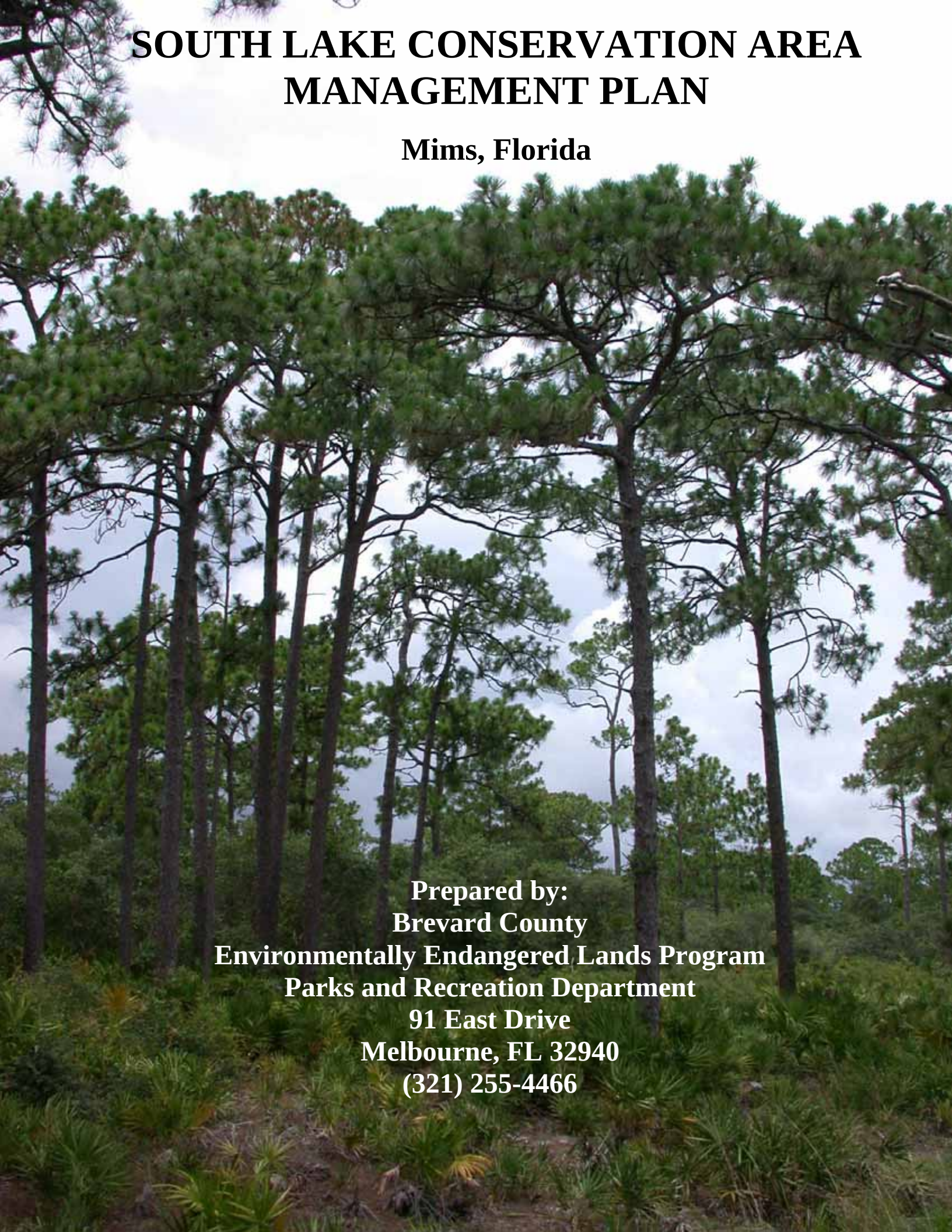
SOUTH LAKE CONSERVATION AREA MANAGEMENT PLAN

Mims, Florida



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Original document prepared in cooperation with the Environmentally Endangered Lands (EEL) Program Selection & Management Committee and staff in accordance with the EEL Program's Sanctuary Management Manual.

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Management Plan Approved by the Brevard County Board of County Commissioners on August 7, 2007

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I. EXECUTIVE SUMMARY

The South Lake Conservation Area (SLCA) is part of the sanctuary network established by the Environmentally Endangered Lands (EEL) Program in Brevard County. The intent of the Program is to acquire environmentally sensitive lands as a first step "toward long-term protection of essential natural resources, open space, green space, wildlife corridors and maintenance of natural ecosystems functions" (Brevard County EEL Program, Sanctuary Management Manual, 1997). The network of public lands also provides passive recreation and environmental education programs to Brevard County residents and visitors.

The SLCA encompasses approximately 155 acres. The property is south of and adjacent to the Lantern Park subdivision and is bordered by Dairy Road on the south. The property consists of two distinct parcels (Appendix A), that were both donated to Brevard County's EEL Program as a result of a United States Fish and Wildlife Service (USFWS) Section 7 Scrub Jay Mitigation Requirement (199805845[NW-IS], Service Log No.: 99-303). The SLCA is located within the EEL Program North Regional Management Area. The South Lake Conservation Area, along with the other EEL properties in the North Regional Management Area, will be served by an EEL Management & Education Center at the Enchanted Forest Sanctuary, which is located south of the SLCA on State Road 405. As described in the Sanctuary Management Manual, the SLCA is a Category 2 site, or intermediate site. Category 2 sites include nature trails, a dedicated parking area, interpretive signs, and some limited facilities. The site will provide public access during daylight hours.

The property consists primarily of scrub and scrubby flatwoods communities. Preliminary surveys of the site and surrounding lands noted the presence, or potential presence, of several listed plant and animal species. Protected wildlife species documented on-site during recent or past studies include the gopher tortoise (*Gopherus polyphemus*).

The primary goals of the site include the conservation and restoration of ecosystem function, natural communities, and native species habitat. The collection and documentation of natural and cultural resource data are also important management goals. Other management goals include the provision of public access and environmental education.

The SLCA will provide outstanding opportunities for field research. Due to the sensitive nature of the resources, access will be limited to passive recreation activities. One hiking trail is proposed for the site. The trail will be unimproved with minimal interpretive signage and a kiosk. The proposed recreation and educational opportunities will serve Brevard County residents with an emphasis on providing educational opportunities to the local community in an effort to promote understanding and appreciation of the unique and valuable resources available in Brevard County, thereby promoting the long-term preservation of the natural areas. The proposed access areas, trails, and kiosks are discussed on page 42 and in Figure 16.

II. INTRODUCTION

In a 1990 referendum, Brevard County voters approved the Environmentally Endangered Lands (EEL) Program. The Program's Vision Statement is as follows:

> "The Environmentally Endangered Lands (EEL) Program acquires, protects and maintains environmentally endangered lands guided by scientific principles for conservation and the best available practices for resource stewardship and ecosystem management. The EEL Program protects the rich biological diversity of Brevard County for future generations. The EEL Program provides passive recreation and environmental education opportunities to Brevard's citizens and visitors without detracting from primary conservation goals of the program. The EEL Program encourages active citizen participation and community involvement."

The Program established a conceptual framework and funding mechanism to implement an EEL sanctuary network in Brevard County. The EEL sanctuary network represents a collection of protected natural areas that form a regional conservation effort focused upon protection of biological diversity. Within the countywide EEL sanctuary network, four management areas are geographically defined within Brevard County. For each management area, a specific site is identified as a Center for Regional Management. The sites that will function as Centers for Regional Management for the EEL Program are:

I. The Enchanted Forest Sanctuary (Regional Management Center for North Mainland)
II. Pine Island Conservation Area (Regional Management Center for Central Mainland)
III. Malabar Scrub Sanctuary (Regional Management Center for South Mainland)
IV. Barrier Island Center (Regional Management Center for South Beaches)

These Centers provide strategically located hubs for implementing the countywide conservation, passive recreation, and environmental education goals of the EEL Program.

Other EEL sanctuaries within the North Regional Management Area include Buck Lake Conservation Area (managed jointly with the St. Johns River Water Management District) with the addition of North Buck Lake Scrub Sanctuary, Enchanted Forest Sanctuary, Dicerandra Scrub Sanctuary, Tico Scrub Sanctuary, and Indian Mound Station Sanctuary.

The EEL Program *Sanctuary Management Manual* (SMM) guides conservation and land stewardship decisions implemented by the Brevard County EEL Program. The SMM details principles and directives for conservation, public access and environmental education within the EEL sanctuary network. The SMM also outlines the EEL Selection & Management Committee's role in advising staff and the Brevard County Board of

County Commissioners on acquisition and management related issues (Chapter 2, Section 4.3.4).

As outlined in the SMM, the EEL Program will adopt and implement an ecosystem approach to environmental management. Ecosystem management is defined as an integrative, flexible approach to the management of natural resources. Key themes of ecosystem management include the following:

1. Adaptive Management – Natural areas must be managed in the context of the landscape in which they exist and based on scientific knowledge. Resource managers must adapt to continuing advances in the scientific understanding of ecosystems and changing environmental and human influences on the resources.

2. Partnerships – Interagency and private sector partnerships are essential to manage and protect ecosystems. Natural resource management is complex and requires multi-disciplinary skills and experiences.

3. Holistic Approach – Ecosystem management includes the maintenance, protection, and improvement of both natural and human communities. This system approach to management considers the "big picture" of natural resource protection, community economic stability and quality of life.

Land management issues, such as fire management, protection and restoration of natural hydrologic cycles, threatened and endangered species, and removal of invasive exotics must be integrated with issues, such as provisions for public access and levels of human use. The integration of ecosystem protection and human needs combine to form the foundation of an effective ecosystem management strategy.

The Environmentally Endangered Lands Program SMM establishes a general framework for management of specific sites and establishes ten Principles of Conservation summarized below, to achieve the following:

1. Maintain all sites in a natural state and/or restore sites to enhance natural resource values.
2. Protect natural resource values by maintaining biological diversity and using conservation as a primary goal for decision-making.
3. Balance human use with the protection of natural resources.
4. Apply the most accurate scientific principles to strategies for conservation.
5. Collect and use the most accurate data available for developing site management plans.
6. Consider the interests and values of all citizens by using scientific information to guide management policy making.
7. Promote effective communication that is interactive, reciprocal, and continuous with the public.

8. Promote the value of natural areas to Brevard County residents and visitors through the maintenance of the quality of resource values, public services, and visitor experiences.
9. Promote the integration of natural resource conservation into discussions of economic development and quality of life in Brevard County.
10. Provide a responsible financial strategy to implement actions to achieve long-term conservation and stewardship goals.

In addition to the Principles of Conservation, this Management Plan will provide specific goals, strategies, and actions to guide management of the sanctuary in terms of the objectives of the Environmentally Endangered Lands Program. The plan is divided into the following ten sections:

I. *Executive Summary* identifies the location, size, general natural resource features and primary management goals for the site.

II. *Introduction* provides a brief introduction to the EEL Program and the site and describes the structure of the management plan.

III. *Site Description and Location* provides a detailed site location and description.

IV. *Natural Resource Descriptions* includes physical resources (climate, geology, topography, soils, and hydrology), biological resources (ecosystem function, flora, fauna, designated species, and biological diversity), and cultural resources (archaeological, historical, land-acquisition history, and public interest).

V. *Factors Influencing Management* includes natural trends, human-induced trends, external influences, legal obligations and constraints, management constraints, and public access and passive recreation.

VI. *Management Action Plans* include specific goals, strategies and actions.

VII. *Projected Timetable for Implementation* prioritizes activities and provides a time frame for Management Plan implementation.

VIII. *Financial Considerations* discusses funding mechanisms and projected management costs.

IX. *Bibliography* cites original research and publications used to develop the Management Plan.

X. *Appendices* includes supplemental information

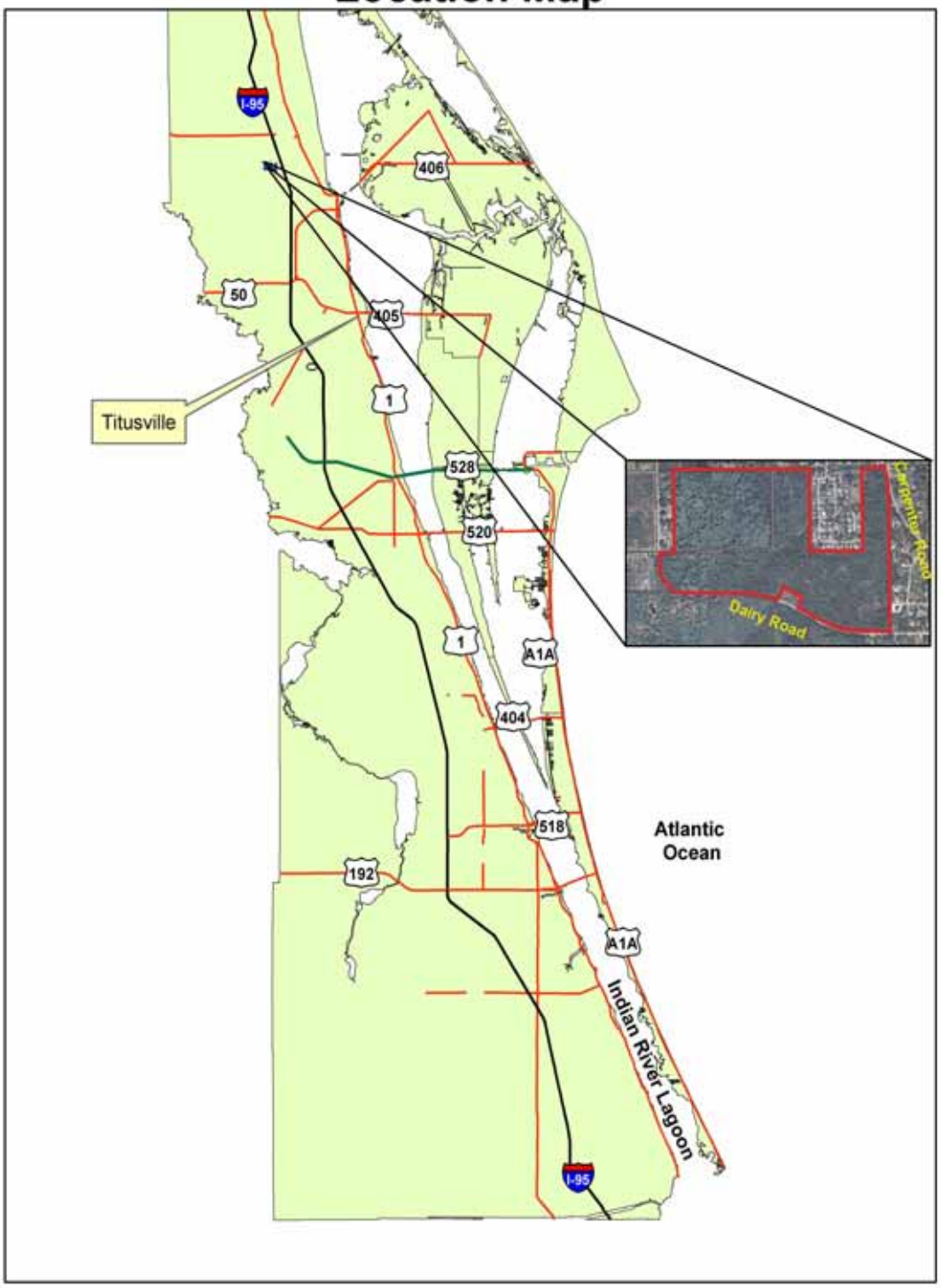
III. SITE DESCRIPTION AND LOCATION

The SLCA is a 155-acre site, located west of I–95 and Carpenter Road and north of Dairy Road in Mims, Florida. The site is adjacent to the Lantern Park subdivision (Township 21, Range 34, Section 25, Block 4,) as shown in Figure 1.

A map of the Conservation Area and adjacent properties is included as Figure 2. A portion of the Lantern Park subdivision forms a peninsula within the northeast portion of the South Lake Conservation Area. The western, eastern, and northern boundaries are adjacent to single-family residences. The SLCA is adjacent to Diary Road to the south. A retention pond is located along the south boundary of the property but is not part of the Sanctuary. Lancaster Road provides vehicular access to the site. The Salt Lake Wildlife Management Area managed by the Florida Fish and Wildlife Conservation Commission is located directly south of Dairy Road.

The property is predominantly composed of scrubby flatwoods and scrub (Figure 3). The Sanctuary also includes mesic flatwoods and upland hardwood forest communities. Five depression marshes, a small baygall, a floodplain marsh, and a hydric hammock are located in the southeastern portion of the property. Most of the site is scrubby flatwoods with a canopy of longleaf pine (*Pinus palustris*), sand pine (*Pinus clausa*), and a shrub layer of myrtle oak (*Quercus myrtifolia*), sand live oak (*Quercus geminata*), Chapman's oak (*Quercus chapmanii*), staggerbush (*Lyonia fruticosa*), fetterbush (*Lyonia lucida*), saw palmetto (*Serenoa repens*), wiregrass (*Aristida beyrichiana*), and *Andropogon spp*. The scrub area consists of a closed to open canopy forest of sand pines with dense clumps or vast thickets of scrub oaks like Chapman's oak, and other shrubs dominating the understory. The ground cover is sparse and is dominated by ground lichens and herbs. Mesic flatwoods are characterized as an open canopy forest of widely spaced pine trees with little or no understory but a dense ground cover of herbs and shrubs, longleaf pine, wiregrass (*Aristida spp.*), runner oak (*Quercus minima*), slash pine (*Pinus elliottii*), gallberry (*Ilex glabra*), and saw palmetto (*Serenoa repens*). The upland hardwood forest is a community of open or closed canopy dominated by live oak (*Quercus virginiana*), with cabbage palm (*Sabal palmetto*) often present in the canopy and subcanopy. The depression marshes are almost entirely composed of herbaceous species, mainly red root (*Lachnanthes caroliniana*) and maidencane (*Panicum hemitomon*). The floodplain swamp and hydric hammock communities consist of red maple *(Acer rubrum)*, buttonbush (*Cephalanthus occidentalis*), and swamp redbay (*Persea palustris*). A small baygall (less than one acre) adjacent to a depression marsh is located on the property and consists of a canopy of tall, densely packed, generally straight-boled evergreen hardwoods dominated by sweetbay *(Magnolia virginiana*), swamp red bay, and loblolly bay (*Gordonia lasianthus*).

Figure 1: South Lake Conservation Area Location Map



Map created on 12/28/2006 for South Lake Conservation Area Management Plan .

Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

0 5 10 20 Miles

N W E S

Figure 2: South Lake Conservation Area

0 495 990 1,980 Feet

Map created on 12/28/2006 for South Lake Conservation Area Management Plan .

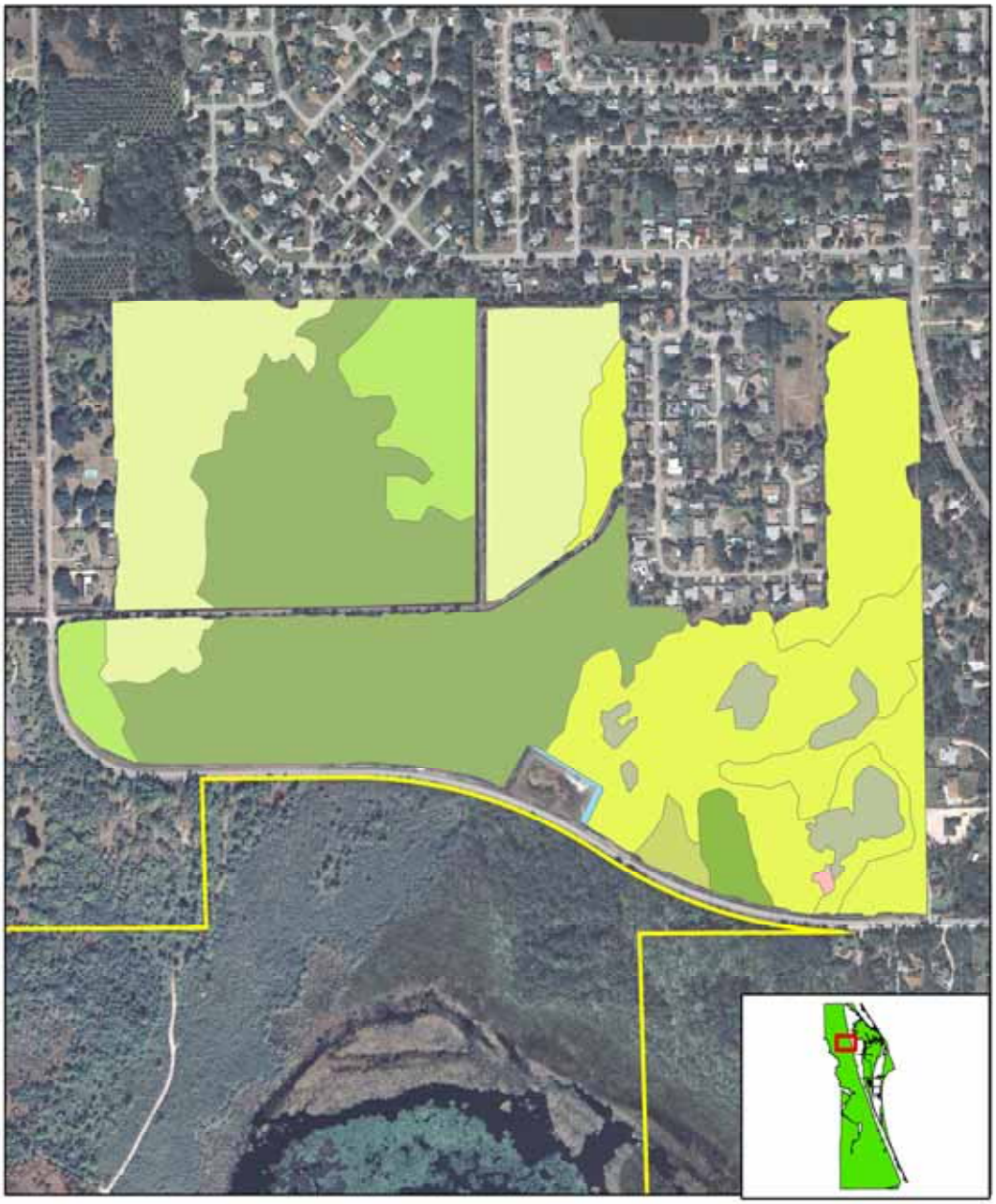
Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

Legend

- Sanctuary Boundary
- Conservation Land

N W E S

Figure 3: South Lake Conservation Area Natural Communities



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Map created on 12/28/2006 for South Lake Conservation Area Management Plan .

Source: Brevard County Natural Resources, 2002. Natural communities classification were converted from FLUCCS, 1985 to FNAI, 1990 classification.

Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

Legend

- Baygall
- Depression marsh
- Floodplain swamp
- Hydric hammock
- Mesic flatwoods
- Ruderal
- Scrub
- Scrubby flatwoods
- Upland hardwood forest
- Conservation Land

N W E S

IV. NATURAL RESOURCE DESCRIPTIONS

This section provides descriptions of natural resources, including physical resources (climate, geology, topography, soils, and hydrology), biological resources (ecosystem function, flora, fauna, designated species, and biological diversity) and cultural resource information (archeological, historical, land-use history and public interest).

A. Physical Resources

a. Climate

The SLCA is located in east Central Florida, an isothermal area at the junction of the temperate and sub-tropical climatic zones. Temperature data from representative locations in Brevard County indicate an average annual temperature of approximately 74 °F. August is typically the warmest month, averaging 82°F, whereas January is the coolest month, averaging about 62°F (Schmocker et al. 1990). Summer temperatures are moderated by frequent afternoon thunderstorms. Periods of extreme cold weather are infrequent due to the site's latitude and proximity to the Atlantic Ocean. The most recent "hard" freeze occurred in the winter of 1989. Long-term rainfall data for the area indicate an average of 54 inches per year in north Brevard County (Schmocker et al. 1990). Wet and dry seasons are typically well defined, with the wet season occurring between May and October and the dry season occurring between November and April. Annual and seasonal rainfall is subject to large variation in both amount and distribution.

During the summer, Central Florida has some of the highest frequencies of thunderstorms in the world. Cloud-to-ground lightning strikes occur frequently during summer storms. This is an important source of natural fire ignition, which determined the historic natural fire regime.

Prevailing winds are generally from north to northeast during the dry season (November to April) and from the east during the wet season (May to October) (ESMC, 1989). Climatic change, seasonal variability, topographic relief, soil types, and disturbance contribute to species distribution and community composition.

b. Geology

The SLCA is located on the Atlantic Coastal Ridge, a geological shoreline feature estimated to have formed up to 140,000 years ago when the sea level was as much as 30 feet above the present level. The property is part of a relic beach and dune system, an important geological feature that influences the biological diversity of Brevard County.

The Atlantic Coastal Ridge extends along the east coast of Florida and is a major feature of the mainland of Brevard County, made of both single and multiple relict beach ridges. These ridges appear to have formed along an erosional rather than prograding shoreline, and in most places contain little carbonates. Formation of the Atlantic Coastal Ridge is

associated with Pamlico time (ca. 140,000 – 120,000 years before present) (Schmalzer et al. 1999).

c. Topography

The SLCA has variable topography, with elevations ranging from 15' to 35'± National Geodetic Vertical Datum (NGVD) based upon the USGS Topographic Quadrangle map (Figure 4). The majority of the high elevation areas are located in the southeast part of the Sanctuary and seem to result from a relic dune part of the Atlantic Coastal Ridge. Elevation suggests that most of the natural surface drainage is toward South Lake to the south. Topography plays an important role in the natural features of the SLCA especially in the southeastern section of the Sanctuary where low topographic areas are often associated with depression marshes (Figures 3 and 4). Similarly, the high topographic area in the center of the Sanctuary (the relic dune) is associated with a scrub habitat.

d. Soils

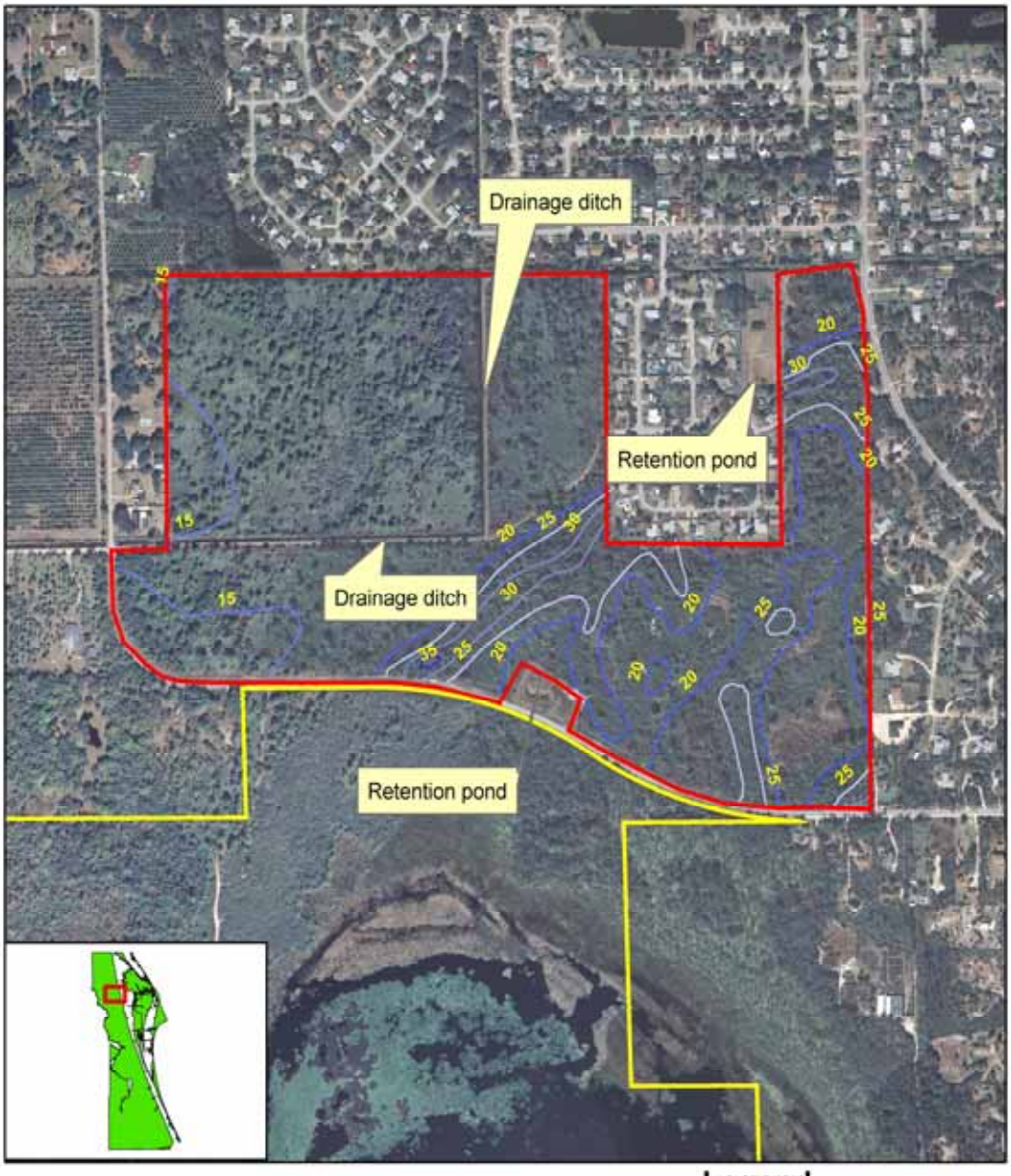
The soil types within the South Lake Conservation Area, as defined by the Natural Resource Conservation Service (formerly the Soil Conservation Service), (Figure 4) are as follows:

Anclote sand (An)*
Myakka sand, (Mk)
Myakka sand, ponded (Mp)
Myakka-Urban (Mu)
Orsino fine sand (Or)*
Pomello sand (Ps)*
Paola fine sand, 0 to 5 percent slopes (PfB)*
Paola fine sand, 5 to 12 percent slopes (PfD)
Tomoka muck, (Tw)*
(Source: Soil Survey of Brevard County, Florida, 1974)
Note: * denotes a soil with aquifer recharge characteristics

Anclote sand (*An*) is a nearly level, very poorly drained sandy soil. This soil type is characteristic of broad areas on flood plains, marshy depressions in the flatwoods, and poorly defined drainage ways.

Myakka sand (Mk) This is a nearly level, poorly drained sandy soil in broad areas in flatwoods and in areas between sand ridges and sloughs and ponds. In most years the water table is within a depth of 10 inches for 1 to 4 months and between 10 and 40 inches for more than six months. In dry seasons it is below a depth of 40 inches. The soil is flooded for two to seven days once in one to 5 years.

Figure 4: South Lake Conservation Area Topographic Map



Map created on 12/28/2006 for South Lake Conservation Area Management Plan .

