

**MOUND KEY ARCHAEOLOGICAL
STATE PARK**

UNIT MANAGEMENT PLAN

APPROVED

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

DECEMBER 2, 2003



Department of Environmental Protection

Jeb Bush
Governor

Marjorie Stoneman Douglas Building
3900 Commonwealth Boulevard, MS 140
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

December 2, 2003

Ms. BryAnne White
Government Operations Consultant II
Office of Park Planning
Division of Recreation and Parks

Re: Mound Key Archaeological State Park

Lease Number: 3630

Dear Ms. White:

The Division of State Lands has completed the review of Mound Key Archaeological State Park Land Management Plan and finds that it fulfills all the requirements of Rule 18-2.021, F.A.C., and ss. 253.034 and 259.032, F.S. Therefore, on December 2, 2003, the Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund approves this plan. The plan's ten-year update will be due in December 2013.

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.

Sincerely,

Delmas T. Barber

Delmas T. Barber, OMC Manager
Office of Environmental Services
Division of State Lands

"More Protection, Less Process"

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INTRODUCTION

Mound Key Archaeological State Park is located in Lee County near the mouth of the Estero Bay about four miles from Koreshan State Historic Site (see Vicinity Map). Access to the park is by boat from the launching ramp at Koreshan State Historic Site. The vicinity map also reflects significant land and water resources existing near the park.

Currently the park contains approximately 120 acres, consisting of 76.59 upland acres and 43.26 wetland/submerged acres. For this plan, park acreage has been calculated based on the composition of natural communities, in addition to ruderal and developed areas.

At Mound Key State Archaeological Site 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 in 1961 with a donation from the Directors of the Koreshan Unity (see Addendum 1).

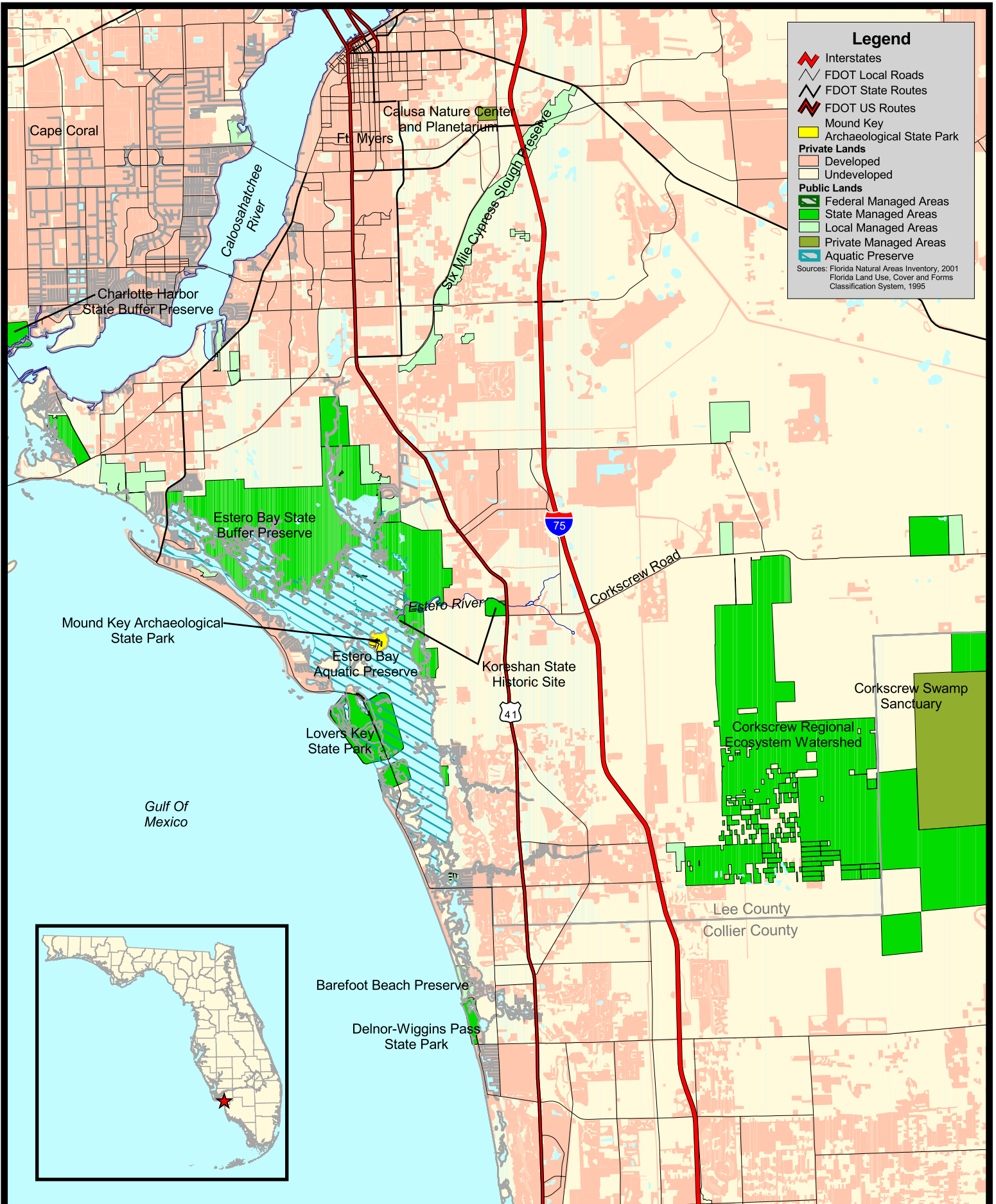
PURPOSE AND SCOPE OF THE PLAN

This plan serves as the basic statement of policy and direction for the management of Mound Key Archaeological 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 supercede and replace the current approved plan of February 26, 1998. 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



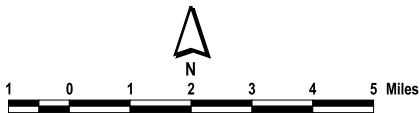
Legend

- Interstates
- FDOT Local Roads
- FDOT State Routes
- FDOT US Routes
- Mound Key
- Archaeological 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



Mound Key Archaeological State Park Vicinity Map



(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.

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 (DRP) is charged with the responsibility of developing and operating Florida's recreation and parks system. These are administered in accordance with the following policy:

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

The 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 **Operations Procedures Manual** (OPM) and cover such areas as personnel management, uniforms and personal appearance, training, signs, communications, fiscal procedures, interpretation, concessions, camping regulations, resource management, law enforcement, protection, safety and maintenance.

In the management of Mound Key State Archaeological Site, the division serves as interpreter and facilitator for visitors. Ordinary management actions are guided by the need to preserve the cultural resources for posterity according to chapters 258 and 267, Florida Statutes. Program emphasis is on interpretation on the park's natural, aesthetic, educational and cultural attributes of the park.

Park Goals and Objectives

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

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

Natural and Cultural Resources

1. To manage natural and cultural resources so that in managing one kind of resource there will be no detriment to the other.
 - A. Inventory the gopher tortoise population and evaluate the needs of a viable population against the impacts that management for those needs would have on other natural and cultural resources.
 - B. Plan the interpretation of all archaeological and historic periods within the limitations imposed by protecting natural communities and listed species.
 - C. Map the location of all individuals of the two listed species of Celtis, and monitor them periodically.
 - D. Map exotic species and determine which should be eradicated (or controlled) and which might be allowed to remain as part of the ethnoflora.
2. Pursue the eradication of aggressive exotic plants such as Brazilian pepper and Chinaberry.
 - A. Eradicate Brazilian pepper as a first priority and Chinaberry as a second priority.
 - B. Eradicate *Sanseveria* and *Kalanchoe* as a third priority.
3. Prepare and implement an interpretive design for Mound Key.
 - A. Draft an interpretive plan using all information compiled by research to date. The plan will consider the use of multiple facilities including access via a tour boat concession, docks (or other landing arrangements) for the tour boat, trails, exhibits, brochures, etc to maximize interpretation of the cultural resources while minimizing human impacts.
 - B. Continue to collect visitation data at the site.
4. Prevent further disturbance to the substrate.
 - A. Provide steps up the mound (under the guidance of an archaeologist) to eliminate erosion.
 - B. Provide interpretive signage advising of restrictions to sensitive areas.
 - C. Establish a park presence (park staff and/or law enforcement) at the site to prevent digging and other forms of vandalism.

Recreational Goals

5. Continue to provide quality resource based outdoor recreational and interpretive programs and facilities at the state park.

- A. Maintain interpretive exhibits on site and at Koreshan
 - B. Monitor visitor use impacts with photo points.
6. Seek funding to expand recreational and interpretive opportunities through the improvement of programs and the development of new use areas and facilities, as outlined in this management plan.

Park Administration/Operations

7. Establish a park presence on the island.
- A. Investigate partnerships of all kinds.
 - B. Develop volunteer support for the park.
 - C. Seek additional staffing, permanent and/or frequent visits by law enforcement personnel.

Management Coordination

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

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

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 29, 2003. The purpose of this meeting was to present this draft management plan to the public. A DEP Advisory Group meeting was held on May 30, 2003. The purpose of this meeting was to provide the Advisory Group members the opportunity to discuss this draft management plan. Addendum 1 contains a list of advisory group members and the advisory group meeting staff report.

Other Designations

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

All waters within the unit have been designated as Outstanding Florida Waters, pursuant to Chapter 62-302 Florida Administrative Code. Surface waters in this unit are also classified as Class III waters by DEP. This unit is within Estero Bay Aquatic Preserve an (aquatic preserve as designated under the Florida Aquatic Preserve Act of 1975 (section 258.35, Florida Statutes).

RESOURCE MANAGEMENT COMPONENT

INTRODUCTION

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

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

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

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

RESOURCE DESCRIPTION AND ASSESSMENT

Natural Resources

Topography

The topography of this site rises in dramatic contrast to the surrounding region. Unlike other nearby islands, and the low-lying mainland to the east, Mound Key is dominated by the steep slopes of several mounds, one of which attains an elevation of approximately 32 feet above mean sea level. From the sides of the largest mound, several ridges trail away in long, sinuous patterns, sloping downward until at their extremities they are only slightly elevated above the surrounding terrain.

Geology

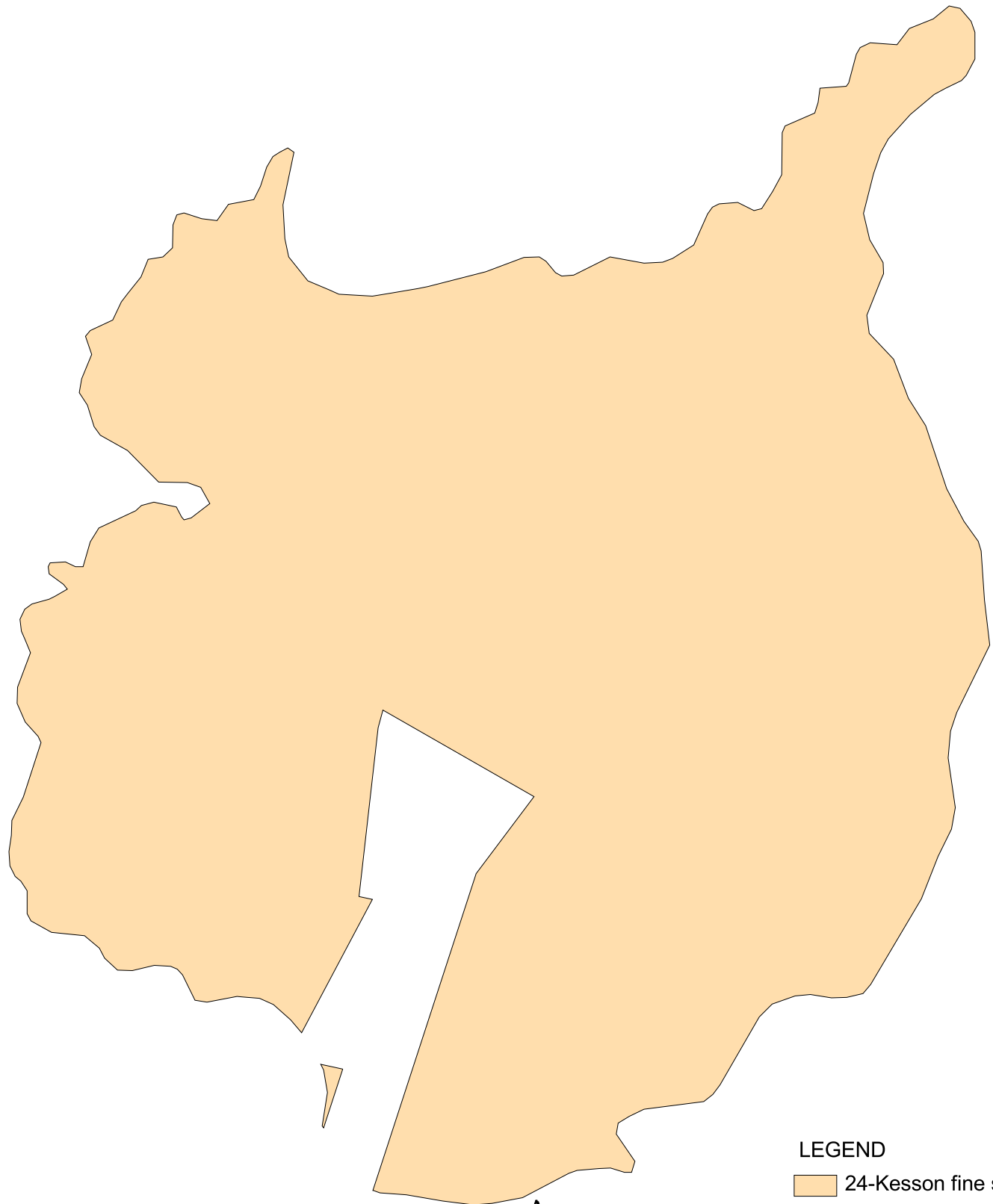
Mound Key is a man-made feature rising from the shallow, saline waters of Estero Bay. It rests on limestone deposited during the Pleistocene geological period.

