowage easement over a specified portion of the subject property.
Instrument:	Sublease Agreement
Instrument Holder:	Department of Environmental Protection
Beginning Date:	February 23, 1989
Ending Date:	February 22, 2039
Outstanding Rights, Uses, Etc.:	The sublease allows the Florida Game and Fresh Water Fish Commission (now Florida Fish and Wildlife Commission to) to use a certain portion of the park for wildlife patrol tower site.

Instrument:	Easement
Instrument Holder:	Division
Beginning Date:	May 10, 1976
Ending Date:	Until the use thereof is abandoned
Outstanding Rights, Uses, Etc.:	The easement allows Peace River Electric Cooperative, Inc. To construct, install, operate and maintain a single and/or three-phase distribution system for the transmission and distribution of electricity.

Instrument:	Easement
Instrument Holder:	Division
Beginning Date:	April 6, 1976
Ending Date:	Until the use thereof is abandoned
Outstanding Rights, Uses, Etc.:	The easement allows Florida Power and Light Company to construct, install, operate and maintain a single and/or three phase distribution consisting of a single pole lines for the transmission and distribution of electricity.

Instrument:	Easement
Instrument Holder:	Department of Environmental Protection
Beginning Date:	April 6, 1976
Ending Date:	Coterminous with the expiration date of Lease No. 2543.
Outstanding Rights, Uses, Etc.:	The easement grants certain adjacent property owners to use a portion of the park for ingress and egress purposes.

Lake Manatee State Park

List of Advisory Group Members

Elected Official
The Honorable Jane von Hahmann,
Chair
Manatee Board of County Commissioners
P.O. Box 1000
Bradenton, Florida 34206

Agency Representatives
William C. Wolbert, Park Manager
Manatee River Basin GEOpark
3708 Patten Avenue
Ellenton, Florida 34222

Gary Reeder, Chairman
Manatee River Soil and Water
Conservation District
1703 21st Street West
Palmetto, Florida 34221
Represented by:
Ben King
347 Willow Lane
Ellenton, Florida 34222

Jeff McGrady
Southwest Region
Florida Fish and Wildlife Conservation
Commission
3900 Drane Field Road
Lakeland, Florida 33811-1299
Represented by:
Kevin Main
1630 Virginia Avenue
Lake Placid, Florida 33852

Ed Flowers, Manager
Myakka River District
Division of Forestry
4723 53rd Avenue, E.
Bradenton, Florida 34203

Steve Black, President
Manatee County Audubon Society
2746 Feiffer Circle
Sarasota, Florida 34235

Represented by:
Arlene Flisik
4106 24th Avenue West
Bradenton, Florida 34205

Betsy Roberts, Chair
Manatee-Sarasota Group
Sierra Club
3227 Ashton Road
Sarasota, Florida 34231

Karen Fraley, President
Florida Native Plant Society – Serenoa
Chapter
1815 Palma Sola Boulevard
Bradenton, Florida 34209

Virginia Edwards, Chairman
Suncoast Chapter
Florida Trail Association
6147 Beachwood Drive
Ridge Manor, Florida 33523

Mark Stukey
Ray's Canoe Hideaway
1247 Hagle Park Rd.
Bradenton, Florida 34212

Ed McAdam, President
Myakka River Riders
3303 North Rye Road
Parrish, Florida 34219

Heidi May
19600 East State Road 64
Bradenton, Florida 34212

The Advisory Group meeting to review the proposed land management plan for Lake Manatee State Park was held in the Visitor Center at Judah P. Benjamin Confederate Memorial at Gamble Plantation Historic State Park on May 6, 2004. Ben King represented Gary Reeder, Kevin Main represented Jeff McGrady, and Arlene Flisik represented Steve Black. The Honorable Jane von Hahmann, Betsy Roberts, Virginia Edwards, and Mark Stukey did not attend. All other appointed Advisory Group members were present. Attending staff were Curt Wolbert, Robert Wilhelm, Annette Nielsen, and Brian Burket.

Mr. Burket began the meeting by explaining the purpose of the Advisory Group and reviewing the meeting agenda. He also provided a brief overview of the Division's planning process and summarized public comments received during the previous evening's public. He then asked each member of the advisory group to express his or her comments on the plan.

Summary Of Advisory Group Comments

Karen Fraley suggested that the park consider interpreting the creation of the reservoir, what's under the lake, and the people affected by its creation. Then, Ms. Fraley asked if the park could be managed for scrub jays. Park Manager **Curt Wolbert** replied that the park is looking into this issue.

Heidi May asked for further explanation of the proposal to link the park trails to the planned Manatee County Greenway. **Mr. Wolbert** provided a detailed explanation of the proposed long-term plans.

Ben King pointed out an acreage discrepancy in the management plan. Mr. King suggested that hogs be included in the Problem Species section of the Resource Management Component in addition to the Exotic Species Control section. **Robert Wilhelm** stated that problem species referred to native plants and animals. Hogs are covered under a different section of the UMP. He then asked if further engine restrictions will be imposed on boaters using Lake Manatee as development spreads around the state park and more boats use the lake. **Mr. Wolbert** said the County has authority over the reservoir since they manage it for their drinking water. Mr. King commented that the exotic species removal costs seemed low. **Mr. Wolbert** said the costs will be reviewed and revised if necessary.

Ed Flowers recommended that the park staff reevaluate the park's potential for timber management. Even though the timbering potential is limited, the selective removal of certain trees can help with restoration efforts. **Mr. Wolbert** agreed that there is some need to remove trees, namely sand pine in the scrub areas. Mr. Flowers then congratulated the park staff for their successful burn program.

Robert Wilhelm asked about the compatibility of providing recreational trails in an area that needs to be managed as scrub. **Mr. Wolbert** said prescribed burns and selective timbering would affect some of the trails. **Annette Nielsen**, District Biologist, said that these impacts can be minimized through the use of 30 foot buffers along the trail corridors. Mr. Wilhelm asked if horses are a major vector of the spread of seeds of exotic plants. **Ms. Nielsen** replied that exotics are coming from everywhere and blame should not be placed on equestrians. At least with horses, we know to look for exotics along the trails. **Mr. McAdam** added that horse feed is developed free of exotic seeds.

Kevin Main identified the difficulty in managing the park for scrub jays once its connectivity

with other natural lands is disrupted by the spread of development. **Ms. Fraley** expressed her concern that land across the lake is being sold for housing development. Mr. Main asked if any listed scrub species can be found in the park. **Ms. Nielsen** said Garberia is found in some areas. **Mr. Wolbert** mentioned a study performed by the Division of Recreation and Parks has identified potential scrub jay habitat in Lake Manatee State Park. Mr. Main commented that the restoration of habitat for scrub jays will require the removal of all pine trees which will lead to conflict with trail users. He recommends harvesting the sand pine. **Arlene Flisik** questioned the need to remove the sand pines. **Ms. Nielsen** discussed the preferred habitat of the scrub jay and the reasons why it is necessary to remove sand pine from the scrub communities. Scrub habitat along alluvial ridges, as at Lake Manatee, is spotty. Therefore, there is no harm in trying to manage for scrub jay, but the primary job is to restore the native natural communities. **Mr. King** mentioned that there are lots of scrub jays and gopher tortoises across the lake on the Faulkner property. Mr. Main then recommended burning the scrub within the next 3 years. He also thinks there is sufficient justification to identify optimum boundary across the lake, i.e. scrub habitat and protecting the natural viewshed.

Ed McAdam applauds and appreciates the work done by the Florida State Park Service, especially while dealing with inadequate funding and staffing. First, he identified areas all around the park that should be marked as optimum boundary. Next, he described the Manatee County Greenway plans to link to the state park and commented on the park's role as an important node along the proposed corridor. He requested an entrance/exit for trail users at the eastern corner of the park, as close to the bridge as possible. Then, he recommended that the improved trailhead be constructed west of Poley Branch so all park users will be funneled through the main entrance. The preferred equestrian trailhead includes a drive-through, unpaved parking area with shade and a water pump. Water troughs and hitching posts are not needed. Lastly, he described ways to satisfy the need to burn and trail management.

Arlene Flisik recommended that further development should be avoided in the scrub communities and that proposed facilities should be located west of Poley Branch. Ms. Flisik suggested improved signage describing the natural communities and the geological past. Then, she asked about the location of the gopher tortoises and how their habitat is being managed. **Mr. Wolbert** mentioned that prescribed burning is the recommended management strategy. **Ms. Nielsen** said that over 300 tortoises reside in the park. Tortoises thrive as their habitat is burned and trees are removed. Ms. Flisik asked if the safest chemicals are being used to treat exotic plants. **Mr. Wilhelm** replied that the park service is very sensitive to the use of chemicals and only uses approved chemicals. Ms. Flisik asked if it is possible to remove all the hogs. **Mr. Wolbert** said it is an ongoing effort to remove hogs and, unfortunately, it always will be. Ms. Flisik then suggested that interpretive displays could be used to describe the various resource management efforts at the park. Lastly, Ms. Flisik disagreed with a statement in the management plan that claimed the "park does not possess any special natural features that are unique." **Ms. Nielsen** explained that it is "unique" for the area but is not considered "unique" from a statewide perspective.

Annette Nielsen identified the need to update the plant and animal species lists, but said it may not be complete before this management plan is approved. Ms. Nielsen agreed that the timber management analysis needs to be addressed. In an attempt to clarify the previous discussion of the removal of sand pine, Ms. Nielsen stated that the park was not advocating the removal of all sand pine. Instead, sand pine only needs to be removed from the slash pine

flatwoods in order to preserve the fire regimes. She also stated that the Priority Schedule and Cost Estimate in the management plan needs to be reviewed and revised. Lastly, she mentioned that Downey Rosemyrtle needs to be added to the exotic species list.

Curt Wolbert requested the addition of a campfire circle near the camping area for interpretive programming and discussed the park's efforts to add interpretive displays and develop self-guided trails.

Staff Recommendations

Staff recommends approval of the proposed management plan for Lake Manatee State Park as presented with the following changes:

Trailhead Improvements. The existing unpaved service roads east of Poley Branch have become a popular trail facility with equestrians and other trail users. These visitors have been parking along the shoulder of the paved service road leading to the maintenance area. An improved trailhead is needed to add parking and to solve congestion problems along this park road. If and when the Manatee County Greenway connects to Lake Manatee State Park within the timeframe of this management plan, the Division of Recreation and Parks will work towards establishing a formal trailhead off the main park road, west of Poley Branch. In the meantime, trailhead improvements are recommended near the maintenance area to provide better access and a safer arrangement for both trail user and park staff. Recommended improvements include stabilized parking for 10 vehicles with horse trailers, a shade shelter, a unisex restroom, and an interpretive display.

Campfire Circle. A campfire circle is recommended in the vicinity of the camping area for hosting interpretive programming and providing a gathering place for group events.

Addendum 2—Reference Cited

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Addendum 3—Soil Descriptions

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

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

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

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

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

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

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

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

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

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

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

brownish gray sand 29 inches thick.

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

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

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

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

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

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

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

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

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

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

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

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

Typically, the surface layer of Pomona soils is black fine sand about 6 inches thick. The subsurface layer is gray and light gray fine sand 16 inches thick. The subsoil in the upper part

is dark reddish brown and dark brown fine sand 14 inches thick. Below that, there is pale brown fine sand 15 inches thick. The subsoil in the lower part is olive gray fine sandy loam 9 inches thick. The substratum is gray loamy fine sand to a depth of 80 inches.