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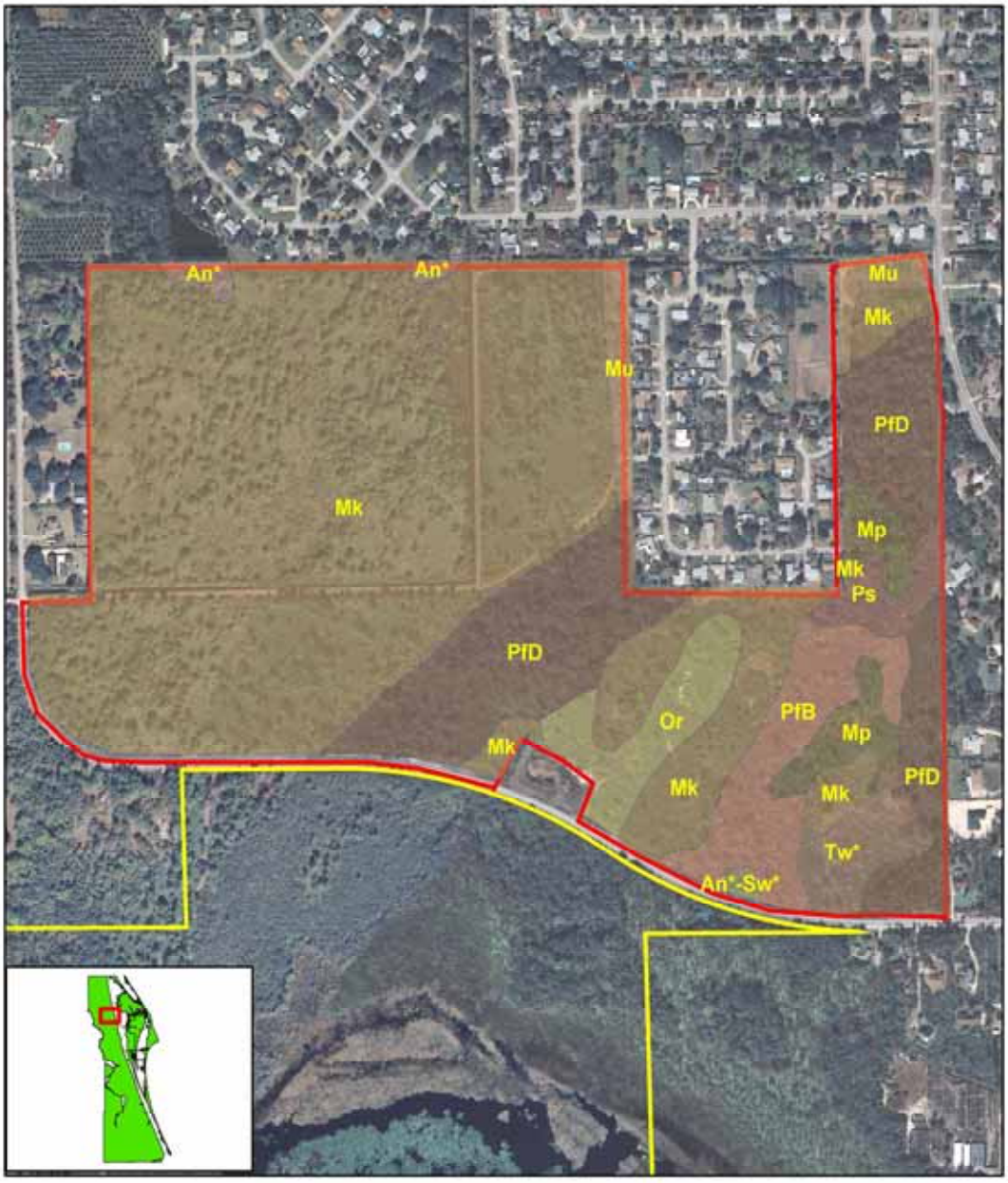
Figure 5: South Lake Conservation Area Soil Map



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Legend

An*	Mu	Ps		
An*-Sw*	Or	Tw*		
Mk	PfB	Sanctuary Boundary		
Mp	PfD	Conservation Land		

* denotes a soil with aquifer recharge characteristics

Myakka sand, ponded (Mp) This is a nearly level, poorly drained sandy soil in shallow depressions in the flatwoods. This soil is similar to Myakka sand, but it is in low places where water accumulates. In most years it is flooded 6 to 12 months. They are important feeding grounds for many kinds of wading birds and other wetland wildlife.

Myakka sand, urban land complex (Mu) This complex is 40 to 55 percent Myakka soil, 25 percent a Myakka soil that has been altered for use as building sites or covered by streets and buildings, and 20 percent to 45 percent Urban land or areas covered by house, streets, driveways, building, parking lots, and other elated construction.

Orsino fine sand (Or) This is a nearly level, moderately well drained sandy soil on moderately low ridges and between high ridges and poorly drained areas. In most years the water table is at a depth of 40 to 60 inches for 6 months or more. During prolonged dry periods it is below a depth of 60 inches, and during wet periods it is between 20 to 40 inches for 7 days to 1 month. Orsino fine sand is an aquifer recharge soil.

Pomello sand (Ps) This is a nearly level, moderately well drained sandy soil on broad low ridges and low knolls. The water table is 30 to 40 inches below the surface for 2 to 4 months in most years and between 40 and 60 inches for more than 6 months. During dry periods it is below 60 inches for short periods. Pomello sand is an aquifer recharge soil.

Paola fine sand, 0 to 5 percent slopes (PfB) This is an excessively drained soil on ridges. It has the profile described as representative of the series. The water table is below a depth of 10 feet. Paola fine sand, 0 to 5 percent slopes is an aquifer recharge soil.

Paola fine sand, 5 to 12 percent slopes (PfD) This is an excessively drained sandy soil on the sides of ridges. The water table is at a depth of more than 10 feet.

Tomoka muck (Tw) This soil is a poorly drained generally flat soil of broad flat marshes, small depressions, and swamps. Sandy loamy areas are present at a depth of 16 to 40 inches. For 9 to 12 months in most years, the water table is at depth of 10 inches with water frequently above the surface. During dry periods the water table is at a depth of 10 to 30 inches.

e. Hydrology

The SLCA lies within Community Panel Numbers 100 & 115, of the FEMA maps dated April 1989 (Appendix B). The FEMA map shows an isolated flood zone A. Flood zone A means that no base elevation has been determined. The map also indicates a large area of flood zone X. Flood zone X is an area that is determined to be outside the 500-year flood plain.

The hydrologic regime of the conservation area has been altered as a result of surrounding development. Development includes a residential development to the west of the property, and the Lantern Park Subdivision, which penetrates the property on the northeastern section of the site. An east-west and north-south running drainage ditch

transects the western portion of the site (Figure 4). The presence of pipes from the surrounding development into the ditches suggests that the ditches are the main drainageways for the residential areas.

Based on the Soil Survey of Brevard County in 1974, during most years the majority of the Sanctuary has a shallow water table that ranges from 10 to 60 inches in depth. Areas where Anclote (An) and Myakka sand (Mk) soils as well as Tomoka muck (Tw) occur experience flooding for part of the year. The rest of the Sanctuary where Paola fine sand (PfB and PfD) soils occur, the water table is typically 10 feet and below.

Ground infiltration of precipitation is the primary mechanism for recharge of the surficial aquifer. SLCA is predominantly composed of well-drained sandy soil, and this allows for aquifer recharge.

B. Biological Resources

a. Ecosystem Function

The preservation of SLCA ecosystem function depends on the enhancement of its natural communities, which will result in the increase of species viability. Restoration of the natural communities is dependent upon the removal of exotic species, the reintroduction of an adequate fire regime and the restoration of the natural hydroperiod. At SLCA, management actions include restoration of the natural communities, enhancement of habitat for gopher tortoises, Florida scrub-jays (*Aphelocoma coerulescens*), removal of invasive exotic species and implementation of prescribed fire.

The SLCA is approximately ten miles northwest of the Enchanted Forest Sanctuary, a 428-acre conservation area managed by the EEL Program. These two Sanctuaries along with the Dicerandra Scrub Sanctuary, Salt Lake Wildlife Management Area, and other Florida Forever Board of Trustees projects in the vicinity help to form a conservation corridor within the urban areas of north Brevard County.

The SLCA consists of scrubby flatwoods grading to the east into oak scrub. The site has been impacted by illegal trail use, invasive exotic plant species, off road vehicles and trash dumping over the past 25+ years.

The conservation area, along with adjacent parcels of scrub habitat, is important as a surficial aquifer recharge area. Recharge occurs when water seeps through the soil down to the aquifer layer to be stored.

b. Flora

This section describes the preliminary plant communities identified within the South Lake Conservation Area. The vegetative communities are described using the Florida Natural Areas Inventory's *Guide to the Natural Communities of Florida* (1990) (Figure

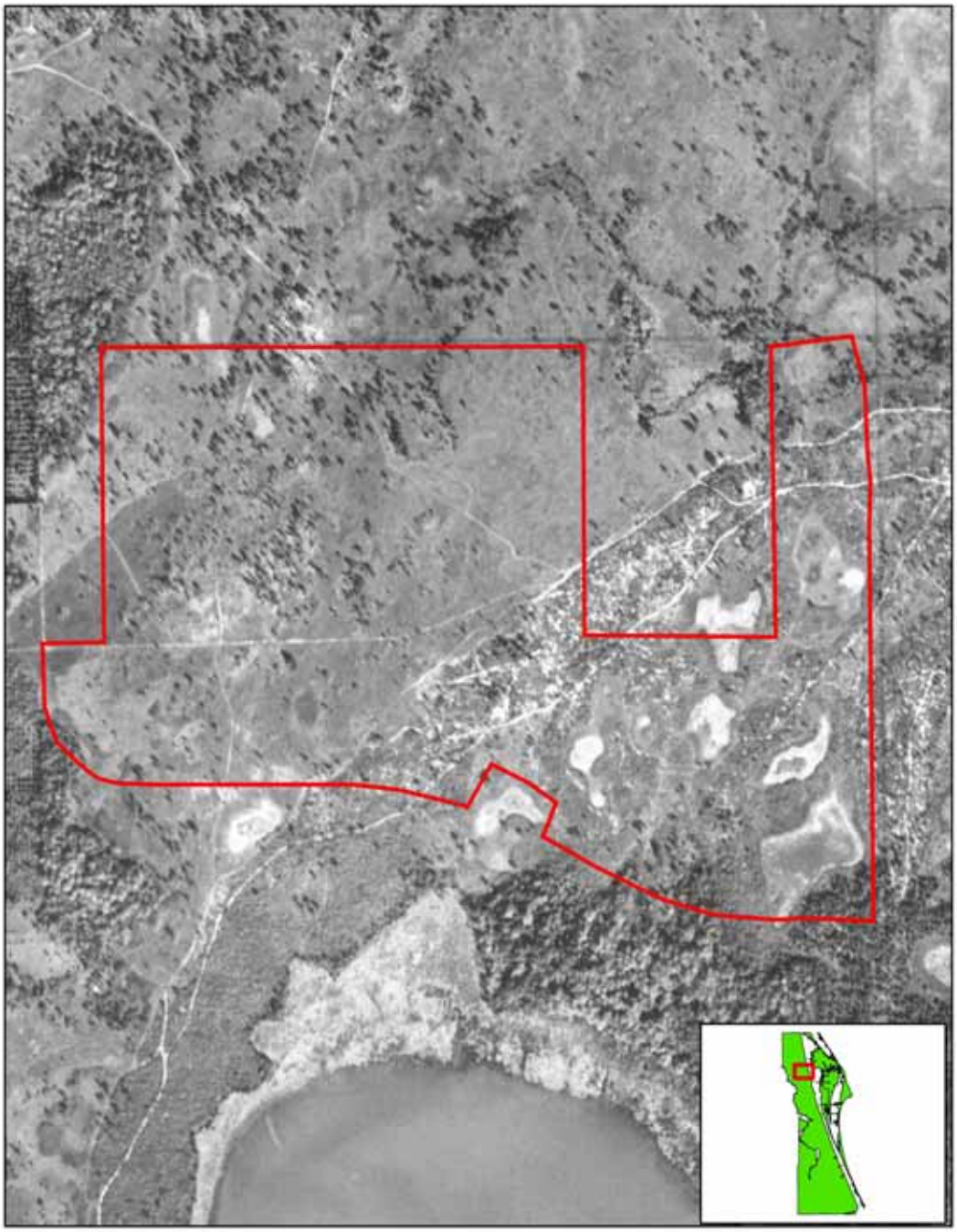
3). A complete floristic inventory has not been conducted for this conservation area. A preliminary list of the exotic plant species found on site is listed in the Management Constraints section of this management plan. To complete the plant survey, a yearlong floristic survey needs to be conducted. The preliminary plant inventory is included in Appendix C. A yearlong floristic study at SLCA was started in January 2007 with the support from the Native Plant Society volunteers.

Aside from being a valuable upland community and aquifer recharge area, this site is important in the preservation of designated plant and animal species. The site provides a significant natural area, free from development.

Historical aerial photographs were reviewed to determine changes to vegetative community type and structure, as well as man-induced changes in the past fifty years. Historical aerial photographs from 1943, 1958, 1969, 1972, 1983, 1993, and 2005 are provided as Figures 6, 7, 8, 9, 10, 11 and 12 respectively. The natural community component of this property is rather diverse with excellent examples of the natural community transitions typical of this Atlantic Coastal Ridge system. Aerial photographs from 1943 to the present were examined to determine what changes have occurred within these plant communities. The greatest difference is that the fire-dependant ecosystems (scrubby and mesic flatwoods and scrub) were historically more open with less tree cover than exists at present. Because the vegetation was less dense, dirt trails are visible within the present boundary of the Sanctuary. In the 1943 aerial, prior to the installation of roads, ditches and human development, additional depression marshes or basin swamps are present. Natural communities were impacted by altering the fire regime and by changing the hydrology.

According to the historical aerial photographs, the SLCA appeared to be undisturbed until the 1960's. By 1969 the Lantern Park development north of the conservation area has already occurred. From the 1970's to the 1990's two adjacent developments were built on the western and eastern side of the conservation area.

Figure 6: South Lake Conservation Area
1943 Aerial Photograph



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Map created on 12/28/2006 for South Lake Conservation Area Management Plan .

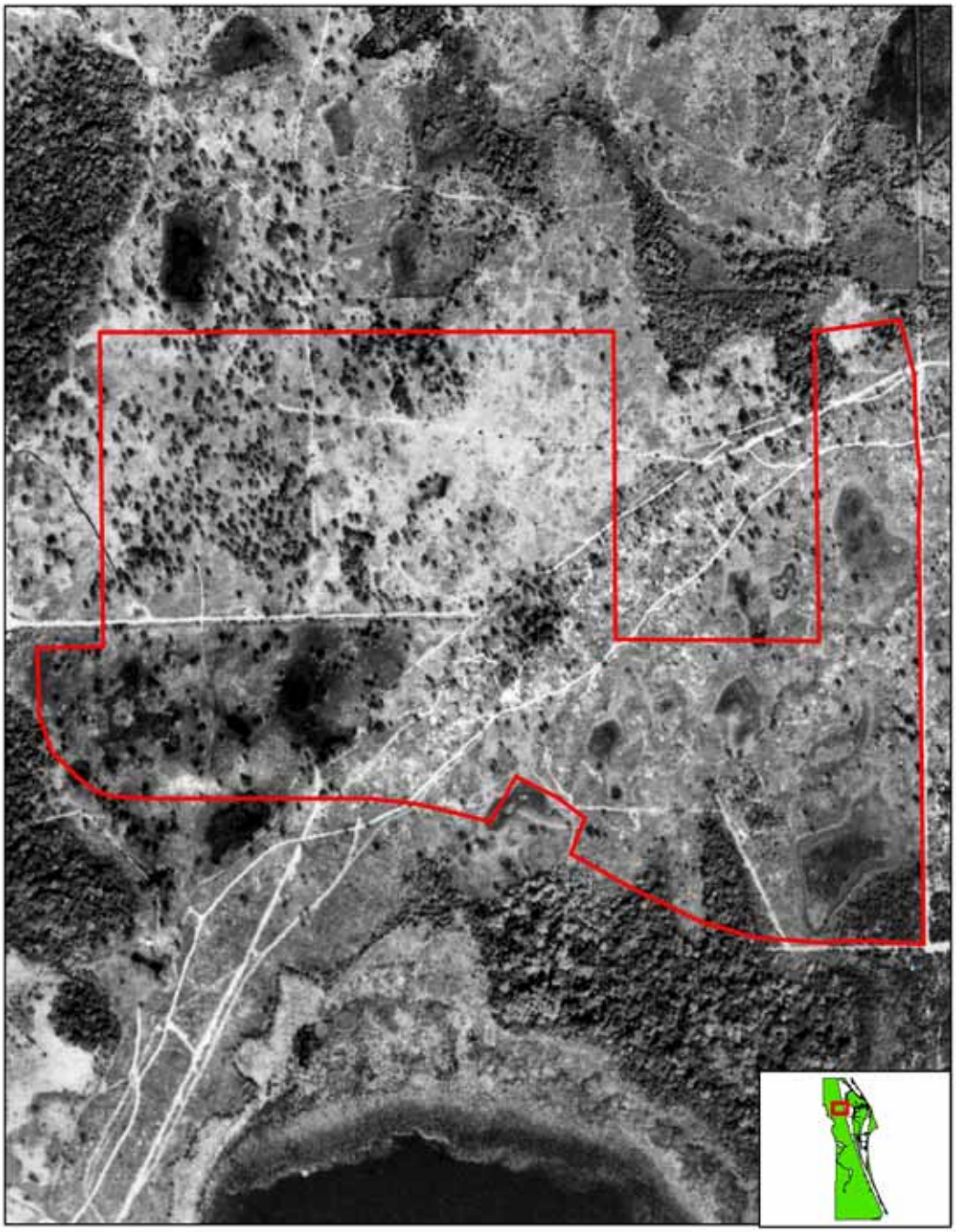
Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

Legend

Sanctuary Boundary

N W E S

Figure 7: South Lake Conservation Area
1958 Aerial Photograph



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Legend

Sanctuary Boundary

N W E S

Figure 8: South Lake Conservation Area
1969 Aerial Photograph

0 500 1,000 2,000 Feet

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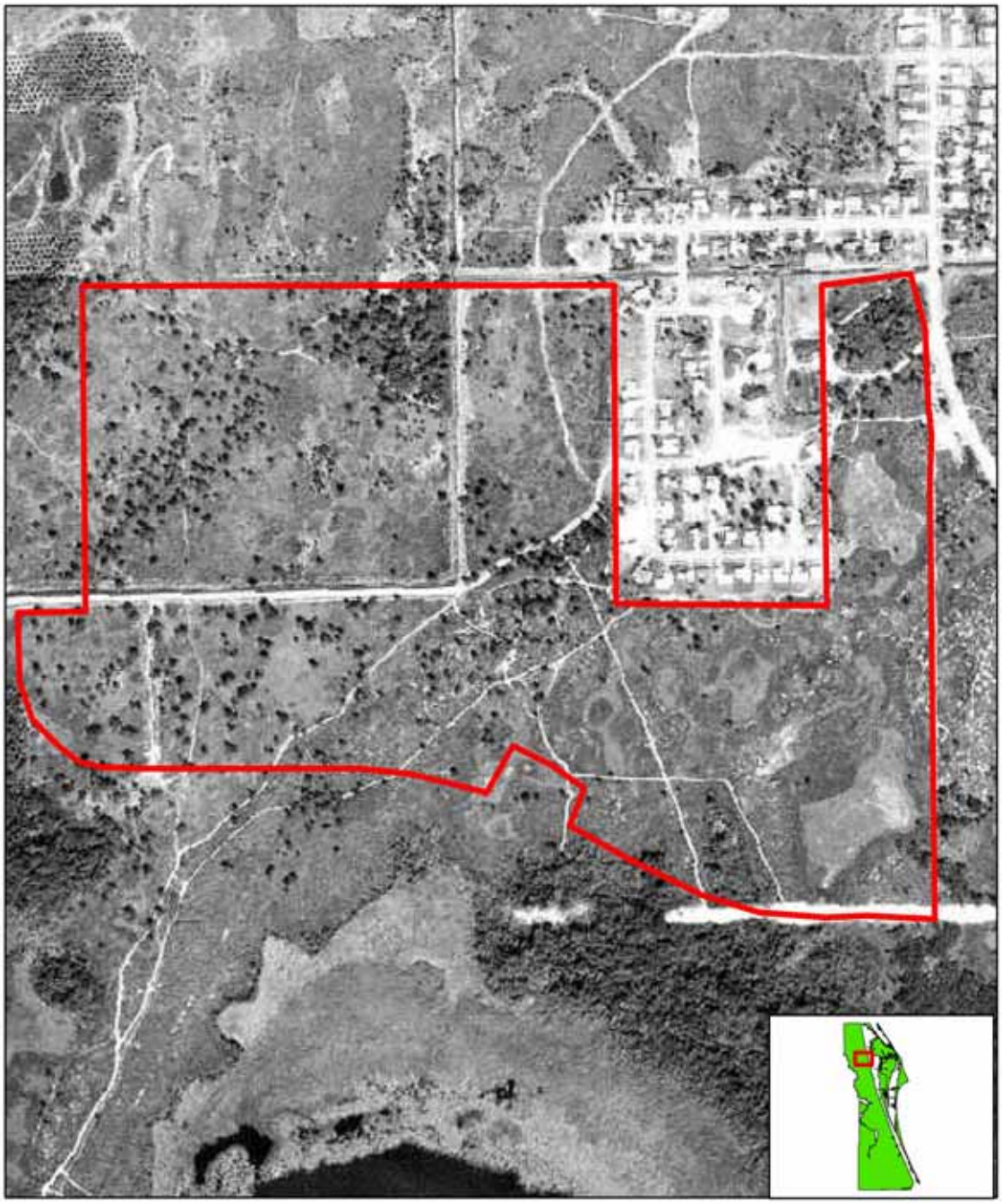
Legend

Sanctuary Boundary

N W E S

Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

Figure 9: South Lake Conservation Area
1972 Aerial Photograph



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Map created on 12/28/2006 for South Lake Conservation Area Management Plan .

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Sanctuary Boundary

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Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

Figure 10: South Lake Conservation Area
1983 Aerial Photograph

Map created on 12/28/2006 for South Lake Conservation Area Management Plan.

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Figure 11:South Lake Conservation Area
1993 Aerial Photograph

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Legend

Sanctuary Boundary

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Figure 12: South Lake Conservation Area
2005 Aerial Photograph

Map created on 12/28/2006 for South Lake Conservation Area Management Plan .

Legend

Sanctuary Boundary

Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

Upland Communities

Scrubby Flatwoods (G3/S3)* – This community type makes up the majority of the site. Scrubby flatwoods extend across 49.9 acres of the site grading to the east into scrub. An open canopy of sand pine, slash pine, and longleaf pine dominates this scrubby flatwoods community. The understory includes saw palmetto, rusty lyonia (*Lyonia ferruginea*), myrtle oak, Chapman's oak, live oak (*Quercus virginiana*), winged sumac (*Rhus copallinum*). Due to fire suppression, ground cover especially grasses is almost nonexistent except for grape vines, and Virginia creeper (*Parthenocissus quinquefolia*). Review of the 1943 aerial photograph shows that this portion of the Sanctuary did not contain a canopy of sand pine. Sand pine most likely invaded this community as a result of the 20-50 years fire suppression. According to Schmalzer and al (1999), 26% of the remaining scrub in Brevard County Atlantic Coastal ridge scrub is sand pine over an oak understory. Fire reintroduction and a specific fire regime need to be determined within this community. An increase in fire frequency will eventually exclude sand pine, and this scrubby flatwood community will eventually shift toward a saw-palmetto dominated habitat because saw palmetto is know for its fast recovery rate (Schmalzer and Hinkle 1992a, 1992b). On the other hand, the use of mechanical reduction prior to prescribed burning can damage saw-palmetto rhizomes, which are normally unharmed by fire. This may lead to a decline in saw-palmetto cover (Schmalzer and Adrian 2001, Schmalzer et al. 2003). A combination of mechanical treatment and frequent fire coupled with monitoring of regrowth will allow for the restoration of the SLCA scrubby flatwoods.

Scrub (G2/S2) – This scrub community is characterized by an open to closed canopy of sand pines and longleaf pine with areas of scrub oak, shrubs, and saw palmetto. This community makes up 46.6 acres of the Sanctuary and is located mainly in the eastern portion of the site. As with the scrubby flatwood community, the 1943 aerial photograph suggests that sand pines were historically not present on site and are the result of fire suppression. Most of the scrub community (31 acres), which lies on the southeastern corner of the property, burned during a wildfire in March 2006. Scrub vegetation is a fire-adapted community, and scrub oaks and saw palmetto are already resprouting along with sand pine, which is an obligate seeding scrub species. Although this community burned recently, scientific literatures suggest that growth in long-unburned scrub is greater than regularly burned scrub by 50% or more with persistent openings slowly decreasing by 50% in seven years (Schmalzer and Adrian 2001). Therefore, the SLCA scrub community will have to be burned on a shorter return interval during the initial restoration period.

Mesic Flatwoods (G4/S4) – Historically, the mesic flatwoods at SLCA are characterized as an open canopy forest of widely spaced pine trees with little or no understory but a dense ground cover of herbs and shrubs as shown in the 1943 aerial photograph. The

* Key: Florida Natural Areas Inventory (FNAI) natural community designations assigns two ranks for each natural community (element): G = global element rank, S = state element rank. Numbers represent: 1 = critically imperiled because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of vulnerability to extinction; 2 = imperiled because of rarity (6-20 occurrences or less than 3,000 individuals) or because of vulnerability to extinction; 3 = 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 because of other factors; 4 = apparently secure (may be rare in parts of range); 5 = demonstrably secure; #? Tentative rank; G?/S? not yet ranked (temporary).

mesic flatwoods community at SLCA has been fire suppressed like the rest of the Sanctuary. The area now consists of an open to closed canopy of pine with the occurrence in some area of cabbage palm with an understory of winged sumac, saw palmetto and scrub oaks and nearly no grass cover. This community makes up 38.3 acres of the site. Implementation of prescribe fire will be the most important tool to restore this community to its natural state.

Upland Hardwood Forest (G5/S3) – The upland hardwood forest community at SLCA is the result of a long absence of fire throughout the Sanctuary combined with hydrological alteration as a result of the two drainage ditches that transect the site north to south and east and west. The historic aerial photographs show that it was originally a flatwoods community. This is also consistent with the soil type. According to the soil survey done for Brevard County by the U.S Department of Agriculture in 1974, the soil type is Myakka sand, which normally support flatwoods communities. This community consists of open or closed canopy dominated by live oak, with cabbage palm often present in the canopy and subcanopy. This community makes up 11 acres of the site and occurs in two isolated patches within the Sanctuary. Epiphytes (ferns, orchids and bromeliads) are found within these areas. The shrubby understory is dense, especially in the patch along Dairy Road, and open in the patch along the northern boundary. Vegetation is composed of saw palmetto, beautyberry (*Callicarpa americana*), and wax myrtle, with the addition of tropical shrubs, such as nakedwood (*Myrcianthes fragrans*) and wild coffee (*Psychotria nervosa)* with little to no ground cover.

Hydric hammock (G4/S4) – The two acres of hydric hammock located in the southern portion of SLCA is characterized by a well developed hardwood and cabbage palm forest with a variable understory often dominated by palms and ferns. This hydric hammock grades to the west into a floodplain swamp. As with the upland hardwood forest community listed above, the soil type is Myakka sand, which does not naturally support this kind of vegetative cover. Analysis of the aerial photograph also shows that tree cover was less dense, indicating fire suppression and/or hydrologic alteration.

Ruderal – This is a disturbed area that makes up 2 acres of the site and is colonized to some extent by plants that do not constitute the naturally occurring community. Often times, opportunistic, nonnative species will be the first to appear. This area was historically scrub community and was likely disturbed during the construction of the adjacent retention pond in the early 1990's.

Wetland Communities

Depression Marsh (G4/S4) – Depression Marsh is characterized as a shallow, usually rounded depression in sand substrate with herbaceous vegetation often in concentric bands. This natural community makes up for approximately 4.2 acres of the site. There are five distinct depression marsh communities nested within the scrub habitat in the southeast portion of the sanctuary. Typical plants include St. John's wort (*Hypericum spp.*), spikerush (*Eleocharis spp.*), chain fern (*Woodwardia spp*), maidencane, wax

myrtle, swamp primrose (*Ludwigia palustris)*, redroot, buttonbush (*Cephalanthus occidentalis*), arrowheads (*Sagittaria spp.*), and bladderwort (*Utricularia spp*).

Depression marshes occur as isolated wetlands within larger upland ecosystems and are of critical importance to many wetland and upland animals. Hydrological conditions vary, with most depression marshes drying in most years. Hydroperiods range widely from as few as 50 days or less to more than 200 days per year. Fire is important to maintaining this community type by restricting invasion of shrubs and trees and in the formation of peat. Fire frequency is often greatest around the periphery of the marsh and least toward the center. A severe peat fire can lower the ground surface and create a pond at the center of the marsh.

Floodplain Swamp (G4/S4) – Floodplain swamps occur on flooded soils along stream channels and in low spots and oxbows within river floodplains. This community makes up for 1.3 acres of the site. Dominant trees are usually buttressed hydrophytic trees such as cypress and tupelo; the understory and ground cover are generally very sparse. Typical plants include water tupelo (*Nyssa aquatica*), wax myrtle (*Myrica cerifera*), dahoon holly (*Ilex cassine*), gallberry (*Ilex glabra*), possumhaw (*Viburnum nudum*), lizard's tail (*Saururus cernuus*), leather fern (*Acrostichum danaeifolium*), royal fern (*Osmunda regalis*), soft rush (*Juncus effusus*) and hawthorn (*Crataegus spp.*).

Soils of floodplain swamps are highly variable mixtures of sand, organic, and alluvial materials, although some sites, especially within sloughs or on smaller streams, may have considerable peat accumulation. Floodplain swamps are flooded for most of the year. Seasonal and often prolonged inundations restrict the growth of most shrubs and herbs, leaving most of the ground surface open or thinly mantled with leaf litter. These swamps are usually too wet to support fire.

According to the 1943 aerial, the floodplain swamp at SLCA on the south boundary of the property was originally part of the floodplain swamp community that borders South Lake. In the early 1970's construction of what is today Dairy Road began cutting this wetland community in two, severing the north part of the floodplain swamp from South Lake.

Baygall (G4/S4) – Baygalls are generally characterized as densely forested, peat-filled seepage depressions often at the base of sandyslopes. This community makes up 0.1 acre of the site. The canopy is composed of tall, densely packed, generally straight-boled evergreen hardwoods dominated by sweetbay, swamp red bay, and loblolly bay. A more or less open understory of shrubs and ferns commonly occurs. Other typical plants include dahoon holly, fetterbush, gallberry, wax myrtle, white alder (*Clethra spp.*) and possumhaw. However, the 1943 aerial photograph reveals that originally this area was a depression marsh. Fire exclusion from SLCA probably resulted in the encroachment of bay species which were eliminated under a natural fire regime.

c. Fauna

No comprehensive faunal surveys have been initiated for SLCA with the exception of the U.S Fish and Wildlife Service Florida scrub jay survey between 1993 and 1996 (see FNAI report Appendix D). However, the natural community heterogeneity characterizing the site provides suitable habitat conditions for use by a broad range of animal species. Preliminary faunal lists of birds, reptiles and mammals can be found in the Appendix E, F, and G respectively. In October 2006, EEL staff with the assistance of the Florida Audubon Society, started a formal yearlong bird survey at SLCA.

d. Designated Species

A primary goal of this management plan is to develop and implement strategies to enhance conservation of threatened, endangered, or endemic species on the conservation area. The following is information on existing listed species or species that may occur on the South Lake Conservation Area.

Plants

One of the initial management goals will be to conduct the plant surveys needed to determine species present on the site, map their locations and photograph the areas to detail the extent of coverage of any designated species. Continued efforts to remove invasive exotics plants and the use of prescribed fire will allow for the natural progression of native species.

SLCA was part of a survey in Brevard County for the occurrence of federally endangered or threatened scrub plant species conducted by Dynamac Corporation for Brevard County Board of County Commissioner and submitted to the U.S Fish and Wildlife Service in 2005. SCLA was surveyed in October 2004, and the study determined that there are no rare scrub plant species within the Sanctuary, probably due to the lack of open spaces resulting from long-term fire suppression (Schmalzer and Foster 2005). EEL Program staff began a formal yearlong plant survey in January 2007 with the assistance of the Florida Native Plant Society. In February 2007, volunteers collected a specimen of large flower false rosemary (*Conradina grandiflora*) from a population of approximately 30 plants within an area that was burned by a wildfire in March 2006. Large flower false rosemary is not federally listed, but is considered Threatened by the Florida Department of Agriculture and Consumer Service Division of Plant Industry, which is responsible for the State listing (N. C. Coile et al. 2003) and the Florida National Area Inventory lists large flower false rosemary as G3/S3 (See page 23 for definition) (FNAI, 2007).

Large Flower False Rosemary (*Conradina grandiflora*)

Animals

The USFWS and the State of Florida under the auspices of the Florida Fish and Wildlife Conservation Commission (FWC) also compile lists of protected wildlife species considered to be under possible threat of extinction. These species are categorized as either endangered or threatened. The FWC utilizes the category "Species of Special Concern" (SSC) for several animal species, which may ultimately be listed as endangered or threatened. This classification provides the SSC listed animal with a particular level of protection that varies from species to species.

Florida Scrub-Jay

The Florida scrub-jay (*Aphelocoma coerulescens*) is listed as a threatened species by both the USFWS and FWC. The Florida Natural Areas Inventory reported two adults and one juvenile in 1991 (Florida Natural Areas Inventory 2006) (Appendix D). Scrub jay surveys performed by EEL Program staff in the fall of 2003 and spring of 2004 indicated that no scrub-jays were present on the site. A review of the 1943 and 1959 aerials revealed a habitat that most likely was suitable for Florida scrub jays (Breininger, pers. comm.).

