OLETA RIVER STATE PARK

Unit Management Plan

APPROVED

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Recreation and Parks
DECEMBER 12, 2008

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INTRODUCTION

Oleta River State Park is located in Dade County (see Vicinity Map). Access to the park is from State Road 826 also referred to as N.E. 163rd Street or Sunny Isles Boulevard (see Reference Map). The vicinity map also reflects significant land and water resources existing near the park.

At Oleta River State Park, public outdoor recreation and conservation is the designated single use of the property. The park currently contains 1,032.84 acres and there are no legislative or executive directives that constrain the use of this property. The park was acquired on March 13, 1980 (see Addendum 1).

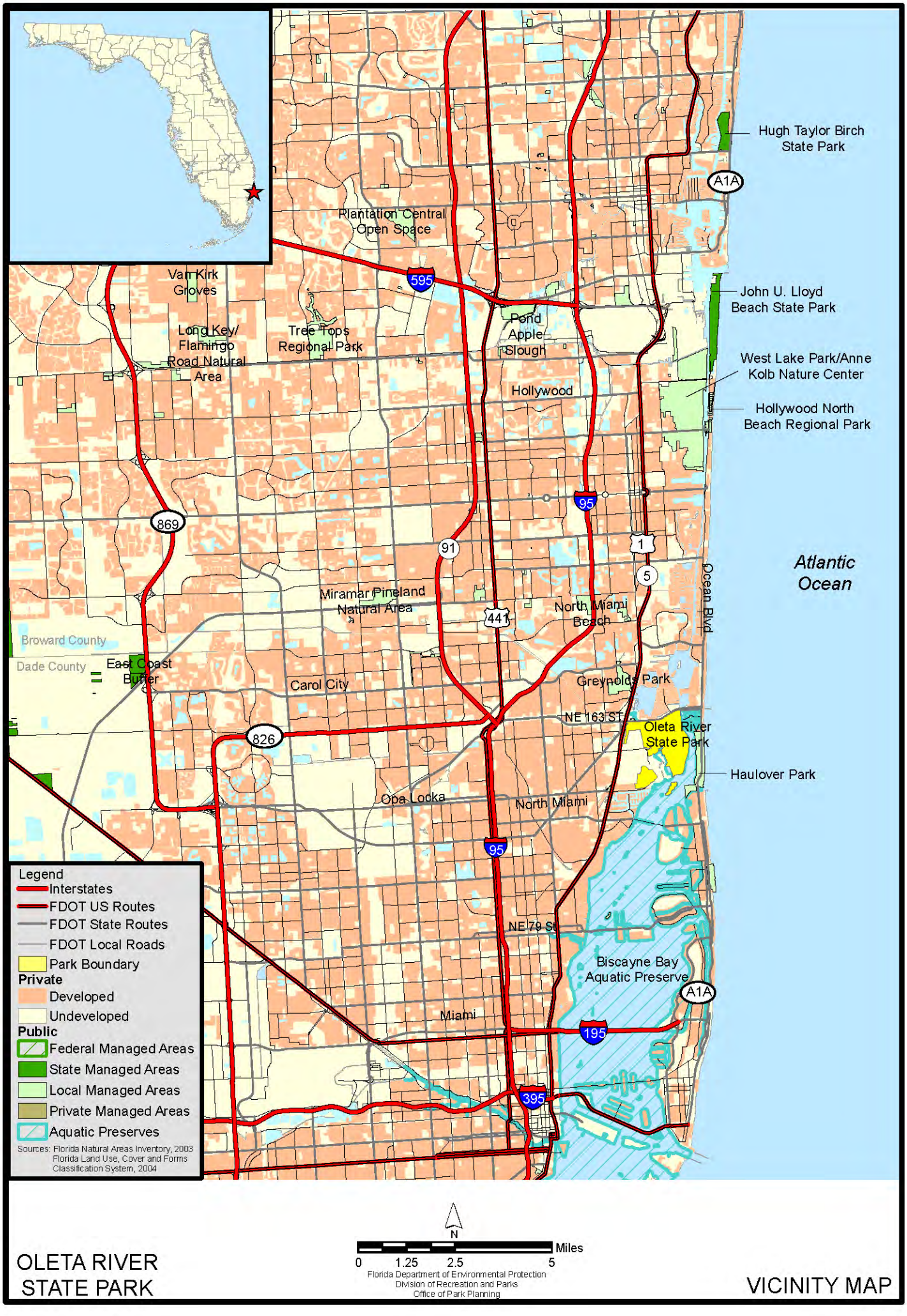
PURPOSE AND SCOPE OF THE PLAN

This plan serves as the basic statement of policy and direction for the management of Oleta River 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 October 24, 2002 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. This plan is also intended to meet the requirements for beach and shore preservation, as defined in Chapter 161, Florida Statutes and Chapters 62B-33, 62B-36 and 62R-49, Florida Administrative Code.

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



OLETA RIVER STATE PARK

VICINITY MAP

OLETA RIVER STATE PARK

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0 0.125 0.25 0.5 Miles

FL DEPARTMENT OF ENVIRONMENTAL PROTECTION
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REFERENCE MAP

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 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.

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 nearshore 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's Operations Manual (OM) that covers 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 Oleta River State Park emphasis is placed on maximizing the recreational potential of the recreation area; 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 Management Accomplishments

Since the 2002 approved plan, significant work has been accomplished and progress made in meeting the Division's management objectives. The following is a summary of activity and accomplishments achieved related to resource management, facility improvements, interpretation and park programs and volunteer involvement.

Resource Management

The restoration of a 4-acre shallow fresh water pond has been completed. This wetland provides valuable wildlife habitat in the park, as well as recreational opportunities for bird watching and an educational opportunity to interpret the historical natural communities that once existed in this area.

- The park has made significant progress on removing exotic plants and replacing with appropriate native species.
- A revegetation plan has been developed and implemented to guide the park in the planting of native species in areas where exotics are planned for removal.
- The park has completed construction of a plant nursery for the propagation of native plant species to be used in revegetation efforts.
- Mitigation projects are in the final stages and are scheduled to be completed in 2009. These projects will restore 42.5 acres of tidal swamp consisting of red mangroves, tidal streams and tidal pools and enhance 20 acres of impounded red mangroves through restored hydrology.
- A recent restoration project in the northeast section of the park connected an isolated tract of mangroves with the mangrove community bordering the Oleta River.
- Seventy acres of exotic plants were removed through a contract with the Bureau of Invasive Plant Management.

Facility Improvements

- Two ADA accessible pavilions have been added
- The city of North Miami has funded and started rerouting the sewer line in the park, abandoning the portion of the line that continuously ruptured due to age.
- New benches and fire pits have been added to our Youth Campsites
- We have added a primitive campsite for the Florida Saltwater Circumnavigation Canoe/Kayak Trail
- Blue Marlin Historic Restaurant and canoe docks for Visitor Services Provider to supply food and kayak/canoe rentals
- Blue Marlin Interpretive Center
- Bike Wash installed for mountain bike trails
- Partnership with Dade county who has a contract with cleaning company that empties trash cans on the parks Sandspur Island weekly
- Resident trailer donated to house state employee
- Rotating BBQ grills on pedestals added to cabins
- ADA cabin #1 has new concrete pad for ADA table and accessible grill with curb stop

Interpretation and Programs

- Visitor Services Provider contracted in 2005 to provide food, rental services and coordinate group rentals.
- Visitor Services Provider offers and gives park approved environmental and recreational interpretive programs
- As part of our Get Real Program, the park has developed and has given instructional training to the surrounding local cities recreation and parks departments on different recreational opportunities available to the inner city youths including but not limited to camping, fishing, mountain biking and canoeing.
- Park conducted on and offsite programs for school groups, scouts, 4-H clubs and other organizations focusing on the history, flora, fauna and other aspects of the parks natural resources.
- Partnership formed with Miami Dade School District, City of Aventura and Oleta River State Park to provide an ADA accessible sailing program with specialized access dinghies for the public. This program is called Anchors Away and includes instructional training.
- The park has developed and is giving Park Ranger and volunteer guided kayak/canoe tours.
- The park has developed and is giving Park Ranger and volunteer campfire programs at the cabin area.

Volunteers

- Additional volunteers recruited and involvement expanded to more areas of park

operations.

- Volunteer maintenance days have been successful in maintaining Mountain Bike Trails
- CSO strengthened through involvement of individuals with important professional expertise and ties to the community.
- CSO also recruits large numbers of volunteers to assist us in opening up the trails if closed due to storms or hurricanes.
- CSO has developed website to disseminate information to volunteers, perspective volunteers and the public.

Park Goals and Objectives

The following park goals and objectives express the Division's 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'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.

Natural and Cultural Resources

1. Provide habitat protection and preservation in order maintain and increase biodiversity within the park and to protect the flora and fauna that utilize the natural communities of the park.

- **A.** Continue to seek funding in order to identify, remove and treat exotic vegetation using park staff and outside contracting sources.
- **B.** Re-vegetate ruderal uplands with native species to create functional maritime hammock communities and increase biodiversity.
- **C.** Create a maintenance program to keep restored areas free of invasive exotics.
- **D.** Establish photo plots and vegetative surveys to monitor changes in plant species composition and document success of restoration projects.
- **E.** Create a control program for exotic and nuisance animal species where feasible.
- **F.** Continue working with Dade County DERM on mitigation projects to restore

ruderal areas to functioning natural communities within the park.

G. Restore and enhance fringe mangrove communities by improving tidal connections and restoring the shoreline adjacent to existing fringe mangroves.

H. Conduct resource inventories for plant and animal species.

I. Conduct surveys for all designated species and develop management plans for their protection.

J. Pursue and support state and local law enforcement measures to maintain slow and idle speed zones in the Oleta River and Biscayne Bay for the protection of manatees and the prevention of shoreline erosion.

K. Pursue an increase in water quality testing by DERM at the mangrove preserve and in nearby bay waters to assess the impacts of the Munisport landfill. Testing should include benzene, arsenic, cadmium, lead and selenium, since these carcinogens were found at levels above approved regulatory limits in baseline samples tested in December 1998.

L. Coordinate with SFWMD and DERM regarding management of the Snake Creek Canal, which is upstream of Oleta River.

M. Establish a service dock within the lagoon to improve staff access to the waters and islands of the park to better manage the natural resources.

2. Maintain, protect and interpret existing archeological and cultural sites from vandalism, erosion and other forms of encroachment.

A. Follow Division policy when ground disturbing activity is necessary in culturally sensitive areas

Recreational Goals

1. Continue to provide quality resource based outdoor recreation and interpretive programs and facilities at the State Park.

A. Continue providing information about the resource-based recreational opportunities offered at Oleta River State Park.

B. Maintain high quality off-road biking opportunities.

C. Provide camping and cabin opportunities for overnight stays at the park.

D. Provide picnic and playground facilities within day use areas.

E. Provide facilities to enhance water access for swimming, canoeing/kayaking and fishing.

F. Partner with local business, civic and cultural organizations to provide enhanced programming and special event opportunities for park visitors.

G. Continue to collaborate with local schools to develop and deliver educational programming for children.

2. 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 the management plan.

A. Develop additional opportunities to overnight at the park, including additional cabin facilities, tent camping areas.

B. Enhance interpretation by constructing a nature center, interpretive trail and

providing additional interpretive signs and kiosks.

C. Provide additional picnic and playground facilities.

D. Develop new interpretive programs and enhance existing programs.

E. Expand and maintain the mountain bike trail system with the assistance of community volunteers.

F. Enhance water access with additional canoe/kayak and fishing facilities.

G. Investigate the potential for development of a shuttle between the park and FIU.

H. Pursue funding for facility upgrades to assure compliance with the Americans with Disabilities Act.

I. Seek funding and develop area to provide Recreational Vehicle Camping including additional infrastructure and facilities required.

Park Administration/Operations

3. Promote community support and bolster staff and funding resources through education, training and partnership opportunities. Seek funding and staffing to meet park operational needs such as corrective maintenance, visitor protection, resource management and visitor services

A. Secure additional staffing or funding equivalent to meet increased management demands presented by expanded recreational and interpretive facilities.

B. Ensure staff are properly trained and supervised in the areas of visitor services, natural and cultural resource management, park operations, interpretation and emergency procedures.

C. Expand existing volunteer support to assist staff with park operations.

D. Continue to maintain an active public relations program with the assistance of the citizen support organization and non-profit partners to increase public awareness of and support for the natural and cultural resource management objectives of the park.

E. Establish regular communications and coordination meetings with FIU staff, the City of North Miami government, DERM and Miami-Dade Parks and Recreation to improve collaboration on policies, development projects and programs, and to better integrate the park with the local community.

F. Maintain a visitor services provider to enhance recreational services available to park visitors.

G. Enhance existing support facilities by constructing additional ranger residences and an administration building, and undertaking necessary road improvements.

H. Seek funding for survey and fencing of western boundary.

I. Pursue funding alternatives to the legislative budget appropriation process.

J. Establish and maintain partnerships with federal, state and local agencies and non-governmental organizations to enhance resource management and resource-based recreational opportunities.

K. Improve management coordination with the Dade County Department of Environmental Resource Management (DERM) on Sandspur Island.

L. Provide signage at the entrance to the lagoon that clearly designates the area a No Wake Zone. The No Wake designation is considered important to protect public safety within the swim area and protect the resources of the lagoon.

3. Support land use planning policies, regulations and acquisition initiatives that serve to enhance management and protection of park resources.

A. Partner with other land and water management and regulatory entities to coordinate and enhance regional resource management and protection efforts.

B. Monitor activities outside of the park that may impact park lands and promote public awareness of the operational and resource management needs of the park.

C. Pursue acquisition of areas deemed important to be managed as part of the park.

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. At Oleta River State Park, park staff and staff of the Biscayne Bay Aquatic Preserve collaborate on a range of management issues relating to the submerged lands and uplands of the park. Protection of water quality entering the aquatic preserve, management of Sandspur Island and revegetation projects within the park's uplands have been included in recent and ongoing interagency coordination efforts between DRP and local CAMA staff. 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. The Miami-Dade County Department of Environmental Resource Management assists the park with restoration of natural communities through mitigation projects and removal of trash from Sandspur Island. Emphasis is placed on protection of existing resources as well as the promotion of compatible outdoor recreational uses.

Public Participation

The Division is providing the public an opportunity for input by conducting a public workshop and an advisory group meeting. The public workshop was held on June 10, 2008. The purpose of the meeting was to present a draft management plan to the public. An Advisory Group meeting was held on June 11, 2008. The purpose of the meeting was to provide the Advisory Group members the opportunity to discuss the draft management plan.

Other Designations

Oleta River State Park is not within an Area of Critical State Concern as defined in section 380.05, Florida Statutes and 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 Class III waters by DEP. This unit is within Biscayne Bay 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

Oleta River State Park borders the shoreline of North Biscayne Bay in south Florida. The original topographical conditions of the site have undergone extensive changes over time. Before 1925, the area consisted of a wide band of mangroves bordering Biscayne Bay, backed by a fresh water marl prairie (Harlem 1979; Teas 1976). Original elevation of these wetlands was 0 to +1 feet mean sea level (msl). Three small fresh water ponds, 0.5 to 2.0 feet deep, were located in the marsh. Less than one acre of the park was above the intertidal zone. These uplands consisted of small hammock islands scattered within the wetlands.