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

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

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

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

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

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

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

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

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

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

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

loam. In some of the closely similar soils the subsoil is nearer the surface and in others the surface layer is thicker than in Felda soils.

In most years, if Felda soils are not drained, the water table is within a depth of 10 inches for 2 to 4 months out of the year and at a depth of 10 to 40 inches for about 6 months out of the year. It recedes to below a depth of 70 inches in dry seasons. Stream overflow frequently floods these soils. Permeability is rapid in the surface and subsurface layers and moderate to moderately rapid in the subsoil. The available water capacity is very low in the surface and subsurface layers and medium in the subsoil.

Typically, Wabasso soils have a surface layer of very dark gray fine sand 7 inches thick. The subsurface layer is gray and light gray fine sand 14 inches thick. The subsoil in the upper part is black, dark reddish brown and brown fine sand 10 inches thick. In the lower part it is grayish brown sandy loam and gray sandy clay loam 28 inches thick. A 6-inch layer of pale brown fine sand separates the two parts. The substratum to a depth of 80 inches or more is gray sand mixed with shell fragments. The closely similar soils are like Wabasso soils except that they do not have the lower part of the subsoil.

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

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

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

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

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

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

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

In most years, in undrained areas Floridana soils are ponded for 6 to 9 months of more out of the year. The water table is at a depth within 40 inches for the rest of the year except in extended dry periods. Permeability is rapid in the surface layer, subsurface layer, and substratum; it is slow in the subsoil. The available water capacity is medium in the surface layer and subsoil and low in the other layers.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

to 5 percent slopes.

In most years, the water table is at a depth of 24 to 40 inches for 1 to 4 months out of the year and at a depth of 40 to 60 inches for 8 months out of the year. The available water capacity is very low except in the subsoil, where it is medium. Natural fertility is low. Permeability is very rapid in the surface and subsurface layers and moderately rapid in the subsoil.

The natural vegetation consists of dwarf and sand live oaks, saw palmetto, longleaf and slash pines, pineland threeawn, running oak, creeping bluestem, broomsedge bluestem, splitbeard bluestem, lopsided indiangrass, switchgrass, panicum, and paspalum. A few areas are used for citrus, vegetables, and improved pasture grasses where the areas are near other soils used for these crops.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Addendum 4—Plant And Animal List

Lake Manatee State Park

Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
	PTERIDOPHYTES	
Carolina mosquito fern	*Azolla caroliniana*	
Foxtail clubmoss	*Lycopodiella alopecuroides*	
Nodding clubmoss	*Lycopodiella cernua*	
Cinnamon fern	*Osmunda cinnamomea*	
Royal fern	*Osmunda regalis* var. *spectabilis*	
Silver fern *	*Pityrogramma calomelanos*	
Bracken fern	*Pteridium aquilinum*	
Water spangles	*Salvinia minima*	
Sand spikemoss	*Selaginella arenicola*	
Downy shield fern	*Thelypteris dentata*	
Rough hairy maiden fern	*Thelypteris hispidula* var. *versicolor*	
Netted chain fern	*Woodwardia areolata*	
Virginia chain fern	*Woodwardia virginica*	
	GYMNOSPERMS	
Sand pine	*Pinus clausa*	
Slash pine	*Pinus elliottii*	
Longleaf pine	*Pinus palustris*	
	MONOCOTS	
Yellow colic-root	*Aletris lutea*	
Blue maidencane	*Amphicarpum muhlenbergianum*	
Bushy bluestem	*Andropogon glomeratus* var. *pumilus*	
Splitbeard bluestem; Silver bluestem	*Andropogon ternarius*	
Chalky bluestem	*Andropogon virginicus* var. *glaucus*	
Broomsedge	*Andropogon virginicus* var. *virginicus*	
Tall threeawn	*Aristida patula*	
Bottlebrush threeawn	*Aristida spiciformis*	
Wiregrass	*Aristida stricta* var. *beyrichiana*	
Florida scrub roseling	*Callisia ornata*	
Slender sandspur	*Cenchrus gracillimus*	
Dayflower	*Commelina diffusa*	
Erect dayflower	*Commelina erecta*	
Climbing dayflower	*Commelina diffusa* var. *gigas*	
Baldwin's flatsedge	*Cyperus croceus*	
Rusty flatsedge	*Cyperus odoratus*	
Many-spike flatsedge	*Cyperus polystachyos*	
Pine-barren flatsedge	*Cyperus retrorsus*	
Tropical flatsedge	*Cyperus surinamensis*	
Water hyacinth *	*Eichhornia crassipes*	
Viviparous spikerush	*Eleocharis vivipara*	
Slimflower lovegrass *	*Eragrostis atrovirens*	
Coastal lovegrass	*Eragrostis virginica*	
Flattened pipewort; Hatpins	*Eriocaulon compressum*	

*** Non-native Species**

Common Name	***Scientific Name***	**Primary Habitat Codes (for designated species)**
Ten-angle pipewort; Giant hatpins	*Eriocaulon decangulare*	
Wild coco	*Eulophia alta*	
Pinewoods fingergrass	*Eustachys petraea*	
Carolina fimbry	*Fimbristylis caroliniana*	
Hurricanegrass *	*Fimbristylis cymosa*	
Dwarf umbrellasedge	*Fuirena pumila*	
Southern umbrellasedge	*Fuirena scirpoidea*	
False rein orchid	*Habenaria floribunda*	
Cogongrass *	*Imperata cylindrica*	
Soft rush	*Juncus effusus* subsp. *solutus*	
Grass-leaf rush	*Juncus marginatus*	
Big-head rush	*Juncus megacephalus*	
Needle-pod rush	*Juncus scirpoides*	
Fragrant flatsedge	*Kyllinga odorata*	
Carolina redroot; Bloodroot	*Lachnanthes caroliniana*	
White-head bog-buttons	*Lachnocaulon anceps*	
Southern watergrass	*Luziola fluitans*	
Maidencane	*Panicum hemitomon*	
Gaping panicum	*Panicum hians*	
Bahiagrass *	*Paspalum notatum*	
Thin paspalum	*Paspalum setaceum*	
Seashore paspalum	*Paspalum vaginatum*	
Pickerelweed	*Pontederia cordata*	
Giant orchid	*Pteroglossapsis ecristata*	8, 26
Red Natalgrass *	*Rhynchelytrum repens*	
White-tops; Star rush	*Rhynchospora colorata*	
Fasciculate beaksedge	*Rhynchospora fascicularis*	
Sandy-field beaksedge	*Rhynchospora megalocarpa*	
Beaksedge	*Rhynchospora megaplumosa*	
Cabbage palm	*Sabal palmetto*	
American cupscale	*Sacciolepis striata*	
Little false bluestem	*Schizachyrium scoparium*	
Saw palmetto	*Serenoa repens*	
Knotroot foxtail	*Setaria parviflora*	
Nash's blue-eyed grass	*Sisyrinchium nashii*	
Earleaf greenbrier	*Smilax auriculata*	
Saw greenbrier	*Smilax bona-nox*	
Laurel-leaf greenbrier	*Smilax laurifolia*	
Lopsided Indiangrass	*Sorghastrum secundum*	
Smutgrass *	*Sporobolus indicus*	
Pineywoods dropseed	*Sporobolus junceus*	
Yellow hatpins	*Syngonanthus flavidulus*	
Cardinal airplant	*Tillandsia fasciculata*	
Small ball moss	*Tillandsia recurvata*	
Southern needleleaf air plant	*Tillandsia setacea*	

*** Non-native Species**

Lake Manatee State Park

Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Spanish moss	*Tillandsia usneoides*	
Spreading air plant	*Tillandsia utriculata*	26
Southern cattail	*Typha domingensis*	
Paragrass *	*Urochloa mutica*	
Carolina yellow-eyed grass	*Xyris caroliniana*	
Elliott's yellow-eyed grass	*Xyris elliottii*	
Adam's needle	*Yucca filamentosa*	
Coontie	*Zamia pumila*	
Lawn orchid; Soldier's orchid *	*Zeuxine strateumatica*	
	DICOTS	
Rosary pea *	*Abrus precatorius*	
Alligator-weed *	*Alternanthera philoxeroides*	
Common ragweed	*Ambrosia artemisiifolia*	
Florida Indian plantain	*Arnoglossum floridanum*	
Florida milkweed	*Asclepias feayi*	
Pinewoods milkweed	*Asclepias humistrata*	
Butterflyweed	*Asclepias tuberosa*	
Dwarf pawpaw	*Asimina pygmaea*	
Netted pawpaw	*Asimina reticulata*	
Saltwater false willow	*Baccharis angustifolia*	
Silverling	*Baccharis glomeruliflora*	
Saltbush	*Baccharis halimifolia*	
Coastal water-hyssop	*Bacopa monnieri*	
Yellow buttons	*Balduina angustifolia*	
Tarflower	*Bejaria racemosa*	
Florida greeneyes	*Berlandiera subacaulis*	
Spanish needles	*Bidens alba* var. *radiata*	
Small-fruit beggar-ticks	*Bidens mitis*	
Small-spike false nettle	*Boehmeria cylindrica*	
American blueheart	*Buchnera americana*	
Northern bluethreads	*Burmannia biflora*	
Carolina fanwort	*Cabomba caroliniana*	
American beautyberry	*Callicarpa americana*	
Coastalplain chaffhead	*Carphephorus corymbosus*	
Vanillaleaf	*Carphephorus odoratissimus*	
Coinwort	*Centella asiatica*	
Spurred butterfly-pea	*Centrosema virginianum*	
Rosemary	*Ceratiola ericoides*	
Partridge-pea	*Chamaecrista fasciculata*	
Wild sensitive plant	*Chamaecrista nictitans* var. *aspera*	
Blodgett's sandmat	*Chamaesyce blodgettii*	
Chapman's pea	*Chapmannia floridana*	
Florida goldenaster	*Chrysopsis floridana*	14
Narrow-leaf goldenaster	*Chrysopsis linearifolia* subsp. *dressii*	
Maryland goldenaster	*Chrysopsis mariana*	