Eastern Indigo Snake

Indigo snakes (*Drymarchon corais couperi*) have not been seen on the property. The USFWS and FWC list the Indigo snake as a threatened species. It is uncertain whether there is a stable breeding population of indigo snakes in the area. Indigo snakes require large home ranges (370 to 2,500 acres) in order to maintain a stable population (Tennant

1997). Impacts from dogs, humans and roads cause habitat fragmentation and reduce indigo snake populations. Their ability to utilize natural lands interspersed with urban areas is unknown. According to the Florida Natural Area Inventory (2006), the SLCA is likely to have Eastern Indigo Snakes. One specimen was observed north of the Sanctuary in 1990 (Appendix D).

Gopher Tortoise

Gopher tortoises (*Gopherus polymerus*) have been noted on the site. In June of 2006, the Florida Fish and Wildlife Conservation Commission changed the status of the gopher tortoise from Species of Special Concern to Threatened. This change will take effect in 2007. No formal survey has been conducted to determine if the population is stable and in good health. Gopher tortoises utilize flatwoods as well as scrub habitat (Breininger et al. 1994), thus reintroduction of prescribed fire to these communities will enhance the habitat by opening up the understory thereby increasing the amount of habitat open to foraging and colonization. A comprehensive gopher tortoise survey will be conducted.

Bald Eagle

Bald Eagles (*Haliaeetus leucocephalus*) have been documented by the Florida Natural Area Inventory in the vicinity of the site (Appendix D). An EEL Program staff member as well as a member of the Florida Audubon Society also spotted one bald eagle during the formal yearlong bird survey in October of 2006. No nests have been reported in the Sanctuary. The Florida Fish and Wildlife Conservation Commission currently list bald eagles as Endangered.

e. Biological Diversity

No documented work has been conducted to assess the Sanctuary's biological diversity. Previously collected data were designed to qualitatively catalog species. Additional data through the formal yearlong bird and plant survey will be collected in order to assess the biological diversity (both richness and evenness) so that changes in diversity can be tracked over time. Richness refers to the number of species found within a particular community, while evenness refers to the distribution of individuals among species. Methodologies will need to be established for all of the relevant taxonomic groups and researchers and staff identified to address this particular need.

C. Cultural Resources

a. Archaeological

According to the Florida Division of Historical Resources (Appendices H and I), there are no recorded sites within the South Lake Conservation Area. However, the site lies within a high probability zone for encountering archeological resources. A prehistoric midden was discovered along with potsherd and a fragment of turtle bone in a willow

marsh between the south boundary of the site and South Lake (Appendix J, Florida Master Site File 2003).

A thorough review of SLCA to determine the presence of archaeologically significant sites has not been conducted. A goal will be to have an archaeology study performed on the site.

b. Historical

The history of the area ranges from the Indian burial sites several miles to the west at Windover, dating from 6,000 BC to the events associated with the development of the space industry at Cape Canaveral during the 1950's, 1960's, and 1970's. In 1982, The Windover Development found one of the best-preserved aboriginal burial sites to be discovered, with skeletons approximately 8,000 years old. The Ais Indians later occupied the region around Titusville (Shoffner and al. 1995).

There are no historic events associated with the South Lake Conservation Area. The following paragraphs provide some history of the area from 1000 BC to the 1920's.

Ais Indians (1000BC – 1500 AD)

The first people to inhabit Florida arrived about 12,000 years ago, from central and southern areas of the North American continent, at the end of the last ice age. At this time much of the North American continent was still covered by glaciers. Sea level was 200 feet below its current level and much of the earth's water was stored in glaciers (Brown 1994).

At the time of European contact in the 16th century, the Ais (pronounced "Eyes") Indians were known to inhabit Brevard County. The Ais Indians did not exhibit the nomadic existence of other Native Americans, as the semi-tropical climate provided for their needs without requiring them to travel great distances.

Turn of the Century to Present

During the late 1800's and early 1900's, naturalists were the primary visitors to Brevard County. Notable scientists came to this species-rich, semi-tropical region to collect specimens for natural history museums. These specimens included rare bird life such as the Carolina parakeet (*Conuopsis carolinensis*), which is now extinct.

In the early 1900's, people came to Brevard County from around the country via the Florida East Coast Railway. There was an increase in settlement and development of towns brought about by the creation of railroads and canals. The increase in population was also the result of the 1916 Drainage Acts of Florida and the establishment of Mosquito Control measures beginning in 1927. The Drainage Acts rerouted drainage patterns that permanently lowered water tables in areas where standing water naturally existed for six or more months each year. Mosquito control (pesticide spraying) lowered

the mosquito population to acceptable levels (Barille 1988; Woodward-Clyde consultants, 1994).

In the 1920s, improved roads such as the Dixie Highway (U.S.1) brought more cars and people to Brevard County. In 1921, a bridge was built over the Indian River Lagoon and hotels and casinos were established. Later, air conditioning was introduced, and Florida became known as the residential and tourist destination it remains today.

c. Land-Acquisition History

The SLCA encompasses approximately 155 acres, and the Sanctuary was created by connecting two individual parcels. One parcel of approximately 60 acres was originally owned by Guilford Realty Co. and was sold to Holy Trinity Episcopal Academy Inc. Holy Trinity Episcopal Academy, Inc. donated the parcel to the Brevard County EEL Program as a result of a United States Fish and Wildlife Service (USFWS) Section 7 scrub-jay mitigation requirement (199805845[NW-IS], Service Log No.: 99-303) in March of 1999 along with $60,000 for land management purposes as required in the mitigation permit. The remaining approximately 100 acres were donated by Dr. Levy to the EEL Program as a result of a United States Fish and Wildlife Service (USFWS) Section 7 scrub-jay mitigation requirement (199805845[NW-IS], Service Log No.: 99-303) in March of 2000.

d. Public Interest

Currently, the SLCA is primarily used for hiking. The Sanctuary has been periodically affected by all-terrain vehicles (ATV's) as well as illegal trash dumping. Boundary signs were posted along the entire fence of the Sanctuary. The EEL Program encourages passive recreation use within the SLCA in the form of hiking.

V. FACTORS INFLUENCING MANAGEMENT

Part V includes the information regarding natural and human-induced trends, external influences, legal obligations, and constraints, management constraints, and public access and passive recreational activities.

A. Natural Trends

Past and future natural trends that influence resource values or management strategies are associated with regional climate and storm events that can influence the biological resources and natural characteristics of the site. Global trends, like sea level rise and global warming, cause potential threats that are difficult or impossible to assess. In each case appropriate management strategies that protect natural ecosystem functions and biological diversity enable the site to respond to most, if not all, natural stochastic events.

The primary variable that influences the formation and succession of Florida's vegetative communities is fire. If natural fires are not present or are suppressed by man, less-fire-adapted species, including invasive species, can invade and alter the natural successional path of the community. In scrubby flatwoods, structural changes (height, growth, density) occur more rapidly than changes in species composition.

In systems such as scrub communities, lack of fire can profoundly affect the value and usability of the community for endemic as well as listed plant and animal species. To occur naturally, scrub fires require drier and hotter conditions than do, for example, the flatwoods community (Myers and Ewel 1990). Land management practices developed for the SLCA must consider the re-introduction of a "natural" fire regime through the use of prescribed fire. Using prescribed fire as a management tool ensures that the natural ecological processes are restored and protected. A Fire Management Plan is included in Appendix K.

Another factor affecting the natural communities within the SLCA is hydroperiod. Changes in hydroperiod have the potential to significantly alter community structure. A decrease in hydroperiod could allow the invasion of nuisance or non-native species, while an increase in hydroperiod could surpass the inundation tolerances of the species present.

The natural hydrologic regime and periodicity of the SLCA is expected to have been altered by the residential and the agricultural areas on all boundaries, as well as the impact caused by the two ditches that transect the site. Investigation into the natural hydroperiod as well as the existing hydroperiod should be undertaken to better understand and enhance the natural ecological processes. Understanding of the natural hydroperiod is particularly critical for the preservation of the freshwater marshes located in the southeastern portion of the Sanctuary.

B. Human-Induced Trends

a. Fire Suppression

Natural fire cycle has been suppressed due to the proximity of residential and agricultural areas. Fire suppression tends to result in plant and animal compositions that are different than what might have existed under more natural regimes. A more natural cycle under the prescribed burn plan will address this problem. The scrubby flatwoods, mesic flatwood, and scrub communities are so overgrown that mechanical reduction will be required before any prescribe burn can occur.

b. Invasion of Air potatoes (*Dioscorea bulbifera*)

This invasive vine is located alongside the fence of most of the eastern part of the sanctuary as well as within the scrub community alongside the portion of Lancaster Road that runs through the property. The vine has already spread to a significant extent (6 acres). Within the same area, the EEL Program has identified the presence of 34 exotic species that will be treated during the removal of the air potatoes. Once a fire regime is

restored in the scrub and vegetative fuel is reduced, new growth of invasive exotics will be treated immediately upon discovery to prevent further invasion.

c. Hydroperiod Alteration

The two ditches that transect the site are affecting the natural hydroperiod of the Sanctuary by reducing the natural drainage pattern toward the south. More investigation is required to provide information on whether these ditches are also draining the adjacent residential and agricultural areas.

d. Trails and Firebreaks

Some of the existing foot trails and firebreaks will be used as hiking trails. Hiking trails going through marsh communities will have to be rerouted or a boardwalk will have to be built. The management goals set forth in Section V (Management Action Plan) provide strategies and actions for reduction of human-induced impacts, restoration and enhancement of natural resources. As part of the management plan implementation, methodologies for assessing carrying capacity of the natural resources on the site will be developed. In addition, strategies for visitor impacts analysis that consider species-level, natural community-level and ecosystem-level human influences will be developed and implemented.

C. External Influences

There is encroachment from the residential homeowners on the west and south border of the Lantern Park subdivision that occurred prior to the installation of boundary fencing. Bahia sod and exotic tropical plant and vegetable gardens were located as deep as 50 feet into the conservation area. There was evidence that adjacent property owners had mowed vegetation within the conservation area boundary. There was assorted heavy equipment including boats, trailers, oil tanks, lawn furniture and other debris dumped within the conservation area boundary.

Derelict Vessel

The conservation area boundary has been fenced and posted since June of 2003. Public access will be limited to walk-through gates. EEL Program staff, County staff and volunteers have removed trash during several workdays, and only minor signs of new littering (mainly yard trash) were noticed since the initial clean up. Letters were sent to neighboring residents notifying them of the presence and purpose of the conservation area in their community and alerting them to planned management activities.

D. Legal Obligations and Constraints

The following is a list of possible legal constraints to management and public access on site.

a. Division of Forestry

The Florida Division of Forestry (DOF) issues permits for prescribed burns for land management to Land Managers with certified burn numbers. These certifications will be secured by the EEL Program Fire Manager prior to all prescribed burns.

b. Easements

The location of the easements at SLCA is shown on Figure 13. A copy of the following Easements can be found in Appendix L.

- Easement as set out and reserved in Utility and ingress/egress Easement dated September 24, 1985, recorded October 4, 1985 in Official Records Book 2638, page 347, of the Public Records of Brevard County, Florida.

- Easement as set out and reserved in Drainage Maintenance Easement dated January 3, 1986, recorded January 17, 1986 in Official Records Book 2665, page 2684, of the Public Records of Brevard County, Florida.

Brevard County Road and Bridge has also maintained the ditches located within the Sanctuary for at least the past seven years, making Lancaster lane (Figure 13) a maintenance easement although it is not recorded on the County public record. Billy Osborn, Brevard County Road and Bridge Director has ensured the EEL Program (Appendix M), that Lancaster lane will never be subject to any structural change.
Structural changes cannot be made for the two easements described above as they are recorded respectively as ingress/egress and drainage maintenance easements and cannot be use for any other purposes.

Figure 13: South Lake Conservation Area Easments

Map created on 01/04/2007 for South Lake Conservation Area Management Plan .

Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

Legend

- Easment
- Sanctuary Boundary
- Conservation Land

N
W
E
S

E. Management Constraints

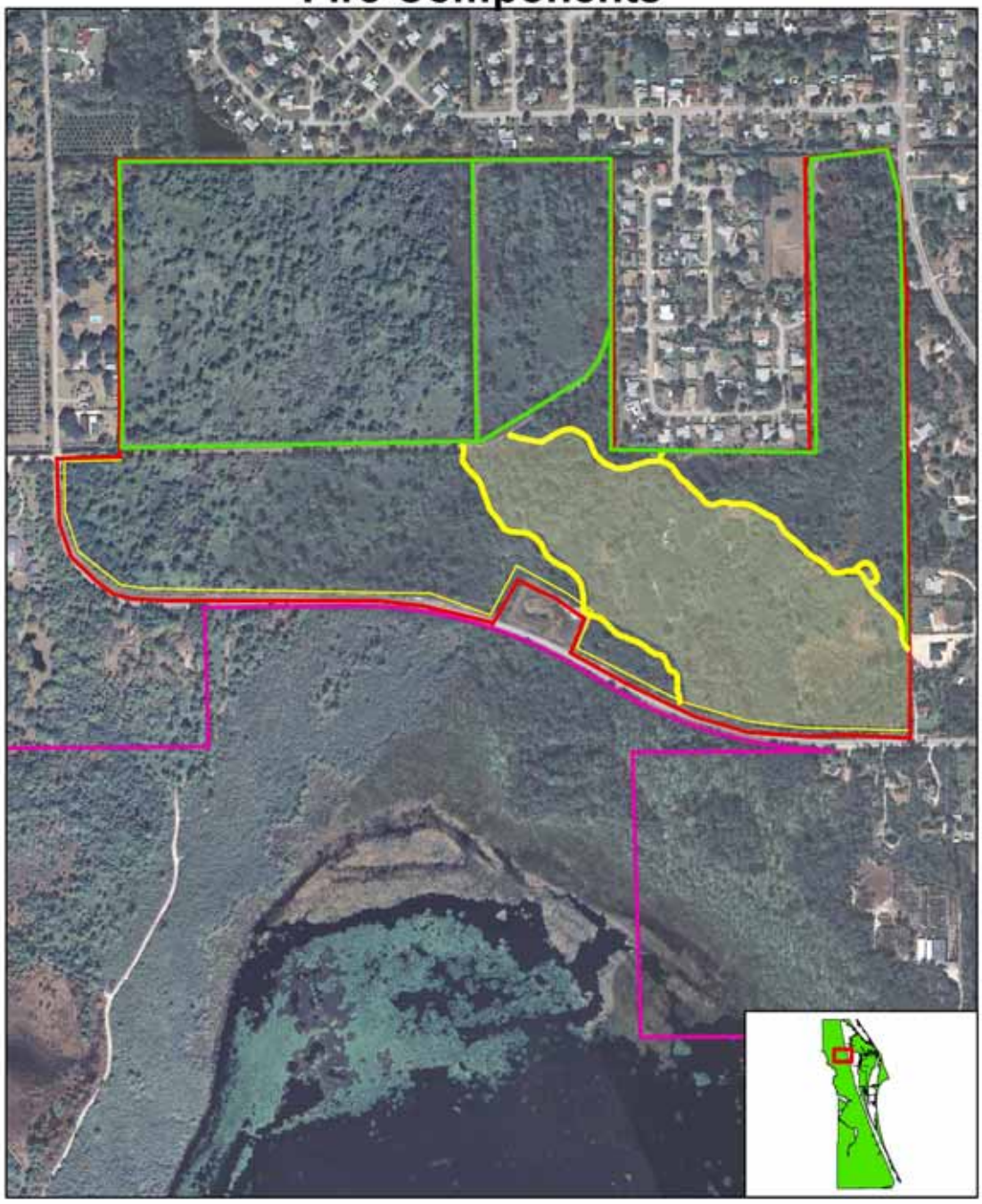
Potential management constraints and challenges are associated with site security, limited on-site presence and proximity of residential homes. The following is a description of the major management issues and constraints associated with the Conservation area.

a. Fire

Natural communities within the SLCA will be evaluated to determine any constraints upon the use of prescribed burning posed by natural site conditions and adjacent land uses. Restoration of fire regime is needed in the scrubby and mesic flatwoods communities, the scrub communities, and the depression marsh communities. A wildfire in March of 2006 burned 31 acres (Figure 13) in the southeast corner of the Sanctuary. In order to access the site during the wildfire, Division of Forestry created plowlines along the perimeter of the burn. The Fire Management Plan (Appendix K) includes the habitat maintenance and restoration goals of the EEL Program and provides a detailed approach to conducting prescribed burns.

Sand Pine (*Pinus Clausa*)

Figure 14: South Lake Conservation Area Fire Components



0 500 1,000 2,000 Feet

Map created on 12/28/2006 for South Lake Conservation Area Management Plan .

Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

Legend

- Firelines
- Conservation Land
- March 2006 Wildfire
- Plowlines
- Sanctuary Boundary
- Proposed Fireline

N W E S

The development of this plan involves local and state experts on prescribed burning, including the Florida Division of Forestry, The Nature Conservancy, U.S. Fish and Wildlife Service, the County's Public Safety Department, Brevard County Fire Rescue, and City Fire Departments. Fire lines were installed in 2003 along the boundaries of SLCA. The area along Dairy Road on the south boundary of the property was gyro tracked by DOF in 2003 and was not of exposed to mineral soil. As of 2006, this fire line needs to be installed.

b. Exotic Species

Exotic, non-indigenous, non-native, and alien species are all terms used to describe plants and animals that are of foreign origin. Some exotic species can be invasive when they harm or displace native species and alter native ecosystem function. Well-known and widespread non-indigenous plant species in Florida include Brazilian pepper (*Schinus terebinthifolius*), air potato *(Dioscorea bulbifera*), Chinese tallow tree (*Sapium sebiferum)* and several species of encroaching landscape plants.

Plants

A list of these exotic species is provided in Table 1. Exotics species are mainly located on the around the Lantern Park subdivision as shown in Figure 15. Air potato is the dominant nuisance plant noted within the South Lake Conservation Area. Chinese tallow tree and Chinaberry (*Melia azederach*) are also cause for concern within the conservation area boundaries. It should also be noted that a detailed inventory of exotic/invasive/nuisance plants has not been conducted, and other exotic species are likely to exist on-site.

Air Potatoes (*Dioscorea bulbifera*)

The EEL Program staff, in cooperation with the local Native Plant Society Chapters and other volunteer groups, will prepare an inventory of the exotic and/or invasive plant species found within the South Lake Conservation Area and develop strategies to remove the species or to control their coverage. The EEL Program is currently developing a comprehensive treatment and monitoring program to ensure the long-term removal of these species from the SLCA.

Table 1: Exotic Plants Species List – SLCA– July 2006

Scientific Name	**Common Name**	**Category**
Asparagus sp.	Asparagus fern	**I**
Bauhinia variegata	Orchid-tree	**I**
Cinnamomum camphora	Camphortree	**I**
Colocasia esculenta	Wild taro	**I**
Dioscorea bulbifera	Air potato	**I**
Imperata cylindrica	Cogon grass	**I**
Lantana camara	Lantana	**I**
*Lygodium japonicum**	Japanese climbing fern	**I**
*Mimosa pigra**	Catclaw mimosa	**I**
Panicum maximum	Guinea grass	**I**
Panicum repens	Torpedo grass	**I**
Sapium sebiferum	Chinese tallow tree	**I**
Scheffelara actinoyllylla	Schlefflera	**I**
Schinus terebinthifolius	Brazilian pepper	**I**
*Solanum viarum**	Tropical soda apple	**I**
Tradescantia fluminensis	Wandering jew	**I**
Koelreuteria elegans	Golden rain tree	**II**
Melia azedarach	Chinaberry	**II**
Urena lobata	Caesar's weed	**II**
Sphagneticola tribolata	Creeping oxeyes	**II**
Broussonetia papyrifera	Paper mulberry	**E**
Catharanthus roseus	Madagascar periwinkle	**E**
Citrus sp.	Wild citrus	**E**
Enterolobium contortisiliquum	Earpod tree	**E**
Musa x *paradisiaca*	Banana	**E**
Philodendron sp.	Philodendron	**E**
Physalis alkekengi	Chinese lantern	**E**
Lumeria spp.	Frangipani	**E**
Nephrolepis cordifolia	Boston Fern	**E**
Phyllostachys aurea	Bamboo	**E**
Sansevieria hyacinthoides	Bowstring hemp	**E**
Tecoma capensis	Cape Honeysuckle	**E**
Yucca aloifolia	Spanish bayonett	**E**

Category I - Invasive exotics that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. This definition does not rely on the economic severity or geographic range of the problem, but on the documented ecological damage caused.
Category II - Invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. These species may become ranked Category I, if ecological damage is demonstrated.
Category E- Exotics that are not or not yet in classified in any other Category

***** These species have been found in small quantities, however due to their very high invasive potential they were treated and eradicated immediately by the EEL Program staff

Figure 15: South Lake Conservation Area Exotic Species Map

0 500 1,000 2,000 Feet

Map created on 12/28/2006 for South Lake Conservation Area Management Plan .

Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

Legend

- Sanctuary Boundary
- Conservation Land
- Exotic Species

N W E S

Animals

Exotic and non-indigenous animal species also have the potential to adversely affect ecosystem function and to significantly alter population levels of native animals through predation or displacement. The fire ant (*Solenopsis invicta*) has become present in Central Florida, as has the nine-banded armadillo (*Dasypus novemcinctus).* There is probable evidence of feral hogs (*Sus scrofa*) on the property. Feral hogs can cause significant harm to the vegetation and soils due to their rooting. Due to the nature and location of this conservation area, feral cats and feral dogs could be present and could pose a significant threat to the wildlife. No established feral cat colonies are found on the property. Any feral cats and dogs found on the property will be trapped and taken to the local animal shelter.

A list of non-indigenous animal species has not been collected. An investigation into the levels and impacts of these species needs to be conducted prior to the establishment of a control strategy.

F. Public Access and Passive Recreation

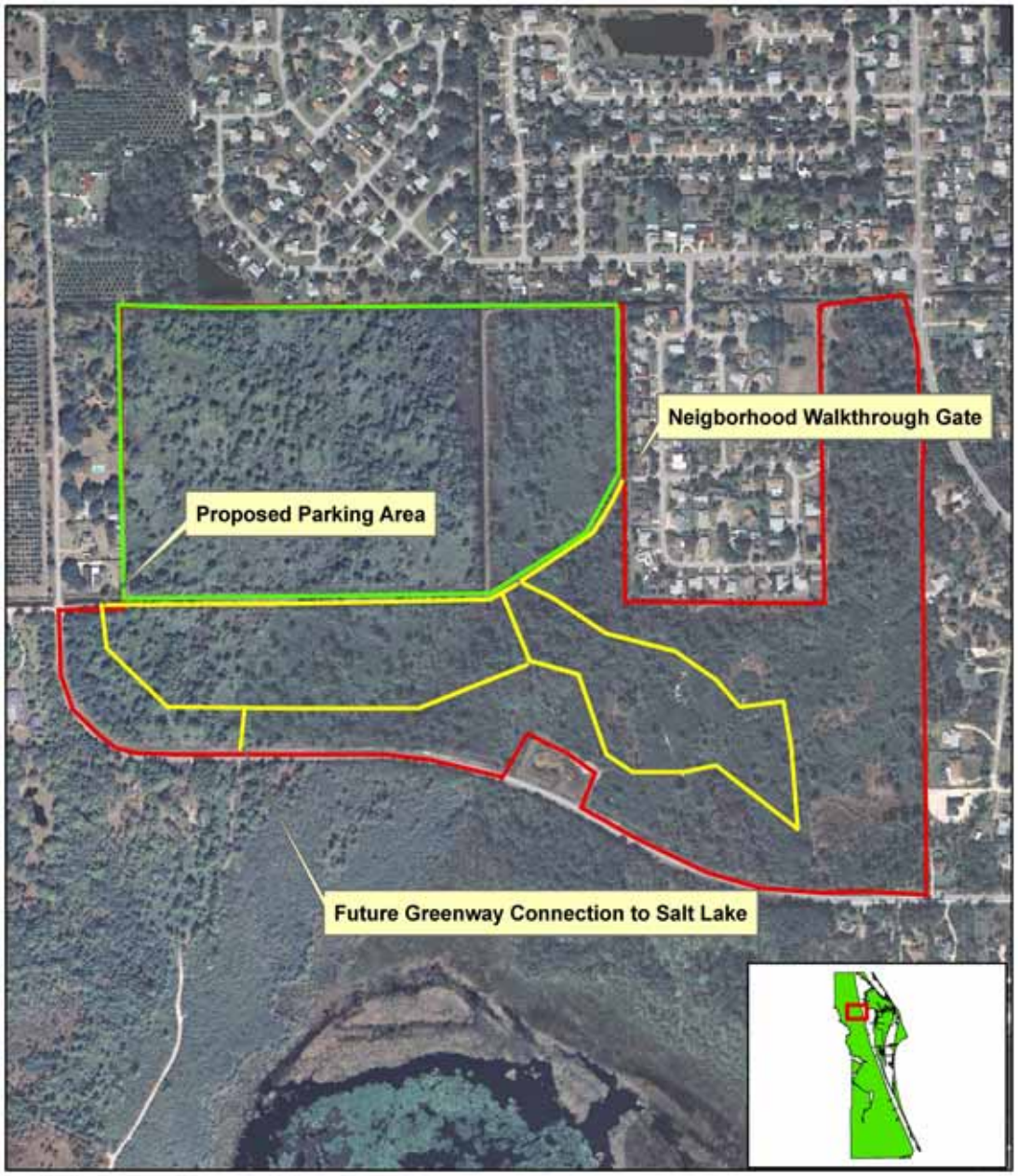
Public access and opportunities for passive recreation will be provided at SLCA pursuant to public use and recreational policies of the EEL Program Sanctuary Management Manual adopted by Brevard County Board of County Commissioners. It has been determined that passive recreational activities best support the EEL Program goals. The EEL Program Sanctuary Management Manual (SMM) defines passive recreation as follows:

> "A recreational type of use, level of use and combination of uses that do not, individually or collectively, degrade the resource values, biological diversity, and aesthetic or environmental qualities of a site."

This site is proposed as a "Category 2 site" within the EEL Program and as such, minimal capital improvements will be allowed on-site. Activities that will be permitted include hiking, nature observation, and biking. Firebreaks may also be used for these activities unless otherwise posted. Staff retains the ability to close off trails due to seasonal conditions, for management activities, or if unacceptable impacts result from use.

By necessity, firebreaks are sometimes also used as recreational trails on EEL sites. This minimizes the amount of habitat removed in order to properly manage for conservation while still providing public access. These dual-use trails are periodically impacted by maintenance and prescribed fire activities. These activities include vehicle traffic, disking or tilling by tractor, and mechanically reducing adjacent vegetation. While staff attempts to minimize the extent and duration of impacts that may hinder recreational use, well-maintained firebreaks are vital to public safety, and effective conservation management. At SLCA, portions of the 1.6 mile proposed trail are a dual-use firebreak trail. Recreational Trails and firebreaks are shown respectively on Figure 16 and 14.

Figure 16: South Lake Conservation Area Proposed Public Access Plan



Map created on 12/28/2006 for South Lake Conservation Area Management Plan .

Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

On September 27, 2006, a public meeting was held at the Enchanted Forest Sanctuary to present the SLCA recreational assessment prepared by the EEL Program staff to Sanctuary stakeholders. SLCA stakeholders include neighbors, bikers, hikers, birders, Florida Fish and Wildlife Conservation Commission and tourists. Minutes from the meeting can be found in Appendix N. Figure 16 shows the proposed public access plan for SLCA.

On October 12, 2006, a meeting was held in Viera, Florida with the EEL Program Recreation and Education Advisory Committee (REAC). Minutes from the meeting can be found in Appendix N. The SLCA public access plan described above was presented to REAC, and the committee members moved to recommend the plan.

This management plan was available for a 30-day public review from February 15, 2007 through March 30, 2007. All identified stakeholders were notified of the 30-day public review, and the draft management plan was available at several local libraries, at the EEL Program Main Office, at the Enchanted Forest Sanctuary, and at the EEL Program website. Two public comments were received and they are included as Appendix N.

On May 23, 2007, a meeting was held in Melbourne, Florida with the EEL Program Selection and Management Committee (SMC). Minutes from the meeting that pertain to this management plan can be found in Appendix N. The management plan was presented to the SMC, and the committee members moved to recommend the plan.

a. Parking and Public Access

A parking area to accommodate visitors at the gate the west end of Lancaster Rd is recommended. There is potential to connect trails to the Salt Lake WMA to the south. A trailhead with kiosk and a walkthrough gate, but no parking at the east end of Lancaster will provide access for the neighborhood adjacent to the site. Neighbors have expressed concerns about the possibility of increased traffic, crime and loss of privacy; for these reasons the parking will be at the opposite side of the site and trails will be routed away from the homes. The northwest portion of the Sanctuary will not be accessible by the public and is considered a Core Conservation Area.

b. Hiking

The remnants of ATV's trails and plow lines at SLCA provide the opportunity to create trails with minimal removal of habitat. In particular, the elevation changes on the site and hidden marshes are somewhat unique features. Environmental education will be accomplished through kiosks and interpretive trail signs. These hiking trails will bring visitors through the diverse habitats of SLCA from scrub to depression marsh. Informative signs will be placed along the trails, and any research or restoration projects that are ongoing will be included in the signage.

c. Bird Watching

Birding is a passive recreational activity that should be encouraged at the Sanctuary. Specific bird watching sites may be established along the hiking trails.

d. Bicycling

Biking will be permitted, offering an opportunity that is currently only offered in the EEL Program North region at the Buck Lake Conservation Area. Conditions on the site are not ideal for bicycling, and EEL Program staff retains the right to close off the site to bicycles if their use results in any significant impacts to the natural communities of the Sanctuary. Site improvements or trail stabilizations will not be developed or implemented to further support biking on the property. Biking will be limited to the designated trail system and will not be allowed on the additional fire breaks located throughout the property.

e. Horseback Riding

Horseback riding will not be allowed in the Sanctuary.

d. Hunting

No hunting will be allowed within the sanctuary.

VI. MANAGEMENT ACTIONS PLAN

The following is a comprehensive outline of the goals, strategies, and actions necessary to manage the South Lake Conservation Area.

A. Goals

The *Sanctuary Management Manual* of the EEL Program provides the following management goals for the South Lake Conservation Area.

- Documentation of historic public use
- Conservation of ecosystem function
- Conservation of natural (native) communities
- Conservation of species (including endemic, rare, threatened and endangered species)
- Documentation of significant archeological and historic sites
- Provision of public access and responsible public use
- Assessment of carrying capacity of natural resources with public use
- Provision of environmental education programs
- Opportunities for multiple uses and compatibility
- General upkeep and security of the property

B. Strategies and Actions

The following is an outline of the specific management strategies and actions that are needed to meet the management goals for the South Lake Conservation Area.

GOAL: DOCUMENTATION OF HISTORIC PUBLIC USE

Strategy 1: Document historic public use
Actions:
- Collect historic information regarding the types of activities that have occurred on-site;
- Evaluate how historic public use impacted the site's natural resources;
- Consider historic public use patterns in planning future public uses.

GOAL: CONSERVATION OF ECOSYSTEM FUNCTION

Strategy 2: Protect, maintain, and restore native diversity, ecological patterns, and the processes that maintain diversity.

Actions:
- Research and monitor baseline conditions of natural systems;
- Research the connection of on-site natural resources with adjacent resources;
- Research hydrologic patterns on and off-site;
- Focus natural community restoration efforts on enhancing native diversity;
- Investigate the historic hydroperiod.

Strategy 3: Ensure that natural upland-wetland interfaces are protected and enhanced.

Actions:
- Collect data to analyze the public access on the natural resources;
- Protect communities from deleterious impacts deriving from external influences;
- Restore/enhance natural communities.

GOAL: CONSERVATION OF NATURAL (NATIVE) COMMUNITIES

Strategy 4: Restore degraded, disturbed, or altered wetlands within the South Lake Conservation Area.

Actions:
- Establish baseline conditions within wetlands;
- Use native plants for restoration efforts (if needed);
- Assess possible impacts of proposed restoration on adjacent communities and offsite properties;

- Implement the selected restoration activities (i.e., remove exotic species, restore natural hydrologic flood, etc.);
- Monitor the effects of the restoration activities, evaluate the success of the restoration projects, and revise the restoration plan, as necessary.

Strategy 5: Restore degraded, disturbed, or altered uplands within the South Lake Conservation Area.

