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Agenda Item #: **3L1**

PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS

AGENDA ITEM SUMMARY

Meeting Date: January 13, 2015 | [X] Consent | [ ] Regular | [ ] Ordinance | [ ] Public Hearing

Department
Submitted By: Environmental Resources Management
Submitted For: Environmental Resources Management

I. EXECUTIVE BRIEF

Motion and Title: Staff recommends motion to approve: an updated management plan for the Frenchman's Forest Natural Area.

Summary: The management plan for the Frenchman's Forest Natural Area was originally approved by the Board of County Commissioners on July 7, 1998. The management plan was updated in 2014 to include information related to the addition of two tracts of land, significant events and activities occurring since the County's acquisition, public use facilities constructed on the site and current management strategies. The next update will be due in 2024. The County manages the natural area with the assistance of the City of Palm Beach Gardens. District 1 (SF)

Background and Justification: The 173.5-acre Frenchman's Forest Natural Area is managed by the County's Department of Environmental Resources Management. The Palm Beach County Natural Areas Management Advisory Committee (NAMAC) reviews management plans for each natural area and recommends approval of the plan by the BCC. NAMAC reviewed the updated management plan for the Frenchman's Forest Natural Area and unanimously recommended approval of the updated plan at its October 17, 2014 meeting.

Annual maintenance and operation costs, including biological monitoring, on-going invasive/nonnative animal and plant control, and repair and replacement of facilities, as needed, are estimated to be $282,393. The County will be responsible for $275,093 of the annual costs which are typically offset, at least partially, by matching grants from other entities. The remaining $7,300 will be provided as in-kind services by the City of Palm Beach Gardens, as a management partner with the County.

Attachments:

1. Frenchman's Forest Natural Area Management Plan.

Recommended by: _____ 12/3/14
Department Director **Date**

Approved by: _____ 12/17/14
County Administrator **Date**

II. FISCAL IMPACT ANALYSIS

A. Five Year Summary of Fiscal Impact:

Fiscal Years	2015	2016	2017	2018	2019
Capital Expenditures	$275,093	$283,346	$291,846	$300,602	$309,620
Operating Costs					
External Revenues					
Program Income (County)					
In-Kind Match (County)					
NET FISCAL IMPACT	$275,093	$283,346	$291,846	$300,602	$309,620
# ADDITIONAL FTE POSITIONS (Cumulative)					

Is Item Included in Current Budget? **Yes** X No _____
Budget Account No.: **Fund** 1226 **Department** 380 **Unit** 3163 **Object** Various
Program E340

B. Recommended Sources of Funds/Summary of Fiscal Impact:

County operational funds and ERM's Natural Areas Fund (1226) will be used to pay for annual management and maintenance of the site. Over the past five years, capital and maintenance costs for County owned/managed natural areas have increased an average of 3% per year. Actual costs for FY 2016 and beyond may be higher or lower than projected. Funds for the remaining capital improvements are expected to come from a combination of monies from the Natural Areas Fund and grants.

C. Department Fiscal Review: _____

III. REVIEW COMMENTS

A. OFMB Fiscal and /or Contract Administrator Comments:

_____ 12/5/14
OFMB 12/4 12/4/14

_____ 12/15/14
Contract Administrator 12-15-14

B. Legal Sufficiency:

_____
Assistant County Attorney

C. Other Department Review:

_____
Department Director

MANAGEMENT PLAN FOR

FRENCHMAN'S FOREST

NATURAL AREA

Frenchman's Forest FCT Project # 96-011-P7A

2014

Prepared by:

Palm Beach County
Department of Environmental Resources Management
2300 North Jog Road, 4th Floor
West Palm Beach, Florida 33411- 2743

THE PALM BEACH COUNTY NATURAL AREAS SYSTEM MANAGEMENT STATEMENT

The Palm Beach County Natural Areas System is comprised of those environmentally sensitive lands that are owned or leased by the County and managed as natural areas by the County's Department of Environmental Resources Management. These natural areas were selected on the basis of their biological characteristics and were acquired to preserve the rare and diverse native ecosystems present on these sites and the endangered, threatened, and rare species of plants and animals that live there.

Purpose and Goals of the Natural Areas System

- *The purpose of the Natural Areas System is to protect historic native ecosystems and their biological diversity throughout Palm Beach County. Examples of each ecosystem shall be acquired and managed to preserve, in perpetuity, the full complement of plants and animals characteristic of that ecosystem. The management of each natural area shall be coordinated with that of the other natural areas in the system to support existing populations and to reflect, in perpetuity, the subtropical biological diversity characteristic of Palm Beach County in pre-development times.*

- *The wilderness values of each natural area shall be preserved.*

- *Where a natural area currently is physically or biologically connected to another publicly or privately-owned natural area, attempts shall be made to maintain that connection through additional land acquisitions, regulatory preserve set-asides, conservation easements, interlocal agreements, and other appropriate actions.*

Management Considerations

- *The natural areas in the system shall be available to the public for passive, resource-based recreation, environmental education, and scientific research. Public-use shall not take precedence over ecosystem protection. Proposed public-uses shall take into account the specific environmental conditions of each natural area, and may be modified in response to changing environmental conditions.*

- *Facilities for passive public-use shall be provided on each site. These facilities shall be designed to have a minimal impact on native ecosystems and shall be located in previously disturbed areas as much as possible.*

- *Facilities, structures, or roads other than management or access roads that would cause fragmentation of a natural area shall not be permitted within a natural*

area. The establishment of compatible land uses and activities on lands adjacent to a natural area shall be encouraged.

- *To the extent possible, fire-maintained native ecosystems shall be burned at the appropriate interval and season, as determined by historical data, to maintain those ecosystems. Burns shall be conducted by trained personnel, using a prescribed burn plan that addresses safety and smoke concerns. The seasonality of prescribed burns may be adjusted for initial fuel reduction burns and site safety constraints.*

- *Where ecosystems within a natural area have been impacted by invasive, non-native plant infestations, land-clearing activities, drainage, or flooding, attempts shall be made to restore those ecosystems to their previous condition or to a natural ecosystem best suited to the existing conditions on the natural area.*

- *The special requirements of listed species shall be considered in developing management strategies for each natural area, but management for an individual species shall not take precedence over management of an entire ecosystem or be allowed to have a detrimental impact on that ecosystem's complement of species.*

Management Plan Development and Revision

- *A specific management plan, based on biological, hydrological, and historical information and interpretation of this information, shall be written for each natural area that takes into account the environmental conditions found on that natural area.*

- *Each management plan shall address the strategies and techniques that will be used to manage and restore native ecosystems, to protect listed species, to control the occurrence of invasive, non-native plants and animals, to allow for appropriate public access, and to prevent unauthorized access and activities.*

- *Each plan shall be reviewed by the Palm Beach County Natural Areas Management Advisory Committee (NAMAC), a citizens' advisory board, and the public shall be invited to comment on the plan at a public hearing held by NAMAC in the community in which the site is located.*

- *Following NAMAC review of the comments received, the plan shall be sent to the Board of County Commissioners for approval.*

- *Each approved plan shall be subsequently reviewed at least every ten years by NAMAC.*

EXECUTIVE SUMMARY

Nearly all of the 173.5-acre Frenchman's Forest Natural Area is located within the City of Palm Beach Gardens in northeastern Palm Beach County. The only portion of the natural area that is outside the city limits is a 1.51-acre canal right of way which is located within an unincorporated portion of Palm Beach County. The County owns approximately 169.74 acres of land within the natural area and holds a management agreement over a 2.19-acre tract of land that is owned by MacArthur Center Property Owners Association, Inc. The County also manages approximately 1.56 acres along the northern bank of the Cabana Colony canal where it abuts the Frenchman's Forest tract. The site was acquired through a series of purchases and donations which occurred between 1995 and 2006. The site was acquired by Palm Beach County in part with funds from the Palm Beach County Environmentally Sensitive Lands Bond Referendum of March 12, 1991 and the Palm Beach County Lands for Conservation Purposes Bond Issue Referendum of March 9, 1999. State matching funds for the acquisition of a portion of the Frenchman's Forest tract were approved in 1996 by the Florida Communities Trust through its Preservation 2000 Program. The City of Palm Beach Gardens was the County's partner in this grant application and assists in the management of the site. Acquisition of this natural area has assisted Palm Beach County and the City of Palm Beach Gardens in implementing several policies within their respective comprehensive plans.

Hydric hammock, mesic flatwoods, scrubby flatwoods, strand swamp and wet flatwoods are the predominant natural communities present on the site. The site also contains a few small areas of canal, mangrove swamp, mesic hammock, open water and spoil/fill. Together, these ten communities provide habitat for 590 species of plants and 265 species of animals, including 10 plant species and 23 animal species that have been listed as having some degree of endangerment by at least one government agency or have been ranked by the Florida Natural Areas Inventory.

The primary purpose for the management of this site is to ensure the preservation of high-quality examples of hydric hammock, mangrove swamp, mesic flatwoods, mesic hammock, scrubby flatwoods, strand swamp and wet flatwoods communities and their associated wildlife populations. The secondary objectives are to provide for passive recreation, environmental education and scientific research consistent with protecting the natural resources of the natural area.

Fire exclusion and suppression, internal and external drainage improvements, dredging and filling of wetlands, nonnative plant invasion, dumping, construction of adjacent roads and buildings, and off-highway vehicle traffic have all impacted the site. These factors must be dealt with in the management of the natural area. In addition, the site managers face special challenges unique to fragmented natural communities located within urban/suburban environments.

To protect the native plant communities and wildlife of the site, public use must remain limited to passive, nonconsumptive recreational uses; environmental education; and scientific study.

Public use facilities were constructed on the Frenchman's Forest tract and were opened to the public in October 2001; public use facilities were constructed on the Prosperity Oaks tract and were opened to the public in November 2006. An accessible nature trail, hiking trails, boardwalk, a wildlife observation platform and kiosks with interpretive displays provide valuable opportunities for the public to observe the site's distinctive plant communities and associated animals, and to appreciate their biological uniqueness. Parking facilities are provided at the Frenchman's Forest tract on the west side of Prosperity Farms Road. Pedestrian access is provided to the Prosperity Oaks tract via four gates - on the west side of Prosperity Farms Road, at the Harbour Oaks development, along Valencia Gardens Avenue and along West Edgewater Drive.

Local schools are invited to use the natural area for nature study, environmental education, and community service projects. The volunteer program of the Palm Beach County Department of Environmental Resources Management provides opportunities for people from local citizen's organizations, schools and businesses, and members of the general public to learn about the natural area through firsthand experience removing nonnative plants and trash, and through participating in restoration activities such as planting projects. Scientific research permitted on the site includes monitoring of populations of rare and/or endemic species, and evaluation of restoration and management techniques.

The Frenchman's Forest Natural Area is one of thirty-five conservation lands and parks that lie within the Northeast Everglades Natural Area. The Northeast Everglades Natural Area includes approximately 165,000 acres of conservation lands in northern Palm Beach County and southern Martin County; it is a cooperative effort among partnering land managers and educational centers to link publicly-owned conservation lands, parks and activity/education centers through a system of designated trails and thematic elements.

The natural area also was selected by the Florida Fish and Wildlife Conservation Commission as one of the sites in the South Section of the Great Florida Birding Trail (now the Great Florida Birding and Wildlife Trail). The 515 sites that form the trail were chosen for the excellent birding, wildlife viewing and/or environmental educational opportunities they provide.

The 1998 initial management plan for the natural area was updated during the period 2013-2014 to provide updated information on the management strategies used to protect, maintain, restore and enhance the biological communities on the site, and on public use facilities constructed on the site. The initial management plan did not include the Prosperity Oaks or Canal Tracts since those tracts were acquired subsequent to the initial plan's preparation. A stewardship report is provided each year to Florida Communities Trust. The management plan will be reviewed at least once every ten years by the Palm Beach County Natural Areas Management Advisory Committee and updated as necessary on the basis of new information, improvements in management techniques and/or other relevant factors.

Based on a review of annual stewardship reports from the period 1998 through 2014, listed species populations have remained stable within a normal range of fluctuation, and both the initial nonnative plant control work and all of the planned restoration projects have been completed. The prescribed burn program is behind schedule because the weather conditions required to meet the very restrictive burn prescriptions for the individual management units have not been available. Because of the delay in the prescribed burn program, fuel loads were reduced by mechanical chopping of vegetation in Management Units 1, 3 and 4 to lessen the probability of a wildfire occurring. Monitoring activities are conducted on the site on a regularly-scheduled basis, and volunteer events are scheduled periodically to encourage members of the public to assist with site management activities. There have been several incidents of vandalism, poaching, trespass and other unauthorized activities, but none of these has had a significant effect on the natural area. These issues are addressed in this first ten-year update of the management plan, along with the actions that have been taken to deal with them. The next scheduled review of the plan by the Natural Areas Management Advisory Committee will be in 2024.

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E. INTERLOCAL AGREEMENT

F. GRANT AWARD AGREEMENT AND AMENDMENTS/ADDENDUMS

G. FIRE MANAGEMENT PLAN

1. INTRODUCTION

1.1 SITE LOCATION AND DESCRIPTION

The approximately 173.5-acre Frenchman's Forest Natural Area is located in the northeastern portion of Palm Beach County (County) (Figure 1). Nearly all of the natural area is within the municipal boundaries of the City of Palm Beach Gardens (City). The only exception is a 1.51-acre Canal Tract that is located in an unincorporated portion of the County. The natural area is located north of PGA Boulevard, south of Hood Road and just west of Prosperity Farms Road.

The Frenchman's Forest Natural Area is composed of three tracts (Figure 2). The northernmost tract, known as the Frenchman's Forest Tract, is the largest. The Prosperity Oaks Tract is the southernmost tract and is separated from the Frenchman's Forest Tract by a distance of 0.2-mile. The third tract, a canal right of way northwest of the Prosperity Oaks Tract, is managed by the Northern Palm Beach County Improvement District (NPBCID).

The Frenchman's Forest Tract is bordered to the east by Prosperity Farms Road and a small, unrecorded residential subdivision, to the north by the Frenchman's Landing residential community, to the west by the Frenchman's Reserve residential community and golf course, and to the south by the Cabana Colony canal, a church property and the Prosperity Pines residential community. The Prosperity Oaks Tract is bordered to the east by Prosperity Farms Road, to the north by an unrecorded residential subdivision and two 1-acre residential parcels, and to the west and south by the Harbour Oaks residential community. The Canal Tract is bordered to the east by the same unrecorded residential subdivision that lies north of the Prosperity Oaks Tract community, to the north by a canal right of way owned by the Prosperity Pines residential community, and to the west by the Dwight D. Eisenhower Elementary School. The Frenchman's Forest and Prosperity Oaks Tracts are separated from each other by two residential communities, a church and the elementary school. To date, the County has been unsuccessful in obtaining the permissions necessary to create a pedestrian trail and bridge that would connect the larger natural area tracts.

The County owns approximately 169.74 acres of land within the natural area and manages another 3.75 acres (Figure 2). The largest portion of the natural area, a 149.09-acre portion of the Frenchman's Forest Tract, was purchased by the County from the John D. and Catherine T. MacArthur Foundation (MacArthur Foundation) in December 1995. Additional lands within the Frenchman's Forest Tract were donated to the County in 2001 and 2006 by Binks Estates Limited Partnership (7.36 acres) and Communities Finance Company LLC (0.77 acres), respectively. Communities Finance Company LLC also donated the 1.51-acre Canal Tract to the County in 2006. The Prosperity Oaks Tract was acquired by the County from The Grande at Palm Beach Gardens, Inc. in June 2003; a 3.01-acre portion of the tract was purchased and an 8.00-acre portion was donated. A 2.19-acre buffer area around the northern and eastern portions of the Prosperity Oaks Tract is owned by MacArthur Center Property Owners Association, Inc., but managed by the County pursuant to an access and management easement dated March 12,

2002. The County also manages a 1.56-acre portion of the northern Cabana Colony canal bank since ownership of the canal is uncertain and the presence of invasive/nonnative vegetation and/or erosion of the canal bank could adversely affect the natural area.

County funds for the acquisitions were provided from the sale of bonds authorized by the Palm Beach County Environmentally Sensitive Lands Bond Issue Referendum of March 12, 1991 and by the Palm Beach County Lands for Conservation Purposes Bond Issue Referendum of March 9, 1999. The Florida Communities Trust (FCT) provided $2,868,282 in matching funds in 1997 through its Preservation 2000 Program for the former MacArthur Foundation property.

The natural communities present on the site are canal, hydric hammock, mangrove swamp, mesic flatwoods, mesic hammock, open water, scrubby flatwoods, spoil/fill, strand swamp and wet flatwoods. Together, these ten communities provide habitat for 590 species of plants and 265 species of animals, including 10 plant species and 23 animal species that have been listed as having some degree of endangerment by at least one government agency or have been ranked by the Florida Natural Areas Inventory (FNAI). A list of plant species recorded at the site is provided in Appendix A and a list of animal species recorded at the site is provided in Appendix B. The listed plant and animal species recorded at the site are indicated in Tables 1 and 2, respectively. Definitions for the listing categories used by the agencies are provided in Appendix C.

1.2 PAST USES

With the exception of the Canal Tract, much of Frenchman's Forest Natural Area has remained as undisturbed native vegetation with minimal past uses. One notable exception occurred in the southeast portion of the Frenchman's Forest Tract. This portion of the natural area was cleared of all but a few trees and cabbage palms (*Sabal palmetto*) sometime between 1940 and 1953 (United States Department of Agriculture [USDA] 1940 and 1953). At the same time, three east-west drainage ditches were dug west of the residential inholding to help drain excess water from the cleared area into an extended Archie's Creek (USDA 1940 and 1953). The cleared area was used as improved pasture until the late 1950s or early 1960s (USDA 1964 and 1970). The rest of the Frenchman's Forest Tract also may have been used as rough pasture during this timeframe. Once the cattle were removed, the former pasture area was colonized by a mixture of native and nonnative plant species.

Other past uses of the site included a drainage ditch that was dug between 1940 and 1953 (USDA 1940 and 1953) in the northwest portion of the Frenchman's Forest Tract to drain excess surface waters from the property west of the Frenchman's Forest Tract into the strand swamp within the natural area, minor off road vehicle usage on the Frenchman's Forest Tract, a north-south drainage canal that was dug through the canal track in the late 1970s (USDA 1980), and illegal dumping activities on both the Frenchman's Forest Tract and the Prosperity Oaks Tract. Over time, these illegal dumping activities left trash, landscaping debris, construction debris, household appliances, tires, cars and car parts in the eastern portion of the Frenchman's Forest

Tract and in scattered locations within the Prosperity Oaks Tract; most of this waste was removed prior to the County's acquisition. A detailed account of past uses and disturbances is provided in Section 1.9.