*** Non-native Species**

Lake Manatee State Park

Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Camphor-tree *	*Cinnamonum camphora*	
Yellow thistle	*Cirsium horridulum*	
Nuttall's thistle	*Cirsium nuttallii*	
Lemon *	*Citrus* x *limon*	
Tread-softly; Finger-rot	*Cnidoscolus stimulosus*	
Coccocypselum*	*Coccocypselum hirsutum*	
Dwarf horseweed	*Conyza canadensis* var. *pusilla*	
Leavenworth's tickseed	*Coreopsis leavenworthii*	
Smooth rattlebox *	*Crotalaria pallida* var. *obovata*	
Rabbit-bells	*Crotalaria rotundifolia*	
Narrow-leaf rushfoil	*Croton michauxii*	
Whitetassels	*Dalea carnea*	
Florida tick-trefoil	*Desmodium incanum*	
Carolina pony-foot	*Dichondria carolinensis*	
Virginia buttonweed	*Diodia virginiana*	
Persimmon	*Diospyros virginiana*	
Pink sundew	*Drosera capillaris*	
False daisy	*Eclipta prostrata*	
Florida elephant's-foot	*Elephantopus elatus*	
Florida tasselflower *	*Emilia fosbergii*	
Fireweed	*Erechtites hieracifolia*	
Oakleaf fleabane	*Erigeron quercifolius*	
Daisy fleabane	*Erigeron strigosus*	
Early white-top fleabane	*Erigeron vernus*	
Dog tongue; Wild buckwheat	*Eriogonum tomentosum*	
Fragrant eryngium	*Eryngium aromaticum*	
Dogfennel	*Eupatorium capillifolium*	
Mohr's thoroughwort	*Eupatorium mohrii*	
Round-leaf thoroughwort	*Eupatorium rotundifolium*	
Lesser Florida spurge	*Euphorbia polyphylla*	
Flat-topped goldenrod	*Euthamia caroliniana*	
Pop ash	*Fraxinus caroliniana*	
Elliott's milk-pea	*Galactia elliottii*	
Florida milk-pea	*Galactia regularis*	
Stiff marsh bedstraw	*Galium tinctorium*	
Garberia	*Garberia heterophylla*	14
Gaura; Southern beeblossom;	*Gaura angustifolia*	
Dwarf huckleberry	*Gaylussacia dumosa*	
Carolina jessamine;	*Gelsemium sempervirens*	
Loblolly bay	*Gordonia lasianthus*	
Rough hedge-hyssop	*Gratiola hispida*	
Roundleaf bluet	*Hedyotis procumbens*	
Spanish daisy	*Helenium amarum*	
Pine-barren frostweed	*Helianthemum corymbosum*	
Narrow-leaved sunflower	*Helianthus angustifolius*	
Coastalplain hawkweed	*Hieracium megacephalon*	

*** Non-native Species**

Lake Manatee State Park

Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Hydrilla *	*Hydrilla verticillata*	
Floating marsh pennywort	*Hydrocotyle ranunculoides*	
Many-flower marsh pennywort	*Hydrocotyle umbellata*	
Round-pod St. John's-wort	*Hypericum cistifolium*	
St. Andrew's cross	*Hypericum hypericoides*	
Myrtle-leaf St. John's-wort	*Hypericum myrtifolium*	
Atlantic St. John's-wort	*Hypericum reductum*	
Four-petal St. John's-wort	*Hypericum tetrapetalum*	
Fringed yellow-star grass	*Hypoxis juncea*	
Carolina holly; Sand holly	*Ilex ambigua*	
Dahoon holly	*Ilex cassine*	
Inkberry; Gallberry	*Ilex glabra*	
Rough hairy indigo *	*Indigofera hirsuta*	
Trailing indigo *	*Indigofera spicata*	
Grass-leaf lettuce	*Lactuca graminifolia*	
Shrub verbena *	*Lantana camara*	
Piedmont pinweed	*Lechea torreyi*	
Short-leaf blazing star	*Liatris tenuifolia*	
Gopher apple	*Licania michauxii*	
Savannah false pimpernel	*Lindernia grandiflora*	
Bay lobelia	*Lobelia feayana*	
Pineland lobelia	*Lobelia homophylla*	
Coral honeysuckle	*Lonicera sempervirens*	
Primrose-willow	*Ludwigia lanceolata*	
Seaside primrose-willow	*Ludwigia maritima*	
Mexican primrose-willow	*Ludwigia octovalvis*	
Peruvian primrose-willow	*Ludwigia peruviana*	
Creeping primrose-willow	*Ludwigia repens*	
Shrubby primrose-willow	*Ludwigia suffruticosa*	
Sky-blue lupine	*Lupinus diffusus*	
Roserush	*Lygodesmia aphylla*	
Coastalplain staggerbush	*Lyonia fruticosa*	
Fetterbush	*Lyonia lucida*	
Sweetbay	*Magnolia virginiana*	
Purple axil-flower	*Mecardonia acuminata* subsp. *peninsularis*	
Climbing hempvine	*Mikania scandens*	
Bashful sensitive briar	*Mimosa quadrivalvis* var. *floridana*	
One-flower Indian pipe	*Monotropa uniflora*	
Wax myrtle	*Myrica cerifera*	
Parrot's-feather *	*Myriophyllum aquaticum*	
Spatterdock	*Nuphar advena*	
Pine-barren white-top aster	*Oclemena reticulata*	
Prickly-pear cactus	*Opuntia humifusa*	
Virginia creeper	*Parthenocissus quinquefolia*	
Swampbay	*Persea palustris*	
Florida false sunflower	*Phoebanthus grandiflora*	

*** Non-native Species**

Lake Manatee State Park

Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Oak mistletoe	*Phoradendron leucarpum*	
Carpet weed	*Phyla nodiflora*	
Starry-hair ground-cherry	*Physalis walteri*	
American pokeweed	*Phytolacca americana*	
Wild pennyroyal	*Piloblephis rigida*	
Yellow butterwort	*Pinguicula lutea*	29
Small butterwort	*Pinguicula pumila*	
Grass-leaved golden aster	*Pityopsis graminifolia*	
Stinking camphorweed	*Pluchea foetida*	
Saltmarsh fleabane	*Pluchea odorata*	
Rosy camphorweed	*Pluchea rosea*	
Candyroot	*Polygala grandiflora*	
Yellow milkwort	*Polygala nana*	
Yellow bachelor's button	*Polygala rugelii*	
Coastalplain milkwort	*Polygala setacea*	
Hairy jointweed	*Polygonella ciliata*	
Tall jointweed	*Polygonella gracilis*	
Jointweed	*Polygonella polygama*	
Sandhill wireweed	*Polygonella robusta*	
Swamp smartweed	*Polygonum hydropiperoides*	
Dotted smartweed	*Polygonum punctatum*	
Rustweed; Juniper-leaf	*Polypremum procumbens*	
Chickasaw plum	*Prunus angustifolia*	
Black cherry	*Prunus serotina*	
Guava *	*Psidium guajava*	
Coastal blackroot	*Pterocaulon pycnostachyum*	
Chapman's oak	*Quercus chapmanii*	
Sand live oak	*Quercus geminata*	
Scrub oak	*Quercus inopina*	
Turkey oak	*Quercus laevis*	
Laurel oak	*Quercus laurifolia*	
Myrtle oak	*Quercus myrtifolia*	
Water oak	*Quercus nigra*	
Pale meadow beauty	*Rhexia mariana*	
Nuttall's meadow beauty	*Rhexia nuttallii*	
Tropical Mexican-clover	*Richardia brasiliensis*	
Swamp honeysuckle	*Rhododendron viscosum*	
Downy rose myrtle *	*Rhodomyrtus tomentosa*	
Winged sumac	*Rhus copallina*	
Sand blackberry	*Rubus cuneifolius*	
Shortleaf marsh pink	*Sabatia brevifolia*	
Large-flower marsh pink	*Sabatia grandiflora*	
Carolina willow	*Salix caroliniana*	
Florida key sage; River sage	*Salvia riparia*	
Elderberry	*Sambucus nigra* subsp. *canadensis*	
Lizard's tail	*Saururus cernuus*	

*** Non-native Species**

Lake Manatee State Park

Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Brazilian pepper *	*Schinus terebinthifolius*	
Sweet broom; Licorice-weed	*Scoparia dulcis*	
Rough skullcap; Helmet flower	*Scutellaria integrifolia*	
Coffee senna	*Senna occidentalis*	
Danglepod	*Sesbania herbacea*	
Broomweed;	*Sida acuta*	
Pantropical fanpetal *	*Sida cordifolia*	
Pine-barren goldenrod	*Solidago fistulosa*	
Chapman's goldenrod	*Solidago odora* var. *chapmanii*	
Queen's delight	*Stillingia sylvatica*	
Pineland scaly-pink	*Stipulicida setacea* var. *lacerata*	
Hairy dawnflower	*Stylisma villosa*	
Rice-button aster; Bushy aster	*Symphyotricum dumosum*	
Spreading hoary-pea	*Tephrosia hispidula*	
Poison ivy	*Toxicodendron radicans*	
Forked blue-curls	*Trichostema dichotomum*	
Caesar weed *	*Urena lobata*	
Fringed bladderwort	*Utricularia simulans*	
Tiny bladderwort	*Utricularia subulata*	
Tree sparkleberry	*Vaccinium arboreum*	
Shiny blueberry	*Vaccinium myrsinites*	
Deerberry; Gooseberry	*Vaccinium stamineum*	
Piedmont cow-pea	*Vigna luteola*	
Long-leaf violet	*Viola lanceolata*	
Early blue violet	*Viola palmata*	
Primrose-leaved violet	*Viola primulifolia*	
Summer grape	*Vitis aestivalis*	
Southern fox grape	*Vitis rotundifolia*	
Hog plum	*Ximenia americana*	

*** Non-native Species**

Lake Manatee State Park
Animals

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
	FISH	
Walking catfish*	*Clarias batrachus*	29
	AMPHIBIANS	
Oak toad	*Bufo quercicus*	8, 14, 23
Southern toad	*Bufo terrestris*	8, 81, 82
Green treefrog	*Hyla cinerea*	8
Squirrel treefrog	*Hyla squirella*	8
Eastern narrowmouth toad	*Gastrophryne carolinensis*	8
Pig frog	*Rana grylio*	29
Southern leopard frog	*Rana sphenocephala*	29
Florida gopher frog	*Rana capito aesopus*	13, 14, 23
	REPTILES	
Florida mud turtle	*Kinosternon subrubrum steindachneri*	26
Florida box turtle	*Terrapene carolina bauri*	8, 21, 26
Peninsula cooter	*Pseudemys floridana peninsularis*	29
Gopher tortoise	*Gopherus polyphemus*	8, 13, 14, 23
American alligator	*Alligator mississippiensis*	29
Green anole	*Anolis carolinensis carolinensis*	8, 21, 26
Cuban brown anole *	*Anolis sagrei sagrei*	MTC
Eastern slender glass lizard	*Ophisaurus attenuatus longicaudus*	8
Florida green water snake	*Nerodia cyclopion floridana*	26
Banded water snake	*Nerodia fasciata fasciata*	29, 26
Florida brown snake	*Storeria dekayi victa*	8, 26
Peninsula ribbon snake	*Thamnophis sauritus sackeni*	8, 81
Southern ringneck snake	*Diadophis punctatus punctatus*	8, 81
Six-lined racerunner	*Cnemidophorus sexlineatus sexlineatus*	13, 14, 23
Southeastern five-lined skink	*Eumeces inexpectatus*	8, 14
Southern black racer	*Coluber constrictor priapus*	8, 14, 21
Eastern coachwhip	*Masticophis flagellum flagellum*	13, 14, 23
Eastern rough green snake	*Opheodrys aestivus aestivus*	26
Eastern indigo snake	*Drymarchon corais couperi*	8, 13, 14
Corn snake	*Elaphe guttata guttata*	8, 21, 81
Yellow rat snake	*Elaphe obsoleta quadrivittata*	8, 13, 21, 26
Florida pine snake	*Pituophis melanoleucus mugitus*	8, 13, 14, 21
Scarlet kingsnake	*Lampropeltis triangulum elapsoides*	8, 26
Florida scarlet snake	*Cemophora coccinea coccinea*	8, 26
Southern hognose snake	*Heterodon simus*	8, 14
Eastern coral snake	*Micrurus fulvius fulvius*	8, 26
Florida cottonmouth	*Agkistrodon piscivorus conanti*	26 , 29
Eastern garter snake	*Thamnophis sirtalis sirtalis*	8, 26
Eastern diamondback rattlesnake	*Crotalus adamanteus*	8, 13, 14, 21, 23
	BIRDS	
Pied-billed grebe	*Podilymbus podiceps*	OF
Eastern brown pelican	*Pelecanus occidentalis carolinensis*	OF
Double-crested cormorant	*Phalacrocorax auritus*	OF
Anhinga	*Anhinga anhinga*	OF
Great blue heron	*Ardea herodias*	29