Soils


The scale at which Mound Key was mapped during surveys by the U.S. Department of Agriculture's Soil Conservation Service only permitted the identification of one soil type: Kesson fine sand, which underlies the fringe of mangroves surrounding the island (see Soils Map). There are no soil conservation issues at this park. Foot traffic and subsequent water movement over the contours of the mounds is accelerating erosion. This issue will be covered later in the text.

Kesson fine sand. This is a nearly level, very poorly drained soil in broad tidal swamps, subject to tidal flooding. Slopes are smooth and range from zero to one percent. Typically,

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LEGEND

 24-Kesson fine sand



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SOILS MAP

the surface layer is sand, about six inches thick, which contains shell fragments. The underlying layers are fine sand, down to a depth of 80 inches or more. The upper four inches is pale brown; the next three inches is light brownish gray; the next 25 inches is light gray with dark gray streaks, and the lower 42 inches is white. Included with this soil in mapping are areas of Captiva and Wulfert soils, and soils that have organic surface layers. Also included are soils that have loamy material throughout. Included soils make up about 10 to 15 percent of any mapped area. The water table fluctuates with the tide. The available water capacity is low. Natural fertility is low. Permeability is moderately rapid or rapid. Natural vegetation on Kesson fine sand is characterized by red, black and white mangroves, pickleweed and sea oxeeye daisy.

Minerals

There are no known mineral resources. However, the shell material of the middens was mined in the 1920s for construction on the Tamiami Trail.

Hydrology

No data are available. Hydrology is not a concern at this site, which is far from shore and located in an estuarine setting.

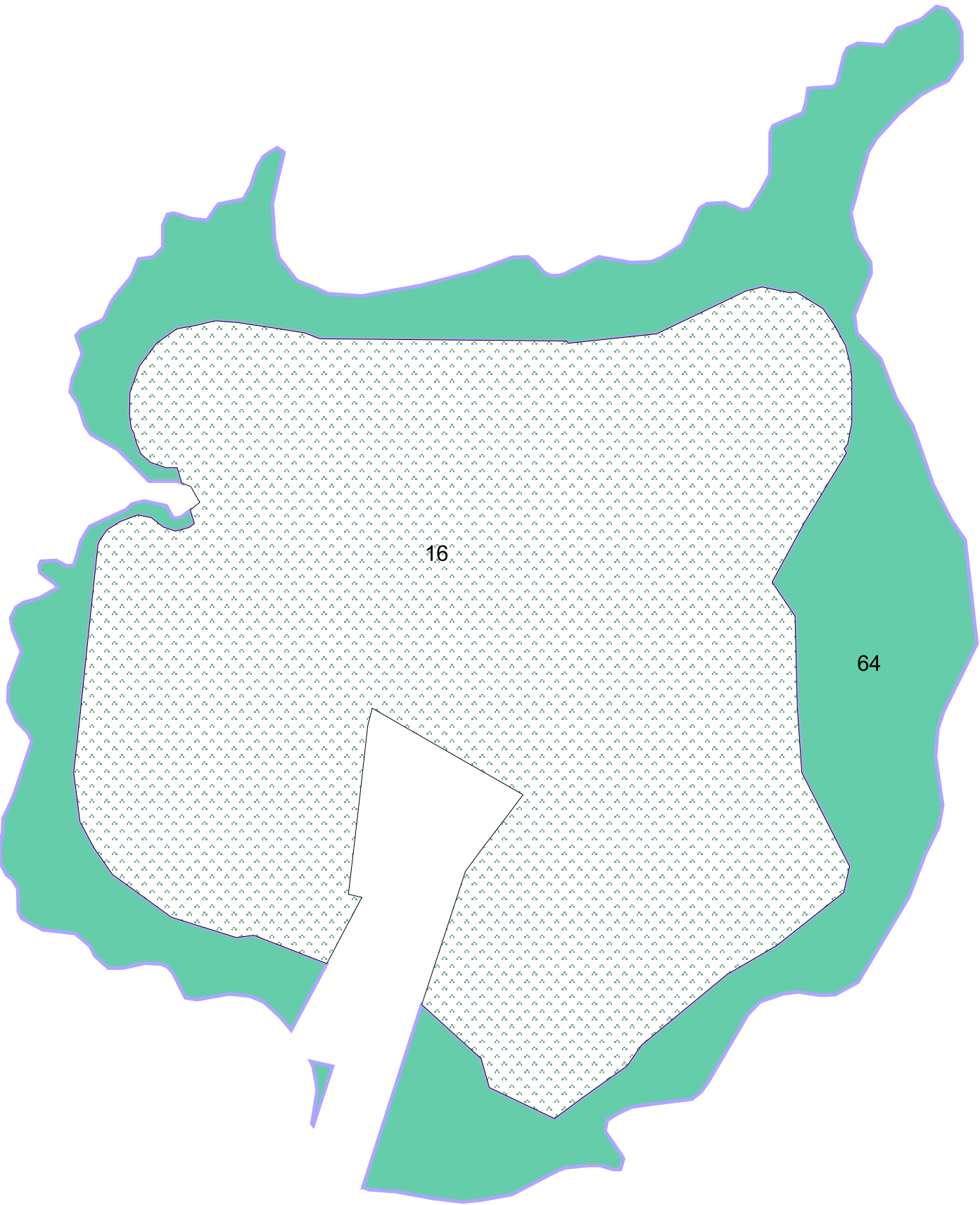
Natural Communities

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

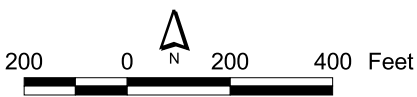
The park contains two distinct natural communities (see Natural Communities Map) as classified by FNAI in addition to ruderal areas. Park specific assessments of the existing natural communities are provided in the narrative below. A list of plants and animals occurring in the unit is contained in Addendum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

Shell mound. The upland vegetation of Mound Key grows on a shell substrate built by humans. Although the plants growing on these sites are predominantly natural, the base that supports them is not. The shell mound community, covering approximately 76 acres, is a well-developed example of the type. The canopy is dominated by gumbo limbo and mastic trees, some which are enormous in size; the same can be said of several strangler figs that tower above the canopy. There are also some exotic trees introduced by settlers who lived on the island early in this century. They include royal poinciana, avocado, sweet sop, Chinaberry and Surinam cherry. The smaller native understory trees are mainly white stopper and Spanish stopper. They are quite dense in places. Native ground cover is sparse and often absent over large areas, the well-shaded forest floor being thickly covered with brown leaf litter. There are isolated patches of invasive plants, the two of greatest concern being sanseveria, which is found in well-shaded locations, and Kalanchoe, which responds well to sunlight; it is more likely to be found near the forest edge.

The flora of Mound Key was mapped and described by a graduate student from the University of South Florida in 1973-74 (Cooper 1978). The community designated "shell





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LEGEND

-  16 - Shell Mound- 76.59 ac.
-  64 - Estuarine Tidal Swamp-43.26 ac.

**NATURAL COMMUNITIES
MAP**

mound community” by FNAI was called by Cooper a “tropical hammock”. Another community on Mound Key Cooper called “thorn scrub”. The FNAI shell mound community designation refers to a hammock, as the FNAI synonyms and textual commentary make clear. However, FNAI also acknowledges “in some cases, a sparse, shrubby community, sometimes with cactus, may develop in lieu of hammock vegetation.” This is the thorn scrub described by Cooper. FNAI did not give it a name. Cooper believed it to be a climax sere, like the hammock. Her analysis included a structural description and gave frequency values for the dominant species. Thorn scrub lacked a shady canopy and had no leaf litter. The tallest species were small trees and shrubs: Florida privet, buttonwood and white indigo berry. In Cooper’s study, agaves and cacti comprised almost 65 percent of the shrub layer. Unfortunately, this community is not shown on the vegetation map because natural communities not recognized in the Guide to Natural Communities of Florida (FNAI, 1990) cannot presently be accommodated in the maps of unit management plans.

Estuarine tidal swamp. This community encircles the island in a vegetative band of variable width. The outer fringe of the swamp is dominated by red mangroves. However, some parts of the interior are made up solely of black mangroves. They are some of the best developed examples of the black mangrove association to be seen anywhere, having trees of large size, widely spaced, and densely canopied, over a shaded substrate thickly punctuated by long, upward-pointing pneumatophores. A 1996 National Champion nominee black mangrove (circumference 101 inches, height 43 feet) is located here. These interior associations are bounded, at least in part, by linear shell ridges erected by an ancient culture, and may therefore in their origins have been influenced by the activities of the mound builders.

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 6 contains a list of the designated species and their designated status for this park. Management measures will be addressed later in this plan.

Twenty-two listed species have been identified at this site; most (12 total) are plants, including some rarities such as the spiny hackberry (*Celtis ehrenbergiana*) and Iguana hackberry (*C. iguanaea*) and wild cotton (*Gossypium hirsutum*). The plants apparently need only the protection afforded by being in a park since they are not coveted by collectors (with the possible exception of butterfly orchids) and do not seem to be imperiled at this site. The only species known to present a management challenge is the gopher tortoise. Formerly open habitat, which it needs for foraging, is disappearing. This habitat is now classified as a ruderal community. Shrubs are replacing grasses and forbs as succession follows its course. A question arises as to whether vegetation should be selectively cleared to sustain gopher tortoises. This may be undesirable since numbers seem low and the population may not be viable over the long term in any case. However, it might be useful to collect blood samples for genetic analysis of what appears to be a small, island population.

Special Natural Features

There are no special natural features.

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.

Mound Key is remarkable for the large size of its shell middens, one of which rises to a height of 32 feet, giving it the distinction of being the most elevated topographical feature in Lee County. These structures attest to a continuous period of use by pre-Columbian cultures over at least 35 centuries. This prolonged occupation has recently been verified by a recent archaeological investigation, which also concluded that, "Mound Key is an extremely significant and well preserved site...the excellent preservation....sets it apart from most sites in the region... one of the best preserved archaeological sites in the Calusa domain" (Torrence, Chapman, and Marquardt 1994).

Pursuant to the Lee County Land Development Code, Chapter 22, Historic Preservation, Mound Key (HD District Mound Key 98-03-02) was designated as an historic resource on April 9, 1998.

The history of Mound Key is significant to the period of European contact. This may be the place where Ponce de Leon was mortally wounded by Indians in 1521. Scholars believe that in the sixteenth century it was the headquarters for an Indian confederation which extended across the southern peninsula and to the Keys of Florida, an opinion derived from documents of that period which chronicle a brief attempt to project Spanish authority onto the West Coast of Florida.