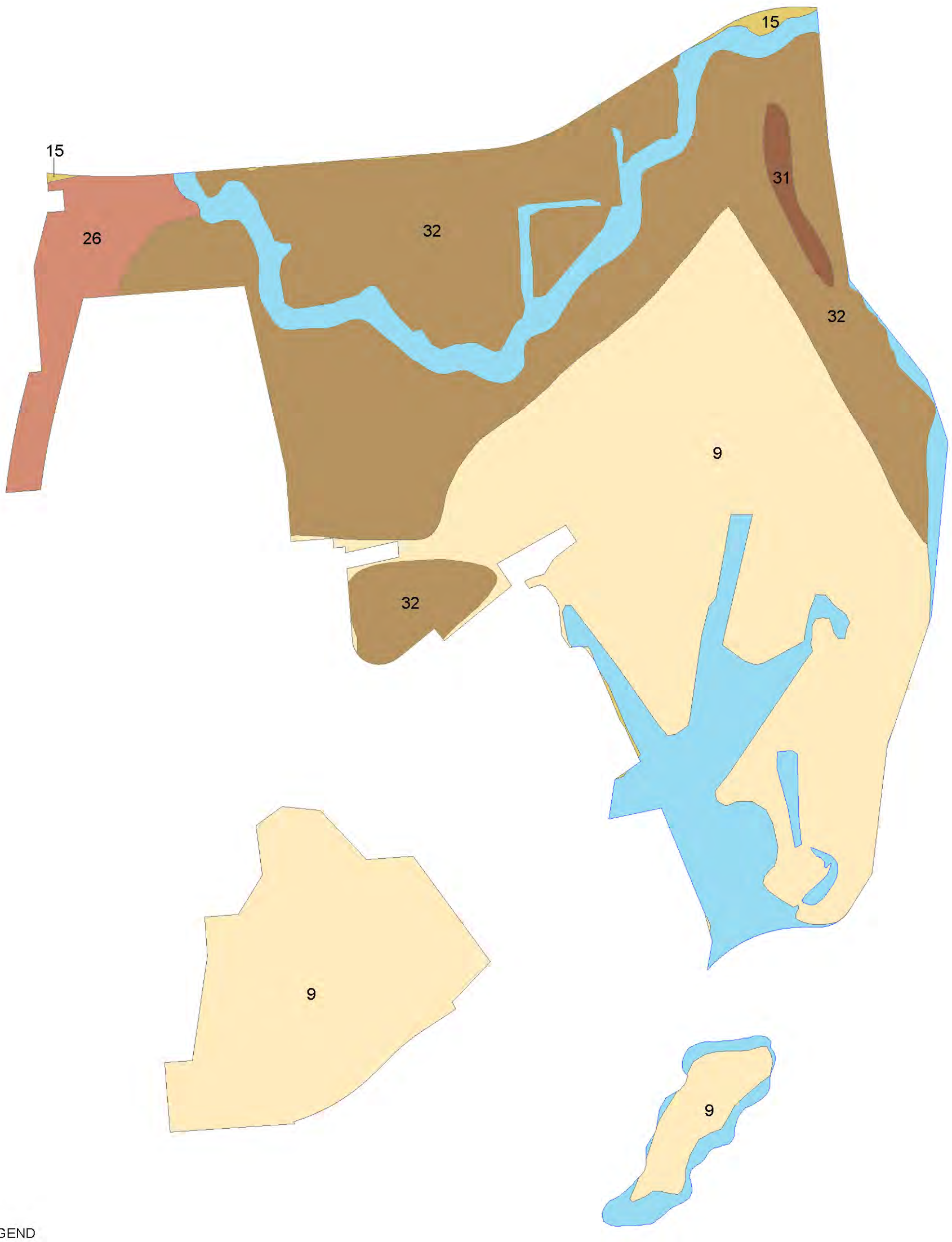
In 1935 and 1936 numerous mosquito ditches, one to two feet deep were dug throughout the mangroves. From 1962 to 1964 approximately half of the area that is now the state park was dredged and filled for the Interama project, creating uplands south of the Oleta River and an open water lagoon and canals at the extreme south end of the park. The ponds were filled, although a small remnant of one remains. Average elevation of the filled uplands is approximately five feet above msl. The undeveloped uplands of the park are presently dominated by exotic vegetation (i.e., Australian-pine, Burma reed, etc.) and composed of fill material of various sizes, shapes, and heights. Some are as high as 20 feet. There are also several long narrow canals located throughout the park. Some of these are connected to the open water of the lagoon while others are isolated and non-circulating. These canals are 10 to 20 feet wide and vary in elevation from 0 to -5 feet msl. Elevation of the remaining mangrove forest east of the park road and bordering the Oleta River ranges between 0 and +1 foot msl.

Geology

The sediments of South Florida are dominated by limestone and dolostone (USDA 1996). Oleta River State Park is located on a former floodplain situated between the Atlantic Coastal Ridge and Biscayne Bay. The Atlantic Coastal Ridge is a narrow elevated ridge of porous limestone bedrock that extends along the Atlantic coast of Florida south to Long Pine Key in Everglades National Park (Hoffmeister 1976). Near the park, the ridge is located in close proximity to the shoreline. Water from the Everglades was contained by this ridge, flowing out through natural gaps at river openings and sloughs into the bays. Oleta River represents one of these historic outflows from the Everglades. The geological formation underlying the river and adjacent park land is Miami limestone. Originating 100,000 years ago during the Pleistocene Epoch, the oolitic bedrock was formed by layered deposition of calcium carbonate sand grains known as ooids. Miami oolite occurs five to six feet below the undisturbed soil surface. Dredging of the lagoon, canals, and mosquito ditches fragmented the continuous Miami limestone bedrock.

Soils

According to the Natural Resources Conservation Service (USDA 1996), there are five soil types in this park (see Soils Map). Soils beneath the mangrove forest bordering Biscayne Bay, Oleta River, and an isolated triangular shaped mangrove area are classified as tidal Terra Ceia muck. This deep (80 inch. or more) poorly drained, highly permeable soil is typically found in tidal swamps and marshes and is of organic origin. Natural vegetation usually consists of red and black mangroves. Tidal Pennsuco marl was identified within a small portion of the eastern fringes mangrove forest. This soil differs from Terra Ceia in being slightly shallower (approx. 50 inches deep) and of marl origin. Tidal Perrine marl occurs in the northwest corner of the park. The soil consists of marl approximately 26 inches deep. In contrast to the other two soil types, it has moderately slow permeability. The natural vegetation of the two marl-based soils usually consists of scattered and stunted red mangroves. At Oleta River, however, both



LEGEND

- 9-Udorthents-water complex
- 15-Urban land
- 26-Perrine marl, tidal
- 31-Pennsuco marl, tidal
- 32-Terra Ceia muck, tidal
- Water

OLETA RIVER
STATE PARK

N

0 375 750 1,500 Feet

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SOILS
MAP

areas with this soil type were colonized by exotic vegetation. Most of the current uplands of the park are classified as Udorthents - water complex. This soil type consists of crushed limestone fill material that was dredged during excavation of the nearby lagoon, ditches, canals, and Intracoastal Waterway and deposited over existing wetlands. Fragments of calcareous mollusks are also contained in the fill. There are two areas in the northeast and northwest sections of the park that are classified as Urban. The USDA and the Florida Park Service have discussed the validity of this classification and the presence of this soil type within park boundaries. The USDA has agreed to update their spatial layer for this site by removing the urban layer classification. Future soil maps for the park will illustrate these corrections.

Minerals

No known mineral deposits of commercial value occur within the unit.

Hydrology

In South Florida, the source of fresh groundwater is the Biscayne Aquifer. It is recharged by rainfall primarily during the wet summer seasons. Historically, as water levels increased during the wet season, water flowed east out of the Everglades through natural channels in the Atlantic Coastal Ridge. Near the park, water flowed from the Everglades into Biscayne Bay through the Oleta River, Snake Creek to the northwest and Arch Creek to the south. The wetlands surrounding Oleta drained into the river through a series of small creeks. Before 1925, the Oleta River and North Biscayne Bay were predominantly fresh water systems. Salinity at that time in the river was reported to be approximately 4 ppt.

In the early 1900s, after Congress passed the Swamp and Overflowed Lands Grant Act, drainage districts were formed and by the late 1920s much of what was once considered wetlands in South Florida, was drained by numerous canals designed to reclaim land. South Florida's wetlands have also suffered secondary impacts from human development pressures. The alteration of Southeast Florida's hydrology by the elaborate canal systems designed to protect residents from flooding has impacted wetlands by decreasing the hydrology necessary for maintaining wetland plant species. Pollutants from storm runoff on streets and highways combined with the use of fertilizers and pesticides have increased the nutrients introduced into surface waters and degraded the water quality that supports wetland plant species. Another impact has been the introduction of non-native plant species also known as exotics. Two well known exotics, the Melaleuca and Brazilian pepper trees, have overgrown wetland areas. Their rapid growth chokes out native species and decreases the habitat value of the wetlands.

This canal system plus the urbanization of North Miami significantly reduced the overall amount of freshwater runoff into the bay. Snake Creek was converted to Snake Creek Canal that drains into Oleta River north of 163rd Street. In 1925, Baker's Haulover

Cut was dredged through Miami Beach, connecting North Biscayne Bay and the Atlantic Ocean, increasing saltwater flow into the bay. In 1935 and 1936, extensive mosquito ditches were cut through the wetlands of what is now park property, allowing salt water intrusion further inland. The combination of these hydrological alterations converted Oleta River and the associated wetland communities from a freshwater to brackish water system. Current salinity conditions in the river vary greatly due to management of the upstream canal by the South Florida Water Management District. In recent years salinity has fluctuated between 7 and 34 ppt, averaging 25 ppt. Salinity in North Biscayne Bay is more consistent, ranging between 26 and 35 ppt and averaging 30 ppt.

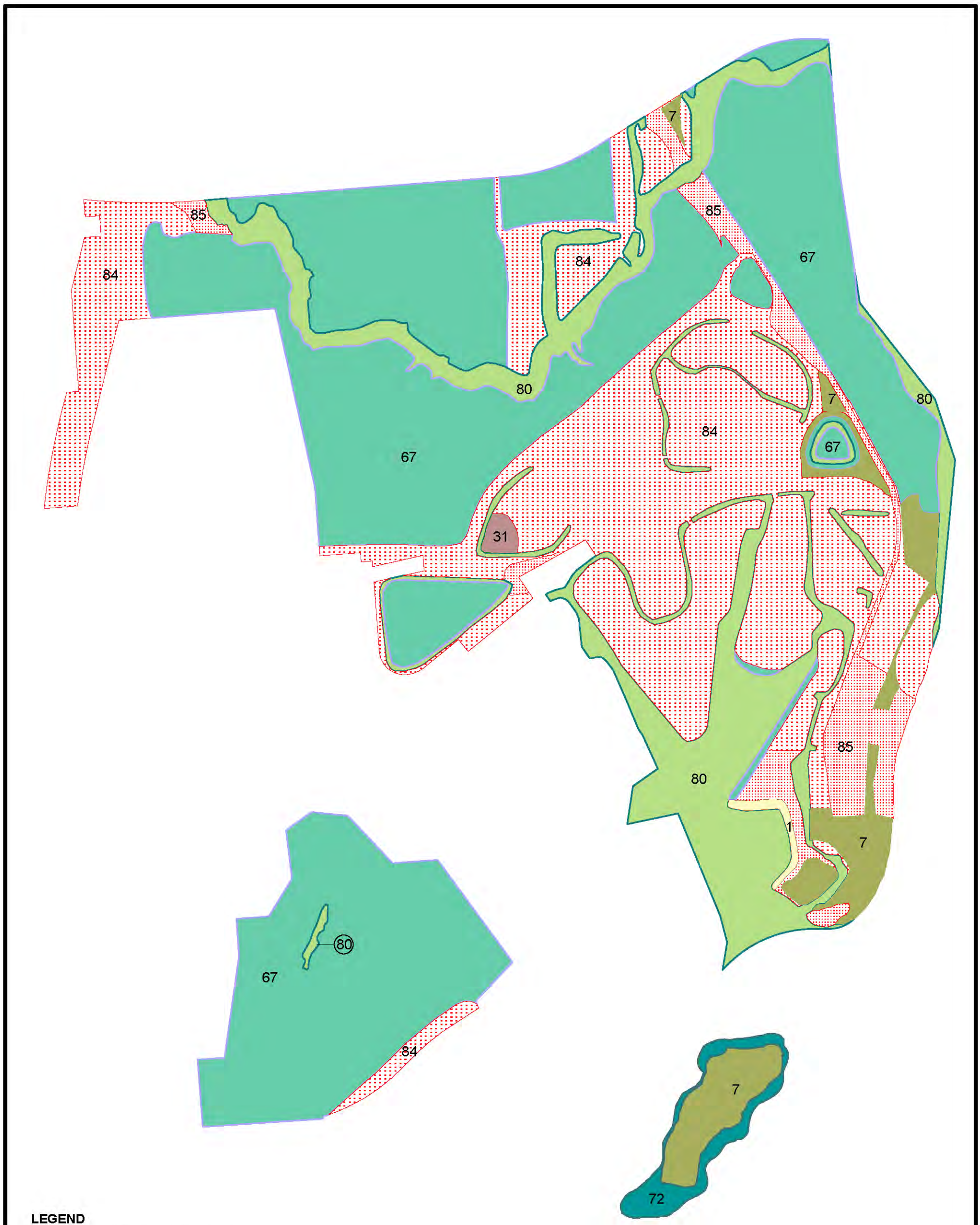
In addition to management by the Florida Park Service, the Oleta River and the adjacent area of Biscayne Bay are also managed as part of Biscayne Bay Aquatic Preserve. These waters, as well as all park waters, are classified as Outstanding Florida Waters. Although the designation as Outstanding Florida Water is intended to protect the water quality of the system and prevent degradation of the water quality in the system, the quality of water in the Oleta River and adjacent Biscayne Bay is degraded due to storm water runoff in a densely developed urban area, sewage spills from sewer pipe breaks and leaching of toxic pollutants from marinas and the adjacent Munisport Landfill, a former landfill identified as an EPA superfund site.

Natural Communities

The system of classifying natural communities employed in this plan was developed by the Florida Natural Areas Inventory (FNAI). The premise of this system is that physical factors, such as climate, geology, soil, hydrology and fire frequency generally determine the species composition of an area, and that areas 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 five 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. There is an additional natural community: marine consolidated substrate, which is found within the 400-foot management buffer of Sovereign Submerged lands. This marine benthic community is not on the Natural Communities Map but is an important resource to the park.

Beach dune. All beach dune community occurring on the mainland portion of the park represents reclaimed habitat. This community is located along the southeast shoreline of



LEGEND

- 1 - Beach Dune-2.38 ac.
- 7 - Maritime Hammock-47.36 ac.
- 31 - Depression Marsh-2.57 ac.
- 67 - Estuarine Tidal Swamp-459.39 ac.
- 72 - Marine Consolidated Substrate-11.15 ac.
- 80 - Marine Unconsolidated Substrate-154.71 ac.
- 84 - Ruderal-304.41 ac.
- 85 - Developed-50.87 ac.