1.3 ADJACENT LAND USES

The Frenchman's Forest Tract has a Zoning designation of "Conservation" and a Future Land Use designation of "Conservation" through the City of Palm Beach Gardens. The "Conservation" designation is intended to protect important natural environmental features, including endangered and threatened species. The Prosperity Oaks Tract has a Zoning designation of "Planned Community Development" and a Future Land Use designation of "Residential High" through the City of Palm Beach Gardens. Because the Prosperity Oaks Tract was platted as part of the Harbour Oaks residential development, the Zoning and Future Land Use designations cannot be changed to Conservation. However, the County-owned portions of the Prosperity Oaks Tract are dedicated to the County for conservation purposes by the Harbor Oaks plat.

The Frenchman's Reserve and Prosperity Pines communities located west and south of the Frenchman's Forest Tract, respectively, are zoned as "Planned Community Development" and "Planned Development Area" on the City's Official Zoning Map; they both are designated as "Residential Low" areas on the City's Future Land Use map. The Harbour Oaks community which surrounds the Prosperity Oaks Tract has a Zoning designation of "Planned Community Development" and a Future Land Use designation of "Residential High" through the City of Palm Beach Gardens.

The unincorporated residential areas north and east of the Frenchman's Forest Tract, and north of the Prosperity Oaks Tract have a zoning designation of "RS" or "Single Family Residential" on the April 29, 2014 Zoning District Map of Palm Beach County. The church property south of the Frenchman's Forest Tract is zoned "RT" or "Residential Transitional" on the April 29, 2014 Zoning District Map of Palm Beach County. The Frenchman's Landing development north of the Frenchman's Forest Tract has a Future Land Use designation of "MR-5" ("Medium Residential, 5 units per acre"). The unincorporated residential and church properties east and south of the Frenchman's Forest Tract have a Future Land Use designation of either "LR-2" or "LR-3" ("Low Residential, 2 units per acre" and "Low Residential, 3 units per acre," respectively). The elementary school located just west of the Canal Tract is designated as "Inst" or "Institutional" on the April 11, 2014 Future Land Use Atlas of Palm Beach County, Florida.

Both direct and indirect impacts from adjacent and nearby land uses are to be expected. The biggest threats posed by frontage on Prosperity Farms Road are invasion of the site by nonnative plant species growing in the road right of way, dumping and animal mortality from vehicular traffic. Adjacent and nearby residential developments also may be a threat to the natural area in that they contain nonnative plants that act as a seed source which could allow the plants to invade the natural area.

Domestic cats (*Felis catus*) and dogs (*Canis lupus familiaris*) can cause wildlife mortality. Efforts to mitigate for these impacts include an aggressive nonnative animal control program, public outreach, volunteer and interpretive programs, and enforcement of the Palm Beach County Natural Areas Ordinance (Chapter 11, Article XI of the Palm Beach County Code, http://www.co.palm-beach.fl.us/erm/natural/naturalareaordinances.htm/) provision concerning the prohibition of domestic animals and pets on the natural area.

1.4 USES THAT ARE NOT APPROPRIATE

Public uses on county natural areas such as the Frenchman's Forest Natural Area are regulated by the Palm Beach County Natural Areas Ordinance (Natural Areas Ordinance) which was adopted by the County's Board of County Commissioners (BCC). This ordinance provides for passive recreational activities such as hiking, nature study, and photography; environmental education; and scientific research. It prohibits destructive uses such as off-road vehicle use, dumping, and poaching of plants and animals and requires special permits for camping, horseback riding, scientific research involving collection of plant and animal specimens or the use of watercraft in wetlands, and nighttime use of the natural area.

There are no plans for any concessions or support services to be located on the site, nor are there plans to provide a camping area. There are sufficient retail businesses in the vicinity of the natural area to supply services normally provided by concessionaires. A camping area is not appropriate given the large area it would impact and the imperiled status of many of the natural communities on the site. Horseback riding is not appropriate because the loose upland soils and large wetland areas found at this site would be negatively impacted if equestrian use were permitted on the site; the site is located in an urban area far from equestrian communities; and the site is not large enough to accommodate an equestrian trail of sufficient length/quality to make it worth trailering a horse to the site. Because of this, there are no equestrian-related facilities existing or planned for this site. Trapping and hunting are prohibited by the Natural Areas Ordinance, and the site does not contain significant populations of game or fish species. No fishing, boater access or bicycles are allowed within the natural area. There are no other alternative activities that were considered but not adopted as acceptable uses for the natural area.

1.5 OUTPARCELS

The only property that might be considered for future acquisition and incorporation into the natural area would be a north-south linear tract that would connect the County's Canal Tract to the southern boundary of the Frenchman's Forest Tract. If acquired, the linear tract would be used to allow pedestrian access between the Frenchman's Forest and Prosperity Oaks Tracts of the natural area.

1.6 MANAGEMENT CONSTRAINTS

The natural area has been and will continue to be managed under the "single-use" concept by Palm Beach County. This means that the natural area will be managed in a manner that preserves the site's natural resources. Scientific research, environmental education and passive resource-based recreation will be encouraged as long as they do not jeopardize the protection of natural resources. Palm Beach County also will manage the natural area under the constraints of the Natural Areas Ordinance. This ordinance regulates public uses on county-managed natural areas. Management of the former MacArthur Foundation property (FCT project site), which was acquired with matching funds from FCT, is constrained by the conditions imposed in the FCT Grant Award Agreement date May 21, 1998 (Appendix F).

The most significant management constraint on the natural area is the requirement to protect rare and endangered plants, animals and ecosystems. The size, shape and location of the natural area do not restrict certain management activities such as nonnative and invasion vegetation removal, or upland restoration activities. These factors do, however, limit what can be done on the site relative to the reintroduction of fire and the hydrologic restoration of wetland areas. The site's proximity to Prosperity Farms Road and several residential areas limit the options for prescribed burning, whereas the site's proximity to the Cabana Colony canal and Archie's Creek limit what can be done to restore the hydrology of the site. With the exception of the boardwalk, public use facilities have been sited in upland portions of the site as much as possible to reduce the potential for flooding. Water is not expected to stage over the boardwalk except in a 100-year flood. All of the wetland areas have flooding constraints.

The Loxahatchee River Environmental Control District (now the Loxahatchee River District, LRD) was given the right by the Florida Legislature to assess a fee on the entire site, based on the amount of impervious surface (buildings and pavement) on the natural area. To date, LRD has not charged this fee. Any future impact from this fee is expected to be negligible because the amount of impervious surface on the natural area is minimal. There are no other known legislative or executive constraints that affect the passive recreational use or environmental management of the site.

1.7 EASEMENTS, CONCESSIONS AND LEASES

There are one "Right of First Refusal," one set of grant award restrictions and ten easements that restrict or benefit the natural area – five easements that affect the Frenchman's Forest Tract, three easements that affect the Prosperity Oaks Tract and two easements that affect the Canal Tract. A Water and Sewer Franchise and License that affected the Frenchman's Forest Tract appears to have expired in 1989. However, even if it was still in effect, the license would not adversely affect use of the property as a nature preserve.

When the MacArthur Foundation sold the main portion of the Frenchman's Forest Tract to the County in 1995, it reserved the "Right of First Refusal" to acquire all or any portion of the

property in the event that the County decided to sell the property for non-conservation purposes. This "Right of First Refusal" will expire on December 13, 2015.

Since the former MacArthur Foundation property was acquired with matching funds from FCT, the property is constrained in perpetuity by the conditions imposed in the FCT Grant Award Agreement date May 21, 1998 (Appendix F). Pursuant to the award conditions the County will provide FCT with at least 60 days' prior written notice and will provide information to FCT regarding any proposed lease of any interest in, the operation of any concession on, any sale or option, the granting of any management contracts, and any use of the FCT project site by any person other than in such person's capacity as a member of the general public; no related documents will be executed without the prior written approval of FCT. All fees collected from a lease, concession contract, management contract, etc. on a FCT project site shall be placed in a segregated account solely for the upkeep and maintenance of that site.

In addition to the restrictions listed above, the Frenchman's Forest Tract is affected by two drainage easements, one access easement, one utility easement and one conservation easement. The first drainage easement is a 25-foot-wide drainage easement that is located just south and west of the residential inholding on the east side of the Frenchman's Forest Tract. Most of this easement is occupied by the existing Archie's Creek canal.

The second drainage easement that affects the Frenchman's Forest Tract is one that was granted by the County to Binks Estates Limited Partnership and Frenchman's Reserve Master Property Owners Association, Inc. in 2002. The easement was granted as a means to help rehydrate a portion of the hydric hammock and downstream strand swamp. The easement gave the grantee the right to install and maintain a drainage pipe and energy dissipater along the northwestern border of the Frenchman's Forest Tract. The 50-foot by 50-foot easement allows the Frenchman's Reserve development to discharge a portion of its excess stormwater into the western portion of the Frenchman's Forest Tract. The 2002 drainage easement replaced a similar easement granted to Binks Estates Limited Partnership and Frenchman's Reserve Master Property Owners Association, Inc. in 2001.

The access easement that is associated with the Frenchman's Forest Tract benefits the natural area. This easement, a perpetual, nonexclusive access easement that was granted by Binks Estates Limited Partnership to the County in 2001, allows the County to use a 12-foot-wide area immediately west of the Frenchman's Forest Tract for management access purposes. A management accessway was constructed within this easement so that Palm Beach County Department of Environmental Resources Management (ERM) staff could access the western portion of the Frenchman's Forest Tract without having to remove native vegetation within the natural area. The easement is subject to pre-existing easements in favor of Seacoast Utility Authority and Florida Power and Light (FPL), neither of which adversely affect the County's use of the easement.

Another easement that affects the Frenchman's Forest Tract is a utility easement that was granted over a very small portion of the southeast corner of the tract. Seacoast Utility Authority has a 6-foot-wide water and sewer line easement that lies just west of the western edge of the 80-foot-wide platted right of way for Prosperity Farms Road, and between Driftwood Circle and the Cabana Colony canal right of way. Nearly all of this easement is within a 25-foot strip of land that was conveyed to the County for roadway purposes in 2001. However, a small portion of the easement enters the southeastern corner of the Frenchman's Forest Tract as a result of a 34-foot westerly jog that occurs just north of the Cabana Colony canal right of way.

The last easement that affects the Frenchman's Forest Tract is a conservation easement that was granted by the County. On September 13, 2005, the BCC expressed a desire to place conservation easements on all county natural areas and approved a resolution establishing standard form conservation easements (R2005-1770). The conveyance of conservation easements over county natural areas provides the natural areas with a level of protection that is not affected by retirement of County or State conservation bonds. The County granted a conservation easement over the Frenchman's Forest Tract to the South Florida Water Management District (SFWMD) on July 12, 2010 (Appendix D). On November 29, 2010 the County granted an easement to the SFWMD over the county-owned portion of the Prosperity Oaks Tract (Appendix D). A conservation easement will not be placed over the Canal Tract or over the 2.2-acre portion of the Prosperity Oaks Tract that is managed but not owned by the County.

The County holds an Access and Management Easement over the 2.19-acre portion of the Prosperity Oaks Tract that is owned by MacArthur Center Property Owners Association, Inc. (Figure 2). The land that is affected by the easement acts as a buffer to the County-owned portion of the Prosperity Oaks Tract. The buffer/easement area is located on the northern and eastern boundary of the tract.

The northeastern portion of the Prosperity Oaks buffer area is subject to a 20-foot-wide ingress, egress and utility easement that was granted by Bankers Life and Casualty to the Village Christian School in 1974. However, this easement was not conveyed to the current owners of the two 1-acre inholding properties north of the Prosperity Oaks Tract and will likely never be used since recipient of the easement no longer owns the benefited parcels.

Although NPBCID has taxing authority over the Prosperity Oaks Tract relative to the provision of certain improvements within its Units of Development, assessments had not been levied against the Prosperity Oaks Tract as of July 2014. In addition, a blanket water management easement held by NPBCID was removed from the Prosperity Oaks Tract at the time the Harbor Oaks subdivision was platted.

The entire Canal Tract is the subject of a perpetual nonexclusive water management easement granted to NPBCID for the construction, operation and maintenance of a water management system. Although a survey sketch of the Canal Tract suggests that FPL holds two small

easements within the southern portion of the tract, ERM staff was unable to confirm this information.

In addition to the restrictions mentioned above, portions of the natural area that adjoin the Prosperity Farms Road right of way are subject to setback requirements. However, the setback requirements do not affect use of the natural area as a nature preserve.

1.8 PLAN DEVELOPMENT AND REVIEW

The primary purpose of the County's Natural Areas System is to protect native ecosystems and their biological diversity throughout Palm Beach County. Therefore, each natural area's management plan must ensure that the proposed management and restoration activities will preserve and enhance/restore the existing and historic natural communities, and their associated plant and animal species. Scientific research, environmental education, and passive, resource-based recreation are permitted on natural areas as long as they do not jeopardize the protection of natural resources.

Before a comprehensive updated management plan could be developed for the Frenchman's Forest Natural Area, a thorough review of the site's natural resources was conducted. Updated information was obtained on the natural area's soils; water resources and hydrology; any unique natural and/or geological features; historic and existing natural communities and the associated plants; fish and wildlife; listed species; invasive and other nonnative species; archaeological resources; and historic land uses. All applicable archaeological reports, BCC agenda items, correspondence, grant award agreements, interlocal agreements, newspaper clippings, press releases, maps, aerial photographs, plant and animal species survey data, annual site evaluation reports, environmental assessments/reports, restoration plans, and applicable county and/or municipal Future Land Use and zoning maps contained in ERM's files were reviewed. Outside research and field inspections were conducted to fill in informational gaps.

Once the necessary background information was obtained, a draft updated management plan was prepared for the site. The primary goals of the updated management plan were to: 1) identify the existing natural and cultural resources, as well as any changes to those resources that occurred subsequent to approval of the most recent management plan; 2) address the site-specific strategies and techniques that would be used to manage and restore those resources; 3) ensure that the natural area is managed in accordance with the FCT Grant Award Agreement; 4) evaluate the effect, if any, of existing recreational uses on the site's natural and cultural resources; and 5) identify any new recreational uses which could be accommodated without adversely affecting the site's natural and cultural resources. Other items considered during the preparation of the updated management plan included current and proposed monitoring and land management activities and costs (including listed species monitoring and management, and invasive and other nonnative plant and animal species control); a fire management plan (including a prescribed burn schedule); proposed wetland and/or upland restoration plans; capital costs for construction and replacement of public use facilities; annual management and

maintenance costs; security measures; fencing and signage needs; and any current and/or anticipated problems or issues identified by staff.

As development of the draft updated management plan neared completion, the seven members of the County's Natural Areas Management Advisory Committee (NAMAC) were invited to tour the natural area with staff and to hear an overview of the management/restoration activities and passive recreational uses proposed for the site. All comments and suggestions received from NAMAC at the site visit were taken into consideration during completion of the draft updated management plan. The management plan was then sent to NAMAC, the City of Palm Beach Gardens (as management partner) and interested members of the public for review and discussion.

The purpose of NAMAC is to review and comment on management plans developed by staff for natural areas acquired and/or managed by the County, and to hold public hearings on the initial plans prior to their review and adoption by the BCC. NAMAC was originally established on August 16, 1994 when the BCC adopted Resolution 94-1051. On February 24, 2009, the original resolution was repealed and NAMAC was reestablished by Resolution 2009-0319. The current membership categories are: a member with experience in the management of natural areas, a biological scientist, a professional educator with knowledge of South Florida ecosystems, a representative of a local municipal government parks and recreation program, a member of the Palm Beach County Parks and Recreation Department staff, and two citizens having an interest in the preservation and conservation of natural areas.

Members of the public were invited to provide comments on the draft updated management plan at the _____, 2014 regularly-scheduled meeting of NAMAC as the plan was being reviewed by the committee, and by mail during the one-week period following the _____, 2014 meeting. City representatives also participated in that review and had the opportunity to review and comment on the updated management plan. Copies of the updated management plan were available at local libraries and through ERM's web site for a minimum of two weeks prior to the NAMAC meeting at which the updated plan was considered. ____ member of the public offered comments on the updated management plan. NAMAC members took those comments into consideration at the _____, 2014 regularly-scheduled meeting of NAMAC, and voted _____ to send the updated plan to the BCC with a recommendation that it be approved. Members of the public also had the opportunity to comment on the plan on _____, 2014 when it was considered and approved by the BCC.

The updated management plan was reviewed and approved by FCT in _____. Any proposed modification to the updated management plan that results in the construction or installation of any buildings, structures, improvements, or signs, or any removal of native vegetation or major land alteration not previously discussed in this management plan will first require review and approval by FCT. The County will provide FCT with 60-day prior written notice regarding any proposed lease of any interest, the operation of any concession, any sale or option, the granting of any management contracts, and any use by any person other than in such person's capacity as

a member of the general public; no document will be executed without the prior written approval of FCT.

1.9 SITE HISTORY

Pre-1817

Prior to the channelization of Lake Worth Creek and other human-caused alterations, the area surrounding the Frenchman's Forest Natural Area was a relatively simple natural system. The natural area once was part of a broad area of freshwater wetlands that was separated from the Atlantic Ocean to the east by coastal sand ridges and from the Loxahatchee Slough to the west by a broad area of pine flatwoods (Davis 1943). Its wetlands were once part of the headwaters of the former Lake Worth Creek, a meandering blackwater creek that flowed northward to join the Loxahatchee River near present-day Jupiter Inlet. Nearly all of the wetlands west of present-day A1A were occupied by sawgrass marshes. Almost all of the upland ridges west of present-day A1A were covered by Florida scrub. A narrow fringe of cabbage palms, slash pines (*Pinus elliottii*), and a few live oaks (*Quercus virginiana*) or laurel oaks (*Quercus laurifolia*) occurred in the transition zone between the scrub and the sawgrass marshes.

The Seminole Indian Wars and Early Settlers – 1817 to 1878

The First Seminole Indian War took place in northern Florida and southern Georgia from 1817 – 1818 (Florida Department of State, Division of Historical Resources [FDHR] undated[a]). During this short war, U.S. forces quickly defeated the Seminoles and their black allies, pushing them out of northern Florida and into the interiors of the state. The First Seminole Indian War proved to Spain that it could not effectively defend its territory; Spain ceded Florida to the United States just a few years after the war (Robison and Andrews 1995). An 1823 treaty confined the Seminoles to a reservation in the interior portions of central and southern Florida. Then in 1830, the U.S. Congress passed the Indian Removal Act, which gave the government the authority to forcibly move Native Americans from Florida and Georgia to Oklahoma (FDHR undated[b], Robison and Andrews 1995). While most Seminoles were relocated, some refused to leave and tensions mounted between the U.S. Army, white settlers and the Seminoles (Robison and Andrews 1995). The Second Seminole Indian War (1835-1842) ended when the Army gave up trying to force all Seminoles to relocate to Oklahoma. After the Third Seminole Indian War ended in 1857, the Seminoles slowly emerged from their hideouts deep in the Everglades.

Palm Beach County's first permanent settler, Charlie Moore, moved to the shores of Lake Worth Lagoon near the present-day Town of Hypoluxo in November 1872 (Corbett 1992). By 1874, 10 to 12 people were living along the lagoon. They were followed by more pioneers, who settled farther north along the lagoon on the island of Palm Beach or along the Loxahatchee River at Jupiter. Although lands within the natural area and surrounding areas were surveyed and divided into sections and sometimes into lots in the mid 1850s, there were no known settlers in the area until the late 1870s or early 1880s (Corbett 1992).

