

CURRY HAMMOCK STATE PARK
UNIT MANAGEMENT PLAN

APPROVED

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Recreation and Parks

FEBRUARY 11, 2005



Jeb Bush
Governor

Department of Environmental Protection

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Colleen Castille
Secretary

February 11, 2005

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

Re: Curry Hammock State Park

Lease #3938

Dear Ms. White:

On **February 11, 2005**, the Acquisition and Restoration Council recommended approval of the **Curry Hammock State Park** management plan. Therefore, the Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, approved the management plan for the **Curry Hammock State Park**. Pursuant to Sections 253.034 and 259.032, Florida Statutes, and Chapter 18-2, Florida Administrative Code this plan's ten-year update will be due on **February 11, 2015**.

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

Sincerely,

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

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INTRODUCTION

Curry Hammock State Park is located in Monroe County (see Vicinity Map). Access to the park is at mile marker 56.2 on U.S. Highway 1. The vicinity map also reflects significant land and water resources existing near the park.

Curry Hammock State Park contains 969.64 acres. For this plan, park acreage has been calculated on the composition of natural communities, in addition to ruderal and developed areas of the park. At Curry Hammock State Park, public outdoor recreation and conservation is the designated single use of the property. There are no legislative or executive directives that constrain the use of this property. The park was acquired on September 1, 1991, using CARL funds (see Addendum 1).

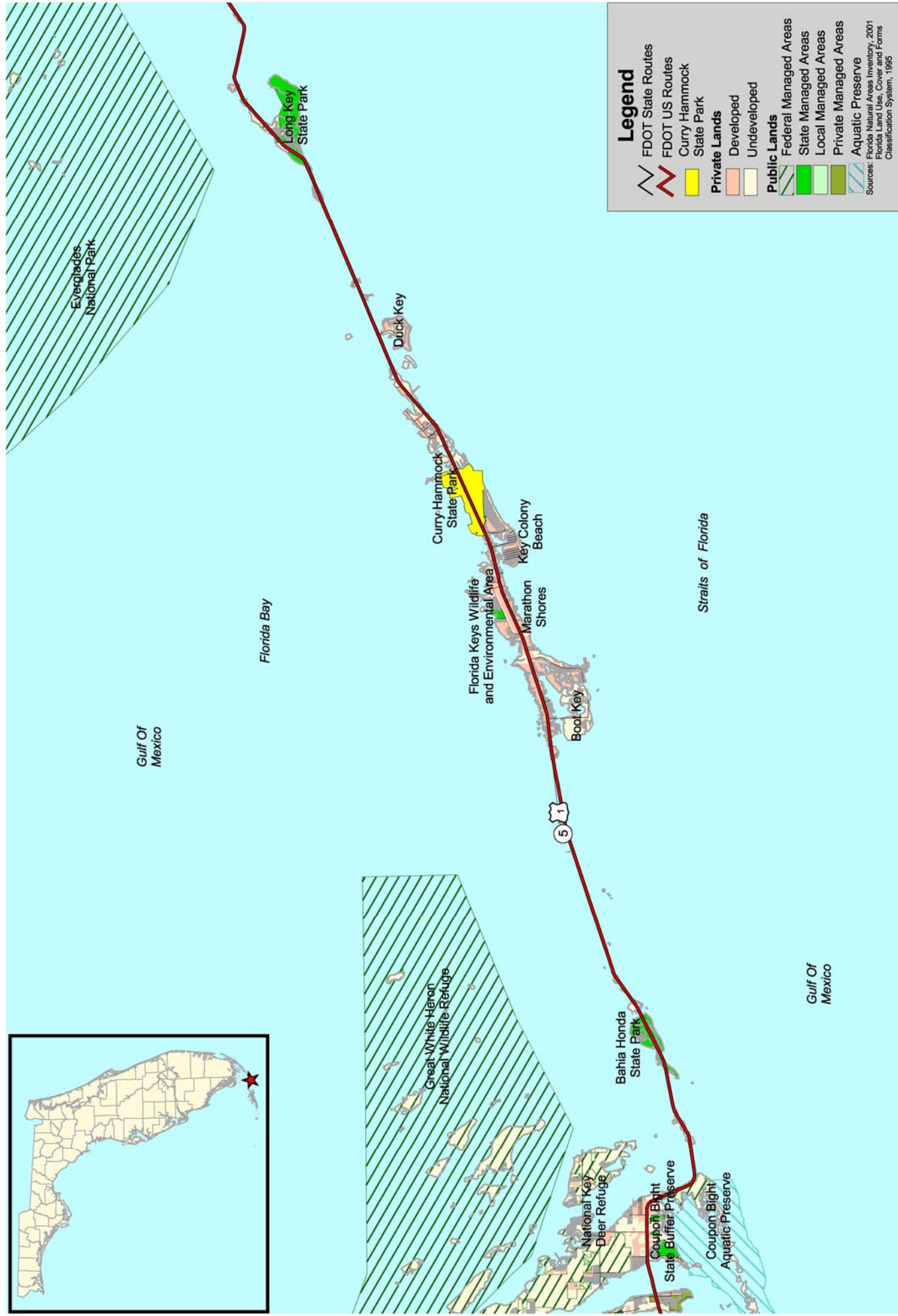
PURPOSE AND SCOPE OF THE PLAN

This plan serves as the basic statement of policy and direction for the management of Curry Hammock 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 April 30, 1997, 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.

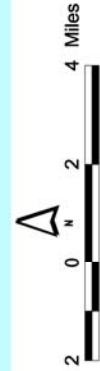
In the development of this plan, the potential of the park to accommodate secondary management purposes ("multiple uses") was analyzed. These secondary purposes were considered within the context of the Division's statutory responsibilities and an analysis of the resource needs and values of the park. 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 and should be discouraged.



Legend

FDOT State Routes
 FDOT US Routes
 Curry Hammock State Park
Private Lands
 Developed
 Undeveloped
Public Lands
 Federal Managed Areas
 State Managed Areas
 Local Managed Areas
 Private Managed Areas
 Aquatic Preserve

Sources: Florida Natural Areas Inventory, 2001
 Florida Land Use, Cover and Forms Classification System, 1995



CURRY HAMMOCK STATE PARK

VICINITY MAP

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

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

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

MANAGEMENT PROGRAM OVERVIEW

Management Authority and Responsibility

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

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

The Trustees have also granted management authority of certain sovereign submerged lands to the Division under Management Agreement MA 68-086 (as amended January 19, 1988). The management area includes a 400-foot zone from the edge of mean high water where a park boundary borders sovereign submerged lands fronting beaches, bays, estuarine areas, rivers or streams. Where emergent wetland vegetation exists, the zone extends waterward 400 feet beyond the vegetation. The agreement is intended to provide additional protection to resources of the park and 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 Curry Hammock State Park, a balance is sought between the goals of maintaining and enhancing natural conditions and providing various recreational opportunities. Natural resource management activities are aimed at management of natural systems. Development in the park is directed toward providing public access to and within the park, and

to providing recreational facilities, in a reasonable balance, that are both convenient and safe. Program emphasis is on interpretation on the park's natural, aesthetic, and educational attributes.

Park Goals and Objectives

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

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

Natural and Cultural Resources

1. Provide habitat protection and preservation in order to protect the flora and fauna of the site.
 - A. Protect the shallow marine resources by establishing and maintaining a "No Motor Zone" area off of Little Crawl Key.
 - B. Continue exotic plant removal program to restore and maintain ~~the~~ natural communities.
 - C. Remove exotic animal species when found in the park including green iguana (*Iguana iguana*), feral cat (*Felis domesticus*) and Gambian pouch rat (*Cricetomys gambianus*)
 - D. Continue to provide staff training for plant and animal identification within the park.
 - E. Conduct vertebrate and invertebrate survey to update faunal inventory.
 - F. Conduct inventory on marsh rabbit population.
 - G. Continue conducting plant inventory to update species list for park.
 - H. All designated plant species were mapped in 2001 using a Trimble GIS unit to understand specific species population size and distribution. This will need to be updated every five years unless catastrophic events such as tropical storms alter the dynamics of the natural communities, thereby potentially impacting the listed species.
 - I. Continue to work with Hawk Watch International by providing researchers with a location to study raptor migration over Curry Hammock.
 - J. Monitor Monroe County Mosquito Control activity so that it does not adversely affect marine or terrestrial organisms.
 - K. Post and maintain manatee signs.
2. Continue to restore the natural communities and hydrology that has been impacted by human activity.
 - F. Investigate the feasibility of restoring altered wetlands on Long Point Key.
 - G. Restore tidal flow between Fat Deer Key and Long Point Key by the installation of culverts under U.S. Highway 1.
 - H. Investigate the feasibility of restoring topography in borrow pit adjacent to Fat Deer Key.
 - I. Investigate appropriateness for shoreline restoration.
3. Conduct ground disturbing activities in accordance with DHR guidelines.

Recreational Uses

1. Continue to provide quality resource based outdoor recreational and interpretive programs and facilities
 - A. Maintain opportunities for camping, picnicking, hiking and canoe/kayak access.
2. Expand recreational and interpretive opportunities through the improvement of programs and the development of new use areas and facilities, as outlined in this management plan.
 - A. Establish a paddling trail that encourages exploration of park and adjacent waters. Work with the SFWMD to provide “paddling friendly” culverts under U.S. Highway 1.
 - B. Coordinate park programs with staff of the Office of Greenways and Trails to make the state park a destination on the Overseas Heritage Trail.
 - C. Provide interpretive facilities (signage, kiosks), materials and programs to educate visitors about park resources.

Park Administration/Operations

1. Improve support and administrative functions through the development of new and/or replacement of existing facilities as outlined in this management plan.
 - A. Develop support facilities including shop, staff residences and service dock.
 - B. Obtain a boundary survey, post all boundaries, and fence where necessary.
2. Pursue funding, training and partnership opportunities to enhance park programming, operations, and resource management.
 - A. Establish partnerships with other governmental and private land managers to manage the site.
 - B. Continue to work with the Friends of the Islamorada Area State Parks Citizen Support Organization to provide assistance with park activities.
 - C. Work with Law Enforcement on protection of natural resources and public safety issues.

Management Coordination

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

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

Public Participation

The Division provided an opportunity for public input by conducting a public workshop and an advisory group meeting. A public workshop was held on May 18, 2004. The purpose of this meeting was to present this draft management plan to the public. A DEP Advisory Group

meeting was held on May 19, 2004. The purpose of this meeting was to provide the Advisory Group members the opportunity to discuss this draft management plan.

Other Designations

Curry Hammock State Park is within an Area of Critical State Concern as defined in section 380.05, Florida Statutes. 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, and are located within the Florida Keys National Marine Sanctuary (FKNMS). Surface waters in this unit are also classified as Class III waters by DEP. This unit is not within an aquatic preserve as designated under the Florida Aquatic Preserve Act of 1975 (section 258.35, Florida Statutes). On June 19, 2002 the state waters within the FKNMS, including the waters of the park, were declared a “no discharge” zone where discharge of sewage, whether treated or not, is prohibited for all vessels.

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

Curry Hammock consists of an aggregation of several small islands in the Middle Keys, including all of Little Crawl Key and Deer Key, as well as a portion of Fat Deer Key and Long Point Key. These islands are part of the physiographic region of high coral keys with maximum elevation of five feet above mean sea level. The natural intertidal and submerged areas of the park are no more than five feet below mean sea level. . Natural solution holes created by the dissolution of the limestone by rainfall, form depressions in the limestone. At Curry Hammock, some of these solution holes are several feet deep. The edge of the continental shelf parallels the Keys approximately seven miles offshore.

The majority of the topography on Curry Hammock is unaltered; however, there have been some human disturbances. After Flagler's railroad was discontinued and U.S. Highway 1 was constructed in the 1940s, Fat Deer Key and Long Point Key were bisected, blocking the tidal passes between Fat Deer, Long Point and Crawl keys. A large borrow pit approximately 20 feet deep is located immediately offshore of Fat Deer Key in Florida Bay, and other borrow pits can be seen from aerial photos along the east and west sides of Long Point Key. . The eastern third of Little Crawl Key was filled and connected to Long Point Key, a road was constructed down the

center of Long Point Key the north end of Long Point Key was cleared and filled and mosquito ditches were dug west of the road. The alterations, particularly the berms along the edges on Long Point Key have reduced or eliminated tidal flooding to the wetlands west of the road causing a succession of the community from a tidal marsh to hardwood species.

Geology

The geological formation of the Florida Keys from Soldier Key to Bahia Honda is Key Largo limestone. Built by the coral polyps of ancient coral reef formations, these fossilized remains are similar to the present living coral reefs offshore. As sea level has fluctuated over time, the land mass of south Florida has alternately been submerged and exposed above the level of the water. Approximately 120,000 year ago, sea level dropped close to its present level exposing the coral and allowing for the formation of the islands of the Florida Keys. When the area of the Keys is submerged, the limestone from ancient coral reefs provides the necessary substrate for new growth of coral formations and coral reefs. Subsequently, the Key Largo limestone is quite thick, as much as 145 feet in some areas of the Upper Keys (Hoffmeister, 1974).

Soils

Information published in the U.S. Department of Agriculture's Classification and Correlation of the Soils of Monroe County Keys Area Florida identifies five soil types at Curry Hammock State Park. They are Matecumbe muck, Islamorada muck, Key Largo muck, Udorthents-Urban land complex and Rock outcrop-Cudjoe complex (See Soils Map).

Matecumbe muck is the soil type of rockland hammocks. It is found at elevations of no more than 15 feet above sea level, and is subject to occasional flooding during storm events. Matecumbe muck soils are well drained. Islamorada muck, Key Largo muck and Rock outcrop-Cudjoe complex are associated with mangrove tidal swamps and are subject to daily flooding by tides. These soils are poorly drained. Udorthents-Urban land complex includes constructed upland areas where land has been altered by dredging and filling for development. Addendum 3 contains detailed soil descriptions.

Minerals

Key Largo limestone is the major mineral deposit at Curry Hammock State Park. Minor mineral deposits in the park are calcite and halite.

Hydrology

The primary natural source of freshwater in the Florida Keys is rain. Historically, early settlers collected rainwater in cisterns or used water from wells and solution holes that tapped the small, shallow freshwater lenses. These lenses form in the limestone above sea level during the rainy season. Until recently, nearshore freshwater upwelling, an extension of the Biscayne Aquifer, occurred in at least one location on northern Key Largo. Drainage of the Everglades and the subsequent canalization of southeast Florida (including canals in the Florida Keys) resulted in saltwater intrusion into the Biscayne Aquifer and changed the regional hydrology. Only on the larger islands such as Key Largo and Big Pine Key is rainwater retained for any length of time.

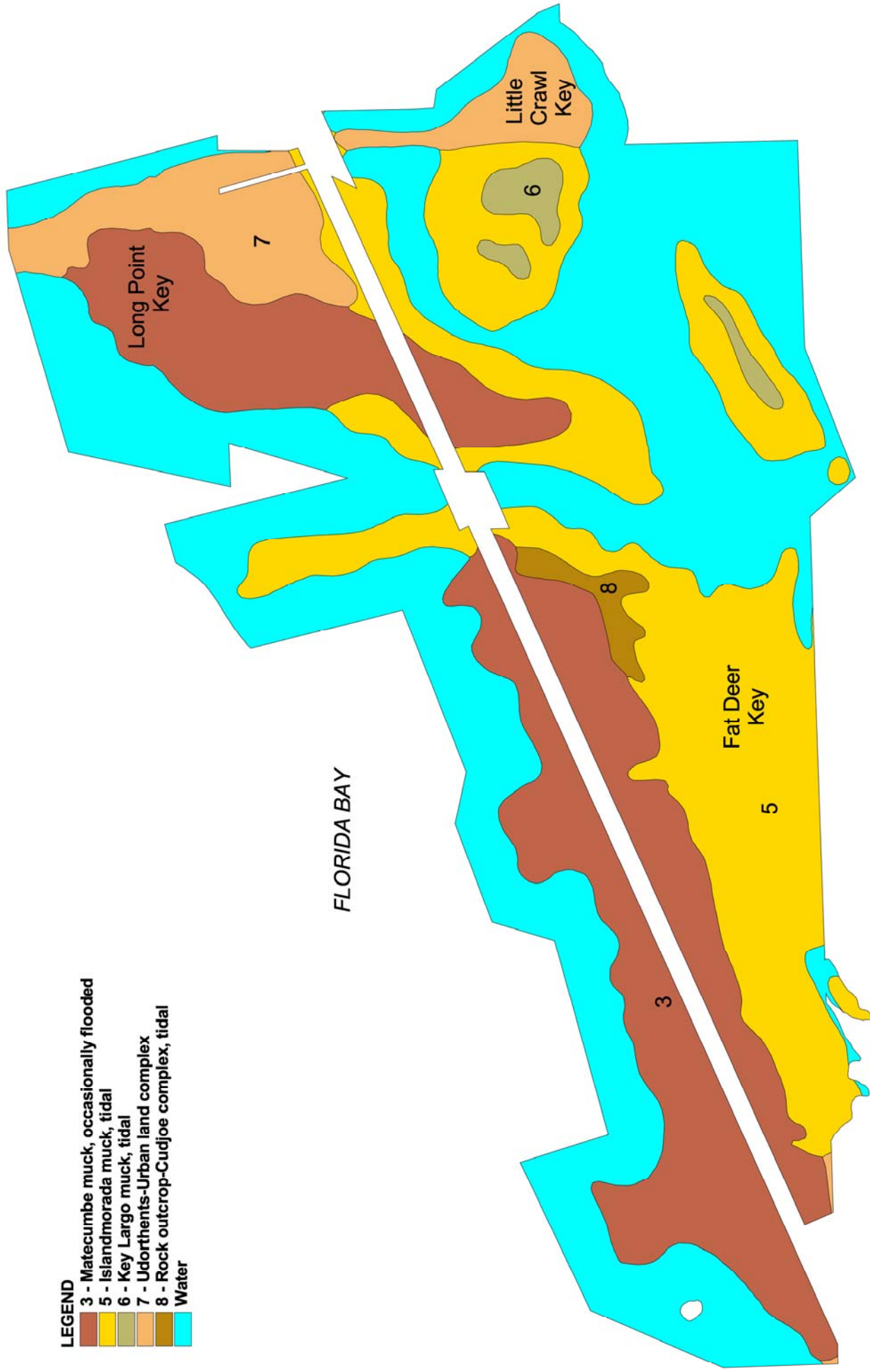
Natural Communities

The system of classifying natural communities employed in this plan was developed by the Florida Natural Areas Inventory (FNAI) FNAI Descriptions. The premise of this system is that physical factors, such as climate, geology, soil, hydrology and fire frequency generally determine the species composition of an area, and that areas which are similar with respect to these factors will tend to have natural communities with similar species compositions. Obvious

LEGEND

- 3 - Matecumbe muck, occasionally flooded
- 5 - Islandmorada muck, tidal
- 6 - Key Largo muck, tidal
- 7 - Udorthents-Urban land complex
- 8 - Rock outcrop-Cudjoe complex, tidal
- Water

FLORIDA BAY



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 eight 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.