In 1566, Pedro Menendez de Aviles, while cruising the southwest coast of Florida, maneuvered his shallow-draft brigantine through a narrow passage between two barrier islands. He found an expanse of water, which fits the description of present-day Estero Bay. Here he met the cacique (chief) of the Calusa nation whose village was situated in the middle of the embayment on a small island. It measured about half a league in circumference. Spanish records name this place the Bay of Carlos, which in the Indian language was called Escampaba, after the cacique. The Spanish with their indomitable cultural assertiveness dubbed the cacique (and his bay) Carlos, after a king of Spain.

The Spanish erected on Mound Key a fort named San Antonio and a settlement of 36 houses, constructed of thatch and wood. Their method of insinuating themselves into the realm of Carlos also included, in addition to the forts and settlements, evangelizing by Jesuit priests. The Jesuit mission on Mound Key was the first of that order anywhere in Spain's New World Empire. The clerics also set up a school in Havana for the education of the Indians, particularly the sons of important chiefs. To consolidate his influence in the Calusa social order, Menendez went through the motions of a marriage with the sister of Carlos, a diplomatic maneuver that reportedly did not sit well with the Jesuits.

Menendez tried to end the quarrels of the Indians among themselves in order to render them tractable vassals of the King of Spain. Unfortunately, his scheme for them did not ultimately win their approval. The Spaniards had to withdraw in 1569 after a violent clash in which Carlos and a score of his followers fell. Contact between the Calusa and the settlement at St. Augustine continued sporadically during the following century. There was at least one other failed attempt to missionize the Indians of this region. The Calusa population declined in the eighteenth century, probably from European diseases (Milanich and Proctor 1978).

The estuaries of the southwestern Florida coast had always sustained great numbers of fish,

which could be easily caught in nets. With the Indians gone, Spanish fishermen came and lived alone or in small, scattered settlements to catch and dry fish for the Cuban market. Some of the fishing families lived on Mound Key in the 1700s and early 1800s (Torrence, Chapman, and Marquardt 1994), until they began to be displaced by arriving Americans.

According to Cooper (1978), “several families of fishermen lived on the island from 1897 to 1927. Frank M. Johnson was the first settler formally occupying the island under the Homestead Act. At one time there were 11 buildings, simple gardens, and cattle on the island”. An interview with a former resident of the island revealed that as many as 17 families lived there at one time, and that there was even a small, wooden schoolhouse (Alvarez 1981). Most residents moved away after the 1926 hurricane, which destroyed all the structures on the island. The last resident left in 1940.

An archaeological investigation was carried out on Mound Key in 1994. The conclusions of the study are quoted below and the references cited are within the report (Torrence, Chapman, and Marquardt 1994).

Mound Key is an extremely significant and well-preserved site. Cultural materials from all major pre-contact and post-contact periods known in southwest Florida from 500 B.C. to the present were identified at Mound Key.

The exact extent of the pre-contact components on Mound Key is yet unknown due to limited archaeological testing. Radiometric dating was not included in this initial phase of work. However, based on previous excavations in the Calusa area (e.g., Marquardt, ed. 1992) and the preliminary results of this survey, we can infer that portions of the site likely date as early as the Caloosahatchee I period (500 B.C. to A.D. 500). This interpretation is based on the observation that inundated archaeological components were unexplored in Units A-1 and A-2, whose excavated portions could be assigned to the Caloosahatchee IIA period (A.D. 500-800) bases on the artifacts found.

Further evidence of Caloosahatchee I components can be hypothesized for the deposits in Ridge 12 and the basal portions of Operation C-1 east of Mound 1. In both of these contexts, Belle Glade pottery, a marker of Caloosahatchee II period deposits, was absent.

*Caloosahatchee II period components were encountered in Mound 4 based on the artifact assemblages from Operations A-1 and A-2. Here the association of *Strombus alatus* type G hammers with Sand-tempered Plain ceramics hints at an occupation dating to this period.*

Based on the identification of Caloosahatchee II artifacts, including Belle glade pottery, as well as St. Johns Check Stamped pottery, it can be stated that Caloosahatchee II (A.D. 500-1200) and III (A.D. 1200-1350) deposits are present on the island.

Ceramic markers for the Caloosahatchee IV period (A.D. 1350-1500) include Safety Harbor and Glades Tooled types. Glades Tooled ceramics were identified over large portions of the site, including the controlled surface collections at Collection Station 10, Operation D-1, and Operation F-1. There can be little doubt that this period is well represented at Mound Key.

Caloosahatchee V (A.D. 1500-1750) components are also represented on Mound Key based on the recovery of diagnostic Native American and Euro-American materials. Specifically, Jefferson Ware ceramics and the Spanish majolica and olive jar fragments recovered from the surface collections and on Mound 2 are in sufficient numbers to imply occupations dating to both the early seventeenth and the early to middle eighteenth centuries, and a Santo Domingo Blue on White sherd dates to the late sixteenth century.

Previous archaeological information, the historical research of Hann (1991) and Lewis (1969, 1978), and the research conducted during this investigation all support the hypothesis that Mound Key was indeed Calos, the capital of the Calusa. If so, it is also the site of the fort/mission of San Antonio de Carlos, the first Jesuit mission built in this hemisphere to serve and convert the Indians.

A number of other observations can also be gleaned from preliminary research. First, there are at least two burial mounds on the island based on the identification of human remains. These are Mounds 6 and 7.

The matrix of Mound 7 is characterized by fine sand, with numerous scallop and small crown conch shells. Belle Glade ceramics were also identified, indicating a temporal affiliation somewhere between A.D. 500 and 1500. Numerous dippers, all punctured, were evident over the surface. The mound has been badly disturbed by illegal excavations.

Mound 6, previously known as 8LL3, also has been badly disturbed by illegal digging. Here only Sand-tempered Plain sherds were observed during walkovers. In contrast to Mound 7, Mound 6 is comprised primarily of fine sand and oyster shells.

Mound 5 is also likely a burial mound based on form, content, and location. Elmer Johnson, who was born on Mound Key in 1908, indicates that the ridges and possibly the muck areas of the site were also used as places of burial. More specifically, he states that hundreds of human bones were unearthed in one of the northerly ridges off of Complex II and that one burial was encountered during the excavations by May in the early twentieth century (Elmer Johnson, personal communication, 1994).

Second, contrasting faunal assemblages were recognized in our limited testing. These may be attributable to the utilization of areas by native Americans of different social status. Fontaneda (1944) makes clear reference to high-ranking members of Calusa society having differential right to particular food resources. The distinction in deer bone elements between the excavations in Mound 4 (Operations A-1 and A-2) and Operation C- 1 could also be explained as differential usage of deer bones for tool manufacture. Similarly, the matrix distinction (oyster versus scallop and crown conch) between Mounds 6 and 7 may have to do with the social status of individuals who lived on or were buried in these features, or may be due simply to deposition at different time periods.

Third, evidence of structural remains was identified in eight of the twelve excavation units. Bases on historical records and local informants who lived on Mound Key, the Euro-Americans who inhabited the island after the contact period did not construct fences. This information, combined with the stratigraphic association, suggests that structural remains such as post molds are attributable to the pre-contact and early post-contact periods. Furthermore, several of the structural remains are clearly attributable to Native American origin, indicating that information on aboriginal structures is potentially available at least for Caloosahatchee periods III through V.

Finally, at the base of Operations B-1 and C-1, below the apparent extent of cultural deposits, dense oyster shell deposits were encountered. These deposits may represent a natural accumulation of oyster bars on which the initial occupations of Mound Key began to accumulate. In concert with the research of Karen Walker (1992), these deposits and other proxy environmental data available on Mound Key could contribute significantly to our understanding of environmental dynamics related to sea-level change and human cultural adaptation in the region (see Walker, Stapor, and Marquardt 1994).

In contrast with the spatially extensive Native American deposits, the Euro-American components are restricted to the western side of the island. This is not surprising when combined with the topographical data for two major reasons. First, the waters on the east side of the island are too shallow to enable boat access in any vessel other than a canoe, whereas the west side is higher, facilitating Euro-American land use practices. N During the post-contact period, Spanish access to the eastern side of the island may have been restricted by the Calusa for spiritual reasons.

The earliest Euro-American components probably date to the first mission of San Antonio de Carlos established in 1567. A single sherd of Santo Domingo Blue on White majolica was recovered from the southwestern shore. Numerous other artifacts can be attributed to this time period, though not exclusively. The evidence in support of the mission being situated on Mound 2 of the Mound Key site is compelling, though circumstantial.

Surface collections along the southwestern shore suggest that at least this region of the site was occupied by Euro-Americans in the mid-eighteenth century, shortly after the demise of the Calusa, if not during this transitional period.

Historical documents indicate that itinerant Cuban fisher folk inhabited the island throughout the early and late nineteenth centuries and into the Homestead Period which began sometime in the late 1800s. Numerous accounts and documents elucidate the lifeways and land-use practices of the Mound Key homesteaders, and archaeological remains of their habitation are extensive.

It is evident from documents, newspaper articles, local informants, and our own surface evaluations undertaken during this project that extensive amounts of archaeological material have been removed from Mound Key. Southwest Florida historical materials collected during the 1890s are curated at the Smithsonian Institution and at the University of Pennsylvania Museum, catalogued simply as "Punta Rassa". It is likely that these artifacts came from Mound Key (George Luer, personal communication, 1990), and were mailed from the Punta Rassa post office, accounting for the catalogue assignment to that locality.

Years of public and scientific surface collection have removed a vast quantity of "obvious" artifacts from the island. By obvious we mean decorated pottery sherds and artifacts of precious metals. (One informant, Robert Porter, donated to the Florida Museum of Natural History a gold bead he had found on the island as a teenager in 1927. His desire was that it be properly curated and analyzed. In addition, James Kenefick wrote from Connecticut to inform us of his surface collections and digs on the island in the 1940s. We are attempting to obtain photographs of Mr. Kenefick's Mound Key collections.)

Even more distressing are the extensive looters' pits that pock the surface everywhere. Nowhere is this more evident than in Mounds 6 and 7. In Mound 7 there is a single pit more than three meters square and a meter deep. In all, the open pits on Mound 7 represent more earth removal than was accomplished during this entire project. Furthermore, illegal excavations were initiated during our presence on the island and on three occasions our excavations and decoy reference markers were vandalized.

Nonetheless, the present extent of damage has not destroyed the overall significance of the site. Mound Key is still one of the best preserved archaeological sites in the Calusa domain.

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 assessment is not required since the property is under the 1,000 acres threshold established by Florida Statutes. However, where possible, efforts will be made to maintain and restore the scrubby and mesic flatwoods communities to more natural conditions. Even though the park is less than 1,000 acres, timber management will be reevaluated during the next revision of this management plan.

Management Needs and Problems

The most pressing resource management problem is reducing the infestation of Brazilian

pepper. This plant was scarcely noticeable in 1970, but had spread across the island by 1990. An exotic plant, it is aggressive and invades continually. Eradication work has been intensified since 1988. The staff makes regular visits from Koreshan State Historic Site. They have made impressive inroads against Brazilian pepper and other exotics as well.

Another recurring problem has been physical damage to the mounds in the form of digging by artifact seekers, and perhaps by treasure hunters. Gold and silver items of Spanish origin were reported to have been dug up here many years ago (Ft. Myers News Press, 24 November 1952). Damage to the mounds in the form of erosion is less severe than digging, but a problem nonetheless.

Several privately owned parcels of land on Mound Key constitute the most serious long-term obstacle to management. Negotiations by the state with the owners have been underway since at least 1974. The acquisition of this property is presently an active DEP project.

Devising a management/interpretive scheme for Mound Key State Archaeological Site presents a challenge. The most significant cultural period would probably be the 1500s, the time of European contact and a period for which records exist; though they may be minimally helpful for recreating the scenes of that day.

Questions arise. Should there be an attempt to recreate the village of Carlos, or the mission and fort of San Antonio, or part of later fishing settlements? Although this is a cultural site, it has significant biological values. The forest of tropical hardwood trees is a fine example of the type, preserving several listed species. It is worthy of preservation. There is also the question, mentioned earlier, of managing for gopher tortoises. Should part of the ruderal community be cleared, as it was during historic times - a measure that would favor the tortoises by stimulating the growth of a vegetative ground cover which would serve as forage.