*** Non-native Species**

Lake Manatee State Park
Animals

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Green heron	*Butorides virescens*	29
Cattle egret	*Bubulcus ibis*	81
Little blue heron	*Egretta caerulea*	29
Great egret	*Ardea alba*	29
Snowy egret	*Egretta thula*	29
Tricolored heron	*Egretta tricolor*	29
Black-crowned night heron	*Nycticorax nycticorax*	29
Yellow-crowned night heron	*Nycticorax violaceus*	29
American bittern	*Botaurus lentiginosus*	29
White ibis	*Eudocimus albus*	26, 29
Wood stork	*Mycteria americana*	29
Roseate spoonbill	*Ajaia ajaja*	29
Mallard	*Anas platyrhynchos*	29
Mottled duck	*Anas fulvigula*	29
Lesser scaup	*Aythya affinis*	OF
Bufflehead	*Bucephala albeola*	OF
Red-breasted merganser	*Mergus serrator*	OF
Muscovy duck *	*Cairina moschata*	OF
Black vulture	*Coragyps atratus*	OF
Turkey vulture	*Cathartes aura*	OF
Swallow-tailed kite	*Elanoides forficatus*	OF
Sharp-shinned hawk	*Accipiter striatus*	8, 14, 26
Red-shouldered hawk	*Buteo lineatus*	8, 14, 26
Red-tailed hawk	*Buteo jamaicensis*	8, 14, 81
Broad-winged hawk	*Buteo platypterus*	OF
Southern bald eagle	*Haliaeetus leucocephalus*	OF
Northern harrier	*Circus cyaneus*	OF
Osprey	*Pandion haliaetus*	OF
Crested caracara	*Caracara plancus*	OF
Northern bobwhite	*Colinus virginianus*	8, 14
Sandhill crane	*Grus canadensis*	OF
Limpkin	*Aramus guarauna*	OF
Purple gallinule	*Porphyrula martinica*	OF
Common moorhen	*Gallinula chloropus*	29
American coot	*Fulica americana*	OF
Killdeer	*Charadrius vociferus*	81
Common snipe	*Gallinago gallinago*	29
Spotted sandpiper	*Actitis macularia*	OF
Ring-billed gull	*Larus delawarensis*	OF
Forster's tern	*Sterna forsteri*	OF
Mourning dove	*Zenaida macroura*	8, 14
Common ground-dove	*Columbina passerina*	8
Barn owl	*Tyto alba*	81
Eastern screech-owl	*Otus asio*	81
Great horned owl	*Bubo virginianus*	21, 26
Common nighthawk	*Chordeiles minor*	8
Chuck-will's-widow	*Caprimulgus carolinensis*	8, 14, 26
Whip-poor-will	*Caprimulgus vociferus*	8, 14, 26
Chimney swift	*Chaetura pelagica*	OF
Belted kingfisher	*Ceryle alcyon*	OF

*** Non-native Species**

Lake Manatee State Park
Animals

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Downy woodpecker	*Picoides pubescens*	8, 14, 21
Pileated woodpecker	*Dryocopus pileatus*	8, 21, 26
Eastern phoebe	*Sayornis phoebe*	8, 14, 21
Olive-sided flycatcher	*Contopus borealis*	8
Tree swallow	*Tachycineta bicolor*	OF
Northern rough-winged swallow	*Stelgidopteryx serripennis*	OF
Great crested flycatcher	*Myiarchus crinitus*	8, 14
Purple martin	*Progne subis*	OF
Blue jay	*Cyanocitta cristata*	8, 14, 81
Florida scrub-jay	*Aphelocoma coerulescens*	OF
Fish crow	*Corvus ossifragus*	26
House wren	*Troglodytes aedon*	8
Blue-gray gnatcatcher	*Polioptila caerulea*	8, 14
American robin	*Turdus migratorius*	8, 26, 81
Gray catbird	*Dumetella carolinensis*	8, 26
Northern mockingbird	*Mimus polyglottos*	8, 81
Brown thrasher	*Toxostoma rufum*	8, 14
Veery	*Catharus fuscescens*	26
Eastern bluebird	*Sialia sialis*	8
Loggerhead shrike	*Lanius ludovicianus*	8
White-eyed vireo	*Vireo griseus*	8, 26
Prothonotary warbler	*Protonotaria citrea*	26
Yellow-rumped warbler	*Dendroica coronata*	8, 26
Yellow-throated warbler	*Dendroica dominica*	26
Pine warbler	*Dendroica pinus*	8, 26
Palm warbler	*Dendroica palmarum*	8, 26
Common yellowthroat	*Geothlypis trichas*	8, 26
American redstart	*Setophaga ruticilla ruticilla*	8, 26
Northern cardinal	*Cardinalis cardinalis*	8, 14, 26, 81
Eastern towhee	*Pipilo erythrophthalmus*	8, 14
Eastern meadowlark	*Sturnella magna*	8, 81
Red-winged blackbird	*Agelaius phoeniceus*	29
Boat-tailed grackle	*Quiscalus major*	29
Indigo bunting	*Passerina cyanea*	8
House sparrow *	*Passer domesticus*	82
American goldfinch	*Carduelis tristis*	8
	MAMMALS	
Virginia opossum	*Didelphis virginiana*	8, 14
Short-tailed shrew	*Blarina brevicauda*	8, 14
Least shrew	*Cryptotis parva*	8, 14
Eastern mole	*Scalopus aquaticus*	8, 14
Nine-banded armadillo *	*Dasypus novemcinctus*	8, 14, 26
Marsh rabbit	*Sylvilagus palustris*	29
Eastern cottontail	*Sylvilagus floridanus*	8, 14
Gray squirrel	*Sciurus carolinensis*	8, 26, 81
Sherman's fox squirrel	*Sciurus niger*	8
Southern flying squirrel	*Glaucomys volans*	14
Marsh rice rat	*Oryzomys palustris*	29
Cotton mouse	*Peromyscus gossypinus gossypinus*	8, 14, 26

*** Non-native Species**

Lake Manatee State Park
Animals

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Florida mouse	*Podomys floridanus*	14
Hispid cotton rat	*Sigmodon hispidus*	8
Eastern woodrat	*Neotoma floridana*	8, 26
Round-tailed muskrat	*Neofiber alleni*	29
Black rat*	*Rattus rattus*	82
House mouse*	*Mus musculus*	8, 82
Red fox*	*Vulpes vulpes*	8, 14, 81
Gray fox	*Urocyon cinereoargenteus*	8, 14, 81
Raccoon	*Procyon lotor*	MTC
River otter	*Lutra canadensis*	26
Eastern spotted skunk	*Spilogale putorius*	8, 14, 26
Striped skunk	*Mephitis mephitis*	8, 14
Bobcat	*Felis rufus*	8, 14, 21
Wild pig*	*Sus scrofa*	MTC
White-tailed deer	*Odocoileus virginianus*	MTC

*** Non-native Species**

TERRESTRIAL

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

PALUSTRINE

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

LACUSTRINE

43. Clastic Upland Lake
44. Coastal Dune Lake
45. Coastal Rockland Lake
46. Flatwood/Prairie Lake
47. Marsh Lake

LACUSTRINE—Continued

48. River Floodplain Lake
49. Sandhill Upland Lake
50. Sinkhole Lake
51. Swamp Lake

RIVERINE

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

ESTUARINE

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

MARINE

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

SUBTERRANEAN

79. Aquatic Cave
80. Terrestral Cave

MISCELLANEOUS

81. Ruderal
82. Developed

MTC Many Types Of Communities

OF Overflying

Addendum 5—Designated Species List

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

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

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

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

FNAI GLOBAL RANK DEFINITIONS

G1	=	Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2	=	Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
G3	=	Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
G4	=	apparently secure globally (may be rare in parts of range)
G5	=	demonstrably secure globally
GH	=	of historical occurrence throughout its range,may be rediscovered (e.g.,ivory-billed woodpecker)
GX	=	believed to be extinct throughout range
GXC	=	extirpated from the wild but still known from captivity or cultivation
G#?	=	tentative rank (e.g.,G2?)
G#G#	=	range of rank; insufficient data to assign specific global rank (e.g.,G2G3)
G#T#	=	rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g.,G3T1)
G#Q	=	rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g.,G2Q)
G#T#Q	=	same as above,but validity as subspecies or variety is questioned.
GU	=	due to lack of information,no rank or range can be assigned (e.g.,GUT2).
G?	=	not yet ranked (temporary)
S1	=	Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
S2	=	Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
S3	=	Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
S4	=	apparently secure in Florida (may be rare in parts of range)
S5	=	demonstrably secure in Florida
SH	=	of historical occurrence throughout its range,may be rediscovered (e.g.,ivory-billed woodpecker)
SX	=	believed to be extinct throughout range
SA	=	accidental in Florida,i.e.,not part of the established biota
SE	=	an exotic species established in Florida may be native elsewhere in North America
SN	=	regularly occurring,but widely and unreliably distributed; sites for conservation hard to determine
SU	=	due to lack of information,no rank or range can be assigned (e.g.,SUT2).
S?	=	not yet ranked (temporary)

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

LEGAL STATUS

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

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

LE = Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species 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.

STATE

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

LE = Listed as Endangered Species by the FFWCC. Defined as a species,subspecies,or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state,or which may attain such a status within the immediate future.

LT = Listed as Threatened Species by the FFWCC. Defined as a species,subspecies,or isolated population which is acutely vulnerable to environmental alteration,declining in number at a rapid rate,or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.

LS = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection,recognition,or consideration because it has an inherent significant vulnerability to habitat modification,environmental alteration,human disturbance,or substantial human exploitation which,in the foreseeable future,may result in its becoming a threatened species.

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

LE = Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state,the survival of which is unlikely if the causes of a decline in the number of plants continue,and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973,as amended.

LT = Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state,but which have not so decreased in such number as to cause them to be endangered.