Coastal berm. Coastal berm occurs in several areas at Curry Hammock, and is typically characterized by a ridge of storm deposited sediment that is subjected to an accumulation of natural flotsam. The substrate is coarse, calcareous sand that has accumulated to an elevation of one to two feet. At Curry Hammock, a small coastal berm occurs on the east side of Little Crawl Key and on the south side of the island surrounded by mangrove tidal swamp. There is a narrow ridge of coastal berm habitat on Deer Key that is in good condition due to a major exotic removal project several years ago. Several small coastal berm habitats occur on the north side of Fat Deer Key near the west border of the park. These are areas of slightly lower elevation than the adjacent rockland hammock and grade into coastal rock barren at the waters edge. Coastal berm can also be found on Fat Deer Key surrounding the tidal marsh community and bordered by a narrow mangrove fringe at the north end of this island. This area is most likely a result of past dredging activities, evidenced by the presence of borrow pits just offshore. Another coastal berm occurs on Long Point Key, also a possible remnant of past dredging activities. This was an area of heavy Australian pine (*Casuarina equisetifolia*) infestation. Exotic removal projects have taken place in all of the coastal berm habitats in the park, and all are in good condition. Within the past seven years, Curry Hammock was subject to several major storm events including two hurricanes and several tornadoes. The coastal berm habitat did not sustain major damage from any of these events.

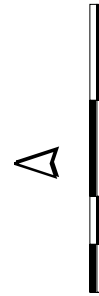
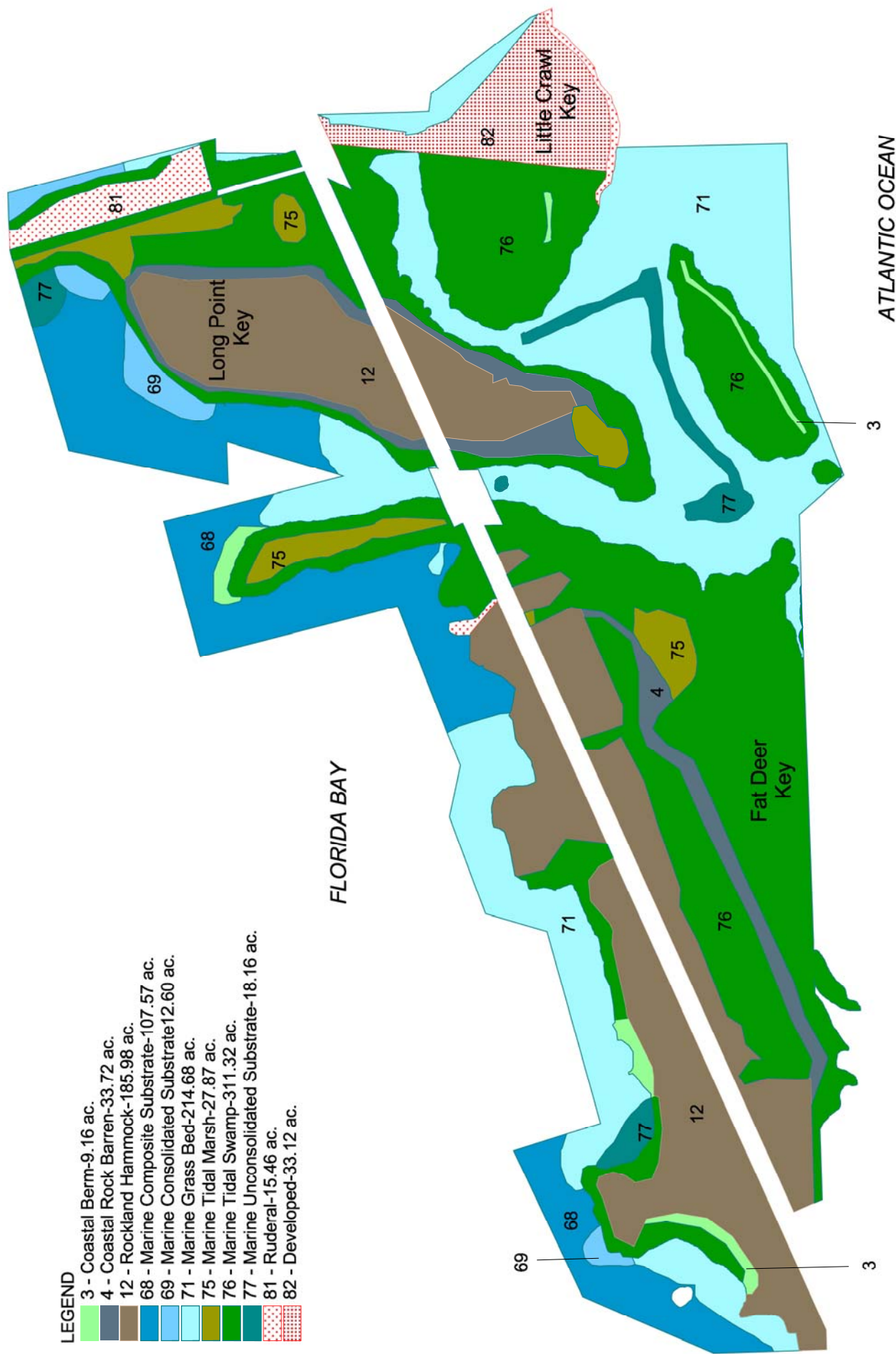
A variety of plant associations develop on this ridge and include dense thickets of large shrubs, small trees or sparse shrubby vegetation. Such species include, blackbead (*Pithecellobium keyense*), seven year apple (*Genipa clusiifolia*), Florida thatch palm (*Thrinax radiata*), poisonwood (*Metopium toxiferum*), blolly (*Guapira discolor*), Spanish stopper (*Eugenia foetida*), and saffron plum (*Sideroxylon celastrina*). Sea lavender (*Argusia gnaphalodes*) has been observed on the coastal berm on Deer Key.

Coastal rock barren. Coastal rock barren is a very rare community, occurring in scattered patches along a few shorelines in the Florida Keys. The substrate is exposed cap rock pitted with small solution holes. The habitat is sparsely vegetated with salt tolerant species and herbaceous vegetation. At Curry Hammock, the coastal rock barren occurs in several locations and is in good to excellent condition.

The two largest areas of coastal rock barren occur on the south side of Long Point Key and Fat Deer Key. On Fat Deer Key, the coastal rock barren parallels the rockland hammock for most of the length of the island. On Long Point Key, the rock barren occurs closer to the rockland hammock forming an ecotone between the hammock and the mangrove forest. Coastal rock barren occurs in areas that are close to the marine tidal swamp, and therefore become inundated with tidal fluctuations, particularly during extreme high tides. This periodic inundation helps to maintain this plant community. Species found here include joewood (*Jacquinia keyensis*), black

LEGEND

- 3 - Coastal Berm-9.16 ac.
- 4 - Coastal Rock Barren-33.72 ac.
- 12 - Rockland Hammock-185.98 ac.
- 68 - Marine Composite Substrate-107.57 ac.
- 69 - Marine Consolidated Substrate-12.60 ac.
- 71 - Marine Grass Bed-214.68 ac.
- 75 - Marine Tidal Marsh-27.87 ac.
- 76 - Marine Tidal Swamp-311.32 ac.
- 77 - Marine Unconsolidated Substrate-18.16 ac.
- 81 - Ruderal-15.46 ac.
- 82 - Developed-33.12 ac.



torch (*Erithalis fruticosa*), mayten (*Maytenus phyllanthoides*), white mangrove (*Laguncularia racemosa*), saffron plum, buttonwood (*Conocarpus erecta*), and prickly pear cactus (*Opuntia stricta*). There is a low-lying area in association with both of these coastal rock barren sites that is best described as an overwash plain or a saltpan. This overwash plain has areas of exposed caprock with thick marl deposits and algal mats in the depressions. The soil over the Key Largo limestone is sandy marl mixed with shell debris and coral fragments. The higher ground is sparsely vegetated with salt tolerant species including saltwort (*Batis maritima*), glasswort (*Salicornia spp.*) and key grass (*Monanthochloe littoralis*). At high tide, it is inundated by saltwater and is an important habitat for wading birds such as herons, egrets, spoonbills and ibis.

Coastal rock barren also occurs on the north side of Fat Deer Key adjacent to the rockland hammock where marine tidal swamp does not occur. This gradual grade from the higher hammock elevation supports species that can adapt to the narrow fringe of pitted limestone substrate along the shore of Florida Bay. These species include Christmas berry (*Lycium carolinianum*), buttonwood, white mangrove, black mangrove (*Avicennia germinans*), saffron plum and Jamaica caper (*Capparis cynophallophora*). This area was a target for an exotic removal project working mainly on portia (*Thespesia populnea*) and Brazilian pepper (*Schinus terebinthifolius*). Follow-up treatment continues by park staff.

Coastal rock barren also occurs on the west side of the rockland hammock on Long Point Key north of U.S. Highway 1. Species composition here is similar to the coastal rock barren on the south side of Fat Deer Key and Long Point Key.

Rockland hammock. The highest elevations of Fat Deer Key and Long Point Key support rockland hammock habitat, the majority of which is in good condition. These hammocks are typical of the middle and lower Keys hammocks with lower elevation, lower tree canopy and smaller tree diameter. The main canopy trees here include gumbo limbo (*Bursera simaruba*), poisonwood, pigeon plum, milkbark (*Drypetes diversifolia*), and black ironwood (*Krugiodendron ferreum*). The understory in some portions of the hammock particularly on the north side of U.S. Highway 1 on Fat Deer Key supports an impressive population of Key thatch palm (*Thrinax morrisii*) and Florida thatch palm (*Thrinax radiata*). Other understory species throughout the rockland hammock in the park include Spanish stopper, white stopper (*Eugenia axillaries*), barbwire cactus (*Acanthocereus tetragonus*), torchwood (*Amyris elemifera*), and crabwood (*Gymnanthes lucida*). It is important to note that there also is a population of false boxwood (*Gyminda latifolia*) at Curry Hammock, an endangered species that is found in only a few locations in the lower Keys. The rockland hammock did not suffer much impact from the tropical storm events over the past several years.

A number of solution holes can be found throughout the hammock. These provide important niches for species where even the slightest elevation and microhabitat differences provide suitable habitat. Unfortunately, some of these areas have been invaded by exotic species, particularly Brazilian pepper. Exotic removal in all areas of the park is on a continual basis.

The rockland hammock is an important community for many species of vertebrates and invertebrates that utilize this habitat on a diurnal or seasonal cycle. Although the threatened white crowned pigeon (*Columba leucocephala*) nests in marine tidal swamp habitat, it feeds exclusively on the berries found in the rockland hammock. The hammock also provides important food and refuge for a host of migratory birds, resident birds, snakes, spiders, butterflies and land crabs.

A nature trail has recently been established in the rockland hammock on the north side of Fat Deer Key. Starting near the area of the borrow pit, this trail winds through the hammock for approximately one mile. Care was taken to minimize impact to the vegetation. Interpretive signs will be placed throughout the trail, and a kiosk is planned at the entrance to the trail to interpret not only the rockland hammock, but also the seagrass habitat adjacent to the borrow pit.

Mosquito ditches were dug by previous owners on the east side of the rockland hammock on Long Point Key. The fill was piled in berms along the edges of the ditches, and have since recruited with native and exotic vegetation. Exotics have been removed from these berms, and the mosquito ditches are dry for most of the year. A decision will need to be made using best management practices to determine what would be the best way to protect or restore this section of the hammock.

Marine composite substrate. Marine composite substrate occurs in three areas north of Fat Deer Key and Long Point Key in Florida Bay. This community forms a mosaic with the other submerged communities and is a result of substrate composition and depth, which then determines the floral and faunal composition. The benthic floral and faunal organisms include a number of species of soft and hard coral, tube dwelling worms, sponges and a variety of macroalgae (*Penicillus* spp., *Halimeda* spp., and *Udotea* spp.). Other invertebrates include; sea cucumber (*Holothuria floridana*), sea urchin (*Echinometra lucunter*), and queen conch (*Strombus gigas*).

Marine consolidated substrate. The consolidated substrate community at Curry Hammock is found on the northwest corner of Long Point Key and is in excellent condition. This community is also referred to as the hardbottom community and consists of Key Largo limestone with minimal sediment accumulation. This is an important community because it provides a foundation for the development of other marine communities. Seagrasses do not thrive in this habitat; instead, it is dominated by macroalgal species including *Penicillus* spp., *Halimeda* spp. and *Sargassum* spp. Octocorals and stony corals are found mixed with the macroalgae. Faunal species found in the consolidated substrate community include; sea urchins, starfish (*Echinaster sentus*), queen conch, grunt (*Haemulon* spp.), snapper (*Lutjanus* spp.), barracuda (*Sphyraena barracuda*), and small reef fish.

Marine grass beds. Seagrass beds cover the majority of submerged land in Curry Hammock and are in excellent condition. Seagrass species found here are turtle grass (*Thalassia testudinum*), shoal grass (*Halodule wrightii*), and manatee grass (*Syringodium filiforme*) Turtle grass is the most abundant of these and is considered the climax species in a seagrass community. Although the grass beds appear to be uniform meadows dominated by a few species of seagrass, they are actually an extremely diverse community supporting an abundance of marine life. Other benthic organisms found in the seagrass beds include macroalgae, mollusks, echinoderms, crustaceans, sponges and coral. Epiphytes, tiny organisms that grow or live on seagrass, are also very abundant and include coralline red algae, hydrozoans, worms, amphipods and gastropods.

Seagrass beds are ecologically significant because they are extremely productive, support a great diversity of plants and animals, stabilize sediment on the seafloor, and improve water clarity, which is critical for coral growth. The shallow grass flats provide feeding grounds for numerous wading birds, manatees and sea turtles. The grass beds also provide food and refuge for invertebrates and fish through all or part of their life cycles. Many of these species are commercially important, including mangrove snapper (*Lutjanus griseus*), yellowtail snapper (*Ocyurus chrysurus*), spiny lobster (*Panulirus argus*), stone crab (*Menippe mercenaria*), and

pink shrimp (*Penaeus duorarum*).

On the ocean side of the park, dense seagrass covers almost the entire submerged habitat. . . The water is very shallow and the grass is heavily colonized with epiphytes. Since the tidal pass between Little Crawl Key and Crawl Key was blocked, water now flows around the north side of Little Crawl Key in a hemispherical pattern. The eastern branch of this water body was dredged for past construction purposes and is still unvegetated (See marine unconsolidated substrate). Water depth ranges from eight feet near the southern center of the channel to less than one foot near the bridge.

Tidal flow is minimal in the waters northwest of Little Crawl Key due to its shallow depth and configuration. Here, there is an abundance of upside-down jellyfish (*Cassiopeia xamachana*) and mangrove seedlings. In Florida Bay, seagrass covers the bottom except at the bottom of the borrow pit and immediately adjacent to shore.

Marine tidal marsh. The marine tidal marsh communities at Curry Hammock are found on Long Point Key west of the road that leads to the private home, and on the north end of Fat Deer Key on a narrow stretch of land. They are characterized by expanses of grasses at slightly higher elevations than the adjacent marine tidal swamp. Typical plant species found here include sea oxeye daisy (*Borrichia arborescens*), sea daisy (*Borrichia frutescens*), saltmeadow cordgrass (*Spartina patens*), and prickly cordgrass (*Spartina spartinae*). Animals found in the marine tidal marsh include marsh rabbit (*Sylvilagus palustris*), fiddler crabs (*Uca pugilator*), and a variety of spiders.