N

0 375 750 1,500 Feet

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OLETA RIVER
STATE PARK

NATURAL COMMUNITIES
MAP

the dredged lagoon. This area was cleared of exotic vegetation and regraded in 1988 to create a beach, swimming area and coastal berm. The dune is narrow and of relatively low profile. It is vegetated with beach sunflower (*Helianthus debilis*), railroad vine (*Ipomoea pes-caprae*), and necklace pod (*Sophora tomentosa*). Although this restoration project was successful, resulting in a representative beach and dune community in good condition, it is threatened by increased visitation to the park. Foot traffic is the primary threat to this natural community. Additional signage and a border may be necessary to reduce and prevent further impacts.

Maritime hammock. Originally, there was no maritime hammock located within this park. All hammocks occurring in the park now and in the future represents reclaimed habitat. Currently the maritime hammock in the park has been restored from ruderal habitat dominated by Australian pines. Along the east side of the park bordering the Intracoastal Waterway, nearly all the exotic vegetation has been removed and replanted with native vegetation. However, due to the poor quality of soil derived from fill material, it is very difficult for hammock vegetation to prosper under the current conditions. Areas of hammock have also been restored on Sandspur Island. This spoil island had become colonized with Australian pines. In 1993, DERM, with park support, coordinated and funded a restoration project on the island, clearing the exotic vegetation and replanting with a diversity of native maritime hammock species. Another area surrounding one of the isolated mangrove impoundments in the mainland portion of the park was cleared and planted with hammock species in 1993 to create a contiguous gradient from wetland to upland habitats. Transition species were planted along the ecotone of the two communities. Typical hammock species planted include seagrape (*Coccoloba uvifera*), pigeon plum (*Coccoloba diversifolia*), buttonwood (*Conocarpus erectus*), Spanish stopper (*Eugenia foetida*), and indigo berry (*Randia aculeata*). Several less common species were also planted to increase diversity in the park. These include quailberry (*Crossopetalum ilicifolium*), inkwood (*Exothea paniculata*) black ironwood (*Krugiodendron ferreum*), and Simpson's stopper (*Myrcianthes fragrans*).

Depression Marsh. This natural community is a created 4 acre site on the western boundary of the park. It is representative of the freshwater ponds that were historically found in this area. This community serves as an important source of freshwater for migrating and resident birds and other wildlife of the park. Several species of birds that have been observed utilizing the marsh include great blue heron (*Ardea herodias*), little blue heron (*Egretta caerulea*), and white ibis (*Eudocimus albus*).

Estuarine tidal swamp. Historically, estuarine tidal swamp existed only along the shoreline of Biscayne Bay. The major hydrological changes that occurred to the area in the early 1900s, however, caused mangroves to encroach on the freshwater marl prairie. By 1956, all of the wetlands had developed dense stands of red, white, and black mangroves. Approximately half of this community was destroyed by dredging and filling activities associated with the Interama project in the 1960s. This is the largest tidal

swamp community remaining along Biscayne Bay north of MacArthur Causeway. The two types of tidal swamp occurring at the park are riverine and fringe forests. There are also several small isolated mangrove areas.

Riverine mangrove forests are typically found along tidal streams and rivers. Productivity is high in riverine forests as detritus and other sources of nutrients are constantly being flushed in and out of the system from upstream flow during tidal fluxes. Riverine forests exhibit high degrees of seasonal variability in salinity (Odum et al., 1982). These forested wetlands are also important nursery areas for the juvenile stage of many important recreational and commercial fish such as mullet, sheepshead, tarpon, snook, and several species of grunts and snappers. Fringed mangrove wetlands typically occur along the edges of bays and lagoons. Fringed mangroves are characterized as having clearer water, sandier substrate, and lower fluctuations in salinity (Odum et al., 1982). This type of mangrove forest has lower diversity than other mangrove wetlands but adds to habitat diversity within the relatively homogenous bay system. In addition, fringed mangrove forests act as buffers to protect the adjacent ecotone and associated upland from storms and erosion.

A wide band of riverine forest lines the Oleta River. The forest canopy is dominated by tall red mangroves (*Rhizophora mangle*) 25 to 50 feet in height. White mangroves (*Laguncularia racemosa*) occur less frequently. The understory consists primarily of red and white mangrove seedlings. The mangroves along the river became established after the creation of Haulover Cut in 1925. Aerial photographs indicate that the river was densely lined with small mangroves by 1945. Their great height in a relatively short time is indicative of the high nutrient load in the river. In the 1960s, a large marina operated adjacent to the river on what was known as the Terama tract. Toxic chemicals from the marina may be a source of localized contamination to the mangrove community. A mitigation project has been approved to remove dumped materials and restore the dredged and filled uplands and canals to an elevation suitable for mangroves. The restoration project will be conducted by DERM. Since the 1970s, a small number of the tall red mangroves along the edge of the river have toppled over. This has been attributed to excessive boat wake activity. Damage from boring isopods (*Sphaeroma terebrans*) may also be a minor contributing factor (Teas 1976).

Fringe mangrove forest occurs along Biscayne Bay from the edge of the water to the main park road. The canopy is tall, dense, and dominated by red mangroves. Height of the red and white mangroves ranges from 30 to 50 feet with black mangroves up to 60 feet. The understory consists of a minor amount of red, white, and black mangrove seedlings. The tidal swamp in this area is thought to have originated before 1925 when Indian Creek still provided a connection between the bay and the Atlantic Ocean. The mangroves in this area are in excellent condition. Two large pockets of Australian pines within the tidal swamp have been removed and the areas restored. Boat wakes have caused a moderate amount of toppling of red mangroves in this location as well.

Approximately 5,400 feet of the shoreline were riprapped to reduce this problem. Several of the canals close to the lagoon were connected to each other and open waters to enhance flow. The banks of these canals are now colonized with mangroves that are functioning as a fringe mangrove forest. There is also a small area of tidal swamp on the south end of Sandspur Island, a spoil island just south of the main park in Biscayne Bay. With the park's support, mangrove planters were added on the north and east sides of the island by DERM to deter erosion. Mangroves on the island are in excellent condition.

There are several small isolated impoundments of mangroves scattered through the park. These remnant wetlands apparently were not filled in the 1960s. They are located in the interior of the park and are not tidally inundated on a regular basis. Some are circular in area while others are narrow non-circulating canals. They are dominated by red mangroves and are 25 to 35 feet in height. Some of these sites are being considered for restoration to obtain fill material for the marina restoration project. One of the narrow enclosed canals also contains cattails (*Typha angustifolia*). This canal, located near the western park residence area, may be a remnant of one of the fresh water ponds originally occurring on the site. The condition of these areas is poor. The habitat is fragmented and water exchange is minimal. Small culverts, which connect some of the impoundments, provide inadequate flushing. Consequently, oxygen levels are low and the areas support minimal wildlife. Shortly after the project was completed, a large number of wading birds and fish were observed using the site. If other isolated tracts of mangrove swamp are to provide functional habitat, they must be enlarged and have tidal flow enhanced.

Oleta River State Park also includes a designated mangrove preserve that is not contiguous with the remainder of the park. It is situated adjacent to Biscayne Bay west of the lagoon and Florida International University and borders the Munisport landfill. The interior of the preserve provides habitat for several species of wading birds, which have been observed in large flocks during migrations. Tidal connections between the bay and the preserve are provided by two ditches. A dike along the north and west perimeter of the forest separates the preserve from the landfill. An extensive network of mosquito ditches was dredged through the preserve. The toxicity associated with the landfill leachate entering the preserve may be impairing the ecological functions of the mangrove community. Water quality will continue to be a long-term problem for the preserve until removal of the toxicity source is addressed. The City of North Miami previously had a proposal in place for the design and construction of a groundwater recovery system to capture and treat contaminated groundwater before its release in the mangrove preserve. However, the City did not follow through with this proposal. Instead water quality tests were conducted from wells. These tests did not include sampling for the presence of carcinogens: benzene, arsenic, cadmium, lead and selenium.

As a condition of removing the Munisport site from the Superfund list, the City of North Miami entered into a Consent Agreement with the EPA to breach the dike separating the Munisport wetlands from the park's mangrove preserve. This agreement was completed without consulting the Division of Recreation and Parks. In 2002, a public hearing was held in front of the Miami-Dade County Commission regarding implementation of the Consent Agreement. Park and District staff, along with a representative of the Audubon Society, presented testimony regarding the acute toxicity of the Munisport site and the presence of five carcinogens – benzene, arsenic, cadmium, lead and selenium, above approved regulatory limits in baseline testing conducted during December 1998. Division staff pointed out that these chemicals have not been included in testing since 1998 and that current testing for ammonia is insufficient to demonstrate the lack of contaminants in water associated with the Munisport site. The Miami-Dade County Commission voted to delay breaching the dike until more thorough testing showed the water to be free of these more serious contaminants.

Animals that have been observed in the riverine and fringe mangrove forests include raccoon (*Procyon lotor*), mangrove water snake *(Nerodia fasciata compressicauda*), osprey (*Pandion haliaetus carolinensis*), great blue heron (*Ardea herodias*), little blue heron (*Egretta caerulea*), green heron (*Butorides striatus*), white ibis (*Eudocimus albus*), and roseate spoonbill (*Ajaia*). Numerous mollusks, crabs, and fish can also be found in and among the prop roots. Much of the restoration and enhancement of fringe mangroves in the park has been funded and coordinated by Dade County DERM as part of the Biscayne Bay Restoration and Enhancement Program. This program is funded by mitigation money collected from dredge and fill projects in Dade County.

Marine consolidated substrate. This benthic community is found in the southeastern portion of the park in the waters off Sandspur Island. Although it can be found around the entirety of the island, it is most prevalent along the eastern and southern shore. Here it extends from the shoreline to a depth of approximately 10 feet. The community is in relatively good condition but has been impacted from increased boater activity especially on the west side of Sandspur Island where there is an accessible beach with picnic tables. This area of the park is across from Haulover Cut, a man-made inlet that has greatly influenced the natural communities of upper Biscayne Bay by increasing the salinity through tidal flushing on a regular basis. Regular flushing has benefitted this natural community by providing nutrient rich waters that help to increase biodiversity in this portion of Biscayne Bay. Small colonies of the lesser starlet coral (*Siderastrea radians*) and patchy areas of seagrasses: turtle grass (*Thalassia testudinum*) and manatee grass (*Syringodium filiform*), in addition to macro algae (*Caulerpa sp*, *Penicillus sp*, *Halimeda sp*) provide important habitat to juvenile fish species. Common fish include yellowfin mojarra (*Gerres cinereus*), cocoa damselfish (*Stigates variabilis*), yellow stingray (*Urolophus jamaicensis*), and jawfish (*Opitognathus sp*).

Marine unconsolidated substrate. This community is characterized by a bottom

composed of unconsolidated material (e.g., marl, mud, sand, and shell). Though this community appears barren due to the lack of plants, it is an important habitat for many marine invertebrates and bottom feeding fish. The substrate of the river and the shallow bay waters along the eastern shoreline of the park is composed of this benthic community. The river and shallow bay waters support sparse amounts of seagrass, primarily shoal grass (*Halodule wrightii*) and manatee grass (*Syringodium filiforme*), as well as a mixture of macroalgae, *Caulerpa sertularoides, C. verticillata*, *Acetabularia sp*. The only listed seagrass, Johnson's seagrass (*Halophila johnsonii)* is found in certain areas of the park on this substrate. Although the community has a sparse cover of epifaunal animals and plants, the sediment supports a large population of infaunal organisms that are not readily visible, such as worms, mollusks, isopods, and amphipods. Mullet (*Mugil cephalus*), tarpon (*Megalops atlantica*), pinfish (*Lagodon rhomboides*), and several species of grunt, porgy, and snapper forage in the river and nearshore bay waters. The West Indian manatee (*Trichechus manatus latirostris*) is frequently observed in the river, bay, and lagoon during the winter months. Wading birds forage along the river and bay shoreline. This community is currently in good condition. It is sensitive to benthic disturbances that may occur from dredging, storms, and boat wakes. It is a dynamic community, however, which re-colonizes readily with invertebrates.

Ruderal. Ruderal areas refer to lands where the natural substrate or natural communities have been severely altered by human activity and have usually been overtaken by exotic vegetation. Ruderal sites at the park typically consist of dredged spoil material. Ruderal areas at Oleta include the dredged lagoon and canals and the disturbed uplands. These uplands have been densely colonized by invasive exotic vegetation. Exotics have been removed from the developed portions of the uplands. The remaining ruderal uplands are concentrated on the Terama tract and in the center of the park, south of the river and north of the north end of the lagoon. The isolated canals are found within this ruderal area. The canopy in these areas is dominated by Australian pine (*Casuarina spp*.). Burma reed (*Neyraudia reynaudiana*), Brazilian pepper (*Schinus terebinthifolius*), and beach naupaka (*Scaevola tacada*) are dominant species in the understory. A sparse amount of native vegetation has also colonized these disturbed areas. Common species include strangler fig (*Ficus aurea*), lantana (*Lantana involucrata*), seagrape (*Coccoloba uvifera*), and fleabane (*Pluchea spp*.). Several species of ferns are also found in the lower elevations. Animals which have been observed in these uplands include raccoons (*Procyon lotor*), grey fox (*Urocyon cinereoargenteus*), eastern grey squirrel (*Sciurus carolinensis*), marsh rabbit (*Sylvilagus palustris*), gopher tortoise (*Gopherus polyphemus*), osprey (*Pandion haliaetus carolinensis*), bald eagle (*Haliaeetus leucocephalus*), killdeer (*Charadrius vociferus*), and several species of hawks and warblers. There are numerous mounds and hills within the ruderal area. Because of the wide range in elevation and disturbed nature of this area, a mountain bike trail was recently established through the ruderal zone. The undeveloped ruderal area offers excellent opportunities for reclamation of maritime hammock and enhancement of tidal swamp around existing mangrove areas and canals.

Developed. These areas consist of facilities, roads, parking lots, residences and the Dade Marine Institute facility. Most of the land surrounding the developed areas has been cleared of exotics and replanted with native species.

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 17 designated plants and 20 designated animals that occur in Oleta River State Park. The majority of the plants did not occur naturally, but have been planted as part of upland restoration projects. The golden leather ferns, however, are naturally occurring in the mangroves and have recruited into low-lying areas of the ruderal uplands. Many of designated species of birds use the tidal swamp community within the park for roosting and foraging. The park provides important greenspace in the center of a highly urbanized environment. Located on the coast of a major neotropical migratory route, numerous hawks, warblers, and other birds rest and feed at the park seasonally. The West Indian manatee frequents the shallow waters of the lagoon, bay, and river around the park landbase. Surveys conducted by DERM indicate that manatees are most frequently observed in the lagoon and in the bay along the southeast shoreline of the park. They are occasionally seen in the lower portion of the river along the park property. North of the park, they are frequently observed at the junction of the river and the Snake Creek Canal.

Ecosystem management within Oleta River State Park focuses on protecting the integrity of existing natural communities in addition to providing resource based recreation. Efforts are made to reduce impacts to existing natural communities and restore natural habitat when funding becomes available. In addition, all native plants and animals in the park are protected. Thus, no designated species is specifically managed for, but consideration is given to areas that designated species may inhabit. Presently, restoration/enhancement plans are being considered to other ruderal lands in the park dominated by Australian pine. These sites will be restored to hammock, a natural community important as a stopover and resting site for migrating Neotropical birds. Additionally, a 4 acre site has been restored to a freshwater depression marsh. Freshwater wetlands are quite rare in eastern Dade County, but provide important foraging and roosting habitat for many species of birds.