Canals, Railroads, Muck Farmers and the Land Boom/Bust – 1879 to 1936

Private and government engineers visited southeast Florida numerous times from the 1820s through the early 1880s to determine the feasibility of an inland transportation canal along the Atlantic coast. Even though the canal was determined to be feasible, the federal government declined to appropriate funds for the construction of the canal, citing the then-minimal population of south Florida. In 1879 the State of Florida began offering 3,840 acres of swamp and "overflowed" lands for each mile of canal constructed and the right to collect tolls to pay for maintenance of the completed portions of canal (Crawford 2006). This induced the Florida Coast Line Canal and Transportation Company (canal company) to begin constructing an inland waterway known as the Florida East Coast Canal (the predecessor to the Atlantic Intracoastal Waterway [AIWW]) southward from St. Augustine in 1882 (Crawford 2002). The canal was originally designed to be 50 feet wide and 5 feet deep (Corbett 1992). Dredging began north of the natural area at the mouth of Lake Worth Creek in 1892 (Corbett 1992). The canal company cut though the final sand ridge south of the natural area and entered the northern portion of Lake Worth in May 1898 (Crawford 2006). The canal was privately owned until 1929 when it was purchased for $725,000 by the Florida Inland Navigation District (Crawford 2006). Ownership of the canal was conveyed to the federal government on December 3, 1929 (Crawford 2006). The AIWW was dredged to a width of 100 feet and a depth of 8 feet in the 1930s (Corbett 1992; Crawford 2006).

The initial dredging of the Florida East Coast Canal east of the natural area in the 1890s eliminated several of the barriers that held water in the huge sawgrass marshes within and around the natural area. As a result, water levels in many of these sawgrass marshes fell to the level of Lake Worth and the Jupiter Inlet (currently about 1.3 feet above sea level). The drained portions of the sawgrass marsh west of the AIWW exposed muck soils that were considered ideal for farming. A farming settlement named "Prosperity" was created on muck soils south and east of the natural area in the early 1900s (Palm Beach County History Online undated[b], Palm Beach Gardens Historical Society 2012). The widening and deepening of the AIWW in the 1930s increased the effect of the canal on the nearby wetlands, including those located within the natural area.

In 1890 all of Section 32 in Township 41 South, Range 43 East was deeded by the state to the canal company in exchange for its completion of a portion of the East Coast Canal. Less than two years later, the canal company sold all of Section 32, including the Frenchman's Forest and Canal Tracts, to the Boston and Florida Atlantic Coast Line Company for $1 per acre as part of a 100,000-acre deal (Crawford 2002). The Boston and Florida Atlantic Coast Line Company sold the west ½ of Section 32 to Harry S. Kelsey in 1924, subject to a mortgage. On May 12, 1925 Mr. Kelsey deeded the land to Kelsey Associates, Inc.; Kelsey Associates, Inc. sold the land to Home Acres Land Corporation later that same day. Home Acres Land Corporation took title to the land subject to a mortgage to the Boston and Florida Atlantic Coast Line Company.

In 1890 the state also deeded the western ½ of Section 5 in Township 42 South, Range 43 East to the canal company in exchange for its completion of a portion of the East Coast Canal. In 1911 the canal company sold its holdings in Section 5, including the Prosperity Oaks Tract, to Helen McHenry Bradley. Ms. Bradley sold her holdings in Section 5 in 1923. The lands were later subdivided and conveyed to other entities during the early 1920s. In 1926 the east ½ of the northwest ¼ of Section 5, including the present-day Prosperity Oaks Tract was purchased by Harry S. Kelsey.

Most areas along Florida's southeast coast enjoyed a land boom from the late 1910s to the mid 1920s. Many properties were sold repeatedly within just a few years, frequently with mortgages back to one or more previous owners. Then in 1926 a devastating hurricane struck Miami and many people who were considering moving to Florida were scared away. On September 16, 1928 a Category 4 hurricane hit Palm Beach County killing thousands around Lake Okeechobee and destroying most of the buildings in coastal areas (Barnes 1998). Investors stopped putting money in Florida ventures and the land boom collapsed in the mid to late 1920s when there were no new buyers willing to pay higher prices. Unable to sell their lands or pay their real estate taxes and/or mortgages, many land owners eventually lost title to their property.

The Florida land boom combined with the widespread use of automobiles caused a surge in public highway declarations and road construction by the County between 1910 and 1930. In 1911, a "main line county road" (present-day Alternate A1A) was constructed about a mile west of the natural area and next to Henry Flagler's Jacksonville, St. Augustine and Indian River Railroad (present-day Florida East Coast [FEC] Railway) which had been constructed in 1894. In 1916 the County claimed right of ways for several future east-west "public highways" in the vicinity of the natural area. These future roads were "posted and viewed" along section lines from the "main line county road" east to the East Coast Canal and included what would become portions of present-day Donald Ross Road, Hood Road, RCA Boulevard/Monet Road, Burns Road and Frederick Small Road. Also in 1916 Prosperity Farms Road was built on the half section line from present-day Edgewater Drive (northern border of the Prosperity Oaks Tract) south to Old Dixie Highway and FEC Railway. A ditch was dug on the west side of Prosperity Farms Road to provide fill to raise the roadbed and to provide drainage for lands west of the natural area. U.S. Highway 1 was built one mile east of the natural area in 1927 (Palm Beach County History Online undated[a]). Monet Road was extended east from Prosperity Farms Road, across the Florida East Coast Canal, to U.S. Highway 1 in 1928.

<u>The Maheus and Early Development – 1937 to 1967</u>

In 1937 a law known as the Murphy Act was passed by the State of Florida. This law allowed the state to take title to properties with delinquent taxes if the back taxes were not paid by June 9, 1939 (Florida Department of Natural Resources, Bureau of State Lands Management 1981). The Prosperity Oaks Tract and other lands in the west ½ of Section 5 reverted back to state ownership under this law. The state sold these lands to Gust G. Johnson in 1941. Gus Johnson sold the

Prosperity Oaks Tract and adjacent lands to the Baron D Beck Corp. in 1955. The property was sold several times between 1955 and 1968 when it was acquired by Bankers Life and Casualty.

In 1944 nearly the entire western half of Section 32 was purchased by Mr. J.C. Bills Jr. from a special master for nonpayment of a mortgage. That same year, Mr. Bills Jr. and his wife Louise sold his holdings in the western ½ of Section 32 to the Putnam Corporation. The Putnam Corporation then sold the entire northwest ¼ of Section 32 to Mr. Meredith Meredith Watson and his wife Lillian McDowell Watson, including the northern ½ of the Frenchman's Forest Tract, in two separate transactions in 1946 and 1951. Mr. and Mrs. Watson sold the northern half of the Frenchman's Forest Tract to Prosperity Acres, Inc. in 1956.

In 1939 John Maheu bought 56 acres of land east of the natural area, along with 50 cattle, from John Bills Jr. These lands had been cleared of most of their natural vegetation and were being used for agricultural uses by 1940 (USDA 1940). In 1946, John Maheu bought most of the southwest ¼ of Section 32 from The Putnam Group, including the southern half of the Frenchman's Forest Tract.

John Maheu subsequently expanded his farming operation to the west of Prosperity Farms Road and into the southeastern portion of the Frenchman's Forest Tract. The understory vegetation and shrubs were removed from this area, but the scattered cabbage palms, live oaks and pond-cypresses (*Taxodium ascendens*) were left. A 1953 aerial photograph (USDA 1953) shows the area as improved pasture; the remnants of a fence and a corral were found on the site. The remainder of the natural area and the land to the west may have been used as rough native pasture at this time.

This farm expansion area was wet prairie and former sawgrass marsh, so the existing ditch system in the natural area was dug at this time to drain this area into the canal under Prosperity Farms Road. Other ditches were dug west of the natural area at about the same time to drain wetlands next to Alternate A1A. These ditches emptied into the cypress swamp, where the water flowed into the farm ditch system and out to the canal. These drainage systems accelerated the drawdown of surface water on the site, eliminating the wet prairie and causing woody shrubs and vines to invade the depression marsh. The cypress swamp's hydroperiod became much reduced, causing oxidation and loss of the accumulated peat, and the toppling of many of the pond-cypress trees.

After World War II, a spurt of development took place around Frenchman's Forest Natural Area. People began to establish residences along the AIWW north and east of the natural area. Dorothy B. Gooding was one of these persons, and she recounted her experiences and a 1949 wildfire that included the natural area in her book (Gooding 1990). The Monet Road Bridge over the AIWW was destroyed in the 1947 hurricane, but another bridge was built when Donald Ross Road was constructed in 1956. The 1953 aerial photograph (USDI 1953), shows only muck farms east of the natural areas. John Maheu sold off his first tract on the AIWW in 1955, and ceased farming in the mid-1950s, when he began to develop his property.

Mr. Maheu divided portions of his land into an unrecorded subdivision. Section A was east of the natural area, Section B of this unrecorded subdivision was the developed inset within the natural area west of Prosperity Farms Road, and Section C was south of the natural area and the future Lone Pine Road. Edgewater Drive was constructed as a shellrock road on the northern border of the tract at this time. An elliptic borrow pit was dug at the end of Edgewater Drive near the northwest corner of the Prosperity Oaks Tract, presumably to provide fill for the construction of Edgewater Drive and Oak Drive to the north. The first recorded sales of lots in Section B next to the natural area and Section C next to the Prosperity Oaks Tract were in 1956. John Maheu sold many of the unrecorded subdivision lots prior to his death in 1958. In 1961, Rosa sold the remaining Maheu landholdings west of Prosperity Farms Road, including the southern half of the natural area, to John D. MacArthur for $350,000.

Maheu needed additional fill for the waterfront lots in Maheu Estates and dredged a small depression in the early 1960s that had been bisected by the Cabana Colony canal, creating a tidal lagoon that today includes the open water area and southern mangrove swamp area (Figure 4). After the sale of the Frenchman's Forest Tract to MacArthur, the property's fences were not maintained and the land was not patrolled, so off-road vehicle trails were created and dumping of tires, junk cars, appliances, and construction debris became common, especially adjacent to Prosperity Farms Road. The abandoned farm lands were recolonized primarily by oaks, cabbage palms and Brazilian pepper.

The development of the Cabana Colony subdivision west of the natural area by North Palm Beach Properties, Inc. began in 1959 with a filing of the Ranch Estates plat (later refilled as Cabana Colony #1). This plat dedicated a proposed drainage canal to the County that crossed through the Maheu lands to the public. Construction of this canal, which forms the southern border of the natural area, began shortly thereafter and a new bridge was constructed over the canal at Prosperity Farms Road. This canal connected directly to the AIWW and excessively drained its basin, so a weir was constructed at the southwest corner of the natural area to hold the canal at a higher level than the AIWW. Lone Pine Road, which lies between the main portion of the natural area and the Prosperity Oaks Tract, was built in the early 1960s in association with the Cabana Colony development.

The AIWW was expanded to 125 feet wide and 10 feet deep in 1962 (need reference). Finger canals were dredged along the AIWW, including just east of the natural area in the late 1950s and early 1960s (Palm Beach County Property Appraiser 1965). The road that would become PGA Boulevard appears for the first time, extending from Prosperity Farms Road eastward to the AIWW along the half-section line.

<u>Later Development and Public Acquisition – 1968 to Present</u>

Development activities continued in the late 1960s and construction of PGA Boulevard stimulated activity on the lands bordering the road. Gust Johnson sold the 80 acres he owned on the north side of PGA Boulevard and the 40 acres south of the road, both on the west side of Prosperity Farms Road, to 5400 Ranch Corp in 1954. The corporation resold the land, including the Prosperity Oaks Tract, to Walter Kelly in 1956. In 1968, Mr. Kelly sold the northern 50 acres of his land, including the Prosperity Oaks Tract, to MacArthur subsidiary Royal American Industries. He then removed the understory vegetation and many of the trees from his remaining land by 1968, leaving grasses and scattered trees.

Construction began on the Maranatha Church of God property next to the southeast corner of the natural area in the early 1970s. The Dwight D. Eisenhower Elementary School west of the Canal Tract was constructed in 1969. The 1973 aerial (Palm Beach County Property Appraiser 1973) shows the various Maheu subdivisions as nearly built out, the elementary school as being present, and a building on the church property with another under construction.

In 1978, percolation ponds were dug at the Cabana Colony sewer plant, and utilities lines extended northward in an easement next to the western border of the natural area. By 1980, a winding drainage canal had been dug to drain the MacArthur Foundation lands north and south of PGA Boulevard, and west of the Prosperity Oaks Tract (USDA 1980). A portion of this canal was constructed within the present-day, 100-foot-wide, County-owned Canal Tract just northwest of the Prosperity Oaks Tract. The canal emptied into the Cabana Colony canal west of the Maranatha Church of God, and also had a weir installed just south of the Cabana Colony canal to prevent overdrainage of its basin.

The first of the Frenchmen's Landing plats was recorded in 1980, and construction began on this development north of the natural area on 80 acres of the former Watson land in 1981. Frenchmen's Landing proceeded rapidly and was nearly built out by the mid-1980s. The future Prosperity Pines development tract south of the Frenchman's Forest Tract was partially cleared and a baseball field established on a portion of it in the early 1980s. Dumping increased on the natural area in the 1980s and became a major problem. The regrowth on the previously farmed areas became a closed canopy forest, approximately 50 percent native hydric hammock or mesic hammock vegetation, and 50 percent Brazilian pepper, with a clumped distribution. A 100-foot-wide strip of mostly Brazilian pepper was cleared west of Prosperity Farms Road between the Cabana Colony Canal and the developed Maheu inset in 1986. This clearing was apparently done to facilitate the installation of a water main and the cleared vegetation was pushed westward into the natural area.

Construction began on the Gardens Mall southwest of the natural area and west of the Prosperity Oaks Tract around 1987. The regional mall was completed in 1989. In the late 1980s, development approval was sought for the natural area and the lands west of it for residential development and the natural area was annexed by the City at this time. The developers were unable to get financing for their project and the approvals expired. The project was abandoned in the early 1990s.

In December 1979, Prosperity Acres, Inc. merged into Royal American Industries, Inc., a MacArthur subsidiary. This portion of the natural area was conveyed to trustees of the MacArthur Liquidating Trust Agreement in December 1983 and then to the John D. and Catherine T. MacArthur Foundation in October 1992.

In the early to mid 1980s it became evident that most or all of the native habitats in the County would be lost to development if actions were not taken to preserve and protect some of the remaining natural lands. In 1986 the BCC funded an inventory of the native ecosystems in Palm Beach County by two Florida Atlantic University professors, Dr. Grace Iverson and Dr. Daniel Austin (Iverson and Austin 1988). The study was completed in 1988, with additional work in 1989. The Frenchman's Forest and Prosperity Oaks ecosites were identified in this study as two of the 39 "A" quality sites remaining in the County. Fourteen of the "A" quality sites were given high priority for acquisition by the County's Environmentally Sensitive Lands Acquisition Advisory Committee (ESLAAC) in 1990. The Frenchman's Forest and Prosperity Oaks ecosites were two of those 14 high-priority sites. On March 12, 1991, the voters of Palm Beach County approved a $100 million bond referendum to purchase environmentally sensitive lands, with emphasis on the 14 high-priority sites.

Many of the 14 high-priority sites were owned by the John D. and Catherine T. MacArthur Foundation (MacArthur Foundation). With one exception, the MacArthur Foundation indicated that it was not interested in selling the environmentally-sensitive lands it owned. The MacArthur Foundation was willing to sell its Pal-Mar landholdings and tried to interest the County in an immediate purchase of those lands. The County's Environmentally Sensitive Lands Acquisition Selection Committee (ESLASC), the successor to ESLAAC, and county staff indicated to the MacArthur Foundation that they were more interested in six of the sites on the list that were located closer to the coast (including the Loxahatchee Slough), because those sites were in greater danger of being developed. A deal was reached in 1993 for the MacArthur Foundation to sell its property in what is now the Jupiter Ridge Natural Area to the County; that site had a high appraised value because all of the development approvals had been obtained.

Eventually an agreement was reached that the County would acquire four of the five remaining sites near the coast from the MacArthur Foundation in two acquisition packages. The Frenchman's Forest, Juno Hills and Loxahatchee River (now part of the Cypress Creek Natural Area) ecosites would be in the first package and the Loxahatchee Slough in the second. The package deals took a long time to accomplish because there were many issues to resolve – surveys, site cleanups, wetland determinations, appraisals, title problems, parcel deletions, etc. The MacArthur Foundation retained strips of land along the edges and through the sites to make sure that roads could be built in the future to benefit other MacArthur Foundation lands. The County did not like the strip deletions, but the MacArthur Foundation insisted and county staff believed that the County would eventually get the strips.
Acquisition of the 47-acre Prosperity Oaks ecosite was deferred, however, and subsequent negotiations to purchase the Prosperity Oaks ecosite were not successful. The MacArthur

Foundation insisted on retaining a 10-acre portion of the ecosite that was located south of the Dwight D. Eisenhower Elementary School because it was approved for high-density residential uses. In addition, the MacArthur Foundation refused to donate an 8-acre hammock preserve that was required as part of the regional mall development approval; instead it insisted that the County purchase the hammock preserve. The MacArthur Foundation also insisted that it retain the right to extend Gardens Parkway across the southern portion of the Prosperity Oaks ecosite and to use a portion of the site as a water retention area. The County's negotiators eventually told the MacArthur Foundation they weren't interested in purchasing the Prosperity Oaks ecosite under those terms.

The main issue at the Frenchman's Forest ecosite became the amount of cleanup needed because of the extensive uncontrolled dumping in the 1980s. In 1991, the perimeter of the natural area had been cleared and fenced by the MacArthur Foundation, ending the dumping. The fencing was installed 15 to 25 feet inside the property line, and the cleared vegetation was pushed into the natural area. The setback of the fencing encouraged adjacent residential property owners to encroach into the natural area with landscaping, play sets, and wood privacy fences. The MacArthur Foundation removed most of the dump piles along Prosperity Farms Road at this time. More extensive cleanups occurred in 1994 and 1995 prior to acquisition.

Although the package deals came close to falling apart several times, the problems were eventually resolved. The closing for the first package acquisition occurred in December 1995, at a price slightly below appraised value. The County acquired 149.09 acres of the Frenchman's Forest ecosite from the MacArthur Foundation for $5,676,987. As part of the deal, the MacArthur Foundation retained ownership of a 120-foot-wide, 7.36-acre road right of way that bisected the southern 1/3 from the remainder of the ecosite; the right of way was reserved for the future extension of Hood Road. The MacArthur Foundation also retained ownership of two 25-foot-wide strips of land just west of Prosperity Farms Road to provide additional right of way for future expansion of that road. In exchange for these reservations, the County received an access and management easement over the retained lands.

In 1992, the Cabana Colony sewer plant was demolished and the percolation ponds filled. Cattle corrals and feeders were constructed and the property west of the natural area was leased as pasture land. In May 1995, a wildfire burned several acres of pine flatwoods in the northeastern corner of the site.