Both of the marine tidal marsh communities have been impacted by hydrological disruptions and hardwood species are encroaching into the marsh. The previous owner of the land on Long Point Key had maintained the marine tidal marsh by mowing, but this has not been done since the land was turned over to Curry Hammock. Unless these two areas are restored so that the dynamics of the historic hydro-periods are achieved, these marshes will be overcome by hardwood hammock species, and this rare habitat will be lost.

Marine tidal swamp. The marine tidal swamp at Curry Hammock is in excellent condition. Found in low elevations throughout the park, the predominant species are red mangrove (*Rhizophora mangle*), black mangrove and white mangrove. Red mangroves are established along the shoreline with their prop roots submerged in the water. Typical species found attached to or living near the red mangrove prop roots include snapper, mosquitofish (*Gambusia affinis*), oysters (*Isognomon alatus*), barnacles (*Lepas anatifera*), mangrove crab (*Goniopsis cruentata*), and fiddler crab. The black mangroves are typically found landward of the red mangroves in the intertidal zone. Adapted to daily saltwater inundation, salinity fluctuations, and anaerobic soils, black mangroves extend pneumatophores above the surface of the soil to aid in gas exchange. The white mangroves can be found in association with the black mangroves, but prefer slightly higher ground that is not prone to daily tides. Other salt tolerant vegetation found in association with the white mangrove is buttonwood (*Conocarpus erecta*), saltwort and sea ox-eye daisy.

The marine tidal swamp is a critical habitat in south Florida, and the health of this ecosystem is vital to the health of the other submerged communities. Mangroves are considered a nursery ground since the detrital material produced from decaying leaf litter is an important food source for many organisms that migrate to the mangroves on a seasonal or diurnal schedule. Many of these organisms are important resources in the Keys either as commercial or recreational industries and include; mullet (*Mullet* sp.), shrimp (*Penaeus duorarum*), snapper, blue crab

(*Callinectes* sp.), snook (*Centropomus undecimalis*) and tarpon (*Megalops atlanticus*).

Mangroves also help to protect upland habitat from wind and wave action as well as providing a filtration system by trapping sediment via their extensive root systems.

Marine unconsolidated substrate. Marine unconsolidated substrate consists primarily of unvegetated loose sand and marl depositions covering two small areas around Curry Hammock, towards the northwest boundary of Fat Deer Key, and offshore of Little Crawl Key where the original topography had been dredged. Despite the barren appearance of this habitat, the unconsolidated substrate supports a diverse array of infaunal organisms including worms, mollusks, shrimp and crabs. Large numbers of fish species can also be found in this area, which then provides feeding grounds for larger organisms.

Ruderal and developed. Curry Hammock is currently under construction developing a campground with 28 sites, a ranger station and a bathroom facility for the playground on Little Crawl Key. Other developed areas in the park include the paved roads on Little Crawl Key and Long Point Key and the playground and ranger residence on Little Crawl Key. Little Crawl Key suffered extensive damage in 1998 and 1999 with three storm events including two hurricanes.

Ruderal areas in the park include land that has been altered but not developed. At Curry Hammock, the ruderal sites are the eastern half of Little Crawl Key and east of the road to the private residence on Long Point Key. This area is slated for future development of a shop and ranger residences. Exotic removal projects have concentrated on these areas, and both are in good condition with pioneer species and herbaceous vegetation recruiting into the sites.

The Florida Keys Overseas Heritage Trail, part of the Office of Greenways and Trails system, is adjacent to the park between U.S. Highway 1 and the rockland hammock on Fat Deer Key and Long Point Key.

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 eighteen designated plants, and ten designated animals' species that occur at Curry Hammock. The Hawk Watch International Program, an ongoing survey conducted during fall migration, has increased the number of raptor sightings in the park including peregrine falcons.

The endangered West Indian manatee, (*Trichechus manatus*) occurs in the shallow waters of the Florida Keys especially in the winter months. The loggerhead sea turtle, (*Caretta caretta*), green sea turtles, (*Chelonia mydas*), leatherback sea turtles, (*Dermochelys coriacea*) and hawksbill sea turtles, (*Eretmochelys imbricatea*), occur in the waters surrounding the park. There has been no evidence of nesting along the shoreline at Curry Hammock due to the unsuitable substrate of the beach area.

Special Natural Features

The rockland hammock with its abundance of thatch palm, the coastal rock barren, and the tidal marsh communities are all special natural features of the park. Each supports rare plant and animal species including white crowned pigeon, false boxwood, peregrine falcon (*Falco peregrinus*), bald eagle (*Haliaeetus leucocephalus*) and marsh rabbit. Curry Hammock is an important path for migratory birds particularly raptors that have been studied by Hawk Watch International for the past several years.

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 Florida Master Site File (FMSF) lists no sites within the unit and a CARL reconnaissance survey conducted in 1994 did not document any sites (Weisman and Newman, 1994).

One documented archaeological site is located in close proximity to the park. Site MO2091 consists of a redeposited accumulation of midden material and is found northeast of Little Crawl Key on the south side of U.S. Highway 1. The origin of the midden material is not known.

RESOURCE MANAGEMENT PROGRAM

Special Management Considerations

Timber Management Analysis

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

A timber management analysis was not conducted for this park. The total acreage for the unit is below the 1,000-acre threshold established by Florida Statutes. Because of the natural resources and the habitat types found at this site, timber management is not appropriate at Curry Hammock State Park.

Additional Considerations

Curry Hammock State Park includes 400 feet of Sovereign Submerged Areas on both the

oceanside and the bayside of the park. Management of these submerged communities includes prohibiting boat launching from the beach and limiting the access of boaters close to shore. No Motor Zone signs are being installed to prevent this access.

Restoration of the tidal connection between Fat Deer Key and Long Point Key by installing a culvert under U.S. Highway 1 would improve the condition of marine resources surrounding the park. The hydrological restoration of the tidal marsh communities is also critical to restore and maintain this rare habitat. Restoration should include research test plots to help determine the most effective restoration methodology for this habitat.

Management Needs and Problems

1. Exotic plant and animal species management.
2. Investigate all possible restoration techniques using research test plots in order to restore and maintain the marine tidal marsh on Long Point Key and Fat Deer Key.
3. Restore tidal flow between Long Point Key and Fat Deer Key
4. Protect natural resources.
5. Conduct complete vertebrate and invertebrate survey.
6. Secure and maintain all boundaries.
7. Work with Florida Keys Overseas Heritage Trail adjacent to park to protect natural resources in the park.
8. Protect nearshore marine resources of park by establishing and maintaining “No Motor Zones.”
9. Determine feasibility of beach restoration.

Management Objectives

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

1. Continue exotic species removal throughout the park.
2. Restore hydrology between Fat Deer Key and Long Point Key.
3. Restore tidal marsh habitat utilizing research plots to help determine the most effective methodology.
4. Secure funding for native plants in newly developed areas of the park.
5. Continue with rare plant species monitoring.
6. Conduct complete vertebrate and invertebrate survey.
7. Monitor Monroe County mosquito control activities in the park for potential impacts, particularly to invertebrate species.
8. Protect nearshore marine resources by appropriate signage.
9. Secure boundaries to prevent encroachment by adjacent property owners.
10. Obtain funding for research needs.

Management Measures for Natural Resources

Hydrology

Hydrological restoration between Long Point Key and Fat Deer Key will need to be addressed. The marine tidal marsh will also need to be restored so that the natural hydro period can once

again maintain this rare plant community.

Management activities will follow generally accepted best management practices to prevent soil erosion and conserve water resources at the park. This includes maintaining or improving the water quality at Curry Hammock State Park to prevent any adverse impacts to the surrounding waters of the Florida Keys National Marine Sanctuary.

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.

Most of the plant communities at Curry Hammock are not fire adapted. It has been discussed about the potential use of prescribed fire as a resource management tool to restore the tidal marsh habitat in the park. Fire from lightening strikes has historically played a role in tidal marsh habitats on the mainland, and should be considered as a resource management tool for this park.

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. The Division will consult and coordinate with appropriate federal, state and local agencies for management of designated species.

The designated species at this site require the protection of the habitat in order to ensure their survival. At Curry Hammock concerns regarding this protection include protection from exotic plant and animal species, mosquito spraying (which adversely impact invertebrate species), habitat fragmentation, and habitat restoration. All designated plant species have been mapped using a Trimble GPS unit, and will be remapped on a five year schedule.

Hawk Watch International conducts raptor migratory surveys every fall. The continuation of this project will enhance the understanding of the species that utilize the park during migration.

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 infestation at Curry Hammock State Park comes from several sources; exotic species found within the park, dumping of vegetative debris in the park, those spread by natural means (birds, wind, water), and those spread from neighboring development. The most serious exotic plant threats in the park are Brazilian pepper, Australian pine, bowstring hemp (*Sansevieria hyacinthoides*), leadtree (*Leucaena leucocephala*), Portia and latherleaf (*Colubrina*

asiatica).

Curry Hammock applied for and received several exotic removal grants through the Florida Keys Invasive Exotic Task Force from the Bureau of Invasive Plant Management. In addition, staff, volunteers and AmeriCorp, has worked to remove exotics species in the park.

The potential exotic animal threats include black rat (*Rattus rattus*), feral cat, iguana, Cuban brown anole (*Anolis sagrei sagrei*), and the Gambian pouch rat, a recent exotic released from Grassy Key by pet owners.

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.

There are currently no problem species in Curry Hammock.

Management Measures for Cultural Resources

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

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

Since there are no known cultural resources on the site, no special protective measures are needed at this time. However, the DHR will be contacted before any development that may cause ground disturbances.

Research Needs

Natural Resources

Any research or other activity that involves the collection of plant or animal species on park lands 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. All designated plant species were mapped in 2001 using a Trimble GIS unit to understand specific species population size and distribution. This will need to be updated every five years unless catastrophic events such as tropical storms alter the dynamics of the natural communities, thereby potentially impacting the listed species.
2. Continue updating plant inventory.
3. Conduct survey of Liguus tree snail population.
4. Conduct complete survey of vertebrate population.

5. Conduct survey of marsh rabbit population.
6. Continue with Hawk Watch International program.
7. Investigate the feasibility of restoring the tidal marsh habitat utilizing research test plots to determine the most effective methodology.
8. Investigate the feasibility of restoring the tidal flow between Fat Deer Key and Long Point Key
9. Investigate the feasibility of restoring topography in borrow pit adjacent to Fat Deer Key.
10. Investigate the feasibility of beach restoration on Little Crawl Key.
11. Conduct survey of submerged communities.

Cultural Resources

Any future park development will follow established archaeological monitoring procedures, with all ground disturbing activities being conducted in accordance with Division policy. If any archaeological or cultural sites are found, disturbances to these sites should be prevented.

Resource Management Schedule

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

Land Management Review

Curry Hammock State Park was subject to a land management review on January 26, 2000. The review team made the following determinations:

1. The land is being managed for the purpose for which it was acquired.
2. The actual management practices, including public access, complied with the management plan for this site.

LAND USE COMPONENT

INTRODUCTION

Land use planning and park development decisions for the state park system are based on the dual responsibilities of the 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, regional demographics, adjacent land uses and park interaction with other facilities.

Curry Hammock State Park is located within Monroe County within the City of Marathon corporate limits, in the extreme southern part of the state. The populations of Monroe County and the adjacent Dade and Broward have grown 21 percent since 1990, and are projected to grow an additional 17 percent by 2010. As of 2000, 20.2 percent of residents in these counties were in the 0-14 age group, 43.4 percent in the 15-44 age group, 21.9 percent in the 45-64 age group, and 14.5 percent were aged 65 and over, which is more than the state average for the younger two groupings and lower for the 45 and older (BEBR, University of Florida, 2000). Nearly 65,000 persons reside within 50 miles of the park, which includes the cities of Key West, Marathon, Key Colony Beach, Layton, Islamorada, Village of Islands, and unincorporated Key Largo and Big Pine Key (U.S. Department of Commerce, 2000).

Curry Hammock State Park recorded 118,239 visitors in Fiscal Year 2002-03. By Division estimates, these visitors contributed nearly \$3.4 million in direct economic impact and the equivalent of over 60 jobs to the local economy (Florida Department of Environmental Protection, 2002).

Existing Use of Adjacent Lands

Curry Hammock is adjacent to U.S. Highway 1, just north of Marathon between mile markers 53 and 56, Monroe County, Florida. Significant portions of the adjacent natural communities have been disturbed by past development, which included dredging and filling.

The property immediately southwest of the park has been developed into a marina, and the property surrounding the marina has been developed into medium-high density housing for residents and tourists. A strip of commercial development forms a band along U.S. Highway 1 southwest of the park.

Land to the northeast of the park is less developed. Monroe County has purchased land on both sides of U.S. Highway 1 near the park, but the ocean side parcels immediately northeast of the park boundary are privately owned and may be developed in the future.

In 2001, the Florida Department of Transportation (FDOT) completed construction of a paved shared use recreational trail along the alignment of old A1A through the state park. The trail is managed as part of the Florida Keys Overseas Heritage Trail State Park (OHT), and Curry Hammock State Park is becoming one of the significant nodes for recreation along the OHT.

Significant resource based outdoor recreation opportunities in the vicinity of the state park include Long Key State Park, Bahia Honda State Park and the Overseas Heritage Trail State Park.

Planned Use of Adjacent Lands

Development of adjacent privately owned lands to maximum allowable densities and uses should be anticipated. Migration and tourist visitation to the Florida Keys is expected to remain popular, and the impacts of residential and resort development, including loss of wildlife habitat, water quality impacts, noise, and traffic congestion along U.S. Highway 1 will continue to affect the state park. Division staff should be involved in the development of the City of Marathon's comprehensive plan, future land use map and land development ordinances. Staff should also stay well informed about development plans in the surrounding community. Staff will request to be included by the local planning agency in the review of development proposals that may affect the natural, cultural or recreational resources of the state park.

PROPERTY ANALYSIS

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

Recreation Resource Elements

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

Land Area

Curry Hammock State Park is the largest uninhabited upland area between Key Largo and Big Pine Key. It is also the most complete remaining example of the natural heritage of the Middle Florida Keys. Its size and location make this unit a central link in an evolving chain of state- and federally-administered habitat preserves. The property contains tropical hardwood hammocks, salt marshes, coastal rock barrens, and mangrove wetlands. The bayside parcel is

about 1.3 miles long and about 1,350 feet wide. The ocean side parcel is about 1.4 miles long and 500 feet wide, although the widths of both parcels are variable. The southern or ocean side tract has extensive wetlands. A gradual slope to the water line results in a wide band of wetland vegetation and an extensive transition zone. As a result, mangroves grow up to the U.S. Highway 1 right-of-way in many areas, while hammock vegetation is present on the higher ground. The northern or bayside property has a relatively uniform high elevation, although low channels occur in some areas. This permits hammock vegetation to grow almost to the water line. Little Crawl Key was a mangrove-covered island which, in the 1950s, was partially cleared and filled to create additional uplands and automobile access to U.S. Highway 1.

Water Area

Freshwater resources on the property are undoubtedly limited. Freshwater lenses are found under some of the lower Keys, but the presence of fresh water in this area has not been verified recently. The waters surrounding the property have been classified as Outstanding Florida Waters and are of excellent quality. Swimming, fishing, canoeing and kayaking recreation are highly recommended for this park.

Shoreline

The property fronts Hawk Channel to the south and the Florida Bay to the north. Little Crawl Key has a narrow shoreline separated by riprap from a wide grass flat. The ocean water adjacent to Little Crawl Key is from six inches to three feet deep according to the nautical chart.

Natural Scenery

Little Crawl Key provides outstanding views across the Atlantic Ocean. The tropical hardwood hammock and palm hammock areas are very scenic and provide an excellent example of the natural environment of the middle keys.