Archaeological excavations of the suspected burial mounds might reveal a treasure trove of artifacts and data. Such an investigation should therefore be given due consideration. Digging on any scale however might conflict with other desirable goals.

A committee representing several disciplines should be assembled to examine these contradictory interests and to propose the lineaments of a long-range strategy for this complex site. The district biological staff can represent the concerns of their profession, but persons with expertise in archaeology, and perhaps cultural history, are also needed. If excavations were to be conducted, it would be prudent to initiate them soon to forestall further damage to the site by illegal digging. It is nearly impossible to police this threat without stationing someone permanently on the island. Visiting looters are perfectly concealed by the heavy vegetation. Apprehending them would be purely a matter of chance.

Management Objectives

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

1. The location and distribution of all exotic species will be mapped as an aid in deciding the fate of introduced plants. Species such as Brazilian pepper that menace the native plants, will be eliminated, but other species, such as sweet sop, might be allowed to remain and play a role in cultural interpretation.
2. The tropical hardwood trees and the thorn scrub vegetation are good representations of tropic Florida and ought to be given consideration when planning archaeological

- investigations and when planning the location of facilities.
3. Rare plant species, such as iguana hackberry, spiny hackberry and wild cotton will be mapped and monitored. The gopher tortoise population will be assessed to determine if management measures should be implemented on its behalf.
 4. To prevent further erosion on the mounds, the construction of steps will be evaluated.
 5. All means of supplementing manpower will be investigated; increased staffing, increased law enforcement, partnerships, volunteers, etc. Plans for public access and interpretation will be prepared.

Management Measures for Natural Resources

Hydrology

Hydrology is not a management consideration at this site. It is a small island far from shore.

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.

Prescribed burning is not a management consideration at this site.

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 designated species identified at this site seem adequately protected. Plants on this island belonging to the genus *Celtis* are recognized by federal and state agencies as rare and endangered. On Mound Key, as they are few in number, it would be both feasible and prudent to mark sites where they grow using a global positioning system (GPS), and subsequently to monitor the population. Something of the sort might also be done with wild cotton. The latter species grows where fully exposed to sunlight, whereas species of *Celtis* are found in the shade of hammocks. As mentioned before, gopher tortoises are few and perhaps declining due to habitat changes. A burrow survey will be initiated to derive a population estimate. Those calculations may aid a policy decision on the tortoises.

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. Therefore, the policy of the Division is to remove exotic species from native natural communities.

Lantana (*Lantana camara*) is present and can be controlled by manual pulling. Care should be taken not to disturb the native species of lantana (*L. involucrata*). There should be no difficulty distinguishing these two forms. The exotic species has blossoms of deep yellow, fading to orange, while the native plant has white flowers that sometimes shade to a lavender.

There is a greater chance of confusing the exotic agave, sisal hemp (*Agave sisalana*), and the native species, false sisal (*A. decipiens*). If there is any doubt by the park staff about these identities, a biologist from the district office should be consulted.

The exotic plant of primary concern is Brazilian pepper (*Schinus terebenthifolius*). This weed has spread rapidly over the island in the last decade, probably aided by raccoons, which eat the fruits and pass the seeds through the digestive tract. Control has been underway since 1988 by having the park staff from Koreshan State Historic Site treat large plants and pull seedlings as they appear.

If the plants get too large to be pulled by hand, a mixture of Garlon-4 and JBL oil have proven to be most successful in control of Brazilian peppers using best management practices.

Early twentieth-century settlers for shade or fruit planted several exotic species. These include Chinaberry and royal poinciana trees, which are not so aggressive as Brazilian pepper but still capable of spreading from where they are planted. Of the fruit trees, sweet sop and avocado have remained localized. Surinam cherry, papaya and citrus have spread moderately, and guava has been a most prolific colonizer. An ornamental vine, pink allamanda, was introduced, and at some sites, it has formed monotypic thickets. It may be desirable to leave some of these trees, which were planted for shade, showy blossoms and edible fruits. Others, such as Chinaberry, should be eliminated because of their tendency to spread and displace the native flora.

No exotic animals have been identified.

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.

Several special management considerations have been raised in preceding pages. They arise from a potential conflict in managing both natural and cultural resources at the same site. Mound Key is a man-made structure having a rich pre-Columbian and Spanish historical legacy. It also is a historic fishing village and historic agricultural site for the Koreshan Unity. Moreover, it was a site where shell was mined for road construction in the early twentieth century. However, whereas human occupation failed to persevere, nature has endowed the site with attributes now valued by a culture trying to preserve a legacy of natural beauty and biodiversity. The special consideration is to manage, and to interpret, so that one management objective is not carried out to the detriment of the others.

No special cultural management measures have been decided upon at Mound Key at the present time. The near-term management goal is to maintain the site in an undisturbed condition.

Research Needs

Natural Resources

Any research or other activity that involves the collection of plant or animal species on park

property requires a collecting permit from the Department of Environmental Protection. Additional permits from the Florida Fish and Wildlife Conservation Commission, the Department of Agriculture and Consumer Services, or the U.S. Fish and Wildlife Service may also be required.

Two research needs have been identified. The first is to map gopher tortoise burrows as a first step in determining the size and distribution of the tortoise population. The second is to assess the ethnoflora by mapping the distribution of exotic plants. Invasive species posing a threat to native plants will be eliminated. However, some exotic plants may be retained for interpretive purposes.

Cultural Resources

A 1994 archaeological investigation made recommendations on further research (and other things) that are quoted in full below (Torrence, Chapman, and Marquardt 1994).

The extent of the different cultural components on Mound Key is not known at this time. The way the site is interconnected by canals, courts, and ridges suggests that it functioned as a contiguous whole during its zenith. Under these conditions, it makes sense to refer to the site as a single multi component deposit rather than arbitrarily carve it up into a myriad of spatially limited sites, each with its own state number. How would one determine where one site ended and the next began?

When the site was first assigned a number in the state files, two small features on the island were referenced under two separate site numbers, 8LL2 and 8LL3. Today there is confusion as to which features these numbers refer to. To clarify matters, 8LL3 is definitely the same as Mound 6.

Site number 8LL2 appears once to have referred to a small rise located south of Mound 1, however the current 8LL2 site file has been enlarged to encompass the entire island with the exception of Mound 6 (8LL3). As per conversations with personnel with the State Site File, all future research will utilize the 8LL2 number, including any work conducted on Mound 6. This will alleviate many headaches in the future, but researchers should be aware that previous collections from Mound 6 are likely to be listed as site 8LL3.

Recommendation 1: *Further research on Mound Key is definitely warranted. The excellent preservation of this site sets it apart from most sites in the region. Our data suggest that aboriginal structural remains are well preserved along with numerous activity areas. Wet site potential is likewise extremely high, and our research further indicates that data applicable to sea-level fluctuation studies and dynamic models of paleoenvironmental reconstruction are present at the site. Finally, there are significant deposits dating to the post-contact period, including Mission, Cuban, Pioneer, and Homestead periods.*

Mound Key is the high point of Lee County in many ways. Most obviously, Mound 1 is the highest elevation in the county at 9.79 meters (32.12 feet) a.m.s.l. Second, it is widely believed to have been the capital of the Calusa domain. Some recognize that this also means it was the site where the Spaniards established the first Jesuit mission to serve the Indians in this hemisphere. Third, it is a symbol of the more recent past. The homesteaders who worked a living out of the estuary continued a fishing tradition already many centuries old. The early agricultural and fishing industries represented on Mound Key are important reminders of Lee County's heritage.

Recommendation 2: *The archaeological site should be better protected and interpreted than it is today. The public visits Mound Key frequently. During our five months of research, not a single day passed without a person stopping to investigate the island. On some days, over 50 different people would stroll across the path that traverses the island. Because of this extensive public interest, the State of Florida should take responsible action to protect and interpret the island.*

Primarily because of the unsubstantiated (and in fact refuted) legends of Gaspar the Pirate,

which have been published in such works as Rolfe Schell's book 1000 Years on Mound Key, extensive illegal excavations have taken place over the site. This misinformation continues to threaten the irreplaceable archaeological record of Mound Key. Monitoring of the island by law enforcement personnel is desperately needed.

Considering the vandalism to our equipment and excavations during the project, and given the high traffic on the island, we recommend that the rear permanent survey stations not be marked with brightly colored plastic caps, although this is technically required by our contract with Koreshan Unity Alliance. This would draw attention to the markers, and invite their removal. The rear markers can be easily found using a metal detector, so it does not make sense to mark them conspicuously.

Recommendation 3: *Trails should be stabilized to prevent further erosion and deterioration. The heavy foot traffic over the island is exacerbating erosion of the mounds, in particular Mounds 1 and 2. If Mound Key is to remain open to the public, then the trails should be secured to avoid continued degradation of the site. If any excavation (e.g., for installation of steps) is necessitated by such trail improvement, a professional archaeologist should be on hand to monitor the work and systematically collect and interpret any artifacts.*

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 8. Cost estimates for conducting priority management activities are based on the most cost effective methods and recommendations currently available (see Addendum 6).

Land Management Review

Section 259.036, Florida Statutes, established land management review teams to determine whether conservation, preservation, and recreation lands titled in the name of the Board of Trustees of the Internal Improvement Trust Fund (board) are being managed for the purposes for which they were acquired and in accordance with a land management plan adopted pursuant to s. 259.032, the board of trustees, acting through the Department of Environmental Protection (department). The managing agency shall consider the findings and recommendations of the land management review team in finalizing the required 5-year update of its management plan.

Mound Key Archaeological Site was subject to a land management review on October 17, 2001. 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, were in compliance 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, then proceeds through the creation of a conceptual land use plan that culminates in the actual design and construction of park facilities. Input to the plan is provided by experts in environmental sciences, cultural resources, park operation and management, through public workshops, and environmental groups. With this approach, the Division objective is to provide quality development for resource-based recreation throughout the state with a high level of sensitivity to the natural and cultural resources at each park.

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

EXTERNAL CONDITIONS

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

Existing Use of Adjacent Lands

Mound Key Archaeological State Park is located in Estero Bay in the southwestern part of Lee County. Big Carlos Pass to the Gulf of Mexico is to the southwest. The closest lands are small mangrove islands in the bay. About two miles west is Estero Island and the heavily developed Fort Myers Beach. Other state parks in close proximity are Lovers Key State Park, approximately one mile southwest, and Koreshan State Historic Site, about four miles to the east.

Planned Use of Adjacent Lands

Lee County continues to experience a rapid population growth with a 32 percent change in the last 10 years while Collier County, just to the south, has had a 65 percent change. A 22 percent increase is projected for Lee County in the next 10 years and Collier County is anticipating a growth of nearly 37 percent. A large part of the growth in this region is focused between Ft. Myers and Naples. The median age projection for 2010 is 49 and in 1999, the per capita income for Collier was the highest in the state. The continued growth of the surrounding area's population, particularly among high-income retirees, is anticipated to increase public interest in and visitation to Mound Key.

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.

Mound Key Archaeological State Park contains approximately 76 acres of uplands. Access to the island is by boat only, through shallow waters. The shoreline, dominated by mangroves, has only a few small openings suitable for access. There are no docking facilities, and visitors to the island must beach their boats to come ashore. The western access point is deep enough at high tides to accommodate shallow draft powerboats. Access on the southeastern side is limited to canoes and kayaks. Much of the island consists of prehistoric shell mounds of various sizes. Mound Key is considered the highest elevation along Lee County's coastline, reaching a height of 32 feet. The top of Mound One provides a scenic overlook of Estero Bay and Ft. Myers Beach. The shell mounds are typically covered with tropical hardwood hammock vegetation, and the remainder of the island supports estuarine tidal swamp and a community that has been described as thorn scrub.

Archaeological and Historical Features

Framed in forests of mangrove trees, the shell mounds and ridges of Mound Key rise more than 30 feet above the waters of Estero Bay. Prehistoric native Americans are credited with creating this mound complex with a build up with shellfish deposits and bones of the fish and animals used for food. Broken pottery has also been found all through the mounds. Mound Key is believed to be the ceremonial center of the Calusa at the point of European contact and is the place where Pedro Menendez de Aviles, the governor of Spanish Florida, met Calusa King Carlos in 1566.