Once it acquired the former MacArthur Foundation tract, ERM began to secure the site. Since the MacArthur Foundation set its fences back from the property lines, many of the residents of the Frenchmen's Landing development along the northern border of the natural area had expanded their backyards up to the MacArthur Foundation fence, putting in landscaping, swing sets, trampolines, etc. A similar situation occurred on the north side of the unrecorded Maheu subdivision inset on the east side of the Frenchman's Forest Tract.
When the County began staking and clearing the property lines and perimeter firebreaks, the residents were upset and began lobbying their county commissioner. The Frenchmen's Landing

residents had built their homes very close to the property line, and wanted the fence set back and buffering landscaping installed. The Maheu subdivision inset residents claimed that the fencing would block emergency vehicle access along 125th Street. ERM would eventually have to put its fencing policy down in a memo and submit it for approval by NAMAC. NAMAC approved the fencing policy after modification to include vinyl-coated, 6-foot-tall chain-link fence next to residential properties.

In August 1996, the County and the City of Palm Beach Gardens submitted a joint application to the FCT Preservation 2000 Program for matching funds to help pay for acquisition of the MacArthur Foundation property. The County received $2,868,282 in matching funds from FCT in May 1998.

During the preparation of the initial management plan, the City requested that the County identify and set aside a location where the City could build and operate a nature center at the City's own expense. ERM identified an exotic-dominated area on the east shore of the open water area in the southeast portion of the site. Ultimately, the City decided not to construct a nature center within the natural area.

The draft management plan for the former MacArthur Foundations lands within the Frenchman's Forest Tract was completed in late 1997. An Interlocal Agreement with the City for management of the site was approved in January 1998 (Appendix E). A public hearing was held on the draft management plan in April 1998. The initial management plan for the Frenchman's Forest Natural Area was approved by FCT and NAMAC in May 1998, and by the BCC on July 7, 1998.

Hurricane Irene in October 1999 caused flooding in the low-lying neighborhoods east of the natural area which did not have a drainage outfall to the AIWW. An emergency pipeline was installed to pump flood waters into the northeast corner of the natural area and eventually to the AIWW through the strand swamp and canal. County Engineering later sought to have this pipeline bored under Prosperity Farms Road and utilized until a drainage system to the AIWW was established for these neighborhoods. The pipeline was used again to discharge dewatering flows from a water and sewer line installation along Country Oaks Lane in 2006.

In late 1998, Pulte Homes began working on permitting what would become the Prosperity Pines development on a 20-acre tract south of the natural area between the Cabana Colony Canal and Lone Pine Road. ERM staff worked with them on drainage issues, and hoped that the development would pay for the moving of the deteriorating weir in the Cabana Colony Canal from west of the natural area to just west of the tidal lagoon in the natural area. Ownership of the canal became an issue, as it had been dedicated to the County in the Cabana Colony plat filed in 1960, but the County had never accepted it because the County did not want responsibility for the canal maintenance. Concerns about drainage at the Prosperity Pines development and the future Frenchman's Reserve development stopped the weir relocation, but Pulte did clean out the previously impassable Cabana Colony Canal and removed the exotic vegetation on the south

bank of the canal. Construction on the Prosperity Pines development began in 2001 and was completed in 2003.

In 1998, ERM and ESLASC prepared a list of 37 priority sites to be acquired in a follow-up conservation lands bond referendum in 1999. The Prosperity Oaks tract was not included on the list since it was no longer considered to be a worthwhile purchase and there was little expectation that it could be acquired. The 260 acres of land in Section 31 west of the natural area was identified as one of these priority sites and assigned the name Frenchman's Forest West. Frenchman's Forest West and many of the other 37 sites were owned by the MacArthur Foundation. Although the $150 million 'Lands for Conservation Purposes Bond Issue Referendum' was approved by County voters on March 9, 1999, the MacArthur Foundation sold its land package to WCI in the same month for approximately $120 million.

WCI announced that it would sell off most of the former Foundation lands it had purchased to lessen its financing costs. The County contacted WCI and expressed an interest in buying the parcels that were on the 1999 bond referendum priority list. It was agreed that the County would appraise the lands in six separate sequential packages. However, before the County could get its first appraisal package done, WCI sold several of the more desirable properties to other developers. The Frenchman's Forest West site was part of a larger parcel that was sold to Toll Brothers (Binks Estates Limited Partnership). The County eventually purchased many of WCI's less-desirable properties, but lost those in high demand.

Toll Brothers immediately went to work on developing the Frenchman's Forest West site as the proposed Frenchman's Reserve golf course development. The project was required to have approximately 30 acres in native vegetation preserves, and ERM requested the preserves be located next to the natural area. Toll Brothers declined to discuss the approximately 8 acres of Hood Road right-of-way reservation which bisected the natural area. Toll Brothers purchased this reservation along with the rest of the Frenchman's Forest West site. The developers did not want Hood Road bisecting their development, and preferred the road to run along the western and northern edge of the development and connect to Flamingo Road. ERM had always preferred this alignment, since it kept Hood Road out of the natural area. Toll Brothers indicated they would set aside the road reservation in the natural area as a native vegetation preserve if the road was moved, and would donate it to the County for inclusion into the natural area. ERM staff agreed to provide biological support and documentation for moving the road.

The BCC eventually approved the Hood Road realignment in 2000, and the City approved the Frenchman's Reserve development with this realigned road. In 2011, Toll Brothers donated the 7.36-acre Hood Road right-of-way to the County, along with $30,000 in management funds, as part of their offsite mitigation requirements.

The nature trail and hiking trails were laid out in 2000. Construction begun on the natural area public use facilities and environmental restoration/enhancement projects in December 2000 and was completed in September 2001. The site officially opened in October 2001.

The Frenchman's Reserve property historically drained into the natural area, through the strand swamp and into Lake Worth Creek. This drainage connection was disrupted by utility easements and other human activities, but the historic water flows resumed during major rain events. The initial management plan recommended restoring this connection to provide additional water for the strand swamp restoration. During the permitting process, Toll Brothers, the developer for the Frenchman's Reserve, wanted to establish a control elevation that was lower than the one recommended by the South Florida Water Management District (SFWMD). SFWMD objected to the lower elevation on the basis that it would pull down groundwater levels and would waste fresh water by dumping it into the AIWW. ERM suggested to SFWMD that the lower water control elevation could be used to help rehydrate the strand swamp within the natural area. Toll Brothers agreed that it would connect the Frenchman's Reserve drainage system to the natural area.

Eventually, the SFWMD permitted the surface water management system at the lower water control elevation. The connection between the natural area and the development's drainage system was initially located at the historic wetland connection between the two tracts and an easement for the connection was given in February 2001. However, it was discovered that the ground elevation at the connection was higher than the water control elevation. An old drainage ditch ran from the strand swamp to the western edge of the natural area and when the connection was transferred to this ditch in May 2002, the ditch proved to be low enough to allow water to flow into the strand swamp. After the Frenchman's Reserve drainage system was constructed in 2002, it provided an addition source of water for hydrological restoration and helped bring water levels closer to historic levels.

Kolter Homes bought the land containing the Prosperity Oaks tract from WCI in the early 2000s, and inherited the requirement for the 8-acre hammock preserve. Kolter approached ERM about accepting and managing a hammock preserve, but the County said they weren't interested in a preserve that small.

Kolter agreed to sell the County approximately 11 acres for a natural area, but appraisals would be based on eight of those acres having little or no value due to preserve requirements. The natural area would provide a wooded buffer strip along the length of the Maheu subdivision and the single-family residential lots south of _____ road. A larger parcel would also be preserved that fronted on Prosperity Farms Road. The master property owner's association for the entire mall development would retain a buffer strip of 25 feet along the northern border and 55 feet along the eastern borders of Prosperity Oaks tract, but the County would be allowed to fence and manage most of the eastern portions of this 2.93-acre buffer. Along Edgewater Drive and the inholding parcels, the 25-foot strip would be used to build a soil berm and shrubs planted in the buffer strip to provide screening for adjacent residents. The County acquired the 11 acres (8 acres as a donation) from Kolter subsidiary Grande at Palm Beach Gardens, Inc. for $526,925 in June 2003.

The natural area was affected by two hurricanes in September 2004 (Hurricanes Frances and Jeanne) and one hurricane in October 2005 (Hurricane Wilma). Heavy rainfall from the 2004 hurricanes flooded the natural area causing a portion of the northern berm of the Cabana Colony canal (part of a management accessway) to washout. The berm/management accessway was repaired in December 2004 using GeoWeb, a plastic webbing material designed to stabilize soils on slopes. Each of the hurricanes uprooted and damaged a number of large trees within the natural area. Storm debris from the hurricanes damaged the roof to the wildlife observation platform and several portions of the chain-link fence. Storm debris also blocked several of the trails and management accessways for a couple of weeks after each of the hurricanes. In April 2006, a large chipper was brought on site to reduce the piles of downed vegetation from these hurricanes. The wood chips were spread around the natural area and on the hiking trail.

In August 2005 the natural area was selected by the Florida Fish and Wildlife Conservation Commission (FWC) as part of the Great Florida Birding Trail (now the Great Florida Birding and Wildlife Trail). The South Florida Section Guide, which includes the natural area, was updated in 2011 and is available on the FWC website at: http://floridabirdingtrail.com/index.php/trip/trail_guides/.

By 2005 WCI, which had purchased most of the MacArthur Foundation's landholdings in the 1999 bulk sale, wanted to be relieved of its obligations to the County to dig a wetland restoration project on the property it sold to the County that subsequently became the Winding Waters Natural Area. The County proposed that WCI donate to the County a number of the strips it owned that the MacArthur Foundation had retained, and other odds-and-ends parcels within or adjacent to other natural areas, in exchange for being released from these obligations. The 25-foot-wide strips west of Prosperity Farms Road and adjacent to the Frenchman's Forest Tract were included in the exchange, as was the 100-foot-wide, 1.51-acre Canal Tract. In March 2006, WCI donated the 0.77-acre right of way strip north of the residential inholding to the County for inclusion in the natural area.

Information regarding notable events taking place at the natural area subsequent to the acquisition of the right of way parcel are depicted in the following chapters: "Management and Restoration Activities" (Chapter 4), "Site Development and Improvement" (Chapter 5) and "Chronology of Major Events" (Chapter 8).

2. PURPOSE AND OBJECTIVES

2.1 PURPOSE OF ACQUISITION

The primary purpose for the acquisition of the natural area was to preserve the site's ecological resources. The acquisition, preservation and perpetual management of this site has and will continue to help protect high-quality examples of hydric hammock, mangrove swamp, mesic flatwoods, mesic hammock, scrubby flatwoods, strand swamp and wet flatwoods natural communities, their component plant and animal species, and the quality and quantity of local groundwater resources. Acquisition of this site has provided the general public with opportunities for recreational activities, environmental education, and scientific research which are consistent with the primary objectives. It has also helped Palm Beach County and the City of Palm Beach Gardens comply with portions of their respective comprehensive plans. All portions of the natural area are important to preserving the ecological resource values of the site. Because every portion of the site provides habitat for at least one rare or endangered plant species, animal species, or natural community, there are no portions of the property that can be declared as surplus.

2.2 MANAGEMENT GOALS AND OBJECTIVES

The natural area contains examples of hydric hammock, mangrove swamp, mesic flatwoods, mesic hammock, scrubby flatwoods, strand swamp and wet flatwoods natural communities (Figure 4). These communities, most of which can be considered as high-quality within the context of urbanized southeastern Florida, were in a somewhat degraded condition at the time of site acquisition as a result of fire exclusion and suppression, nonnative plant invasions, drainage, agricultural alterations and uses, off-highway vehicle (OHV) traffic, dumping and other human-caused disturbances. The primary goal of site management is to preserve and, where appropriate, restore or enhance the hydric hammock, mangrove swamp, mesic flatwoods, mesic hammock, open water, scrubby flatwoods, strand swamp and wet flatwoods communities, together with their component species, as described in Section 3.3. Maintaining and improving the ecological quality of these communities is the primary management objective for this site. Management efforts to date have included planting over 600 cabbage palms; environmental restoration/enhancement of the hydric hammock, mangrove swamp and mesic hammock communities; hydrological restoration of the hydric hammock, strand swamp and wet flatwoods communities; and the implementation of prescribed burning and invasive/nonnative plant control programs. Habitats for listed species will be managed for the needs of individual species when such management is compatible with the overall management of the ecosystems within the natural area.

The site is managed under the "single-use" concept, which means that it is managed to preserve and restore/enhance the existing natural resource values. Scientific research, environmental education and public outdoor recreational uses are encouraged as secondary management objectives as long as they do not jeopardize the protection of natural resources. Passive,

resource-based outdoor recreational uses, such as nature appreciation and study, hiking and photography are allowed throughout the site.

The following goals and objectives reflect desired management outcomes that are specific to the Frenchman's Forest Natural Area. The objectives are actions or measureable outcomes of management targeted to achieve either short-term goals (achievable within 2 years) or long-term goals (achievable within 10 years).

Habitat Restoration and Improvement

Goal 1. Maintain and enhance a healthy scrubby flatwoods community (short-term and long-term).

Objective A. Conduct prescribed burns within Management Units 3 and 5 (Figure 5) at 8- to 15-year intervals to maintain the scrubby flatwoods natural community on the site.

Objective B. Follow the burn schedule provided in Table 3, and accelerate the schedule if weather conditions, funding opportunities and resources allow.

Objective C. Implement mechanical vegetative reduction of scrubby flatwoods habitat at least once every 8 to 15 years if fuel levels, and smoke management and safety concerns result in extremely limited or unattainable prescribed burn conditions.

Goal 2. Maintain and enhance healthy mesic flatwoods and wet flatwoods natural communities (short-term and long-term).

Objective A. Conduct prescribed burns within Management Units 1 and 2 (Figure 5) at 5- to 8-year intervals to maintain the mesic flatwoods and wet flatwoods communities on the site.

Objective B. Follow the burn schedule provided in Table 3, and accelerate the schedule if weather conditions, funding opportunities and resources allow.

Objective C. Implement mechanical vegetative reduction of mesic flatwoods and wet flatwoods habitat at least once every 5 to 8 years if fuel levels, and smoke management and safety concerns result in extremely limited or unattainable prescribed burn conditions.

Imperiled Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration

Goal 1. Protect and maintain imperiled species at existing population levels (short-term and long-term).

Objective A. Conduct prescribed burns in accordance with the schedule provided in Table 3 to maintain the diversity and health of the plant communities on the site.

Objective B. Monitor the status of imperiled plant species populations in accordance with species-specific monitoring schedules established by ERM.

Objective C. Conduct annual migratory and nonmigratory wildlife species, periodic gopher tortoise surveys and ongoing opportunistic surveys for all wildlife species observed on the natural area. Special care shall be taken to record all sightings of imperiled species.

Objective D. Enforce relevant provisions of the Natural Areas Ordinance, such as those dealing with damage to or removal of plants, molestation or harassment of animals, introduction or release of nonnative plants and animals, and prohibition of domestic animals and pets.

Goal 2. Increase populations of imperiled species present on the site or historically present on the site (long-term).

Objective A. Encourage local colleges and universities, governmental agencies, and other appropriate entities to conduct research activities related to imperiled species present on the site, in order to obtain information useful for the management and maintenance of those species and their habitats.

Objective B. Assist botanical gardens, governmental agencies, and other appropriate entities wishing to conduct restoration activities related to imperiled species present on the site or formerly present on the site, including reintroduction of those species where feasible.

Nonnative, Invasive and Nuisance Species Maintenance and Control

Goal 1. Control nonnative and invasive plant species, and nonnative and nuisance animal species so that they do not significantly impact native communities (short-term and long-term).

Objective A. Maintain coverage of invasive nonnative plant species at less than 1 percent of the natural area.

Objective B. Conduct annual nonnative plant treatments

Objective C. Prevent excessive growth of invasive native vines with annual treatments or as needed.

Objective D. Monitor the site for domestic and feral cats, coyotes, raccoons and other nuisance and nonnative animals during opportunistic observations and scheduled wildlife monitoring surveys, and remove/control the population of nuisance and nonnative animals as necessary and feasible.

Hydrological Preservation and Restoration

Goal 1. Evaluate the success (short-term and long-term) of the hydrological restoration project.

Objective A. Monitor water levels and vegetation in the hydric hammock, strand swamp and wet flatwoods communities to determine if hydroperiods, water levels and vegetation within the wetlands resemble what is found in similar, intact wetlands on other natural areas in Palm Beach County. This information will be used to determine if any changes in management procedures are needed.

Cultural and Historical Resources

This management objective is not applicable to the Frenchman's Forest Natural Area. The natural area does not contain any cultural or historical resources.

Sustainable Forest Management

This management objective is not applicable to the Frenchman's Forest Natural Area. The natural area does not provide commercial forest resources.

Capital Facilities and Infrastructure

Goal 1. Maintain the existing facilities and infrastructure in safe condition (short-term and long-term).

Objective A. Monitor the integrity and condition of facilities on a regular basis, including the parking lot, concrete nature trail, hiking trails, kiosks,

signs, boardwalk, wildlife observation platform, bike rack, fencing and gates.

Objective B. Close unsafe areas to the public immediately upon the detection of a problem.

Objective C. Replace/repair damaged fencing and signage as soon as possible.

Objective D. Replace cracked/damaged infrastructure within six months of detection.

Goal 2. Maintain the overall appearance and aesthetics of the natural area (short-term and long-term).

Objective A. Conduct volunteer site cleanup events at least annually.

Objective B. Maintain public use facilities (cleaning of concrete nature trail, boardwalk, etc.) on a bi-weekly or as-needed basis.

Objective C. Mow management accessways and firebreaks on an as-needed basis.

Objective D. Paint over or remove graffiti from public use facilities on an as-needed basis.

Public Access and Recreational Opportunities

Goal 1. Continue to provide passive, resource-based public access and recreational opportunities within the natural area (short-term and long-term).

Security

Goal 1. Implement appropriate security and access control measures to prevent unauthorized activities, such as use by OHVs, dumping and off-trail use (short-term and long-term).

Objective A. Install and maintain a fence and gate system which is designed to restrict public vehicular access to the designated parking lot.

Objective B. Continue to fund the Wildlands Task Force to enforce the Natural Areas Ordinance, as amended.

3. NATURAL AND CULTURAL RESOURCES

The Frenchman's Forest Natural Area represents a small remnant of an extensive mosaic of upland and wetland communities formerly present along the coastline of southeastern Florida. Agriculture, urbanization, road construction, hydrologic modifications, and a host of other human disturbances have eliminated or severely modified the majority of the upland natural communities in this area. Likewise, human disturbances have eliminated or greatly reduced most freshwater wetland communities in the vicinity of the natural area. The natural area is not a designated area of state concern or under study for such designation, and is not within an aquatic preserve.