Lake Manatee State Park

Designated Species

Plants

Common Name/ *Scientific Name*	**Designated Species Status** FDA	USFWS	FNAI
Florida goldenaster			
Chrysopsis floridana	LE	LT	G1, S1
Garberia			
Garberia heterophylla	LT		
Yellow butterwort			
Pinguicula lutea	LT		
Giant orchid			
Pteroglossapsis ecristata	LT	MC	G2, S2
Giant wild pine; Giant air plant			
Tillandsia utriculata	LE		

Lake Manatee State Park

Designated Species

Animals

Common Name/ *Scientific Name*	Designated Species Status FFWCC	USFWS	FNAI
AMPHIBIANS			
Florida gopher frog *Rana capito*	LS		G3G4, S3
REPTILES			
American alligator *Alligator mississippiensis*	LS	LT(S/A)	G5, S4
Gopher tortoise *Gopherus polyphemus*	LS		G3, S3
Eastern indigo snake *Drymarchon corais couperi*	LT	LT	G4T3, S3
Florida pine snake *Pituophis melanoleucus mugitus*	LS		G4T3?, S3
BIRDS			
Eastern brown pelican *Pelecanus occidentalis*	LS		G4, S3
Little blue heron *Egretta caerulea*	LS		G5, S4
Great egret *Ardea alba*			G5, S4
Snowy egret *Egretta thula*	LS		G5, S3
Tricolored heron *Egretta tricolor*	LS		G5, S4
Black-crowned night heron *Nycticorax nycticorax*			G5, S3
Yellow-crowned night heron *Nycticorax violaceus*			G5, S3
White ibis *Eudocimus albus*	LS		G5, S4
Wood stork *Mycteria americana*	LE	LE	G4, S2
Roseate spoonbill *Ajaia ajaia*	LS		G5, S2
Southern bald eagle *Haliaetus leucocephalus*	LT	LT	G4, S3
Osprey *Pandion haliaetus*			G5, S3S4
Crested caracara *Caracara plancus*	LT	LT	G5, S2
Limpkin *Aramus quarauna*	LS		G5, S3
Florida scrub-jay *Aphelocoma coerulescens*	LT	LT	G2, S2
American redstart *Setophaga ruticilla*			G5, S2

Lake Manatee State Park

Designated Species

Animals

Common Name/ *Scientific Name*	**Designated Species Status** FFWCC	USFWS	FNAI
MAMMALS			
Sherman's fox squirrel *Sciurus niger shermani*	LS		G5T3, S3
Florida mouse *Podomys floridanus*	LS		G3, S3
Round-tailed muskrat *Neofiber alleni*			G3, S3

Addendum 6—Priority Schedule And Cost Estimates

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

RESOURCE MANAGEMENT

1. Gate keeping and Administrative Assistance $20,000 per year 0-10 yrs = **$120,000.**

2. Prescribed burning, line prep, fuel, equipment & repairs $9,000/yr. 0-10 yrs = **$90,000.**

3. Exotic removal $1500/yr. 0-10 yrs **$15,000**

VISITOR SERVICES

1. Canoes & Kayaks, PPE 0-10 years. **Estimated Cost:** **$26,000.**

TOTAL ESTIMATED COST: **$251,000.**

*** Categories of the uniform cost accounting system not reflected in this addendum, have no schedule or cost associated with them.**

Lake Manatee State Park

New Facility Construction/Facilities Maintenance

Item	Quantity	Unit	Unit Price	Multiplier	Amount
RECREATION FACILITIES					
Camping Area					
Campfire Circle	1.000	ea.	$1,500.00	1.25	$1,875.00
Picnic Area Improvements					
Interpretive Sign	1.000	ea.	$500.00	1.25	$625.00
Support Structures					
3 Bay Equipment Shelter	1.000	ea.	$110,000.00	1.25	$137,500.00
Swimming Area Improvements					
Interpretive Sign	1.000	ea.	$500.00	1.25	$625.00
Swimming Beach (Net and Buoy System)	1.000	acre	$10,000.00	1.25	$12,500.00
Trail Extension					
6 Ft. Elevated Boardwalk	400.000	LF	$195.00	1.25	$97,500.00
Trailhead Area Improvements					
Interpretive Sign	1.000	ea.	$500.00	1.25	$625.00
Medium Picnic Shelter	1.000	ea.	$36,000.00	1.25	$45,000.00
Stabilized Parking (10 Car)	2.000	per 10	$2,500.00	1.25	$6,250.00
Unisex 7' x 7' Restroom	1.000	ea.	$16,500.00	1.25	$20,625.00
			Sub-Total		$323,125.00
			20 Percent Contingency Fee		$64,625.00
			Total		**$387,750.00**

NOTE: These preliminary cost estimates, based on Divisions standards, do not include costs for site-specific elements not evident at the conceptual level of planning. Additional costs should be investigated before finalizing budget estimates. All items fall in the new facility construction category © of the uniform cost accounting system required by ch. 259.037 F.S.

Addendum 7—Additional Information

FNAI Descriptions

DHR Cultural Management Statement

Descriptions Of Natural Communities Developed By FNAI

This summary presents the hierarchical classification and brief descriptions of 82 Natural Communities developed by Florida Natural Areas Inventory and identified as collectively constituting the original, natural biological associations of Florida.

A Natural Community is defined as a distinct and recurring assemblage of populations of plants, animals, fungi and microorganisms naturally associated with each other and their physical environment. For more complete descriptions, see Guide to the Natural Communities of Florida, available from Florida Department of Natural Resources.

The levels of the hierarchy are:

Natural Community Category - defined by hydrology and vegetation.

Natural Community Groups - defined by landform, substrate, and vegetation.

Natural Community Type - defined by landform and substrate; soil moisture condition; climate; fire; and characteristic vegetation.

TERRESTRIAL - Upland habitats dominated by plants which are not adapted to anaerobic soil conditions imposed by saturation or inundation for more than 10% of the growing season.

XERIC UPLANDS - very dry, deep, well-drained hills of sand with xeric-adapted vegetation.

Sandhill - upland with deep sand substrate; xeric; temperate; frequent fire (2-5 years); longleaf pine and/or turkey oak with wiregrass understory.

Scrub - old dune with deep fine sand substrate; xeric; temperate or subtropical; occasional or rare fire (20 - 80 years); sand pine and/or scrub oaks and/or rosemary and lichens.

Xeric Hammock - upland with deep sand substrate; xeric-mesic; temperate or subtropical; rare or no fire; live oak and/or sand live oak and/or laurel oak and/or other oaks, sparkleberry, saw palmetto.

COASTAL UPLANDS - substrate and vegetation influenced primarily by such coastal (maritime) processes as erosion, deposition, salt spray, and storms.

Beach Dune - active coastal dune with sand substrate; xeric; temperate or subtropical; occasional or rare fire; sea oats and/or mixed salt-spray tolerant grasses and herbs.

Coastal Berm - old bar or storm debris with sand/shell substrate; xeric-mesic; subtropical or temperate; rare or no fire; buttonwood, mangroves, and/or mixed halophytic herbs and/or shrubs and trees.

Coastal Grassland - coastal flatland with sand substrate; xeric-mesic; subtropical or temperate; occasional fire; grasses, herbs, and shrubs with or without slash pine and/or cabbage palm.

Coastal Rock Barren - flatland with exposed limestone substrate; xeric; subtropical; no fire; algae, mixed halophytic herbs and grasses, and/or cacti and stunted shrubs and trees.

Coastal Strand - stabilized coastal dune with sand substrate; xeric; subtropical or temperate; occasional or rare fire; dense saw palmetto and/or seagrape and/or mixed stunted shrubs, yucca, and cacti.

Maritime Hammock - stabilized coastal dune with sand substrate; xeric-mesic; subtropical or temperate; rare or no fire; mixed hardwoods and/or live oak.

Shell Mound - Indian midden with shell substrate; xeric-mesic; subtropical or temperate; rare or no fire; mixed hardwoods.

MESIC UPLANDS - dry to moist hills of sand with varying amounts of clay, silt or organic material; diverse mixture of broadleaved and needleleaved temperate woody species.

Bluff - steep slope with rock, sand, and/or clay substrate; hydric-xeric; temperate; sparse grasses, herbs and shrubs.

Slope Forest - steep slope on bluff or in sheltered ravine; sand/clay substrate; mesic-hydric; temperate; rare or no fire; magnolia, beech, spruce pine, Shumard oak, Florida maple, mixed hardwoods.

Upland Glade - upland with calcareous rock and/or clay substrate; hydric-xeric; temperate; sparse mixed grasses and herbs with occasional stunted trees and shrubs, e.g., eastern red cedar.

Upland Hardwood Forest - upland with sand/clay and/or calcareous substrate; mesic; temperate; rare or no fire; spruce pine, magnolia, beech, pignut hickory, white oak, and mixed hardwoods.

Upland Mixed Forest - upland with sand/clay substrate; mesic; temperate; rare or no fire; loblolly pine and/or shortleaf pine and/or laurel oak and/or magnolia and spruce pine and/or mixed hardwoods.

Upland Pine Forest - upland with sand/clay substrate; mesic-xeric; temperate; frequent or occasional fire; longleaf pine and/or loblolly pine and/or shortleaf pine, southern red oak, wiregrass.

ROCKLANDS - low, generally flat limestone outcrops with tropical vegetation; or limestone exposed through karst activities with tropical or temperate vegetation.

Pine Rockland - flatland with exposed limestone substrate; mesic-xeric; subtropical; frequent fire; south Florida slash pine, palms and/or hardwoods, and mixed grasses and herbs.

Rockland Hammock - flatland with limestone substrate; mesic; subtropical; rare or no fire; mixed tropical hardwoods, often with live oak.

Sinkhole - karst feature with steep limestone walls; mesic-hydric; subtropical or temperate; no fire; ferns, herbs, shrubs, and hardwoods.

MESIC FLATLANDS - flat, moderately well-drained sandy substrates with admixture of organic material, often with a hard pan.

Dry Prairie - flatland with sand substrate; mesic-xeric; subtropical or temperate; annual or frequent fire; wiregrass, saw palmetto, and mixed grasses and herbs.

Mesic Flatwoods - flatland with sand substrate; mesic; subtropical or temperate; frequent fire; slash

pine and/or longleaf pine with saw palmetto, gallberry and/or wiregrass or cutthroat grass understory.

Prairie Hammock - flatland with sand/organic soil over marl or limestone substrate; mesic; subtropical; occasional or rare fire; live oak and/or cabbage palm.

Scrubby Flatwoods - flatland with sand substrate; xeric-mesic; subtropical or temperate; occasional fire; longleaf pine or slash pine with scrub oaks and wiregrass understory.

PALUSTRINE - Wetlands dominated by plants adapted to anaerobic substrate conditions imposed by substrate saturation or inundation during 10% or more of the growing season. Includes non-tidal wetlands; tidal wetlands with ocean derived salinities less than 0.5 ppt and dominance by salt-intolerant species; small (less than 8 ha), shallow (less than 2 m deep at low water) water bodies without wave-formed or bedrock shoreline; and inland brackish or saline wetlands.

WET FLATLANDS - flat, poorly drained sand, marl or limestone substrates.

Hydric Hammock - lowland with sand/clay/organic soil, often over limestone; mesic-hydric; subtropical or temperate; rare or no fire; water oak, cabbage palm, red cedar, red maple, bays, hackberry, hornbeam, blackgum, needle palm, and mixed hardwoods.

Marl Prairie - flatland with marl over limestone substrate; seasonally inundated; tropical; frequent to no fire; sawgrass, spikerush, and/or mixed grasses, sometimes with dwarf cypress.

Wet Flatwoods - flatland with sand substrate; seasonally inundated; subtropical or temperate; frequent fire; vegetation characterized by slash pine or pond pine and/or cabbage palm with mixed grasses and herbs.

Wet Prairie - flatland with sand substrate; seasonally inundated; subtropical or temperate; annual or frequent fire; maidencane, beakrush, spikerush, wiregrass, pitcher plants, St. John's wort, mixed herbs.

SEEPAGE WETLANDS - sloped or flat sands or peat with high moisture levels maintained by downslope seepage; wetland and mesic woody and/or herbaceous vegetation.

Baygall - wetland with peat substrate at base of slope; maintained by downslope seepage, usually saturated and occasionally inundated; subtropical or temperate; rare or no fire; bays and/or dahoon holly and/or red maple and/or mixed hardwoods.

Seepage Slope - wetland on or at base of slope with organic/sand substrate; maintained by downslope seepage, usually saturated but rarely inundated; subtropical or temperate; frequent or occasional fire; sphagnum moss, mixed grasses and herbs or mixed hydrophytic shrubs.