Special Natural Features

The Oleta River is a unique natural feature of the park. It represents one of the historical rivers that provided natural drainage for the Everglades. The river also represents some

of the best and only remaining riverine mangrove forests in northern Dade County. Unlike most of the other rivers feeding into Biscayne Bay, the lower portion of the Oleta River has remained undeveloped. The ecological importance of the river and adjacent mangrove forest as a vital link in the marine food web has been well documented. The river and associated mangrove wetlands are important habitat for many species of invertebrates, fish, reptiles, amphibians, birds and mammals. Tall majestic mangroves and an abundance of wildlife along the river make it a unique wilderness area in urbanized North Miami.

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.

The Division of Historical Resources has documented one prehistoric site within the park property and another on the park's boundary line with the City of North Miami sewage facility. There is also an historic site located within the park. All of these sites are in good condition.

The Blue Marlin Fisheries located at the intersection of 163rd Street and the Oleta River represents a significant historic site in North Miami. The Blue Marlin was a thriving smokehouse, fishhouse, marina, and restaurant from 1938 through the forties. Alligators, panthers, and raccoons were commonly seen in the area at that time. Local and transient anglers docked at the Blue Marlin and sold their fish there. On a typical fishing day, a single angler, hook-and-line fishing, could reportedly catch 900 to 1,500 pounds of king mackerel in one day. In 1945, 23 families worked at the fish house, making the Blue Marlin the largest employer of people in North Miami at that time. The original owner of the Blue Marlin, Daniel Diefenbach, was mayor of North Miami Beach during the 1950s and encouraged the filling of wetlands to increase growth and development of the area.

Both prehistoric sites were occupied by Tequesta Indians during the Glades or Glades I periods which date back to approximately 1000 B.C. They are situated on the western bank of the river and consist of a fish camp, located inside the park and a midden on the

park property line. Artifacts include pottery shards, shell tools, animal bones, and projectiles. The prehistoric site lying wholly within the park (FL Master Site File # DA 01049) sits immediately adjacent to the Blue Marlin Fisheries site. This prehistoric site consists of a low-density artifact scatter from the Glades period (1000 B.C. – 1700 A.D.) related to a Fish Camp. The prehistoric site located on the park's boundary line (FL Master Site File # DA01024) is prehistoric midden from the Glades I period (1000 B.C. – 750 A.D.).

There are two prehistoric sites and one historic site just outside park boundaries. The prehistoric sites include a sand burial mound, a large settlement camp, and another minor component of the settlement camp, all of which originate from the Glades I period. The burial mound represents one of the southernmost unspoiled burial mounds in Florida. There is also an early twentieth century site containing a moonshine still and associated artifacts.

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.

During the development of this plan, an analysis was made regarding the feasibility of timber management activities for this park. It was then determined that the primary management objectives of the unit could be met without conducting timber management activities for this management plan cycle. Timber management will be reevaluated during the next revision of this management plan.

Additional Considerations

This park requires special management consideration. Being the largest urban park in the state in a highly developed area, it has tremendous potential for providing recreational opportunities. At the same time, there has been a great need and desire voiced by the public for habitat restoration particularly, since much of the natural communities of the site were obliterated by dredge and fill activities. Park management must balance these two goals so that recreational land use complements natural community restoration. A recent study by Dade County Parks indicated a local demand

for fishing, biking, and walking. Passive recreational activities such as these can be enhanced by habitat restoration.

Oleta River State Park includes 400 feet of Sovereign Submerged land on the eastern and southern boundaries of the park including Sandspur Island. Management of these submerged communities primarily consists of outreach programs designed to educate the public on the importance of these communities.

Management of natural communities is often enhanced by physically restoring areas that have been disturbed or otherwise manipulated by people. Such management is often achieved in the course of hydrologic, scenic or other restoration measures, such that two or more management goals can often be achieved simultaneously. Since all of the uplands at Oleta River State Park consist of fill material, restoration back to this original state is neither feasible nor desired. However, restoration can take place in the form of exotic species removal and re-vegetation with appropriate native species to create a semblance of a natural community even though some functions may never be replicated. Priority will be given to those sites that include the greatest biodiversity desirable for the long-term health of natural communities. Expansion of such sites will provide the necessary seed source for similar, adjacent natural communities that are currently degraded.

Management Needs and Problems

1. Exotic plant and animal control.
2. Restoration and/or enhancement of ruderal areas to upland (maritime hammock) and wetland habitats (estuarine tidal swamp).
3. Enhance existing mangrove areas that are impounded or consist of narrow isolated canals by improving tidal connections and by re-contouring the shoreline to a gradual slope.
4. Enlarge existing fringe mangrove areas wherever possible.
5. Motorized vessels threaten both manatees and the fringe mangrove forest. Manatee mortality rates continue to be high at the mouth of the Oleta River (DERM unpubl. data). In addition, boat wakes have eroded the shoreline erosion and destabilized large red mangroves resulting in habitat loss. Speed zones have been established around the park to address these problems. However, compliance from the local boating community is a concern and enforcement of the speed zones needs to be addressed. In addition, the park will consider restricting certain areas from motorized vessels.
6. Impacts to the dune community continue despite rope borders. Additional signage and a redesigned border are needed to reduce future impacts.
7. Need additional signage on park beaches prohibiting boat landings that threaten public safety.
8. The park's disjunct mangrove preserve and adjacent park waters continue to be threatened by the Munisport landfill (once an EPA Superfund Site owned by the

City of North Miami).

9. Establish water quality monitoring program for the park to include the mangrove preserve adjacent to the Munisport landfill.
10. Trash and debris continue to be a problem on Sandspur Island. Continue outreach and education programs to address these concerns.

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.

Natural Resources

1. Increase the biodiversity of Oleta River State Park by removing exotic vegetation and replant with appropriate native species.
2. Protect and enhance the recovery of designated species.
3. Restore and maintain isolated tracts of mangrove habitat and ruderal lands dominated by exotic vegetation.
4. Continue to work with Dade County DERM on projects to restore 42.5 acres of tidal swamp consisting of red mangroves, tidal streams and tidal pools and enhance 20 acres of impounded red mangroves through restored hydrology.
5. The canal system needs to be connected to the mangrove forest to the north and the circular mangrove area to the southeast (the doughnut).
6. The mangrove area known as the doughnut needs a larger connection to the canal system to the southwest (the lagoon creeks) by removing fill and replacing that portion of the service road with a small bridge or large culvert. There currently is an undersized culvert in place. The connection to the youth camp canal to the north could also be enhanced.
7. Remove fill from two sections in the lagoon creek system and replace with small bridges or large culverts to connect flow while maintaining vehicle access. Three isolated canals in the eastern section of the mountain bike trail need to be connected to each other by removing fill. They then need to be connected to the lagoon creek system by removing fill and installing bridges or large culverts at the northwest and southeast corners.
8. The triangular mangrove area west of the park residences, and adjacent to Florida International University, by 151st street, needs to be connected to the adjacent lagoon creek system by removing fill.
9. Where possible, uplands adjacent to fringe mangroves can be scraped down to restore additional mangrove habitat.
10. Address the enforcement of speed zones to protect the existing mangrove forest

and manatees using the local waters.

11. Installation of a rope border and additional signage to reduce future impacts to the dune community by directing visitors to designated dune crossovers.

12. Additional signage is needed to prevent boaters from landing on the park's beach.

13. Remove exotic and nuisance animal species where applicable.

14. Establish photo plots and vegetative surveys to monitor changes in plant species composition and document success of restoration projects.

15. Address littering problem on Sandspur Island through education programs and signage.

Cultural Resources

1. Maintain, protect and interpret existing archeological and cultural sites from vandalism, erosion and other forms of encroachment.

2. Conduct an archeological survey to determine the presence of additional historical and cultural resources.

Management Measures for Natural Resources

Hydrology

As previously mentioned, the hydrology of this area has been permanently altered by the canal system utilized for drainage of the Everglades and the dredging of Haulover Cut. On a smaller scale however, hydrological conditions can be improved in the park in several ways. The isolated canals need to be connected to each other and open waters to restore and enhance tidal circulation. Isolated areas of mangrove wetlands are typically stagnant; contain low oxygen levels, and lower diversity than tidally connected mangrove wetlands. In addition, the park service will coordinate with the South Florida Water Management District and DERM regarding management of the Snake Creek Canal since it affects the quality and quantity of water in the Oleta River. DERM currently monitors water quality in the river and North Biscayne Bay. This data will be reviewed by district and park staff to guide future management decisions, particularly regarding the mangrove preserves adjacent to the Munisport landfill.

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.

No natural communities within the park are fire dependent.

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 problems of a species. To avoid duplication of efforts and conserve staff resources, the Division will consult and coordinate with appropriate federal, state and local agencies for management of designated species. Specifically, data collected by the FWC and USFWS as part of their ongoing research and monitoring programs will be reviewed periodically to inform management of decisions that may have an impact on designated species at the park.

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 problems of a species.

At Oleta River State Park, the endangered West Indian manatee is in need of additional protective management measures. As previously mentioned, manatees are observed in the lagoon, bay and river, but are most abundant in the lagoon and bay. High levels of boat traffic in this area, particularly on weekends, are a great hazard to both manatees and park visitors. Park management will continue coordination efforts with law enforcement agencies to achieve better compliance with boat speed regulations or to restrict the use of motorized vessels. Educational outreach to the local boating community regarding the environmental importance of these regulations is needed.

Restricting motorized vessels from some of the park waters would also greatly benefit numerous designated wading bird species. Roosting and foraging wading birds along the mangrove shoreline are frequently startled and disturbed by fast, noisy motorboats and jet skis. Because of this, the birds' energy is wasted in disturbance flight, and such areas are utilized less frequently by wading birds. This behavior can be detrimental with migratory species that need to conserve energy. With motorized vessels excluded from some areas, the shoreline will provide a higher quality of habitat and will be visited by a greater number of birds. Improvement of water quality in North Biscayne Bay is also needed to improve habitat quality for manatees and wading birds.

Removing exotic plant species and increasing the abundance and diversity of appropriate native plant species will enhance the designated animal species of the park as well as resident and migratory bird populations.

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.

The threat of exotic plant infestation at Oleta River State Park comes from several sources; exotic species already found in the park, those spread by natural means (i.e. birds, wind, and water) and those spread from the City of North Miami. The park will continue to remove exotic species and replant with appropriate native vegetation. Since 1986, approximately 200 acres have been cleared of exotics. Australian pine remains the dominant invasive species. Unfortunately, other species, which may be more prolific, are becoming increasingly abundant. These include burma reed, beach naupaka, Brazilian pepper, seaside mahoe, and melaleuca. Exotic removal will focus on the most aggressive and prolific species. The first priority will be maintaining restored areas free of all exotic species. Due to the numerous large restoration projects that have occurred in the park, this in itself is a large task. Removal of exotics along the shoreline will be accomplished through a mitigation project with the Port of Miami. Finally, work should proceed from areas of small isolated clumps to large contiguous stands of exotics. Recent exotic removal efforts have cleared the majority of the east side of the park from the main drive of all but several acres of Australian pine. To minimize re-invasion, the planting of natives will accompany all exotic removal. However, this too depends on a source of funding. Because of the extensive amount of exotic removal that is required, park management will need to continue to pursue funding for restoration projects and to hire additional staff that can focus on this activity. A restoration plan has been developed for the park that addresses removal of exotics and planting of native vegetation.

Free roaming domestic cats and dogs from the City of North Miami are the major exotic animal problem in the park. Other exotic animal threats established at Oleta River include the Cuban tree frog (*Hyla septentrionalis*), and brown anole (*Anolis sagrei*). Iguanas (*Iguana iguana*) have also been observed in the park, although their numbers remain low. Exotic animal removal methods will vary depending upon the species but will include trapping and the use of approved pesticides (for fire ants).

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 known problem have arisen concerning nuisance wildlife species within the park. The feeding of wild animals, such as raccoons, is discouraged as well as being against the law. The proper disposal of discarded food items, especially around the picnic shelters, will help in alleviating any future problems.

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

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

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

The primary management measure needed for the prehistoric sites at Oleta River is protection from vandalism; however, these areas are remote and therefore inaccessible. The sites adjacent to the park have been fenced for security already. An Interpretive Plan, Scope of Collections, and Collection Management Plan will be prepared for the unit before acquisition of artifacts. Artifacts may be acquired for interpretive purposes if such artifacts are consistent with the Scope of Collections statement and the unit has the ability to care for the artifacts. The Blue Marlin fishery site is currently used as a Tour Boat/Canoe Launch Area and provides a small food service operation. It should continue to be managed and interpreted in a manner that reflects its historical character.

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.

1. Conduct plant and animal resource inventories particularly as native vegetation is planted.
2. Conduct survey of submerged communities to determine abundance and location of listed species.
3. Conduct population studies of wading birds and manatees.
4. Ascertain the extent of damage by boring isopods to the virgin mangrove forest to determine any threat.
5. Conduct water quality monitoring of surrounding waters and mangrove preserve.

Cultural Resources

1. Survey prehistoric sites for valuable information regarding past activities and significance of the archeological sites.
2. Address additional research needs when they arise.

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.

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 managing agency shall consider the findings and recommendations of the land management review team in finalizing the required update of its management plan.

A land management review of Oleta River State 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, and then proceeds through the creation of a conceptual land use plan that culminates in the actual design and construction of park facilities. Input to the plan is provided by experts in environmental sciences, cultural resources, park operation and management, 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, adjacent land uses and the park's interaction with other facilities.

Existing Use of Adjacent Lands

Oleta River State Park is located within the limits of the City of North Miami in northern Miami-Dade County. High-density residential development is located to the immediate north of the park, along Sunny Isles Boulevard (163rd Street). Dense residential and commercial developments exist across the Intracoastal Waterway, directly to the east. In addition, Miami-Dade County operates Haulover Park, to the east of the park, across Biscayne Bay. The Biscayne Bay Campus of Florida International University (FIU) is situated to the south and west, and a City of North Miami water treatment plant, the Munisport landfill site and light industrial land uses are located to the west of the park. The mangrove areas north and west of the park

buffer it, somewhat, from the surrounding development. Some negative impacts such as noise pollution, air pollution and visual intrusions from the surrounding area are unavoidable.

Planned Use of Adjacent Lands

It is anticipated that the few remaining parcels of undeveloped land surrounding this park will eventually be developed for commercial or residential purposes. Adverse impacts from surrounding developments can include changes in surface and groundwater quality and quantity, complication of the Division's prescribed fire management activities, and increased traffic congestion. It will be important for Division staff to participate in the review of all Comprehensive Plan amendments, proposed zoning changes and development plans within the Greenline boundary of this park in the future.

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.

Oleta River State Park is relatively flat – approximately 5 feet above mean sea level, with scattered mounds of dredge spoil. From 1962 to 1964, approximately half of the park area was dredged and filled for the Interama project, creating the uplands to the south of the Oleta River and the lagoon that provides about 80 acres of open water. The upland natural communities of this park include beach dune and maritime hammock. The wetland communities include estuarine tidal swamp and estuarine unconsolidated substrate. Along the cove-like eastern shoreline of this lagoon, a sandy beach was constructed. The lagoon accommodates swimming and related beach activities, and offers views of the lagoon and the FIU campus. The combination of these features provides a broad array of recreational and educational opportunities in the center of a highly urbanized area with few remaining natural areas.