Significant Wildlife Habitat

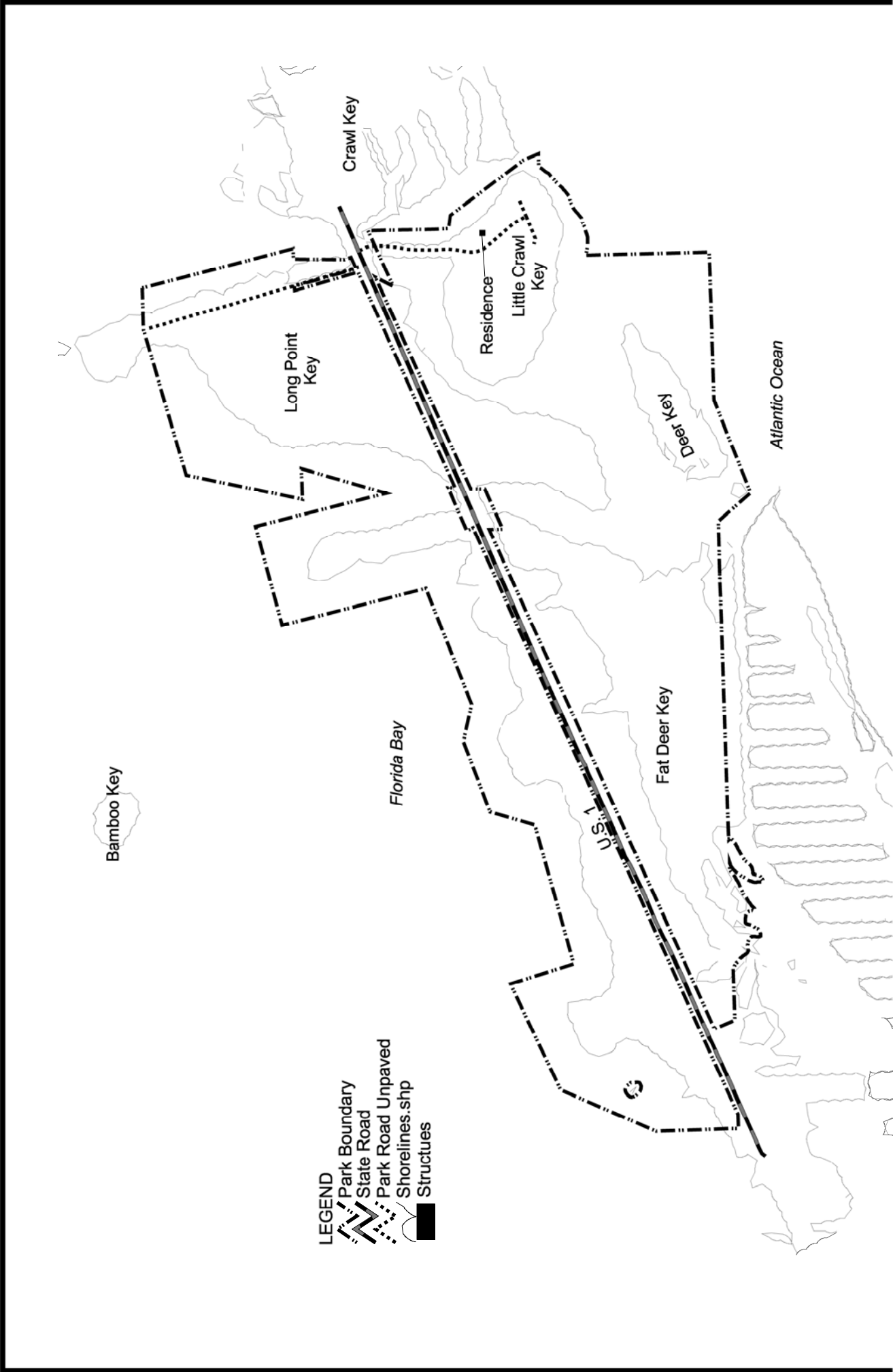
The shallow waters surrounding the property function as nursery and feeding grounds for juvenile and adult fishes and invertebrates, wading birds, and turtles. The West Indian manatee frequents the shallow waters around the park, especially during the winter. White-crowned pigeons (threatened) undoubtedly use this area as a feeding habitat during the summer months, while the rare black-whiskered vireos and mangrove cuckoos may nest on site. A retention pond from a previous development attempt periodically contains rainwater and is frequently used by resident and migratory birds. Predatory hawks and falcons are regular visitors to the park on their spring and fall migration. Hawk watching is an outstanding recreational and interpretive element at the park, and should be accommodated with appropriate facilities where possible.

Natural Features

Curry Hammock represents the most complete remaining example of the natural communities of the Middle Florida Keys. The unit contains an outstanding example of a rockland hammock, a plant community that only exists in scattered remnants in the middle Florida Keys.

Assessment of Use

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



LEGEND

- Park Boundary
- State Road
- Park Road Unpaved
- Shorelines.shp
- Structures



Past Uses

During the 1950s, a portion of Little Crawl Key was cleared and filled to create an area for residential building lots, roads and stormwater management.

Recreational Uses

Picnicking, swimming, hiking, canoeing and kayaking recreation are provided by the initial development of facilities at the park. Construction of a new standard camping area was nearly complete at the time this management plan was approved and will be available for use in 2005.

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 Curry Hammock State Park, all wetland communities, the coastal rock barrens and rockland hammock natural communities have been designated as protected zones as delineated on the Conceptual Land Use Plan.

Existing Facilities

Recreation Facilities

Picnic shelters (4)
Playground
Canoe/kayak launch
Standard campground (28 sites)
Nature trail (.8 miles)

Support Facilities

Ranger station
Ranger residence (1)
Picnic area restroom
Campground bathhouse
Paved park road (1 mi.)
Paved picnic area parking (37 spaces)

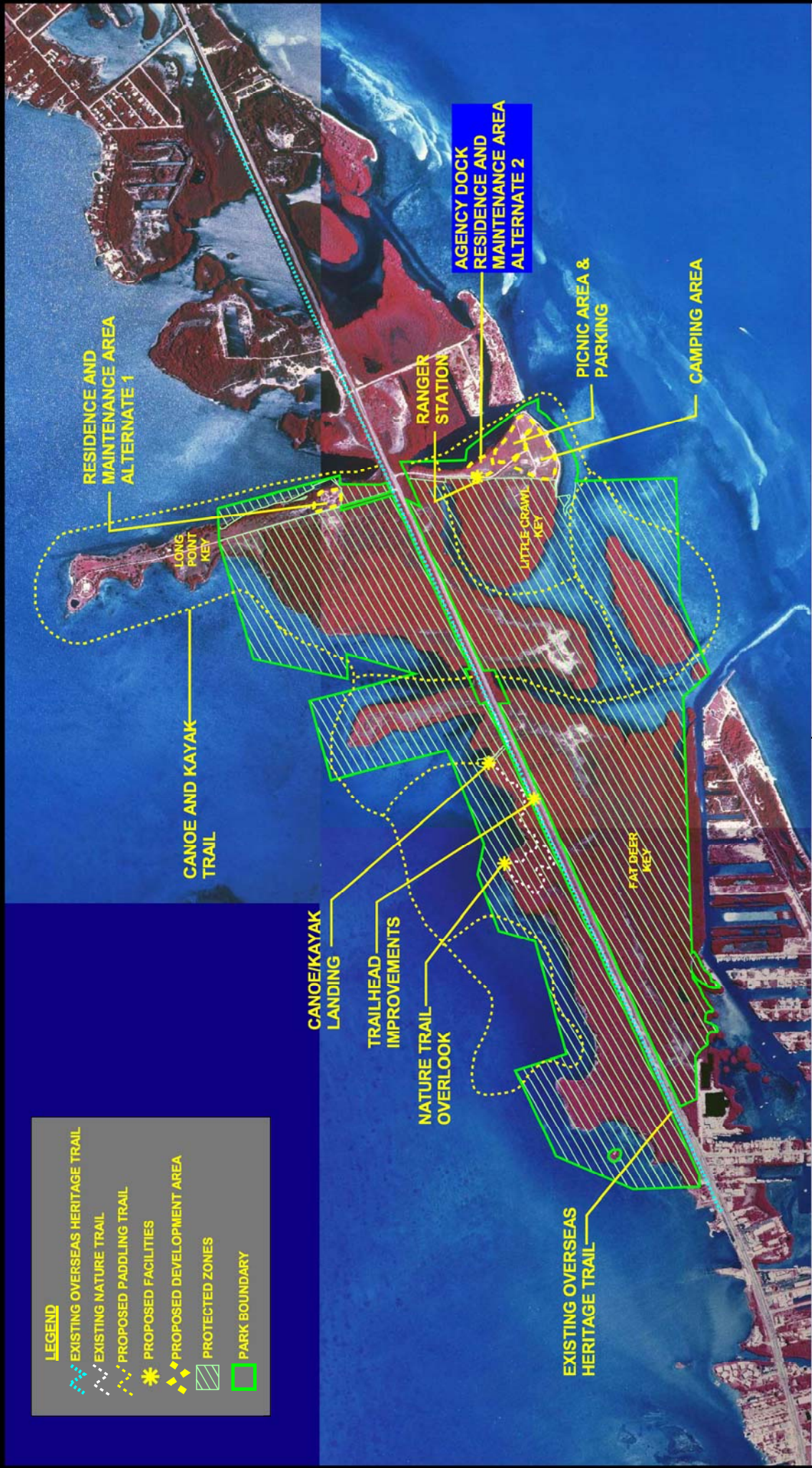
CONCEPTUAL LAND USE PLAN

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

LEGEND

- EXISTING OVERSEAS HERITAGE TRAIL
- EXISTING NATURE TRAIL
- PROPOSED PADDLING TRAIL
- PROPOSED FACILITIES
- PROPOSED DEVELOPMENT AREA
- PROTECTED ZONES
- PARK BOUNDARY



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

**CURRY HAMMOCK
STATE PARK**

**CONCEPTUAL
LAND USE PLAN**

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

Fat Deer Key and Long Point Key are not well suited for active recreational activities; however, the opportunities for hiking, paddling, birding (especially hawk-watching) and nature study are excellent and the area should be made accessible for interpretive programs. The advent of the Overseas Heritage Trail greatly increases the potential for public recreational and interpretive access to the bay side areas of the state park. It is expected that Curry Hammock State Park will become a premier destination for residents of Marathon and Key Colony Beach and tourists, as more people become aware of the connection provided by the Overseas Heritage Trail.

Active resource based recreation is concentrated on the ocean side area of Little Crawl Key, within the disturbed footprint of the development that preceded state ownership. A picnic area with shelters and playground, nature trail and unimproved canoeing and kayaking access are in place. A standard campground is nearing completion and will be open for use in the near future. As part of the permit approval process, the campground will be closed during hurricane season to reduce traffic on A1A in case of an evacuation. The new campground bathhouse is elevated and provides an excellent vantage point for birding and hawk watching activities. It is recommended that a platform be incorporated into this facility to enhance wildlife observation in this ocean side location.

A nature trail has recently been developed on the bay side of Fat Deer Key. An overlook and canoe/kayak landing tied to the trail are proposed to enhance use of this area of the park. Currently, access to the Overseas Heritage Trail in this area occurs by parking in an open area within the U.S. Highway 1 right of way. It is recommended that the Division coordinate improvements to this trailhead, such as expanded and designated parking, to enhance access to both the Overseas Heritage Trail and the newly developed nature trail. Interpretive signage and kiosks are also recommended along the nature trail and at strategic locations within other public use areas of the park.

The Florida Park Service is supporting efforts by the South Florida Water Management District to restore tidal connections where construction of the highway closed the natural gaps between islands. Consultation between the two agencies is ongoing. The Division highly recommends that culverts or bridges installed for the tidal flushing restoration project should be designed to accommodate canoeing and kayaking connections between the ocean and bay sides of the islands. At this time, only one connection is proposed by the SFWMD project, which is now funded under the Comprehensive Everglades Restoration Program (CERP). Ideally, a second connection will be made to provide better resource enhancement and improved recreational opportunities.

Recommended support facilities include a service dock with use limited to local, state or federal agency personnel, a second DRP staff residence and shop facilities. The proposed location for the service dock is in the vicinity of the existing staff residence. Two alternative locations are proposed for locating shop and residence facilities. With the full development of day use and overnight facilities a second ranger residence will be needed at the park. A duplex residence constructed over a park maintenance shop and a single family residence located a

short distance away are being considered, to provide housing for the park manager, assistant manager and one other staff person. The preferred site (Alternative 1) is north of U.S. Highway 1 and part of an impacted wetland that was filled for development many years ago. Mitigation of impacts to this marginal wetland will be necessary, and should focus on restoration of the adjacent tidal marsh community and mangrove communities, and filling mosquito ditches on the park property. If this area can be developed, then the existing ranger residence could be used for public purposes as a shelter and small interpretive and park programs building. If Alternative 1 proves not feasible, than a second location (Alternative 2) has been identified adjacent to the park's ranger station. There are no other sites available at this park suitable for these facilities.

Recreation Facilities

Canoe/kayak trail (9 mi.)
Wildlife observation platform (1)
Nature trail overlook (1)
Canoe/kayak landings (1)
Interpretive signs (3)
Interpretive kiosks (3)

Support Facilities

Ranger residences (2)
Maintenance shop
Flammable storage building
Agency service dock
Trailhead parking (12 spaces)

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.

Existing Use and Optimum Carrying Capacity

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

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

Optimum Boundary

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

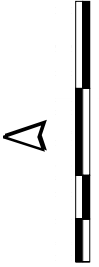
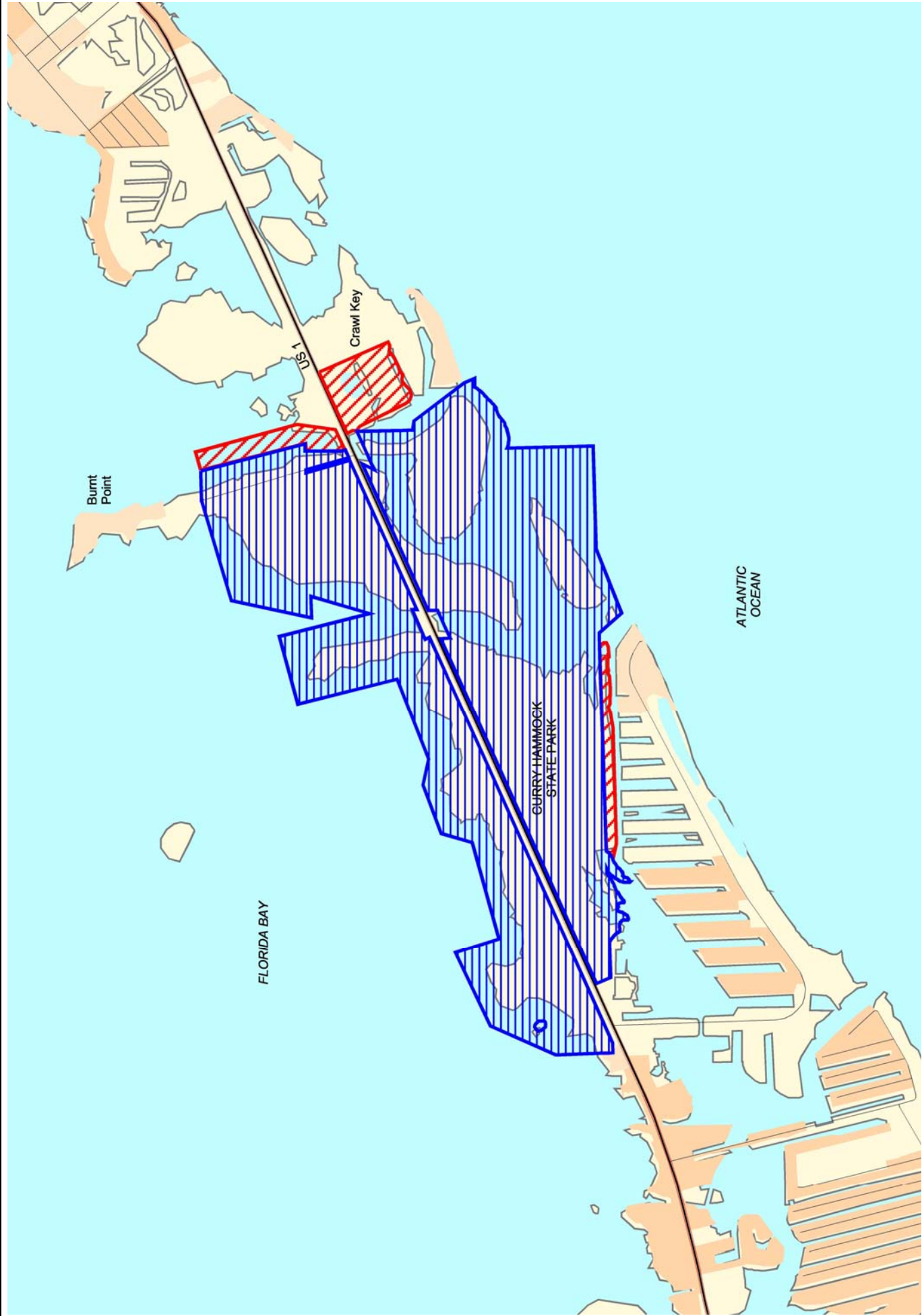
The additional land recommended for addition to Curry Hammock State Park is a 23-acre parcel located on the south side of U.S. Highway 1, immediately northeast of the existing park and adjacent to the proposed canoe and kayak trail. The purpose of the acquisition is to preserve

Table 1--Existing Use and Optimum Carrying Capacity

| Activity/Facility | Existing Capacity | | Proposed Additional Capacity | | Estimated Optimum Capacity | |
|--------------------------|--------------------------|--------------|-------------------------------------|--------------|-----------------------------------|--------------|
| | One Time | Daily | One Time | Daily | One Time | Daily |
| Camping | | | | | | |
| Standard sites | | | 224 | 224 | 224 | 224 |
| Trails | | | | | | |
| Nature trails | 15 | 45 | | | 15 | 45 |
| Picnicking | 60 | 120 | 40 | 80 | 100 | 200 |
| Boating | | | | | | |
| Canoeing/kayaking | 10 | 20 | 30 | 60 | 40 | 80 |
| TOTAL | 85 | 185 | 294 | 364 | 379 | 549 |

relatively undisturbed natural area and buffer the park from potential future development. A narrow strip of land on Fat Deer Key between the park boundary and the edge of the mangrove vegetation should be added to the park for better resource protection. A small area of sovereign submerged lands should be requested for addition to the park boundary to avoid future live rock harvesting leases in that area, also for protection and enhancement of park resources. At this time, no lands are considered surplus to the needs of the park.

Identification of lands on the optimum boundary map is solely for planning purposes and not for regulatory purposes. A property's identification on the optimum boundary map is not for use by any party or other government body to reduce or restrict the lawful right of private landowners. Identification on the map does not empower or require any government entity to impose additional or more restrictive environmental land use or zoning regulations. Identification is not to be used as the basis for permit denial or the imposition of permit conditions.