Mound Key also has a significant post-contact history including Mission, Cuban, Pioneer, and Homestead periods. Mound Key was the site of San Anton de Carlos, the first Jesuit mission in the Western Hemisphere. The earliest known homesteader is Frank M. Johnson, who settled on the island in 1866 receiving his Homestead Title from President Benjamin Harrison in 1891. By the early 1900's, there was a small community of families and the Koreshan Unity had a vegetable garden there but a hurricane in 1926 destroyed much of this settlement. Clearings and remnants of a water cistern and a great central canal remain as evidence of the island's habitation and abandonment. The site is listed on the National Register of Historic Places.

The site's cultural resources are described in detail in the resource management component.

Assessment of Use

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

Past Uses

Excavations of the mound deposits have changed the profile of the island. Construction of the Tamiami Trail (U.S. Highway 41) in the 1920s utilized the island as a source of fill resulting in a pit observable as a depression completely overgrown with mangroves. Additional excavations by a steam shovel in the 1930s created the inlet that is now used as an anchorage.

ESTERO BAY

North landing

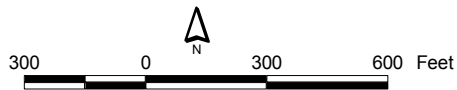
Trail

South landing

LEGEND

- Trails
- Park boundary

**MOUND KEY
ARCHAEOLOGICAL
STATE PARK**



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

BASE MAP

Reports of a schoolhouse on the island at the turn of the century indicate the presence of a small colony of homesteaders. Before acquisition by the state in 1961, much of the island belonged to the Koreshan Unity, an incorporated religious colony with headquarters in Estero.

Recreational Uses

The island is a popular canoeing and boating destination. A pedestrian trail traverses the island, providing access to a portion of the mound complex. The island also offers opportunities for wildlife observation and nature study.

No other uses of the park exist at this time.

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 Mound Key Archaeological State Park, the entire property has been designated as a protected zone as delineated on the Natural Communities Map.

Existing Facilities

Recreation Facilities

A nature/interpretive trail of about one half mile traverses the island, connecting the two boat landings. The primary access on the western side accommodating shallow draft power boats and the secondary access on the southeast for canoes and kayaks only. Informational signage at each end of the trail warns visitors not to disturb or remove artifacts. A registration station located at the boat landing is used to gather visitor information. Three interpretive exhibits along the trail provide information about the traditions of the Calusa. There are no other facilities on the site.

Rules and regulation signage (2)

Registration station (1)

Interpretive signs (3)

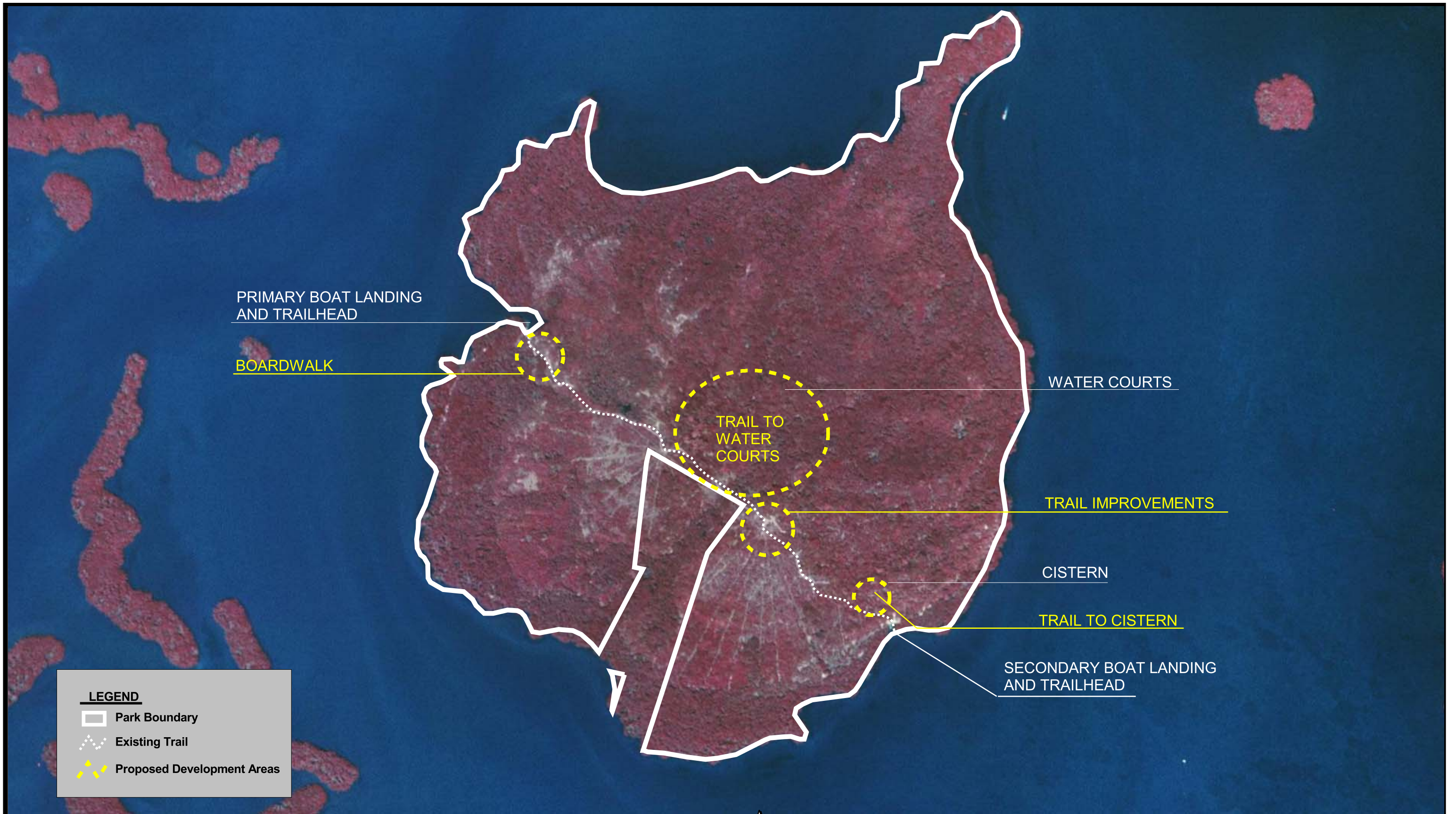
Support Facilities

There are no support facilities in the park at this time.




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.

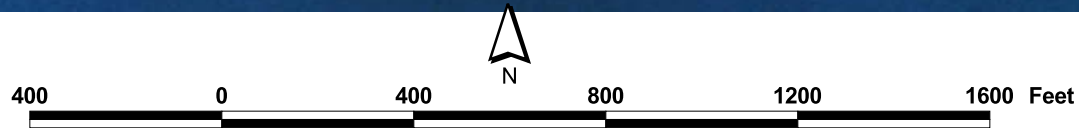
During the development of the unit management plan, the Division assesses potential impacts of proposed uses on the resources of the property. Uses that could result in unacceptable impacts are not included in the conceptual land use plan. Potential impacts are more thoroughly identified and assessed 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



LEGEND

-  Park Boundary
-  Existing Trail
-  Proposed Development Areas

**MOUND KEY ARCHAEOLOGICAL
STATE PARK**



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

CONCEPTUAL LAND USE PLAN

treatment or best available technology systems are applied for on-site sewage disposal. Stormwater management systems are designed to minimize impervious surfaces to the greatest extent feasible, and all facilities are designed and constructed using best management practices to avoid impacts and to mitigate those that cannot be avoided. Federal, state and local permit and regulatory requirements are met by the final design of the projects. This includes the design of all new park facilities consistent with the universal access requirements of the Americans with Disabilities Act (ADA). After new facilities are constructed, the park staff monitors conditions to ensure that impacts remain within acceptable levels.

Potential Uses and Proposed Facilities

At Mound Key Archeological State Park, the primary emphasis is placed on protection of the cultural resources, while allowing the public an opportunity to experience and learn from these archaeological features. There is potential to expand the interpretation of the site through site-specific static displays and the addition of trails to other unique visible resources such as the cistern and the Water Court. Interpretation should include the ecology and the complete history of the island, including the post-contact periods. This includes the Mission, Cuban, Pioneer, and Homestead periods.

The proposed interpretive signs should be designed to resist vandalism to the extent possible due to the relative isolation of the park. Static signage along the path should be sized and positioned in a manner that will not detract from viewing the archeological features. Orientation signage at both landings should be installed to orient the user to the park's features and trail system.

The trails need improvement. Heavy foot traffic is contributing to erosion of the mounds. Steps up the steeper section of the paths and a viewing platform on the top of the mound are recommended. Both of these will take place under the guidance of the Division of Historic Resources and Bureau of Natural and Cultural Resources. Clear directional signage should be installed to discourage the use of social trails.

Sections of the path leading from the primary entrance to the mounds are susceptible to flooding. The feasibility of constructing a boardwalk through this area should be investigated. A final decision on the type of improvement appropriate for this area will consider permitting criteria, costs and resource impacts. Consideration may also be given to a rerouting of the path to minimize flooding problems and the need for elevated structures.

A section of trail from the primary landing will be evaluated for universal accessibility. The proposed boardwalk would provide part of trail along with interpretive signage and views to the mound to enhance the experience.

Spur trails built to the cistern and the Water Court need to also address public health and safety issues. Consideration will be addressed before providing access to these sites. Trail design and layout will remain sensitive to protecting the designated species and the mangrove communities of the Water Court, utilizing boardwalks and overlooks to provide controlled access.

There is potential for interpretive boat tours to Mound Key Archaeological State Park from Koreshan State Historic Site, Lovers Key State Park, or Delnor Wiggins Pass State Park. The boat tour could include interpretation of the Estero Bay ecology as well as the archaeological significance of the area. Boat docking facilities will need to be constructed at the primary boat landing area to accommodate tours. Tour boats should contain restroom facilities for passengers, since the remote location of the island precludes development of

these facilities.

Recreation Facilities

Trails

- Boardwalk over wet areas
- Steps up steep slope on mound for stabilization
- Orientation signage at landings
- Trail directional signage
- Spur trails to the cistern and the Water Court

Interpretation

Static interpretive signage at key points

Support Facilities

No support facilities are proposed.

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.

Table 1--Existing Use And Optimum Carrying Capacity

Activity/Facility	Existing Capacity		Proposed Additional		Estimated Optimum	
	One Time	Daily	One Time	Daily	One Time	Daily
Trails	20	80	10	40	30	120
TOTAL	20	80	10	40	30	120