The park contains approximately 1.7 miles of the Oleta River. This river represents one of the original rivers draining the Everglades, and is one of the few remaining

riverine mangrove forests in northern Miami-Dade County. The river and its associated mangrove wetlands are important habitat for many species. The river has an important role in maintaining water quality in Biscayne Bay. It is also an important and unique interpretive resource for the park as the mangroves and an abundance of wildlife along the river make it a unique "wilderness" area in urbanized North Miami-Dade.

The golden leather fern and West Indian manatee are among the 40 designated plant and animal species found at the park. Many bird species use the tidal swamp for roosting and foraging. As the park is located along a major neo-tropical migratory route, numerous hawks, warblers and other birds rest and feed at the park seasonally.

Three sites of pre-historic and historic importance are included in the Florida Site File for Oleta River State Park. The historic site, the Blue Marlin Fisheries, located at the intersection of 163rd Street and the Oleta River, is significant to North Miami's history through the 1940s. The original owner, Daniel Diefenbach, was mayor of North Miami Beach during the 1950s.

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 Inter-American Center Authority originally selected the site as the location of the "Interama." The State of Florida then established the Interama agency to promote trade within the Western Hemisphere. In the 1960s, during the initial stages of the project, extensive fill from the bay bottom was placed on the site, and a network of canals and utilities were put in place on its upland portions. The Interama project was abandoned, as the necessary funding for its completion was not obtained.

Recreational Uses

The existing recreational activities at Oleta River State Park include picnicking, swimming, canoeing, fishing, bicycling and jogging/running. The off-road bicycle trails of the park are considered among the best in the United States. A primitive group camp and primitive cabins provide opportunities for visitors to overnight at the park. These activities are appropriate and should be continued. Sandspur Island, located in the Biscayne Bay, is a popular destination for recreational boaters.

Other Uses

The Fish and Wildlife Conservation Commission (FWCC) regional headquarters is located on a parcel of land near the park center. To accommodate these facilities, the FWCC has been leasing a portion of the park since 1996.

SUNNY ISLE BLVD SR-825
SMOKE HOUSE & INTERPRETIVE CENTER
DOCKS
BISCAYNE BLVD
PRIMITIVE CAMP
REST ROOMS & SHOWERS
ENTRANCE STATION
PAVILION
YOUTH CAMP
OLETA RIVER
RESIDENCES
SHOP AREA
RESIDENCES
BATH HOUSE/
CABINS
NE 151 ST
RESIDENCE
CONCESSION
REST ROOM
BBQ PIT
PAVILION
CANOE/KAYAK LAUNCH
PLAY GROUND
BATHHOUSE
PICNIC SHELTERS
PICNIC SHELTERS
CANOE/KAYAK LANDING
SWIMMING AREA
REST ROOM
CANOE/KAYAK LAUNCH
PIER
BATHHOUSE
PICNIC SHELTERS
MANGROVE PRESERVE
BISCAYNE BAY
SANDSPUR ISLAND

LEGEND
- Park Boundary
- State Road
- County Road
- Park Road Paved
- Park Road Unpaved
- Hiking Trail
- Hiking/Biking Trail
- Shared-Use Trail
- Structures
- Marine Structures
- Parking Lots

N

0 375 750 1,500 Feet

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

OLETA RIVER STATE PARK

BASE MAP

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 Oleta River State Park, the Oleta River, the estuarine tidal swamp and portions of the maritime hammock natural communities have been designated protected zones. These areas comprise over 50 percent of park acreage. See the Conceptual Land Use Plan for protected zone boundaries.

Existing Facilities

Recreation Facilities

Cabin Use Area
Primitive cabins (14)

Day Use Area
Swimming Area
Picnic shelters (9)
Fishing pier/deck
Canoe launch

Blue Marlin Fish House and Interpretive Center
Canoe launch

Trails
Paved bike path (3 mi.)
Shared-use trails (15 mi.)

Primitive Group Camp
Picnic shelter (1)

Paddle-in Campsite
Primitive campsite (1)

Support Facilities

Cabin Use Area
Restrooms (1)

Day Use Area
Restrooms (4)
Parking (900 vehicles)
Concession
Bike wash area
Canoe/kayak launch

Blue Marlin Fish House and Interpretive Center
Stabilized parking (25 vehicles)

Primitive Group Camp
Restrooms (6)

Administration and Maintenance

Shop building	Ranger station
Storage building	Ticket booth
Flammable storage shed	Residences (5)
Sheds (2)	Park drive (2 mi.)
City-owned lift station (2)	Service roads (5 mi.)

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 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

Oleta River State Park provides a valuable resource for swimming, picnicking, boating, trail use and nature study in the City of North Miami Beach and the Miami-Dade County area. The growth of Florida's resident and tourist populations brings increasing pressure for access that is more widespread and for denser levels of public use in the

OLETA RIVER STATE PARK

FL DEPARTMENT OF ENVIRONMENTAL PROTOTECTION
DIVISION OF RECREATION AND PARKS
OFFICE OF PARK PLANNING

CONCEPTUAL LAND USE PLAN

open areas available to the public. At the same time, resource-based outdoor recreation continually increases in popularity. Consequently, one of the greatest challenges for public land management today is the balancing of reasonable levels of public access with the need to preserve and enhance the natural and cultural resources of the protected landscapes. At Oleta River State Park, the existing levels of recreational activities are appropriate, and should continue. To fulfill The Division's responsibilities to provide outdoor recreation, and protect and enhance the natural and cultural resources of the park the following additional uses and facilities are proposed in this conceptual land use plan.

Trails. Oleta River State Park is an important ecological and recreational hub in a developing Miami-Dade County greenway system. The Division will work closely with local governments to identify and maximize opportunities to better coordinate plans, minimize adverse impacts, and find solutions for meeting greenway objectives. Consequently, the Division strongly supports the extension of bicycle/pedestrian facilities along Sunny Isles Boulevard to facilitate access the park's existing paved bicycle path through the main park entrance. Division staff is also working with the City of North Miami and Florida International University to establish a bicycle-pedestrian connection to the park from FIU and the City's bikeway, planned for NE 135th. Street. The exact location of the proposed bike/pedestrian state park entrance cannot be identified until further analysis of operational and security issues within the park and on the FIU campus has been completed.

To improve the recreational experience provided along the established network of off-road biking trails, the Division will continue to restore the natural communities in these areas of the park. As restoration activities progress, some of the trails will need to be relocated and/or realigned. The Division will work with trail user groups throughout this process to maintain an efficient, functioning and enjoyable trail system. It should be emphasized that the majority of the existing trails in the park will be retained. Division staff will continue to work with the trail groups to maintain a high-quality recreation area while the removal of exotic plants and planting of native species continues.

A small observation platform is recommended on a freshwater pond near the park's western boundary to encourage wildlife viewing opportunities for trail users.

While recognizing that many of these trails were developed through the volunteer labor of the off-road bicycling community, these trails will continue to assume a shared-use function since user conflicts are not an issue in this park. If needed, education programs for trail etiquette and use will be developed in cooperation with the various trail user groups.

To support the existing trail use and provide a central location from which to provide

access to the park's main canoe launch, a concession and a bike wash facility were developed just north of the park's main parking area, during the past few years. Improvements to the concession structure by the current Visitor Service Provider, including the provision of 12 to 15 parking spaces to serve the canoe launch, are planned in the near future. Walkway improvements to make the existing canoe launch universally accessible are also planned. The area around the concession and bike wash will be extensively planted with native vegetation to provide a visual buffer as well as separation from utility structures.

Day Use Area. Up to three additional picnic shelters and six small fishing platforms are recommended for the main day use area of the park. One picnic shelter and a small fishing platform are recommended to the north of the swimming area. Two additional shelters and two fishing platforms are proposed to the south of the swimming area, and three fishing platforms are recommended along the Intracoastal Waterway. The proposed fishing platforms will increase fishing opportunities in the park, and will be designed to minimize environmental impact and to accommodate visitors of all physical abilities. Careful site analysis will be conducted to avoid impacts to seagrass beds from construction of these structures. The initial efforts for this project should be pre-engineering and permitting studies to determine what locations and design parameters will be affordable and will comply with environmental regulations. An elevated pedestrian bridge is proposed to connect the two portions of this use area across a small waterway that bisects the "Point." Additional pedestrian circulation improvements are recommended to improve the universal accessibility of all of the park's picnicking and restroom facilities.

As proposed in the previous management plan, a second concession structure is recommended to serve the main day use area, providing expanded food and beverage service. The building will be placed on the location of the current structure, and should be consistent with the architectural style of the other park facilities. In the future, a third small concession building may be located at the north end of the swimming beach to provide additional convenience for the park's beachgoers. More shaded spaces are needed for comfort and safety of picnicking visitors in this area. Division staff will evaluate the feasibility of using fabric-roofed structures to provide additional shaded space within the picnic area, since the park's picnic shelters are frequently rented by groups and not available to all visitors. (Division staff will need to investigate the functional and operational characteristics of commercially available structures before a decision can be made.)

Nature Center. A nature center is proposed to provide interpretation of the surrounding environment, especially the Oleta River and the associated mangrove wetlands. Since development has replaced the original mangrove forest in this area, the park and the restoration projects conducted within its boundaries provides an important opportunity to experience a mangrove forest. The facility should include a

classroom/meeting space, an audiovisual room, small laboratory facilities and an office to support the educational and interpretive programs of the park. Green building design, construction and operational techniques will be incorporated in the building. Open-air spaces will be included for exhibit and small group meeting spaces to take advantage of the mild climate, reducing the area of air-conditioned space, to the greatest extent possible. The Division will explore ways that the Nature Center may be utilized for local community activities and events, to further the goal of building stronger connections between the state park and the surrounding community.

An interpretive nature trail leading from the nature center to the surrounding areas is recommended. Two short (up to 50 feet each) elevated boardwalks will be required to connect the nature center location to both the day use and the cabins and proposed camping areas of the park. In addition to the nature center, interpretive exhibits are recommended at locations throughout the park to inform the public regarding the natural and cultural resources and resource management activities occurring at the state park. A large emphasis will be placed on the idea that the park is the classroom, providing a unique opportunity to allow urban residents to experience nature and to learn from their experience.

RV and Tent Camping Area. A standard state park camping area with developed sites providing electricity, water and sanitary sewer hook-ups and campers bathhouse is recommended to be located just south of the existing cabin area. Thirty RV sites and up to 12 sites designed for tent campers are recommended for this area. An extension of the park road (approximately 1/2 mile) will be included in the camping area development, and a culvert sized to allow passage of canoes and kayaks at the entrance to the camping and cabin area should be incorporated in the design of the connecting road. Extensive landscaping with native plants is needed to improve the aesthetic quality of this cleared, ruderal site and provide vegetative buffers between the campsites and between the camping area and the cabins.

A combination fishing platform and canoe/kayak launch facility is proposed on the lagoon shoreline adjacent to the proposed camping area and the existing cabins to enhance recreational opportunities for the overnight guests. A seagrass mitigation project is proposed for this area of the park, and it may preempt this location for the recreation facility. Division staff will work with the DERM to coordinate the development, if it is possible.

Boating. Oleta River State Park is an important ecological and recreational hub in a developing County greenway system. Miami-Dade County is planning a designated canoe trail on the Oleta River, linking Greynolds Park and the Snake Creek Canal Greenway. The Division will work closely with local governments to identify and maximize opportunities to better coordinate plans, minimize adverse impacts, and find solutions for meeting greenway objectives. Consistent with this goal, the park has

established a primitive campsite accessible only by water within a mangrove restoration project on the Oleta River shoreline. The campsite is included in the Florida Circumnavigation Saltwater Paddling Trail, coordinated by the DEP Office of Greenways and Trails. It accommodates 12 persons for low-impact camping, on a reservation basis.

In addition to coordination with countywide canoeing trails, this management plan recommends expansion of canoeing and kayaking opportunities in the park. If structures such as bridges or culverts are needed to provide continued upland access across these ditches, such as at the above-mentioned entrance to the camping and cabin area, they should be sized to accommodate canoes and kayaks. These structural upgrades will not only improve water flow, enhance water quality and the health of the tidal swamp community as discussed in previous plan sections, but will also increase the availability of non-motorized boating opportunities in the park. Portage platforms will also be considered to facilitate access in areas not slated for culverts or bridges.

Additional signage is recommended at the entrance to the lagoon that clearly designates the area a No Wake Zone. The No Wake designation is considered important to protect public safety within the swim area and protect the resources of the lagoon. The Division will continue to work with the boating community on use guidelines to manage and reduce user conflicts between motorized and non-motorized boaters on the Oleta River. Enforcement of the idle speed, no-wake zone will continue to be coordinated with the Division of Law Enforcement.

A large area in the center of the state park has been the focus of exotic plant removal and revegetation efforts. This area is noted on the Conceptual Land Use Plan as "Hammock Restoration Area." As demand for primitive group camping facilities increases in the future, two or three additional group camps may be developed in this area, adjacent to the existing group camp.

Support Facilities. An administrative office is recommended south of the entrance station. Two additional ranger residences are proposed in the existing housing compound to meet staff housing needs. A service dock within the lagoon is recommended to improve staff access to the waters and islands of the park. With the construction of proposed new camping facilities, connection to the local municipal wastewater collection system of all of the state park's restrooms and residences will be mandated by the City of North Miami development regulations.

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. Following is a list of facilities proposed for development at Oleta River State Park:

Trails
Pond observation platform

Day Use Area
Picnic shelters (3)
Fishing platforms (6)
Concession buildings (2)
Bridge

Nature Center and Interpretation
Nature Center
Boardwalks
Interpretive trail
Interpretive signage

Overnight Use
Campsites (30 RV / 12 tent)
Fishing dock & canoe/kayak launch
Bathhouse
Primitive group camps (2)

Boating
Canoe/kayak trail

Support Facilities
Administrative office
Ranger residences (2)
Service dock
Concession area parking and circulation improvements

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.

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
Overnight Accommodations						
Rustic Cabins	54	54			54	54
RV Camping			240	240	240	240
Tent Camping			72	72	72	72
Group Camp	60	60	120	120	180	180
Primitive Camping	12	12			12	12
Boating						
Canoe, Kayak	20	40	40	80	60	120
Trails						
Shared use (paved trail)	40	160			40	160
Off-road bicycling	200	800			200	800
Nature			15	60	15	60
Picnicking/Beach Use	2,868	5,736	288	576	3,156	6,312
Fishing						
Shoreline	100	200			100	200
Fishing platforms	25	50	30	60	55	110
Nature Center			40	160	40	160
TOTAL	**3,379**	**7,112**	**845**	**1,368**	**4,224**	**8,480**

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 additional lands have been identified for acquisition. In addition, no lands are considered surplus to the needs of the park.

Addendum 1 – Acquisition History and Advisory Group Report

Purpose of Acquisition

The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees) acquired Oleta River State Park to protect and restore the natural and cultural values of the property for the benefit of the citizens of the state.

Sequence of Acquisition

On March 13, 1980, the Trustees obtained title to a 92.6-acre property constituting the initial area of Oleta River State Park. The City of Miami agreed to release its rights, title and any interest in the 92.6-acre property when the Trustees paid the city eight million dollars ($8,000,000) for the debt the Inter-American Center Authority , now dissolved state agency, had owed the city. The legislature appropriated the money for this payment. Since this initial acquisition, the Trustees added several individual parcels to Oleta River State Park through accretion of submerged lands and purchases under the P2000/A and I program. Currently the park contains 1,032.84 acres.