Acquisition of sites like the natural area is important because it helps preserve examples of rare natural communities and rare and/or endemic plant and animal species in southeastern Florida. If the goal of preserving these historic remnants is to succeed, however, management of these sites must be conducted in a proactive manner. Managers must recognize that these sites are disturbed fragments of larger historic ecosystem mosaics, and management activities must include the elimination or mitigation of as many unnatural disturbances to the remaining natural communities as possible.

In order to develop meaningful management objectives, policies and procedures, a thorough inventory and assessment of the site's natural resources must be conducted. Information must be obtained on soils; water resources and hydrology; mineral resources; unique natural features; natural communities and their constituent plants; fish and wildlife; listed natural features and species; and outstanding native landscapes. Within these categories, it is critical to identify the disturbance processes that may alter ecosystem structures and functions, and thereby affect long-term management goals. The following sections provide this information regarding the site's natural resources. Every effort has been made to identify information gaps where they exist.

Both the scientific name and the common name of a plant or animal species are provided the first time the species is mentioned in this management plan. After the initial reference, only the common name is used. The scientific and common names of the plants and animals recorded at the natural area are provided in Appendixes A and B, respectively.

3.1 SOILS

Brown, et al. (1990) urged caution when using soil maps, even at the scale of County maps, because soil properties are highly variable over the landscape. Despite these limitations, the Palm Beach County soil maps (United States Department of Agriculture, Soil Conservation Service [USDA, SCS] 1978; United States Department of Agriculture, Natural Resource Conservation Service [USDA, NRCS] 2013) are very useful tools in determining the historic distributions of natural communities and plants as well as in predicting responses of natural communities to alterations of historic hydrology and fire frequency.

The following descriptions of soil series, soil phases, and vegetation are based on a combination of updated series descriptions available on the USDA, NRCS web site (USDA, NRCS undated) and more detailed soils descriptions contained in USDA, SCS (1978). In this plan, scientific names have been added to the descriptions for clarification where possible. USDA, SCS (1989) correlated soil types with ecological communities in Florida, and these correlations are listed for each soil series. USDA, SCS (1989) used a different ecological community classification system than the FNAI system that is used in other parts of this plan.

Although the present tense has been used to describe these soils, most soils in Palm Beach County have been modified by hydrologic manipulations and other disturbances. All of the soils on the natural area have been affected by an increase in the depth from the soil surface to the water table due to regional drainage.

Six soil series are present at the natural area: Anclote, Arents, Basinger, Immokalee, Okeelanta and Pomello. In addition, one soil mapping unit representing artificial soils is present on the site: Urban Land.

3.1.1 Anclote

The Anclote series consists of nearly-level, very deep, very-poorly-drained sandy soils in small depressions and poorly-defined drainageways (USDA, SCS 1978: USDA, NRCS undated). Under natural conditions the water table is within 10 inches of the surface for 6 months or more in most years and recedes below a depth of 20 inches in the dry seasons (USDA, NRCS undated). Depressional areas are ponded. The lowest areas are covered with water for 2 to 4 months in most years. USDA, SCS (1989) stated that strand swamp and sawgrass marsh were the typical ecological communities present on Anclote soils. The natural vegetation is described as including cypress (*Taxodium* spp.), bay (*Persea* spp.), pop ash (*Fraxinus caroliniana*), pond pine (*Pinus serotina*), red maple (*Acer rubrum*), cabbage palm, pickerelweed (*Pontederia cordata*), maidencane (*Panicum hemitomon*), ferns, sawgrass (*Cladium* spp.), and other water-tolerant grasses (USDA, SCS 1978: USDA, NRCS undated). The series is represented at the natural area by Anclote fine sand (Figure 3).

3.1.2 Arents

The Arents series consists of sloping to steep, excessively-drained to somewhat poorly-drained sandy fill materials that were excavated and placed along the banks of canals or on top of low-lying organic soils (USDA, SCS 1978). These soils are present in long, discontinuous, narrow ridges along major canals and in thick layers on former wetlands. Vegetation, when present, is usually sparse and consists of weedy and ruderal (species which are found almost exclusively in disturbed areas) grasses and herbs and monocultures of invasive exotic trees.

The series is represented at the natural area by Arents-Urban Land complex (Figure 3). The Arents-Urban Land complex consists of nearly level, somewhat poorly-drained, sandy soil that

was dredged from internal canals and deposited on top of adjacent wetlands. Typical vegetation consists of disturbed grasses and herbs (USDA, SCS 1978).

3.1.3 Basinger

The Basinger series consists of nearly level, very deep, poorly-drained, sandy soils in broad, low sloughs, depressions, low flats, and poorly-defined drainageways (UDSA, SCS 1978: USDA, NRCS undated). Under natural conditions the water table is within 12 inches of the surface for 2 to 6 months in most years and within 12 to 30 inches for periods of more than 6 months in most years (USDA, NRCS undated). Depressions are typically covered with standing water for 6 to 9 months or more each year. The series is represented at the natural area by Basinger fine sand (Figure 3).

Basinger fine sand is described as having the characteristics typical for the series. The natural vegetation is described as including scattered cypress, longleaf pine (*Pinus palustris*) or slash pine, wax myrtle (*Myrica cerifera*), St. John's-worts (*Hypericum* spp.), wiregrass (*Aristida stricta* var. *beyrichiana*), maidencane, blue maidencane (*Amphicarpum muhlenbergianum*), pond pine, broomsedge bluestem (*Andropogon virginicus*) and low panicgrasses (*Panicum* spp.) (USDA, SCS 1978; USDA, NRCS undated). USDA, SCS (1989) listed slough as the typical ecological community found on Basinger fine sand soils.

3.1.4 Immokalee

The Immokalee series consists of nearly-level to gently-sloping, deep and very deep, poorly-drained and very poorly-drained sandy soils (USDA, SCS 1978; USDA, NRCS undated). They occur in flatwoods and in depressions. Under natural conditions the water table is within 6 to 18 inches of the surface for 1 to 4 months and within 18 to 36 inches of the surface for 2 to 10 months during most years (USDA, NRCS undated). It is below 60 inches during the dry season. Depressional areas are covered with standing water 6 to 9 months per year or more. USDA, SCS (1989) listed South Florida flatwoods as the typical ecological community found on this soil. The natural vegetation is described as including longleaf and slash pine, saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), wax myrtle and wiregrass in upland areas and cypress, loblolly bay (*Gordonia lasianthus*), red maple, sweetbay (*Magnolia virginiana*), maidencane, blue maidencane, chalky bluestem (*Andropogon virginicus* var. *glaucus*), sand cordgrass (*Spartina bakeri*) and bluejoint panicum (*Panicum tenerum*) in depressional areas (USDA, NRCS undated). The series is represented at the natural area by Immokalee fine sand (Figure 3).

3.1.5 Okeelanta

The Okeelanta series consists of nearly-level, very deep, very-poorly drained, organic soils in large freshwater marshes and small isolated depressions (USDA, SCS 1978; USDA, NRCS undated). Under natural conditions this soil is covered by water or the water table is within 10 inches of the surface 6 to 12 months in most years, except during extended dry periods (USDA,

NRCS undated). USDA, SCS (1989) listed swamp hardwoods and freshwater marshes and ponds as the typical ecological communities present on Okeelanta soils. The natural vegetation is described as including sawgrass, ferns, waterlilies (*Nuphar advena* or *Nymphaea* spp.), sedges, fireflag (*Thalia geniculata*), maidencane, pickerelweed, and scattered areas of willow, elderberry (*Sambucus nigra* subsp. *canadensis*), wax myrtle, cypress, and pond apple (*Annona glabra*). The series is represented on the natural area by Okeelanta muck (Figure 3).

3.1.6 Pomello

The Pomello series consists of nearly level to gently sloping, moderately-well to somewhat-poorly-drained, very deep, sandy soils (USDA, SCS 1978; USDA, NRCS undated). Pomello soils are present on low knolls and ridges within flatwoods in peninsular Florida. Under natural conditions the water table is at a depth of 24 to 42 inches for 1 to 4 months during the normal wet season and below 42 inches during the remainder of the year (USDA, NRCS undated). USDA, SCS (1989) stated that sand pine scrub was the typical ecological community found on this soil. The natural vegetation is described as including slash pine, sand pine, dwarfed oaks, saw palmetto, gallberry, fetterbush (*Lyonia lucida*), wiregrass and other native grasses (USDA, SCS 1978). The series is represented at the natural area by Pomello fine sand (Figure 3).

3.1.7 Urban Land

This mapping unit consists of soils that have been altered by dredging, filling, or regrading that the parent soil can no longer be easily recognized (USDA, SCS 1978). It occurs adjacent to and within developed areas. The series is represented on the natural area by one soil complex, the Arents-Urban Land complex (Figure 3).

3.2 HYDROLOGY

The natural area contains part of the headwaters of the former Lake Worth Creek (Winchester Environmental Associates 1989), a meandering blackwater creek that flowed northward to join the Loxahatchee River near its mouth at the Jupiter Inlet. Historically, it appears that the Canal Tract and most of the western portion of the Frenchman's Forest Tract were part of a shallow, freshwater marsh system which connected to a deeper water strand swamp within the east-central and north-central portions of the Frenchman's Forest Tract (USDA 1940). The Prosperity Oaks Tract appears to have been part of a large, deeper sawgrass marsh that extended east of Prosperity Farms Road, and then in a north-northwesterly direction into the southeastern portion of the Frenchman's Forest Tract. Excess surface waters within and surrounding the natural area flowed in a northerly direction through the sawgrass marsh and/or strand swamp before flowing into the upper reaches of Lake Worth Creek. Once in Lake Worth Creek, the excess surface waters continued in a general northward direction until they reached the Loxahatchee River.

Natural ground elevations within the Frenchman's Forest Tract range from about 3 feet (National Geodetic Vertical Datum (NGVD) in the deepest portions of the strand swamp and hydric

flatwoods to about 10 feet NGVD in the highest portions of the scrubby flatwoods and about 11 feet NGVD in the highest portions of the mesic flatwoods (need reference from Matt). Natural ground elevations within most of the Prosperity Oaks Tract range from about 4 feet NGVD to 8 feet NGVD, with the lowest elevations occurring within the eastern portion of the tract. Ground elevations within the Canal Tract range from approximately 1.1 feet to 10.5 feet NGVD.

The first hydrological impact that occurred in vicinity of the natural area was the dredging of the Florida East Coast Canal (the predecessor to the AIWW) in the 1890s. Construction of the canal allowed freshwater to drain out of sawgrass marshes east of the natural area and saltwater to flow from the Jupiter Inlet southward into the some of the former sawgrass marshes. Although the canal didn't directly impact wetlands within the natural area, it reduced the amount of water that flowed from the sawgrass marshes east of the natural area into the strand swamp. The canal also lowered the water table in the vicinity of the natural area. Connecting canals and ditches constructed or improved after 1953 have allowed saltwater to enter the southern and east-central edges of the Frenchman's Forest Tract; the rest of site's wetlands are still freshwater.

The second manmade structure to impact the hydrology of the natural area was Prosperity Farms Road. The southern portion of the road, from present-day Edgewater Drive (northern border of the Prosperity Oaks Tract) south to the FEC Railway, was constructed in 1916. A ditch was dug on the west side of the road to provide fill to raise the roadbed and to provide drainage for lands west of the road. Water from wetlands within the Prosperity Oaks Tract likely drained into the roadside drainage ditch (USDA 1940). The northern extension of Prosperity Farms Road from Edgewater Drive to just south of present-day Donald Ross Road in the 1930s (Palm Beach County History Online undated[b]) blocked historic surface water flows from lands southeast of the Frenchman's Forest Tract into the strand swamp.

The next improvements that affected the site's hydrology were Archie's Creek and some of its contributing drainage ditches. Although a narrow, shallow ditch (the precursor to Archie's Creek) was dug between the AIWW and the eastern boundary of the Frenchman's Forest Tract prior to 1940, the ditch initially appeared to have had little or no effect on natural area wetlands (USDA 1940). However, this changed after the ditch was widened and extended westward into the Frenchman's Forest Tract sometime between 1940 and 1953 (USDA 1940 and 1953). During that timeframe new sections of ditch (part of present-day Archie's Creek) were constructed along the southern and western boundaries of the present-day residential inholding. In addition, narrow, approximately 600-foot-long east-west ditches were constructed from Archie's Creek, near the northwest and southwest corners of the inholding, westward into the natural area. These ditches helped drain the inholding property, as well as the southeastern portion of the Frenchman's Forest Tract, making both areas suitable for farming (USDA 1953).

The hydrological effects of Archie's Creek on the northern portion of the natural area were compounded in the late 1950s or early 1960s when the portion of Archie's Creek that runs along the southern boundary of the residential inholding was widened and deepened, and the eastern portion of Archie's Creek was channelized and rerouted to facilitate stormwater discharges to the

AIWW (USDA 1953 and 1964). In addition, a third narrow, east-west ditch was dug within the Frenchman's Forest Tract, just north of and parallel to the southern ditch west of the residential inholding. These drainage improvements lowered the control elevation within the central portion of the Frenchman's Forest Tract from approximately 5.0 feet NGVD to 1.2 feet NGVD (ERM 2000). They also allowed saltwater to flow from the AIWW into the upper reaches of Archie's Creek, including the portion that lies within the natural area. Some of the hydrological effects of Archie's Creek have been mitigated through the construction of a weir in the northern east-west ditch, and through the plugging of the three shallow east-west ditches west of the inholding property (see Section 4.5.4). These efforts reestablished a control elevation of approximately 5.0 feet NGVD within the central portion of the Frenchman's Forest Tract.

The hydrology of Frenchman's Forest Tract also was affected by two drainage systems designed to benefit properties west of the natural area. The first of these drainage systems was a circuitous drainage ditch that was dug between 1940 and 1953 to connect and drain wetland areas within the property just west of the Frenchman's Forest Tract (present-day Frenchman's Reserve). The eastern portion of this ditch was constructed within the northwestern portion of the Frenchman's Forest Tract and discharged into the strand swamp. The ditch drained freshwater wetlands both west of the Frenchman's Forest Tract and within the northwestern portion of the natural area; it also caused periodic flooding of the strand swamp and hydric hammock communities in the Frenchman's Forest Tract following heavy rains. When the Frenchman's Reserve property west of the natural area was developed, the County agreed to allow some of the development's stormwater to be discharged into the Frenchman's Forest Tract via a remnant portion of the 1940-1953 ditch. The purpose of this discharge was to help rehydrate the strand swamp and hydric hammock communities within the Frenchman's Forest Tract (see Section 4.5.4). The control elevation of the discharge culvert is 6.5 feet NGVD.

The second offsite drainage system to affect the Frenchman's Forest Tract was constructed in the late 1950s or early 1960s as part of the Cabana Colony development. A portion of the Cabana Colony discharge canal lies just south of the Frenchman's Forest Tract and empties into the AIWW. An aging weir, located just west of the Frenchman's Forest Tract, acts as a salinity barrier preventing saltwater from entering the upstream portions of the canal. The weir, which reportedly was recently repaired by a local resident, also prevents over drainage of lands west of it; the control elevation of the weir is 6.5 feet NGVD. The portion of the canal that lies east of the weir and immediately south of the Frenchman's Forest Tract is directly connected to the AIWW. Water in this portion of the canal is brackish and water levels within this portion of the canal are dependent upon the tide. The open water area that is within the southeastern portion of the Frenchman's Forest Tract also was dredged in the late 1950s or early 1960s, but was not part of the Cabana Colony canal system.

The last manmade structure that affects the hydrology of the natural area is the northern portion of the drainage system that serves the Gardens Mall and adjacent lands. The drainage system was originally constructed in the late 1970s (USDA 1980). A portion of the discharge canal was constructed within the Canal Tract which is part of the natural area. The canal discharges into

the Cabana Colony canal a few hundred feet west of the open water community in the natural area. A salinity barrier/weir located about 140 feet south of the Cabana Colony canal prevents over drainage of the lands south of the structure.

The construction and maintenance of a regional drainage system and the AIWW has caused the former shallow marsh areas in the Frenchman's Forest Tract to transition to hydric or mesic flatwoods, the former sawgrass marsh in the Prosperity Oaks Tract to transition to hydric hammock, and a portion of the former strand swamp in the Frenchman's Forest Tract to transition to hydric hammock.

3.3 NATURAL COMMUNITIES

The following discussion provides a general description of each of the ten natural and altered plant communities present on the natural area. Wherever possible, the community descriptions are based upon the FNAI classification system (FNAI 2010) and contain information on the rarity of the community worldwide and in Florida (FNAI 2013). If a community is so altered that it no longer resembles or functions as a natural community (as described by FNAI), an alternative description has been developed to supplement or replace the FNAI community description. The phrase "natural community" is used in this plan, even when a historic community has been heavily modified. Any classification system is artificial, and not all communities in a natural area will fall neatly into discrete classification units.

The plant communities at the natural area represent a mosaic of historic, successional and altered communities. Based on available information, historic natural communities on the site appear to have included basin marsh, depression marsh, mesic flatwoods, strand swamp, wet flatwoods and possibly scrubby flatwoods. Modifications to the historic natural communities are the result of decades of drainage, fire exclusion, nonnative pest plant invasions, agricultural activities, OHV use, saltwater intrusion, illegal dumping, road construction, development of adjacent properties and environmental restoration/enhancement efforts. Today, natural communities found at the site include canal, hydric hammock, mangrove swamp, mesic flatwoods, mesic hammock, open water, scrubby flatwoods, spoil/fill, strand swamp and wet flatwoods.

The goal of natural communities management is to reverse or lessen the impact of as many of the human-caused disturbances to the natural area as possible, and to restore and maintain as many of the functions and values of the natural communities that historically occupied the site as possible. All of the natural communities on the natural area have been enhanced or restored (see Section 4.5.4). They will be maintained through the implementation of invasive/nonnative plant and animal control programs (see Sections 4.5.2 and 4.5.3), through the closure of all old OHV roads that are not part of the management accessway/firebreak system and through security measures designed to eliminate OHV use and dumping (see Section 4.7). The three fire-maintained communities on the natural area - mesic flatwoods, scrubby flatwoods and wet flatwoods - also will be maintained through the implementation of a prescribed burn program and/or through mechanical chopping (see Section 4.5.1).

The only area that lacks a natural community is the "developed area" (Figure 4). This area includes the parking lot and entrance road leading from Prosperity Farms Road to the parking lot. It covers approximately 0.9 acres, or approximately 0.5 percent of the site.

3.3.1 Canal

The canal community was created between 1979 and 1980 (USDA 1980) when a north-south canal was dug between the Prosperity Oaks tract and Frenchman's Forest Tract (Figure 4). The 1.51-acre Canal Tract was acquired by the County with the hope that it could be used as part of a pedestrian path that would connect the two main natural area tracts. Unfortunately, the County has been unable to obtain the necessary approvals to construct a pedestrian path and bridge that would connect the Canal Tract to the Frenchman's Forest Tract.

Prior to the site's acquisition by the County, the banks and shallower portions of the canal community had become colonized by a mixture of ruderal, native and invasive nonnative plant species, including water-lettuce (*Pistia stratiotes*), torpedograss (*Panicum repens*), beggarticks (*Bidens alba*), Virginia pepperweed (*Lepidium virginicum),* slash pine, cabbage palm and lilac tassleflower (*Emilia sonchifolia*). Animals found in the canal include Florida softshell (*Apalone ferox*), spotted tilapia (*Tilapia mariae*) and longnose gar (*Lepisosteus osseus*).