Actions:
- Establish baseline conditions within the upland communities;
- Consult local experts and current literature regarding best scientific methods for upland restoration;
- Prioritize the upland communities in need of restoration based upon ease of accomplishment, expected habitat value yield, or financial considerations;
- Use native plants for restoration efforts (if needed);
- Assess possible impacts of proposed restoration on adjacent communities and offsite properties;
- Implement the selected restoration activities (i.e., remove exotic species, restore natural disturbance regime, replant native species, etc.);
- Monitor the effects of the restoration activities, evaluate the success of the restoration projects, and revise the restoration plan, as necessary.

Strategy 6: Design and implement a "natural" fire management program.

Actions:
- Identify natural communities that require prescribed fire management;
- Identify and evaluate individual proposed burn management units;
- Identify the goal of the application of fire to each proposed burn unit;
- Document listed species within each burn unit;
- Identify and plan perimeter and internal fire breaks;
- Develop and implement public education campaign including programs and literature regarding the need for periodic controlled burns;
- Secure the necessary permits from the State Division of Forestry and other agencies;
- Secure the service of properly trained staff or consultants to implement the prescribed burns;
- Mechanical reduction of overgrown vegetation when necessary before fire implementation;
- Begin prescribed fire management program;
- Monitor the effects of the fire management activities, evaluate the success of the program, and revise the program strategies as needed.

GOAL: CONSERVATION OF SPECIES (INCLUDING ENDEMIC, RARE, THREATENED AND ENDANGERED)

Strategy 7: Protect on-site populations of endemic, rare, threatened and endangered species through the utilization of existing habitat management and species recovery plans.

Actions:

- Develop a methodology and work plan to accomplish the identification of designated plant and animal species;
- Survey for, and identify listed/protected plant and animal species;
- Plot the location of identified designated species within and/or adjacent to the sanctuary for use in the implementation, or re-distribution, of amenities or site improvements;
- Periodically update these baseline survey data to determine possible changes in designated species distribution or density;
- Review management plans for consistency with USFWS and FGFWFC guidance concerning listed species;
- Implement habitat restoration activities for listed species (i.e., removal of exotic/nuisance species, restoration of ecosystem function);
- Establish periodic monitoring of habitat suitability (where indices are available for a given species), species population levels, diversity levels, and exotic/nuisance species, as a means of evaluating the success of management strategies.

GOAL: DOCUMENTATION OF SIGNIFICANT ARCHAEOLOGICAL AND HISTORIC SITES

Strategy 8: Survey for archaeological and historic sites within the South Lake Conservation Area

Actions:

- Contact the State Division of Historic Resources to conduct a Phase I survey of the site;
- Review available maps and historic records for indications of past usage of the site;
- Map all archaeological and historic sites for future reference.

GOAL: PROVISION FOR PUBLIC ACCESS AND RESPONSIBLE PUBLIC USE

Strategy 9: Establish and enforce specific policies and management techniques for public access and responsible public use.

Actions:

- Plan appropriate public facilities by examining the site's natural and cultural resources and reviewing public input;
- Evaluate design and proposed public facilities for consistency with ADA guidelines;

- Establish social and environmental carrying capacities for proposed public facilities;
- Use daily or seasonal quotas, restricted access or limited parking to enforce established carrying capacities;
- Coordinate recreational use with the ecological burning strategies of the EEL Program;
- Minimize unauthorized trail expansion by establishing sufficient trails, constructing handrails, and the development of written guidelines;
- Construct hiking trails in accordance with the USDA Forest Service "Standard Specifications for the Construction of Trails";
- Construct terraces for erosion control.
- Monitor the impact of biking on the Sanctuary trails. Reroute or close trails if necessary

GOAL: ASSESSMENT OF CARRYING CAPACITY OF NATURAL RESOURCES WITH PUBLIC USE

Strategy 10: Establish a monitoring program to assess effects of public usage on natural resources.

Actions:
- Establish baseline vegetation monitoring transects to provide data regarding existing conditions prior to development;
- Establish a methodology and record keeping system to document public use;
- Conduct regular monitoring to assess impacts of public use on natural habitats;
- Conduct regular "walk-throughs" over frequently used sites to assess the need for changes in routing/user types, or user intensity;
- Re-route users from sensitive areas or popular sites on a regular or as-needed basis;
- Re-align public use to avoid areas which observations or data indicate are too sensitive for the level of use originally planned.

GOAL: PROVISION OF ENVIRONMENTAL EDUCATION PROGRAMS

Strategy 11: Develop a plan to provide on-going environmental education programs to Brevard County residents and visitors.

Actions:
- Determine target audiences and types of programming best suited to those groups;
- Design and develop indoor and outdoor exhibits, signs and printed materials;
- Include educators, friends groups and other organizations in the design, development and delivery of programs;
- Develop and coordinate a decent program to assist in program delivery;
- Develop and provide training and site specific informational materials for use by docents and other educators;
- Develop a marketing and promotions plan for educational programs;
- Develop criteria and process of evaluation for program review and refinement;

- Provide a "special collection" of books and other materials specifically related to the environmental and cultural character of the Sanctuary.

GOAL: OPPORTUNITIES FOR MULTIPLE USES AND COMPATIBILITY

Strategy 12: Provide opportunities for multiple use and compatibility when practical.

Actions:

• Use fire breaks for multi-use recreation trails when not needed for resource management;
• Include multiple benefits of natural community restoration efforts in education program.

GOAL: GENERAL UPKEEP AND SECURITY OF THE PROPERTY

Strategy 13: Secure and maintain the Sanctuary to the highest degree possible using EEL staff, Parks and Recreation staff, contract employees and volunteers.

Actions:
- Employ a land manager to oversee maintenance and security activities;
- Contract with outside contractors or with Brevard County, Parks and Recreation for maintenance of parking areas, fire breaks, trails, boardwalks, bridges, benches etc.;
- Coordinate daily maintenance tasks using staff and volunteers.

VII. PROJECTED TIMETABLE FOR IMPLEMENTATION

Part VII recommends a timeline for management plan implementation. The timeline has been divided into immediate, short-term and long-term time frames. Immediate time frame is defined as within one year of the adoption of this management plan, short term is 1 to 5 years, and long-term is more than 5 years. Some actions are also defined as on-going, if the activity is required for the on-going maintenance of the Sanctuary.

ACTION	**ACTIVITY TIMELINE**
Strategy 1: Document historic public use	
Collect historic information regarding the types of activities that have occurred on-site	Short-term
Evaluate how historic public use impacted the site's natural resources	Short-term
Consider historic public use patterns in planning future public uses	Short-term
Strategy 2: Protect, maintain, and restore native diversity, ecological patterns, and the processes that maintain diversity	
Research and monitor baseline conditions of natural systems	Immediate
Research the connection of on-site natural resources with adjacent resources	Immediate
Research hydrologic patterns on and off-site	Immediate
Focus natural community restoration efforts on enhancing native	Short-Term

diversity	
Investigate the historic hydroperiod	Short-Term

Strategy 3: Ensure that natural upland-wetland interfaces are protected and enhanced

Collect data to analyze the public access on the natural resources;	Short-Term
Protect communities from deleterious impacts deriving from external influences	On-going
Restore/enhance natural communities.	On-going

Strategy 4: Restore degraded, disturbed, or altered wetlands within the South Lake Conservation Area

Establish baseline conditions within wetlands;	Immediate
Use native plants for restoration efforts (if needed);	Immediate
Assess possible impacts of proposed restoration on adjacent communities and offsite properties;	Immediate
Implement the selected restoration activities (i.e., remove exotic species, restore natural hydrologic flood, etc.);	Immediate
Monitor the effects of the restoration activities, evaluate the success of the restoration projects, and revise the restoration plan, as necessary.	Immediate

Strategy 5: Restore degraded, disturbed or altered uplands within the South Lake Conservation Area

Establish baseline conditions within the upland communities;	Immediate
Consult local experts and current literature regarding best scientific methods for upland restoration;	Immediate
Prioritize the upland communities in need of restoration based upon ease of accomplishment, expected habitat value yield, or financial considerations;	Immediate
Use native plants for restoration efforts (if needed);	Immediate
Assess possible impacts of proposed restoration on adjacent communities and offsite properties;	Short-Term
Implement the selected restoration activities (i.e. remove exotic species, restore natural disturbance regime, replant native species, etc.).	Long-Term
Monitor the effects of the restoration activities, evaluate the success of the restoration projects, and revise the restoration plan, as necessary.	On-going

Strategy 6: Design and implement a "natural" fire management program

Identify natural communities that require prescribed fire management	Immediate
Identify and evaluate individual proposed burn management units	Immediate
Identify the goal of the application of fire to each proposed burn unit	Immediate
Document listed species within each burn unit	Immediate
Identify and plan perimeter and internal fire breaks	Short-Term
Develop and implement public education campaign including programs and literature regarding the need for periodic controlled burns	Short-Term
Secure the necessary permits from the State Division of Forestry and other agencies	Short-Term
Secure the service of properly trained staff or consultants to implement the prescribed burns;	Complete

Mechanical reduction of overgrown vegetation when necessary before fire implementation;	Immediate
Begin prescribed fire management program	Short-Term
Monitor the effects of the fire management activities, evaluate the success of the program, and revise the program strategies as needed	On-going

Strategy 7: Protect on-site populations of endemic, rare, threatened and endangered species through the utilization of existing habitat management and species recovery plans

Develop a methodology and work plan to accomplish the identification of designated plant and animal species	On-Going
Survey for, and identify listed/protected plant and animal species	Immediate
Plot the location of identified designated species within and/or adjacent to the sanctuary for use in the implementation, or re-distribution, of amenities or site improvements	Short-Term
Periodically update these baseline survey data to determine possible changes in designated species distribution or density	Short-Term
Review management plans for consistency with USFWS and FGFWFC guidance concerning listed species	Short-Term
Implement habitat restoration activities for listed species (i.e., removal of exotic/nuisance species, restoration of ecosystem function);	On-going
Establish periodic monitoring of habitat suitability, species population levels, diversity levels, and exotic/nuisance species, as a means of evaluating the success of management strategies	On-going

Strategy 8: Survey for archaeological and historic sites

Contact the State Division of Historic Resources to conduct a Phase I survey of the site	Immediate
Review available maps and historic records for indications of past usage of the site	Immediate
Map all archaeological and historic sites for future reference	Short-Term

Strategy 9: Establish and enforce specific policies and management techniques for public access and responsible public use

Plan appropriate public facilities by examining the site's natural and cultural resources and reviewing public input	Immediate
Evaluate design and proposed public facilities for consistency with ADA guidelines	Short-Term
Establish social and environmental carrying capacities for proposed public facilities	Short-Term
Use daily or seasonal quotas, restricted access or limited parking to enforce established carrying capacities	Short-Term
Coordinate recreational use with the ecological burning strategies of the EEL Program	Short-Term
Minimize unauthorized trail expansion by establishing sufficient trails, constructing handrails, and the development of written guidelines	Short-Term
Construct hiking trails in accordance with the USDA Forest Service "Standard Specifications for the Construction of Trails"	Short-Term
Construct terraces for erosion control	Long-Term

Monitor the impact of biking on the Sanctuary trails. Reroute or close trails if necessary	Immediate

Strategy 10: Establish a monitoring program to assess effects of public usage on natural resources

Establish baseline vegetation monitoring transects to provide data regarding existing conditions prior to development	Short-Term
Establish a methodology and record keeping system to document public use	On-Going
Conduct regular monitoring to assess impacts of public use on natural habitats	On-Going
Conduct regular walk-throughs over frequently used sites to assess the need for changes in routing/user types, or user intensity	On-Going
Re-route users from sensitive areas or popular sites on a regular or as-needed basis	On-Going
Re-align public use to avoid areas which observations or data indicate are too sensitive for the level of use originally planned	On-Going

Strategy 11: Develop a plan to provide on-going environmental education programs to Brevard County residents and visitors

Determine target audiences and types of programming best suited to those groups	Short-Term
Design and develop indoor and outdoor exhibits, signs and printed materials;	Short-Term
Include educators, friends groups and other organizations in the design, development and delivery of programs	Short-Term
Develop and coordinate a docent program to assist in program delivery	Short-Term
Develop and provide training and site specific informational materials for use by docents and other educators	Short-Term
Develop a marketing and promotions plan for educational programs	Short-Term
Develop criteria and process of evaluation for program review and refinement	Short-Term
Provide a “special collection” of books and other materials specifically related to the environmental and cultural character of the Sanctuary	Long-Term

Strategy 12: Provide opportunities for multiple use and compatibility when practical

Use fire breaks for multi-use recreation trails when not needed for resource management;	Short-term
Include multiple benefits of natural community restoration efforts in education program.	Short-term

Strategy 13: Secure and maintain the Sanctuary to the highest degree possible using EEL staff, EEL Interns, Parks and Recreation staff, contract employees and volunteers

Employ a land manager to oversee maintenance and security activities	Short-Term
Contract with outside contractors and/or Brevard County, Parks and Recreation for maintenance of parking areas, fire breaks, trails, boardwalks, bridges, benches, etc.	On-Going
Coordinate daily maintenance tasks using staff and volunteers	On-going

VIII. FINANCIAL CONSIDERATIONS

The Brevard County EEL Program receives land acquisition and management revenues from ad valorem revenues collected pursuant to the 1990 and 2004 voter-approved EEL Referendums. The EEL Program allocates bond funds to capital land acquisition and one-time capital expenditures. Ad valorem revenues collected during each fiscal year that are not required for bond debt services can be used for any legal purpose within the EEL Program pursuant to §200.181 and §125.013 of the Florida Statutes. The EEL Program will collect ad valorem revenues from the 1990 referendum until the Year 2011 and from the 2004 referendum until 2024, the sunset dates of the ad valorem collections respectively.

Based on financial projections, the EEL Program shall annually appropriate a portion of the EEL Program ad valorem millage not required for bond debt services to fund annual EEL Program capital and non-capital expenditures. Specific appropriations for the SLCA property will be made each fiscal year as part of this overall annual budget process. The EEL Program budget will be reviewed and adopted annually as part of the Brevard County budget process and as authorized by the Board of County Commissioners. After 2024, the Board of County Commissioners will consider other funding options and financial resources to address the long-term management responsibilities of the EEL Program.

The following is a breakdown of the general costs estimated for annual management operations of the South Lake Conservation Area:

Annual Management

Staff Salaries/ Benefits* (Staff also responsible for other North Region sites.)

Land Manager (f.t)	$3345.00 (incl. benefits)
Assistant Land Manager (f.t.)	$2,593.00 (incl. benefits)
Two Land Management Technicians (f.t.)	$4,392.00 (incl. benefits)
Management Activities	$15,000.00

(Exotic treatment, fire management, trails environmental education, boundary maintenance, etc.)

Total	**$22,986.00**

*Staff salaries/benefits for the SLCA reflect approximately one-twelfth of the North Region Land Manager, Assistant Land Manager and Land Management Technicians salaries/benefits. It is estimated that management of the Enchanted Forest Sanctuary Management and Education Center will require three-quarters of their time, and their remaining time will be divided among the other sites in the North Region.

A Land Manager has been hired to oversee maintenance, security and resource management for the SLCA and other properties within the North Region Management Area. An Assistant Land Manager and two Land Management Technicians will assist the Land Manager with maintenance, security, and resource management for all properties in the north region. The cost estimate for personnel assumes that volunteers will be utilized to assist with maintenance and research. The maintenance and operations cost includes estimates for travel activities, office supplies, repair and maintenance services, printing and training. The cost estimate for resource management includes activities such as research and monitoring contracts, developing and implementing the prescribed burn program, environmental education programs and exotic species removal.

In addition to the on-going maintenance and operation costs estimate, EEL Staff had the following capital start-up costs for the South Lake Conservation Area, for the completed projects, which are outlined below.

Capital Improvement

Boundary Fencing and Firebreak Installation (2006)	$44,745.66
Rollerchopping (not yet completed)	$25,000
Boundary Signs (20 @ $8 each)	$160.00

IX. BIBLIOGRAPHY

Part IX provides the following citations for original research or publications used to develop the Management Plan.

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X. APPENDICES

Appendix A: South Lake Conservation Area Legal Description (Guilford and Levy parcel)

Appendix B: South Lake Conservation Area FEMA map

Appendix C: South Lake Conservation Area Preliminary Plant Surveys

Appendix D: South Lake Conservation Area Florida Natural Areas Inventory

Appendix E: South Lake Conservation Area Preliminary Bird Survey

Appendix F: South Lake Conservation Area Preliminary Herpitile Survey

Appendix G: South Lake Conservation Area Preliminary Mammal Survey

Appendix H: Florida Master Site File

Appendix I: Management Procedures for Archeological and Historical Sites and Properties on State- Owned or Controlled Lands

Appendix J: Description of the Archeological Site South of the Sanctuary

Appendix K: South Lake Conservation Area Fire Management Plan

Appendix L: South Lake Conservation Area Easements

Appendix M: Letter from Billy Osborne Road and Bridge Director

Appendix N: Public Comment

Appendix O: South Lake Conservation Area Timber Assessment

Appendix A:
South Lake Conservation Area Legal Description

Guilford Co Description
Donation

DESCRIPTION

A PARCEL OF LAND LYING IN THE NORTHEAST QUARTER OF SECTION 25, TOWNSHIP 21 SOUTH, RANGE 34 EAST, BREVARD COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHEAST CORNER OF SAID SECTION 25; THENCE S 88°54'40" W ALONG THE NORTH LINE OF SAID SECTION 25, A DISTANCE OF 33.00 FEET TO THE WEST RIGHT OF WAY LINE OF NORTH CARPENTER ROAD (A 66 FOOT WIDE RIGHT OF WAY) AND THE POINT OF BEGINNING OF THE PARCEL OF LAND DESCRIBED HEREIN; THENCE S 00°59'21" E ALONG SAID WEST RIGHT OF WAY LINE A DISTANCE OF 56.46 FEET TO THE POINT OF CURVATURE OF A CURVE CONCAVE EAST HA A RADIUS OF 1465.69 FEET; THENCE ALONG THE ARC OF SAID CURVE CONTINUING ALONG SAID WEST RIGHT OF WAY LINE NORTH CARPENTER ROAD THROUGH A CENTRAL ANGLE OF 12°10'52" A DISTANCE OF 311.61 FEET TO THE EAST LINE OF SA SECTION 25; THENCE S 00°59'21" E ALONG SAID EAST LINE OF SECTION 25, A DISTANCE OF 2286.75 FEET TO THE NORTH RIGHT OF WAY LINE OF DAIRY ROAD (A 66 FOOT WIDE RIGHT OF WAY PER ROAD PLAT BOOK 1, PAGE 113 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA); THENCE S 89°13'15" W ALONG SAID NORTH RIGHT OF WAY LINE A DISTANCE OF 299.94 FEET TO A NON-TANGENT INTERSECTION WITH A CURVE CONCAVE NORTH HAVING A RADIUS OF 2130.20 FEET; THEN ALONG THE ARC OF SAID CURVE AND SAID NORTH RIGHT OF WAY LINE OF DAIRY ROAD THROUGH A CENTRAL ANGLE OF 32 AND A CHORD BEARING OF N 74°41'50" W, AN ARC DISTANCE OF 1203.01 FEET TO A POINT OF REVERSE CURVATURE WITH CURVE CONCAVE SOUTH HAVING A RADIUS OF 2196.20 FEET; THENCE ALONG THE ARC OF SAID CURVE AND SAID NORTH RIGHT OF WAY LINE OF DAIRY ROAD THROUGH A CENTRAL ANGLE OF 03°12'18" A DISTANCE OF 122.85 FEET TO THE INTERSECTION WITH THE EAST LINE OF THE PARCEL OF LAND DESCRIBED IN OFFICIAL RECORDS BOOK 2665, PAGE 2682 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA; THENCE N 28°14'58" E ALONG SAID EAST LINE A DISTANCE OF 179.56 FEET TO THE NORTHEAST CORNER OF SAID PARCEL OF LAND DESCRIBED IN OFFICIAL RECORDS BOOK 2665, PAGE 2682; THENCE N 61°49'50" W ALONG THE NORTH LINE OF SAID PARCEL A DISTANCE OF 365.00 FEET TO THE NORTHWEST CORNER OF SAID PARCEL OF LAND DESCRIBED IN OFFICIAL RECORDS BOOK 2665, PAGE 2682; THENCE S 28°14'49" W ALONG THE WEST LINE OF SAID PARCEL A DISTANCE OF 209.42 FEET TO THE SAID NORTH RIGHT OF WAY LINE OF DAIRY ROAD BEING A CURVE CONCAVE SOUTH HAVING A RADIUS OF 2196.20 FEET; THENCE ALONG THE ARC OF SAID CURVE AND SAID NORTH RIGHT OF WAY LINE OF DAIRY ROAD THROUGH A CENTRAL ANGLE OF 00°23'49" WHOSE CHORD BEARING BEARS N 71°29'18" W, AN ARC DISTANCE OF 15.21 FEET; THENCE N 06°48'26" E A DISTANCE OF 768.67 FEET TO THE NORTH LINE OF THE SOUTH ONE-HALF OF THE SAID NORTHEAST ONE QUARTER OF SECTION 25; THENCE N 89°03'58" E ALONG SAID NORTH LINE OF THE SOUTH ONE-HALF OF THE NORTHEAST ONE QUARTER OF SECTION 25, A DISTANCE OF 438.61 FEET TO THE WEST LINE OF LANTERN PARK UNIT NO. 4 ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK 20, PAGE 17 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA; THENCE S 01°10'52" E ALONG SAID WEST LINE A DISTANCE OF 1.08 FEET TO THE SOUTHWEST CORNER OF SAID LANTERN PARK UNIT NO. 4; THENCE N 88°59'46" E ALONG THE SOUTH LINE OF SAID LANTERN PARK UNIT NO. 4 A DISTANCE OF 884.59 FEET TO THE SOUTHEAST CORNER OF SAID LANTERN PARK UNIT NO. 4; THENCE N 01°09'44" W ALONG THE EAST LINE OF SAID LANTERN PARK UNIT NO. 4, AND THE EAST LINE OF THE WEST TWO THIRDS OF THE NORTHEAST ONE QUARTER OF THE NORTHEAST ONE QUARTER OF SAID SECTION 25 AS SAID LINE IS MONUMENTED AND OCCUPIED, A DISTANCE OF 1341.58 FEET TO THE NORTH LINE OF SAID SECTION 25; THENCE N 88°54'40" E ALONG SAID NORTH LINE A DISTANCE OF 409.51 FEET TO THE POINT OF BEGINNING.

CONTAINING 60.0 ACRES, MORE OR LESS.

SUBJECT TO AN EASEMENT DESCRIBED IN OFFICIAL RECORDS BOOK 2665, PAGE 2684 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA.

SUBJECT TO AN EASEMENT DESCRIBED IN OFFICIAL RECORDS BOOK 2638, PAGE 347 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA.

SUBJECT TO EASEMENTS, RESTRICTIONS, RESERVATIONS AND RIGHTS OF WAY OF RECORD, IF ANY.

NOTES:
1.) BEARINGS BASED ON THE ASSUMPTION THAT THE SOUTH LINE OF THE NORTHEAST 1/4 OF SECTION 25, TOWNSHIP 21 SOUTH, RANGE 34 EAST, BEARS S 89°13'15" W PER ROAD PLAT BOOK 1, PAGE 113, PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA.
2.) PROPERTY LIES WITHIN FLOOD ZONES "X & A" PER FLOOD INSURANCE RATE MAP NUMBER 12009C0115E.
3.) FENCES SHOWN ON SURVEY ARE OF DIFFERENT SIZES AND MATERIALS (4' CHAIN LINK, 6' CHAIN LINK & 6' WOOD), THEY DO NOT ENCROACH ON SUBJECT PROPERTY UNLESS NOTED ON FACE OF DRAWING.
4.) UNDERGROUND IMPROVEMENTS NOT LOCATED, UNLESS OTHERWISE NOTED.

N

MAP OF
BOUNDARY
SURVEY

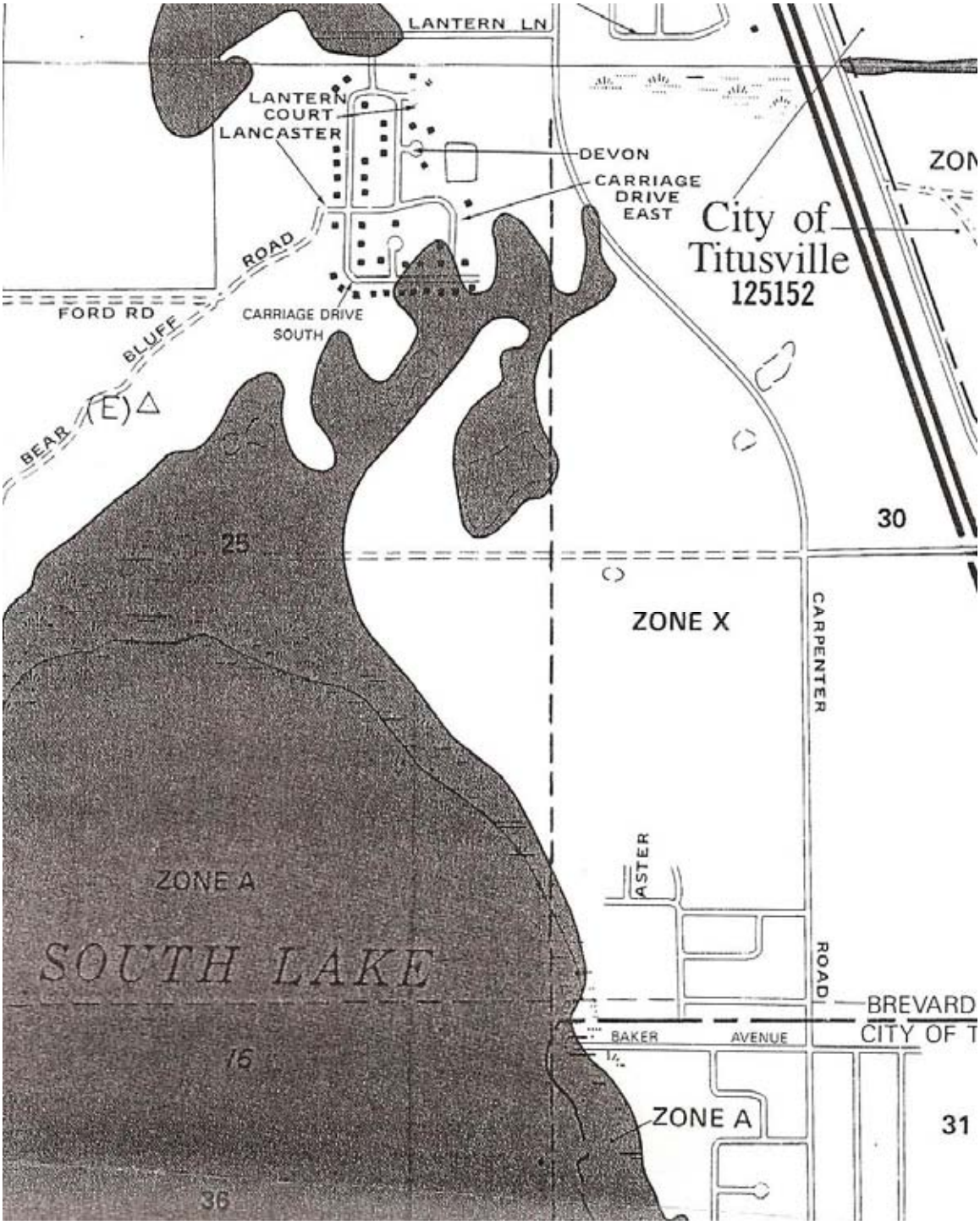
CERTIFIED TO:
HOLY TRINITY EPISCOPAL ACADEMY, INC.
GUILFORD REALTY CO.
MOSLEY, WALLIS & WHITEHEAD, P.A.
COMMONWEALTH LAND TITLE INSURANCE COMPANY
ST. JOHNS RIVER WATER MANAGMENT DISTRICT
BREVARD COUNTY, A POLITICAL SUBDIVISION OF THE STATE OF FLORIDA

Levy parcel Legal description

EXHIBIT A

BEGIN AT THE NORTHEAST CORNER OF THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 25, TOWNSHIP 21 SOUTH, RANGE 34 EAST, BREVARD COUNTY, FLORIDA, ALSO BEING THE NORTHWEST CORNER OF LANTERN PARK, UNIT 3, PLAT BOOK 17, PAGE 126 OF THE PUBLIC RECORDS OF SAID BREVARD COUNTY; THENCE RUN S01°10'39"E ALONG THE WEST LINE OF LANTERN PARK, UNIT 3 AND LANTERN PARK, UNIT 4, PLAT BOOK 20, PAGE 17, OF PUBLIC RECORDS OF SAID BREVARD COUNTY A DISTANCE OF 1340.33 FEET TO THE SOUTH LINE OF THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SAID SECTION 25; THENCE LEAVING SAID WEST LINE RUN S89°05'10"W ALONG SAID SOUTH A DISTANCE OF 438.60 FEET; THENCE RUN S 08°47'49"W A DISTANCE OF 767.71 FEET TO THE NORTH RIGHT-OF-WAY OF DAIRY ROAD PER ROAD PLAT BOOK 1, PAGE 113, OF SAID PUBLIC RECORDS, SAID POINT BEING ON A CIRCULAR CURVE CONCAVE TO THE SOUTHWEST, HAVING A RADIUS OF 2196.20 FEET AND A CENTRAL ANGLE OF 19°11'17"; THENCE FROM A TANGENT BEARING OF N71°41'16"W RUN NORTHWESTERLY ALONG SAID CURVE AND SAID RIGHT-OF-WAY AN ARC DISTANCE OF 735.50 FEET TO THE POINT OF TANGENCY; THENCE CONTINUE ALONG SAID RIGHT-OF-WAY S89°07'27"W A DISTANCE OF 883.94 FEET TO THE POINT OF CURVATURE OF A CIRCULAR CURVE CONCAVE NORTHEAST, HAVING A RADIUS OF 417.00 FEET AND A CENTRAL ANGLE OF 89°51'37"; THENCE NORTHWESTERLY ALONG SAID CURVE AND RIGHT-OF-WAY AN ARC DISTANCE OF 654.01 FEET TO THE POINT OF TANGENCY; THENCE RUN N01°00'56" WALONG SAID RIGHT-OF-WAY A DISTANCE OF 216.39 FEET TO THE SOUTH LINE OF THE NORTHEAST 1/4 OF THE NORTHWEST 1/4 OF SAID SECTION 25, THENCE LEAVING SAID RIGHT-OF-WAY RUN N89°02'30"E ALONG SAID SOUTH LINE A DISTANCE OF 265.46 FEET TO THE WEST LINE OF THE 3/4 OF SAID NORTHEAST 1/4 OF NORTHWEST 1/4; THENCE RUN N01°01'05"W ALONG SAID WEST LINE A DISTANCE OF 1332.46 FEET TO THE NORTH LINE OF SAID NORTHEAST 1/4 OF NORTHWEST 1/4; THENCE RUN N88°49'20"E ALONG SAID NORTH LINE AND THE SOUTH LINE OF SHERWOOD ESTATES, UNIT 12, PLAT BOOK 31, PAGE 83, OF SAID PUBLIC RECORDS A DISTANCE OF 994.22 FEET TO THE NORTH 1/4 CORNER; THENCE RUN N88°54'41"E ALONG THE NORTH LINE OF SAID NORTHWEST 1/4 OF NORTHEAST 1/4 AND ALONG SOUTH LINE OF SAID SHERWOOD ESTATES, UNIT 12, AND THE SOUTH LINE OF SHERWOOD LAKES, PHASE TWO, PLAT BOOK 36, PAGE 4R OF SAID PUBLIC RECORDS A DISTANCE OF 1327.47 FEET TO THE POINT BEGINNING.

Appendix B:
South Lake Conservation Area 1989 FEMA Map



Appendix C:
Preliminary Plant Surveys

July 2003, preliminary Floristic List for the South Lake Conservation Area conducted by EELs staff, Rollins College interns, and retired botanist volunteer, Lynda Lathrop; updated January 2007 by Cheryl Caldwell EEL Intern.