Optimum Boundary

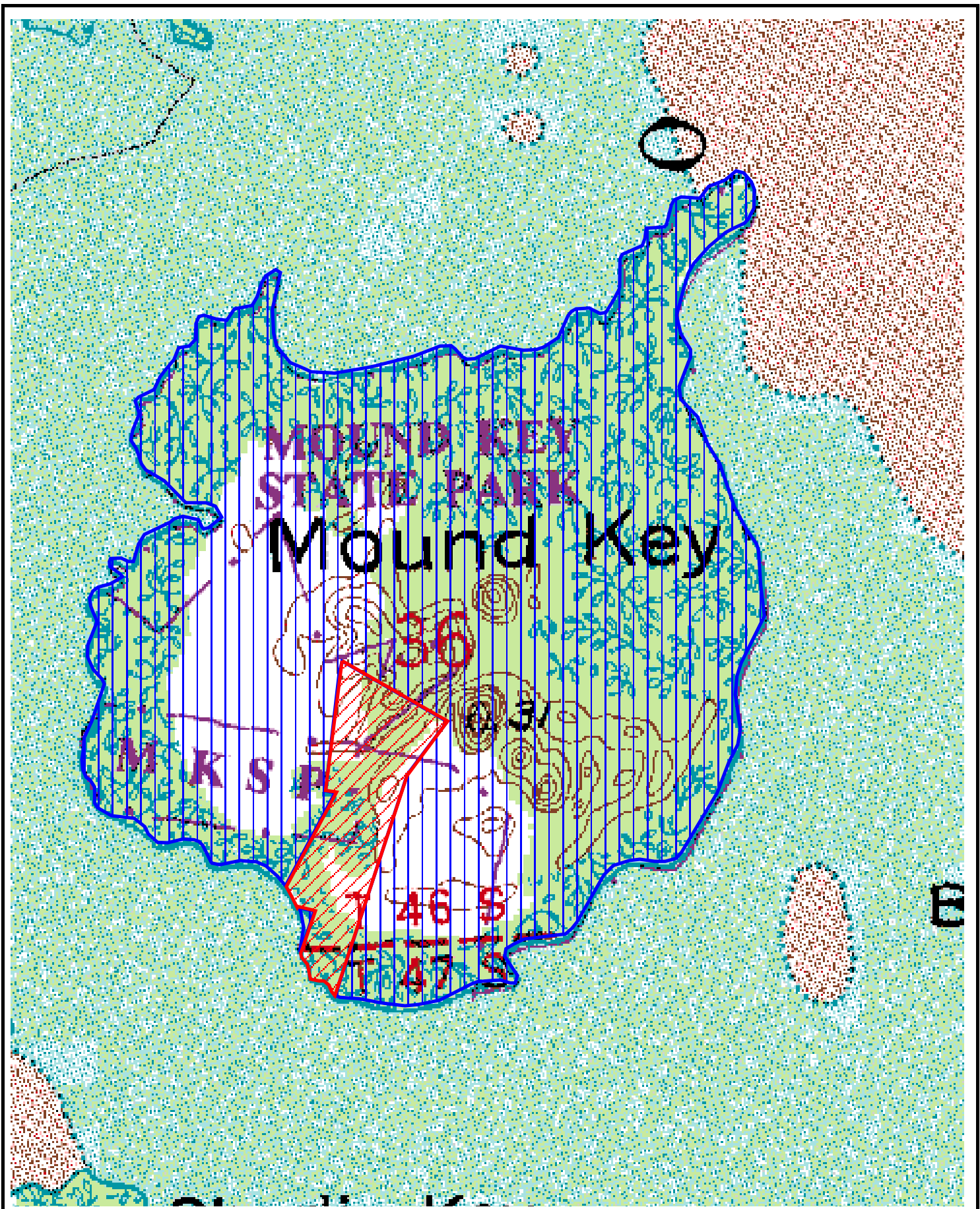
As additional needs are identified through park use, development, research, and as adjacent land uses change on private properties, modification of the unit's optimum boundary may

occur for the enhancement of natural and cultural resources, recreational values, and management efficiency.

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 meant to be used 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 meant to be used as the basis for permit denial or the imposition of permit conditions.

The optimum boundary map reflects lands identified for direct management by the Division as part of the park. These parcels may include public as well as privately owned lands that improve the continuity of existing park lands, provide additional natural and cultural resource protection, and/or allow for future expansion of recreational activities.



The portions of Mound Key in private ownership are proposed for acquisition. The addition of these approximately 8 acres will help to preserve significant cultural resources and expand the potential for public interpretation of the island. Acquisition of this out parcel is also important to prevent future private development, which could detract from the archaeological significance of the island. At this time, no lands are considered surplus to the needs of the park.



**MOUND KEY
ARCHAEOLOGICAL
STATE PARK**



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

- LEGEND**
-  Optimum boundary
 -  Park boundary

OPTIMUM BOUNDARY MAP

Addendum 1—Acquisition History and Advisory Group Staff Report

Mound Key Archaeological State Park

Acquisition History

Purpose of Acquisition

The State of Florida acquired Mound Key Archaeological State Park to protect, develop, operate, and maintain the property for public outdoor recreational, park, conservation, historic and related purposes.

Sequence of Acquisition

The 305-acre property that later became Mound Key Archaeological State Park and Koreshan State Historic Site was acquired on November 2, 1961 by donation from Koreshan Unity, Inc. Out of the 305-acre property donated by the Koreshan Unity, Inc., 156 acres (also known as Homeland And Trailer Park-Tract One) became Koreshan State Historic Site. The remaining 149 acres (also known as Entrance To River And Mound Key-Tracts Two And Three) became Mound Key Archaeological State Park. Although the two parks are treated as two independent entities in the Division of Recreation and Parks Jurisdiction Report, the Division manages them under one Lease.

Since 1961, the state has acquired several individual parcels through a donation and purchases and added them to the property that constituted the initial area of Mound Key Archaeological State Park. The purchases were funded under the P2000/Ans I program.

On January 23, 1968, the Trustees conveyed the management authority of Mound Key Archaeological State Park to the Division under Lease No. 2324 for a period of ninety-nine (99) years. In 1988, the Trustees assigned a new lease number to without making any changes to the terms and conditions of Lease No. 2324. The new lease, Lease No. 3630, will expire on January 22, 2067.

Title Interest

The Trustees hold fee simple title to Mound Key Archaeological State Park.

Special Conditions on Use

Mound Key Archaeological State Park is designated single-use to provide resource-based public outdoor recreation and other related uses. Uses such as, water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in the Unit Management Plan of this park) are not consistent with the management purposes of the park and will be discouraged.

Outstanding Reservations

Following is a listing of outstanding rights, reservations, and encumbrances that apply to Mound Key Archaeological State Park.

Instrument:	Deed and Trust Agreement
Instrument Holder:	Koreshan Unity, Inc.
Beginning Date:	November 2, 1961
Ending Date:	There is no specific ending date given.
Outstanding Rights, Uses, Etc.:	The deed and trust agreement is subject to specific reservations, restrictions, limitations, and conditions stated in the instrument.

Instrument:	Agreement Related to Deed and Trust Agreement
Instrument Holder:	Koreshan Unity, Inc.
Beginning Date:	July 12, 1962
Ending Date:	There is no specific ending date given.
Outstanding Rights, Uses, Etc.:	The agreement waives the reverter provisions contained in the Deed and Trust Agreement of November 2, 1961, concerning future use of Tract One.

**Mound Key Archaeological State Park
Acquisition History**

Instrument:	Amendment to Deed and Trust Agreement
Instrument Holder:	Koreshan Unity, Inc.
Beginning Date:	November 15, 1973
Ending Date:	There is no specific ending date given.
Outstanding Rights, Uses, Etc.:	The instruments amends the November 2, 1961, Deed and Trust Agreement.

Mound Key Archaeological State Park
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Mound Key Archaeological State Park Advisory Group Staff Report

The Advisory Group appointed to review the proposed unit management plans for Koreshan State Historic Site and Mound Key Archaeological State Park met at the Recreation Hall at Koreshan on May 30th, 2003. Ms. Tamara Pigott represented D.T. Minich and The Honorable Ray Judah. Nancy Douglas, Brian McKee, Jim English, Brenda Swann, Laura Ortega, Neil Noethlich, Jorge Borrelli, Laura Wererka, Cathy Stripling, Gary Davis, Gloria Sajgo, and Ellen Peterson did not attend. All other appointed Advisory Group members were present. Attending staff were John Robinson, Ken Alvarez, John Scafidi, Karen LaCivita, Kate Ohnemus, and Carol Perfit.

Ms. Perfit began the meeting by explaining the purpose of the advisory group and reviewing the meeting agenda and provided a brief overview of the Division's planning process. She then asked each member of the advisory group to express his or her comments on the plan.

Summary Of Advisory Group Comments

Bill Grace commented that he would like to have money identified for the restoration of historic structures at Koreshan and the trails at Mound Key. The funds from the DHR have been reduced from 10-17 million a year in the last few years to 2.3 million this year. This 2.3 million will be allocated to nine projects. Since we are entering a time of difficulty in funding, he would like to see DEP research some funding sources. He would also like the plans to include a prioritized budget with money identified for the projects. He expressed concern that Mound Key may not get the funding before the resource is lost.

Charles Duray commented on the crisis that historical parks are facing with fewer funding sources available. The answer, he said, must come from the private sector. The College of Life Foundation would like to assist in proper preservation, assist in underwriting of programs and other potential cooperative ventures with the park. He also would like to see the park attract visitors from the increased traffic along US 41 and support living history programs.

Beth Kelso questioned the position of a trail representative on the Advisory Group. **Carol Perfit** explained the formation of the Advisory Groups. Koreshan and Mound Key have three focus areas: historical, camping and hiking. Both unit management plans propose trail expansion. **Jon Robinson** identified two areas where assistance may be needed: trail access to the cemetery on the Vesta Newcomb Preserve where the concern is permissions and a Hold Harmless Agreement required by the state; the erosion problems along the trails on Mound Key. Beth replied that the Florida Trail Association would like to work with the park on these issues.

Jim Goodwin reported that the draft unit management plans look ok as written.

Tamara Pigott indicated that Lee County is a potential funding source especially on the shoreline projects such as the trail improvements at Mound Key. There are no new projects being funded this year since the money was earmarked for beach re-nourishment projects but the county likes to get new projects so next year is a potential. The money must be funded through a public entity. Lee County tourist bureau is presently working on designating a paddling trail and Koreshan State Historic Site provides the only publicly owned campground along the trail. Jon Robinson reported that the park has recently purchased kayaks for ranger use in ranger led tours in cooperation with the private vendors and would like to be involved in the paddling trail.

Heather Stafford's comments were on the Koreshan State Historic Site plan. She wanted some clarification on goal 6D and suggested language changes to the section on Existing Use of Adjacent Lands and Optimum Boundary. She recommended more additions to the Optimum Boundaries detailed in the plan: the properties immediately to the south, across Corkscrew Road, and to the east, across US 41. Both of these properties are owned by the College of Life Foundation and **Charles Duray** expressed some concern about adding these to the optimum boundary designation but was reassured that the state would not condemn the properties to obtain them. **Carol Perfit** explained that the property across Corkscrew Road is not on the list due to the existing conservation easement held by The Nature Conservancy but Heather was afraid the conservation easement could be fought in court again. Heather also expressed a desire to have the entire property to the north of Koreshan added to the

Mound Key Archaeological State Park Advisory Group Staff Report

optimum boundary and a joint purchase and management with the Coastal and Aquatic Managed Areas worked out. **Carol Perfit** explained that a portion of this property along the Estero River is now on the map to maintain the esthetics of the campsites and picnic area and that to be added to the Optimum Boundary a reasonable use or preservation feature of the property must be given. Mimi Straub mentioned that there are three owners to that property and all must agree with the purchase. **Heather** agreed with the plan's statement that the two parcels at the mouth of the Estero River could be "more effectively managed" by Coastal and Aquatic Managed Areas. **Jon Robinson** indicated that the deed restrictions would need to be researched before a transfer of title could be worked out.

Mimi Straub expressed her desire for the park to look at the 1997 plans for Koreshan that place the Visitor Center on the northside of the Estero River and provide footbridge access to the historic district. Jon Robinson replied that this would provide two entrances to the park that would have to be staffed on a consistent basis and staffing is a persistent problem. John Scafidi pointed out that the footbridge would have to be built to meet ADA guidelines. Mimi Straub recommended that a children's education center be developed, live re-enactment of the Solar and Lunar Festivals be established, the ravine gardens and bridges be restored, the rustic tea room recreated, and that the frontage on US 41 be improved with ficus hedges and using the historic design of the wooden gate. John Scafidi explained that the ficus is an invasive plant and that alternate native plants will be chosen. Ms. Straub is also concerned that a better use of docents needs to be found. Her suggestions include running electric boat tours along the Estero River and to Mound Key, standardizing attire worn by docents, holding docent training classes and meetings between park staff and docents, and improving the communication line for docents. She feels that the private sector has much to offer and is not being fully utilized.

Ken Alvarez asked if there were any plans to rebuild the dining hall that stood as the center of activity for the Koreshan community. Ken explained that the dining hall was the "hub" of the settlement. Residents took three daily meals there, and the women lived in the two upper floors. On a visit in 1982, a woman who had grown up in the settlement had difficulty orienting herself because of the absence of the dining hall. It was the building all Koreshans were most familiar with. It is not missed today because people presently involved with the settlement have never seen it, but a restored settlement would not be whole unless it could be rebuilt. **John Scafidi** replied that in order to keep the historic district designation it would have to be on the exact footprint and be a good re-creation and this requires a lot of money.

Jon Robinson reported that the restroom next to the Art Hall is going to be moved 10 feet to the west because the septic tank has failed but by moving just a short distance the existing drain field can still be used.

The meeting was then adjourned.

Written Comments

The following is a summary of substantive comments submitted in advance by an Advisory Group member who could not attend the meeting.