Since the canal is separate from the rest of the natural area and is maintained as part of NPBCID's drainage system, it will not be maintained by the County. The canal and its banks total 0.7 acres, or 0.4 percent of the natural area (Figure 4).

3.3.2 Hydric Hammock

Hydric hammock is characterized as an evergreen hardwood and/or cabbage palm forest with a variable understory often dominated by palms and ferns, occurring on moist soils (FNAI 2010). Hydric hammock soils are generally saturated, but are inundated only for short periods following heavy rains. The normal hydroperiod is seldom over 60 days per year (FNAI 2010). This community generally has a closed canopy of oaks and palms, an open understory, and a sparse-to-moderate groundcover of grasses and ferns (FNAI 2010). Typical hydric hammock plant species whose ranges include Palm Beach County are cabbage palm, laurel oak, live oak, red cedar (*Juniperus virginiana*), red maple, sweetbay, slash pine, water oak (*Quercus nigra*), swamp dogwood (*Cornus foemina*), American elm (*Ulmus americana*), Walter's viburnum (*Viburnum obovatum*), wax myrtle, common persimmon (*Diospyros virginiana*), swamp bay (*Persea palustris*), eastern poison ivy (*Toxicodendron radicans*), myrsine (*Myrsine cubana*), wild coffee (*Psychotria nervosa*), American beautyberry (*Callicarpa americana*), sugarberry (*Celtis laevigata*), sweetgum (*Liquidambar styraciflua*), flatsedges, woodoats (*Chasmanthium* spp.), Carolina scalystem (*Elytraria caroliniensis*), basketgrass (*Oplismenus hirtellus*), maiden ferns (*Thelypteris* spp.), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis* var. *spectabilis*), swamp fern (*Blechnum serrulatum*), netted chain fern (*Woodwardia areolata*),

Virginia chain fern (*Woodwardia virginica*), golden polypody (*Phlebodium aureum*), shoestring fern (*Vittaria lineata*), wild pines (*Tillandsia* spp.), peppervine (*Ampelopsis arborea*), rattan vine (*Berchemia scandens*), yellow jessamine (*Gelsemium sempervirens*), greenbriers (*Smilax* spp.), summer grape (*Vitis aestivalis*) and muscadine (*Vitis rotundifolia*) (FNAI 2010, Wunderlin and Hansen 2011). Animal species typically found in hydric hammock communities include green anole (*Anolis carolinensis*), great crested flycatcher (*Myiarchus crinitus*), Acadian flycatcher (*Empidonax virescens*), warblers (*Setophaga* spp.) and eastern gray squirrel (*Sciurus carolinensis*) – all of which may be found in Palm Beach County (Bartlett and Bartlett 2011b, FNAI and FDNR 1990, NatureServe 2013, Pranty et al. 2006).

Hydric hammock is a not a fire-maintained community, but it does burn on occasion (FNAI 2010). When hydric hammock communities burn, the intensity of the fire determines which plant species will survive the fire. Cabbage palms are fire tolerant and are favored in hydric hammocks which have experienced high intensity fires. Live oaks can survive low intensity fires, but other hydric hammock species may be killed by fire. Most of the hydric hammock community at the natural area has been placed in a "no burn" zone (Figure 4). A portion of the hydric hammock community was the subject of an environmental restoration/enhancement project that was constructed in 2001 (see Section 4.5.4). The hydric hammock community covers 50.8 acres, or 29.3 percent of the site (Figure 4).

FNAI (2013) ranked hydric hammock as G4/S4 - apparently secure globally and in Florida, but possibly rare in parts of its range.

3.3.3 Mangrove Swamp

Mangrove swamps are dense forests that occur along relatively flat, low-energy, marine and estuarine shorelines (FNAI 2010). Mangrove swamps are dominated by four tree species: red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*), white mangrove (*Laguncularia racemosa*) and buttonwood (*Conocarpus erectus*) (FNAI 2010). Mangrove swamps often lack an understory, but species such as gray nicker (*Caesalpinia bonduc*), coinvine (*Dalbergia ecastaphyllum*), rubbervine (*Rhabdadenia biflora*), perennial glasswort (*Sarcocornia ambigua*), shoregrass (*Monanthochloe littoralis*), giant leather fern (*Acrostichum danaeifolium*), saltwort (*Batis maritima*) and bushy seaside oxeye (*Borrichia frutescens*) may be found in openings and along the edges of mangrove swamps in Palm Beach County (FNAI 2010, Wunderlin and Hansen 2011). Vertebrate animal species (excluding fishes) typically associated with mangrove swamps include mangrove saltmarsh snake (*Nerodia clarkii compressicauda*), brown pelican (*Pelecanus occidentalis*), white ibis, osprey (*Pandion haliaetus*), bald eagle, a variety of shorebirds, herons and egrets, and raccoon (*Procyon lotor*) – all of which may be found in Palm Beach County (Bartlett and Bartlett 2003, FNAI and FDNR 1990, NatureServe 2013, Pranty et al. 2006).

Mangrove swamp does not burn and is not a fire-maintained community; it has been placed in a "no burn" zone (Figure 4). Mangrove swamp is a relatively recent community at the natural

area; mangrove species became established along the banks of the Archie's Creek and Cabanas Colony canals as freshwater wetland species were killed by higher salinities. Additional mangrove swamp habitat was created in 2001 as part of an environmental restoration/enhancement project south of Archie's Creek canal and along the edges of the open water area in the southern portion of the Frenchman's Forest Tract (see Section 4.5.4). The mangrove swamp community at the natural area occupies 2.2 acres, or about 1.3 percent, of the site (Figure 4).

FNAI (2013) ranked mangrove swamp as G5/S4 – demonstrably secure globally and apparently secure in Florida, although it may be rare in parts of its range.

3.3.4 Mesic Flatwoods

Mesic flatwoods is the most widespread natural community in Florida (FNAI 2010). It is characterized as having an open overstory of pines, which in South Florida consists of slash pine (FNAI 2010). The understory generally includes a low, dense groundcover layer of grasses, forbs and shrubs. Other typical mesic flatwoods plant species that occur in Palm Beach County include saw palmetto, gallberry (*Ilex glabra*), coastalplain staggerbush (*Lyonia fruticosa*), fetterbush, dwarf huckleberry (*Gaylussacia dumosa*), shiny blueberry (*Vaccinium myrsinites*), dwarf live oak (*Quercus minima*), running oak (*Quercus pumila*), wiregrass, witchgrasses and bluestem grasses, plus a large number of showy forbs (FNAI 2010, Wunderlin and Hansen 2011). Typical mesic flatwoods animal species found in Palm Beach County include oak toad, little grass frog, eastern narrow-mouthed toad, North American racer (*Coluber constrictor*), red cornsnake (*Pantherophis guttatus*), American kestrel, pine warbler (*Setophaga pinus*), brown-headed nuthatch (*Sitta pusilla*), Bachman's sparrow (*Aimophila aestivalis*), hispid cotton rat (*Sigmodon hispidus*), cotton deermouse, raccoon, gray fox (*Urocyon cinereoargenteus*), bobcat and white-tailed deer (*Odocoileus virginianus*) (Bartlett and Bartlett 2003 and 2011a, FNAI and FDNR 1990, NatureServe 2013, Pranty et al. 2006).

Mesic flatwoods communities require frequent fire; all of the common plant species recover quickly after a fire and several plant species require fire to reproduce (FNAI 2010). Nearly all natural fires in mesic flatwoods occur at 1- to 6-year intervals, with 2- to 3-year intervals being the most common (FNAI 2010). Reintroduction of fire into long unburned flatwoods can result in high pine mortality due to excessive smoldering at the base of the trees, a side effect of fuel and litter build-up (FNAI 2010). Growing season fires (April to mid-August) are favored over winter burns because many of the grasses and forbs require fire to flower and set seed (FNAI 2010).

The mesic flatwoods community at the natural area occupies 50.9 acres, or 29.3 percent, of the site (Figure 4). It will be prescribed burned or mechanically reduced on a 5- to 8-year interval. Although the proposed burn interval is longer than what is typically desired for mesic flatwoods communities, the proximity of numerous smoke-sensitive areas precludes the more frequent burning of this community.

FNAI (2013) ranked mesic flatwoods as G4/S4 - apparently secure globally and in Florida, but possibly rare in part of its range.

3.3.5 Mesic Hammock

Mesic hammock is a rarely-inundated, evergreen hardwood and/or palm forest (FNAI 2010). It is characterized by a closed canopy that is dominated by live oak; cabbage palm is common in the canopy and subcanopy (FNAI 2010). Other canopy and subcanopy plant species found in Palm Beach County that also may be found in mesic hammock communities include gumbo limbo, satinleaf (*Chrysophyllum oliviforme*), water oak, laurel oak, sweetgum, sugarberry and slash pine (FNAI 2010, Wunderlin and Hansen 2011). Shrubs found in Palm Beach County that are typical of mesic hammock communities include saw palmetto, American beautyberry, American holly (*Ilex opaca*), gallberry, sparkleberry (*Vaccinium arboreum*), hog plum (*Ximenia americana*), common persimmon, Carolina laurelcherry (*Prunus caroliniana*), wax myrtle, Simpson's stopper, myrsine and wild coffee, low panic grasses (*Panicum* spp.), witchgrasses, basketgrass, flatsedges, tall nutgrass (*Scleria triglomerata*), bracken (*Pteridium aquilinum*), partridgeberry (*Mitchella repens*), toothpetal false reinorchid (*Habenaria floribunda*) and other ground orchids, Spanish moss, wild pines, resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*), golden polypody, shoestring fern and Florida butterfly orchid (*Encyclia tampensis*), muscadine, greenbriers (*Smilax* spp.), yellow jessamine, eastern poison ivy and Virginia creeper (*Parthenocissus quinquefolia*) (FNAI 2010, Wunderlin and Hansen 2011). Neither FNAI (2010) or FNAI and DNR (1990) provided a list of animals that typically inhabit the mesic hammock community.

Mesic hammock is a not a fire-maintained community (FNAI 2010). Intense fires can destroy mesic hammock. The mesic hammock at the natural area has been placed in a "no burn" zone (Figure 4). A portion of the mesic hammock community was restored during the 2001 environmental restoration/enhancement project (see Section 4.5.4). The mesic hammock community occupies 6.0 acres, or 3.5 percent, of the natural area (Figure 4).

FNAI (2013) ranked mesic hammock as G3/S3? – both globally and in Florida this natural community is either very rare and local throughout its range, or found locally in a restricted range or vulnerable to extinction from other factors. The question mark indicates that the state status is questionable at present.

3.3.6 Open Water

The open water community at the natural area was created from a former depressional wetland during the construction of the adjacent Cabana Colony canal in the late 1950s or early 1960s (USDA 1953, 1964). Brackish water enters this community via the Cabana Colony canal. Because this is a man-made community, it does not have a natural hydroperiod or fire frequency. This community occupies about 1.3 acres, or 0.7 percent, of the natural area (Figure 4).

3.3.7 Scrubby Flatwoods

Scrubby flatwoods are characterized as having an open canopy of widely-spaced pine trees and a low, shrubby understory dominated by scrub oaks and saw palmetto, often interspersed with areas of barren white sand (FNAI 2010). Scrubby flatwoods will not flood, even under extremely wet conditions (Abrahamson and Hartnett 1990). The principal canopy species in South Florida is slash pine. In Palm Beach County the understory consists of one or more of three scrub oaks - myrtle oak, Chapman's oak and sand live oak - and shrubs typical of mesic flatwoods such as saw palmetto, gallberry, coastalplain staggerbush, fetterbush, and deerberry (*Vaccinium stamineum*) (FNAI 2010, Wunderlin and Hansen 2011). Grasses and subshrubs include wiregrass, broomsedge bluestem, little bluestem (*Schizachyrium scoparium*), dwarf live oak, shiny blueberry, dwarf huckleberry, gopher apple (*Licania michauxii*), Chapman's goldenrod (*Solidago odora* var. *chapmanii*), running oak, coastalplain honeycombhead (*Balduina angustifolia*), narrowleaf silkgrass and October flower (*Polygonella polygama*) (FNAI 2010, Wunderlin and Hansen 2011). Animal species that occur in Palm Beach County and that are typically associated with scrubby flatwoods include oak toad, pine woods treefrog, gopher tortoise, six-lined racerunner, eastern diamond-backed rattlesnake (*Crotalus adamanteus*), Florida scrub lizard (*Sceloporus woodi*), northern bobwhite (*Colinus virginianus*), common ground-dove (*Columbina passerina*), Florida scrub-jay (*Aphelocoma coerulescens*), eastern towhee (*Pipilo erythrophthalmus*) and Florida mouse (*Podomys floridanus*) (Abrahamson and Hartnett 1990, Bartlett and Bartlett 2003, 2011a and 2011b, NatureServe 2013).

Due to the relatively sparse ground cover and the presence of open, sandy areas, natural fire frequency in scrubby flatwoods is lower than in other flatwoods communities (Abrahamson and Hartnett 1990). Under natural conditions, this community burns once every 5 to 15 years (FNAI 2010). Scrubby flatwoods tend to burn in a spotty fashion leaving a mosaic of lightly-burn, intensely-burned and unburned areas (Abrahamson and Hartnett 1990).

The scrubby flatwoods community at the natural area will be prescribed burned or mechanically reduced on an 8- to 15-year interval. There are 19.2 acres of scrubby flatwoods at the natural area, or 11.1 percent, of the site (Figure 4).

FNAI (2013) ranked scrubby flatwoods as G2/S2? - imperiled both globally and in Florida because of rarity or vulnerability to extinction. The question mark indicates that the state status is questionable at present.

3.3.8 Spoil/Fill

The spoil/fill community was created when excess fill from the adjacent canal was scooped out of the canal and deposited just east of the canal to create a maintenance berm between 1979 and 1980 (USDA 1980). At the time of the site's acquisition by the County, most of the spoil/fill community had become colonized by a mixture of ruderal, "inappropriate" native and nonnative

plant species. Since the spoil/fill community is separate from the rest of the natural area and is part of NPBCID's drainage system, it will not be maintained by the County. The spoil/fill community currently occupies approximately 0.8 acres, or 0.5 percent, of the site (Figure 4).

3.3.9 Strand Swamp

Strand swamp is characterized by shallow, forested, usually elongate depressions or channels dominated by bald-cypress (*Taxodium distichum*) or pond-cypress (FNAI 2010). Standing water may be present in strand swamp for 100 to 300 days per year (FNAI 2010). Water levels are deepest and remain the longest in the center of the strand. Typical strand swamp plant species that are found in Palm Beach County include pond-cypress, bald-cypress, pond apple, red maple, laurel oak, cabbage palm, strangler fig (*Ficus aurea*), swamp bay, sweetbay, coastalplain willow (*Salix caroliniana*), wax myrtle, myrsine, common buttonbush (*Cephalanthus occidentalis*), eastern poison ivy, white twinevine (*Sarcostemma clausum*), string-lily (*Crinum americanum*), giant leather fern, swamp fern, royal fern, Jamaica swamp sawgrass (*Cladium jamaicense*), waterhyssops (*Bacopa* spp.), epiphytic orchids and wild pines (FNAI 2010, Wunderlin and Hansen 2011). Animal species found in Palm Beach County that typically are associated with strand swamp include the eastern ribbonsnake (*Thamnophis sauritus*), cottonmouth (*Agkistrodon piscivorus*), Virginia opossum (*Didelphis virginiana*), eastern gray squirrel, raccoon, American mink (*Neovison vison*), North American river otter (*Lontra canadensis*) and white-tailed deer (Bartlett and Bartlett 2003, Belden et al. 1994, FNAI and DNR 1990, FWC 2012a, NatureServe 2013).

Fire is rare in strand swamp (FNAI 2010). The frequency of fire is greatest where the edge of the strand swamp abuts a pine-dominated community and lowest in the center of the swamp. Cypress is tolerant of light surface fires, but fires which burn into the peat can kill most of the trees (FNAI 2010). At this site, the strand swamp community has been placed in a "no burn" zone (Figure 4). The strand swamp community covers approximately 22.8 acres, or 13.1 percent, of the site (Figure 4).

FNAI (2013) ranked strand swamp as G2/S2 - imperiled both globally and in Florida because of rarity or vulnerability to extinction.

3.3.10 Wet Flatwoods

In Palm Beach County, wet flatwoods are characterized as relatively open-canopy forests of scattered slash pine, with a sparse or absent midstory and a dense groundcover of hydrophytic grasses, herbs and low shrubs (FNAI 2010, Wunderlin and Hansen 2011). Typical understory plant species that may be found in Palm Beach County include sweetbay, swamp bay, loblolly bay, pond-cypress, cabbage palm, dahoon (*Ilex cassine*), wax myrtle, gallberry, saw palmetto, fetterbush, wiregrass, blue maidencane, toothachegrass (*Ctenium aromaticum*), coastalplain yelloweyed grass (*Xyris ambigua*), Carolina redroot (*Lachnanthes caroliana*) and beaksedges (*Rhynchospora* spp.) (FNAI 2010, Wunderlin and Hansen 2011). Animal species associated

with wet flatwoods include oak toad (*Anaxyrus quercicus*), southern cricket frog (*Acris gryllus*), chorus frog (*Pseudacris* sp.), North American racer, eastern ratsnake (*Pantherophis alleghaniensis*), eastern diamond-backed rattlesnake, pygmy rattlesnake (*Sistrurus miliarius*), red-shouldered hawk (*Buteo lineatus*), northern bobwhite, Virginia opossum, eastern cottontail (*Sylvilagus floridanus*), hispid cotton rat, cotton deermouse (*Peromyscus gossypinus*), raccoon, striped skunk (*Mephitis mephitis*), bobcat (*Lynx rufus*) and white-tailed deer – all of which occur in Palm Beach County (FNAI and DNR 1990). During the rainy season, water frequently stands on the surface, inundating the wet flatwoods for one month or more per year (FNAI and FDNR 1990).

Natural fire frequency in wet flatwoods has been estimated at 1 to 10 years (FNAI 2010). Shorter fire intervals favor grassy wet flatwoods, while longer intervals favor a shrubbier subtype. The recommended burn interval for South Florida wet flatwoods is 4 years (FNAI 2010).

The wet flatwoods community occupies 17.9 acres, or 10.3 percent, of the site (Figure 4). The wet flatwoods community will be prescribed burned or mechanically reduced on a 5- to 8-year interval. Although the proposed burn interval is longer than what is typically desired for wet flatwoods communities, the proximity of numerous smoke-sensitive areas precludes the more frequent burning of this community.

FNAI (2013) ranked wet flatwoods as G4/S4 - apparently secure globally, but rare in parts of its range, and apparently secure in Florida.