Addendum 1—Acquisition History

Curry Hammock State Park Acquisition History

Purpose and Sequence of Acquisition

The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees) acquired Curry Hammock State Park to develop, operate, and maintain the property for outdoor recreation, park, conservation, historic, and related purposes.

On September 10, 1991, the Trustees obtained title to a 771.25-acre property constituting the initial area of Curry Hammock State Park. This purchase was funded through the CARL program. Since the initial purchase, several individual parcels have been acquired under the CARL/ P2000 program.

On December 6, 1991, the Trustees leased Curry Hammock State Park to the Division of Recreation and Parks (Division) under Lease No. 3938. The lease is for a period of fifty (50) years and will expire on December 5, 2041.

According to the Trustees lease, the Division manages Curry Hammock State Park only for the development, conservation and protection of natural and cultural resources of the park and for resource-based public outdoor recreation compatible with the conservation and protection of the property.

Title Interest

The Trustees hold fee simple title to Curry Hammock State Park.

Special Conditions On Use

Curry Hammock State Park is designated single-use to provide resource-based public outdoor recreation and other park related uses. Uses such as water resource development projects, water supply projects, storm-water management projects, and linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in the park's unit management plan) are not consistent with this plan or the management purposes of the park.

Outstanding Reservations

Following is a listing of outstanding rights, reservations, and encumbrances that apply to Curry Hammock State Park.

| | |
|--|--|
| Instrument: | Warranty Deed |
| Instrument Holder: | Lottie Bruenn |
| Beginning Date: | April 26, 1996 |
| Ending Date: | Forever |
| Outstanding Rights, Uses, Etc.: | The deed reserves perpetual non-exclusive easement for egress, ingress and utilities for the grantor and certain owners/occupants of the adjacent lands. |

**Curry Hammock State Park
Acquisition History**

| | |
|--|--|
| Instrument: | Warranty Deed |
| Instrument Holder: | Little Crawl Key, Inc. |
| Beginning Date: | May 20, 1992 |
| Ending Date: | Forever |
| Outstanding Rights, Uses, Etc.: | The deed is subject to a certain Development Order 20-89 and a certain Declaration of Restrictive Covenants. |
| | |
| Instrument: | Warranty Deed |
| Instrument Holder: | Lamar Louise Curry |
| Beginning Date: | September 12, 1991 |
| Ending Date: | Forever |
| Outstanding Rights, Uses, Etc.: | The deed is subject to a certain guying easement granted to Florida Keys Electric Cooperative Association, Inc. |
| | |
| Instrument: | Warranty Deed |
| Instrument Holder: | The School of the Ozarks |
| Beginning Date: | September 10, 1991 |
| Ending Date: | Forever |
| Outstanding Rights, Uses, Etc.: | The deed is subject to Findings of Fact, Conclusions of Law, and Final Judgment entered in Case No. 87-280-CA-18, recorded in O. R. Book 1013, Page 1077 of Monroe County. |

**Curry Hammock State Park
Advisory Group Members**

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Summerland Key, Florida 33042

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Land Stewardship Coordinator
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Florida Bay Outfitters
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Crawl Key, Florida 33050

Curry Hammock State Park
Advisory Group Members

Mr. Skip Haring
Friends of Islamorada Area State Parks
Post Office Box 838
Long Key, Florida 33001

Curry Hammock State Park Advisory Group Staff Report

The Advisory Group appointed to review the proposed land management plan for Curry Hammock State Park met in Marathon on Wednesday, May 19, 2004. The City of Marathon was represented by Ms. Katy Parker and Ms. Wendy Dyer, The Nature Conservancy was represented by Ms. Alison Higgins and the Department of Community Affairs was represented by Mr. Clarence Feagin. The Florida Keys National Marine Sanctuary was represented by Mr. John Halas. Mr. Hendrix, Mr. Grau, Mr. Clinefelter and Mr. Haring could not attend. Division of Recreation and Parks staff attending included George Jones, Steve Eibl, David Hunt, David Boyd and Lew Scruggs.

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

Summary Of Advisory Group Comments

Ms. Woll commented that she is satisfied with the plan. Her only concern was the prohibition of camping at the park during the hurricane season. She asked if paddling groups on tour along the Keys blueway trail, (now in planning stages) could camp at the park during the summer months with a special permit. Division staff responded that special arrangements are not possible at this time, due to the restrictions placed by a three-party agreement with DCA and the City of Marathon that allowed the camping area development.

Mr. Halas stated that the FKNMS supports the tidal flow restoration project in the park and inquired regarding studies that should have been done in the lead-up to that project. Staff explained that the South Florida WMD and now the ACOE have been studying and modeling the concept for several years and could supply all the data, if requested. Mr. Halas said that he thinks the draft management plan is excellent.

Ms. Henize asked about the potential that marsh rabbits could be found in the cordgrass marsh area of the park, and inquired about management measures for the marsh itself. Staff noted that the rabbits may not be on site today, and explained the several cordgrass marsh management options available. Mr. Boyd said that management would depend on whether hydrological restoration can be implemented or not. He noted that, if natural hydroperiods and water quantities can be restored, then all the wetland communities in that area of the park might naturally restore, to some extent. Ms. Henize commended the park service, especially the on-site staff, for the outstanding progress they have made on exotic plant removal and other resource management tasks at the park.

Ms. Higgins noted that TNC has found mosquito ditches costly and difficult to fill using only the spoil banks left from their original dredging. She recommended consideration of plugging the ditches instead of filling. She said the draft is a good plan, and commended the park staff on their work.

Ms. Parker said the City's main concern would be with permits for the proposed staff housing. She suggested the Division apply for a ROGO permit under the affordable housing program, and

Curry Hammock State Park Advisory Group Staff Report

asked what period we expect the residence development to have. Staff responded that requests for separate-year funding would be made: first for design and permitting and then a request for FCO funding the following year. We agreed that it would be a complex process to acquire all the necessary permits and get funding at the right time, and requested assistance with that process from both City and DCA staff.

Mr. Feagin said that he is most impressed with the Division's planning process, and hopes to be of assistance to the park in the future.

Mr. Schofield said that the draft is a "good plan," and that he has had good dealings with the park staff in the past. He discussed the following issues:

- safety problems that result because park visitors are swimming and snorkeling in the boat channel adjacent to the park's canoe/kayak launch area;

- his concern that campers will bring boats to the park, and expect to anchor offshore of the camping area, resulting in footpaths and other damage to seagrass beds in that area;

- his concern that visiting RV owners would dump their sewage holding tanks in unauthorized areas adjacent to the park. Staff explained that RV operators would be directed to Bahia Honda State Park and Long Key State Park to use existing dump stations. Mr. Schofield approved of those arrangements.

- his concern that traffic congestion may occur at the park road and US 1 - staff explained that the gate would be moved further into the park property, and that an automatic gate would be installed to move campers in more quickly, after park hours. We expect these measures to prevent interference with traffic on US 1 when the park is operational.

Mr. Schofield said he also supports the tidal connection project being planned to culvert under US 1.

Ms. Sprunt said the draft plan was excellent, and noted that the Division has done well through the many challenges at Curry Hammock State Park. She also commended staff on the excellent progress on exotic plant removal in the park.

Staff Recommendation

Staff recommends approval of the proposed management plan for Curry Hammock State Park. Minor changes will be made to the Advisory Group draft document to correct and update the contents.

As discussed with the Advisory Group and at the workshop on Tuesday evening, park management will post the canoe/kayak launch area for no swimming or diving, and take other actions as needed to organize recreational activities on the park. Park staff will also work with adjacent landowners and boaters to manage boating activities around the park for resource protection and safe recreational activities.

Addendum 2—References Cited

Curry Hammock State Park
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Curry Hammock State Park
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Addendum 3—Soils Descriptions

Curry Hammock State Park

Soil Descriptions

(3) Matecumbe muck, occasionally flooded. The Matecumbe series consists of moderately well drained soils that are very shallow to rippable coral or oolitic limestone bedrock. The depth to limestone or coral limestone bedrock is 2 to 9 inches. These soils formed in organic material in varying stages of decomposition. Slopes are 0 to 1 percent. The taxonomic class is Euic, isohyperthermic Lithic Tropofolists.

This soil is on tropical hammocks in the uplands throughout the keys. Individual areas are subject to occasional flooding from hurricanes and other tropical storms. Elevations are less than 15 feet above sea level, according to National Geodetic Vertical Datum of 1929. The mean temperature ranges from 74 to 78 degrees F, and the mean annual precipitation ranges from 50 to 65 inches.

The Matecumbe soil is dominant in this map unit. Areas that have different uses and interpretations are rare and generally are adjacent to the boundaries of the map unit.

Soils that are associated with the Matecumbe soil are the well drained, mineral Keyvaca and Pennekamp soils in the higher positions on the landscape; the somewhat poorly drained, marly Saddlebunch soils in the landscape positions similar to those of the Matecumbe soil; and the poorly drained, marly Cudjoe, Keywest, and Lignumvitae soils and very poorly drained, organic Islamorada, Keylargo, and Tavernier soils in the lower positions on the landscape.

The Matecumbe soil is moderately well drained. It has a seasonal high water table at a depth of 1.5 to 3.0 feet during the wet periods of most years. Permeability is rapid.

Most areas of this soil support native vegetation and are used as habitat for woodland wildlife. Some areas have been developed for residential, urban, or recreational use. Characteristic vegetation for the soils in the survey area include; poisonwood, wild tamarind, mahogany, tree cactus, crabwood, thatch palm, satinleaf, paradise tree, and stopper.

Depth to bedrock, the flooding, and an excessive amount of humus are severe limitations affecting most uses of this soil, including most kinds of building site and recreational development and sanitary facilities.

(5) Islamorada muck, tidal – The Islamorada series consists of very poorly drained soils that are moderately deep to rippable coral or oolitic limestone bedrock. The depth to bedrock is 20 to 50 inches. These soils formed in sapric material. Slopes are less than 1 percent. Taxonomic class is Euic, isohyperthermic Lithic Troposaprist.

This soil is dominantly on the upper keys in mangrove swamps. Individual areas are subject to daily flooding by tides. Elevations are dominantly at or below sea level, according to National Geodetic Vertical Datum of 1929. The mean annual temperature is about 75 degrees F, and the mean annual precipitation is about 50 inches.

The Islamorada soil is dominant in this map unit. Areas of Tavernier soils are also included. These soils have bedrock within a depth of 20 inches. Other areas that have different uses and interpretations are rare and generally are adjacent to the boundaries of the map unit.

Soils that are associated the Islamorada soil are the very poorly drained, organic Keylargo and Tavernier soils in landscape positions similar to those of the Islamorada soil; the poorly drained, marly Cudjoe, Lignumvitae, and Keywest soils in the slightly higher positions on the landscape;

Curry Hammock State Park

Soil Descriptions

and the moderately well drained, organic Matecumbe soils and somewhat poorly drained, marly Saddlebunch soils in the significantly higher positions on the landscape.

The Islamorada soil is very poorly drained. The seasonal high water table is at or near the surface during much of the year. Permeability is rapid.

Most areas of this soil support native vegetation and are used as habitat for wetland wildlife. Some areas have been developed for residential or recreation use. Characteristic vegetation for the soils in the survey areas include red and black mangrove.

The wetness, the flooding, and depth to bedrock are severe limitations affecting most uses of this soil, including most kinds of building site and recreational development.

(6) Keylargo muck, tidal. The Keylargo series consists of very poorly drained soils that are deep to rippable coral or oolitic limestone bedrock. The depth to bedrock is 50 to 90 inches. These soils formed in sapric material. Slopes are less than 1 percent. The taxonomic class is Euic, isohyperthermic Typic Troposaprists.

This soil is dominantly on the upper keys but can occur throughout the keys. It is in mangrove swamps. Individual areas are subject to daily flooding by tides. Elevations are dominantly at or below sea level, according to National Geodetic Vertical Datum of 1929. The mean annual temperature is about 75 degrees F, and the mean annual precipitation is about 50 inches.

The Keylargo soil is dominant in this map unit. Areas that have different uses and interpretations are rare and generally are adjacent to the boundaries of the map unit.

Soils that are associated with the Keylargo soil are the very poorly drained, organic Islamorada and Tavernier soils in landscape positions similar to those of the Keylargo soil; the poorly drained, marly Cudjoe, Lignumvitae, and Keywest soils in the slightly higher positions on the landscape; and the moderately well drained, organic Matecumbe soils and somewhat poorly drained, marly Saddlebunch soils in the significantly higher positions on the landscape.

The Keylargo soil is very poorly drained. The seasonal high water table is at or near the surface during much of the year. Permeability is rapid.

Most areas of this soil support native vegetation and are used as habitat for wetland wildlife. A few areas have been developed for recreational use. Characteristic vegetation for the soils in the survey areas include; red mangrove and black mangrove.

(7) Udorthents-Urban land complex. This map unit is in constructed upland areas adjacent to areas of water throughout the keys. Individual areas are subject to rare flooding from hurricanes and other tropical storms. Elevations vary, depending on the thickness of the fill material, but they are dominantly 3 to 10 feet above sea level, according to National Geodetic Vertical Datum of 1929.

The Udorthents dominantly consist of crushed oolitic limestone or coral bedrock that has been spread over the original soil material. They commonly are about 32 inches of extremely gravelly sand underlain by about 40 inches of marl. The marl is underlain by coral bedrock. Other areas of soils are underlain by muck and other soil material. Houses and other urban structures cover up to 40 percent of most areas of the Udorthents; however, the soils can still be observed. Soils

Curry Hammock State Park

Soil Descriptions

that are associated in this map unit are all of the other soils that are in the keys. The Udorthents are moderately well drained. They have a seasonal high water table at a depth of 2 to 4 feet during the wet periods of most years. Permeability is variable.

This map unit generally supports no vegetation. The stones and droughtiness are severe limitations affecting any kind of landscaping activity. The Udorthents were developed for urban use, and many areas are being used for that purpose.

The stones, seepage, and the wetness are moderate or severe limitations affecting most uses of this map unit, including most kinds of building site and recreational development.

(8) Rock outcrop-Cudjoe complex, tidal. The Cudjoe series consists of poorly drained soils that are shallow to rippable coral or oolitic limestone bedrock. The depth to bedrock is 3 to 20 inches. These soils formed in calcareous marl. The taxonomic class is Loamy, carbonatic, isohyperthermic, shallow Tropic Fluvaquents.

This map unit is in mangrove swamps throughout the keys. Individual areas are frequently flooded by tides. Elevations are 0 to 1 foot above sea level, according to National Geodetic Vertical Datum of 1929. The mean annual temperature ranges from 75 to 78 degrees F, and the mean annual precipitation ranges from 40 to 50 inches.

Approximately 60 percent of this map unit consists of areas of exposed bedrock. These areas are dominantly 1 to 4 inches above the surface of the surrounding soil and range from approximately 2 feet to more than 200 feet in diameter. The Cudjoe soil is dominant in about 40 percent of this map unit. Areas that have different uses and interpretations are rare and generally are adjacent to the boundaries of the map unit.

Soils that are associated with the Cudjoe soil are the well drained, mineral Keyvaca and Pennekamp soils, moderately well drained, organic Matecumbe soils, and somewhat poorly drained, marly Saddlebunch soils in the higher positions on the landscape; the poorly drained, marly Keywest and Lignumvitae soils in landscape positions similar to those of the Cudjoe soil; and the very poorly drained, organic Islamorada, Keylargo, and Tavernier soils in the lower positions on the landscape.

The Cudjoe soil is poorly drained. The seasonal high water table is within a depth of 6 inches during the wet periods of most years. Permeability is moderate or moderately rapid.

Most areas of this map unit support native vegetation and are used as habitat for wetland wildlife. Some areas have been developed for residential, urban, or recreational use. Characteristic vegetation for the soils in the survey area include; red mangrove, black mangrove, saltwort and glasswort.

The flooding, the depth to bedrock, and the wetness are severe limitations affecting most uses of this map unit, including most kinds of building site and recreational development and sanitary facilities.