On June 9, 1980, the Trustees leased Oleta River State Park to the Division of Recreation and Parks (Division) under Lease No. 3154. This lease is for a period of fifty (50) years, and it will expire on June 8, 2030. The Division manages Oleta River State Park to provide public outdoor recreation compatible with the conservation and protection of the property.

Title Interest

The Trustees hold fee simple title to Oleta River State Park.

Special Conditions on Use

Oleta River State Park is designated single-use to provide resource-based public recreation and other 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 related to Oleta River State Park.

Instrument:.....Warranty Deed
Instrument Holder: .....Resolution Trust Corporation
Beginning Date: .....March 28, 1995
Ending Date: .....There is no specific ending date given.
Outstanding Rights:.....This warranty deed is subject to a certain easement agreement, dated August 30, 1946, recorded in Book 2763 on Page 279, Dade County.

Instrument:.....Easement
Instrument Holder: .....Division
Beginning Date: .....October 25, 1985
Ending Date: .....Coterminous with Lease No. 3154
Outstanding Rights:.....This easement allows Florida Power and Light Company to construct, install, operate and maintain an electric distribution system on a certain portion of Oleta River State Park.

Instrument:.....Easement
Instrument Holder: .....Division
Beginning Date: .....May 16, 1984
Ending Date: .....Coterminous with lease no. 3154
Outstanding Rights:.....This easement allows Florida Power and Light Company to construct, install, operate, maintain and remove an electric distribution system on a certain portion of Oleta River State Park.

Instrument:.....Easement Agreement
Instrument Holder: .....Inter-American Center Authority ("INTERAMA")
Beginning Date: .....November 6, 1967
Ending Date: .....Perpetual but subject to certain conditions
Outstanding Rights:.....This easement allows the Florida Light & Power Company to use the property specifically identified in the easement document for the purpose of constructing, maintaining and operating an electrical substation or switching station within a certain portion of Oleta River State Park.

Instrument:.....Easement
Instrument Holder: .....Trustees
Beginning Date: .....May 13, 1941
Ending Date: .....Forever
Outstanding Rights:.....This easement allows the United States of America to construct and maintain an Intra-Coastal Waterway.

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North Miami, Florida 33161

Julissa Castellanos
Director of Operations
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Mordechay Katzir, President
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Weston, Florida 33326

Wayne Conn, Captain
Another Reward Fishing Fleet
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Marlon Jael,
Kayak Representative
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North Miami Beach, Florida 33160

Bernard D. Riviere
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Miami, Florida 33133

Ruben Gonzalez
Fishing Representative
2825 SW 9th Street
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Jason Baum
Mountain Bike Representative
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Pembroke Pines, Florida 33028

Dick Townsend, Conservation Chair
Tropical Audubon Society
7985 SW 124th Street
Miami, Florida 33156

Professor R. Stephen Mallory
Sierra Club Miami Group
444 NE 102nd. Street
Miami Shores, Florida 33138

Pamela Sweeny
Marine Animal Rescue Society
P.O. 833356
Miami, Florida 33283

Terry Schroder
Exciting 4-H
10601 NW 6th Ave
Miami, Florida 33150

Adjacent Landowners
Orlando Loli, Adjacent Landowner
3384 N.E. 167th Street
North Miami Beach, Florida 33160

The Advisory Group meeting to review the proposed land management plan for Oleta River State Park was held at the park on June 11, 2008 at 9:00 a.m.

Mr. Danny Castillo represented Chuck Collins (FFWCC). Cooper MacMillan (South Dade Soil and Water Conservation District), Bernard Riviere (Trails Representative) Ruben Gonzalez (Fishing Representative), Pamela Sweeny (Marine Animal Rescue Society and Orlando Loli (Adjacent Landowner) did not attend. All other appointed members attended the meeting. Attending staff were Paul Rice, Kevin Jones, Steve Dale, Beth Green, Charlie Jabaly and Lew Scruggs.

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

Summary of Advisory Group Comments

Terry Schroder (Exciting 4-A) expressed concern regarding the numbers of users being planned for the proposed camping area. Staff explained that the carrying capacity figures in the management plan are based on the maximum (eight persons per site), although the norm is two to four persons. The higher number is used to plan for the maximum potential use of the area, even though that level of use would rarely happen. Ms. Sweeny agreed that the addition of tent camping sites is a good idea.

Mordechay Katzir (CSO President) suggested that an additional concession facility located to serve the northwestern end of the swimming beach would be a good idea. He suggested that fabric-roofed structures might be a low-cost alternative to permanent picnic shelters to provide larger areas of shade for picnicking. He noted that most of the park's shelters are rented to individual groups, leaving a need for "free" shade for other visitors in the picnic area. Mr. Katzir asked about restroom capacity for the proposed camping area. Staff responded that a campers bathhouse will be constructed with that project. Mr. Katzir suggested that camping facilities could be developed in the interior of the park, north of the proposed site, to allow for more than the proposed 30 RV and 12 tent sites. Staff explained that the planned location had a number of advantages, including the proposed walking connection to the swimming/picnicking area and lower development costs for utilities and other infrastructure. Mr. Katzir offered the assistance of CSO volunteers to help with park construction projects, and expressed frustration with the length of time required for planning, design, permitting and construction of improvements in the park.

Gary Milano (Dade County Department of Environmental Resource Management (DERM)) noted that the Division's plan takes a pragmatic approach to resource

management and public uses at the park. He expressed concern that the proposed fishing platforms would not be permittable or mitigation requirements would be cost-prohibitive if they extend beyond the mean high water line and if they impact existing seagrass beds. He pointed out some changes needed in the Conceptual Land Use Plan map to make it more readable. He noted that the large central area of the park, parts of which have been cleared of Australian pines and is now being planted with upland native tree species, appears to have no designated future uses in the draft conceptual plan. He suggested that the intended future uses of this area should be noted. Mr. Milano offered to continue working with Division staff to integrate DERM restoration projects with park resource management and facilities development projects.

Captain Wayne Conn (Another Reward Fishing Fleet) asked if the locations of the proposed fishing platforms were accessible to fishermen now. Staff explained that certain shoreline locations do provide access to the water, but that much of the shoreline is inaccessible because of rip-rap that was installed to address erosion problems. Mr. Conn described the youth fishing program he has developed, and expressed a desire to work with the park to expand fishing opportunities to park visitors, especially urban youths, and offered advice on the park's fishing clinic. Regarding Sandspur Island, Mr. Conn noted that the island offers about one mile of shoreline that provides recreational opportunities, and suggested that the park arrange for a shuttle boat to deliver visitors to the island.

Professor Mahoney (Sierra Club) noted that he is a 20-year resident of the area and a frequent park visitor. He said he as witnessed many good changes in the state park over the years, especially the park's progress on exotic plant removal, and mangrove restoration. He pointed out that the integration of recreation, like off-road biking, with the natural community restoration program is an important consideration as the park proceeds with restoration. He agreed that the proposed fishing platforms are a good idea, suggesting the park seek grants or local business sponsors to fund their construction. Professor Mahoney supported the proposed camping facilities and the nature center, and noted that it is important for parks to introduce urban youths to the natural world. He inquired about the Munisport landfill, asking if remediation work has proceeded there. Steve Dale referred him to DERM on the latter question, and explained that park staff monitors to be sure that the dike around Munisport remains in place, and monitors water quality near the swimming beach, as protective measures.

Howard Greg (Miami-Dade Parks and Recreation) pointed out that some of Miami's best parks, such as Crandon Park and Haulover, have taken as much as 75 years to complete, indicating the need for patience and a long-term vision. Mr. Greg said that the Division's plan for the state park seems to ignore the highly developed context of the park. He suggested that this plan should serve as a model for the urban state parks throughout the system. He urged staff to look at state and national park plans where other parks are closely associated with intense urban development. Mr. Greg suggested

that an objective should be mentioned in the plan stating the Division's intent to collaborate with local governments and cited the Miami-Dade County efforts to create a South Florida Parks Initiative to bring city, county, state and federal park managers together for collaboration. He summed up by noting that the state park lacks the value it should have in the local community because of its lack of integration with the local community.

Mr. Greg urged the Division to make bicycle and pedestrian accessibility to the park a priority, and suggested that the park should have a public entrance for non-vehicular access from FIU and the City of North Miami bicycle path on NE 135th. Street. He asked if plans are in place that identify and organize special event spaces, since they are important aspects of the park's connection to the community. He pointed out that collaboration with local public schools requires that the park's programs be linked to the state's FCAT objectives to be attractive to the schools. He suggested that the Crandon Park environmental education facility might serve as a model for the proposed nature center. He suggested that the nature center should also function as a community center, both to benefit the local community and to provide some financial benefit to the park. He stated that the Miami-Dade County parks with RV campgrounds suffer low occupancy rates most of the year. Mr. Greg also encouraged the Division to pursue a program to plant large trees in restoration areas to provide shade for recreation.

Dick Townsend (Tropical Audubon Society) said that the draft seems to be a good plan. He agreed that the plan needs to provide a long-term vision, but that it also should provide short-term objectives. He suggested holding a public workshop annually with the park's stakeholders to inform them of progress toward the park's goals, noting that this would promote local support.

Daniel Castillo said that he had no comments to provide at this time.

Julissa Castellanos (Florida International University) said that more frequent and regular communications between the university and the park are needed to coordinate progress on mutual goals and objectives. She urged the Division not to limit environmental education to K-12 levels, noting that FIU has a new marine science program and other environmental science programs that have obvious connections to the park's resource management and public education programs. Subsequent to the meeting, staff discussed potential routes to connect the park and FIU with bicycle and pedestrian facilities being developed by the City of North Miami.

Mark Torok (Florida Division of Forestry) agreed with the proposed nature center and interpretive trails, and liked the idea that the nature center should double as a community center. He encouraged the park to continue use of volunteers, non-profit corporations and grants to achieve park goals. He asked if the Division has a target

quantity for exotic plant removal each year. Staff replied that two five-acre plots of Australian pines are targeted for removal each year. Mr. Torok reiterated that restoration of treated areas with native vegetation will be most important, and said that he is aware that the park is using all available resources to achieve its resource management goals.

Jason Baum (Mountain Biking Representative) said that the group had offered many good ideas for consideration. He asked what impacts to the park will result from construction of the proposed new facilities and the resultant increase in visitation. He expressed concern that too many visitors could detract from the qualities the park offers its visitors now. He urged staff to retain as much of the existing trail system as possible. He advised not to enlarge the existing parking capacity, fearing that, over time, the park will become overdeveloped and over used. He encouraged connection of the park to City's bicycle and pedestrian facilities with a paved bike path. Mr. Baum suggested that the nature center should be an open-air facility rather than a conventional building, and that the entire park should be considered as the classroom. He said that the park CSO should place a higher priority on fundraising activities.

Marlon Jael (Kayak Representative) said that he is a 27-year resident, and feels there is no place like Oleta River State Park for local residents. He supported the positive input that had been shared with park staff, but pointed out that execution is the most important part of any plan. He suggested that the park needs a lobbyist to help get needed funding, permits, etc.

Ken Evans (Camp Live Oak) said that his business currently operates summer camps at Hugh Taylor Birch State Park in Ft. Lauderdale and at Oleta River State Park. He agreed with Mr. Baum that the nature center should exemplify "Green Architecture," and suggested that it should be a design that integrates both indoor and outdoor spaces. Mr. Evans said that his business has pledged funds for the nature center project.

Mayor Kevin Burns (City of North Miami) said that the City's parks department staff are reviewing the draft plan and may provide specific comments. He said that the park is virtually unknown in the local community, and that the Division should focus some marketing effort there to expand use during weekdays, yet avoid overburdening the park on peak use days. He predicted that high gasoline prices would result in more visits to the park, as residents look closer to home for leisure-time activities.

Staff Recommendations

A number of minor text and content revisions to the Resource Management Component of the draft management plan will be made, based on comments received at the advisory group meeting. No substantive changes to the resource management plan are recommended. The following changes and additions to the Introduction and Land Use Component are recommended. With these changes, staff recommends approval of the

draft management plan.

- In the Introduction, add an objective or action regarding coordination and regular communication with FIU staff, the City of North Miami government, DERM and Miami-Dade Parks and Recreation to improve collaboration on policies, development projects and programs, and to better integrate the park with the local community.
- In the conceptual land use plan text (Land Use Component), emphasize that the Division will retain the majority of the existing trail systems in the park, and is working with the trail groups to maintain a high-quality recreation area while the removal of exotic plants and planting of native species continues.
- Include a proposal for an additional small concession building at the north end of the swimming beach and discuss the potential to use fabric-roof structures to provide additional shaded space within the picnic area. (Division staff will need to investigate the functional and operational characteristics of commercially available structures before a decision can be made.)
- Discuss a design concept for the nature center that includes green building technology to the extent feasible, a combination of conditioned and open-air spaces to reduce energy needs, and treatment of the whole park as the classroom for nature studies. Text will be added stating that the Division will consider other uses of the nature center, such as a community center that can be reserved for local civic group meetings, receptions and small events.
- Discuss a potential bicycle and pedestrian entrance to the park from FIU Campus or from 151st. Street. Outline the potential routes that may be used, and discuss operational and security issues that need to be addressed in planning and operations, if a second entrance to the park can be developed.
- Identify the special events area of the park.
- Discuss the planned future uses of the central portion of the park as a maritime hammock restoration area that may include one or two sites for the future expansion of primitive group camp facilities (the existing primitive group camp, with a capacity of up to 60 persons at one time, is located in the central area just west of the ranger station).
- Discuss the need for a pre-engineering and permitting study on the proposed fishing platforms to determine what locations and design parameters will be affordable and will comply with environmental regulations.
- Regarding Sandspur Island, staff notes that large numbers of visitors currently recreate on the island, indicating that adequate public access is already provided there. FPS District and park staff will consider whether additional public access could be provided by shuttle from the park, most likely by a visitor service provider, but the decision will involve evaluation of current uses, public safety, maintenance and other factors. With the exception of interpretive and educational signs that should be placed on the island, costly physical improvements such as a dock, boardwalks or shelters are not recommended, due

to the 24-hour a day accessibility of the island and the likelihood of vandalism to park facilities.

Addendum 2—References Cited

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Addendum 3—Soils Descriptions

(32) Terra Ceia muck, tidal - This deep, level, very poorly drained soil is found in saltwater swamps and marshes and is subject to tidal flooding. The soil consists of muck at least 80 inches deep. The upper eight inches are very dark brown while the lower portion is black. Under natural conditions, the Terra Ceia soil remains saturated. Its surface is inundated by tides twice daily. Permeability is rapid. The natural vegetation consists primarily of red and black mangroves. White mangroves grow in some areas as well. Dissimilar soils that are included with this soil type in small amounts include tidal Pennsuco, Perrine and Lauderhill soils.

(31) Pennsuco marl, tidal - This deep, nearly level, very poorly drained soil is found in tidal mangrove swamps near the coast in southeastern Florida and is subjected to tidal flooding. The soil consists of a surface layer approximately 51 inches deep of light gray marl. It has a silt loam texture. Soft porous limestone bedrock is found beneath this. Under natural conditions this soil remains saturated and the water table fluctuates with the tides. The soil is moderately saline or saline. Permeability is moderately slow. The natural vegetation is scattered and stunted red mangrove. Dissimilar soils that are included with this soil type in small amounts include Terra Ceia and Lauderhill soils. The latter differs in having layers of organic rather than marl material.