3.4 PLANTS

A total of 590 species of plants have been recorded at the natural area (Appendix A). Of these, ten are listed for protection or special management by a government agency or the FNAI (Table 1). To date, 185 species of nonnative plants have been observed at the site. These species are discussed in more detail in Section 4.5.2.

Some native plant species recorded at the natural area are habitat-specific, using only one habitat type, while others use a variety of habitats. Therefore, the preservation, restoration, enhancement and management of the variety of habitat types at the natural area are critical to the long-term preservation of plant species indigenous to the site.

3.5 ANIMALS

A total of 265 species of animals have been recorded at the natural area – 1 gastropod, 2 malacostracans, 7 arachnids, 93 insects, 5 amphibians, 19 reptiles, 111 birds, 13 mammals and 9 ray-finned fishes (Appendix B). Of these, 26 are listed for protection by at least one governmental agency or are ranked by FNAI (Table 2). Eight species of invertebrates and 15

species of vertebrates recorded at the site are not native to the South Florida mainland. These species are discussed in more detail in Section 4.5.3.

Some animal species recorded at the natural area are habitat-specific, using only one habitat type, such as mangrove swamp or scrub, while others use a variety of habitats, such as the raccoon. The preservation, restoration, enhancement and management of the variety of habitat types at the natural area are critical to the long-term preservation of fish and wildlife species indigenous to the site.

3.6 LISTED SPECIES

3.6.1 Plants

Ten plant species recorded at the natural area have been listed for protection by at least one governmental agency or have been ranked by FNAI (Table 1). These species will be managed as components of the natural communities of which they are a part. All listed/ranked plant species recorded at the natural area will be protected through the implementation of management activities designed to restore, enhance and maintain the natural communities in which they occur; by control/removal of invasive nonnative vegetation at the natural area; by implementing a prescribed burning program; by maintaining and restoring the hydrology of the site; by routing management accessways, trails and other public use facilities away from known populations whenever possible; by relocating plants that cannot be avoided during construction and restoration activities; and by protecting the site from plant collectors. Species known to be susceptible to fire will be protected during prescribed burn activities by one or more of the following actions: having multiple management units, burning only one unit at a time to maintain a seed source on the unburned parts of the site, maintaining a mosaic of seral stages on the site, creating temporary firebreaks, or possibly relocating individual plants to other locations on the site prior to a prescribed burn. Information regarding the monitoring of listed/ranked plant species is provided in Section 7.2. Overall, listed/ranked plant populations at the site appear to be stable.

This section includes a brief description of each listed/ranked species and any species-specific management/protection strategy that will be used to protect that species. The ranks and designations assigned to the species are provided in Table 1. Listed/ranked plant species recorded at the natural area are discussed in alphabetical order by common name.

Banded airplant (*Tillandsia flexuosa*)

This epiphytic bromeliad was recorded at the natural area by the Institute for Regional Conservation (IRC) in 1996 (Gann and Bradley 1996) and by ERM staff in 1994 and nearly annually since 2001. Banded airplant typically is found in hammocks and cypress swamps (Wunderlin and Hansen 2011). Banded airplant is susceptible to fire. This species is becoming rare within the County's Natural Area System and will be protected by avoiding the areas in

which the plants occur during mechanical vegetation reduction activities and prescribed burn activities.

Cinnamon fern (*Osmunda cinnamomea*)

This terrestrial fern was recorded at the natural area by ERM staff in 1999, 2009, 2010 and 2013. Cinnamon fern typically is found in freshwater marshes, swamps and bogs (Wunderlin and Hansen 2011).

Common wild pine (*Tillandsia fasciculata*)

This epiphytic bromeliad was recorded at the natural area by IRC in 1996 (Gann and Bradley 1996) and by ERM staff in 1991, 1994, 2000 to 2005, 2008, 2009 and 2013. It typically is found in cypress swamps, hammocks and flatwoods (Wunderlin and Hansen 2011). Common wild pine is susceptible to fire. Although individual plants may be killed by prescribed burning, it is expected that the regenerating trees and shrubs will be recolonized by airborne seeds drifting in from the unburned portions of the site.

Florida butterfly orchid (*Encyclia tampensis*)

This epiphytic orchid was recorded at the natural area by Winchester Environmental Associates in 1989 (Winchester Environmental Associates 1989) and by ERM staff in 1994, 1996, 2004 to 2008 and 2013. It grows on a variety of trees, including live oak, cypress, red maple, buttonwood, pond apple, pop ash, and pine, as well as on palms (Brown 2005, Subrahmanyam 2008). It typically is found in hammocks, hardwood swamps, cypress swamps, mangroves and palm groves (Wunderlin and Hansen 2011). Florida butterfly orchid is susceptible to fire.

Giant wild pine (*Tillandsia utriculata*)

This epiphytic bromeliad was recorded at the natural area by IRC in 1996 (Gann and Bradley 1996) and by ERM staff in 1988, 1991, nearly annually from 2000 to 2009, and in 2013. Giant wild pine typically is found in hammocks and cypress swamps (Wunderlin and Hansen 2011). This species is susceptible to fire, and grows mostly in habitats that burn infrequently. Although individual plants may be killed by prescribed burning, it is expected that the regenerating trees and shrubs will be recolonized by airborne seeds drifting in from the unburned portions of the site.

Hand fern (*Ophioglossum palmatum*)

This epiphytic fern was recorded at the natural area by IRC in 1996 (Gann and Bradley 1996) and by ERM staff in 1991, 2001, 2002, 2004, 2005, 2008, 2010, 2012 and 2014. Populations of this fern species may fluctuate with rainfall patterns, wildfires, hurricanes, and the loss of cabbage palm “boots” (Chafin 2000); it requires very humid/moist conditions and is adversely

affected by fire (Nelson 2000). Hand ferns typically are found in hammocks and cypress swamps (Wunderlin and Hansen 2011). The locations of known hand fern populations will be protected during prescribed burns and mechanical vegetation reduction activities.

Inflated & reflexed wild pine (*Tillandsia balbisiana*)

This epiphytic bromeliad was recorded at the natural area by Winchester Environmental Associates in 1989 (Winchester Environmental Associates 1989), by IRC in 1996 (Gann and Bradley 1996), and by ERM staff in 1994, 2003, 2004, 2005, 2008, 2009 and 2013. Inflated & reflexed wild pine typically is found in hammocks and scrub (Wunderlin and Hansen 2011). This species is susceptible to fire. Although individual plants may be killed by prescribed burning, it is expected that airborne seeds drifting in from the unburned portions of the site will colonize the regenerating trees and shrubs.

Royal fern (*Osmunda regalis*)

This terrestrial fern was recorded at the natural area by Winchester Environmental Associates in 1989 (Winchester Environmental Associates 1989), by IRC in 1996 (Gann and Bradley 1996) and by ERM staff in 1991, 2002, 2004, 2006, 2007, 2009 and 2013. It typically is found in swamps, marshes and bogs (Wunderlin and Hansen 2011).

Shell mound prickly-pear (*Opuntia stricta*)

This perennial forb was recorded at the natural area by IRC in 1996 (Gann and Bradley 1996) and by ERM staff in 1988, 1991, 2004 and 2006. It typically is found on dunes and shell middens, and in coastal hammocks (Wunderlin and Hansen 2011).

West Indian mahogany (*Swietenia mahagoni*)

This semi-deciduous tree was recorded at the natural area by ERM staff in 2009 and 2013. It typically is found in tropical hammocks and disturbed areas (Wunderlin and Hansen 2011). West Indian mahogany is susceptible to fire.

3.6.2 Animals

Twenty-six animal species recorded at the natural area have been listed for protection by at least one governmental agency or have been ranked by FNAI (Table 2). They include five insects, three reptiles, seventeen birds and one mammal.

The listed/ranked animal species at the natural area will be managed and protected as components of the natural communities of which they are a part. All listed/ranked animal species will be managed and protected through the implementation of management activities designed to restore, enhance and maintain the natural communities used by these species; by establishing a protective buffer zone around any existing nest or rookery, or any nest or rookery that may be

discovered in the future; and by the enforcement of anti-poaching regulations. ERM will coordinate with FWC on the management of the site for protection of listed animals.

This section includes a brief description of each listed/ranked species, including the habitats in which it is typically found and the species' primary diet. The ranks and designations assigned to the species are provided in Table 2. Listed/ranked animal species recorded at the natural area are discussed in alphabetical order by common name.

American alligator (*Alligator mississippiensis*)

This large aquatic reptile was recorded at the natural area by ERM staff in 2003. It is a carnivore; its diet is primarily snails, aquatic insects and crustaceans when young and fish, turtles, snakes, small mammals and birds when older (Ashton and Ashton 1991). The American alligator is primarily a freshwater species; it may be present in any water-retaining habitat, including ponds, canals, lakes, rivers, large streams, borrow pits, swamps and marshes (Bartlett and Bartlett 2011b).

American redstart (*Setophaga ruticilla*)

This migratory warbler was recorded at the natural area by members of the Audubon Society of the Everglades in 2002 (Mitchell 2002), 2005 (Srdoch 2005) and 2010 (Kolstad 2010), and by ERM staff in 2000 and 2001, and then on an annual basis from 2003 through 2012. American redstarts actively glean foliage for insects and spiders, and hover or take long flights to capture flying insects (Pranty et al. 2006). Fall migrants arrive in Florida between late July and early November, and spring birds pass through between late March and early June (Maehr and Kale 2005). This species does not nest in South Florida (Sherry and Holmes 1997).

Atala (*Eumaeus atala*)

This butterfly was recorded at the natural area by ERM staff in 2008. Its larval food plant is coontie (*Zamia pumila*), a native shrub (Minno et al. 2005) that is not found on the natural area but may be present in residential landscaping in the surrounding area. Atala typically are found in tropical hardwood hammocks, pine rocklands and gardens (Minno et al. 2005). This species was thought to be extinct in Florida in the late 1960s, but has since made a comeback throughout South Florida (Minno et al. 2005).

Bald eagle (*Haliaeetus leucocephalus*)

This very large bird of prey was recorded at the natural area by the Audubon Society of the Everglades in 2010 (Kolstad 2010) and by ERM staff in 2009, 2010 and 2013. Bald eagles feed primarily on fish and waterbirds (Pranty et al. 2006). This species inhabits coastal beaches, salt marshes, dry prairies, mixed pine and hardwood forests, wet prairies and marshes, pine flatwoods, sandhills and agricultural areas (Maehr and Kale 2005). In Florida, most bald eagles

are year-round residents, but winter migrants do occur. Bald eagles typically nest in pine trees, but also may nest in mangrove trees or cypress; most nests are built more than 50 feet off the ground (Stevenson and Anderson 1994). Although the bald eagle is not known to have nested on the natural area, nests are known to occur elsewhere in Palm Beach County.

Cassius blue (*Leptotes cassius theonus*)

This small butterfly was recorded at the natural area by ERM staff in 2008, 2009, 2010 and 2011. Cassius blue butterflies are locally common along the edges of hammocks, thickets, disturbed areas and gardens (Minno et al. 2005). Its larval food plants include eastern milkpea (*Galactia volubilis*), hairypod cowpea (*Vigna luteola*), rosary pea (*Abrus precatorius*) and cape leadwort (*Plumbago auriculata*) (Minno et al. 2005). All of these species have been recorded on the natural area.

Ceraunus blue (*Hemiargus ceraunus antibubastus*)

This small butterfly was recorded at the natural area by ERM staff in 2008, 2009 and 2011. Cassius blue butterflies have three or more generations per year in Florida (Minno et al. 2005). The ceraunus blue butterfly inhabits scrubs, sandhills, flatwoods and weedy, disturbed sites (Minno et al. 2005). Its larval food plants include partridge pea (*Chamaecrista fasciculata*), Florida alicia (*Chapmannia floridana*), sensitive pea (*Chamaecrista nictitans*), Carolina indigo (*Indigofera caroliniana*), hairy indigo (*Indigofera hirsute*) and trailing indigo (*Indigofera spicata*) (Minno et al. 2005). All of these species have been found on the natural area.

Eastern diamond-backed rattlesnake (*Crotalus adamanteus*)

This large, heavy-bodied, venomous snake was recorded at the natural area by ERM staff in 1994. The eastern diamond-backed rattlesnake is a carnivore; its diet is primarily small mammals, ranging in size from mice to rabbits (Bartlett and Bartlett 2003). This species typically occurs in pine woods, palmetto scrubland, coastal strand and the Everglades (Bartlett and Bartlett 2003). It may occasionally be found in gopher tortoise burrows (Ashton and Ashton 2008). Eastern diamond-backed rattlesnake will be protected by educating visitors on the ecological value of rattlesnakes.

Gopher tortoise (*Gopherus polyphemus*)

This medium-sized tortoise was recorded at the natural area by Winchester Environmental Associates in 1989 (Winchester Environmental Associates 1989) and by ERM staff in 1994, 2000, 2002, 2004, 2005, and annually since 2007. Gopher tortoises are plant eaters; the bulk of their diet consists of grasses and herbaceous plants and they are known to feed on up to 400 species of plants (Ashton and Ashton 2008). They can travel up to two miles from their burrows to feed on seasonal vegetation such as flowers, fruits and leaves from trees, shrubs and vines, deer feeding plots, or ripe orchard fruits on neighboring properties (Ashton and Ashton 2008).

They also may eat a variety of other items, such as carrion, small animals, insects and other invertebrates (Ashton and Ashton 2008). The gopher tortoise typically inhabits sandhill, scrub, scrubby flatwoods, xeric hammock, pine flatwoods, dry prairie, coastal strand, mixed pine-hardwood communities and a variety of disturbed well-drained habitats (FWC 2012b). The gopher tortoise is considered to be a keystone species in upland communities because of the important role that this species plays in relation to other plants and animals. At least 411 species of vertebrate and invertebrate animals are known to use gopher tortoise burrows (Mushinsky et al. 2006).

The close proximity of the natural area to numerous smoke-sensitive areas severely limits the use of prescribed fire as a gopher tortoise habitat management tool. Therefore, mechanical chopping was initiated in 2012 to reduce fuel loads and create open space suitable for gopher tortoises. In November 2012, a total of 10 acres in Management Unit 3 and the eastern portion of Management Unit 4 were selectively chopped to reduce fuel loads. In February 2014, approximately 9.3 acres in Management Unit 1 also were selectively chopped. This management technique will continue to be used during periods when it is not possible to conduct a prescribed burn.

Great egret (*Ardea alba*)

This wading bird was recorded at the natural area by ERM staff in 1994, 2004, 2009 and 2010. Great egrets typically feed on small fish and aquatic invertebrates (Pranty et al. 2006). Their habitat includes salt marshes, wet prairies, the edges of freshwater marshes, lakes and ponds, mangroves, hardwood and cypress swamps, flooded agricultural fields and urban areas (Maehr and Kale 2005, Pranty et al. 2006). Nesting occurs between January and June with large numbers of other wading birds in thick swamps dominated by low bushes and large trees, and on mangrove-covered coastal islands (Maehr and Kale 2005). No rookeries for this species are known to be present on the natural area.

Hairy woodpecker (*Picoides villosus*)

This nonmigratory bird species was recorded at the natural area by ERM staff in 2000. Hairy woodpeckers seem to be dependent on fire-maintained pine forests, where they feed on the larvae of wood-boring beetles that become abundant soon after a pine tree is killed (Pranty et al. 2006). This species also may eat other insects, nuts and fruits (Pranty et al. 2006). It is typically found in pine flatwoods or plantations, mixed pine and cypress forests, and riparian forests (Pranty et al. 2006). Hairy woodpeckers nest in cavities excavated in live or dead tree trunks or limbs (Pranty et al. 2006). This species is not known to nest on the natural area. Potential nesting habitat for this species will be protected by allowing dead pine trees to remain standing on the site unless they pose a hazard to the public or land management personnel.

Least tern (*Sterna antillarum*)

This small tern species was recorded at the natural area by ERM staff in 2003. This migratory species is present in Florida from March through September (Maehr and Kale 2005). It feeds on small fish and shrimp (Pranty et al. 2006). Least terns typically inhabit beaches, dunes, soil islands and inland areas near large lakes (Pranty et al. 2006). Nesting occurs throughout Florida from April through September (Maehr and Kale 2005, Pranty et al. 2006). Least terns are colonial ground nesters. Historically they nested on beaches, dunes, islands and river shores; they now nest on light-colored human-made habitats such as spoil islands, construction sites, phosphate mines and gravel rooftops (Maher and Kale 2005, Pranty et al. 2006). It is estimated that rooftops support over 80 percent of the breeding population (FWC 2013a). Least terns are not known to nest on the site.

Little blue heron (*Egretta caerulea*)

This medium-sized heron was recorded at the natural area by the Audubon Society of the Everglades in October 2005 (Srdoch 2005) and by ERM staff in February 2005. Little blue herons feed on small fish and amphibians, aquatic crustaceans, insects, worms and snakes (FWC 2013b). This species inhabits coastal beaches, salt marshes, mangroves, hardwood swamps, cypress swamps, wet prairies, freshwater marshes, lakes and ponds, and flooded agricultural areas (Maehr and Kale 2005, Pranty et al. 2006). Nesting occurs between late February and August in colonies composed only of little blue herons or mixed colonies with other wading birds, mainly at saltwater sites (Maehr and Kale 2005). The little blue heron is not known to nest at this site.

Malachite (*Siproeta stelenes*)

This large butterfly was recorded at the natural area by ERM in 2009. Malachite larvae feed mainly on Browne's blechum (*Ruellia blechum*) (Minno et al. 2005), a nonnative, weedy plant that has been recorded at the natural area. This species typically is found in upland hammocks, thickets, groves and shrubby disturbed areas (Minno et al. 2005).

Merlin (*Falco columbarius*)

This small-to-medium sized falcon was recorded at the natural area by ERM staff in 2006. This species preys chiefly on small birds, but may feed on small mammals and insects (Maehr and Kale 2005, Pranty et al. 2006). Merlins can be seen in virtually any open habitat, usually near water (Pranty et al. 2006). These migratory falcons can be locally common along the Atlantic coast of Florida from September to April (Pranty et al. 2006). This species does not nest in Florida (Pranty et al. 2006).

Osprey (*Pandion haliaetus*)

This large bird of prey was recorded at the natural area by the Audubon Society of the Everglades in 2005 (Srdoch 2005) and 2010 (Kolstad 2010), and by ERM staff in 1994, 2000 and annually from 2003 to 2013. Ospreys are widely distributed in Florida and may be found near coastal beaches, salt marshes, open saltwater, open freshwater, mangroves, and wet prairies and marshes (Maehr and Kale 2005). In South Florida, nesting occurs from late November to early summer (FWC 2013c). Ospreys use live or dead trees, telephone poles, and human-made structures for nesting; they create large stick nests high above the ground that they use for many years (Pranty et al. 2006). They are not known to nest at the natural area.

Painted bunting (*Passerina ciris*)

This colorful, migratory songbird was recorded at the natural area by the Audubon Society of the Everglades in 2002 (Mitchell 2002) and by ERM staff in 2005 and annually from 2007 to 2012. Painted buntings feed primarily on seeds, but also eat small fruits, insects and spiders (Maehr and Kale 2005, Pranty et al. 2006). They are found in dense vegetation along hammock and woodland edges and in abandoned citrus groves and urban areas (Maehr and Kale 2005, Pranty et al. 2006). This species frequently overwinters in southern and central Florida, but does not nest south of Brevard County (Pranty et al. 2006).