Curry Hammock State Park
Soil Descriptions

Addendum 4—Plant And Animal List

Curry Hammock State Park

Plants

| Common Name | Scientific Name | Primary Habitat Codes (for designated species) |
|---------------------------|--|---|
| Alice-clover | <i>Alysicarpus vaginalis</i> * | |
| American black nightshade | <i>Solanum americanum</i> | |
| annual glasswort | <i>Salicornia bigelovii</i> | |
| Australian pine | <i>Casuarina equisetifolia</i> * | |
| Bahama nightshade | <i>Solanum bahamense</i> | |
| Bahama senna | <i>Senna mexicana</i> var. <i>chapmanii</i> * | |
| Bahama strong bark | <i>Bouyeria succulenta</i> | |
| barb-wire cactus | <i>Acanthocereus tetragonus</i> | 3,4,12 |
| bay-bean | <i>Canavalia rosea</i> | |
| bay-cedar | <i>Suriana maritima</i> | |
| beach creeper | <i>Ernodea littoralis</i> | |
| beach elder | <i>Iva imbricata</i> | |
| beach naupaka | <i>Scaevola sericea</i> * | |
| beggarweed | <i>Desmodium incanum</i> | |
| Bermuda grass | <i>Cynodon dactylon</i> * | |
| black ironwood | <i>Krugiodendron ferreum</i> | |
| black mangrove | <i>Avicennia germinans</i> | |
| black torch | <i>Erithalis fruticosa</i> | 3,4 |
| blackbead | <i>Pithecellobium keyense</i> | 3,12 |
| bladder mallow | <i>Herissantia crispa</i> | |
| Blodgett's silverbush | <i>Argythamnia blodgettii</i> | 4 |
| Blodgett's spurge | <i>Chamaesyce blodgettii</i> | |
| blolly | <i>Guapira discolor</i> | |
| bloodleaf | <i>Iresine diffusa</i> | |
| blue-mist flower | <i>Ageratum littorale</i> | |
| blueheart | <i>Buchnera americana</i> | |
| bluestem | <i>Schizachyrium sanguineum</i> | |
| bowstring hemp | <i>Sansevieria hyacinthoides</i> * | |
| Brace's aster | <i>Aster bracei</i> | |
| Brazilian pepper | <i>Schinus terebinthifolius</i> * | |
| broomweed | <i>Sida acuta</i> | |
| bushy bluestem | <i>Andropogon glomeratus</i> var. <i>pumilus</i> | |
| butterfly orchid | <i>Encyclia tampensis</i> - cultivated | |
| buttonweed | <i>Spermacoce verticillata</i> * | |
| buttonwood | <i>Conocarpus erecta</i> | |
| chaff flower | <i>Alternanthera flavescens</i> | |
| cheeseweed | <i>Morinda royoc</i> | |
| chestnut sedge | <i>Fimbristylis spadicea</i> | |
| Christmas berry | <i>Lycium carolinianum</i> | |
| coastal dropseed | <i>Sporobolus virginicus</i> | |
| coastal sandbur | <i>Cenchrus incertus</i> | |
| coconut palm | <i>Cocos nucifera</i> * | |
| common ragweed | <i>Ambrosia artemisiifolia</i> | |
| coral dropseed grass | <i>Sporobolus domingensis</i> | |

* Non-native Species

Curry Hammock State Park

Plants

| Common Name | Scientific Name | Primary Habitat Codes (for designated species) |
|-----------------------------|--|---|
| cordia | <i>Cordia globosa</i> | 4,12 |
| corky-stemmed passionflower | <i>Passiflora suberosa</i> | |
| crabwood | <i>Gymnanthes lucida</i> | |
| creeping charlie | <i>Phyla nodiflora</i> | |
| darling plum | <i>Reynosa septentrionalis</i> | 3,12 |
| devil's potato | <i>Echites umbellata</i> | |
| dodder | <i>Cuscuta pentagona</i> | |
| dog fennel | <i>Eupatorium capillifolium</i> | |
| dog fennel | <i>Eupatorium serotinum</i> | |
| Dominican panicum | <i>Urochloa adspersa</i> | |
| dwarf horseweed | <i>Conyza canadensis var. pusilla</i> | |
| Egyptian grass | <i>Dactyloctenium aegyptium *</i> | |
| fall panicum | <i>Panicum dichotomiflorum var. bartowense</i> | |
| false boxwood | <i>Gyminda latifolia</i> | 12 |
| false daisy | <i>Eclipta prostrata</i> | |
| false foxglove | <i>Agalinis maritima</i> | |
| false saw grass | <i>Cyperus ligularis</i> | |
| false sisal | <i>Agave decipiens</i> | |
| false-mint | <i>Dicliptera sexangularis</i> | |
| Florida begger weed | <i>Desmodium tortuosum *</i> | |
| Florida boxwood | <i>Schaefferia frutescens</i> | 12 |
| Florida Keys nutrush | <i>Scleria lithosperma</i> | |
| Florida thatch palm | <i>Thrinax radiata</i> | 3,12 |
| Florida tremma | <i>Trema micranthum</i> | |
| foxtail grass | <i>Setaria macrosperma</i> | |
| foxtail grass | <i>Setaria parviflora</i> | |
| fragrant milkweed | <i>Cynanchum northropiae</i> | |
| fringed fanpetals | <i>Sida ciliaris</i> | |
| Gale of wind | <i>Phyllanthus amarus *</i> | |
| giant leather fern | <i>Acrostichum danaeifolium</i> | |
| goatweed | <i>Capraria biflora</i> | |
| goose grass | <i>Eleusine indica *</i> | |
| gophertail lovegrass | <i>Eragrostis ciliaris *</i> | |
| graceful sandmat | <i>Chamaesyce hypericifolia</i> | |
| gray nicker-bean | <i>Caesalpinia bonduc</i> | |
| greenbrier | <i>Smilax havanensis</i> | |
| green sprangle top | <i>Leptochloa dubia</i> | |
| ground orchid | <i>Oeceoclades maculata *</i> | |
| Guinea grass | <i>Panicum maximum *</i> | |
| gumbo limbo | <i>Bursera simaruba</i> | |
| hairy spurge | <i>Chamaesyce hirta</i> | |
| Hillsborough threeawn | <i>Aristida purpurascens var. tenuispica</i> | |
| hog-plum | <i>Ximenia americana</i> | |
| hurricane grass | <i>Fimbristylis cymosa</i> | |

* Non-native Species

Curry Hammock State Park

Plants

| Common Name | Scientific Name | Primary Habitat Codes (for designated species) |
|-----------------------|---|---|
| indigo | <i>Indigofera suffruticosa</i> * | |
| inkwood | <i>Exothea paniculata</i> | |
| ixora | <i>Ixora coccinea</i> * | |
| Jamaica caper | <i>Capparis cynophallophora</i> | |
| Jamaica dogwood | <i>Piscidia piscipula</i> | |
| joewood | <i>Jacquinia keyensis</i> | 3,4 |
| key grass | <i>Monanthochloe littoralis</i> | |
| Key thatch | <i>Thrinax morrisii</i> | 3,12 |
| lamb's quarters | <i>Chenopodium ambrosioides</i> * | |
| lantana | <i>Lantana camara</i> * | |
| large leaf buttonweed | <i>Spermacoce assurgens</i> | |
| latherleaf | <i>Colubrina asiatica</i> * | |
| lead tree | <i>Leucaena leucocephala</i> * | |
| least snoutbean | <i>Rhynchosia minima</i> | |
| limber caper | <i>Capparis flexuosa</i> | |
| love vine | <i>Cassytha filiformis</i> | |
| lovegrass | <i>Eragrostis elliottii</i> | |
| marlberry | <i>Ardisia escallonioides</i> | |
| marsh elder | <i>Melanthera nivea</i> | |
| mayten | <i>Maytenus phyllanthoides</i> | 4 |
| milk pea | <i>Galactia striata</i> | |
| milk-pea | <i>Galactia volubilis</i> | |
| milkbark | <i>Drypetes diversifolia</i> | 12 |
| milkweed | <i>Cynanchum angustifolium</i> | |
| milkweed vine | <i>Sarcostemma clausum</i> | |
| milkwort | <i>Polygala grandiflora</i> | |
| moon-flower | <i>Ipomoea alba</i> | |
| moonvine | <i>Ipomoea violaceae</i> | |
| morning glory | <i>Ipomoea indica</i> var. <i>acuminata</i> | |
| muhly grass | <i>Muhlenbergia capillaris</i> | |
| natal grass | <i>Rhynchelytrum repens</i> * | |
| necklace-pod | <i>Sophora tomentosa</i> var. <i>occidentalis</i> * | |
| necklace pod | <i>Sophora tomentosa</i> var. <i>truncata</i> | |
| night blooming cereus | <i>Hylocereus undatus</i> * | |
| oyster plant | <i>Tradescantia spathacea</i> * | |
| papaya | <i>Carica papaya</i> * | |
| paspalum | <i>Paspalum laxum</i> | |
| pencil flower | <i>Stylosanthes hamata</i> | |
| pepper grass | <i>Lepidium virginicum</i> | |
| pigeon plum | <i>Coccoloba diversifolia</i> | |
| pitted bluestem | <i>Bothriochloa pertusa</i> * | |
| poisonwood | <i>Metopium toxiferum</i> | |
| portia | <i>Thespesia populnea</i> * | |
| prickly cordgrass | <i>Spartina spartinae</i> | |

* Non-native Species

Curry Hammock State Park

Plants

| Common Name | Scientific Name | Primary Habitat Codes (for designated species) |
|------------------------|--|---|
| prickly-pear cactus | <i>Opuntia stricta</i> | 4 |
| puncture weed | <i>Tribulus cistoides</i> * | |
| purslane | <i>Portulaca oleracea</i> * | |
| railroad vine | <i>Ipomoea pes-caprae</i> ssp. <i>brasiliensis</i> | |
| red jumbie bean | <i>Macroptilium lathyroides</i> * | |
| red mangrove | <i>Rhizophora mangle</i> | |
| red spiderling | <i>Boerhavia diffusa</i> | |
| rougeberry | <i>Rivina humilis</i> | |
| royal palm | <i>Roystonea regia</i> – cultivated | |
| rustweed | <i>Polypremum procumbens</i> | |
| saffron plum | <i>Sideroxylon celastrinum</i> | |
| salt bush | <i>Baccharis halimifolia</i> | |
| salt joint grass | <i>Paspalum setaceum</i> | |
| salt joint grass | <i>Paspalum vaginatum</i> | |
| saltgrass | <i>Distichlis spicata</i> | |
| saltmeadow cordgrass | <i>Spartina patens</i> | |
| saltwort | <i>Batis maritima</i> | |
| samphire | <i>Blutaparon vermiculare</i> | |
| sand atriplex | <i>Atriplex pentandra</i> | |
| sandspur | <i>Cenchrus tribuloides</i> | |
| scorpion tail | <i>Heliotropium angiospermum</i> | |
| sea blite | <i>Suaeda linearis</i> | |
| sea lavender | <i>Argusia gnaphalodes</i> | 3 |
| sea lavender | <i>Limonium carolinianum</i> | |
| sea ox-eye daisy | <i>Borrichia aborescens</i> | |
| sea oxeye | <i>Borrichia frutescens</i> | |
| sea purslane | <i>Sesuvium portulacastrum</i> | |
| seagrape | <i>Coccoloba uvifera</i> | |
| seaside gentian | <i>Eustoma exaltatum</i> | |
| seaside heliotrope | <i>Heliotropium curassavicum</i> | |
| seaside spurge | <i>Chamaesyce mesembryanthemifolia</i> | |
| sensitive pea | <i>Chamecrista nictitans</i> var. <i>aspera</i> | |
| seven-year apple | <i>Genipa clusiifolia</i> | |
| shortleaf fig | <i>Ficus citrifolia</i> | |
| sky blue morning glory | <i>Jacquemontia pentanthos</i> | 4 |
| snowberry | <i>Chiococca alba</i> | |
| southern gaura | <i>Gaura angustifolia</i> | |
| southern sandbur | <i>Cenchrus echinatus</i> | |
| southern sea rocket | <i>Cakile lanceolata</i> | |
| Spanish moss | <i>Tillandsia usneoides</i> | |
| Spanish needle | <i>Bidens alba</i> var. <i>radiata</i> | |
| Spanish stopper | <i>Eugenia foetida</i> | |
| spider lily | <i>Hymenocallis latifolia</i> | 3 |
| spreading fan petals | <i>Sida abutifolia</i> | |

* Non-native Species

Curry Hammock State Park

Plants

| Common Name | Scientific Name | Primary Habitat Codes (for designated species) |
|----------------------|--|---|
| St. Augustine grass | <i>Stenotaphrum secundatum</i> * | |
| strangler fig | <i>Ficus aurea</i> | |
| torchwood | <i>Amyris elemifera</i> | |
| tufted paspalum | <i>Paspalum blodgettii</i> | |
| turf grass | <i>Zoysia matrella</i> var. <i>tenuifolia</i> * | |
| umbrella sedge | <i>Cyperus planifolius</i> | |
| varnish leaf | <i>Dodonaea viscosa</i> | |
| waltheria | <i>Waltheria indica</i> | |
| water hyssop | <i>Bacopa monnieri</i> | |
| water pimpernel | <i>Samolus ebracteatus</i> | |
| wedelia | <i>Wedelia trilobata</i> * | |
| West Indian dropseed | <i>Sporobolus indicus</i> var. <i>pyramidalis</i> * | |
| white indigo-berry | <i>Randia aculeata</i> | |
| white mangrove | <i>Languncularia racemosa</i> | |
| white stopper | <i>Eugenia axillaris</i> | |
| wild allamanda | <i>Pentalinon luteum</i> | |
| wild bamboo | <i>Lasiacis divaricata</i> | |
| wild dilly | <i>Manilkara jaimiqui</i> subsp. <i>emarginata</i> | 4,12 |
| wild indigo | <i>Indigofera spicata</i> * | |
| wild lantana | <i>Lantana involucrata</i> | |
| wild lettuce | <i>Launaea intybacea</i> * | |
| wild poinsettia | <i>Poinsettia cyathophora</i> | |
| wire bluestem | <i>Schizachyrium gracile</i> | |
| woody glasswort | <i>Salicornia perennis</i> | |
| yellowtop | <i>Flaveria linearis</i> | |

Curry Hammock State Park

Animals

| Common Name | Scientific Name | Primary Habitat Codes (for all species) |
|-------------|-----------------|--|
|-------------|-----------------|--|

MAMMALS

| | | |
|-----------------------------|-------------------------------------|-----------|
| Virginia opossum | <i>Didelphis virginiana</i> | All types |
| Key vaca raccoon | <i>Procyon lotor auspicatus</i> | All types |
| Black rat | <i>Rattus rattus</i> * | 81,82 |
| Cotton rat | <i>Sigmodon hispidus insulicola</i> | 4 |
| Marsh rabbit | <i>Sylvilagus palustris</i> | 3,4 |
| West Indian manatee | <i>Trichechus manatus</i> | Offshore |
| Atlantic bottlenose dolphin | <i>Tursiops truncatus</i> | Offshore |

BIRDS

| | | |
|--------------------------|---------------------------------|------------------|
| Osprey | <i>Pandion haliaetus</i> | 76 |
| Cooper's hawk | <i>Accipiter cooperii</i> | Overhead |
| Sharp shinned hawk | <i>Accipiter striatus</i> | Overhead |
| Short tailed hawk | <i>Buteo brachyurus</i> | Overhead |
| Red-shouldered hawk | <i>Buteo lineatus</i> | 12, 81, Overhead |
| Red tailed hawk | <i>Buteo jamaicensis</i> | Overhead |
| Broad winged hawk | <i>Buteo playpyterus</i> | 12, 81, Overhead |
| Swainson's hawk | <i>Buteo swainsoni</i> | Overhead |
| Black vulture | <i>Coragyps atratus</i> | Overhead |
| Turkey vulture | <i>Cathartes aura</i> | Overhead |
| Northern harrier | <i>Circus cyaneus</i> | 81, Overhead |
| Bald eagle | <i>Haliaeetus leucocephalus</i> | All types |
| Merlin | <i>Falco columbarius</i> | 12,81 |
| Peregrine falcon | <i>Falco peregrinus</i> | Overhead |
| American kestrel | <i>Falco sparverinus</i> | 81, Overhead |
| Mississippi kite | <i>Ictinia mississippiensis</i> | Overhead |
| Clapper rail | <i>Rallus longirostris</i> | 4 |
| White-crowned pigeon | <i>Columba leucocephala</i> | 12,76 |
| Ground dove | <i>Columbina passerina</i> | 81 |
| Mourning dove | <i>Zenaida macroura</i> | 81 |
| Mangrove cuckoo | <i>Coccyzus minor</i> | 12,76 |
| Burrowing owl | <i>Athene cunicularia</i> | 81 |
| Red-bellied woodpecker | <i>Melanerpes carolinus</i> | 12,81 |
| Great-crested flycatcher | <i>Myiarchus crinitus</i> | 12,81 |
| Gray kingbird | <i>Tyrannus domincensis</i> | 12,81 |
| Northern mockingbird | <i>Mimus polyglottos</i> | 12,81 |
| Chuck-will's-widow | <i>Caprimulgus carolinensis</i> | 12 |
| Common nighthawk | <i>Chordeiles minor</i> | Overhead |
| Black-whiskered vireo | <i>Vireo altiloquus</i> | 12 |
| White-eyed vireo | <i>Vireo griseus</i> | 12 |
| Prairie warbler | <i>Dendroica discolor</i> | 12 |
| American redstart | <i>Setophaga ruticilla</i> | 12 |