(26) Perrine marl, tidal - This moderately deep, nearly level, very poorly drained soil is in tidal mangrove swamps near the coast in southeastern Florida. Under natural conditions, the soil remains saturated and the water table fluctuates with tides. It is moderately saline or saline and has moderately slow permeability. Typically the surface layer consists of about 12 inches of dark brown marl that has a texture of silt loam. Below this to a depth of about 26 inches, the soil consists of dark gray marl that has a texture of silt loam. Limestone bedrock is found beneath this. The natural vegetation consists of scattered and stunted red mangroves. Dissimilar soils that occur with this soil type in small amounts include Terra Ceia and Lauderhill soils.

(9) Udorthents water complex - This soil type consists of unconsolidated or heterogeneous geologic material removed during the excavation of ditches, canals, lakes, ponds, and quarries. Shallow to deep piles are laid over limestone bedrock. This complex also includes open bodies of water. Slopes are 15 to 60 percent. Typically the Udorthents consist of mixed light gray and white limestone gravel and loamy carbonatic material, which extend to a depth of 80 inches or more. The water table is below the fill in the limestone bedrock. Permeability is moderate. Weeds, native grasses, and exotic vegetation have become established in some areas. Other areas support little or no vegetation.

(32) Urban Land – These soils generally have been altered by land grading and shaping or have been covered with about 18 inches of extremely stony, loamy fill material. Areas of these soils are so small that mapping them separately is impractical. The natural soils cannot be observed because more than 85 percent of the surface is covered by shopping

centers, parking lots, streets, sidewalks, airports, large buildings, houses and other structures. The soils in open areas, mostly lawns, vacant lots, playgrounds, and parks are mainly Udorthents.

Addendum 4–Plants And Animals List

Oleta River State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)

FERNS AND FERN ALLIES

Golden leather fern ..... *Acrostichum aureum* 67
Pine fern ..... *Anemia adiantifolia*
Boston fern ..... *Nephrolepis exaltata* *
Boston fern ..... *Nephrolepis multiflora* *
Whisk fern ..... *Psilotum nudum*
Bracken fern ..... *Pteridium aquilinum var. caudatum*
Ladder fern ..... *Pteris longifolia*
Brake fern ..... *Pteris vittata* *
Shield fern ..... *Thelypteris kunthii*

GYMNOSPERMS

Norfolk Island pine ..... *Araucaria excelsa* *
Southern red cedar ..... *Juniperus virginiana*
Coontie ..... *Zamia integrifolia* 7, 84

ANGIOSPERMS - Monocots

Bushy bluestem ..... *Andropogon glomeratus var. pumilus*
Broom-sedge ..... *Andropogon virginicus*
Arrowfeather ..... *Aristida purpurascens*
Common asparagus fern ..... *Asparagus setaceus* *
Southern sandbur ..... *Cenchrus echinatus*
Coastal sandbur ..... *Cenchrus incertus*
Saw grass ..... *Cladium jamaicensis*
Silver palm ..... *Coccothrinax argentata* 7
Coconut palm ..... *Cocos nucifera* *
Day flower ..... *Commelina erecta*
Corn plant ..... *Cordyline terminalis* *
Bermuda grass ..... *Cynodon dactylon* *
Umbrella sedge ..... *Cyperus croceus*
False saw grass ..... *Cyperus ligularis*
Umbrella sedge ..... *Cyperus polystachyos*
Egyptian grass ..... *Dactyloctenium aegyptium* *
Saltgrass ..... *Distichlis spicata*
Dracaena ..... *Dracaena fragrans* *
Goose grass ..... *Eleusine indica* *
Feather lovegrass ..... *Eragrostis amabilis* *
Gophertail lovegrass ..... *Eragrostis ciliaris* *

*** Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Lovegrass	*Eragrostis elliottii*	
Wild coco	*Eulophia alta*	7
Finger grass	*Eustachys petraea*	
Hurricane grass	*Fimbristylis cymosa*	
Shoal grass	*Halodule wrightii*	
Spider lily	*Hymenocallis latifolia*	
Chinese fan palm	*Livistona chinensis* *	
Muhly grass	*Muhlenbergia capillaris*	
Banana	*Musa x paradisiaca* *	
Burma reed	*Neyraudia reynaudiana* *	
Ground orchid	*Oeceoclades maculata* *	
Fall panicum	*Panicum dichotomiflorum var. bartowense*	
Torpedo grass	*Panicum repens* *	
Tufted paspalum	*Paspalum blodgettii*	
Blue paspalum	*Paspalum caespitosum*	
Bahia grass	*Paspalum notatum* *	
Salt joint grass	*Paspalum setaceum*	
Salt joint grass	*Paspalum vaginatum*	
Seashore paspalum	*Paspalum vaginatum*	
White-tops	*Rhynchospora colorata*	
Blue stem	*Sabal minor*	
Cabbage palm	*Sabal palmetto*	
Bowstring hemp	*Sansevieria hyacinthoides* *	
Wire bluestem	*Schizachyrium gracile*	
Bluestem	*Schizachyrium sanguineum*	
Saw palmetto	*Serenoa repens*	
Blue-eyed grass	*Sisyrinchium xerophyllum*	
Smooth cordgrass	*Spartina alterniflora*	
Cordgrass	*Spartina bakeri*	
Saltmeadow cordgrass	*Spartina patens*	
Prickly cordgrass	*Spartina spartinae*	
Coral dropseed grass	*Sporobolus domingensis*	
Dropseed	*Sporobolus indicus var. indicus* *	
West Indian dropseed	*Sporobolus indicus var.pyramidalis* *	
Coastal dropseed	*Sporobolus virginicus*	
St. Augustine grass	*Stenotaphrum secundatum* *	
Manatee grass	*Syringodium filiforme*	
Florida thatch palm	*Thrinax radiata*	7
Oyster plant	*Tradescantia spathacea* *	
Florida gamagrass	*Tripsacum floridana*	
Narrow-leaved cattail	*Typha angustifolia*	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Southern cattail	*Typha domingensis*	
Sea oats	*Uniola paniculata*	
Washington palm	*Washingtonia robusta* *	
Spanish bayonet	*Yucca aloifolia* *	
Adam's needle	*Yucca filamentosa*	
Turf grass	*Zoysia matrella var. tenuifolia* *	

ANGIOSPERMS - Dicots

Earleaf acacia	*Acacia auriculiformis* *	
Cinnecord	*Acacia choriophylla*	7
Alice-clover	*Alysicarpus vaginalis* *	
Slender amaranth	*Amaranthus viridis* *	
Common ragweed	*Ambrosia artemisiifolia*	
Black calabash	*Amphitecna latifolia* *	
Torchwood	*Amyris elemifera*	
Pond apple	*Annona glabra*	
Marlberry	*Ardisia escallonioides*	
Sea lavender	*Argusia gnaphalodes*	
Scarlet milkweed	*Asclepias curassavica* *	
Bushy aster	*Aster dumosus*	
Aster	*Aster subulatus*	
Black mangrove	*Avicennia germinans*	
False willow	*Baccharis angustifolia*	
Groundsel tree	*Baccharis glomeruliflora*	
Salt bush	*Baccharis halimifolia*	
Blue hyssop	*Bacopa caroliniana*	
Saltwort	*Batis maritima*	
Spanish needle	*Bidens alba var. radiata*	
Bishopwood	*Bischofia javanica* *	
Red spiderling	*Boerhavia diffusa*	
Sea oxeye	*Borrichia frutescens*	
Blueheart	*Buchnera americana*	
Gumbo limbo	*Bursera simaruba*	
Locustberry	*Byrsonima lucida*	
Gray nicker-bean	*Caesalpinia bonduc*	
Beautyberry	*Callicarpa americana*	
Mastwood	*Calophyllum antillanum* *	
Spicewood	*Calyptranthes pallens*	
Cinnamon bark	*Canella winterana*	7
Jamaica caper	*Capparis cynophallophora*	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Goatweed	*Capraria biflora*	
Papaya	*Carica papaya* *	
Australian pine	*Casuarina equisetifolia* *	
Suckering Australian pine	*Casuarina glauca* *	
Madagascar periwinkle	*Catharanthus roseus* *	
Sugarberry	*Celtis laevigata*	
Coinwort	*Centella asiatica*	
Day jessamine	*Cestrum diurnum* *	
Candle plant	*Chamaecrista alata* *	
Sensitive pea	*Chamaecrista nictitans var. aspera*	
Blodgett's spurge	*Chamaesyce blodgettii*	
Hairy spurge	*Chamaesyce hirta*	
Graceful sandmat	*Chamaesyce hypericifolia*	
Hyssopleaf sandmat	*Chamaesyce hyssopifolia*	
Mendez's sandmat	*Chamaesyce mendezii*	
Lamb's quarters	*Chenopodium ambrosioides* *	
Cocoplum	*Chrysobalanus icaco*	
Satinleaf	*Chrysophyllum oliviforme*	7
Fiddlewood	*Citharexylum spinosum*	
Pitch apple	*Clusia rosea* *	
Pigeon plum	*Coccoloba diversifolia*	
Seagrape	*Coccoloba uvifera*	
Latherleaf	*Colubrina asiatica* *	
Buttonwood	*Conocarpus erecta*	
Silver buttonwood	*Conocarpus erecta f. sericea*	
Dwarf horseweed	*Conyza canadensis var. pusilla*	
Cordia	*Cordia globosa*	
Geiger tree	*Cordia sebestena*	7
Rhacoma	*Crossopetalum rhacoma*	
Rattle box	*Crotalaria pallida* *	
Rattlebox	*Crotalaria pumila*	
Rattleweed	*Crotalaria retusa* *	
Carrotwood	*Cupaniopsis anacardiopsis* *	
Dodder	*Cuscuta pentagona*	
Coin vine	*Dalbergia ecastophyllum*	
Royal poinciana	*Delonix regia* *	
Beggarweed	*Desmodium incanum*	
Threeflower ticktrefoil	*Desmodium triflorum* *	
Ponyfoot	*Dichondra carolinensis*	
Varnish leaf	*Dodonaea viscosa*	
Guiana plum	*Drypetes lateriflora*	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Tasselflower	*Emilia fosbergii* *	
Tasselflower	*Emilia sonchifolia* *	
Black torch	*Erithalis fruticosa*	
Beach creeper	*Ernodea littoralis*	1, 5
Coral bean	*Erythrina herbacea*	
White stopper	*Eugenia axillaris*	
Redberry stopper	*Eugenia confusa*	7
Spanish stopper	*Eugenia foetida*	
Dog fennel	*Eupatorium capillifolium*	
Dog fennel	*Eupatorium serotinum*	
Sanddune spurge	*Euphorbia trichotoma*	
Seaside gentian	*Eustoma exaltatum*	
Inkwood	*Exothea paniculata*	
Strangler fig	*Ficus aurea*	
Shortleaf fig	*Ficus citrifolia*	
Laurel fig	*Ficus microcarpa* *	
Yellowtop	*Flaveria linearis*	
Stalkless yellowtop	*Flaveria trinervia*	
Segregata	*Foresteria segregata*	
Southern gaura	*Gaura angustifolia*	
Seven-year apple	*Genipa clusiifolia*	
Lignum-vitae	*Guaiacum sanctum* +	7
Blolly	*Guapira discolor*	
Crabwood	*Gymnanthes lucida*	
Firebush, scarletbush	*Hamelia patens*	
Beach sunflower	*Helianthus debilis var. debilis*	
Scorpion tail	*Heliotropium angiospermun*	
Seaside heliotrope	*Heliotropium curassavicum*	
Camphor weed	*Heterotheca subaxillaris*	
Mahoe	*Hibiscus tiliaceus* *	
Dahoon holly	*Ilex cassine*	
Krug's holly	*Ilex krugiana*	
Wild indigo	*Indigofera spicata* *	
Morning glory	*Ipomoea indica var. acuminata*	
Railroad vine	*Ipomoea pes-caprae ssp. brasiliensis*	
Moonvine	*Ipomoea violaceae*	
Beach elder	*Iva imbricata*	
Life plant	*Kalanchoe pinnata* *	
Black ironwood	*Krugiodendron ferreum*	
White mangrove	*Languncularia racemosa*	
Lantana	*Lantana camara* *	

*** Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Wild lantana	*Lantana involucrata*	
Lead tree	*Leucaena leucocephala* *	
Christmas berry	*Lycium carolinianum*	
Wild tamarind	*Lysiloma latisiliquum*	
Horseflesh	*Lysiloma sabicu* *	
Red jumbie bean	*Macroptilium lathyroides* *	
False mallow	*Malvastrum corchorifolium*	
Cajeput	*Melaleuca quinquenervia* *	
Marsh elder	*Melanthera nivea*	
Creeping cucumber	*Melothria pendula*	
Poisonwood	*Metopium toxiferum*	
Climbing hempvine	*Mikania scandens*	
Wild balsam apple	*Momordica charantia* *	
Red mulberry	*Morus rubra*	
Strawberry tree	*Muntingia calabura* *	
Twinberry stopper	*Myrcianthes fragrans*	7
Wax myrtle	*Myrica cerifera*	
Sensitive plant	*Neptunia pubescens var. pubescens*	
Lipstick plant	*Ochrosia elliptica* *	
Lancewood	*Ocotea coriacea*	
Seaside evening primrose	*Oenothera humifusa*	
Lady's sorrel	*Oxalis corniculata*	
Virginia creeper	*Parthenocissus quinquefolia*	
Corky-stemmed passionflower	*Passiflora suberosa*	
Chicken weed	*Pectis prostrata*	
Wild allamanda	*Pentalinon luteum*	
Redbay	*Persea borbonia var. borbonia*	
Turkey Tangle Frogfruit	*Phyla nodiflora*	
Gale of wind	*Phyllanthus amarus* *	
Ground cherry	*Physalis angulata*	
Ground cherries	*Physalis walteri*	
Pokeweed	*Phytolacca americana*	
Bitterbush	*Picramnia pentandra*	
Artillery plant	*Pilea microphylla* *	
Jamaica dogwood	*Piscidia piscipula*	
Blackbead	*Pithecellobium keyense*	
Cat's claw	*Pithecellobium unguis-cati*	
Marsh fleabane	*Pluchea odorata*	
Rosy camphorweed	*Pluchea rosea*	
Wild poinsettia	*Poinsettia cyathophora*	
Wild poinsettia	*Poinsettia heterophylla*	

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Milkwort	*Polygala grandiflora*	
Rustweed	*Polypremum procumbens*	
Pongam	*Pongamia pinnata* *	
Purslane	*Portulaca oleracea* *	
West Indian cherry	*Prunus myrtifolia*	
Long-stalked stopper	*Psidium longipes*	
Wild coffee	*Psychotria nervosa*	
Wild coffee	*Psychotria sulzneri*	
Laurel oak	*Quercus laurifolia*	
Live oak	*Quercus virginiana*	
White indigo-berry	*Randia aculeata*	
Myrsine	*Rapanea punctata*	
Red mangrove	*Rhizophora mangle*	
Largeflower Mexican clover	*Richardia grandiflora* *	
Castor bean	*Ricinus communis* *	
Soapberry	*Sapindus saponaria*	
Milkweed vine	*Sarcostemma clausum* *	
Maidenbush	*Savia bahamensis*	
Inkberry	*Scaevola plumieri*	1
Beach naupaka	*Scaevola sericea* *	
Florida boxwood	*Schaefferia frutescens*	
Umbrella tree	*Schefflera actinophylla* *	
Brazilian pepper	*Schinus terebinthifolius* *	
Sweet broom	*Scoparia dulcis*	
Candle plant	*Senna alata* *	
Sea purslane	*Sesuvium portulacastrum*	
Broomweed	*Sida acuta*	
Fringed fanpetals	*Sida ciliaris*	
Indian hemp	*Sida rhombifolia*	
Mastic	*Sideroxylon foetidissimum*	
Willow bustic	*Sideroxylon salicifolium*	
Paradise tree	*Simarouba glauca*	
Seaside goldenrod	*Solidago sempervirens*	
Necklace-pod	*Sophora tomentosa*	
Large leaf buttonweed	*Spermacoce assurgens*	
Buttonweed	*Spermacoce verticillata* *	
West Indian pinkroot	*Spigelia anthelmia*	
Blue porterweed	*Stachytarpheta jamaicensis*	
Pencil flower	*Stylosanthes hamata*	
Bay-cedar	*Suriana maritima*	1
West Indian mahogany	*Swietenia mahagoni*	7