Family	Genus	Species	Status	Common Name
ACERACEAE	Acer	rubrum	N	Red Maple
ADOXACEAE	Sambucus	nigra	N	Elderberry
ANACARDIACEAE	Rhus	copallinum	N	Winged sumac
ANNONACEAE	Canna	flaccida	N	Golden Canna
AQUIFOLIACEAE	Ilex	glabra	N	Gallberry
ARECACEAE	Serenoa	repens	N	Saw Palmetto
ASTERACEAE	Solidago	odora	N	Goldenrod
ASTERACEAE	Verbesina	virginica	N	Frostweed
ASTERACEAE	Eupatorium	capillifolium	N	Dogfennel
ASTERACEAE	Coreopsis	gladiata	N	Coastalplain Tickseed
ASTERACEAE	Chrysopsis	scabrella	N	Coastalplain Goldenaster
ASTERACEAE	Bidens	bipinnata	N	Spanish Needle
BROMELIACEAE	Tillandsia	recurvata	N	Ball Moss
BROMELIACEAE	Tillandsia	usneoides	N	Spanish Moss
CACTACEAE	Opuntia	humifusa	N	Pricklypear
CELTIDACEAE	Celtis	laevigata	N	Sugarberry; Hackberry
CERATOPHYLLACEAE	Licania	michauxii	N	Gopher apple
COMMELINACEAE	Tradescantia	spp.	N	Spider Wort
COVOLVULACEAE	Ipomoea	spp.	N	Morning Glory
CYPERACEAE	Rhynchospora	colorata	N	Starrrush whitetop
EUPHORBIACEAE	Chamaesyce	spp.	N	Sandmat
FABACEAE	Chameacrista	fasciculata	N	Partridge Pea
FABACEAE	Dalea	pinnata	N	Summer-Farewell
FABACEAE	Indigofera	hirsuta	N	Hairy Indigo
FABACEAE	Sophora	tomentosa var. truncata	N	Yellow Necklacepod

Family	Genus	Species	Status	Common Name
FAGACEAE	Quercus	myrtifolia	N	Myrtle Oak
FAGACEAE	Quercus	chapmanii	N	Chapman's Oak
JUGLANDACEAE	Carya	floridana	N	Scrub Hickory
POACEAE	Cenchrus	Spp.	N	Sandspur
LAMIACEAE	Monarda	punctata	N	Spotted Beebalm
LAMIACEAE	Callicarpa	americana	N	American Beautyberry
LAURACEAE	Persea	borbonia var. borbonia	N	Red Bay
MAGNOLIACEAE	Magnolia	grandiflora	N	Southern Magnolia
MELASTOMATACEAE	Rhexia	mariana	N	Pale Meadowbeauty
ONAGRACEAE	Oenothera	laciniata	N	Cutleaf Eveningprimrose
PASSIFLORACEAE	Passiflora	incarnata	N	Purple Passionflower
PHYTOLACCACEAE	Phytolacca	americana	N	American Pokeweed
PINACEAE	Pinus	elliottii	N	Slash Pine
PINACEAE	Pinus	clausa	N	Sand Pine
POACEAE	Andropogon	virginicus	N	Broomsedge Bluestem
POLYPODIACEAE	Pleopeltis	polypodioides var. michauxiana	N	Resurrection fern
RUTACEAE	Zanthoxylum	clava-herculis	N	Hercules Club
SMILACACEAE	Smilax	auriculata	N	Earleaf Greenbriar
SMILACACEAE	Smilax	glauca	N	Cat Greenbriar; Wild Sarsaparilla
VERBENACEAE	Phyla	nodiflora	N	Turkey Tangle Fogfruit; Capeweed
VITACEAE	Vitis	rotundifolia	N	Muscadine grape
VITACEAE	Parthenocissus	quinquefolia	N	Virginia creeper
VITTARIACEAE	Vittaria	lineata	N	Shoestring Fern

October 19, 2004, Preliminary Floristic List for the South Lake Scrub Sanctuary
Paul A. Schmalzer and Tammy E. Foster

CLASS	FAMILY	GENUS	SPECIES	VARIETY
p	Dennstaedtiaceae	Pteridium	aquilinum	
g	Cupressaceae	Juniperus	virginiana	
g	Pinaceae	Pinus	clausa	
g	Pinaceae	Pinus	palustris	
a	Amaranthaceae	Chenopodium	ambrosioides	
a	Anacardiaceae	Rhus	copallinum	
a	Anacardiaceae	Schinus	terebinthifolius	
a	Annonaceae	Asimina	obovata	
a	Apiaceae	Hydrocotyle	sp.	
a	Apocynaceae	Catharanthus	roseus	
a	Aquifoliaceae	Ilex	ambigua	
a	Aquifoliaceae	Ilex	glabra	
a	Arecaceae	Sabal	palmetto	
a	Arecaceae	Serenoa	repens	
a	Asteraceae	Ambrosia	artemisiifolia	
a	Asteraceae	Bidens	alba	radiata
a	Asteraceae	Conyza	canadensis	pusilla
a	Asteraceae	Emilia	fosbergii	
a	Asteraceae	Erechtites	hieracifolia	
a	Asteraceae	Erigeron	quercifolius	
a	Asteraceae	Eupatorium	capillifolium	
a	Asteraceae	Heterotheca	subaxillaris	
a	Asteraceae	Palafoxia	integrifolia	
a	Asteraceae	Pectis	prostrata	
a	Asteraceae	Pityopsis	graminifolia	
a	Asteraceae	Solidago	odora	chapmanii
a	Asteraceae	Sphagneticola	triloba	
a	Asteraceae	Youngia	japonica	
a	Bignoniaceae	Campsis	radicans	
a	Bromeliaceae	Tillandsia	recurvata	
a	Bromeliaceae	Tillandsia	usneoides	
a	Cannaceae	Canna	indica	
a	Celtidaceae	Celtis	laevigata	
a	Chrysobalanaceae	Licania	michauxii	
a	Commelinaceae	Commelina	benghalensis	
a	Convolvulaceae	Ipomoea	purpurea	
a	Cyperaceae	Bulbostylis	stenophylla	
a	Cyperaceae	Cyperus	retrorsus	
a	Cyperaceae	Cyperus	sp.	
a	Cyperaceae	Rhynchospora	megalocarpa	
a	Dioscoreaceae	Dioscorea	bulbifera	

a	Ericaceae	Lyonia	ferruginea	
a	Ericaceae	Lyonia	lucida	
a	Ericaceae	Vaccinium	myrsinites	
a	Ericaceae	Vaccinium	stamineum	
a	Euphorbiaceae	Chamaesyce	hirta	
a	Euphorbiaceae	Chamaesyce	hyssopifolia	
a	Euphorbiaceae	Croton	glandulosus	
a	Euphorbiaceae	Phyllanthus	tenellus	
a	Euphorbiaceae	Poinsettia	cyanthophora	
a	Fabaceae	Chamaecrista	nictitans	aspera
a	Fabaceae	Desmodium	incanum	
a	Fabaceae	Enterolobium	contortisiliquum	
a	Fabaceae	Galactia	elliottii	
a	Fabaceae	Indigofera	hirsuta	
a	Fabaceae	Vigna	luteola	
a	Fagaceae	Quercus	chapmanii	
a	Fagaceae	Quercus	geminata	
a	Fagaceae	Quercus	laurifolia	
a	Fagaceae	Quercus	myrtifolia	
a	Juglandaceae	Carya	floridana	
a	Lamiaceae	Hyptis	mutabilis	
a	Lamiaceae	Stachys	floridana	
a	Lauraceae	Cinnamomum	camphora	
a	Lauraceae	Persea	borbonia	borbonia
a	Magnoliaceae	Magnolia	grandiflora	
a	Malvaceae	Sida	sp.	
a	Malvaceae	Urena	lobata	
a	Meliaceae	Melia	azedarach	
a	Moraceae	Broussonetia	papyrifera	
a	Myricaceae	Myrica	cerifera	
a	Olacaceae	Ximenia	americana	
a	Onagraceae	Oenothera	biennis	
a	Oxalidaceae	Oxalis	corniculata	
a	Oxalidaceae	Oxalis	latifolia	
a	Passifloraceae	Passiflora	incarnata	
a	Phytolaccaceae	Phytolacca	americana	
a	Poaceae	Aristida	stricta	beyrichiana
a	Poaceae	Cenchrus	sp.	
a	Poaceae	Dactyloctenium	aegyptium	
a	Poaceae	Eleusine	indica	
a	Poaceae	Eragrostis	sp.	
a	Poaceae	Panicum	maximum	
a	Poaceae	Paspalum	setaceum	
a	Poaceae	Rhynchelytrum	repens	
a	Poaceae	Setaria	parviflora	

a	Poaceae	Sorghastrum	secundum	
a	Poaceea	Andropogon	spp.	
a	Portulacaceae	Portulaca	pilosa	
a	Rosaceae	Prunus	caroliniana	
a	Rosaceae	Rubus	sp.	
a	Rubiaceae	Diodia	teres	
a	Rubiaceae	Richardia	brasiliensis	
a	Rubiaceae	Spermacoce	assurgens	
a	Sapindaceae	Acer	rubrum	
a	Sapindaceae	Koelreuteria	elegans	formosana
a	Smilacaceae	Smilax	auriculata	
a	Solanaceae	Solanum	americanum	
a	Verbenaceae	Lantana	camara	
a	Verbenaceae	Phyla	nodiflora	
a	Vitaceae	Ampelopsis	arborea	
a	Vitaceae	Parthenocissus	quinquefolia	
a	Vitaceae	Vitis	rotundifolia	

Appendix D:
South Lake Conservation Area Florida Natural Areas Inventory

FLORIDA
Natural Areas
INVENTORY

1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
850-224-8207
fax 850-681-9364
www.fnai.org

June 13, 2006

Judy Gregoire
Brevard County
Environmentally Endangered Lands Program
444 Columbia Boulevard
Titusville, FL 32780

Dear Ms. Gregoire:

Thank you for your request for information from the Florida Natural Areas Inventory (FNAI). We have compiled the following information for your project area.

Project:	South Lake Conservation Area
Date Received:	June 5, 2006
Location:	Township 21 S, Range 34 E, Section 25 Brevard County

Based on the information available, this site appears to be located on or very near a significant region of scrub habitat, a natural community in decline that provides important habitat for several rare species within a small area. Additional consideration should be given to avoid and/or mitigate impacts to these natural resources, and to design land uses that are compatible with these resources.

Element Occurrences

A search of our maps and database indicates that currently we have several Element Occurrences mapped within the vicinity of the study area (see enclosed map and element occurrence table). Please be advised that a lack of element occurrences in the FNAI database is not a sufficient indication of the absence of rare or endangered species on a site.

The Element Occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates that some element occurrences occur in the general vicinity of the label point. This may be due to lack of precision of the source data, or an element that occurs over an extended area (such as a wide ranging species or large natural community). For animals and plants, Element Occurrences generally refer to more than a casual sighting; they usually indicate a viable population of the species. Note that some element occurrences represent historically documented observations which may no longer be extant.

Likely and Potential Rare Species

In addition to documented occurrences, other rare species and natural communities may be identified on or near the site based on habitat models and species range models (see enclosed

Florida Resources and Environmental Analysis Center
Institute of Science and Public Affairs
The Florida State University

Tracking Florida's Biodiversity

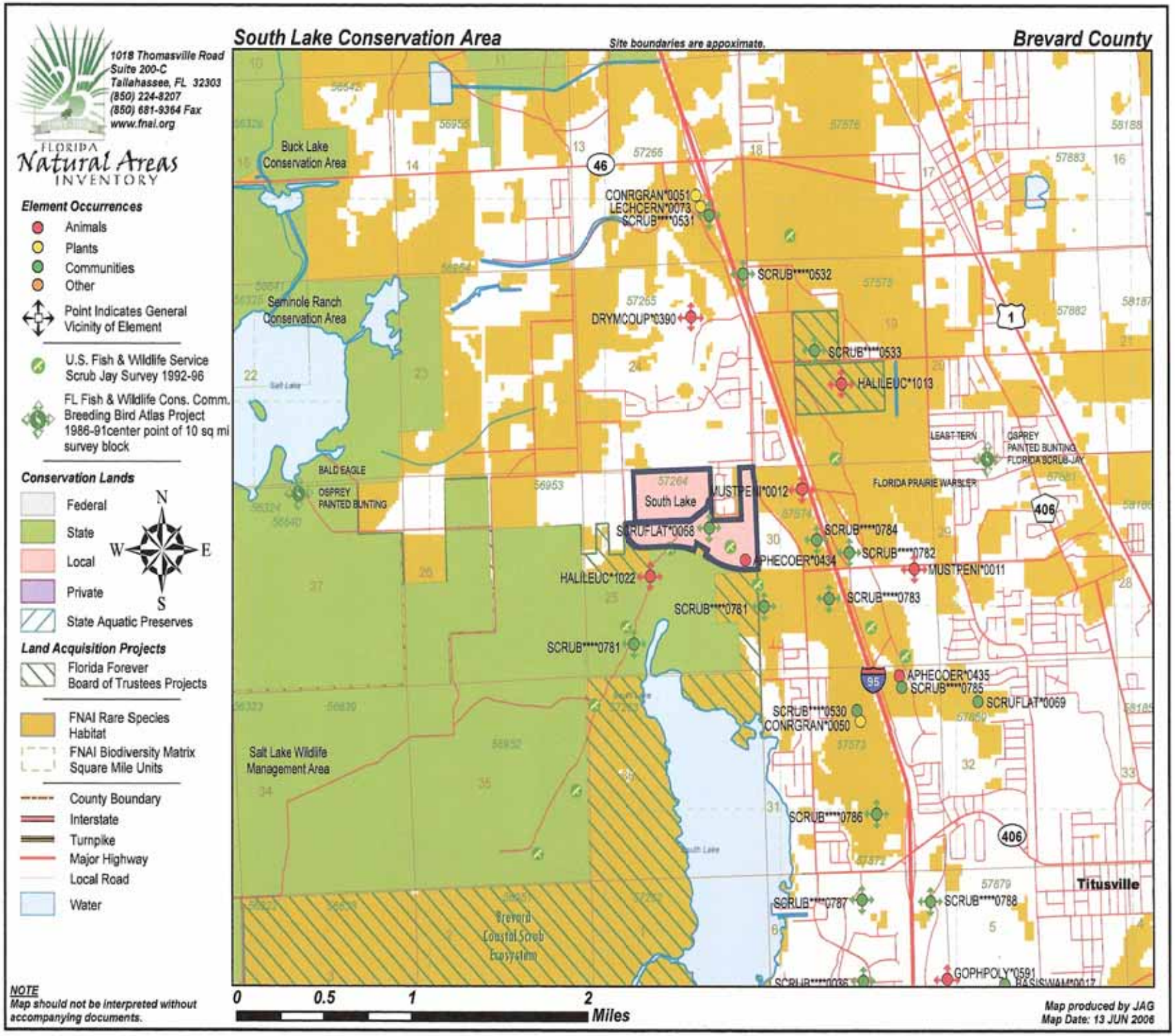
Thank you for your use of FNAI services. If I can be of further assistance, please give me a call at (850) 224-8207.

Sincerely,

Jason A. Griffin

Jason A. Griffin
Data Services Coordinator

encl


South Lake Conservation Area
Site boundaries are approximate.
Brevard County
1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
(850) 224-8207
(850) 681-9364 Fax
www.fnai.org
FLORIDA
Natural Areas
INVENTORY
Element Occurrences
Animals
Plants
Communities
Other
Point Indicates General Vicinity of Element
U.S. Fish & Wildlife Service Scrub Jay Survey 1992-96
FL Fish & Wildlife Cons. Comm. Breeding Bird Atlas Project 1986-91center point of 10 sq mi survey block
Conservation Lands
Federal
State
Local
Private
State Aquatic Preserves
N
W
E
S
Land Acquisition Projects
Florida Forever Board of Trustees Projects
FNAI Rare Species Habitat
FNAI Biodiversity Matrix Square Mile Units
County Boundary
Interstate
Turnpike
Major Highway
Local Road
Water
Buck Lake Conservation Area
Seminole Ranch Conservation Area
Salt Lake Wildlife Management Area
Brevard Coastal Scrub Ecosystem
South Lake
Titusville
CONRGRAN*0051
LECHCERN*0073
SCRUB****0531
SCRUB****0532
DRYMCOUP*0390
SCRUB****0533
HALILEUC*1013
MUSTPENI*0012
SCRUFLAT*0058
APHECOER*0434
SCRUB****0784
SCRUB****0782
MUSTPENI*0011
HALILEUC*1022
SCRUB****0783
SCRUB****0761
SCRUB****0781
APHECOER*0435
SCRUB****0785
SCRUFLAT*0069
SCRUB****0530
CONRGRAN*0050
SCRUB****0786
SCRUB****0787
SCRUB****0788
GOPHPOLY*0591
BALD EAGLE
OSPREY
PAINTED BUNTING
LEAST TERN
OSPREY
PAINTED BUNTING
FLORIDA SCRUB-JAY
FLORIDA PRAIRIE WARBLER
46
1
95
406
406
0
0.5
1
2
Miles
NOTE
Map should not be interpreted without accompanying documents.
Map produced by JAG
Map Date: 13 JUN 2006

1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
(850) 224-8207
(850) 681-9364 Fax
www.fnai.org

FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

ELEMENT OCCURRENCES DOCUMENTED ON OR NEAR *PROJECT SITE*

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
SCRUB****0036	Scrub		G2	S2	N	N	1987-08-09	OAK SCRUB.	OCCURRENCE AT SITE. COX VISITED SITE 1981-07-25. MINNO VISITED SITE 1987-08-09.
DRYMCOUP*0390	Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT	1989-07-15	GOLF COURSE, HARDWOOD HAMMOCK.	1 INDIVIDUAL CA. 7 FEET LONG.
MUSTPENI*0011	Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N	1972-12-28	No general description given	1972-12-28: J.C. Bryant, observation. Skin. Univ. Central Fla. No. LME-7307.
CONRGRAN*0051	Conradina grandiflora	Large-flowered Rosemary	G3	S3	N	LT	1983-09-01	SAND PINE SCRUB ON PAOLA FINE SAND. SITE OCCUPIES A LOW DUNE LINE. MODERATELY DENSE UNDERSTORY DOMINATED BY OAKS (LIVE, CHAPMAN AND MYRTLE).	ONE LARGE PLANT IN FLOWER (F83STO17).
LECHCERN*0073	Lechea cernua	Nodding Pinweed	G3	S3	N	LT	1983-09-01	1983-09-01: SAND PINE SCRUB ON PAOLA FINE SAND. SITE OCCUPIES A LOW DUNE LINE. MODERATELY DENSE UNDERSTORY DOMINATED BY OAKS (LIVE, CHAPMAN AND MYRTLE)(F83STO17FLUS).	LESS THAN 5 INDIVIDUALS IN FLOWER AND FRUITING (F83STO17FLUS).
CONRGRAN*0050	Conradina grandiflora	Large-flowered Rosemary	G3	S3	N	LT	1983-09-01	SAND PINE SCRUB ON PAOLA FINE SAND. DUNE RIDGES PRESENT. UNDERSTORY MADE UP OF OAKS, PALMETTO, VACCINIUM AND XIMENIA.	MORE THAN 50 PLANTS (F83STO16).
SCRUFLAT*0069	Scrubby flatwoods		G3	S3	N	N	1991	SCRUBBY FLATWOODS WITH SUBDIVISION TO EAST AND WETLANDS TO WEST.	EO PRESENT ON SITE.
SCRUB****0530	Scrub		G2	S2	N	N	1991	SAND PINE SCRUB ON PAOLA FINE SAND. DUNE RIDGES PRESENT. UNDERSTORY MADE UP OF OAKS, PALMETTO, VACCINIUM AND XIMENIA (U88CHR01). THIS SITE IS PART OF A ONCE EXTENSIVE DUNE SYSTEM THAT RUNS NORTH-SOUTH NEAR MIMS. THE SOIL IS CLASSIFIED AS PAOLA FINE SAND	SAND PINES RANGE FROM 40-50 CM D6H SIZE.
SCRUB****0785	Scrub		G2	S2	N	N	1991	SAND PINE SCRUB.	EO PRESENT ON SITE.

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

ELEMENT OCCURRENCES DOCUMENTED ON OR NEAR *PROJECT SITE*

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
APHECOER*0435	Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT	1991-08-13	Sand Pine Scrub.	1991-01-04: Six Scrub Jays Reported; 1991-07-20: 3 adults and one juvenile reported; 1991-08-13: 10 adults reported (U91SNO01); Snodgrass et al. estimated this record to constitute a small population of 0-5 family groups during 1991 inventory.
BASISWAM*0017	Basin swamp		G4	S3	N	N	2004	No general description given	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1993-09-30) (U05FNA02FLUS). Large basin swamp with an open marshy area in the center dominated by Cladium jamaicense. Forested portion includes Acer rubru
GOPHPOLY*0591	Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LS	ZZ	No general description given	2 SPEC. (AMNH 66111-12), COLLECTED BY A.B. KLOTA, DATE N/A.
MUSTPENI*0012	Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N	1978	Scrub	1978: A. Love, GFC, observation. Killed by car accident. Car left road and hit animal which was in vegetation near road shoulder.
APHECOER*0434	Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT	1991-08-13	Several small (10-15 acre) parcels of Oak Scrub/Sand Pine Scrub and Scrubby Flatwoods.	1991-08-13: Two adults and one juvenile reported (U91SNO01); Snodgrass et al. estimated this record to constitute a medium population of 6-30 family groups during 1991 inventory.
HALILEUC*1013	Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT	2003	2005-07-12: Source does not provide a description.	Nest status: Active, 2003, 2002, 2001, 2000, 1999;(U03FWC01FLUS)
HALILEUC*1022	Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT	2003	2005-07-12: Source does not provide a description.	Nest status: Active, 2003, 2002, 2001; Unknown status or not assessed, 2000, 1999;(U03FWC01FLUS)
SCRUB****0533	Scrub		G2	S2	N	N	2004	SAND PINE SCRUB ON ST LUCIE FINE SAND. THICK UNDERSTORY DOMINATED BY OAKS (MYRTLE, CHAPMAN AND LIVE). F83STO21 REPORTS SMALL OPENINGS OCCUR IN UNDERSTORY WHERE WIREGRASS AND A VARIETY OF HERBS APPEAR.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1983-09-01) (U05FNA02FLUS). SAND PINE ARE THINLY STOCKED WITH CANOPY COVER AT ABOUT 20%.
SCRUB****0788	Scrub		G2	S2	N	N	2004	OAK SCRUB/SAND PINE SCRUB.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). CA. 50% OAK SCRUB AND 50% SAND PINE SCRUB.

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SCRUB****0786	Scrub		G2	S2	N	N	2004	SAND PINE SCRUB THAT IS COMPLETELY SURROUNDED BY DEVELOPMENT.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). EO PRESENT ON SITE.
SCRUFLAT*0068	Scrubby flatwoods		G3	S3	N	N	2004	Scrubby Flatwoods grading to the south into oak scrub.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). EO present.
SCRUB****0787	Scrub		G2	S2	N	N	2004	SAND PINE SCRUB/OAK SCRUB.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). CA. 50% OAK SCRUB AND 50% SAND PINE SCRUB.
SCRUB****0783	Scrub		G2	S2	N	N	2004	Sand Pine Scrub/Oak Scrub.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). Ca. 90% Sand Pine Scrub and 10% Oak Scrub.
SCRUB****0784	Scrub		G2	S2	N	N	2004	Sand Pine Scrub/Oak Scrub.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). Ca. 80% Sand Pine Scrub and 20% Oak Scrub.
SCRUB****0782	Scrub		G2	S2	N	N	2004	Sand Pine Scrub/Oak Scrub.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). Ca. 70% Sand Pine Scrub and 30% Oak Scrub.
SCRUB****0531	Scrub		G2	S2	N	N	2004	SAND PINE SCRUB ON PAOLA FINE SAND. SITE OCCUPIES A LOW DUNE LINE. MODERATELY DENSE UNDERSTORY DOMINATED BY OAKS (LIVE, CHAPMAN AND MYRTLE). F83STO17 REPORTS FEW LICHENS AND LEAF LITTER GROUNDCOVER.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1983-09-01) (U05FNA02FLUS). SAND PINES ARE MIXED SIZES RANGING UP TO 35 CM DBH.
SCRUB****0781	Scrub		G2	S2	N	N	2004	1996-05-13: sand pine scrub - young pine, diverse, nice structure (F96JOH02FLUS). 1991: Oak Scrub/Sand Pine Scrub (U91SNO01FLUS).	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). 1996-05-13: scrub at north end of South Lake - scattered clumps of young (10-15 years) sand pines with oak understory grown to short

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ELEMENT OCCURRENCES DOCUMENTED ON OR NEAR *PROJECT SITE*

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
SCRUB****0532	Scrub		G2	S2	N	N	2004	ISOLATED SAND PINE SCRUB SITE. UNDERSTORY CONTAINS MYRTLE OAK, CHAPMAN AND LIVE OAK, SAW PALMETTO AND JUNIPERUS SILICOICDA.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1983-07-26) (U05FNA02FLUS). SAND PINES RANGE IN SIZE TO 30-40 DBH.

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Matrix Unit ID: 57264

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Documented					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Scrubby flatwoods		G3	S3	N	N
Likely					
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Scrub		G2	S2	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Potential from any/all selected units					
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	LS
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Carex chapmanii	Chapman's Sedge	G3	S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Chamaesyce cumulicola	Sand-dune Spurge	G2	S2	N	LE
Conradina brevifolia	Short-leaved Rosemary	G2Q	S2	LE	LE
Conradina grandiflora	Large-flowered Rosemary	G3	S3	N	LT
Dicerandra thinicola	Titusville Balm	G1Q	S1	N	LE
Glandularia maritima	Coastal Vervain	G3	S3	N	LE
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LS
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Lechea divaricata	Pine Pinweed	G2	S2	N	LE
Mesic flatwoods		G4	S4	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Nolina atopocarpa	Florida Beargrass	G3	S3	N	LT
Panicum abscissum	Cutthroat Grass	G3	S3	N	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Salix floridana	Florida Willow	G2	S2	N	LE
Sceloporus woodi	Florida Scrub Lizard	G3	S3	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	LS
Warea carteri	Carter's Warea	G3	S3	LE	LE

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

GLOBAL AND STATE RANKS

Florida Natural Areas Inventory (FNAI) defines an **element** as any rare or exemplary component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature. FNAI assigns two ranks to each element found in Florida: the **global rank**, which is based on an element's worldwide status, and the **state rank**, which is based on the status of the element within Florida. Element ranks are based on many factors, including estimated number of occurrences, estimated abundance (for species and populations) or area (for natural communities), estimated number of adequately protected occurrences, range, threats, and ecological fragility.

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 10,0000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
G4	Apparently secure globally (may be rare in parts of range).
G5	Demonstrably secure globally.
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.
GH	Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
GNA	Ranking is not applicable because element is not a suitable target for conservation (e.g. as for hybrid species)
GNR	Not yet ranked (temporary)
GNRTNR	Neither the full species nor the taxonomic subgroup has yet been ranked (temporary)
GX	Believed to be extinct throughout range
GXC	Extirpated from the wild but still known from captivity/cultivation
GU	Unrankable. Due to lack of information, no rank or range can be assigned (e.g., GUT2).

STATE RANK DEFINITIONS

Definition parallels global element rank: substitute "S" for "G" in above global ranks, and "in Florida" for "globally" in above global rank definitions.

FEDERAL AND STATE LEGAL STATUSES PROVIDED BY FNAI FOR INFORMATION ONLY.

For official definitions and lists of protected species, consult the relevant state or federal agency.

FEDERAL LEGAL STATUS

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

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 which is in danger of extinction throughout all or a significant portion of its range.
LE,XN	An experimental population of a species otherwise Listed as an Endangered Species in the List of Endangered and Threatened Wildlife and Plants.
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 which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
LT,PDL	Species currently listed threatened but has been proposed for delisting.
PT	Proposed for listing as Threatened Species.
C	Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants, Category 1. Taxa for which the USFWS currently has substantial information on hand or in possession to support the biological appropriateness of proposing to list the species as endangered or threatened.
PS	Partial listing status (species is listed for only a portion of its geographic range).
SAT	Threatened due to similarity of appearance to a threatened species.
SC	Species of concern. Species is not currently listed but is of management concern to USFWS.
N	Not currently listed, nor currently being considered for addition to the List of endangered and Threatened Wildlife and Plants.

FLORIDA LEGAL STATUSES

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission, 1 August 1997, and subsequent updates.

Animals (Florida Fish and Wildlife Conservation Commission- FFWCC)

LE	Listed as Endangered Species by the FGFWFC. 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 FGFWFC. 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. LT* (for Florida black bear) indicates that LT status does not apply in Baker and Columbia counties and in the Apalachicola National Forest.
LS	Listed as Species of Special Concern by the FGFWFC. 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. LS* indicates that a species has LS status only in selected portions of its range in Florida.
N	Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505.

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.

PE Proposed by the FDACS for listing as Endangered Plants.

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. LT* indicates that a species has LT status only in selected portions of its range in Florida.

PT Proposed by the FDACS for listing as Threatened Plants.

CE Listed as a Commercially Exploited Plant in the Preservation of Native Flora of Florida Act. Defined as species native to state which are subject to being removed in significant numbers from native habitats in the state and sold or transported for sale.

PC Proposed by the FDACS for listing as Commercially Exploited Plants.

(LT) Listed threatened as a member of a larger group but not specifically listed by species name.

N Not currently listed, nor currently being considered for listing.

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Tracking Florida's Biodiversity

Brevard Coastal Scrub Ecosystem

Brevard County

Group A: Full Fee
Group A: Small Holdings

Purpose for State Acquisition

The strip of coastal scrub that once paralleled the Indian River in Brevard County is now a set of small fragments surrounded by housing developments. The Brevard Coastal Scrub Ecosystem project will preserve a few of the best fragments, thus helping to ensure the survival of the endangered scrub jay and scrub itself in the county, and providing areas where the public can learn about and appreciate this unique landscape.

Manager

Brevard County will manage the original six sites, and the Fish and Wildlife Conservation Commission (FWC) will manage the six sites added in 1996.

General Description

Theproject includes twenty areas considered essential to the preservation of scrub, mesic and scrubby flatwoods, floodplain marsh and marsh lake along the Atlantic Coastal Ridge and St. John's River marshes. Acquisition and management of these core areas are imperative for the survival of the Florida Scrub Jay on the East Coast of Florida. The tracts comprising this project also support several rare vertebrates and at least eight rare plant species, including a very rare mint. All of the tracts in the project are surrounded by development and several peripheral areas are already being destroyed. The rapid encroachment of housing developments is likely to completely eliminate any unprotected scrub and adjacent flatwoods communities of Brevard County in the very near future. No archaeological sites are known from the project.

Full Fee FNAI Elements	
Scrub mint	G1/S1
Coastal hoary-pea	G1T1/S1
SCRUB	G2/S2
Pine pinweed	G2/S2
Wild coco	G2G3/S2
Sand butterfly pea	G2G3Q/S2S3
Hay scented fern	G4/S1
FLOODPLAIN MARSH	G3?/S2
32 elements known from project	

Small Holdings FNAI Elements	
SCRUB	G2/S2
Florida scrub-jay	G3/S3
Curtiss' milkweed	G3/S3
Large-flowered rosemary	G3/S3
SCRUBBY FLATWOODS	G3/S3
WET FLATWOODS	G3/S3
Bald eagle	G4/S3
DEPRESSION MARSH	G4?/S3
12 elements known from project	

Public Use

This project is designated as a wildlife and environmental area with limited public use, including picnicking and environmental education.

Acquisition Planning

On 12/10/1992, the Land Acquisition Advisory Council (LAAC) added the Scrub Jay Refugia project to the Conservation and Recreation Lands (CARL) Priority list. This fee-simple acquisition consisted of approximately 8,178 acres, several hundred parcels and landowners, and a taxable value of $53,319,683. Brevard County sponsored the project that contained 5 sites: Tico (± 2,421 acres, Grand Central a major owner, Brevard County has acquired 52 acres); Valkaria (± 2,764 acres with multiple owners, County has acquired 155 acres); Rockledge (± 2,591 acres, three major owners: Barge & Tabacchi, Duda, and Grand Central, the remainder is subdivided, County has acquired 141 acres); Condev (52 acres, two owners: Nelson and SR 405 Ltd); South Babcock (529 acres, multiple owners).

Placed on list	**1993***
Project Area (Not GIS Acreage)	**48,387**
Acres Acquired	**19,323****
at a Cost of	**$38,407,488****
Acres Remaining	**29,064**
with Estimated (Tax Assessed) Value of	**$50,695,754**

*Original project
** Includes acreage acquired by Brevard County & SJRWMD, Full Fee and Small Holdings

On 7/23/1993, the LAAC approved a fee-simple, 179-acre addition (AKA Rockledge Scrub Sanctuary) to the project boundary. It was sponsored by the South Florida Water Management District (SFWMD), consisted of 6 landowners (T. Barge & M. Tabacchi, L.R. Pierce Trust, N. Schopke & M. Tabacchi, TCM Investment, Inc., A.L. & M. Jacoboski , and Florida Power & Light Co.), and a taxable value of $3,600,000.