Gloria Sajgo expressed concern that both parks have been designated an historic resource under the Lee County Land Development Code, Chapter 22, Historic Preservation and this should be mentioned in the plans. She also commented that the original entrance to the Koreshan historic district from US 41 needs a cultural assessment. DOT has done an assessment of this area but a park-led assessment would be more thorough. It should include the listing of the gateway features as historic. If these were listed then protection of this area in the widening of US 41 would be easier.

Staff Response: The county designation as an historic resource is noted in the Koreshan plan but not in the Mound Key plan.

Mound Key Archaeological State Park Advisory Group Staff Report

Staff Recommendation

Staff recommends approval of the proposed management plan for Koreshan State Historic Site as presented with the following recommendations.

Optimum Boundary Map

- Division staff is discussing adding the parcel south of the park on Corkscrew Road to the Optimum Boundary.
- The two parcels at the mouth of the Estero River were deeded as part of the Koreshan donation. A letter of consent from the College of Life Foundation is needed before proceeding with a transfer of title on the parcels. Staff recommends proceeding with this process.

Additions to Goals and Objectives:

- Pursue funding to complete a cultural assessment of the US 41 boundary including the historic entry feature before DOT widens this section of the road.
- Research potential funding sources for the restoration of the historic district.

Staff recommends approval of the proposed management plan for Mound Key Archaeological State Park as presented with the following recommendations.

Resource Management Component

- The Lee County designation of the park as an historic resource under the Lee County Land Development Code, Chapter 22, Historic Preservation should be added.

Addendum 2—References Cited

Mound Key Archaeological State Park
References Cited

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- Ward, Dan, Robert Ing. 1997. Big Trees. Division of Forestry, Florida, Florida Department of Agriculture and Conservation Services, University of Florida, Tallahassee.

Addendum 3—Soil Description

Mound Key Archaeological State Park
Soil Descriptions

24 Kesson fine sand. This is a nearly level, very poorly drained soil in broad tidal swamps. Areas are subject to tidal flooding. Slopes are smooth and range from 0 to 1 percent.

Typically, the subsurface layer is about 6 inches of sand that contains shell fragments, and they extend to a depth of 80 inches or more. The upper 4 inches is pale brown, the next 3 inches is light brownish gray, the next 25 inches is light gray with dark gray streaks, and the lower 42 inches is white.

Included with this soil in mapping are areas of Captiva and Wulfert soils and soils that have organic surface layer. Also included are soils that have loamy material throughout. Included soils make up about 10 to 15 percent of any mapped area.

The water table fluctuates with the tide.

The available water capacity is low. Natural fertility is low. Permeability is moderately rapid or rapid.

Natural vegetation consists of black mangrove, batis, oyeye daisy, and American mangrove.

This soil has severe limitations for urban development, and it is poorly suited for cultivated crops, pasture grasses, citrus, and woodland because of the flood hazard and high salt and sulfur content. This Kesson soil is in capability subclass VIIw.

Addendum 4—Plant And Animal List

Mound Key Archaeological State Park

Plants

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

Giant leather fern	<i>Acrostichum danaeifolium</i>	
Resurrection fern	<i>Pleopeltis polypodioides var. michauxiana</i>	

ANGIOSPERMS

DICOTS

Pineland copperleaf	<i>Acalypha ostryifolia</i>	
Dilldoe cactus	<i>Acanthocereus tetragonus</i>	
Sweet sop*	<i>Annona squamosa</i>	
Madeira-vine*	<i>Anredera vesicaria</i>	
Sand atriplex	<i>Atriplex cristata</i>	
Black mangrove	<i>Avicennia germinans</i>	
Groundsel tree; saltbush	<i>Baccharis dioica</i>	
Salt-myrtle	<i>Baccharis halimifolia</i>	
Water hyssop	<i>Bacopa monnieri</i>	
Orchid tree*	<i>Bauhinia variegata</i>	
Begger-tricks	<i>Bidens alba var. radiata</i>	
Sea oxeye daisy	<i>Borrchia frutescens</i>	
Bougainvillea*	<i>Bougainvillea glabra</i>	
Gumbo-limbo	<i>Bursera simaruba</i>	
Gray nicker	<i>Caesalpinia bonduc</i>	
Yellow nicker	<i>Caesalpinia crista</i>	
Sea rocket	<i>Cakile lanceolata</i>	
Jamaica caper tree	<i>Capparis cynophallophora</i>	
Balloon vine; Heart seeds*	<i>Cardiospermum halicacabum</i>	
Papaya*	<i>Carica papaya</i>	
Madagascar periwinkle*	<i>Catharanthus roseus</i>	
Cock's comb	<i>Celosia nitida</i>	
Spiny hackberry; Desert hackberry	<i>Celtis ehrenbergiana</i>	16
Iguana hackberry	<i>Celtis iguanaea</i>	16
Wild sensitive plant	<i>Chamaecrista nictitans var. aspera</i>	
Blodgett's sandmat	<i>Chamaesyce blodgettii</i>	
Pill-pod sandmat	<i>Chamaesyce hirta</i>	
Florida hammock sandmat	<i>Chamaesyce ophthalmica</i>	
Snowberry	<i>Chiococca alba</i>	
Jack-in-the-bush	<i>Chromolaena odorata</i>	
Possum-grape	<i>Cissus trifoliata</i>	
Marine vine; sorrel vine	<i>Cissus verticillata</i>	
Key lime*	<i>Citrus Xaurantiifolia</i>	
Sour orange; Grapefruit;		
Sweet orange*	<i>Citrus Xaurantium</i>	
Seagrape	<i>Coccoloba uvifera</i>	
Buttonwood; Button mangrove	<i>Conocarpus erectus</i>	
Dwarf horseweed	<i>Conyza canadensis var. pusilla</i>	
Pink allamanda*	<i>Cryptostegia grandiflora</i>	
Leafless swallow-wort	<i>Cynanchum scoparium</i>	
Coin-vine	<i>Dalbergia ecastaphyllum</i>	

* Non-native Species

Mound Key Archaeological State Park

Plants

Common Name	Scientific Name	Primary Habitat Codes (for designated species)
Royal poinciana*	<i>Delonix regia</i>	
Coral bean	<i>Erythrina herbacea</i>	
White stopper	<i>Eugenia axillaris</i>	
Spanish stopper	<i>Eugenia foetida</i>	
Dog fennel	<i>Eupatorium capillifolium</i>	
Strangler fig	<i>Ficus aurea</i>	
Florida privet	<i>Forestiera segregata</i>	
Florida hammock milk-pea	<i>Galactia striata</i>	
Downy milk-pea	<i>Galactia volubilis</i>	
Wild cotton	<i>Gossypium hirsutum</i>	3
Seaside heliotrope	<i>Heliotropium curassavicum</i>	
Tievine	<i>Ipomoea cordatotriloba</i>	
Ivy-leaf morning-glory*	<i>Ipomoea hederacea</i>	
Ocean-blue morning-glory	<i>Ipomoea indica var. acuminata</i>	
Juba's bush	<i>Iresine diffusa</i>	
Life plant*	<i>Kalanchoe pinnata</i>	
White mangrove	<i>Laguncularia racemosa</i>	
Shrub verbena*	<i>Lantana camara</i>	
Button-sage	<i>Lantana involucrata</i>	
Pepper grass	<i>Lepidium virginicum</i>	
Carolina sea-lavender	<i>Limonium carolinianum</i>	
Christmas berry	<i>Lycium carolinianum</i>	
Texas wax-mallow*	<i>Malvaviscus penduliflorus</i>	
Chinaberry*	<i>Melia azedarach</i>	
Poor man's patch	<i>Mentzelia floridana</i>	
Wild balsam apple*	<i>Momordica charantia</i>	
Red mulberry	<i>Morus rubra</i>	
Prickly pear	<i>Opuntia humifusa</i>	
Prickly pear	<i>Opuntia stricta</i>	16
Corky-stemmed passion flower	<i>Passiflora suberosa</i>	
Florida lemongrass	<i>Pectis linearifolia</i>	
Avocado*	<i>Persea americana</i>	
Ground cherry	<i>Physalis angulata</i>	
Devil's claw	<i>Pisonia aculeata</i>	
Cat's-claw	<i>Pithecellobium unguis-cati</i>	
Saltmarsh fleabane	<i>Pluchea odorata</i>	
Saltmarsh fleabane	<i>Pluchea rosea</i>	
Poinsettia	<i>Poinsettia cyathophora</i>	
Milkwort	<i>Polygala grandiflora</i>	
Purslane	<i>Portulaca oleracea</i>	
Pink purslane	<i>Portulaca pilosa</i>	
Guava*	<i>Psidium guajava</i>	
Pomegranate*	<i>Punica granatum</i>	
White indigo berry	<i>Randia aculeata</i>	
Red mangrove	<i>Rhizophora mangle</i>	
Rhynchosia	<i>Rhynchosia minima</i>	
Castor-bean*	<i>Ricinus communis</i>	

* Non-native Species

Mound Key Archaeological State Park

Plants

Common Name	Scientific Name	Primary Habitat Codes (for designated species)
Rouge plant	<i>Rivina humilis</i>	
West-Indian sage	<i>Salvia riparia</i>	
Southern soapberry	<i>Sapindus saponaria</i>	
Brazilian pepper*	<i>Schinus terebinthifolius</i>	
Bahama wild sensitive plant	<i>Senna ligustrina</i>	
Coffeeweed	<i>Senna obtusifolia</i>	
Shoreline sea-purslane	<i>Sesuvium portulacastrum</i>	
Indian mallow; Prickly fanpetals *	<i>Sida spinosa</i>	
Saffron plum	<i>Sideroxylon celastrinum</i>	
Wild mastic	<i>Sideroxylon foetidissimum</i>	
Common nightshade	<i>Solanum americanum</i>	
Sea blite	<i>Suaeda linearis</i>	
Frostweed	<i>Verbesina virginica</i>	
Waltheria	<i>Waltheria indica</i>	
Wild lime	<i>Zanthoxylum fagara</i>	
MONOCOTS		
False sisal	<i>Agave decipiens</i>	
Sisal hemp*	<i>Agave sisalana</i>	
Erect dayflower	<i>Commelina erecta</i>	
Baldwin's flatsedge	<i>Cyperus croceus</i>	
Butterfly orchid	<i>Encyclia tampensis</i>	16
Pinewoods fingergrass	<i>Eustachys petraea</i>	
Spider lily	<i>Hymenocallis latifolia</i>	
Cabbage palm	<i>Sabal palmetto</i>	
Bowstring hemp*	<i>Sansevieria hyacinthoides</i>	
Medusahead air plant	<i>Tillandsia balbisiana</i>	16
Twisted air plant	<i>Tillandsia flexuosa</i>	16
Air plant	<i>Tillandsia paucifolia</i>	
Small ball-moss	<i>Tillandsia recurvata</i>	
Southern needleleaf air plant	<i>Tillandsia setacea</i>	
Spanish moss	<i>Tillandsia usneoides</i>	
Spreading air plant	<i>Tillandsia utriculata</i>	3,16
Browntop panicum	<i>Urochloa fusca var. reticulata</i>	
Spanish dagger	<i>Yucca aloifolia</i>	