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
Rose apple	*Syzygium jambos* *	
Tropical almond	*Terminalia catappa* *	
Seaside mahoe	*Thespesia populnea* *	
Poison ivy	*Toxicodendron radicans*	
Florida trema	*Trema micrantha*	
Puncture weed	*Tribulus cistoides* *	
Yellow alder	*Turnera ulmifolia* *	
Ironweed	*Vernonia cinerea* *	
Cow-pea	*Vigna luteola*	
Waltheria	*Waltheria indica*	
Wedelia	*Wedelia trilobata* *	
Biscayne prickly ash	*Zanthoxylum coriaceum*	7
Wild lime	*Zanthoxylum fagara*	

MARINE PLANTS

SEAGRASSES

Shoal grass	*Halodule wrightiii*	
Paddle grass	*Halophila decipiens*	
Johnson's seagrass	*Halophila johnsonii*	62, 68
Manatee grass	*Syringodium filiform*	
Turtle grass	*Thalassia tetidinum*	

CHLOROPHYTA

Mermaid's wine glass	*Acetabularia sp*	
	Avrainvillea sp	
	Caulerpa lanuuginosa	
	Caulerpa mexicana	
	Caulerpa prolifera	
	Caulerpa sertularoides	
	Caulerpa verticillata	
	Halimeda discoidea	
	Halimeda goreaui	
Mermaid's shaving brush	*Penicillus capitatus*	
	Penicillus dumetosus	

PHAEOPHYTA

	Dictyota cervicornus	
	Dictyota sp	

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)
	.....*Padina sp*	
	RHODOPHYTA	
	.....*Acanthophora spicifera*	
	.....*Gracilaria sp*	
	.....*Lauurencia intricata*	
	.....*Laurencia sp*	

Oleta River State Park Plants

Common Name	*Scientific Name*	Primary Habitat Codes (for designated species)

* Non-native Species

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)

INVERTEBRATES

Great land crab	*Cardisoma guanhumi*	67, 84
Fiddler crab	*Uca sp.*	67
Rock-boring urchin	*Echinometra lucunter*	60
Bleeding tooth	*Nerita peloronta*	60
Tessellated nerite	*Nerita tessellata*	60
Boring isopod	*Sphaeroma terebrans*	60, 67

FISH

Sergeant major	*Abudefduf saxatilis*	60, 68
Spotted eagle ray	*Aetobatus narinari*	
Porkfish	*Anisotremus virginicus*	67, 68
Sheepshead	*Archosargus probatocephalus*	60, 67, 68
Sea bream	*Archosargus rhomboidalis*	67, 68
Common snook	*Centropomus undecimalis*	67, 68
Sheepshead minnow	*Cyprinodon variegates*	67, 68
Southern stingray	*Dasyatis americana*	60, 67, 68
Longnose killifish	*Fundulus similis*	67, 68
Mosquitofish	*Gambusia holbrooki*	67, 68
Yellowfin mojarra	*Gerres cinereus*	60, 67, 68
Hairy blenny	*Labrisomas nuchipinnis*	68
Pinfish	*Lagodon rhomboides*	MTC
Gray snapper	*Lutjanus griseus*	MTC
Tarpon	*Megalops atlantica*	MTC
Silversides	*Menidia sp.*	60, 67, 68
Striped mullet	*Mugil cephalus*	60, 67, 68
Redlip blenny	*Ophioblennius atlanticus*	68
Jawfish sp	*Opistognathus sp*	60, 68
Spanish mackerel	*Scomberomorus maculates*	*60, 62, 68*
Southern puffer	*Spheroides nephulus*	MTC
Great barracuda	*Sphraena barracuda*	MTC
Cocoa damselfish	*Stegates variabilis*	60, 68
Atlantic needlefish	*Strongylura marina*	MTC
Pipefish	*Syngnathus scovelli*	MTC
Yellow stingray	*Urolophus jamaicensis*	60, 68

AMPHIBIANS

Green treefrog	*Hyla cineria*	7, 67, 84

*** Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Squirrel treefrog	*Hyla squirella*	7, 67, 84
Cuban treefrog	*Osteopilus septentrionalis* *	7, 84
REPTILES		
Florida cottonmouth	*Agkistrodon piscivorus*	67, 84
Green anole	*Anolis carolinensis*	7, 67, 84
Brown anole	*Anolis safrei* *	7, 84
Southern black racer	*Coluber constrictor*	7, 84
Southern ringneck snake	*Diadophis punctatus*	7, 84
Red rat, Corn snake	*Elaphe guttata*	84
Great green iguana	*Iguana iguana* *	7, 67, 84
Mangrove water snake	*Nerodia fasciata compressicauda*	67
Florida cooter	*Pseudemys floridana*	66, 67
Red-eared turtle	*Pseudemys scripta elegans* *	67
Florida box turtle	*Terrapene carolina bauri*	7, 84
Florida softshell	*Trionyx ferox*	67
BIRDS		
Sharp-shinned hawk	*Accipiter straitus velox*	7, 67, 84
Spotted sandpiper	*Actitis macularia*	1
Roseate spoonbill	*Ajaia ajaja*	66, 67, 68
Anhinga	*Anhinga anhinga*	67, 68
Great blue heron	*Ardea herodias*	67, 68
American bittern	*Botaurus lentiginosus*	67
Cattle egret	*Bubulcus ibis*	67, 68, 84
Short-tailed hawk	*Buteo brachyurus*	7, 67, 84
Red-tailed hawk	*Buteo jamaicensis*	7, 67, 84
Red-shouldered hawk	*Buteo lineatus*	7, 67, 84
Green-backed heron	*Butorides striatus*	67, 68
Chuck-will's widow	*Caprimulgus carolinensis*	7, 84
Northern cardinal	*Cardinalis cardinalis*	7, 84
American goldfinch	*Carduelis tristis*	7, 84
Turkey vulture	*Cathartes aura*	MTC
Belted kingfisher	*Ceryle alcyon*	67
Killdeer	*Charadrius vociferus*	84
Common nighthawk	*Chordeiles minor*	7, 84
Northern harrier	*Circus cyaneus*	7, 67, 84
Mangrove cuckoo	*Coccyzus minor mynardi*	67
Ground dove *	*Columbina passerina*	MTC

* **Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)
Fish crow	*Corvus ossifragus*	67, 84
Sanderling	*Crocethia alba*	1
Blue jay	*Cyanocitta cristata*	7, 84
Black-throated blue warbler	*Dendroica caerulescens*	7, 67, 84
Yellow-throated warbler	*Dendroica dominica*	7, 67, 84
Gray catbird	*Dumetella carolinensis*	7, 84, 85
Little blue heron	*Egretta caerulea*	67, 68
Reddish egret	*Egretta rufescens*	67, 68
Snowy egret	*Egretta thula*	67, 68
Tricolored heron	*Egretta tricolor*	67, 68
American swallow-tailed kite	*Elanoides forficatus*	68
White ibis	*Eudocimus albus*	67, 68, 84
Peregrine falcon	*Falco peregrinus*	7, 67
American kestrel	*Falco sparverius*	7, 67, 84
Magnificent frigatebird	*Fregata magnificens rothschildi*	67, 68, 84
Common loon	*Gavia immer*	67, 68
Bald eagle	*Haliaeetus leucocephalus*	MTC
Herring gull	*Larus argentatus*	1, 68
Laughing gull	*Larus atricilla*	1
Ring-billed gull	*Larus delawarensis*	1, 68
Red-bellied woodpecker	*Melanerpes carolinus*	7, 84
Red-breasted merganser	*Mergus serrator*	67, 68
Mockingbird	*Mimus polyglottos*	7, 84, 85
Wood Stork	*Mycteria americana*	67, 68
Yellow-crowned night heron	*Nyctanassa violacea*	67, 68
Osprey	*Pandion haliaetus*	MTC
Brown pelican	*Pelicanus occidentalis*	60, 67, 68
American white pelican	*Pelecanus erythrorhynchos*	60, 67, 68
Double-crested cormorant	*Phalacrocorax auritus*	62, 67, 68
Pied-billed grebe	*Podilymbus podiceps*	67, 68
Blue-gray gnatcatcher	*Polioptila caerulea*	7, 67, 84
Purple martin	*Progne subis*	84, 85
Boat-tailed grackle	*Quiscalus major*	67, 84, 85
Least tern	*Sterna albifrons*	1, 68
Common tern	*Sterna hirundo hirundo*	1, 68
Barred owl	*Strix varia*	7
Royal tern	*Thalasseua maximus*	1, 68
Black-whiskered vireo	*Vireo altiloquus*	67
Mourning dove	*Zenaida macroura*	MTC

*** Non-native Species**

Common Name	*Scientific Name*	Primary Habitat Codes (for all species)

MAMMALS

Oppossum	*Didelphis marsupialis*	MTC
River otter	*Lutra canadensis*	67
Florida bobcat	*Lynx rufus*	67, 84
Raccoon	*Procyon lotor*	MTC
Eastern gray squirrel	*Sciurus carolinensis*	7, 84, 85
Spotted skunk	*Spilogale putorius*	7, 84
Marsh rabbit	*Sylvilagus palustris*	7, 84
West Indian manatee	*Trichechus manatus latirostris*	62, 67, 68
Atlantic bottlenose dolphin	*Tursiops truncatus*	62, 67, 68
Gray fox	*Urocyon cinereoargenteus*	7, 84

*** Non-native Species**

Habitat Codes

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. Mesic Hammock
10. Coastal Grasslands
11. Pine Rockland
12. Prairie Hammock
13. Rockland Hammock
14. Sandhill
15. Scrub
16. Scrubby Flatwoods
17. Shell Mound
18. Sinkhole
19. Slope Forest
20. Upland Glade
21. Upland Hardwood Forest
22. Upland Mixed Forest
23. Upland Pine Forest
24. Xeric Hammock

Palustrine

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

Lacustrine

45. Clastic Upland Lake
46. Coastal Dune Lake
47. Coastal Rockland Lake

Lacustrine

48. Flatwood/Prairie Lake
49. Marsh Lake
50. River Floodplain Lake
51. Sandhill Upland Lake
52. Sinkhole Lake
53. Swamp Lake

Riverine

54. Alluvial Stream
55. Blackwater Stream
56. Seepage Stream
57. Spring-Run Stream

Estuarine

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

Marine

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

Subterranean

82. Aquatic Cave
83. Terrestral Cave

Miscellaneous

84. Ruderal
85. Developed

MTC Many Types of Communities
OF Over Flying

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)

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.

Common Name/ *Scientific Name*	**Designated Species Status** FDACS	USFWS	FNAI
Cinnecord			
Acacia choriophylla	E		G4, S1
Golden leather fern			
Acrostichum aureum	E		G5, S3
Cinnamon bark			
Canella winterana	E		G4/G5, S2
Satinleaf			
Chrysophyllum olivaeforme	E		
Silver palm			
Coccothrinax argentata	E		G3, S2?
Geiger tree			
Cordia sebestena	E		
Beach creeper			
Ernodea littoralis	T		
Redberry stopper			
Eugenia confusa	T		G4/G5, S2/S3
Wild coco			
Eulophia alta	T		
Lignum-vitae			
Guaiacum sanctum	E		G4/G4, S2
Twinberry Stopper			
Myrcianthes fragrans, var. *simpsonii*	T		G4/T3, S3
Inkberry			
Scaevola plumieri	T		
Bay cedar			
Suriana maritima	E		
West Indian mahogany			
Swietenia mahagoni	E		G3/G4, S2
Florida thatch palm			
Thrinax radiata	E		G4/G5, S2
Coontie			
Zamia integrifolia	C		
Biscayne prickly ash			
Zanthoxylum coriaceum	E		
Johnson's Seagrass			
Halophila johnsonii	T		

Oleta River State Park Designated Species—Plants

Common Name/ *Scientific Name*	Designated Species Status FDACS	USFWS	FNAI

Common Name/ *Scientific Name*	Designated Species Status FFWCC	USFWS	FNAI
REPTILES			
American alligator *Alligator mississippiensis*	LS	T(S/A)	G5,S4
Eastern diamondback rattlesnake *Crotalis adamanteus*			G5,S3
Southern hognose snake *Heterodon simus*			G2,S2
AMPHIBIANS			
One toed amphiuma *Amphiuma pholeter*			G3,S3
Four-toed salamander *Hemidactylium scutatum*			G5,S2
BIRDS			
Cooper's hawk *Accipiter cooperii*			G4,S3?
Little blue heron *Egretta caerulea*	LS		G5,S4
Tricolored heron *Egretta tricolor*	LS		G5,S4
Swallow-tailed kite *Elanoides forficatus*			G4,S2S3
Bald eagle *Haliaeetus leucocephalus*	LT	LT	G4,S3
Black crowned night heron *Nycticorax nycticorax*			G5,S3?
Osprey *Pandion haliaetus*	LS+		G5,S3S4
White breasted nuthatch *Sitta carolinensis*			G5,S2

Oleta River State Park Designated Species—Animals

Common Name/ *Scientific Name*	Designated Species Status FFWCC	USFWS	FNAI

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. Install two culverts to allow improved flushing in mangrove canals. Culverts should be of sufficient diameter to allow canoes and kayaks to paddle through. Estimated Cost: $50,000.
2. Install five culverts of approximately 36" diameter to assist with flushing of mangroves. Estimated Cost $75,000.
3. Annual control of exotic vegetation. The park has approximately 200 acres of land that needs to be restored. These areas should have the exotic plants removed at the rate of 10 acres per year. Estimated Cost: $45,000 / year.
4. The areas, listed above, that are cleared of exotic plants should be replanted with native species. Estimated Cost: $15,000 / year.
5. Archeological Survey. Estimated Cost: $10,000.
6. Additional Park Services Specialist and Park Ranger to provide resource management and environmental education / interpretation. Estimated Cost: $70,000 / year.
7. Equipment for resource management purposes: Polecat Aerial Lift. Estimated Cost: $30,000.
8. Equipment for resource management purposes: Stump Grinder. Estimated Cost: $20,000.
9. Equipment for resource management purposes: Chipper. Estimated Cost: $30,000.

Total Estimated Cost: $669,200 plus $63,500/year reoccurring

Development Cost Estimate

Camping Area	$1,455,750.00
Group Camp Area	$570,000.00
Canoe/Kayak Trail	100,000.00
Day Use Area	$646,000.00
Nature Center and Interpretation	666,000.00
Support Facilities	$1,693,500.00
Subtotal	$5,131,250.00

Total With Contingency.....**$6,157,500.00**