On 3/9/1994, the LAAC approved a fee-simple, 1,322-acre addition (AKA Micco Scrub) to the project boundary. The addition was sponsored by Brevard County, consisted of one landowner, Kentucky Central Life Ins. Co., and a taxable value of $1,500,120. Brevard County has acquired this site.

On 7/14/1995, the LAAC approved a fee-simple, 1,410-acre addition to the project boundary. The addition consisted of four sites: Dicerandra Scrub, 44 acres, Malabar Scrub Sanctuary, 395 acres, Canova Beach Scrub, 138 acres, and Jordan Blvd, 833 acres. Brevard County sponsored this addition that consisted of multiple landowners, and a taxable value of $13,283,659. The County has acquired the Malabar and the Dicerandra Scrub sites.
In 1996, the LAAC combined the Coastal Scrub Ecosystem Initiative (CSEI) project with the Scrub Jay Refugia project bringing the new total acres to 27,745 with a TAV of $86,847,875, and on 12/5/1996 renamed it Brevard Coastal Scrub Ecosystem. The CSEI consisted of 6 sites: Fox/South Lake Complex - 9,189 acres; Titusville Wellfield - 972 acres; Grissom Parkway - 2,962 acres; Wickham Road - 822 acres; Micco Expansion - 1,833 acres; and Ten Mile Ridge - 529 acres, totaling 16,307 acres with a TAV of $40,780,060.

On 12/3/1998, the Land Acquisition Management Advisory Council (LAMAC) approved the transfer of the Valkaria, South Babcock, Ten Mile Ridge, and Grissom Parkway sites to the Mega-Multiparcel list. In 2001 this list was renamed Small Holdings.

On 12/19/00, the ARC approved a fee-simple, ± 9,528-acre addition to the project boundary. The addition consisted of two sites: Malabar Expansion – 959.85 acres (Bargain/Shared) and Valkaria/Micco Expansion – 4,144.48 acres (Bargain/Shared) & 4,739.48 acres (Mega/Multiparcel). Sponsored by the Brevard County EEL Program, it consisted of 2,250 landowners, and a taxable value of $23,819,800. The following sites were deleted from the project due to development/improvement, habitat fragmentation or isolation: Canova Beach - 152.34 acres; Condev – 52.52 acres; and Wickham Road Complex – 809.62 acres; & Rockledge (select properties) – 860 acres. The total TAV for these sites was approximately $35,952,477.

On 5/17/2001, the ARC approved a fee-simple, ± 3,529-acre addition to the project boundary. The addition, sponsored by the Office of Coastal and Aquatic Managed Areas (CAMA), consisted of eleven landowners, and a taxable value of $3,456,290.

On 4/25/2002, the ARC approved a fee-simple, 112-acre addition to the project boundary. The addition, sponsored by The Nature Conservancy (TNC) for Brevard County, consisted of two sites (10 Mile Ridge Expansion – 62 acres and Valkario/Micco Expansion – 50 acres), multiple landowners, and a taxable value of $199,070

On 12/5/2003, the ARC approved a fee-simple, 7,444-acre addition to the project boundary. The addition, sponsored by the Brevard County EEL Program, consisted of three landowners, Bernard Hersch – 112.25 acres; OLC, Inc/Campbell – 5,229.94 acres; and Babcock, LLC – 2,091.81 acres, and a taxable value of $2,808,217.

On 12/5/2002, ARC moved this project to Group A of the 2003 Florida Forever Priority list.

Coordination
Brevard County is an acquisition partner and has committed $10 million towards the acquisition of the project and $2.6 million for site management. The Nature Conservancy is under contract to the county to provide assistance with acquisition of the county's projects.

Management Policy Statement

The primary goals of management of the Brevard Coastal Scrub Ecosystem project are: to conserve and protect environmentally unique and irreplaceable lands that contain native, relatively unaltered flora and fauna representing a natural area unique to, or scarce within, a region of this state or a larger geographic area; and to conserve and protect significant habitat for native species or endangered and threatened species.

Management Prospectus

Qualifications for state designation Scrub on the Atlantic Coastal Ridge is one of the most endangered natural upland communities in North America. This unique scrub, with its many rare plants and animals, qualifies the Brevard Coastal Scrub Ecosystem project as a wildlife and environmental area.

Manager Brevard County proposes to manage the six original sites of the Brevard Coastal Scrub Ecosystem Project. The Fish and Wildlife Conservation Commission will manage the six sites added in 1996.

Conditions affecting intensity of management The Brevard Coastal Scrub Ecosystem Project includes low-need, moderate-need and high-need tracts. All sites are fire-maintained communities with an immediate need for fire management.

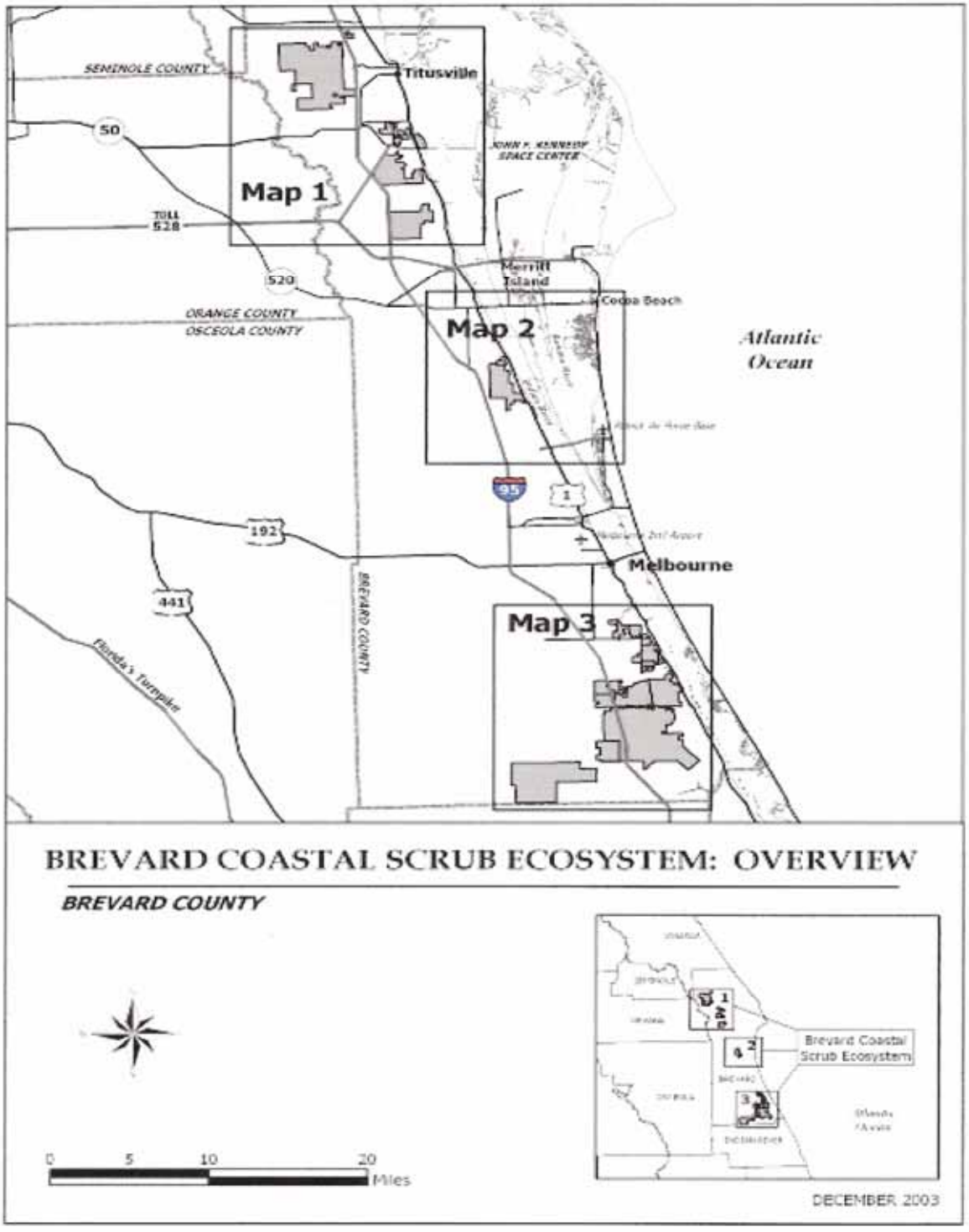
Timetable for implementing management and provisions for security and protection of infrastructure The Brevard County EEL Program is preparing a Conceptual Natural Areas Management Manual for all sanctuary sites. Once these sites are acquired, the EEL Program will work with local, state and federal agencies to develop a Comprehensive Management Plan for long-term management. Initial management activities in this project will focus on site security, burn management, determination of status of listed species, location of a core area for resource protection, identification of passive recreation areas, and the development of innovative environmental education programs.

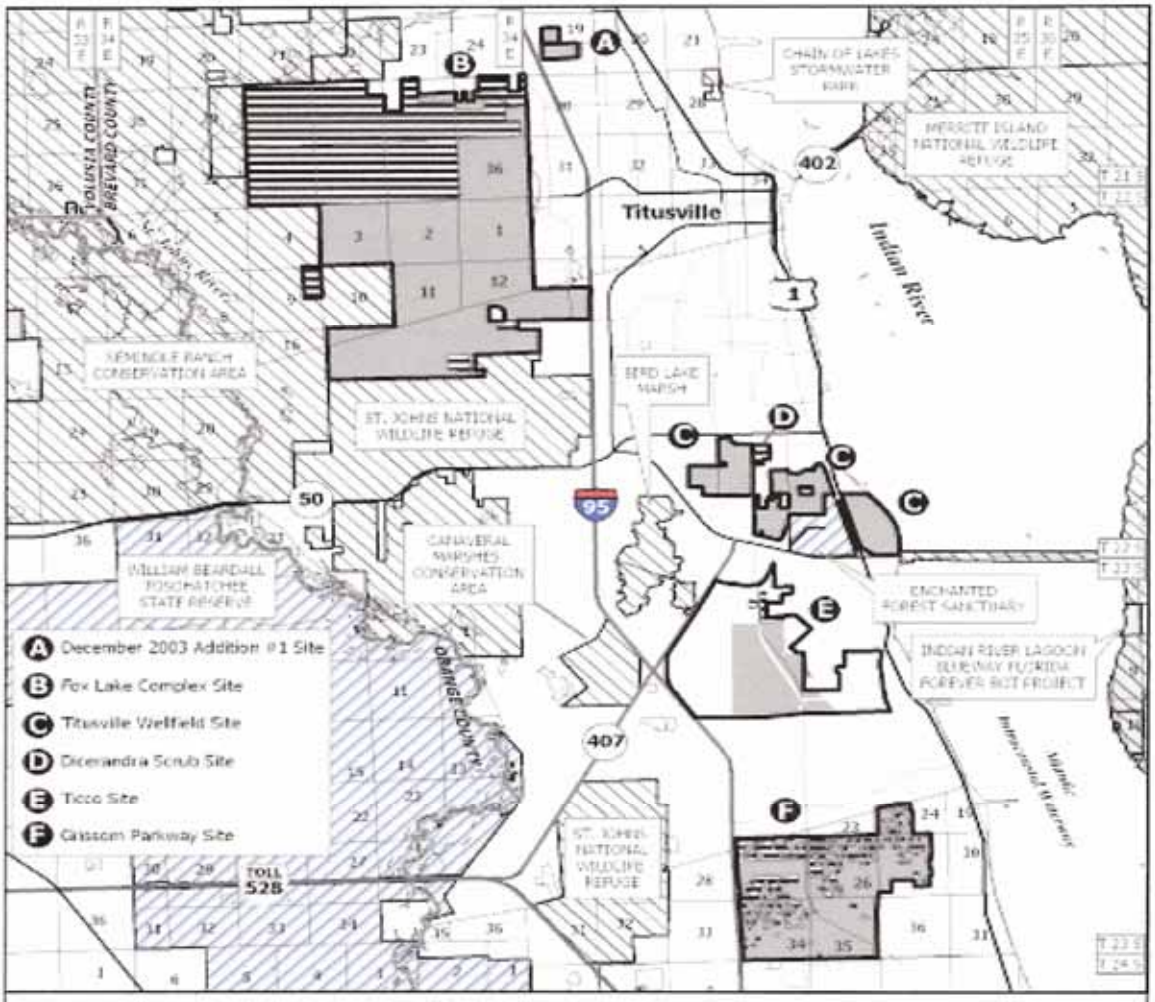
A management plan will be developed and implemented approximately one year after the completion of this multi-parcel acquisition project, or site-specific management plans will be developed as management units are acquired. The plan will detail how each of the FNAI special elements on each site will be protected and, when necessary, restored. Fire management will be a vital component of each plan.

Long-range plans for this project, beginning approximately one year after acquisition is completed, will be directed towards biodiversity protection, exotic species removal, wetland restoration and enhancement, and the maintenance of links between upland, wetland and estuarine areas. Management will protect biological diversity and listed species. Specific areas will be fenced as needed. Property signs will have appropriate language to enable protection of the property. Unnecessary roads and other disturbances will be identified as areas for restoration. Firebreaks will be cleared where necessary. Infrastructure development will be confined to already disturbed areas and will be low-impact.

Continued on Page 70

Brevard Coastal Scrub Ecosystem - Group A/Full Fee Small Holdings





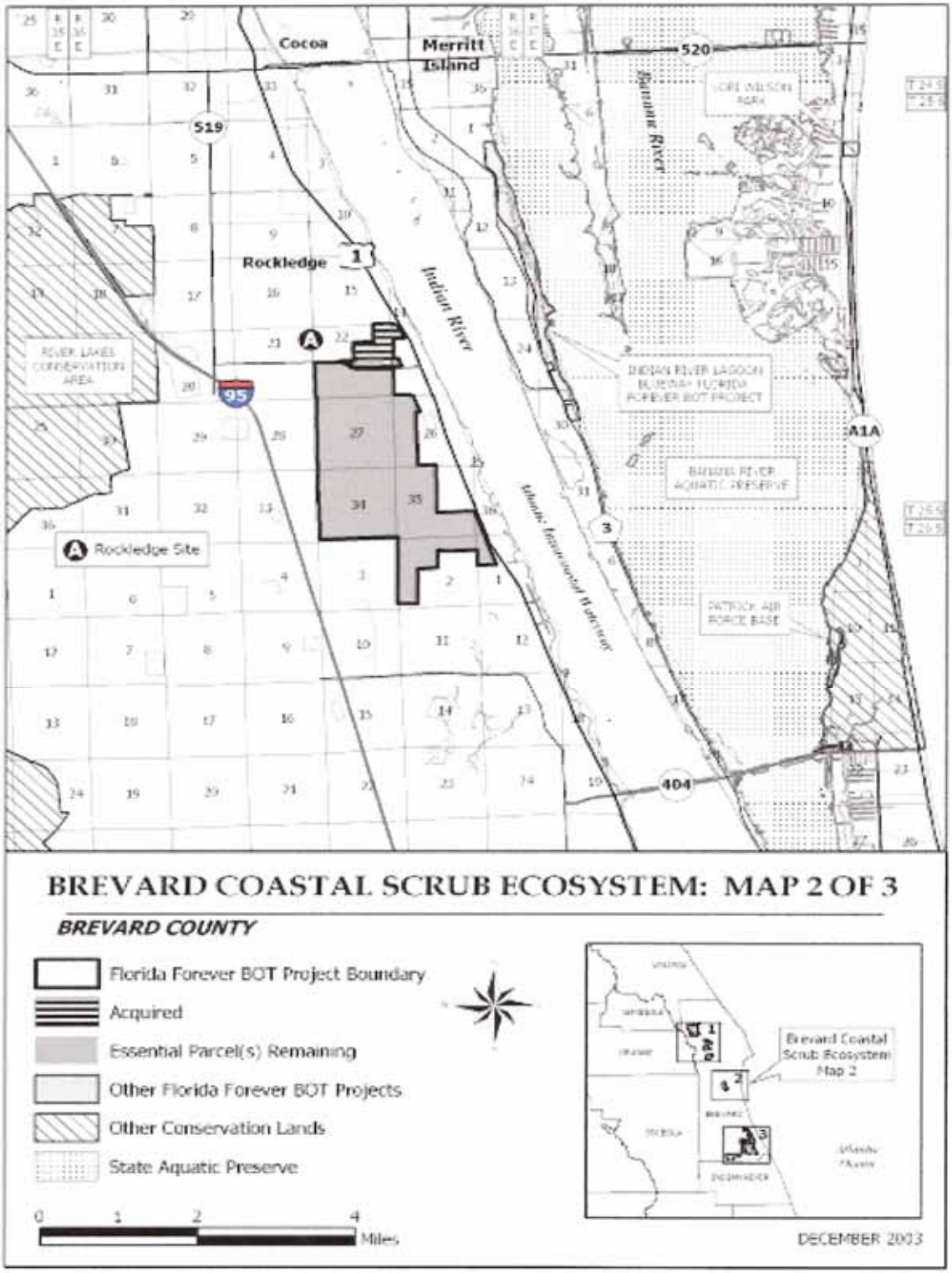
BREVARD COASTAL SCRUB ECOSYSTEM: MAP 1 OF 3

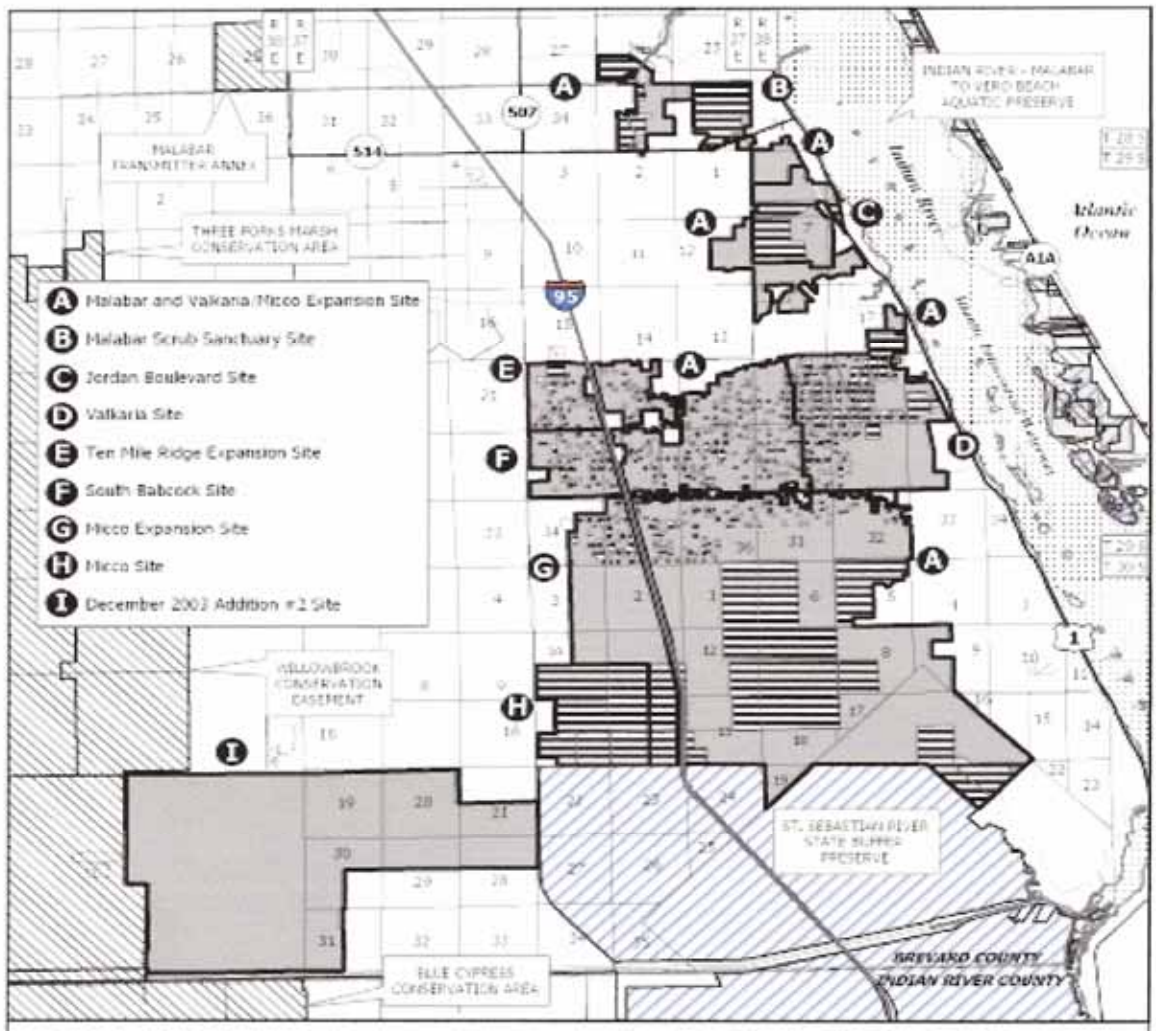
BREVARD COUNTY

- Florida Forever BOT Project Boundary
- Acquired
- Essential Parcel(s) Remaining
- Other Florida Forever BOT Projects
- State Owned Lands
- Other Conservation Lands

0 1 2 4 Miles

DECEMBER 2003


Cocoa
Merritt Island
520
519
Rockledge
1
Indian River
Banana River
95
A
Rockledge Site
A1A
3
404
RIVER LAKES CONSERVATION AREA
INDIAN RIVER LAGOON BLUEWAY FLORIDA FOREVER BOT PROJECT
BANANA RIVER AQUATIC PRESERVE
PATRICK AIR FORCE BASE
BREVARD COASTAL SCRUB ECOSYSTEM: MAP 2 OF 3
BREVARD COUNTY
Florida Forever BOT Project Boundary
Acquired
Essential Parcel(s) Remaining
Other Florida Forever BOT Projects
Other Conservation Lands
State Aquatic Preserve
0
1
2
4
Miles
Brevard Coastal Scrub Ecosystem Map 2
DECEMBER 2003



BREVARD COASTAL SCRUB ECOSYSTEM: MAP 3 OF 3

BREVARD COUNTY

- Florida Forever BOT Project Boundary
- Acquired
- Essential Parcel(s) Remaining
- Other Florida Forever BOT Projects
- State Owned Lands
- Other Conservation Lands
- State Aquatic Preserve

0 1 2 4 Miles

DECEMBER 2003

Revenue-generating potential No significant revenue sources are anticipated at this time. Mitigation agreements with USFWS have generated some funds for management within the Valkaria Core area. Implementation and funding of the Scrub Conservation and Development Plan provide a potential source of management funds for these sites. Timber might be sold on some sites where habitat restoration requires thinning

Cooperators in management activities Brevard County will require support from the USFWS and other agencies (The Nature Conservancy, Division of Forestry, FWC, and others) to implement a quality management program for scrub communities.

The EEL Selection Committee will aggressively seek matching funds for site management, development of environmental education programs, and for necessary research and monitoring.

Management costs and sources of revenue An interagency partnership among the participating agencies provides opportunities for revenue sharing. The Brevard County EEL Program proposed to set aside $2.6 million dollars from their excess ad valorem revenues to begin a management endowment for the EEL Program sanctuary network. The EEL Program will work to increase funds for management to be consistent with or exceed State management appropriations.

Management Cost Summary

Category	1994/95	1995/96	1996/97
Source of Funds	County	County	County/Grant
Salary	$0	$3,500	$8,750
OPS	$0	$0	$35,000
Expense	$500	$1,000	$0
OCO	$0	$0	$60,000
FCO	$0	$125,700	$120,000
TOTAL	$500	$130,200	$213,750

FLORIDA SCRUB-JAY
Aphelocoma coerulescens

Order: Passeriformes
Family: Corvidae
FNAI Ranks: G3/S3
U.S. Status: Threatened
FL Status: Threatened
U.S. Migratory Bird Treaty Act and state Wildlife Code prohibit take of birds, nests, or eggs.

© Tom Vezo

Description: Similar in size and shape to the familiar blue jay (*Cyanocitta cristata*). Crestless head, nape, wings, and tail are pale blue, and the back and belly pale gray. Juveniles have fluffy brown heads.

Similar Species: The scrub-jay lacks the crest and white spotting on wings and tail that are characteristic of the blue jay.

Habitat: Inhabits fire-dominated, low-growing, oak scrub habitat found on well-drained sandy soils. May persist in areas with sparser oaks or scrub areas that are overgrown, but at much lower densities and with reduced survivorship.

Seasonal Occurrence: Extremely sedentary.

Florida Distribution: Restricted to peninsular Florida, with largest populations occurring in Brevard, Highlands, Polk, and Marion counties.

FLORIDA SCRUB-JAY *Aphelocoma coerulescens*

Range-wide Distribution: Same as Florida distribution.

Conservation Status: Recognized in 1995 as a distinct species from the scrub-jays in the western U.S., making it the only bird species whose entire range is restricted to Florida. Continuing loss, fragmentation, and degradation of scrub habitat has resulted in a decline of greater than 90 percent of the original pre-settlement population of Florida scrub-jays. Precipitous decline since the 1980s. A 1992 range-wide estimate gives an overall population of approximately 10,000 birds. Largest populations are found on federal lands (Merritt Island National Wildlife Refuge and Ocala National Forest), but are declining. Land management practices on these lands are of concern. Smaller populations are found scattered along Lake Wales Ridge in Polk and Highlands counties, with a major protected population at Archbold Biological Station. Cars and cats take toll on scrub-jays in developed areas. Scrub-jays are susceptible to population crashes because of catastrophic fires or disease, so protection of additional secure populations is essential.

Protection and Management: Acquire suitable xeric habitat in strategic locations among existing scrub-jay preserves to help mitigate the extensive fragmentation of this habitat. Continued existence of this species will depend on preservation and long-term management of suitable scrub habitat. Prescribed fire every 8 - 15 years that burns patchily, where few territories are burned completely, is optimal. Mechanical treatments, at least initially, may be required where fire cannot be used, although the long-term effects of this management practice are unknown.

Selected References: Fitzpatrick et al. 1991, Poole and Gill (eds.) 1996, Robertson and Woolfenden 1992, Rodgers et al. (eds.) 1996, Stevenson and Anderson 1994, Thaxton and Hingtgen 1996.

BALD EAGLE
Haliaeetus leucocephalus

Order: Falconiformes
Family: Accipitridae
FNAI Ranks: G4/S3
U.S. Status: Threatened
(proposed for delisting in 1999)
FL Status: Threatened
U.S. Migratory Bird Treaty Act and state Wildlife Code prohibit take of birds, nests, or eggs.

© Tom Vezo

immature
© Barry Mansell

Description: Adult has white head, white tail,and large, bright yellow bill; other plumage is dark. Immatures dark with variable amounts of light splotching on body, wings, and tail; head and bill are dark. In flight wings are broad and wide and held horizontally, presenting a flat profile when soaring and gliding. Flies with slow, powerful wing-beats.

Similar Species: At a distance, in flight, eagle's size and lack of white in wings should help differentiate it from the crested caracara (*Caracara cheriway*; see species account), which also has a white head. Flattened aspect of the eagle's wings is unlike the teetering, V-shaped flight of the turkey vulture (*Cathartes aura*).

Habitat: Most commonly includes areas close to coastal areas, bays, rivers, lakes, or other bodies of water that provide concentrations of food sources, including fish, waterfowl, and wading birds. Usually nests in tall trees (mostly live pines) that provide clear views of surrounding area. In Florida Bay, where there are few predators and few tall emergent trees, eagles nest in crowns of mangroves and even on the ground.

BALD EAGLE *Haliaeetus leucocephalus*

Seasonal Occurrence: In extreme southern Florida, most adults are resident, but most birds in northern and central Florida migrate north out of state after breeding season (late May - July). Juveniles and younger birds mostly migrate north in summer and may range as far as Canada. Also, in winter, some birds from northern populations migrate to northern Florida.

Florida Distribution: Florida has largest breeding population of any state outside Alaska. Breeds throughout most of peninsular Florida and Keys, mainly along coast in eastern panhandle, and is rare in western panhandle. Greatest concentrations of nesting eagles occur around Lake Kissimmee in Polk and Osceola counties, around Lake George in Putnam, Volusia, and Lake counties, lakes Jessup, Monroe, and Harney in Seminole and Volusia counties, along Gulf coast north of Tampa, and Florida Bay and southwest peninsula area.

Range-wide Distribution: North America. Breeding range extends from Alaska, across Canada, south to Baja California, the Gulf coast and Florida Keys, although very local in the Great Basin and prairie and plains regions in interior U.S., where range has expanded to include Nebraska and Kansas. Non-breeding range is generally throughout breeding range except in far north, most commonly from southern Alaska and southern Canada southward.

Conservation Status: Original population in Florida could be found throughout state and likely numbered well over 1,000 pairs. Population declined sharply after late 1940s, reaching a low of 120 active nests in 1973, and by 1978 was considered rare as a breeder. Use of pesticide DDT and related compounds and development of coastal habitat are probably chief causes of decline. Numbers have steadily increased, especially since 1989. In 1993, 667 active territories were reported, and in 1999, 996 active nests were recorded. Major threats include habitat loss because of development and commercial timber harvest; pollutants and decreasing food supply are also of concern.

Protection and Management: Monitored annually by Fish and Wildlife Conservation Commission (FFWCC). Continue acquisition of breeding territories and protection of foraging and roosting sites. Incorporate information known about buffer zones around nesting areas into state and local development regulations to help mitigate losses as Florida's human population continues to expand. Monitor pesticides and other environmental contaminants that affect reproduction and food supply.

Selected References: FFWCC 2001, Kale (ed.) 1978, Poole and Gill (eds.) 2000, Robertson and Woolfenden 1992, Rodgers et. al. (eds.) 1996, Stevenson and Anderson 1994.

Appendix E:
Preliminary Bird Survey
July 2003, preliminary bird list by EEL staff

Family	Genus	Species	Status	Common Name
ACCPITRIDEA	**Buteo**	**lineatus**	**N**	**Red Shouldered Hawk**
CARDINALIDAE	**Cardinalis**	**cardinalis**	**N**	**Northern Cardinal**
CATHARTIDAE	**Cathartes**	**aura**	**N**	**Turkey Vulture**
COLUMBIDAE	**Zenaida**	**macroura**	**N**	**Mourning Dove**
CORVIDAE	**Amphelocoma**	**coerulescen**	**LT**	**Florida Scrub Jay**
MIMIDAE	**Toxostoma**	**rufum**	**N**	**Brown Thrasher**
MIMIDAE	**Mimus**	**polygottos**	**N**	**Mocking Bird**
MIMIDAE	**Dumetella**	**caroliensis**	**N**	**Grey Cat Bird**
PHASIANIDAE	**Meleagris**	**gallopavo**	**N**	**Wild Turkey**
PICADAE	**Melanerpes**	**carolinus**	**N**	**Red Bellied Woodpecker**
TROGLODYTIDAE	**Archilochus**	**colubris**	**N**	**Carolina Wren**

Appendix F:
Preliminary Herpitile Survey
October 2003, preliminary Herptile list conducted by EEL staff

Family	Genus	Species	Status	Common Name
COLUBRIDAE	**Coluber**	**constrictor priapus**	**N**	**Southern Black Racer**
EMYDIDAE	**Terrapene**	**carolina bauri**	**N**	**Florida Box Turtle**
PHYNOSOMATIDAE	**Sceloporus**	**woodi**	**N**	**Scrub Lizard**
PHOLYCRIDAE	**Anolis**	**c. carolinus**	**N**	**Carolina Anole**

Appendix G:
Preliminary Mammal Survey
July 2003, preliminary mammal list conducted by EEL staff

MAMMALS

Family	Genus	Species	Status	Common Name
CERVIDAE	*Odocoileus*	*virginianus*	N	Whitetail Deer
DASYPODIDAE	*Dasypus*	*novemcinctus*	N	Armidillo
DIDELPHIIDAE	*Didelphis*	*marsupialis*	N	Opposum
LEPORIDAE	*Sylvilagus*	*floridanus*	N	Eastern Cottontail Rabbit
LEPORIDAE	*Sylvilagus*	*palustris*	N	Marsh rabbit
MUSTELIDAE	*Spilogale*	*putorius*	N	Spotted skunk
PROCYONIDAE	*Procyon*	*lotor*	N	Ringtail Raccoon
SCIURIDAE	*sciuru*	*carolinenses*	N	Eastern Grey Squirrel

Appendix H:
Florida Master Site File

FLORIDA DEPARTMENT OF STATE
Sue M. Cobb
Secretary of State
DIVISION OF HISTORICAL RESOURCES

June 5, 2006

Judy Gregoire
Brevard County EEL
Enchanted Forest Sanctuary
444 Columbia Blvd.
Titusville, FL 32780
FAX: 321-264-5190

In response to your inquiry of June 2, 2006, the Florida Master Site File lists one previously recorded archaeological sites and no standing structures in the following parcels of Brevard County:

T21S, R34E, Section 25

In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites or historical structures.**
- **While many of our records relate to historically significant properties, the entry of an archaeological site or an historical structure on the Florida Master Site File does not necessarily mean that the structure is significant.**
- **Since vandalism is common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **As you may know, federal and state laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review. If your project falls under these laws, you should contact the Compliauce Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,
celeste ivory

Celeste Ivory
Archaeological Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone: 850-245-6440, Fax: 850-245-6439
State SunCom: 205-6440
Email: *fmsfile@ dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

North Buck Lake Scrub Sanctuary – DHR Project No. 2006-4523

While a review of the Florida Master Site File indicates that there are no recorded sites within this Sanctuary, our records indicate that a portion of the property falls within a high probability zone for encountering archaeological resources. Nevertheless, we note that this tract is designated for conservation and passive recreation, and there will be no land clearing or construction activities.