* Non-native Species

Curry Hammock State Park

Animals

| Common Name | Scientific Name | Primary Habitat Codes (for all species) |
|----------------------------|--------------------------------|--|
| Northern cardinal | <i>Cardinal cardinalis</i> | 12 |
| Red-winged blackbird | <i>Agelaius phoeniceus</i> | 76,81 |
| Common grackle | <i>Quiscalus quiscula</i> | All types |
| Eastern meadowlark | <i>Sturnella magna</i> | 81, Overhead |
| Brown pelican | <i>Pelecanus occidentalis</i> | 76, Offshore |
| Double-crested cormorant | <i>Phalacrocorax auritus</i> | 76, Offshore |
| Magnificent frigatebird | <i>Fregata magnificens</i> | Overflying |
| Great blue heron | <i>Ardea herodias</i> | 76 |
| American bittern | <i>Botaurus lentiginosus</i> | 81, Overhead |
| Cattle egret | <i>Bubulcus ibis</i> | 76,81 |
| Green heron | <i>Butorides striatus</i> | 76 |
| Great egret | <i>Casmerodius albus</i> | 76 |
| Little blue heron | <i>Egretta caerulea</i> | 76 |
| Reddish egret | <i>Egretta rufescens</i> | 76 |
| Snowy egret | <i>Egretta thula</i> | 76 |
| Tricolor heron | <i>Egretta tricolor</i> | 76 |
| Yellow-crowned night heron | <i>Nycticorax violaceus</i> | 76,81 |
| Whimbrel | <i>Numenius phaeopus</i> | 81, Overhead |
| Flamingo | <i>Phoenicopterus rubber</i> | Overhead |
| American avocet | <i>Recurvirostra Americana</i> | 76,81,Overhead. |
| Roseate spoonbill | <i>Ajaia ajaja</i> | 76 |
| White ibis | <i>Eudocimus albus</i> | 76,81 |
| Herring gull | <i>Larus argentatus</i> | 81, Offshore |
| Laughing gull | <i>Larus atricilla</i> | 81, Offshore |
| Ring-billed gull | <i>Larus delawarensis</i> | 81, Offshore |
| Common tern | <i>Sterna hirundo</i> | 81, Offshore |

REPTILES/AMPHIBIANS

| | | |
|----------------------------|--|-----------|
| Cottonmouth | <i>Agkistrodon piscivorus contanti</i> | 4,12,76 |
| Green anole | <i>Anolis carolinensis</i> | All types |
| Brown anole | <i>Anolis sagrei ornatus*</i> | All types |
| Loggerhead turtle | <i>Caretta caretta</i> | Offshore |
| Green turtle | <i>Chelonia mydas</i> | Offshore |
| Six-lined race runner | <i>Chemidophorus sexlineatus</i> | All types |
| Black racer | <i>Coluber constrictor priapus</i> | 12,81 |
| Diamondback rattlesnake | <i>Crotalus adamanteus</i> | All types |
| Leatherback turtle | <i>Dermochelys coriacea</i> | Offshore |
| Southern ring-necked snake | <i>Diadophis punctatus</i> | 12 |
| Indigo snake | <i>Drymarchon corais couperi</i> | 12 |
| Red rat snake | <i>Elaphe guttata rosacea</i> | 12 |
| Hawksbill turtle | <i>Eretmochelys imbricata</i> | Offshore |
| Five-lined skink | <i>Eumeces inexpectatus</i> | 12 |
| Narrow-mouthed toad | <i>Gastrophryne carolinensis</i> | 12 |

* Non-native Species

Curry Hammock State Park

Animals

| Common Name | Scientific Name | Primary Habitat Codes (for all species) |
|----------------------|--|--|
| Iguana | <i>Iguana iguana</i> * | 81 |
| Mangrove terrapin | <i>Malaclemys terrapin rhizophorarum</i> | 76 |
| Mangrove water snake | <i>Natrix fasciata compressicauda</i> | 76 |
| Green snake | <i>Opheodrys aestivus</i> | 12,81 |
| Reef gecko | <i>Sphaerodactylus notatus</i> | 12 |
| DeKay's snake | <i>Storeria dekayi</i> | 12 |
| Eastern box turtle | <i>Terrapene carolina bauri</i> | 12,81 |

INVERTEBRATES

| | | |
|------------------|---------------------------------|-----------|
| Blackhorn snail | <i>Batillaria minima</i> | Offshore |
| Ladderhorn snail | <i>Cerithidea scalariformis</i> | Offshore, |
| Periwinkle | <i>Littorina</i> sp. | Offshore |
| Saltmarsh snail | <i>Melampus coffeus</i> | 4,76 |
| Bleeding tooth | <i>Nerita peloronta</i> | Offshore |
| Queen conch | <i>Stombus gigas</i> | Offshore |
| Peanut snail | <i>Cerion incanum</i> | 75 |

CRUSTACEA

| | | |
|-------------------|-----------------------------------|--------------|
| Mangrove crab | <i>Aratus pisonii</i> | 76 |
| Ivory barnacle | <i>Balanus eburneus</i> | 76 |
| Blue crab | <i>Callinectes sapidus</i> | 76, Offshore |
| Fragile barnacle | <i>Chthalamus fragilis</i> | Offshore |
| Land hermit crab | <i>Coenobita clypeatus</i> | All types |
| Pink shrimp | <i>Denaues duorarum</i> | Offshore |
| Mangrove crab | <i>Goniopsis cruentata</i> | 76 |
| Goose barnacle | <i>Lepas anatifera</i> | Offshore |
| Sea roach | <i>Ligia exotica</i> | Offshore |
| Stone crab | <i>Menippe mercenaria</i> | Offshore |
| Spiny lobster | <i>Panulirus argus</i> | Offshore |
| Mantis shrimp | <i>Pseudosquilla</i> sp. | Offshore |
| Snapping shrimp | <i>Synalpheus brevicarpus</i> | Offshore |
| Fiddler crab | <i>Uca</i> spp. | 4,76 |
| Silver argiope | <i>Argiope argentata</i> | All types |
| Crab spider | <i>Gasteracantha cancriformis</i> | All types |
| Golden orb spider | <i>Nephila clavipes</i> | All types |

SPONGES

| | | |
|--------------|-------------------------------|----------|
| Tube sponge | <i>Callyspongia vaginalis</i> | Offshore |
| Green sponge | <i>Haliclona viridis</i> | Offshore |
| Vase sponge | <i>Ircinia campana</i> | Offshore |
| Cake sponge | <i>Ircinia strobilina</i> | Offshore |

* Non-native Species

Curry Hammock State Park

Animals

| Common Name | Scientific Name | Primary Habitat Codes (for all species) |
|-------------------|--------------------------------|--|
| Sprawling sponge | <i>Neopetrosia longleyi</i> | Offshore |
| Loggerhead sponge | <i>Spheciospongia vesparia</i> | Offshore |
| Candle sponge | <i>Verongia sp.</i> | Offshore |

WORMS

| | | |
|------------------------------|----------------------------------|----------|
| Lugworm | <i>Arenicola cristata</i> | Offshore |
| Black-spotted feather duster | <i>Branchiomma nigromaculata</i> | Offshore |
| Medusa worm | <i>Loimia medusa</i> | Offshore |
| Banded feather duster | <i>Sabella melanostigma</i> | Offshore |
| Magnificent feather duster | <i>Sabellastarte magnifica</i> | Offshore |

CNIDARIA

| | | |
|-----------------------|-----------------------------|----------|
| Moon jellyfish | <i>Aurelia aurita</i> | Offshore |
| Upside-down jellyfish | <i>Cassiopeia xamachana</i> | Offshore |
| Fire coral | <i>Millepora alcicornis</i> | Offshore |
| Pale anemone | <i>Aiptasia tagetes</i> | Offshore |
| Ringed anemone | <i>Bartholomea annulata</i> | Offshore |
| Pink-tipped anemone | <i>Condylactis gigantea</i> | Offshore |
| Golfball coral | <i>Favia fragum</i> | Offshore |
| Rose coral | <i>Manicina areolata</i> | Offshore |
| Finger coral | <i>Porites furcata</i> | Offshore |
| Sea whip | <i>Pterogorgia sp.</i> | Offshore |
| Starlet coral | <i>Siderastrea radians</i> | Offshore |
| Lobed star coral | <i>Solenastrea hyades</i> | Offshore |

ECHINODERMS

| | | |
|--------------------|------------------------------|----------|
| Thorny starfish | <i>Echinaster sentus</i> | Offshore |
| Cushion star | <i>Oreaster reticulatus</i> | Offshore |
| Long-spined urchin | <i>Diadema antillarum</i> | Offshore |
| Rock-boring urchin | <i>Echinometra lucunter</i> | Offshore |
| Variegated urchin | <i>Lytechinus variegatus</i> | Offshore |

TUNICATES

| | | |
|-------------------|---------------------------------|--------------|
| Black tunicate | <i>Ascidia nigra</i> | 76, Offshore |
| Mangrove tunicate | <i>Ecteir ascidia turbinata</i> | 76, Offshore |

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

Palustrine

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

Lacustrine

- 43** Clastic Upland Lake
- 44** Coastal Dune Lake
- 45** Coastal Rockland Lake

Lacustrine

- 46** Flatwood/Prairie Lake
- 47** Marsh Lake
- 48** River Floodplain Lake
- 49** Sandhill Upland Lake
- 50** Sinkhole Lake
- 51** Swamp Lake

Riverine

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

Estuarine

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

Marine

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

Subterranean

- 79** Aquatic Cave
- 80** Terrestrial Cave

Miscellaneous

- 81** Ruderal
- 82** Developed

MTC Many Types
Of Communities

OF Overflying

Addendum 5—Designated Species List

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

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

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

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

FNAI GLOBAL RANK DEFINITIONS

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

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

LEGAL STATUS

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

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

- LE = Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species that is in danger of extinction throughout all or a significant portion of its range.
- PE = Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.
- LT = Listed as Threatened Species. Defined as any species that is likely to become an endangered species within the near future throughout all or a significant portion of its range.
- PT = Proposed for listing as Threatened Species.
- C = Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants. Defined as those species for which the USFWS currently has on file sufficient information on biological vulnerability and threats to support proposing to list the species as endangered or threatened.
- E(S/A) = Endangered due to similarity of appearance.
- T(S/A) = Threatened due to similarity of appearance.

STATE

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

- LE = Listed as Endangered Species by the FFWCC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future.
- LT = Listed as Threatened Species by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
- LS = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species.

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

- LE = Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.
- LT = Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered.

Curry Hammock State Park

Designated Species

Plants

| Common Name/ <i>Scientific Name</i> | <u>Designated Species Status</u> | | |
|---|----------------------------------|-------|---------|
| | FDA | USFWS | FNAI |
| Barbed-wire cactus <i>Acanthocercus pentagonus</i> | T | | |
| Blue mistflower <i>Agerathum littorale</i> | E | | G3,S2 |
| Sea lavender <i>Argusia gnaphalodes</i> | E | | G4,S3 |
| Blodgett's silverbush <i>Argythamnia blodgetti</i> | E | | G2,S2 |
| Cordia <i>Cordia globosa</i> | E | | |
| Milkbark <i>Drypetes diversifolia</i> | E | | G3G4,S2 |
| Black torch <i>Erithalis fruticosa</i> | T | | |
| False boxwood <i>Gymnida latifolia</i> | E | | G4,S2 |
| Sky blue morning glory <i>Jacquemontia pentanthos</i> | T | | |
| Joewood <i>Jacquinia keyensis</i> | T | | G4,S3 |
| Wild dilly <i>Manilkara jaimiqui subsp. emarginata</i> | T | | G4G5,S1 |
| Mayten <i>Maytenus phyllanthoides</i> | T | | |
| Prickly-pear cactus <i>Opuntia stricta</i> | T | | |
| Blackbead <i>Pithecellobium keyense</i> | T | | |
| Darling plum <i>Reynosia septentrionalis</i> | T | | |
| Florida boxwood <i>Schaefferia frutescens</i> | E | | G5,S2 |
| Florida thatch <i>Thrinax morrissii</i> | E | | G4G5,S3 |
| Florida thatch palm <i>Thrinax radiata</i> | E | | G4G5,S2 |
| Loggerhead turtle <i>Caretta caretta</i> | T | T | G3 |
| Green turtle <i>Chelonia mydas</i> | E | E | G3 |
| White-crowned pigeon <i>Columba leucocephala</i> | T | | G3 |
| Leatherback turtle | | | |

Curry Hammock State Park

Designated Species

Animals

| Common Name/ <i>Scientific Name</i> | <u>Designated Species Status</u> | | |
|--|----------------------------------|-------|-------|
| | FFWCC | USFWS | FNAI |
| <i>Dermochelys coriacea</i> | E | E | G3 |
| Indigo snake | | | |
| <i>Drymarchon corais couperi</i> | T | T | G4T3 |
| Little blue heron | | | |
| <i>Egretta caerulea</i> | SSC | | G5 |
| Reddish egret | | | |
| <i>Egretta rufescens</i> | SSC | | G4 |
| Snowy egret | | | |
| <i>Egretta thula</i> | SSC | | G5 |
| Tricolor heron | | | |
| <i>Egretta tricolor</i> | SSC | | G5 |
| Hawksbill turtle | | | |
| <i>Eretmochelys imbricata</i> | E | E | G3 |
| Peregrine falcon | | | |
| <i>Falco peregrinus</i> | E | | G4 |
| American kestrel | | | |
| <i>Falco sparverius</i> | T | | G5T4 |
| Bald eagle | | | |
| <i>Haliaeetus leucocephalus</i> | T | T | G4S3 |
| Osprey | | | |
| <i>Pandion haliaetus</i> | SSC | | G5 |
| Key vaca raccoon | | | |
| <i>Procyon lotor auspicatus</i> | | | G5T2? |
| Cotton rat | | | |
| <i>Sigmodon hispidus insulicola</i> | | | G5T2 |
| West Indian manatee | | | |
| <i>Trichechus manatus</i> | E | E | G2 |
| Black-whiskered vireo | | | |
| <i>Vireo altiloquus</i> | | | |

Addendum 6—Priority Schedule And Cost Estimates

Curry Hammock State Park 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. Removal of rocks for shoreline restoration. **Estimated Cost:** \$20,000.00
2. Survey and fencing to post park perimeter boundaries. Focus on neighboring property lines. **Estimated Cost:** \$30,000.00
3. Maintenance of exotic species. **Estimated Cost:** \$3,000.00 per year
4. Restore tidal flow between Fat Deer Key and Long Point Key by culverting under U.S. Highway 1. **Estimated Cost:** \$ 200,000.00
5. Restore altered wetlands on Long Point Key. **Estimated Cost:** \$150,000.00

Administration

1. Annual funding for new park operational needs. **Estimated Cost:** \$90,000.00

TOTAL ESTIMATED COST: \$493,000.00

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

**Curry Hammock State Park
Priority Schedule And Cost Estimates**

Capital Improvements

| | |
|----------------------------|-----------------------|
| Recreation Facilities | \$183,250.00 |
| Support Facilities | <u>\$1,136,000.00</u> |
| Total w/Contingency | \$1,752,600.00 |

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

ADDITIONAL INFORMATION

FNAI Descriptions

DHR Cultural Management Statement

2000 Land Management Review Report

Descriptions Of Natural Communities Developed By FNAI

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

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

The levels of the hierarchy are:

Natural Community Category - defined by hydrology and vegetation.

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

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

TERRESTRIAL COMMUNITIES

XERIC UPLANDS
COASTAL UPLANDS
MESIC UPLANDS
ROCKLANDS
MESIC FLATLANDS

PALUSTRINE COMMUNITIES

WET FLATLANDS
SEEPAGE WETLANDS
FLOODPLAIN WETLANDS
BASIN WETLANDS

LACUSTRINE COMMUNITIES

RIVERINE COMMUNITIES

SUBTERRANEAN COMMUNITIES

MARINE/ESTUARINE COMMUNITIES

Definitions of Terms Used in Natural Community Descriptions

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

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

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

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

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

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

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

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

Descriptions Of Natural Communities Developed By FNAI

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Descriptions Of Natural Communities Developed By FNAI

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Descriptions Of Natural Communities Developed By FNAI

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Descriptions Of Natural Communities Developed By FNAI

high mineral content (sodium, chloride).

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

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

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

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

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

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

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

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

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

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

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

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

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

Descriptions Of Natural Communities Developed By FNAI

of organic detritus and low energy systems.

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

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

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

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

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

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

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

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

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

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

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

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

Descriptions Of Natural Communities Developed By FNAI

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

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

DEFINITIONS OF TERMS Terrestrial and Palustrine Natural Communities

Physiography

Upland - high area in region with significant topographic relief; generally undulating

Lowland - low area in region with or without significant topographic relief; generally flat to gently sloping

Flatland - generally level area in region without significant topographic relief; flat to gently sloping

Basin - large, relatively level lowland with slopes confined to the perimeter or isolated interior locations

Depression - small depression with sloping sides, deepest in center and progressively shallower towards the perimeter

Floodplain - lowland adjacent to a stream; topography influenced by recent fluvial processes

Bottomland - lowland not on active floodplain; sand/clay/organic substrate

Hydrology

occasionally inundated - surface water present only after heavy rains and/or during flood stages

seasonally inundated - surface water present during wet season and flood periods

usually inundated - surface water present except during droughts

Climatic Affinity of the Flora

tropical - community generally occurs in practically frost-free areas

subtropical - community generally occurs in areas that experience occasional frost, but where freezing temperatures are not frequent enough to cause true winter dormancy

temperate - community generally occurs in areas that freeze often enough that vegetation goes into winter dormancy

Fire

annual fire - burns about every 1-2 years

frequent fire - burns about every 3-7 years

occasional fire - burns about every 8-25 years

rare fire - burns about every 26-100 years

no fire - community develops only when site goes more than 100 years without burning

LATIN NAMES OF PLANTS MENTIONED IN NATURAL COMMUNITY DESCRIPTIONS

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

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A. GENERAL DISCUSSION

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

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

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

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

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

B. STATUTORY AUTHORITY

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

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

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

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

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

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

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

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- transferred, sold, demolished, substantially altered, or allowed to deteriorate significantly.
4. Each state agency of the executive branch shall assume responsibility for the preservation of historic resources that are owned or controlled by such agency. Prior to acquiring, constructing, or leasing buildings for the purpose of carrying out agency responsibilities, the agency shall use, to the maximum extent feasible, historic properties available to the agency. Each agency shall undertake, consistent with preservation of such properties, the mission of the agency, and the professional standards established pursuant to paragraph (3)(k), any preservation actions necessary to carry out the intent of this paragraph.
 5. Each state agency of the executive branch, in seeking to acquire additional space through new construction or lease, shall give preference to the acquisition or use of historic properties when such acquisition or use is determined to be feasible and prudent compared with available alternatives. The acquisition or use of historic properties is considered feasible and prudent if the cost of purchase or lease, the cost of rehabilitation, remodeling, or altering the building to meet compliance standards and the agency's needs, and the projected costs of maintaining the building and providing utilities and other services is less than or equal to the same costs for available alternatives. The agency shall request the division to assist in determining if the acquisition or use of a historic property is feasible and prudent. Within 60 days after making a determination that additional space is needed, the agency shall request the division to assist in identifying buildings within the appropriate geographic area that are historic properties suitable for acquisition or lease by the agency, whether or not such properties are in need of repair, alteration, or addition.
 6. Consistent with the agency's mission and authority, all state agencies of the executive branch shall carry out agency programs and projects, including those under which any state assistance is provided, in a manner which is generally sensitive to the preservation of historic properties and shall give consideration to programs and projects which will further the purposes of this section.