FLOODPLAIN WETLANDS - flat, alluvial sand or peat substrates associated with flowing water courses and subjected to flooding but not permanent inundation; wetland or mesic woody and herbaceous vegetation.

Bottomland Forest - flatland with sand/clay/organic substrate; occasionally inundated; temperate; rare or no fire; water oak, red maple, beech, magnolia, tuliptree, sweetgum, bays, cabbage palm, and mixed hardwoods.

Floodplain Forest - floodplain with alluvial substrate of sand, silt, clay or organic soil; seasonally inundated; temperate; rare or no fire; diamondleaf oak, overcup oak, water oak, swamp chestnut oak, blue palmetto, cane, and mixed hardwoods.

Floodplain Marsh - floodplain with organic/sand/alluvial substrate; seasonally inundated; subtropical; frequent or occasional fire; maidencane, pickerelweed, sagittaria spp., buttonbush, and mixed emergents.

Floodplain Swamp - floodplain with organic/alluvial substrate; usually inundated; subtropical or temperate; rare or no fire; vegetation characterized by cypress, tupelo, black gum, and/or pop ash.

Freshwater Tidal Swamp - river mouth wetland, organic soil with extensive root mat; inundated with freshwater in response to tidal cycles; rare or no fire; cypress, bays, cabbage palm, gums and/or cedars.

Slough - broad, shallow channel with peat over mineral substrate; seasonally inundated, flowing water; subtropical; occasional or rare fire; pop ash and/or pond apple or water lily.

Strand Swamp - broad, shallow channel with peat over mineral substrate; seasonally inundated, flowing water; subtropical; occasional or rare fire; cypress and/or willow.

Swale - broad, shallow channel with sand/peat substrate; seasonally inundated, flowing water; subtropical or temperate; frequent or occasional fire; sawgrass, maidencane, pickerelweed, and/or mixed emergents.

BASIN WETLANDS - shallow, closed basin with outlet usually only in time of high water; peat or sand substrate, usually inundated; wetland woody and/or herbaceous vegetation.

Basin Marsh - large basin with peat substrate; seasonally inundated; temperate or subtropical; frequent fire; sawgrass and/or cattail and/or buttonbush and/or mixed emergents.

Basin Swamp - large basin with peat substrate; seasonally inundated, still water; subtropical or temperate; occasional or rare fire; vegetation characterized by cypress, blackgum, bays and/or mixed hardwoods.

Bog - wetland on deep peat substrate; moisture held by sphagnum mosses, soil usually saturated, occasionally inundated; subtropical or temperate; rare fire; sphagnum moss and titi and/or bays and/or dahoon holly, and/or mixed hydrophytic shrubs.

Coastal Interdunal Swale - long narrow depression wetlands in sand/peat-sand substrate; seasonally inundated, fresh to brackish, still water; temperate; rare fire; graminoids and mixed wetland forbs.

Depression Marsh - small rounded depression in sand substrate with peat accumulating toward center; seasonally inundated, still water; subtropical or temperate; frequent or occasional fire; maidencane, fire flag, pickerelweed, and mixed emergents, may be in concentric bands.

Dome Swamp - rounded depression in sand/limestone substrate with peat accumulating toward center; seasonally inundated, still water; subtropical or temperate; occasional or rare fire; cypress, blackgum, or bays, often tallest in center.

LACUSTRINE - Non-flowing wetlands of natural depressions lacking persistent emergent vegetation except around the perimeter.

Clastic Upland Lake - generally irregular basin in clay uplands; predominantly with inflows, frequently without surface outflow; clay or organic substrate; colored, acidic, soft water with low mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

Coastal Dune Lake - basin or lagoon influenced by recent coastal processes; predominantly sand substrate with some organic matter; salinity variable among and within lakes, and subject to saltwater intrusion and storm surges; slightly acidic, hard water with high mineral content (sodium, chloride).

Coastal Rockland Lake - shallow basin influence by recent coastal processes; predominantly barren oolitic or Miami limestone substrate; salinity variable among and within lakes, and subject to saltwater intrusion, storm surges and evaporation (because of shallowness); slightly alkaline, hard water with

high mineral content (sodium, chloride).

Flatwoods/Prairie Lake - generally shallow basin in flatlands with high water table; frequently with a broad littoral zone; still water or flow-through; sand or peat substrate; variable water chemistry, but characteristically colored to clear, acidic to slightly alkaline, soft to moderately hard water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

Marsh lake - generally shallow, open water area within wide expanses of freshwater marsh; still water or flow-through; peat, sand or clay substrate; occurs in most physiographic regions; variable water chemistry, but characteristically highly colored, acidic, soft water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

River Floodplain Lake - meander scar, backwater, or larger flow-through body within major river floodplains; sand, alluvial or organic substrate; colored, alkaline or slightly acidic, hard or moderately hard water with high mineral content (sulfate, sodium, chloride, calcium, magnesium); mesotrophic to eutrophic.

Sandhill Upland Lake - generally rounded solution depression in deep sandy uplands or sandy uplands shallowly underlain by limestone; predominantly without surface inflows/outflows; typically sand substrate with organic accumulations toward middle; clear, acidic moderately soft water with varying mineral content; ultra-oligotrophic to mesotrophic.

Sinkhole Lake - typically deep, funnel-shaped depression in limestone base; occurs in most physiographic regions; predominantly without surface inflows/outflows, but frequently with connection to the aquifer; clear, alkaline, hard water with high mineral content (calcium, bicarbonate, magnesium).

Swamp Lake - generally shallow, open water area within basin swamps; still water or flow-through; peat, sand or clay substrate; occurs in most physiographic regions; variable water chemistry, but characteristically highly colored, acidic, soft water with moderate mineral content (sodium, chloride, sulfate); oligo-mesotrophic to eutrophic.

RIVERINE - Natural, flowing waters from their source to the downstream limits of tidal influence and bounded by channel banks.

Alluvial Stream - lower perennial or intermittent/seasonal watercourse characterized by turbid water with suspended silt, clay, sand and small gravel; generally with a distinct, sediment-derived (alluvial) floodplain and a sandy, elevated natural levee just inland from the bank.

Blackwater Stream - perennial or intermittent/seasonal watercourse characterized by tea-colored water with a high content of particulate and dissolved organic matter derived from drainage through swamps and marshes; generally lacking an alluvial floodplain.

Seepage Stream - upper perennial or intermittent/seasonal watercourse characterized by clear to lightly colored water derived from shallow groundwater seepage.

Spring-run Stream - perennial watercourse with deep aquifer headwaters and characterized by clear water, circumneutral pH and, frequently, a solid limestone bottom.

SUBTERRANEAN - Twilight, middle and deep zones of natural chambers overlain by the earth's crust and characterized by climatic stability and assemblages of trogloxenic, troglophilic, and troglobitic organisms.

Aquatic Cave - cavernicolous area permanently or periodically submerged; often characterized by troglobitic crustaceans and salamanders; includes high energy systems which receive large quantities

of organic detritus and low energy systems.

Terrestrial Cave - cavernicolous area lacking standing water; often characterized by bats, such as Myotis spp., and other terrestrial vertebrates and invertebrates; includes interstitial areas above standing water such as fissures in the ceiling of caves.

MARINE/ESTUARINE (The distinction between the Marine and Estuarine Natural Communities is often subtle, and the natural communities types found under these two community categories have the same descriptions. For these reasons they have been grouped together.) - Subtidal, intertidal and supratidal zones of the sea, landward to the point at which seawater becomes significantly diluted with freshwater inflow from the land.

Consolidated Substrate - expansive subtidal, intertidal and supratidal area composed primarily of nonliving compacted or coherent and relatively hard, naturally formed mass of mineral matter (e.g., coquina limerock and relic reefs); octocorals, sponges, stony corals, nondrift macrophytic algae, blue-green mat-forming algae and seagrasses sparse, if present.

Unconsolidated Substrate - expansive subtidal, intertidal and supratidal area composed primarily of loose mineral matter (e.g., coralgal, gravel, marl, mud, sand and shell); octocorals, sponges, stony corals, nondrift macrophytic algae, blue-green mat-forming algae and seagrasses sparse, if present.

Octocoral Bed - expansive subtidal area occupied primarily by living sessile organisms of the Class Anthozoa, Subclass Octocorallia (e.g., soft corals, horny corals, sea fans, sea whips, and sea pens); sponges, stony corals, nondrift macrophytic algae and seagrasses spares, if present.

Sponge Bed - expansive subtidal area occupied primarily by living sessile organisms of the Phylum Porifera (e.g., sheepswool sponge, Florida loggerhead sponge and branching candle sponge); octocorals, stony corals, nondrift macrophytic algae and seagrasses sparse, if present.

Coral Reef - expansive subtidal area with elevational gradient or relief and occupied primarily by living sessile organisms of the Class Hydrozoa (e.g., fire corals and hydrocorals) and Class Anthozoa, Subclass Zoantharia (e.g., stony corals and black corals); includes deepwater bank reefs, fringing barrier reefs, outer bank reefs and patch reefs, some of which may contain distinct zones of assorted macrophytes, octocorals, & sponges.

Mollusk Reef - substantial subtidal or intertidal area with relief from concentrations of sessile organisms of the Phylum Mollusca, Class Bivalvia (e.g., molluscs, oysters, & worm shells); octocorals, sponges, stony corals, macrophytic algae and seagrasses sparse, if present.

Worm Reef - substantial subtidal or intertidal area with relief from concentrations of sessile, tubicolous organisms of the Phylum Annelida, Class Polychaeta (e.g., chaetopterids and sabellarids); octocorals, sponges, stony corals, macrophytic algae and seagrasses sparse, if present.

Algal Bed - expansive subtidal, intertidal or supratidal area, occupied primarily by attached thallophytic or mat-forming prokaryotic algae (e.g, halimeda, blue-green algae); octocorals, sponges, stony corals and seagrasses sparse, if present.

Grass Bed - expansive subtidal or intertidal area, occupied primarily by rooted vascular macrophytes, (e.g., shoal grass, halophila, widgeon grass, manatee grass and turtle grass); may include various epiphytes and epifauna; octocorals, sponges, stony corals, and attached macrophytic algae sparse, if present.

Composite Substrate - expansive subtidal, intertidal, or supratidal area, occupied primarily by Natural Community elements from more than one Natural Community category (e.g., Grass Bed and Algal Bed species; Octocoral and Algal Bed species); includes both patchy and evenly distributed occurrences.

Tidal Marsh - expansive intertidal or supratidal area occupied primarily by rooted, emergent vascular macrophytes (e.g., cord grass, needlerush, saw grass, saltwort, saltgrass and glasswort); may include various epiphytes and epifauna.

Tidal Swamp - expansive intertidal and supratidal area occupied primarily by woody vascular macrophytes (e.g., black mangrove, buttonwood, red mangrove, and white mangrove); may include various epiphytes and epifauna.