* Non-native Species

Mound Key Archaeological State Park

Animals

Common Name	Scientific Name	Primary Habitat Codes (for all species)
REPTILES		
American alligator	<i>Alligator mississippiensis</i>	64
Gopher tortoise	<i>Gopherus polyphemus</i>	16
Green anole	<i>Anolis carolinensis carolinensis</i>	16
Southeastern five-lined skink	<i>Eumeces inexpectatus</i>	16
Southern black racer	<i>Coluber constrictor priapus</i>	AT
Yellow rat snake	<i>Elaphe obsoleta quadrivittata</i>	AT
Eastern diamondback rattlesnake	<i>Crotalus adamanteus</i>	AT
BIRDS		
Eastern brown pelican	<i>Pelecanus occidentalis carolinensis</i>	64
Double-crested cormorant	<i>Phalacrocorax auritus</i>	64
Magnificent frigatebird	<i>Fregata magnificens</i>	OF
Green heron	<i>Butorides virescens</i>	64
Little blue heron	<i>Egretta caerulea</i>	64
Great egret	<i>Ardea albus</i>	64
Tricolored heron	<i>Egretta tricolor</i>	64
Yellow-crowned night heron	<i>Nyctanassa violaceus</i>	64
White ibis	<i>Eudocimus albus</i>	64
Turkey vulture	<i>Cathartes aura</i>	OF
Red-shouldered hawk	<i>Buteo lineatus</i>	AT
Southern bald eagle	<i>Haliaeetus leucocephalus</i>	OF
Osprey	<i>Pandion haliaetus</i>	OF
Clapper rail	<i>Rallus longirostris</i>	64
American oystercatcher	<i>Haematopus palliatus</i>	Offshore
Semipalmated plover	<i>Charadrius semipalmatus</i>	OF
Wilson's plover	<i>Charadrius wilsonia</i>	Offshore
Black-bellied plover	<i>Pluvialis squatarola</i>	Offshore
Ruddy turnstone	<i>Arenaria interpres</i>	Offshore
Spotted sandpiper	<i>Actitis macularia</i>	Offshore
Willet	<i>Catoptrophorus semipalmatus</i>	Offshore
Dunlin	<i>Calidris alpina</i>	Offshore
Laughing gull	<i>Larus atricilla</i>	OF
Forster's tern	<i>Sterna forsteri</i>	OF
Common tern	<i>Sterna hirundo</i>	OF
Least tern	<i>Sterna antillarum</i>	OF
Royal tern	<i>Sterna maxima</i>	OF
Sandwich tern	<i>Sterna sandvicensis</i>	OF
Common ground-dove	<i>Columbina passerina</i>	16
Mangrove cuckoo	<i>Coccyzus minor</i>	64
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	16
Chuck-will's widow	<i>Caprimulgus carolinensis</i>	16
Whip-poor-will	<i>Caprimulgus vociferus</i>	16
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	16
Gray kingbird	<i>Tyrannus dominicensis</i>	64
Great crested flycatcher	<i>Myiarchus crinitus</i>	16
Northern mockingbird	<i>Mimus polyglottos</i>	16

* Non-native Species

Mound Key Archaeological State Park

Animals

Common Name	Scientific Name	Primary Habitat Codes (for all species)
Brown thrasher	<i>Toxostoma rufum</i>	16
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>	16
White-eyed vireo	<i>Vireo griseus</i>	16
Blue-headed vireo	<i>Vireo solitarius</i>	16
Black-whiskered vireo	<i>Vireo altiloquus</i>	64
Black and white warbler	<i>Mniotilta varia</i>	16
Prairie warbler	<i>Dendroica discolor</i>	64
Ovenbird	<i>Seiurus aurocapillus</i>	16
Common yellowthroat	<i>Geothlypis trichas</i>	16
Northern cardinal	<i>Cardinalis cardinalis</i>	16
MAMMALS		
Marsh rabbit	<i>Sylvilagus palustris</i>	16
Gray squirrel	<i>Sciurus carolinensis</i>	16
Raccoon	<i>Procyon lotor</i>	64
West Indian manatee	<i>Trichechus manatus latirostris</i>	Offshore waters
Atlantic bottle-nosed dolphin	<i>Tursiops truncatus</i>	Offshore waters

Natural Community Habitat Designation

Terrestrial

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

Palustrine

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

Lacustrine

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

FNAI GLOBAL RANK DEFINITIONS

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

LEGAL STATUS

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

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

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

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

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.

Mound Key Archaeological State Park

Designated Species

Plants

Common Name/ Scientific Name	<u>Designated Species Status</u>		
	FDA	USFWS	FNAI
Iguana hackberry <i>Celtis iguanaea</i>	LE		G5/S1
Spiny hackberry <i>Celtis ehrenbergiana</i>	LE		G4/S1
Dildoe cactus <i>Acanthocereus tetragonus</i>	LT		
Butterfly orchid <i>Encyclia tampensis</i>	CE		
Wild cotton <i>Gossypium hirsutum</i>	LE		G4G5/S3?
Shell mound prickly-pear cactus <i>Opuntia stricta</i>	LT		
Inflated wild pine <i>Tillandsia balbisiana</i>	LT		
Twisted air plant <i>Tillandsia flexuosa</i>	LT		G4/S3
Giant wild pine; Giant air plant <i>Tillandsia utriculata</i>	LE		

Mound Key Archaeological State Park

Designated Species

Animals

Common Name/ Scientific Name	Designated Species Status		
	FFWCC	USFWS	FNAI
REPTILES			
American alligator <i>Alligator mississippiensis</i>	LS	T(S/A)	G5,S4
Gopher tortoise <i>Gopherus polyphemus</i>	LS	C2	G3,S3
BIRDS			
Eastern brown pelican <i>Pelecanus occidentalis carolinensis</i>	LS		G4,S3
Magnificent frigatebird <i>Fregata magnificens</i>			G5,S1
Little blue heron <i>Egretta caerulea</i>	LS		G5,S4
Great egret <i>Ardea alba</i>			G5,S4
Tricolored heron <i>Egretta tricolor</i>	LS		G5,S4
Yellow-crowned night heron <i>Nyctanassa violacea</i>			G5,S3?
White ibis <i>Eudocimus albus</i>	LS		G5,S4
Southern bald eagle <i>Haliaeetus leucocephalus</i>	LT	LT	G4,S3
Osprey <i>Pandion haliaetus</i>			G5,S3S4
American oystercatcher <i>Haematopus palliatus</i>	LS		G5,S3
Least tern <i>Sterna antillarum</i>	LT		G4,S3
Royal tern <i>Sterna maxima</i>			G5,S3
Sandwich tern <i>Sterna sandvicensis</i>			G4,S2
Mangrove cuckoo <i>Coccyzus minor</i>			G4,S3
Black-whiskered vireo <i>Vireo altiloquus</i>			G5,S3
MAMMALS			
West Indian manatee <i>Trichechus manatus latirostris</i>	LE	LE	G2,S2

Addendum 6—Priority Schedule And Cost Estimates

Mound Key Archaeological 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.

Natural Resources

1. Obtain funding and implement exotic removal program for Brazilian pepper and Chinaberry. 0-5 years. **Estimated Cost:** \$5,000.
2. Implement natural resource monitoring protocols for listed species such as the gopher tortoise, and the two *Celtis* plant species, and exotic plant species utilizing photopoints where appropriate. 0-2 years. **Estimated Cost:** \$2,000, plus \$1,000/year in recurring costs.

Cultural Resources

1. Develop and implement a written plan to protect and preserve the park's recorded archaeological sites from vandalism, erosion, animal burrowing, root damage and treefall. 0-3 years. **Estimated Cost:** \$3,000, plus \$1,000/year in recurring costs.
2. Monitor all known archaeological sites for threats from erosion, foot traffic, vandalism and pot-hunting, animal digging, plant growth and possible treefall. 0-1 years. **Estimated Cost:** \$4,000, plus \$2,000/year in recurring costs.
3. Interpret the park's cultural resources in their context to educate park visitors through interpretive signs and programs. 0-3 years. **Estimated Cost:** \$5,000.
4. Establish a park or OPS position on site to protect and interpret the resources. 0-5 years. **Estimated Cost:** \$80,000.

Total Estimated Cost: **\$89,000 plus \$4,000 per year in recurring costs.**

**Mound Key Archaeological State Park
Priority Schedule And Cost Estimates**

Item	Quantity	Unit	Unit Price	Multiplier	Amount
Interpretive Facilities					
Interpretive Signs	8.000	ea.	\$5,000.00	1.25	\$50,000.00
Trail Improvements					
6 Ft. Elevated Boardwalk	2000.000	LF	\$165.00	1.25	\$412,500.00
Erosion Control	1.000	LS	\$35,000.00	1.25	\$43,750.00
			Sub-Total		<u>\$506,250.00</u>
			20 Percent Design, Permitting and Contingency Fee		<u>\$101,250.00</u>
			Total		\$607,500.00

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.

Final Land Management Review Report
LMR Review Date—October 17, 2001

Management Review Team Members

Agency Represented	Team member Appointed	Team member In attendance
DEP/DRP	Sally Braem	Sally Braem
DEP	Ron McGregor	Ron McGregor
DACS/DOF	Bill Korn	Bill Korn
FWCC	Larry Campbell	Larry Campbell
Soil and Water Conservation County Commission	Tim Eckert	Tim Eckert
Conservation Organization	Jim Green	
Private Land Manager	Misty Nabers	Misty Nabors
	Eric Linblad	

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 Acquisition and Restoration Council (ARC), 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 Mound Key State Archaeological site considered approximately 64 acres in Lee County that are managed by the 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 February 26, 1998, and the management plan update is due on February 26, 2003.

Review Team Determination

1. **Is the land being managed for the purpose for which it was acquired?** All six (6) team members agreed that the Mound Key Archaeological Site 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?** Six (6) team members agreed that actual management practices, including public access, were in compliance with the management plan for this site.

Recommendations And Checklist Findings

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

Recommendations

The following recommendations resulted from a discussion and vote of review team members.

1. The team recommends that the DRP consider restricting public access to designated trails with appropriate signage.

Manager's Response: Agree. Additional signage will be pursued that will advise visitors of restricted access.

2. The team recommends that the DRP should consider a loop trail designed to minimize human impacts and erosion on the cultural resources.

Manager's Response: Agree. A loop design for the designated trail system will be assessed so as to provide visitor access in a manner that maximizes the interpretive experience, yet provides the maximum protection of the cultural features.

Checklist Findings

The following items received low scores on the review team checklist, which indicates that management actions were insufficient (f) or that the issue was not sufficiently addressed in the management plan (p).

1. Soil Erosion to the mounds due to human foot traffic.(p)(f):

Manager's Response: Agree. The current management plan does not address the impact of foot traffic and water movement on the steep slopes of the mound features. This issue will be addressed in the management plan update. An assessment of the erosion damage and a discussion of stabilization methods, along with considerations for logistical access, are underway. Stabilization of two burial mound features took place in April 2001.

Funding for projects will be pursued in a manner similar to this project, through the Division of Historic Resources, Department of State.

2. Better description and management objectives for the following communities: Shell Mound/Thorn Scrub(p), and Estuarine Tidal Swamp(p)

Manager's Response: Agree. Current descriptions and maps do not accurately reflect the actual conditions on the island. On-site mapping will be conducted. The successional plant communities as they relate to the ruderal nature of the island's substrate and topography, coupled with the cultural influences on the vegetation, need to be more accurately described.

3. Inadequate Law Enforcement (p).

Manager's Response: Agree. Limited access protected the island and its features for many years. However, visitor use has increased and law enforcement staffing has decreased. The unit management plan will be revised to address the need to maintain

cultural protection signage and add trail access signage. A need to increase park patrol and staff activity on the island, especially during peak access periods, will also be addressed in the plan.

4. A Better Description of Recreational Opportunities(p)

Manager's Response: Agree. The recreational opportunity section of the unit management will be improved. Expansion of the recreation section should emphasize on-site educational opportunities.

5. Interpretive Facility and signs(p)

Manager's Response: Agree. Interpretive facilities and signage will be more adequately described in the unit management plan update.

6. Discussion of Environmental Education/Outreach(p).

Manager's Response: Agree. A discussion of environmental education/outreach programming will be incorporated in the unit management plan, with consideration and in coordination with the cultural emphasis of the park.

7. The majority of the team felt that encouraging picnicking, and expansion of the boat landing area, would be inappropriate(f)

Manager's Response: Disagree. While the existing boat landing may accommodate current levels of visitation, future needs will be addressed during the unit management plan process. Picnicking, like other recreational activities, will also be addressed in the unit management plan process.

8. Staffing and funding were found to be inadequate(f).

Manager's Response: Agree A discussion of this matter by the review team considered the lack of manpower and money actually allocated specifically to this unit. Staffing and expense monies are currently provided as part of those allocated for Koreshan State Historic Site, which also includes significant cultural resources. The historical context of this site has a direct link to the Koreshan site, hence an appropriate association with the island. Koreshan has the ability to provide trained staff for specialized cultural resource management activities. As visitor use of the island has increased, more staff time from Koreshan has also been required. There is a need to expand staffing beyond emphasis on resource management and monitoring impacts of the cultural facilities. Increased staffing would provide for more interpretive/educational opportunities, potentially guided tours, and more frequent staff presence that would enhance protection of the features. Additional staff and funds will be pursued. Staffing and funding allocations are always contingent on DRP and DEP budget resources and priorities, and also on legislative action.