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

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

C. MANAGEMENT POLICY

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

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

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

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

1. State land managers shall coordinate all planned activities involving known archaeological or historic sites or potential site areas closely with the Division of Historical Resources in order to prevent any kind of disturbance to significant archaeological or historic sites that may exist on the tract. Under 267.061(1)(b), F.S., the Division of Historical Resources is vested with title to archaeological and historic resources abandoned on state lands and is responsible for administration and protection of such resources. The Division will cooperate with the land manager in the management of these resources. Furthermore, provisions of 267.061(2) and 267.13, F.S., combined with those in 267.061(3) and 253.034(4), F.S., require that other managing (or permitting) agencies coordinate their plans with the Division of Historical Resources at a sufficiently early stage to preclude inadvertent damage or destruction to known or potentially occurring, presently unknown archaeological and historic sites. The provisions pertaining to human burial sites must also be followed by state land managers when such remains are known or suspected to be present (see 872.02 and 872.05, F.S., and 1A-44, F.A.C.)
2. Since the actual resources are so poorly known, the potential impact of the managing agency's activities on historic archaeological sites may not be immediately apparent. Special field survey for such sites may be required to identify the potential endangerment as a result of particular management or permitting activities. The Division may perform surveys, as its resources permit, to aid the planning of other state agencies in their management activities, but outside archaeological consultants may have to be retained by the managing agency. This would be especially necessary in the cases of activities contemplating ground disturbance over large areas and unexpected occurrences. It should be noted, however, that in most instances Division staff's knowledge of known and expected site distribution is such that actual field surveys may not be necessary, and the project may be reviewed by submitting a project location map (preferably a 7.5 minute U.S.G.S. Quadrangle map or portion thereof) and project descriptive data, including detailed construction plans. To avoid delays, Division staff should be contacted to discuss specific project documentation review needs.
3. In the case of known significant sites, which may be affected by proposed project activities, the managing agency will generally be expected to alter proposed management or development plans, as necessary, or else make special provisions to minimize or mitigate damage to such sites.
4. If in the course of management activities, or as a result of development or the permitting of dredge activities (see 403.918(2)(6)a, F.S.), it is determined that valuable historic or archaeological sites will be damaged or destroyed, the Division reserves the right, pursuant to 267.061(1)(b), F.S., to require salvage measures to mitigate the destructive impact of such activities to such sites. Such salvage measures would be accomplished before the Division would grant permission for destruction of the affected site areas. The funding needed to implement salvage measures would be the responsibility of the managing agency planning the site destructive activity. Mitigation of historic structures at a minimum involves the preparation of measured drawings and documentary photographs. Mitigation of archaeological resources involves the excavation, analysis and reporting of the project findings and must be planned to

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

5. For the near future, excavation of non-endangered (i.e., sites not being lost to erosion or development) archaeological site is discouraged. There are many endangered sites in Florida (on both private and public lands) in need of excavation because of the threat of development or other factors. Those within state-owned or controlled lands should be left undisturbed for the present - with particular attention devoted to preventing site looting by "treasure hunters". On the other hand, the archaeological and historic survey of these tracts is encouraged in order to build an inventory of the resources present, and to assess their scientific research potential and historic or architectural significance.
6. The cooperation of land managers in reporting sites to the Division that their field personnel may discover is encouraged. The Division will help inform field personnel from other resource managing agencies about the characteristics and appearance of sites. The Division has initiated a cultural resource management training program to help accomplish this. Upon request the Division will also provide to other agencies archaeological and historical summaries of the known and potentially occurring resources so that information may be incorporated into management plans and public awareness programs (See Management Implementation).
7. Any discovery of instances of looting or unauthorized destruction of sites must be reported to the agent for the Board of Trustees of the Internal Improvement Trust Fund and the Division so that appropriate action may be initiated. When human burial sites are involved, the provisions of 872.02 and 872.05, F. S. and Rule 1A-44, F.A.C., as applicable, must also be followed. Any state agent with law enforcement authority observing individuals or groups clearly and incontrovertibly vandalizing, looting or destroying archaeological or historic sites within state-owned or controlled lands without demonstrable permission from the Division will make arrests and detain those individuals or groups under the provisions of 267.13, 901.15, and 901.21, F.S., and related statutory authority pertaining to such illegal activities on state-owned or controlled lands. County Sheriffs' officers are urged to assist in efforts to stop and/or prevent site looting and destruction.

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

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

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alterations of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of

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- missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
 8. Significant archaeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
 9. New additions, exterior alterations, or related new construction shall not destroy materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
 10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired. (see Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings [Revised 1990]).

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

D. MANAGEMENT IMPLEMENTATION

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

1. All land managing agencies should contact the Division and send U.S.G.S. 7.5 minute quadrangle maps outlining the boundaries of their various properties.
2. The Division will in turn identify site locations on those maps and provide descriptions for known archaeological and historical sites to the managing agency.
3. Further, the Division may also identify on the maps areas of high archaeological and historic site location probability within the subject tract. These are only probability zones, and sites may be found outside of these areas. Therefore, actual ground inspections of project areas may still be necessary.
4. The Division will send archaeological field recording forms and historic structure field recording forms to representatives of the agency to facilitate the recording of information on such resources.
5. Land managers will update information on recorded sites and properties.
6. Land managers will supply the Division with new information as it becomes available on previously unrecorded sites that their staff locate. The following details the kind of information the Division wishes to obtain for any new sites or structures that the land managers may report:

A. Historic Sites

- (1) Type of structure (dwelling, church, factory, etc.).
- (2) Known or estimated age or construction date for each structure and addition.
- (3) Location of building (identify location on a map of the property, and building placement, i.e., detached, row, etc.).
- (4) General Characteristics: (include photographs if possible) overall shape of plan (rectangle, "L" "T" "H" "U", etc.); number of stories; number of vertical divisions of bays; construction materials (brick, frame, stone, etc.); wall finish (kind of bond, coursing, shingle, etc.); roof shape.
- (5) Specific features including location, number and appearance of:
 - (a) Important decorative elements;
 - (b) Interior features contributing to the character of the building;

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(Revised August, 1995)**

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

B. Archaeological Sites

- (1) Site location (written narrative and mapped location).
 - (2) Cultural affiliation and period.
 - (3) Site type (midden, burial mound, artifact scatter, building rubble, etc.).
 - (4) Threats to site (deterioration, vandalism, etc.).
 - (5) Site size (acreage, square meters, etc.).
 - (6) Artifacts observed on ground surface (pottery, bone, glass, etc.).
 - (7) Description of surrounding environment.
7. No land disturbing activities should be undertaken in areas of known archaeological or historic sites or areas of high site probability without prior review by the Division early in the project planning.
 8. Ground disturbing activities may proceed elsewhere but land managers should stop disturbance in the immediate vicinity of artifact finds and notifies the Division if previously unknown archaeological or historic remains are uncovered. The provisions of Chapter 872, F.S., must be followed when human remains are encountered.
 9. Excavation and collection of archaeological and historic sites on state lands without a permit from the Division are a violation of state law and shall be reported to a law enforcement officer. The use of metal detectors to search for historic artifacts shall be prohibited on state lands except when authorized in a 1A-32, F.A.C., research permit from the Division.
 10. Interpretation and visitation which will increase public understanding and enjoyment of archaeological and historic sites without site destruction or vandalism is strongly encouraged.
 11. Development of interpretive programs including trails, signage, kiosks, and exhibits is encouraged and should be coordinated with the Division.
 12. Artifacts found or collected on state lands are by law the property of the Division. Land managers shall contact the Division whenever such material is found so that arrangements may be made for recording and conservation. This material, if taken to Tallahassee, can be returned for public display on a long term loan.

E. ADMINISTERING AGENCY

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

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

Contact Person:

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

Land Management Review of Curry Hammock State Park

Monroe County (Lease No. 3938): January 26, 2000

Prepared by Division of State Lands Staff

William Howell, OMC Manager
John Barrow, Environmental Specialist II

for
the Curry Hammock State Park Management Review Team

Final Report April 28, 2000

| | |
|------------------------|---------------|
| Land Manager: | DRP |
| Area: | 1118 acres |
| County: | Monroe County |
| Mngt. Plan Revised: | 4/30/1997 |
| Mngt. Plan Update Due: | 4/30/2002 |

Land Management Review of Curry Hammock State Park

January 26, 2000

Management Review Team Members

| Agency Represented | Team member Appointed | Team member in attendance |
|--|--------------------------|------------------------------|
| DEP/DRP | Ms. Renate Skinner | Ms. Renate Skinner |
| DEP Southwest Florida District | Mr. R. J. Helbling | Mr. R. J. Helbling |
| DACS/DOF | Mr. Bill Korn | Mr. Bill Korn |
| FWCC | Mr. Robert Guerra | Mr. Robert Guerra |
| Soil and Water Conservation County Commission | Mr. Harry Delashmutt | Mr. Harry Delashmutt |
| Conservation Organization | Mr. Ed Davidson | Mr. Ed Davidson |
| Private Land Manager | Ms. Della Schuler | Ms. Della Schuler |

Process for Implementing Regional Management Review Teams

Legislative Intent and Guidance:

Chapter 259.036, F. S. was enacted in 1997 to determine whether conservation, preservation, and recreation lands owned by the state Board of Trustees of the Internal Improvement Trust Fund (Board) are being managed properly. It directs the Department of Environmental Protection (DEP) to establish land management review teams to evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions, and archaeological features. The teams also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan. If a land management plan has not been adopted, the review shall consider the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices are in compliance with the management policy statement and management prospectus for that property. If the land management review team determines that reviewed lands are not being managed for the purposes for which they were acquired or in compliance with the adopted land management plan, management policy statement, or management prospectus, DEP shall provide the review findings to the Board, and the managing agency must report to the Board its reasons for managing the lands as it has. A report of the review findings are given to the managing agency under review, the Land Acquisition and Management Advisory Council (LAMAC), and to the Division of State Lands. Also, DEP shall report the annual review findings of its land management review teams to the Board no later than the second board meeting in October of each year.

Review Site

The management review of Curry Hammock State Park considered approximately 1118 acres in Monroe County that are managed by Division of Recreation and Parks. The team evaluated the extent to which current management actions are sufficient, whether the land is being managed for the purpose for which it was acquired, and whether actual management practices, including public access, are in compliance with the management plan. The Division of Recreation and Parks revised the management plan on April 30, 1997, and the management plan update is due on April 30, 2002.

Land Management Review of Curry Hammock State Park

January 26, 2000

Review Team Determination

1. Is the land being managed for the purpose for which it was acquired? **All team members agreed that the Curry Hammock State Park is being managed for the purpose for which it was acquired.**
2. Are actual management practices, including public access, in compliance with the management plan? **All team members agreed that actual management practices, including public access, were in compliance with the management plan for this site.**

Commendations to the Managing Agency

The team commends the park staff for its exemplary work in removal and control of exotic species.

Exceptional Management Actions

The following items received high scores on the review which indicates that management actions exceeded expectations.

1. Natural Communities: protection and maintenance for the rockland hammock and marine tidal swamp
2. Non-native Invasive & Problem Species for plants
3. Ground Water Quality Monitoring

Recommendations And Checklist Findings

The management plan must include responses to the recommendations and checklist items that are identified below.

1. The team recommends that the Division of Recreation and Parks place manatee signs on navigation pile markers.

Agree. Manatee signs have been ordered and will be properly placed when received.

2. The team recommends that the Division of Recreation and Parks remove the boulders from the Little Crawl Key ocean shoreline to facilitate turtle nesting.

Agree. The removal of the boulders was mentioned in the management plan. Permitting will require the involvement of a number of agencies. We will request the proper applications.

3. The team recommends that the Division of Recreation and Parks seek funding for proposed surface water recirculation culverts.

Agree. The recirculation culverts were mentioned in the Management Plan. The Florida Keys Restoration Trust Fund has written a draft proposal for several locations, including culverts at Curry Hammock.

4. The team recommends that the Division of Recreation and Parks coordinate and decide upon what its desired acquisitions are related to optimum boundaries including Aubuchon and Cactus barren properties.

Disagree. DRP has previously considered adding these parcels to our additions and inholdings list. They are not currently included on the approved list. The optimum boundary line of the

Land Management Review of Curry Hammock State Park

January 26, 2000

park will be re-evaluated in the process of developing the next updated UMP.

5. The team recommends that the Division of Recreation and Parks examine the potential impacts of improved camping and other site development on turtle nesting.

Agree. Curry Hammock is a park in development; all such issues will be examined in depth before further development occurs.

6. The team recommends that the Division of Recreation and Parks coordinate with the appropriate agencies with scheduled near shore swimming area water quality monitoring.

Disagree. A program is in place with County Health Department to currently test the nearshore waters. Curry Hammock is not a typical swimming beach as it contains an unnatural shoreline created by a dredge and fill project. Its shallow, nearshore waters are more commonly used by flats fishermen.

7. The team recommends that the Division of Recreation and Parks increase the priority of establishing interpretive signs and trails as stated in the unit plan.

Agree. Curry Hammock is a park in development and the priority for nature trails will be considered along with other park development needs. Currently, nature trails development is scheduled in March 2000.

Checklist findings

The following items received low scores on the review which indicates that management actions, in the field, were insufficient (f) or that the issue was not sufficiently addressed in the management plan (p). These items need to be addressed in the management plan update.

1. Listed Species: protection & preservation of animals (p) (f)

Manager's Response: **Disagree.** Listed species are protected as a part of the ecosystem. Sea turtle nesting surveys are performed every year. The beach was formed by a dredge and fill project and is not a pristine turtle-nesting beach. The compacted sediments impact nesting success. (See comments above pertaining to the issue of boulders and manatee signage.) The fact that the park hosts a yearly HawkWatch program will be mentioned in the next updated UMP.

2. Restoration of Disturbed Natural Communities: fill removal (p)

Manager's Response: **Agree.** The boulders in the borrow pit entrance area should be removed. As heavy equipment is needed to do the work, we have requested DOT assistance. At the present time DOT does not have the equipment needed to remove the boulders.

Disagree. The old mosquito ditches have filled with detritus. We do not believe they should be disturbed. This information will be included in the next updated UMP.

3. Surface Water Quality Monitoring (p)

Manager's Response: **Disagree.** We do not believe that water quality monitoring is necessary because of the geography of the island and the lack of development. Monroe County Health Department conducts testing for bacteria on a regular basis.

4. Resource Protection: Lighting (p)

Land Management Review of Curry Hammock State Park

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Manager's Response: **Agree.** The Florida Park Service is a leader in resource management protection. Future development will be sensitive to the resource needs, such as lighting on the sea turtle nesting area. This matter will be covered in the next updated UMP.

5. Adjacent Property Concerns: Vahalla Marina/Resort (p) (f)

Manager's Response: **Agree.** Plans for future development of adjacent properties will be watched, and any potential for adverse impacts will be addressed as issues arise.

6. Adjacent Property Concerns: Aquaculture Lease (f)

Manager's Response: **Disagree.** The aquaculture lease is not on our property. The lease is located adjacent to the Switlik property.

7. Adjacent Property Concerns: Adjacent County Lands (p) (f)

Manager's Response: **Agree.** The County owns adjacent land on Crawl Key. The proposal to build a shooting range on this location was abandoned because of local objections. Where appropriate, adjacent property concerns will be addressed in the next updated UMP.

8. Adjacent Property Concerns: Inholdings/Additions (p) (f)

Manager's Response: **Disagree.** (See comments provided above.)

9. Proposed Uses in the Management Plan: Camping Areas/RV's (p)

Manager's Response: **Disagree.** The proposal for a camping area is included in the existing UMP. The location is selected based upon needs and the potential for detrimental impacts on park resources. All development of new facilities will be properly permitted.

10. Proposed Uses in the Management Plan: Boating Facilities/Boat Ramp (p)

Manager's Response: **Disagree.** Curry Hammock is a park in development. The proper evaluation and permitting will occur prior to construction of new facilities.