DEFINITIONS OF TERMS Terrestrial and Palustrine Natural Communities

Physiography

Upland - high area in region with significant topographic relief; generally undulating
Lowland - low area in region with or without significant topographic relief; generally flat to gently sloping
Flatland - generally level area in region without significant topographic relief; flat to gently sloping
Basin - large, relatively level lowland with slopes confined to the perimeter or isolated interior locations
Depression - small depression with sloping sides, deepest in center and progressively shallower towards the perimeter
Floodplain - lowland adjacent to a stream; topography influenced by recent fluvial processes
Bottomland - lowland not on active floodplain; sand/clay/organic substrate

Hydrology

occasionally inundated - surface water present only after heavy rains and/or during flood stages
seasonally inundated - surface water present during wet season and flood periods
usually inundated - surface water present except during droughts

Climatic Affinity of the Flora

tropical - community generally occurs in practically frost-free areas
subtropical - community generally occurs in areas that experience occasional frost, but where freezing temperatures are not frequent enough to cause true winter dormancy
temperate - community generally occurs in areas that freeze often enough that vegetation goes into winter dormancy

Fire

annual fire - burns about every 1-2 years
frequent fire - burns about every 3-7 years
occasional fire - burns about every 8-25 years
rare fire - burns about every 26-100 years
no fire - community develops only when site goes more than 100 years without burning

LATIN NAMES OF PLANTS MENTIONED IN NATURAL COMMUNITY DESCRIPTIONS

anise - *Illicium floridanum*
bays:
  swamp bay -*Persea palustris*
  gordonia -*Gordonia lasianthus*
  sweetbay -*Magnolia virgiana*
beakrush - *Rhynchospora* spp.
beech - *Fagus grandifolia*
blackgum - *Nyssa biflora*
blue palmetto - *Sabal minor*
bluestem - *Andropogon* spp.
buttonbush - *Cephalanthus occidentalis*
cabbage palm - *Sabal palmetto*
cacti - *Opuntia* and *Harrisia* spp.,
  predominantly *stricta* and *pentagonus*
cane - *Arundinaria gigantea* or *A. tecta*
cattail - *Typha* spp.
cedars:
  red cedar - *Juniperus silicicola*
  white cedar - *Chamaecyparis thyoides* or *C. henryi*
cladonia - *Cladonia* spp.
cypress - *Taxodium distichum*
dahoon holly - *Ilex cassine*
diamondleaf oak - *Quercus laurifolia*
fire flag - *Thalia geniculata*
Florida maple - *Acer barbatum*
gallberry - *Ilex glabra*
gums:
  tupelo - *Nyssa aquatica*
  blackgum - *Nyssa biflora*
  Ogeechee gum - *Nyssa ogeche*
hackberry - *Celtis laevigata*
hornbeam - *Carpinus caroliniana*
laurel oak - *Quercus hemisphaerica*
live oak - *Quercus virginiana*
loblolly pine - *Pinus taeda*
longleaf pine - *Pinus palustris*
magnolia - *Magnolia grandiflora*
maidencane - *Panicum hemitomon*
needle palm - *Rhapidophyllum hystrix*
overcup oak - *Quercus lyrata*
pickerel weed - *Pontederia cordata* or *P. lanceolata*
pignut hickory - *Carya glabra*
pop ash - *Fraxinus caroliniana*
pond apple - *Annona glabra*
pond pine - *Pinus serotina*
pyramid magnolia - *Magnolia pyramidata*
railroad vine - *Ipomoea pes-caprae*
red cedar - *Juniperus silicicola*
red maple - *Acer rubrum*
red oak - *Quercus falcata*
rosemary - *Ceratiola ericoides*
sagittaria - *Sagittaria lancifolia*
sand pine - *Pinus clausa*
saw palmetto - *Serenoa repens*
sawgrass - *Cladium jamaicensis*
scrub oaks - *Quercus geminata, Q. chapmanii, Q. myrtifolia,Q. inopina*
sea oats - *Uniola paniculata*
seagrape - *Coccoloba uvifera*
shortleaf pine - *Pinus echinata*
Shumard oak - *Quercus shumardii*
slash pine - *Pinus elliottii*
sphagnum moss - *Sphagnum* spp.
spikerush - *Eleocharis* spp.
spruce pine - *Pinus glabra*
St. John's wort - *Hypericum* spp.
swamp chestnut oak - *Quercus prinus*
sweetgum - *Liquidambar styraciflua*
titi - *Cyrilla racemiflora*, and *Cliftonia monophylla*
tuliptree - *Liriodendron tulipfera*
tupelo - *Nyssa aquatica*
turkey oak - *Quercus laevis*
water oak - *Quercus nigra*
waterlily - *Nymphaea odorata*
white cedar - *Chamaecyparis thyoides*
white oak - *Quercus alba*
willow - *Salix caroliniana*
yucca - *Yucca aloifolia*

A. GENERAL DISCUSSION

Archaeological and historic sites are defined collectively in 267.021(3), F.S., as "historic properties" or "historic resources." They have several essential characteristics that must be recognized in a management program.

First of all, they are a finite and non-renewable resource. Once destroyed, presently existing resources, including buildings, other structures, shipwreck remains, archaeological sites and other objects of antiquity, cannot be renewed or revived. Today, sites in the State of Florida are being destroyed by all kinds of land development, inappropriate land management practices, erosion, looting, and to a minor extent even by well-intentioned professional scientific research (e.g., archaeological excavation). Measures must be taken to ensure that some of these resources will be preserved for future study and appreciation.

Secondly, sites are unique because individually they represent the tangible remains of events that occurred at a specific time and place.

Thirdly, while sites uniquely reflect localized events, these events and the origin of particular sites are related to conditions and events in other times and places. Sites can be understood properly only in relation to their natural surroundings and the activities of inhabitants of other sites. Managers must be aware of this "systemic" character of historic and archaeological sites. Also, it should be recognized that archaeological sites are time capsules for more than cultural history; they preserve traces of past biotic communities, climate, and other elements of the environment that may be of interest to other scientific disciplines.

Finally, the significance of sites, particularly archaeological ones, derives not only from the individual artifacts within them, but equally from the spatial arrangement of those artifacts in both horizontal and vertical planes. When archaeologists excavate, they recover, not merely objects, but also a record of the positions of these objects in relation to one another and their containing matrix (e.g., soil strata). Much information is sacrificed if the so-called "context" of archaeological objects is destroyed or not recovered, and this is what archaeologists are most concerned about when a site is threatened with destruction or damage. The artifacts themselves can be recovered even after a site is heavily disturbed, but the context -- the vertical and horizontal relationships -- cannot. Historic structures also contain a wealth of cultural (socio-economic) data that can be lost if historically sensitive maintenance, restoration or rehabilitation procedures are not implemented, or if they are demolished or extensively altered without appropriate documentation. Lastly, it should not be forgotten that historic structures often have associated potentially significant historic archaeological features that must be considered in land management decisions.

B. STATUTORY AUTHORITY

Chapter 253, Florida Statutes ("State Lands") directs the preparation of "single-use" or "multiple-use" land management plans for all state-owned lands and state-owned sovereignty submerged lands. In this document, 253.034(4), F.S., specifically requires that "all management plans, whether for single-use or multiple-use properties, shall specifically describe how the managing agency plans to identify, locate, protect and preserve, or otherwise use fragile non-renewable resources, such as archaeological and historic sites, as well as other fragile resources..."

Chapter 267, Florida Statutes is the primary historic preservation authority of the state. The importance of protecting and interpreting archaeological and historic sites is recognized in 267.061(1)(a), F.S.:The rich and unique heritage of historic properties in this state, representing more than 10,000 years of human presence, is an important legacy to be valued and conserved for present and future generations. The destruction of these nonrenewable historic resources will engender a significant loss to the state's quality of life, economy, and cultural environment. It is therefore declared to be state policy to:

1. Provide leadership in the preservation of the state's historic resources; [and]
2. Administer state-owned or state-controlled historic resources in a spirit of stewardship and trusteeship;...

Responsibilities of the Division of Historical Resources in the Department of State pursuant to 267.061(3), F.S., include the following:

1. Cooperate with federal and state agencies, local Governments, and private organizations and individuals to direct and conduct a comprehensive statewide survey of historic resources and to maintain an inventory of such responses.
2. Develop a comprehensive statewide historic preservation plan.
3. Identify and nominate eligible properties to the National Register of Historic Places and otherwise administer applications for listing properties in the National Register of Historic Places.
4. Cooperate with federal and state agencies, local governments, and organizations and individuals to ensure that historic resources are taken into consideration at all levels of planning and development.
5. Advise and assist, as appropriate, federal and state agencies and local governments in carrying out their historic preservation responsibilities and programs.
6. Carry out on behalf of the state the programs of the National Historic Preservation Act of 1966, as amended, and to establish, maintain, and administer a state historic preservation program meeting the requirements of an approved program and fulfilling the responsibilities of state historic preservation programs as provided in subsection 101(b) of that act.
7. Take such other actions necessary or appropriate to locate, acquire, protect, preserve, operate, interpret, and promote the location, acquisition, protection, preservation, operation, and interpretation of historic resources to foster an appreciation of Florida history and culture. Prior to the acquisition, preservation, interpretation, or operation of a historic property by a state agency, the Division shall be provided a reasonable opportunity to review and comment on the proposed undertaking and shall determine that there exists historic authenticity and a feasible means of providing for the preservation, interpretation and operation of such property.
8. Establish professional standards for the preservation, exclusive of acquisition, of historic resources in state ownership or control.
9. Establish guidelines for state agency responsibilities under subsection (2).

Responsibilities of other state agencies of the executive branch, pursuant to 267.061(2), F.S., include:

1. Each state agency of the executive branch having direct or indirect jurisdiction over a proposed state or state-assisted undertaking shall, in accordance with state policy and prior to the approval of expenditure of any state funds on the undertaking, consider the effect of the undertaking on any historic property that is included in, or eligible for inclusion in, the National Register of Historic Places. Each such agency shall afford the division a reasonable opportunity to comment with regard to such an undertaking.
2. Each state agency of the executive branch shall initiate measures in consultation with the division to assure that where, as a result of state action or assistance carried out by such agency, a historic property is to be demolished or substantially altered in a way that adversely affects the character, form, integrity, or other qualities that contribute to [the] historical, architectural, or archaeological value of the property, timely steps are taken to determine that no feasible and prudent alternative to the proposed demolition or alteration exists, and, where no such alternative is determined to exist, to assure that timely steps are taken either to avoid or mitigate the adverse effects, or to undertake an appropriate archaeological salvage excavation or other recovery action to document the property as it existed prior to demolition or alteration.
3. In consultation with the division [of Historical Resources], each state agency of the executive branch shall establish a program to locate, inventory, and evaluate all historic properties under the agency's ownership or control that appear to qualify for the National Register. Each such agency shall exercise caution to assure that any such historic property is not inadvertently

transferred, sold, demolished, substantially altered, or allowed to deteriorate significantly.

4. Each state agency of the executive branch shall assume responsibility for the preservation of historic resources that are owned or controlled by such agency. Prior to acquiring, constructing, or leasing buildings for the purpose of carrying out agency responsibilities, the agency shall use, to the maximum extent feasible, historic properties available to the agency. Each agency shall undertake, consistent with preservation of such properties, the mission of the agency, and the professional standards established pursuant to paragraph (3)(k), any preservation actions necessary to carry out the intent of this paragraph.

5. Each state agency of the executive branch, in seeking to acquire additional space through new construction or lease, shall give preference to the acquisition or use of historic properties when such acquisition or use is determined to be feasible and prudent compared with available alternatives. The acquisition or use of historic properties is considered feasible and prudent if the cost of purchase or lease, the cost of rehabilitation, remodeling, or altering the building to meet compliance standards and the agency's needs, and the projected costs of maintaining the building and providing utilities and other services is less than or equal to the same costs for available alternatives. The agency shall request the division to assist in determining if the acquisition or use of a historic property is feasible and prudent. Within 60 days after making a determination that additional space is needed, the agency shall request the division to assist in identifying buildings within the appropriate geographic area that are historic properties suitable for acquisition or lease by the agency, whether or not such properties are in need of repair, alteration, or addition.