South Lake Conservation Area – DHR Project No. 2006-4524

While a review of the Florida Master Site File indicates that there are no recorded sites within this Conservation Area, our records indicate that a portion of the property falls within a high probability zone for encountering archaeological resources. Nevertheless, we note that these tracts are designated for conservation and passive recreation, and there will be no land clearing or construction activities.

In the event that fortuitous finds or unexpected discoveries, such as prehistoric or historic artifacts, including pottery or ceramics, stone tools or metal implements, or other physical remains are encountered at any time within these parcels, the Division of Historical Resources should be contacted.

Lastly, we have enclosed for your use a copy of *Management Procedures for Archaeological and Historic Sites and Properties on State-Owned or Controlled Lands*. This document should be referred to where appropriate in your land management plan, and attached to it.

If you have any questions concerning our comments, please do not hesitate to contact Susan Harp at (850) 245-6333. Thank you for your interest in protecting Florida's historic resources.

Sincerely,

Frederick P. Gaske

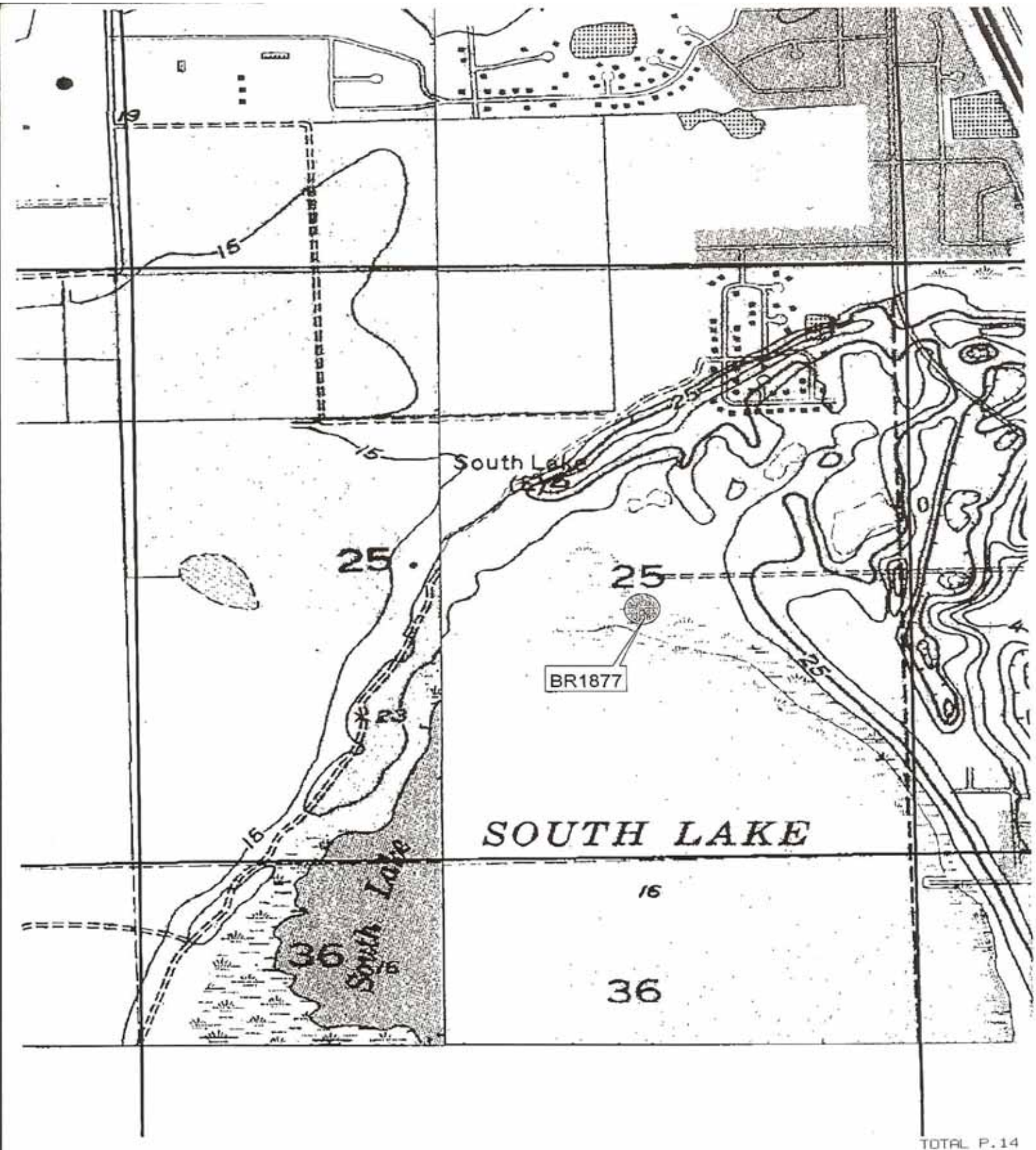
Frederick P. Gaske, Director

Enclosure

CULTURAL RESOURCES REPORT

SITEID	FORMNO	T-R-S	CR	SITENAME	NRLIST	SURVEY	LOCATION	OTHER
BR01877	200311	21S/34E/25	AR	SOUTH LAKE		9660	Map: MIMS	Culture: SJ2 Sitetype: MIDD

1 site(s) evaluated; 1 form(s) evaluated.
Print date: 6/5/2006 9:14:05 AM


South Lake
25
25
BR1877
SOUTH LAKE
16
36
36
South Lake
TOTAL P.14

Appendix I:
Management Procedures for Archeological and Historical Sites and Properties on State-Owned or Controlled Lands

MANAGEMENT PROCEDURES FOR ARCHAEOLOGICAL AND HISTORICAL SITES AND PROPERTIES ON STATE - OWNED OR CONTROLLED LANDS

(revised August, 1995)

A. GENERAL DISCUSSION

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

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

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

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

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

B. STATUTORY AUTHORITY

Chapter 253, Florida Statutes ("State Lands") directs the preparation of "single-use" or "multiple-use" land management plans for all state-owned lands and state-owned sovereignty submerged lands. In this document, 253.034(5), F.S., specifically requires that "all management plans, whether for single-use or multiple-use properties, shall specifically describe how the managing agency plans to identify, locate, protect and preserve, or otherwise use fragile non-renewable resources, such as archaeological and historic sites, as well as other fragile resources..."

Chapter 267, Florida Statutes is the primary historic preservation authority of the state. The importance of protecting and interpreting archaeological and historic sites is recognized in 267.061(1)(a), F.S.:

The rich and unique heritage of historic properties in this state, representing more than 10,000 years of human presence, is an important legacy to be valued and conserved for present and future generations. The destruction of these nonrenewable historic resources will engender a significant loss to the state's quality of life, economy, and cultural environment. It is therefore declared to be state policy to:

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

Responsibilities of the Division of Historical Resources in the Department of State pursuant to 267.031, F.S., include the following:

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

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

1. Each state agency of the executive branch having direct or indirect jurisdiction over a proposed state or state-assisted undertaking shall, in accordance with state policy and prior to the approval of expenditure of any state funds on the undertaking, consider the effect of the undertaking on any historic property that is included in, or eligible for inclusion in, the *National Register of Historic Places*. Each such agency shall afford the division a reasonable opportunity to comment with regard to such an undertaking.

2. Each state agency of the executive branch shall initiate measures in consultation with the division to assure that where, as a result of state action or assistance carried out by such agency, a historic property is to be demolished or substantially altered in a way which adversely affects the character, form, integrity, or other qualities which contribute to [the] historical, architectural, or archaeological value of the property, timely steps are taken to determine that no feasible and prudent alternative to the proposed demolition or alteration exists, and, where no such alternative is determined to exist, to assure that timely steps are taken either to avoid or mitigate the adverse effects, or to undertake an appropriate archaeological salvage excavation or other recovery action to document the property as it existed prior to demolition or alteration.

3. In consultation with the division [of Historical Resources], each state agency of the executive branch shall establish a program to locate, inventory, and evaluate all historic properties under the agency's ownership or control that appear to qualify for the National Register. Each such agency shall exercise caution to assure that any such historic property is not inadvertently transferred, sold, demolished, substantially altered, or allowed to deteriorate significantly.

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

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

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

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

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

C. MANAGEMENT POLICY

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

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

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

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

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

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

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

4. If in the course of management activities, or as a result of development or the permitting of dredge activities (see 403.918(2)(6)a, F.S.), it is determined that valuable historic or archaeological sites will be damaged or destroyed, the Division reserves the right, pursuant to 267.061(1)(b), F.S., to require salvage measures to mitigate the destructive impact of such activities to such sites. Such salvage measures would be accomplished before the Division would grant permission for destruction of the affected site areas. The funding needed to implement salvage measures would be the responsibility of the managing agency planning the site destructive activity. Mitigation of historic structures at a minimum involves the preparation of measured drawings and documentary photographs. Mitigation of archaeological resources involves the excavation, analysis and reporting of the project findings and must be planned to occur sufficiently in advance to avoid project construction delays. If these services are to be contracted by the state agency, the selected consultant will need to obtain an Archaeological Research Permit from the Division of Historical Resources, Bureau of Archaeological Research (see 267.12, F.S. and Rules 1A-32 and 1A-46 F.A.C.).

5. For the near future, excavation of non-endangered (i.e., sites not being lost to erosion or development) archaeological sites is discouraged. There are many endangered sites in Florida (on both private and public lands) in need of excavation because of the threat of development or other factors. Those within state-owned or controlled lands should be left undisturbed for the present - with particular attention devoted to preventing site looting by "treasure hunters". On the

other hand, the archaeological and historic survey of these tracts is encouraged in order to build an inventory of the resources present, and to assess their scientific research potential and historic or architectural significance.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

D. MANAGEMENT IMPLEMENTATION

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

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

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

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

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

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

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

   A. Historic Sites

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

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

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

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

      (5) Specific features including location, number and appearance of:

         (a) Important decorative elements;
         (b) Interior features contributing to the character of the building;

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

B. Archaeological Sites

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

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

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

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

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

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

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

E. ADMINISTERING AGENCY

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

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

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

Appendix J:
Description of the Archeological Site South of the Sanctuary

JUL-26-2006 10:53 P.04

8BR1877_200312

Description: This site is named for its location immediately north of South Lake. 8BR1877 is situated on the edge of a willow marsh leading out to South Lake. Next to an old, fallen tree was evidence of a midden. There, CARL archaeologists observed a St. Johns Check Stamped potsherd and a fragment of turtle bone. A waypoint was taken at this location- N 28.63602°, W 80.87099°. The site appears to be represented by an elevated rise of 1-2 meters, which forms a small peninsula extending out into the marsh. Vegetation in this area includes oak, cabbage palm, citrus, pecan, hackberry, hickory.

Mary Glowacki
CARL Archaeological Program

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Appendix K:
South Lake Conservation Area Fire Management Plan

South Lake Conservation Area Fire Management Plan

As part of the EEL Sanctuary Management Plan, the South Lake Conservation Area (SLCA) Fire Management Plan outlines natural communities within the Conservation Area that respond favorably to the application of fire. The EEL Program is tasked with protecting the rich biological diversity of the SLCA by actively managing acquired land. It is widely recognized that prescribed fire, applied in established frequencies typical of each ecosystem, is an important land management tool to promote biodiversity and reintroduce fire to dependant ecosystems. Prescribed fire also has the added benefit of lowering and maintaining fuel loads, thus mitigating the behavior and effects of wildfires that start in or outside of the Conservation Area.

Utilizing prescribed fire within the SLCA will benefit ecosystems, individual plants and animals that have evolved under the influences of this natural process in Florida. The EEL Program's prescribed fire goals include:

- Restore or preserve fire-adapted communities with the reintroduction of fire
- Maximize biological diversity by the creation and maintenance of a vegetation mosaic
- Manage Threatened and Endangered species
- Provide educational opportunities
- Reduce fire hazards by managing fuels and fire
- Conduct safe prescribed fires
- Actively encourage cooperation between all parties with a vested interest in prescribed fire

The EEL Program Fire Management Manual is a separate document which addresses in detail the overall fire objectives of the EEL Program and contains the burn unit plans necessary to perform prescribed fires. It outlines fire's effects on natural communities including Threatened and Endangered species found within the Sanctuary network and lists equipment needed to perform prescribed fires. This document is a site-specific Fire Management Plan bridging the EEL Program Fire Management Manual and the Unit-specific Burn Prescription. This site-specific plan includes:

- Sanctuary Fire Management Goals
- Burn Unit Descriptions, Fire Regime
- Fire History and Map
- Species of Special Concern
- Archaeological, Cultural and Historic Resources
- Fire Sensitive Areas
- Smoke Management Issues

- Public Notification
- Wildfire Policy
- Cooperation with Other Agencies
- Fireline Maintenance
- Fire Effects Monitoring and Photo point Location

The SLCA has been broken up into burn units that allow the EEL Program to safely conduct prescribed fires and to allow for the natural heterogeneity inherent in more natural fires to be created. These Units were chosen based on existing roads/trails and natural fire barriers.

SLCA Fire-Dependent Ecosystems

The mosaic of wetland and upland communities within the SLCA reflects a combination of differences in soil type, historical fire effects, and anthropogenic influences. The EEL Program will strive to preserve this mosaic by placing the fire-dependent upland communities on specific fire-return intervals, while protecting sensitive wetlands during times of drought. In general, vegetation in the flatwoods and scrub communities has both increased in density given the reduced fire frequency in the Conservation Area. Sand pines have invaded the surrounding scrub and flatwoods ecosystems in the absence of fire, resulting in the potential for high intensity wildfire.

Establishment of a prescribed fire regime requires careful planning because of the wildland-urban interface at SLCA. Smoke management and public safety issues impact the ability to safely burn. In these portions of the Conservation Area, mechanical fuel reduction efforts should take place initially to prepare the site for future control burning and to mitigate the threat of wildfire spreading into the neighboring subdivision. A recent intense wildfire within the SLCA occurring in March 2006 emphasizes the ongoing need to manage wildfire on the site. The wildfire burned nearly 31 acres and came within 300 feet of homes before containment by Florida Division of Forestry (FDOF). Wildfire mitigation work by the FDOF along the perimeter of the conservation area was completed in the past, and the EEL program should continue to maintain firebreaks to provide an adequate buffer between the vegetation and adjacent homes.

Scrubby Flatwoods

The 86+/- acres of flatwoods found on the western portion of the South Lake Conservation Area is essentially a mix of pine flatwoods and scrub communities. Scrubby flatwoods represent an ecotone between flatwoods and scrub habitats. Since the ecotone covers large areas in parts of Florida, it is recognized as a separate association. The pine canopy is open with scattered pines and a shrub understory ranging from sparse to thick. Scrubby flatwoods occur on flat, well drained terrain that normally does not flood or hold standing water for very long following significant rain events. Soils consist of several feet of sand that tends to have open patches of bare soil. The upper meter or so of soil is well drained and the water table, although not as deep as in the sandhills or

scrub, is rarely near the surface. Typical vegetation includes longleaf pine, slash pine, sand live oak, Chapman's oak, myrtle oak, scrub oak, saw palmetto, staggerbush, wiregrass, dwarf blueberry, gopher apple, rusty lyonia, tarflower, golden-aster, lichens, silkbay, garberia, huckleberry, goldenrod, runner oak, pinweeds, and frostweed (FNAI, 1990).

The SLCA scrubby flatwoods is a pyrogenic ecosystem maintained naturally by moderate intensity fire, with a more frequent return interval than scrub given the near continuous nature of fuels. Fire frequently passed through scrubby flatwoods every 5-15 years in a spotty manner, leaving a mosaic of lightly burned, intensely burned, and unburned areas, though strong winds during drought conditions appreciably increase burn coverage and intensity. A moderate-intensity fire occurring during normal rainfall conditions on a return interval of 5-8 years will insure a burn mosaic mimicking naturally occurring fire, though even hot fires do little to alter the vegetation pattern because scrub oaks and most shrubs simply resprout following the fire, rapidly restoring the community to its preburn composition. Fire exclusion in this association results in the subsequent invasion of sand pine and various scrub shrubs.

Scrub

The 50+/- acre scrub ecosystem that exists on the SLCA's peninsular coastal sand ridge is found on the relic dune system associated with the most recent Pleistocene shoreline. Soils consist of very well drained, deep, white sands that occur on sand ridges along former shorelines. The soils are nutrient-poor and relatively infertile, yet oak scrub has developed adaptations to the stressful environment. This scrub community is characterized by an open to closed canopy of sand pines and longleaf pine with areas of scrub oak, shrubs, and saw palmetto. However, observations in this vegetative-type community indicate that sand pines and some hardwood species may eventually dominate upland habitats when fire is suppressed, especially on isolated, narrow sand ridges. Approximately 60 percent of the SLCA scrub ridge burned in the March 2006 wildfire, causing considerable mortality in the sand pine while beneficially reducing vegetation density. The remaining unburned portion should be placed on a 5-10 year fire return interval in an effort to maintain a more open scrub structure.

The scrub ridge in the SLCA is a pyrogenic ecosystem maintained by relatively high intensity fire, which naturally occurs after a fire-free period of fuel accumulation. Sand pines are killed outright by fire, with regeneration and aggressive recruitment occurring following fire-induced seed release from closed cones. Scrub oak and most shrubs simply resprout following the fire, and a few species, notably rosemary, regenerate from seeds stored in the soil.

In times of normal rainfall, the basin swamp, baygall, and depression marsh ecosystems inside the SLCA resist carrying fire and provide additional natural firebreaks. Under ideal conditions, fire will burn naturally into the edges of these areas where canopy shading and moist ground cover would kill the fire. This would establish a well-defined natural ecotone between the habitats. Hydrological alteration coupled with fire suppression

resulted in hardwood encroachment within SLCA wetland communities. However, during the March 2006 wildfire, even wetland communities were burned and hardwoods seems to have been killed.

Historically, scrub habitat has a natural fire return interval that can extend from 20 to 80 years, especially on the high end in areas that are fragmented or isolated by natural or man-made breaks. Optimally, scrub-jay oak scrub habitat should be burned on an interval of 5-10 years. This frequent burning provides the short shrubs and the open spaces scrub-jays need in order to survive. Schmalzer and Adrian (2001), and Schmalzer et al. (2003), indicated that long-unburned sites grow rapidly after the first fire and/or mechanical treatment, thus the fire return interval is shorter than under natural conditions.

Animals that utilize the scrub ecosystem and scrubby pine flatwoods association include the Florida scrub-jay, gopher tortoise and the Eastern indigo snake. Maintaining these areas at the SLCA with prescribed fire will encourage a healthy habitat for expanding the gopher tortoise population and encourage scrub-jay population re-establishment in areas with a historic occurrence. The Florida scrub-jay is ranked as Threatened by the US Fish and Wildlife Service and by the Florida Fish and Wildlife Conservation Comission. In June of 2006, the Florida Fish and Wildlife Conservation Commission changed the status of the gopher tortoise from Species of Special Concern to Threatened. This change will take effect in 2007.

SLCA Scrub Ridge Burn Unit Descriptions, Fire Regimes

Figure A shows the location of each fire unit at the SLCA

Unit 1, 41 acres
In the southeastern section of the SLCA, this scrub ecosystem is an irregular shaped rectangle with Dairy Road anchoring the southern boundary and a residential subdivision bordering portions of the north boundary. Much of the unit burned in the high intensity March 2006 wildfire. The remaining unburned vegetation in the unit consists mostly of overgrown sand pine scrub with hardwood and exotic plant encroachment from the absence of fire. There are several small, isolated basin swamps and depression marshes inside the unit. Vegetation within the unit should undergo reduction in the future, preparing it for prescribed burning to re-establish a natural fire regime. Soil disturbance will be minimal in wetland areas. A high-intensity backing/flanking fire is desired in this SLCA burn unit to mimic naturally occurring catastrophic or stand-replacing fires facilitated by severe burning conditions historically found in scrub.

Unit 2, 33 acres
The southwestern section consists mainly of scrubby flatwoods. Located just west of Unit 1, burn Unit 2 is an irregular shaped rectangle oriented in an east to west fashion with the eastern boundary shared with Unit 1, the northern boundary shared with Unit 3, and the

Figure A: South Lake Conservation Area Burn Units

0 500 1,000 2,000 Feet

Legend

Sanctuary Boundary

Fire Units

Map created on 12/28/2006 for South Lake Conservation Area Management Plan .

Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

N
W E
S

southern and western boundaries bordered by Dairy Road. Vegetation in the unit consists of scattered pine with an understory of overhead scrubby flatwoods with some hardwood encroachment. A small eastern portion of the unit was burned in the March 2006 wildfire. The remaining unburned vegetation should be mechanically reduced to prepare the heavy fuels load for safely carrying fire to establish a desired 4-7 year fire return interval. A minimum 15-foot wide strip of vegetation along the Dairy Road portion of the perimeter of the unit will need to be cleared prior to burning to provide an adequate fire break with Dairy Road and the heavily wooded areas to the south (downwind) to facilitate safely applying prescribed fire to the unit.

Unit 3, 50 acres
This is the largest unit, a nearly square rectangle located on the northwest part of the SLCA, just north of and sharing a boundary with Unit 2 on the south side, a residential subdivision on the west and north sides, and a drainage canal on the east and south sides of the unit. Vegetation in the predominantly scrubby flatwoods portions of the unit consist of scattered to thick pine with an overhead scrub understory. There is nearly 10 acres of mesic hammock in the north-central portion of the unit. The fire history of the unit is unknown, but based on observations of the thick duff layer and lack of burn scars, large scale fire has not occurred in the unit in the past 25 years. Mechanical reduction to decrease the vegetation height prior to burning is needed to facilitate carrying fire into the unit and establish the desired 5-8 year fire return interval. Existing firelines will need to be plowed prior to burning.

Unit 4, 20 acres
This unit is a rectangle bordered on the west side by a drainage canal (separating it from unit 3), on the north and east sides by a residential subdivision, and anchored on the south boundary by Unit 2. Unit 4 is isolated from the bulk of the SLCA's scrubby flatwoods by the drainage canal. The vegetation in the unit consists mostly of scattered to thick pine with significant hardwood and exotic plant encroachment from the absence of fire or a defined ecotone separating it from the adjacent residential subdivision. This unit will need to be mechanically reduced along the perimeter to prepare for wildfire or prescribed fire. Given the heavy fuel loads in the unit and the close proximity to the residential subdivision on the longest two sides making smoke management difficult, careful consideration will be needed to apply prescribed fire to this unit. This unit will only be safely burned with a higher degree of mechanical treatment, as well as removal of some of the fuel load, and after the down wind units have been burned. There are no documented occurrences of wildfire in Unit 4.

Unit 5, 11 acres
The northeastern unit in the SLCA is a north-south oriented rectangle, or a scrubby "finger" extending northward into the residential subdivision, with homes surrounding the unit on three sides. The vegetation in the unit consists of overhead sandhill scrub with a scattered pine overstory and dense windfall of dead pine from the active hurricane seasons of 2004 and 2005. A 30' wide strip of perimeter vegetation inside the unit should be mechanically treated to provide a larger firebreak between the unit and the residential areas in the event of wildfire. Given the orientation of Unit 5 in relation to the

nearby subdivision. Given the heavy fuel loads in the unit and the close proximity to the residential subdivision on the longest two sides making smoke management difficult, careful consideration will be needed to apply prescribed fire to this unit. This unit will only be safely burned with a higher degree of mechanical treatment, as well as removal of some of the fuel load, and after the down wind units have been burned. There are no documented occurrences of wildfire in Unit 5.

SLCA-Specific Fire Issues

Fire History

There is no documentation of prescribe fire occurring in any of the SLCA Burn Units 1. A wildfire occurred in most of Unit 1 and a small portion of Unit 2 in March 2006.

Protected species

The Florida scrub-jay and the Eastern indigo snake are not currently documented on the property. All fire management activities within the SLCA will be based upon the recommendations from the EEL Program Fire Manual, enhancing the habitat for the long-term survival of these species on-site.

Archaeological, Cultural and Historic Resources

No historic resources have been discovered in the SLCA.

Fire Sensitive Areas

There are several small/isolated fire sensitive wetland areas inside burn Unit 1, and fire vehicles should avoid driving on the interior edges due to the potential impact on scattered gopher tortoise burrows.

Smoke Management Issues

Due to the close proximity of Dairy Road along the entire south boundary and Carpenter Road and Interstate 95 just to the east, all of the SLCA units will be burned with a N/NE wind component, avoiding any wind direction with a westerly component that could impact the four-lane highway during or post-burn.

Public Notification

In addition to the general list in the EEL Fire Manual, these additional contacts need to be notified as part of the fire planning process:
Brevard County Fire Rescue Department (321) 633-2056
Titusville Sheriff’s office (321) 264-5201
Florida Power & Light
Subdivision Homeowners Association

Wildfire Policy

The first responders to a wildfire within the SLCA will likely be from Brevard County Fire rescue. They will contact the FDOF and the EEL Program when they are responding to the wildfire. The EEL Program will respond to the wildfire primarily to provide access and local knowledge of the site and will assist with suppression efforts within the standard IC system as EEL equipment and trained staff can safely allow.

Cooperation with Other Agencies

As with other EEL sites, Brevard County Fire/Rescue and FDOF are involved with prescribed fire planning for the SLCA. Other partners may include The Nature Conservancy Fire Strike Team, Merritt Island Nation Wildlife Refuge Fire Operations and the Sebastian River Preserve SRA Fire Team.

Fireline Maintenance

The firebreaks for the SLCA are displayed in the Burn Unit maps included in the Fire Management Plan. All firebreaks should be inspected throughout the year and mowed regularly, then disked or plowed in advance of prescribed fire activity or when needed for the line to hold against wildfire. In readying the SLCA for fire, the perimeter firebreaks/hiking trails will be cleared of vegetation, down to mineral soil, to a minimum width of 12 feet. Mechanical reduction of fuels will also be conducted in the burn units that have not previously had fuels treatment.

Fire Effects monitoring and Photo point Location

Photo points will be maintained by the EEL Program staff as a means to monitor both short-term and long-term post-fire effects. These photo points, placed in each distinct community, will monitor vegetative response to fire as well as other management practices. The Fire Manager will photo-document pre and post burn fuels to determine the impact of fire intensity and frequency on vegetation structure and fuel loads.

References:

Schmalzer, P. A. and F. W. Adrian. 2001. Scrub restoration on Kennedy Space Center/Merritt Island National Wildlife Refuge, 1992-2000. Pp. 17-20 *in* D. Zattau. (ed.). Proceedings of the Florida Scrub Symposium 2001. U.S. Fish and Wildlife Service. Jacksonville, Florida. 63 pp.

Schmalzer, P.A. T. E. Foster, and F.W. Adrian. 2003. Responses of long-unburned scrub on the Merritt Island/Cape Canaveral barrier island complex to cutting and burning. In: Proceedings of the Second International Wildland Fire Ecology and Fire Management Congress, American Meteorological Society, Published on CDROM and at http://www.ametsoc.org.

Appendix L:
South Lake Conservation Area Easements

RIGHT-OF-WAY DEPARTMENT
HIGHWAY DEVELOPMENT

Legal Description Provided by
Brevard County Engineering Dept.
Legal Description Prepared By: [illegible]

EASEMENT

THIS INDENTURE, made this 27 day of September A.D. 19 85 between Guilford Realty, Co.

as the first party, and BREVARD COUNTY, as the second party, for the use and benefit of BREVARD COUNTY, Florida.

WITNESSETH: That the first party, in consideration of one dollar and other valuable considerations paid, the receipt of which is hereby acknowledged, hereby grants unto the second party, its successors and assigns, a perpetual easement commencing on the above date, for the purpose of constructing and maintaining a utility & ingress/egress area and other allied uses pertaining thereto with full right of ingress and egress for the purposes herein stated.

The land affected by the granting of this easement is located in Section 25, Township 21 South, Range 34 East, County of Brevard, State of Florida, and is more particularly described as follows:

A strip of land being: The south 30 feet of the north 55 feet of the NE 1/4 of the NE 1/4 (except the W2/3) as described in ORB 498, Page 214 of the Public Records of Brevard County, Florida

In the event of abandonment by Brevard County of the above described property as a Utility & Ingress/Egress, the easement rights herein granted shall cease and revert to the first party or assigns, free and clear of any title, right, or interest of the second party.

TO HAVE AND TO HOLD said easement unto the County of Brevard and to its successors and assigns.

The first party does hereby covenant with the second party that it is lawfully seized and possessed of the lands above described and that it has a good and lawful right to convey it or any part thereof.

IN WITNESS WHEREOF, the first party has caused this instrument to be executed in its name by its President and attested to by its Secretary with the corporate seal hereto affixed, this, the day and year first above written.

GUILFORD REALTY, CO.

Signed, Sealed and delivered in the presence of:

Witness

Witness

By: [signature] (SEAL) .President

(SEAL)

[signature] (SEAL) .Secretary

(SEAL)

STATE OF Florida
COUNTY OF Dade

I hereby certify, that on this day personally appeared before me, an officer duly authorized to administer oaths and take acknowledgements for Douglas D. Batchelor and Samuel A. Brodnax, Jr. President and Secretary respectively to me well known to be the first party described herein and who executed the foregoing instrument, and acknowledged before me that same was executed freely and voluntarily for the purpose therein expressed.

WITNESS my hand and official seal at Miami, COUNTY of Dade, State of Florida this 24th day of September, A.D. 19 85.

[signature]

Notary Public, State of Florida

(Notary Seal)

My Commission expires August 29, 1988

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Legal Description Provided by
Brevard County Engineering Dept.
Legal Form Approved By: MA

RIGHT-OF-WAY DEPARTMENT
HIGHWAY DEVELOPMENT

EASEMENT

THIS INDENTURE, made this 3rd day of January A.D. 1986
between Guilford Realty, Co.
169 E. Flagler Street, 13th Floor, Miami, FL 33131
as the first party, and BREVARD COUNTY, as the second party, for the use and benefit of BREVARD COUNTY, Florida.

WITNESSETH: That the first party, in consideration of one dollar and other valuable considerations paid, the receipt of which is hereby acknowledged, hereby grants unto the second party, its successors and assigns, a perpetual easement commencing on the above date, for the purpose of constructing and maintaining a Drainage Maintenance Easement and other allied uses pertaining thereto with full right of ingress and egress for the purposes herein stated.

The land affected by the granting of this easement is located in Section 25, Township 21 South, Range 34 East, County of Brevard, State of Florida, and is more particularly described as follows:

See Exhibit "A"

9.00
1.50

In the event of abandonment by Brevard County of the above described property as a Drainage Maintenance Easement, the easement rights herein granted shall cease and revert to the first party or assigns, free and clear of any title, right, or interest of the second party.

TO HAVE AND TO HOLD said easement unto the County of Brevard and to its successors and assigns.

The first party does hereby convenant with the second party that it is lawfully seized and possessed of the lands above described and that it has a good and lawful right to convey it or any party thereof.

IN WITNESS WHEREOF, the first party has caused these presents to be duly executed in it's name by it's President and attested by it's Secretary with it's corporate seal hereto affixed.
this, the day and year first above written.

Signed, Sealed, and delivered in the presence of:

GUILFORD REALTY CO.

Bettye F. Abram WITNESS
Wanda B Coslett WITNESS

By: Douglas D. Batchelor, President (SEAL)
By: Samuel A. Beadnax, Jr., Secretary (SEAL)

STATE OF Florida

COUNTY OF Dade

I hereby certify, that on this day personally appeared before me, an officer duly authorized to administer oaths and take acknowledgements Douglas D. Batchelor, President and Samuel A. Beadnax Jr. Secretary to me well known to be the first party described herein and who executed the foregoing instrument, and acknowledged before me that same was executed freely and voluntarily for the purpose therein expressed.

WITNESS my hand and official seal at Miami, COUNTY of Dade, State of Florida this 3rd day of January, A. D. 19 86.

(Notary Seal)

Wanda B Coslett
Notary Public, State of Florida

My Commission expires

NOTARY PUBLIC STATE OF FLORIDA AT LARGE
MY COMMISSION EXPIRES AUG. 29, 1988

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Appendix M:
Letter from Billy Osborne Road and Bridge Director

BREVARD County
BOARD OF COUNTY COMMISSIONERS

INTER-OFFICE MEMORANDUM

TO: Xavier De Seguin Des Hons
North Region Assistant Manager, EEL Program

FROM: Billy Osborne, Director, Road & Bridge Department

SUBJ: **LANCASTER LANE**

DATE: February 5, 2007

This is to advise you that Lancaster Lane, between Ford Road and Lantern Park subdivision, is an unimproved, unmaintained County right-of-way. The road is gated to prevent access from Ford Road and it is also gated from the western side of the subdivision to prevent any access. However, Brevard County Road & Bridge staff does enter the gate from the Ford Road side to maintain a drainage ditch which runs along the north side of the Lancaster Lane right-of-way. This is done every one to two years, depending on the need.

If additional information is required, please advise.

BO/mml

Appendix N:
South Lake Conservation Area Public Comment.

ENVIRONMENTALLY ENDANGERED LANDS PROGRAM
South Lake Conservation Area
Conceptual Public Access Plan Review Public Meeting
September 27, 2006
Minutes

CALL TO ORDER:

Judy Gregoire, North Region Land Manager called the meeting to order at 6:04 PM by welcoming the group and explaining that the purpose of the meeting was to present and receive public input on the conceptual Public Access Plan for the EEL Program's South Lake Conservation Area.

PRESENTATION:

Judy provided overview information on the EEL Program and reviewed the Program's Mission Statement which is *"To Protect and Preserve Biodiversity Through Responsible Stewardship of Brevard County's Natural Resources."*

She discussed the Program's passive recreation and education opportunities and explained the importance of active volunteers and community involvement, while providing additional information on prescribed fire, exotic control, native plantings, public access, and the Management Plan approval process. The existing conceptual plan will evolve over time and the final public access plan will be incorporated into the sanctuary's final Management Plan.

The South Lake Conservation Area is a 155 acre sanctuary that was acquired by the EEL Program in 1999 as a donation for Florida Scrub-Jay mitigation. Mitigation requirements mandate that the historic scrub ecosystems of the property be restored to, and maintained in, an open scrub habitat to provide a viable landscape which can support Florida Scrub-Jays and other scrub species including gopher tortoises, indigo snakes and bald eagles. Existing ecosystems include scrub, scrubby flatwoods, with some wetlands and hammocks.

Judy explained that EEL staff members previously visited the sanctuary and prepared a Recreation Assessment which identified opportunities for passive recreation and education on the site. The Conceptual Public Access Plan was derived from this assessment and includes:

- Parking area on Lancaster Road (west)
- Walk through gate on Lancaster Road (east)
- 1.67 miles of hiking and biking trails
- Core Conservation Area
- Educational interpretive signs
- Potential future connection(s) with the Salt Lake Wildlife Management Area and/or the Greater Titusville Eco-Heritage Trail

Other upcoming goals for the South Lake Conservation Area include:

- Guided Hikes
- Volunteer Workdays
- Prescribed Fire

At the end of the presentation, Judy explained that there would be a short break, and that public comment was welcome when the break was over.

PUBLIC COMMENT:

Several members of the audience asked questions and provided comments during the meeting. The following was noted:

- The current public access plan is conceptual. Input from several sources will be received and incorporated into the plan as it goes through the approval process.
- Public Access plans for this sanctuary include hiking, bicycling, and wildlife observation.
- There will be no facilities on the site. Man-made objects are expected to include educational kiosks and trail side interpretive signs.
- Gates will be placed on Lancaster Road which should prohibit access by motorized vehicles, but allow access for hikers, and bicycles.
- There are no plans for a gate on Carpenter Road.
- Concerns were expressed related to the possible dangers of fire. The following information was provided in response to these concerns:
    - The EEL Program has recently hired a Fire Manager who is experienced and certified in the implementation of prescribed fire.
    - Factors including weather, wind speed and direction, smoke management, type of location, and type of habitat are all considered in the planning of a prescribed fire.
    - Portions of the site will be burned in units on a rotating basis for ecological benefit and to reduce fuel loads.
    - Before the implementation of prescribed fire, much of the land will require mechanical vegetation reduction and fire line maintenance to manage the current fuel load.
    - A reverse 911 call system will be used to notify landowners in the area in advance of a prescribed fire.
    - The EEL Program will be hosting a Division of Forestry Program called *"Fire Wise"* in the near future to educate citizens about living next to a conservation area.
- There are plans for a guided hike specifically for neighbors of the South Lake Conservation Area in the future.
- Sanctuary neighbors are a great resource for the Program. Judy provided her business cards to the group asked anyone with questions or concerns to contact her at the Enchanted Forest.

ADJOURNED:

The meeting was adjourned at 7:38 PM.

ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
RECREATION AND EDUCATION ADVISORY COMMITTEE
October 12, 2006
Attendance List

RECREATION AND EDUCATION ADVISORY COMMITTEE MEMBERS
Bob Champaigne
Murray Hann
Karen Hill
Mark Nathan
Eve Owens
Beverly Pinyerd
Paul Saia
Dorn Whitmore

SUB-COMMITTEE MEMBERS
Paul Schmalzer, Selection and Management Committee

EEL PROGRAM STAFF
Laura Clark
Xavier de Seguin des Hons
Judy Gregoire
Brad Manley

GUESTS
Susan Gosselin, Brevard County Natural Resources Management Office
William Riley, Citizen

ENVIRONMENTALLY ENDANGERED LANDS PROGRAM
RECREATION AND EDUCATION ADVISORY COMMITTEE
October 12, 2006
Meeting Minutes
(Approved February 8th 2007)

CALL TO ORDER:

Murray Hann called the meeting to order at 6:07 PM.

PUBLIC COMMENT:

None.

MINUTES:

The August 10, 2006 minutes Recreation and Education Advisory (REAC) Committee were presented for approval.

Murray asked for comments to the August minutes.

MOTION ONE:
Dorn Whitmore moved to approve the August 10, 2006 minutes as presented.
Karen Hill seconded the motion.
The motion carried unanimously.

ADMINISTRATIVE REVIEW:
The Administrative Review was reviewed.

OLD BUSINESS:

Status update on past REAC Motions
Brad provided a review of past motions made by the Committee, along with an update on each item.

Additional Discussion

Concerns were expressed regarding feral hogs on properties in the South Region. Clarification was provided that these hogs are considered undesirable on EEL Program properties and that staff was working with the Parks and Recreation Department to develop a feral hog policy.

Clarification was also provided that while firebreaks can sometimes serve as trails, not all firebreaks are suitable for trail use.

NEW BUSINESS:

Election of Chairman and Vice-Chairman
Officers of the REAC committee serve a one-year term. The group discussed potential candidates for the coming year.

MOTION TWO:
Eve Owens moved to nominate Murray Hann as Chairman for the 2006-2007 term.
Paul Saia seconded the motion.
The motion carried unanimously.

MOTION THREE:
Dorn Whitmore nominated Bob Champaign as Vice-Chairman for the 2006-2007 term.
Eve Owens seconded the motion.
The motion carried unanimously.

North Region Sanctuaries Overview

Judy Gregoire, Land Manager provided an overview of sanctuaries in the North Region and explained that she would be reviewing an Access Plan for the South Lake Conservation Area (SCLA) and Public Access Site Assessments for the TICO Scrub and Indian Mound Station Sanctuaries.

South Lake Conservation Area

Judy reviewed the South Lake Conservation Area (SLCA) Proposed Public Access Plan. This 155± acre site in northern Titusville was acquired by the EEL Program in 1999 and consists mainly of scrub and scrubby flatwoods with several depression marshes. The site is north of Dairy Road, and west of Carpenter Road, with adjacent residential properties. Because the site is a Florida Scrub-jay mitigation donation, US. Fish and Wildlife Service reviews all management plans, including public access. There has been some concern expressed by neighbors about the possibility of increased traffic, crime and loss of privacy; for these reasons, the advertised public trail head with parking will be located at the opposite side of the site, and trails will be routed away from the homes. Neighbors were invited to attend a public stakeholder meeting held on September 27, 2006. The neighbors that attended seemed to be satisfied with the plan.

Protected species that may inhabit this site once habitat restoration has been completed include: Gopher tortoises, Indigo Snakes, Scrub-Jays and Bald eagles.

Components of the Public Access Plan include:
Parking area on Lancaster Road (west)
Walk through gate on Lancaster Road (east)
1.67 miles of hiking and biking trails
Core Conservation Area
Educational interpretive signs
Potential future connection(s) with the Salt Lake Wildlife Management area and/or the Greater Titusville Eco-Heritage Trail.

Other upcoming goals for the South Lake Conservation Area include:
Guided Hikes
Volunteer Workdays
Exotic plant species removal
Prescribed Fire
Mechanical vegetation reduction
Fire line maintenance
Prescribed fire implemented in various burn units

MOTION FOUR:
Eve Owens moved to support the South Lake Conservation Area Public Access Plan as presented.
Karen Hill seconded the motion.
The motion carried unanimously.

Indian Mound Station Sanctuary – Review of Public Access Site Assessment

The Indian Mound Station Sanctuary was acquired by the EEL Program in 2006. It is within the Brevard Coastal Scrub Ecosystem Project boundary and is included in a Florida Communities Trust grant application. Public access plans for this 85-acre site, which is located east of I-95 and south of Holder Park in Titusville, are contingent on the acquisition of additional property that is planned to the north of the Sanctuary.

Natural communities on this site include: dry prairie, floodplain marsh and floodplain swamp, hydric hammock, scrub, scrubby flatwoods, upland mixed forest, wet prairie and xeric hammock.

Protected species that may inhabit this site once habitat restoration has been completed include: Gopher tortoises, Indigo Snakes, Scrub-Jays and Bald eagles.

Historical elements of this site include a documented Indian Burial Mound (8 BR 9) and the St. Johns and Indian River Railway/Tramway (8 BR 1914).

Plans to restore and provide protection for the mound were discussed. These plans will be reviewed by a Florida State Archeologist prior to implementation.

The Public Access Plan, when developed, will include:
Complete mound restoration plan and secure mound from further desecration
Parking area at Holder Park
Hiking along existing trails throughout both parcels
Interpretive signs including information on both the biological and historical features of the site

Other upcoming goals for the Indian Mound Station Sanctuary include:
Guided hikes
Site security
EEL Program staff workdays
Prescribed Fire

MOTION FIVE:
Karen Hill moved to support a delay consideration of a Public Access Plan for the Indian Mound Station Sanctuary until restorations of the Indian Mound and sanctuary habitat are complete.
Bob Champaigne seconded the motion.
The motion carried unanimously.

TICO Scrub Sanctuary – Review of Public Access Site Assessment

Judy provided information on 3 parcels totaling 52± acres along Grissom Parkway near TICO Airport which were acquired by the EEL Program in 1994.

Natural communities include: floodplain swamp, scrub, and scrubby flatwoods.

No recreation plan is proposed at this time due to the size and location of the three parcels. Any recreation plan will be dependent upon the acquisition of the additional parcels.

Upcoming goals for the TICO Scrub Sanctuary include mechanical vegetation reduction and prescribed fire implementation in various burn units.

MOTION SIX

Eve Owens moved to support a delay consideration of a public access plan for the TICO Scrub Sanctuary until additional properties in the adjacent area could be acquired.

Beverly Pinyerd seconded the motion.

The motion carried unanimously.

Discussion of upcoming Proposed Public Access Plans and Committee Schedule

Brad provided a brief overview of the status of EEL Program public access assessment plans and an explanation of the anticipated time that would be required before the plans could be presented to the REAC Committee for their input.

It was determined that staff would convene the next meeting when information was ready for review.

Public Comment

William Riley spoke of his concerns related to public access to EEL Program in the South Region.

ADJOURNED:

The meeting was adjourned at 7:50 PM.

SUMMARY OF MEETING MOTIONS:

- Motion to approve the August 10, 2006 minutes.
- Motion to elect Murray Hann as Chairman for the 2006-2007 term.
- Motion to elect Bob Champaigne as Vice-Chairman for the 2006-2007 term.
- Motion to support the South Lake Conservation Area Public Access plan as presented.
- Motion to support delay in considering a Public Access Plan for the Indian Mound Station Sanctuary until the mound and habitat restorations could be completed.
- Motion to support delay in considering a Public Access Plan for the TICO Scrub Sanctuary until additional acquisition can be completed.

From: johnide@ekit.com [mailto:johnide@ekit.com]
Sent: Sunday, February 25, 2007 8:25 AM
To: jgregoire@brevardparks.com
Subject: South Lakes Conservation Area Management Plan

I think the natural beauty of our part of Florida is its best asset. I am glad we are conserving some areas at this time of rapid development and conversion of green spaces into developed areas.
I am a frequent user of public lands in our state where I usually hike or bike. I believe that the management of this property will be well-served by adopting this proposed plan.
I look forward to viiting the South Lakes Conservation Area in the near future.

Thank you for the opportunity to comment on this plan.

Sincerely,

John Ide
215 Circle Dr. #30
Cape Canaveral FL 32920

From: Zeke [mailto:zps@cfl.rr.com]
Sent: Sunday, February 25, 2007 8:42 AM
To: jgregoire@brevardparks.com
Subject: South Lake Conservation Area

Dear Ms. Gregoire,

I am writing to you in response to the Land Management Plan for the South Lake Conservation Area. I have reviewed the plan online, and I would like to respectfully request you reconsider the East neighborhood access point located off Lancaster Ln. My residence, located at 1650 West Carriage Dr., is adjacent to the planned neighborhood access point. In fact, my bedroom window is a mere 20 feet from the road where the access point is located.

Where I can see how the idea of having a neighborhood access point may look good on paper, the reality of it is that it will be a nightmare for residents located close to the access point. In spite of it being designed as a “neighborhood” access, cars will come from other areas and park along the short (~50’) paved road adjacent our homes to access the area. In addition to that, potentially hundreds of residents will be continually passing by our residences on their way in and out of the area, totally eliminating the privacy we sought when purchasing our homes in the back of a neighborhood backing up to the woods.

Another important point to consider is the fact that the planned access point will lead visitors directly to the fire lanes located behind the residences abutting the

conservation area. This will lead hikers/visitor to walk these lanes instead of the planned trails, which has them looking into the backyards of all the neighbors of the area.

One last, and perhaps the most important concern, is with visitors accessing the area at night. In spite of whatever efforts may be made to control access to the area during daylight hours only, if the access is available 24 hours a day, folks will use it. As such, I will be hearing voices, talking, car doors closing, etc., all night long, and all within a few feet of my bedroom. Prior to the area being gated off and closed, it was a popular area for kids to go drink and party. If you leave the access open, it will happen again. And where there is drinking, there will be smoking and fires.

In closing, I plead with you and the EEL team to reconsider the planned neighborhood access point. The pain it will cause all of the conservation area's neighbors far outweighs any potential gain associated with not having to drive less than two miles to access it off of hall road. Please, please, don't do it!

Respectfully,

Z.P. Shaw

From: Judy Gregoire [mailto:jgregoire@brevardparks.com]
Sent: Thursday, March 15, 2007 12:45 PM
To: 'Zeke'
Subject: RE: South Lake Conservation Area

Dear Z. P. Shaw,

Thank you for taking the time to review the South Lake Conservation Area (SLCA) Draft Management Plan. Your written comments are appreciated and will be taken into consideration for the final Management Plan. The draft plan is still available for Public Review until March 31, 2007. After that time, the updated Management Plan will go before the EEL Program Selection and Management Committee (SMC) for a recommendation to go to the Brevard County Board of County Commissioners (BoCC) for approval. Both the SMC meeting and the BoCC meeting will be public meetings with opportunities for public comment. Please let me know if you would like to be made aware of these dates of these meetings when they are scheduled.

As for the history of the management plan, and specifically the history of the recreational aspects of the plan, a Public Meeting was held on September 27, 2006 to review the Conceptual Public Access Plan. I sent an invitation to all Sanctuary neighbors and was disappointed by the low turnout of concerned citizens. It is my ultimate goal to work closely with Sanctuary neighbors to balance the land management and public access aspects of all EEL Program North Region Sanctuaries. A second Public Meeting was held on October 12, 2006 at which the EEL Program Recreation and Education Advisory Committee (REAC) made a motion to recommend the Public Access Plan that is currently in the draft management plan.

To more specifically address your concerns, the walkthrough gate that is proposed for the east end of Lancaster Rd. will not be advertised to the general public, will be posted with "No Parking" signs, and will truly be intended only for Lantern Park neighbors to gain legal walking or biking access to the Sanctuary. After talking with the EEL Program Public Access Coordinator and Education Specialist, we agree that the Public Access Plan should encourage convenient access for subdivision neighbors. I'm sure that many neighbors are currently using the site by walking or biking to the Sanctuary, and the EEL Program wants to continue to encourage that use after the Sanctuary is officially open to the general public. We believe that this benefit is significant and do not want to ask neighbors to have to drive to an access point.

I would invite you to visit the Dicerandra Scrub Sanctuary (DSS) on Melissa Dr. in Titusville, where an almost identical walk through situation has worked successfully for the last several years. The access gate is at the end of a neighborhood road with homes located at a very similar proximity as your home is to the SLCA gate. Parking is allowed at this EEL Program Sanctuary access gate, and we have not had any concerns or problems reported by our neighbors at that location. Please let me know if you would like more information about this Sanctuary.

As for your concerns about inappropriate and after hours uses at the Sanctuary, I have many of the same concerns. EEL Program staff will work to clearly label trails and fire breaks, and an educational kiosk will inform visitors of appropriate uses throughout the site. Public access will be limited to daylight hours and will not be encouraged on the fire line that runs behind the homes in your neighborhood. As you can see in the Public Access Plan, all trails are located to the interior of the Sanctuary. Once again, a similar scenario exists at DSS and we have not had any concerns from neighbors about after hours use or inappropriate activities. Unfortunately, many of your concerns will exist regardless of whether the EEL Program allows public access at the gate adjacent to your home. I hope that you will contact the Brevard County Sherriff's Office when you observe illegal activities on the site. The EEL Program relies on citizen's to assist with reporting suspicious activities, and these reports in turn reduce future problems. I believe that clearly posted access can also help to reduce illegal uses on the site because the presence of Sanctuary neighbors and visitors on the site will discourage inappropriate activities.

Once again, your comments will be taken into consideration with all other written public comments that are received until the March 31, 2007 deadline, as well as public comments received from the SMC and BoCC Management Plan review process. All written comments will be documented in the final Management Plan as an Appendix. At this point, I have not received any other written concerns from neighbors about the proposed public access plan. If I do receive additional written comments or if we observe that the current public access plan is not working after the Sanctuary is officially open to the public, the EEL Program will definitely reconsider the public access plan for SLCA.

I would encourage you to contact me with any other questions or concerns that you might have about the South Lake Conservation Area or about the Brevard County Environmentally Endangered Lands Program.

Judy Gregoire
North Area Land Manager
Environmentally Endangered Lands Program
Enchanted Forest Sanctuary
444 Columbia Blvd
Titusville, FL 32780
321-264-5185
Fax # 321-264-5190
jgregoire@brevardparks.com

ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
SELECTION & MANAGEMENT COMMITTEE (SMC)
May 23, 2007
Attendance List

SELECTION & MANAGEMENT COMMITTEE MEMBERS
Dave Breininger
Ron Hight
Ross Hinkle
Randy Parkinson
Paul Schmalzer
Kim Zarillo

EEL PROGRAM STAFF
Sandy Carnival
Laura Clark
Judy Gregoire
Chris O'Hara
Mike Knight
Brad Manley
Scott Taylor

THE NATURE CONSERVANCY
Rebecca Perry

GUESTS
Robert Day, St. Johns River Water Management District, Indian River Lagoon Program
Dave Dingley, District 4
Susan Gosselin, Brevard County Natural Resources Management Office
Don Griffin, City of Rockledge
Joe Mayer, Bussen Mayer Engineering Group
Alix Townsend, City of Rockledge
Suzanne Valencia, Citizen

CALL TO ORDER:
Ross Hinkle, Chairman, called the meeting to order at 1:02 PM.

PUBLIC COMMENT:
None.

South Lake Conservation Area Management Plan
Judy Gregoire, North Region Land Manager provided an overview of the South Lake Conservation Area Management Plan. This 155± acre sanctuary was acquired by the EEL Program in 1999 as a Florida scrub-jay mitigation donation. It is located near Titusville and is north of Dairy Road, west of Carpenter Road and directly north of the Salt Lake Wildlife

Management Area which is managed by the Florida Fish and Wildlife Conservation Commission. The sanctuary is primarily composed of scrub, scrubby flatwoods, and upland hardwood forests. Most of the invasive exotic species are located around the perimeter of the Lantern Park Subdivision. The sanctuary is divided into 5 burn units for the purpose of prescribed fire. During a year-long floristic survey, *Conradina grandiflora* was identified on site and has been added to the management plan. Future surveys are expected to include Gopher tortoises, and additional species. Volunteer workdays which are in the planning stages will include exotic plant species removal, trash removal and trail creation and maintenance.

During the recreational assessment stage, stakeholders were identified and notified of a public meeting which was held on September 27, 2006, which was followed by a 30 day public review period. The Public Access plan will include 1.67 miles of hiking and biking trails, and will include educational interpretive signs. Other passive recreational activities will include bird watching and nature observation. A future Greenway Connection to the Salt Lake Wildlife Management Area is being considered. Concerns received at the public meeting were related to ongoing vandalism and illegal ATV use that are occurring on the site; possible fire hazards to adjacent to homes that are adjacent to the sanctuary's borders; possible additional traffic on Lancaster Road, due to consideration of placing the trail head at that location; and homeowner concerns that there could be hiking on fire lines which were located between the sanctuary and homes that are adjacent to the sanctuary. The public access plan was previously reviewed by the REAC (Recreation and Education Advisory Committee) where they vote to support the plan as presented by staff.

Judy explained that the complete Sanctuary Management Plan for the South Lake Conservation Area was being presented for approval to the Selection and Management Committee at the current meeting, before being presented to the Board.

MOTION # 1
Paul Schmalzer moved to approve the South Lake Sanctuary Management plan as presented by staff.
Kim Zarillo seconded the motion.
The motion carried unanimously.

Appendix O:
South Lake Conservation Area Timber Assessment

BREVARD COUNTY ENVIRONMENTALLY ENDANGERED LANDS PROGRAM PROPERTIES

TIMBER MANAGEMENT ASSESSMENT

Prepared by James Roberts
State Lands Silviculturist
and
John T. Marshall
Region 5, Other Public Lands Forester
Florida Division of Forestry
February 2007

Purpose

This document is intended to fulfill the timber assessment requirements for public lands in the state of Florida as required in section 253.036, Florida Statutes. It is being written for portions of the Brevard County Environmentally Endangered Lands (EEL) Program properties in Brevard County, Florida. The goal of this assessment is to evaluate the potential and feasibility of utilizing silvicultural techniques to help managers with their timber resources being managed for conservation and revenue generating purposes on the Brevard County EEL Program's property.

Forest Resource Background and History

The Brevard County Environmentally Endangered Lands Program was established in 1990 after citizens voted to increase their taxes to help purchase and maintain environmentally sensitive lands within the county. The initial length of this taxing period is for 20 years. Matching funds have been provided by the State of Florida through the Preservation 2000 and Florida Forever Acts for these types of purchases as well. The Brevard EEL Program also partners with other conservation and preservation organizations such as the St. Johns River Water Management District and the North American Wetlands Conservation Act to help with the purchase and management of sensitive lands.

Approximately 18,000 acres of environmentally sensitive lands across the county have been purchased since this time and are being managed under the EEL Program. This assessment will only cover a portion of these lands in the inland portion of the county. The properties included are the Helen and Allan Cruickshank Sanctuary, Malabar Scrub, Jordan Scrub, Micco Scrub, Grant Flatwoods Sanctuaries, Turkey Creek Sanctuary, Pine Island Conservation Area, Enchanted Forest Sanctuary, Dicerandra Scrub Sanctuary, North Buck Lake Scrub Sanctuary, Indian Mound Station Sanctuary, South Lake Conservation Area and Tico Scrub Sanctuary.

The Valkaria Scrub Sanctuary is also included and currently comprises approximately 7394 acres. This area was subdivided and sold as residential type lots. The EEL Program is in the acquisition phase on this property and due to the numerous landowners, the property is not all contiguous at this time. Present and future goals include purchasing as many of the lots as possible to secure this property into one manageable tract. It is difficult to discern the boundaries on the ground since no physical lot boundaries are evident. Only with the use of GIS is it possible to overlay boundary lines with aerial photography and distinguish community types and property boundaries. The management options offered in this assessment may not be feasible at this time on all the property of the sanctuary. When more acquisitions are made and larger, more manageable blocks are created and defined, these options should prove valuable to the EEL Program resource managers.

Development in this part of the state is steadily increasing. These properties were purchased to protect and preserve environmentally sensitive lands and the plants and animals associated with them. They also provide educational opportunities and recreation.

Past land uses of much of the property in Brevard County has included naval stores operations and cattle grazing. The EEL Program properties have probably included both at some time in the past. Prescribed burning was an important part of both. Forage production and brush control was dependent on frequent fires. Historically, fire has always been part of the Florida ecosystem and many communities are dependant on fire to maintain their diversity. Lightning caused, low intensity fires

burned frequently. Small shrubs and many hardwood species were kept from overtaking the pine forest because of frequent fires. Burning techniques have been revised over the years and more growing season burns are attempted as weather permits. If heavy fuel loads are allowed to accumulate, winter or cool season fuel reduction burns should be done first to minimize timber mortality before growing season burns are attempted again.

Management Goals and Objectives

The Brevard County EEL Program lands are acquired in an attempt to help preserve and restore diminishing natural communities. Their mission statement and primary management objective is to protect and preserve the biological diversity on these lands. These tracts are called sanctuaries and provide for conservation of natural resources, education, and recreation.

Ecological Trends

Human disturbances such as drainage, urbanization, and land use changes such as mining and crop production have occurred throughout the state causing the degradation or loss of many natural communities. Frequent fire that helped create and maintain many natural communities in Florida has been altered or removed. This has allowed an increase of both endemic and non-endemic plants to these once fire dependant communities. Timber management can be useful aid in the restoration of these sites by eliminating the overcrowding of naturally occurring trees and removing the species that are not typically found in these community types. By removing this additional fuel load, prescribed fire can be reintroduced safely to mimic the natural fire cycles that once existed. Timber management can also help develop multi-aged structures in stands that help maintain dynamic ecosystems. Opening the overstory will also increase the amount of sunlight reaching the forest floor, aiding in natural groundcover recovery and maintenance.

Timber Resources and Management Options

The majority of the timber resources on the EEL Program property that would benefit from silvicultural treatments exist in the pine flatwoods. Mesic, wet, and scrubby flatwoods all fall into this general category. Slash and longleaf pine are the dominant overstory species that currently exist with an understory of palmetto, gallberry, wiregrass, scrub oaks and other understory grasses and woody plants.

General Timber Management Guidelines

Basal Area (BA) is a common measurement used to identify stand density. The basal area is measured on a tree four and one half feet above the ground, identified as diameter at breast height or DBH, and is expressed in square feet ($ft.^2$). The BA is the total measure of the cross sectional area in square feet of the stems of trees occupying space on one acre of land. Fewer large diameter trees are needed to equal the same BA as many small diameter trees. For example, 509 evenly distributed six inch diameter trees over one acre has a BA of 100 $ft.^2$. Only 127 twelve inch diameter trees, evenly spaced on one acre, are needed to create the same 100 $ft.^2$ of BA.

Basal area can also be correlated to crown coverage. Basal areas around 50 square feet per acre of mature, healthy trees can help prescribed burning efforts by increasing the fuel dispersion and loads with needle cast. This needle cast should allow prescribed fires to carry across areas while still allowing adequate sunlight to reach the forest floor to maintain native grasses.

Current Timber Resources

The Brevard County EEL Program Lands encompass many thousands of acres. Identifying and defining individual stands and treatments for each stand is not the goal of this assessment. Detailed stand descriptions would be necessary to help plan for long term timber management on these sites. While timber management is not the primary goal for these properties, many of the silvicultural recommendations can be implemented along with preservation activities to maintain or restore these areas to their once natural condition.

The following are general descriptions and management recommendations. The diversity of the EEL Programs land and the management objectives for each will be the ultimate guiding principal. Areas with populations of gopher tortoises can sustain higher BA's than those being managed for scrub jays but less than some of the wetter flatwoods sites.

Natural Pine:
All of these areas have been harvested or have burned hot enough to reduce the standing timber to an unmerchantable volume. They all appear to have supported stands of large timber at one time, but the lack of any forestry type management in the past has converted these forest to fire-climax communities composed mainly of saw-palmetto that are fire hazards. The one exception is the North Buck Lake Scrub Sanctuary that has a fair stand of young sand pine. Saw-palmetto responds to fire by resprouting immediately and can return to preburn levels in as little as 1 year. This makes it very hard to regenerate a stand of trees because the seedlings have a hard time getting through the saw palmetto and if they do they stand a good chance burning up because of the volume of fuel produced by the saw-palmetto. If a forest community is desired, burning alone will not restore these communities to their original forested state. Saw-palmetto flourishes **in** full sun light but is also somewhat tolerant of shade**.** A complete overstory of trees creates shade and slows the growth. Shade with prescribe fire seems to keep it in check but some mechanical removal will be required to get the trees established.

Planted Pine:
There are 205 acres of planted pine in the Micco Scrub Sanctuary. It appears to be north Florida slash pine planted in an area that should have been planted in south Florida slash or longleaf. It was an old field, pasture, or had some heavy site preparation before it was planted as there is very little saw palmetto in the understory. The rows of trees were planted with about 8 feet between rows which is very close at today's standards. When the basal area reaches 100 this area should be thinned. This could be done by removing every other row, every third row, or every third row and thinning in between, depending on the desired remaining stand.

In under stocked areas, longleaf pine can be planted if sites are suitable. This species is more adapted to fire and is longer lived than the other southern pines. A "rule of thumb" is that if palmetto is dominant, longleaf can be planted. If gallberry dominates, then it is probably too wet for longleaf and slash pine should be planted.

Access

Adequate access is a necessity for land management activities. Law enforcement patrol, prescribed burning activities and fire suppression are but a few of the activities that benefit from improved road access. Most of the EEL Program's land is adjacent to a paved road of some sort. Internal access to some of the properties is limited by weather. Low areas become very wet and high areas become excessively dry depending on the season. Parts of the road system would need improvements to facilitate movement of heavy equipment for restoration or maintenance purposes. Widening current roads, installing culverts or low water crossings, or capping soft roads with shell, rock or clay are some of the possibilities for needed upgrades.

Economics

It is difficult to predict with any certainty the amount of revenue that can be derived through timber harvests on the Brevard County Environmentally Endangered Lands. Brevard County is approximately 100 miles to the nearest major wood processing facilities in Palatka, Florida. Market conditions, harvest prescriptions, product mix, logging conditions and distance to manufacturing facilities are factors in stumpage prices. Even though economics are hard to predict, they should be analyzed before making any management decisions.

Summary

There are approximately 10,000 acres in the EEL Program with current or future potential for timber management. Exclusive timber management would not meet the objectives for which this property was purchased, however, silviculture is a valuable tool to help restore and maintain native ecosystems, increase diversity and improve wildlife habitat. It is possible to manage nearly all of the sandhill, mesic flatwood, scrubby flatwood, and ruderal areas in order to retain their natural appearance and produce revenue from timber harvests. Currently a market does exist for timber products in the Brevard County area.

Road access within would need to be improved in some areas to allow for silvicultural activities**.** Public roads and highways to the park need to be monitored for weight restrictions on bridges.