6. Consistent with the agency's mission and authority, all state agencies of the executive branch shall carry out agency programs and projects, including those under which any state assistance is provided, in a manner which is generally sensitive to the preservation of historic properties and shall give consideration to programs and projects which will further the purposes of this section.

Section 267.12 authorizes the Division to establish procedures for the granting of research permits for archaeological and historic site survey or excavation on state-owned or controlled lands, while Section 267.13 establishes penalties for the conduct of such work without first obtaining written permission from the Division of Historical Resources. The Rules of the Department of State, Division of Historical Resources, for research permits for archaeological sites of significance are contained in Chapter 1A-32, F.A.C.

Another Florida Statute affecting land management decisions is Chapter 872, F.S. Section 872.02, F.S., pertains to marked grave sites, regardless of age. Many state-owned properties contain old family and other cemeteries with tombstones, crypts, etc. Section 872.05, F.S., pertains to unmarked human burial sites, including prehistoric and historic Indian burial sites. Unauthorized disturbance of both marked and unmarked human burial site is a felony.

C. MANAGEMENT POLICY

The choice of a management policy for archaeological and historic sites within state-owned or controlled land obviously depends upon a detailed evaluation of the characteristics and conditions of the individual sites and groups of sites within those tracts. This includes an interpretation of the significance (or potential significance) of these sites, in terms of social and political factors, as well as environmental factors. Furthermore, for historic structures architectural significance must be considered, as well as any associated historic landscapes.

Sites on privately owned lands are especially vulnerable to destruction, since often times the economic incentives for preservation are low compared to other uses of the land areas involved. Hence, sites in public ownership have a magnified importance, since they are the ones with the best chance of survival over the long run. This is particularly true of sites that are state-owned or controlled, where the basis of management is to provide for land uses that are minimally destructive of resource values.

It should be noted that while many archaeological and historical sites are already recorded within state--owned or controlled--lands, the majority of the uplands areas and nearly all of the inundated areas have not been surveyed to locate and assess the significance of such resources. The known sites are, thus, only an incomplete sample of the actual resources - i.e., the number, density, distribution, age, character and condition of archaeological and historic sites - on these tracts. Unfortunately, the lack of specific knowledge of the actual resources prevents formulation of any sort of detailed management or use plan involving decisions about the relative historic value of individual sites. For this reason, a generalized policy of conservation is recommended until the resources have been better addressed.

The generalized management policy recommended by the Division of Historical Resources includes the following:

1. State land managers shall coordinate all planned activities involving known archaeological or historic sites or potential site areas closely with the Division of Historical Resources in order to prevent any kind of disturbance to significant archaeological or historic sites that may exist on the tract. Under 267.061(1)(b), F.S., the Division of Historical Resources is vested with title to archaeological and historic resources abandoned on state lands and is responsible for administration and protection of such resources. The Division will cooperate with the land manager in the management of these resources. Furthermore, provisions of 267.061(2) and 267.13, F.S., combined with those in 267.061(3) and 253.034(4), F.S., require that other managing (or permitting) agencies coordinate their plans with the Division of Historical Resources at a sufficiently early stage to preclude inadvertent damage or destruction to known or potentially occurring, presently unknown archaeological and historic sites. The provisions pertaining to human burial sites must also be followed by state land managers when such remains are known or suspected to be present (see 872.02 and 872.05, F.S., and 1A-44, F.A.C.)

2. Since the actual resources are so poorly known, the potential impact of the managing agency's activities on historic archaeological sites may not be immediately apparent. Special field survey for such sites may be required to identify the potential endangerment as a result of particular management or permitting activities. The Division may perform surveys, as its resources permit, to aid the planning of other state agencies in their management activities, but outside archaeological consultants may have to be retained by the managing agency. This would be especially necessary in the cases of activities contemplating ground disturbance over large areas and unexpected occurrences. It should be noted, however, that in most instances Division staff's knowledge of known and expected site distribution is such that actual field surveys may not be necessary, and the project may be reviewed by submitting a project location map (preferably a 7.5 minute U.S.G.S. Quadrangle map or portion thereof) and project descriptive data, including detailed construction plans. To avoid delays, Division staff should be contacted to discuss specific project documentation review needs.

3. In the case of known significant sites, which may be affected by proposed project activities, the managing agency will generally be expected to alter proposed management or development plans, as necessary, or else make special provisions to minimize or mitigate damage to such sites.

4. If in the course of management activities, or as a result of development or the permitting of dredge activities (see 403.918(2)(6)a, F.S.), it is determined that valuable historic or archaeological sites will be damaged or destroyed, the Division reserves the right, pursuant to 267.061(1)(b), F.S., to require salvage measures to mitigate the destructive impact of such activities to such sites. Such salvage measures would be accomplished before the Division would grant permission for destruction of the affected site areas. The funding needed to implement salvage measures would be the responsibility of the managing agency planning the site destructive activity. Mitigation of historic structures at a minimum involves the preparation of measured drawings and documentary photographs. Mitigation of archaeological resources involves the excavation, analysis and reporting of the project findings and must be planned to

occur sufficiently in advance to avoid project construction delays. If these services are to be contracted by the state agency, the selected consultant will need to obtain an Archaeological Research Permit from the Division of Historical Resources, Bureau of Archaeological Research (see 267.12, F.S. and Rules 1A-32 and 1A-46 F.A.C.).

5. For the near future, excavation of non-endangered (i.e., sites not being lost to erosion or development) archaeological site is discouraged. There are many endangered sites in Florida (on both private and public lands) in need of excavation because of the threat of development or other factors. Those within state-owned or controlled lands should be left undisturbed for the present - with particular attention devoted to preventing site looting by "treasure hunters". On the other hand, the archaeological and historic survey of these tracts is encouraged in order to build an inventory of the resources present, and to assess their scientific research potential and historic or architectural significance.

6. The cooperation of land managers in reporting sites to the Division that their field personnel may discover is encouraged. The Division will help inform field personnel from other resource managing agencies about the characteristics and appearance of sites. The Division has initiated a cultural resource management training program to help accomplish this. Upon request the Division will also provide to other agencies archaeological and historical summaries of the known and potentially occurring resources so that information may be incorporated into management plans and public awareness programs (See Management Implementation).

7. Any discovery of instances of looting or unauthorized destruction of sites must be reported to the agent for the Board of Trustees of the Internal Improvement Trust Fund and the Division so that appropriate action may be initiated. When human burial sites are involved, the provisions of 872.02 and 872.05, F. S. and Rule 1A-44, F.A.C., as applicable, must also be followed. Any state agent with law enforcement authority observing individuals or groups clearly and incontrovertibly vandalizing, looting or destroying archaeological or historic sites within state-owned or controlled lands without demonstrable permission from the Division will make arrests and detain those individuals or groups under the provisions of 267.13, 901.15, and 901.21, F.S., and related statutory authority pertaining to such illegal activities on state-owned or controlled lands. County Sheriffs' officers are urged to assist in efforts to stop and/or prevent site looting and destruction.

In addition to the above management policy for archaeological and historic sites on state-owned land, special attention shall be given to those properties listed in the National Register of Historic Places and other significant buildings. The Division recommends that the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (Revised 1990) be followed for such sites.

The following general standards apply to all treatments undertaken on historically significant properties.

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alterations of features and spaces that characterize a property shall be avoided.

3. Each property shall be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.

6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of

missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

8. Significant archaeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired. (see Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings [Revised 1990]).

Divisions of Historical Resources staff are available for technical assistance for any of the above listed topics. It is encouraged that such assistance be sought as early as possible in the project planning.

D. MANAGEMENT IMPLEMENTATION

As noted earlier, 253.034(4), F.S., states that "all management plans, whether for single-use or multiple-use properties, shall specifically describe how the managing agency plans to identify, locate, protect and preserve, or otherwise use fragile non-renewable resources, such as archaeological and historic sites..." The following guidelines should help to fulfill that requirement.

1. All land managing agencies should contact the Division and send U.S.G.S. 7.5 minute quadrangle maps outlining the boundaries of their various properties.

2. The Division will in turn identify site locations on those maps and provide descriptions for known archaeological and historical sites to the managing agency.

3. Further, the Division may also identify on the maps areas of high archaeological and historic site location probability within the subject tract. These are only probability zones, and sites may be found outside of these areas. Therefore, actual ground inspections of project areas may still be necessary.

4. The Division will send archaeological field recording forms and historic structure field recording forms to representatives of the agency to facilitate the recording of information on such resources.

5. Land managers will update information on recorded sites and properties.

6. Land managers will supply the Division with new information as it becomes available on previously unrecorded sites that their staff locate. The following details the kind of information the Division wishes to obtain for any new sites or structures that the land managers may report:

A. Historic Sites

(1) Type of structure (dwelling, church, factory, etc.).

(2) Known or estimated age or construction date for each structure and addition.

(3) Location of building (identify location on a map of the property, and building placement, i.e., detached, row, etc.).

(4) General Characteristics: (include photographs if possible) overall shape of plan (rectangle, "L" "T" "H" "U", etc.); number of stories; number of vertical divisions of bays; construction materials (brick, frame, stone, etc.); wall finish (kind of bond, coursing, shingle, etc.); roof shape.

(5) Specific features including location, number and appearance of:
(a) Important decorative elements;
(b) Interior features contributing to the character of the building;

(c) Number, type, and location of outbuildings, as well as date(s) of construction;
(d) Notation if property has been moved;
(e) Notation of known alterations to building.

B. Archaeological Sites

(1) Site location (written narrative and mapped location).
(2) Cultural affiliation and period.
(3) Site type (midden, burial mound, artifact scatter, building rubble, etc.).
(4) Threats to site (deterioration, vandalism, etc.).
(5) Site size (acreage, square meters, etc.).
(6) Artifacts observed on ground surface (pottery, bone, glass, etc.).
(7) Description of surrounding environment.

7. No land disturbing activities should be undertaken in areas of known archaeological or historic sites or areas of high site probability without prior review by the Division early in the project planning.

8. Ground disturbing activities may proceed elsewhere but land managers should stop disturbance in the immediate vicinity of artifact finds and notifies the Division if previously unknown archaeological or historic remains are uncovered. The provisions of Chapter 872, F.S., must be followed when human remains are encountered.

9. Excavation and collection of archaeological and historic sites on state lands without a permit from the Division are a violation of state law and shall be reported to a law enforcement officer. The use of metal detectors to search for historic artifacts shall be prohibited on state lands except when authorized in a 1A-32, F.A.C., research permit from the Division.

10. Interpretation and visitation which will increase public understanding and enjoyment of archaeological and historic sites without site destruction or vandalism is strongly encouraged.

11. Development of interpretive programs including trails, signage, kiosks, and exhibits is encouraged and should be coordinated with the Division.

12. Artifacts found or collected on state lands are by law the property of the Division. Land managers shall contact the Division whenever such material is found so that arrangements may be made for recording and conservation. This material, if taken to Tallahassee, can be returned for public display on a long term loan.

E. ADMINISTERING AGENCY

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

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

Contact Person: **Susan M. Harp**
Historic Preservation Planner
Telephone (850) 245-6333
Suncom 205-6333
FAX (850) 245-6437