Peregrine falcon (*Falco peregrinus*)

This large migratory raptor was recorded at the natural area by the Audubon Society of the Everglades (Srdoch 2005) and by ERM staff in 2000 and 2001. It feeds on a variety of birds, including ducks, shorebirds and gulls (Pranty et al. 2006). The peregrine falcon inhabits a variety of open, mostly coastal habitats, as well as inland lakes and marshes (Maehr and Kale 2005, Pranty et al. 2006). Florida represents an important wintering area for this species, especially for the Arctic subspecies (Maehr and Kale 2005). This species does not nest in Florida (Pranty et al. 2006).

Short-tailed hawk (*Buteo brachyurus*)

This small, rare hawk was recorded at the natural area by the Audubon Society of the Everglades in 2010 (Kolstad 2010). It feeds primarily on smaller birds, but may also take small rodents, lizards, snakes, tree frogs and insects (NatureServe 2013, Pranty et al. 2006). Short-tailed hawks are typically found in cypress swamps, sand pine scrub, tropical hammocks, temperate hardwood and pine forests near water and mangroves (Hippes et al. 2001). This species builds stick nests near the edges of fields or small clearings in dense or open stands of tall trees (Hippes et al. 2001, Pranty et al 2006). This species is not known to nest at the natural area.

Statira sulphur (*Aphrissa statira*)

This large butterfly was recorded at the natural area by members of the Atala Chapter of the North American Butterfly Association annually from 2007 to 2013 (Edwards undated) and by ERM staff in 2013. Its larval food plant is coinvine (Minno et al. 2005), which is found along the edges of the Cabana Colony Canal. The statira sulphur uses both upland and wetland habitats, such as coastal uplands and the margins of mangroves (Glassberg et al. 2000).

Swallow-tailed kite (*Elanoides forficatus*)

This long-tailed bird of prey was recorded flying over the natural area by ERM staff in 2013. This species feeds on large insects, tree frogs, small snakes and nestling birds (Pranty et al. 2006). Swallow-tailed kites require a mosaic of communities, with tall, accessible trees for nesting and open areas for foraging. Habitats include xeric scrub, hardwood and cypress swamps, mesic hammocks, mixed pine and hardwood forests, pine flatwoods, sandhills, riparian forests and agricultural environments (Maehr and Kale 2005, Pranty et al. 2006). This species typically builds platform nests in tall pine or cypress trees (Pranty et al. 2006). This species is not known to nest on the natural area.

Tricolored heron (*Egretta tricolor*)

This long-necked wading bird was recorded at the natural area by ERM staff in 2000, 2004, 2005 and 2010. It feeds primarily on small fish (Pranty et al. 2006). Tricolored herons are fairly-common permanent residents in Florida, except in the western Panhandle (Pranty et al. 2006). They primarily live in coastal habitats such as estuaries and mangroves, but also are present in many types of wetlands, including the edges of inland marshes, lakes and ponds, and flooded agricultural fields (Pranty et al. 2006). Tricolored herons are colonial nesters; they create platform nests in mangroves or other dense aquatic shrubs (Pranty et al. 2006). Eggs are laid from late February through July (Maehr and Kale 2005). The tricolored heron is not known to nest at the natural area.

West Indian manatee (*Trichechus manatus*)

The West Indian manatee was recorded at the natural area by ERM staff in 1999, 2000 and 2012 in the open water lagoon. This species inhabits a variety of aquatic habitats, including freshwater rivers and springs, estuarine bays, marine coastlines and canals in urban areas (FWC 2007a). West Indian manatees are generalist herbivores that feed on a variety of marine and freshwater floating, emergent, bank and benthic vegetation (FWC 2007a).

White ibis (*Eudocimus albus*)

This wading bird was recorded at the natural area by ERM staff in 2006, 2007, 2008, 2009 and 2011. White ibises typically feed on small fish, crustaceans, worms, snakes, grasshoppers and

aquatic insects (Maehr and Kale 2005, Pranty et al. 2006). They inhabit virtually every wetland habitat in Florida; they even forage in agricultural fields and lawns (Pranty et al. 2006). White ibises nest in large colonies in mangroves, thickets or swamps (Maehr and Kale 2005, Pranty et al. 2006). Eggs are laid in platform nests from March through May (Maehr and Kale 2005, Pranty et al. 2006). This species is not known to nest at the natural area.

Wood stork (*Mycteria americana*)

This large wading bird was recorded at the natural area by ERM staff in 2000, 2001 and 2005. Wood storks feed primarily on fish, but crustaceans, gastropods, amphibians, reptiles, mammals, other birds and arthropods also may be consumed (United States Department of the Interior, Fish and Wildlife Service [USFWS] 1997 and 2007). They typically inhabit freshwater ponds, wet prairies and marshes, cypress swamps, salt marshes mangroves and flooded agricultural fields (Maehr and Kale 2005, Pranty et al. 2006). In Florida, nesting occurs in large colonies in forested wetlands from November to May, either high in cypress trees or lower in mangroves (Maehr and Kale 2005, Pranty et al. 2006). Freshwater colony sites must remain flooded throughout the nesting period to protect the young against predation and abandonment (USFWS 1997). The wood stork is not known to nest at this natural area. However, USFWS has designated the northeastern portion of Palm Beach County as a core foraging area for this species, and a rookery has been recorded in this area (USFWS 2010).

Worm-eating warbler (*Helmitheros vermivorum*)

This uncommon migratory warbler was recorded at the natural area by the Audubon Society of the Everglades in 2005 (Srdoch 2005) and by ERM staff in 2006 and 2008. Its diet consists mostly of caterpillars, other insects and spiders (Pranty et al. 2006). Migrating worm-eating warblers are typically found in deciduous hardwood habitats (Maehr and Kale 2005). In Florida, this species is present as a migrant from late March to early May and from late August to early October; a few individuals may overwinter in South Florida (Maehr and Kale 2005). This species does not nest in South Florida (Pranty et al. 2006).

Yellow-crowned night-heron (*Nyctanassa violacea*)

This medium-sized wading bird was recorded at the natural area by ERM staff in 2010. Yellow-crowned night-herons feed on crabs, crayfish and fish (Pranty et al. 2006). This species inhabits beaches, mudflats and mangroves in Florida, and is less commonly found in inland swamps and springs (Pranty et al. 2006). Yellow-crowned night-herons are fairly common permanent residents in the Florida peninsula (Pranty et al. 2006). Nesting occurs between March and June in Florida, usually singly or in small colonies, sometimes with other wading bird species, in a shrub or tree in which a platform has been constructed (Maehr and Kale 2005, Pranty et al. 2006). This species is not known to nest at the natural area.

3.7 ARCHAEOLOGICAL AND HISTORICAL RESOURCES

No archaeological or historic resources are known to be present on the natural area (Carr et al. 2003). Any ground disturbance of previously undisturbed areas will be coordinated with FDHR and the Palm Beach County archaeologist. If any archaeological or historical sites are discovered in the future, FDHR management procedures will be followed to protect those sites. If human remains are found, the provisions of Section 872.05, Florida Statutes (FS), will be followed to protect those remains. The County will comply with Chapter 267, FS, in its management of any archaeological or historic sites discovered on the natural area. If historic resources are found on the natural area, a historic resources protection plan will be developed in consultation with the Palm Beach County Historic Preservation Officer. If future resources permit and funding is appropriated, the County will consider conducting an archival and historical study to determine if anything of historic importance occurred on the property, and to conduct a direct archaeological study if the results of the archival and historical study indicated that an archaeological study would be beneficial.

4. MANAGEMENT AND RESTORATION ACTIVITIES

Long-term resource management and restoration of the site began with baseline inventories and assessments of natural communities and listed species described in Chapter 3 (Natural and Cultural Resources) of this plan. A survey of this site and adjacent lands was conducted by Winchester Environmental Associates in 1989. Numerous plant community, and plant and animal species surveys were conducted by ERM staff between 1988 and 1998. The information collected during these surveys was used as the basis for determining the initial management activities necessary to protect, restore, enhance and maintain the natural resources of the site, and for determining the locations and types of public use facilities for passive recreation that were installed on the site. Additional plant and animal surveys were conducted between 1999 and 2014. Information obtained during these surveys has been included in this updated management plan.

4.1 MANAGEMENT RESPONSIBILITIES

Management activities are primarily the responsibility of the County, with assistance from the City and volunteers from the local community. These activities are coordinated by ERM. An Interlocal Agreement for the management of the natural area was developed between the County and the City in January 1998 (Appendix E). Pursuant to the Interlocal Agreement, the County is responsible for the repair, maintenance and replacement of the natural area fences, gates, signs, trails, management accessways, firebreaks, interpretive facilities such as wildlife observation platforms, boardwalks and kiosks, and the parking lot and related facilities. The City agreed to assume the primary responsibility for public safety and law enforcement within the natural area. The City also is responsible for the daily opening and closing of the gates to the parking lot. City police currently perform this service. And finally, the City has agreed to assist the County with volunteer stewardship activities and periodic prescribed burns, subject to the availability of city staff, funds and equipment. The County does not anticipate sharing management of the natural area with any other government agencies.

4.2 MANAGEMENT UNITS

The natural area is composed of a mosaic of native plant communities that were originally part of a greater regional mosaic of upland and wetland ecosystems. Since the late 1800s, the natural area has been affected by ongoing direct and indirect human disturbances. These disturbances include the creation and maintenance of the AIWW which has allowed brackish water to enter portions of the site and helped lower the regional water table; creation and maintenance of a regional drainage system and the associated drainage of onsite wetlands; fire exclusion and suppression; nonnative pest plant invasions; isolation of the site from other native lands as lands around the natural area were developed for residential and commercial purposes; past agricultural activities; deposition of surplus fill materials; and construction and maintenance of paved roads and associated utility lines.

The successful management of natural communities on isolated, natural preserves such as the Frenchman's Forest Natural Area depends to a great extent on the design of the management units. The natural area currently is divided into seven management units, using management accessways, and natural and man-made features as boundaries and firebreaks (Figure 5). The management units have been designed to maximize the long-term diversity of natural communities, and native plant and animal species on the site. These units range in size from 1.5 to 74 acres (Figure 5), and are small enough to allow for safe and practical fire management. A management unit may be subdivided into smaller units in order to facilitate management and/or monitoring activities, or to minimize the effect of smoke on adjacent properties during a prescribed burn. The boundaries of the management units were slightly modified from those proposed in the original management plan in order to minimize/avoid impacts to existing wetland habitats and upland communities.

4.3 MAINTENANCE

4.3.1 Removal of Debris and Litter

Most of the debris located within the natural area was removed prior to acquisition. Any visible debris that remained within a tract following its acquisition was removed by county staff. If additional debris becomes visible after a prescribed burn or other management/restoration activity, it will be removed in a timely manner, unless such removal would cause undesirable damage to natural communities or listed species. The installation and maintenance of perimeter fencing and management access gates has and will help prevent the dumping of trash and hazardous materials on the site. Periodic site cleanups to remove litter and maintain the restoration areas will be conducted, as necessary, by county staff with the assistance of volunteers.

4.3.2 Trail Maintenance

Periodic trail maintenance will be performed by county staff and community volunteers. All existing trails that are not necessary for site management, and which have not been incorporated as part of a designated hiking trail, will not be maintained to discourage their use by the public. These unused trails will be allowed to revegetate with native vegetation.

4.3.3 Facilities Maintenance

County staff will be responsible for the maintenance of the hardened nature trail, hiking trails, wildlife observation platform, boardwalk, kiosk, signs, fences, gates, parking lot and management accessways/firebreaks. The County also shall be responsible for the water control structure located adjacent to the Archie's Creek canal; Frenchman's Reserve Master Property Owners Association, Inc. is responsible for maintaining the drainage pipe and energy dissipater that allow excess surface waters from the Frenchman's Reserve development to flow through the

northern portion of the Frenchman's Forest Tract. The Canal Tract will be maintained by the NPBCID.

4.4 RESTORATION AND ENHANCEMENT ACTIVITIES

The site has been and will continue to be managed in a manner that preserves, restores and enhances the natural resource values. The restoration and enhancement of the natural communities within the natural area has begun. Activities conducted to date include the commencement of a prescribed burn program (see Section 4.5.1), the implementation of an invasive/nonnative plant control program throughout the natural area (see Section 4.5.2), the implementation of a nonnative and nuisance animal control program (see Section 4.5.3), the exclusion of unauthorized uses (see Section 4.5.6) and the completion of several environmental restoration and enhancement projects (Section 4.5.4).

4.4.1 Fire Management

Three of the site's seven natural communities - mesic flatwoods, scrubby flatwoods and wet flatwoods - are dependent upon fire for their long-term restoration and maintenance. Given the extensive alterations that have been made to the local landscape, lightning-induced fire cannot be expected to fulfill the fire needs of these fire-maintained communities. In addition, the risk of damage from wildfire is considerable due to the proximity of the natural area to adjoining residential properties and other forms of development. However, it must be noted that the same residential properties and other forms of development that are at risk from wildfire make smoke managements concerns the foremost inhibitor to the reintroduction of fire to the natural area. As such, the use of a combination of controlled, prescribed fire, together with the construction of firebreaks, mechanical fuel reduction and other safety precautions, is necessary to fully achieve the stated management objectives.

ERM has assumed the primary responsibility for prescribed burning. Assistance in the form of firefighting staff and equipment will be requested from Palm Beach County Fire Rescue which has several stations near the natural area. Additional assistance may be provided by Florida Department of Agriculture and Consumer Services' (FDACS) Florida Forest Service (FFS), Palm Beach County Parks and Recreation Department, FWC, The Nature Conservancy and trained volunteers. Fire-related safety training is required of all county staff and others participating in a prescribed burn. All prescribed burns will comply with Section 590.125(3), FS (Certified Prescribed Burning; Legislative Findings and Purpose).

ERM has written a flexible fire management plan for the natural area (Appendix G). Development of the fire management plan has been coordinated with FFS and FWC. This plan is based on the information about natural vegetation communities and listed species contained in the management plan. The fire management plan takes into consideration surrounding land uses, safety issues in the event of a wildfire, and the ecological consequences of specific fire management strategies. The overall goal of the fire management plan is to introduce a fire

regime (a repeatable pattern of fire with predictable results) onto the natural area that will sustain the fire-dependent communities on the site. Due to the urban development surrounding Frenchman's Forest Natural Area, smoke management concerns dictate extremely narrow weather conditions in which prescribed burning may take place. In the event that particular units are unable to be prescribed burned, mechanical reduction of vegetation may be used as a surrogate for fire. Specific objectives for different areas of the site will depend upon site conditions and other management objectives for that area. The plan includes the following general objectives:

1) To ensure the long-term existence and viability of the natural mesic flatwoods, scrubby flatwoods and wet flatwoods found on the site, and the listed plant and animal species present in these habitats.

2) To provide viable wildlife habitat for wildlife species that use, or could potentially use, the natural mesic flatwoods, scrubby flatwoods and wet flatwoods communities on the site.

3) To control the regrowth and regeneration of invasive and nonnative vegetation following treatment or removal activities, thereby assisting in the restoration of disturbed areas.

4) To reduce the danger of wildfire by reducing the buildup of fuels that has resulted from the infrequent occurrence of fire in recent decades.

To meet these objectives, the fire management plan contains specific tools and management practices designed to minimize adverse impacts to native vegetation and wildlife, while maximizing the beneficial effects of prescribed burns. One of these tools is the use of firebreaks. A network of created management accessways and perimeter firebreaks, and natural, fire-resistant features has been established to provide permanent firebreaks within the site. These management accessways, perimeter firebreaks and natural features serve as the boundaries of seven management/burn units (Figure 5) and provide vehicular access for conducting the prescribed burns. Some management accessways/firebreaks or portions of management accessways/firebreaks are used for other management activities, such as nonnative plant control, or as part of the hiking trail system.

Existing trails were used to create the management accessway/firebreak system when possible. New management accessways/firebreaks were constructed as unimproved, natural-surface clearings where existing trails were either not present or not wide enough to meet the goals of the fire management plan. Prior to the construction of a management accessway or firebreak, the area was surveyed to verify that the construction would not adversely impact any listed species. If an adverse impact would occur, the location of the management accessway or firebreak was adjusted to avoid affecting a listed species, or the listed species was relocated elsewhere on the site.

Prior to a prescribed burn, management accessways that will be used as firebreaks will be widened on a case-by-case basis to facilitate safe prescribed burning conditions. These widths can range from 15 to 20 feet when fuels in the unit to be burned are low in height, to widths of up to 50 feet where the unit to be burned is adjacent to homes and other fire-sensitive structures, and/or where high fuel loads are present. Firebreaks which are greater than 20-feet wide may include a combination of areas that have been cleared of vegetation (bare soil), and areas where the vegetation has been mowed or cut/chopped to approximately 6 to 12 inches in height. Areas used as management accessways/firebreaks will be allowed to regenerate to 13 to 15 feet once the burn is concluded. Areas used solely as firebreaks will be allowed to regenerate completely following a prescribed burn.

Prior to burning a management unit, the unit will be surveyed for fire-intolerant listed plant species. If a fire-intolerant species is found within the unit, individual plants may be relocated outside the burn area. Alternatively, a firebreak may be established around hard-to-relocate species or around larger populations of listed plants. Areas protected by firebreaks created to protect listed plant species will not be burned until the next scheduled burn. These relatively small unburned areas will increase the diversity of the site. Firebreaks for the protection of listed species will be temporary in nature and will be made by cutting vegetation, not by plowing or disking. A permit will be obtained for the relocation of a listed plant species when required.

The fire management plan also takes into account the seasonality and frequency of naturally-occurring fires; the burn schedule is designed to approximate the natural incidence of fire in the site's communities. In general, prescribed fires should be conducted during the early part of the growing season, which extends from March to July. Natural lightning-induced fires normally occur during the growing season. The natural incidence of winter fires generally is low. Prescribed winter fires should similarly be rare in occurrence, to ensure that fire events are synchronized with the fire-adapted life histories and reproductive cycles of resident species. However, where fire has been suppressed for a long period of time and fuel loads have become heavy, prescribed winter fires may be used to begin restoration of a native fire regime. Winter fires generally are cooler and can reduce accumulations of excess fuel while limiting the undesirable destruction of vegetation. On sites such as the natural area, winter fuel reduction fires may be more appropriate, at least in the short term. Backing fires, pre-burn mechanical cutting of dense understory vegetation and other techniques will be used, as needed, for prescribed burns in the natural area in order to reduce fire intensity and decrease smoke generation. Although seasonality of fire is important, prescribed burns will be implemented only when weather conditions allow for favorable smoke management because of the restrictive nature of surrounding smoke-sensitive areas.

A total of seven management units have been identified for this site (Figure 5). These units range in size from less than 2 to just over 74 acres. Four of the management units are designated as "burn" units; three of the units are designated as "no burn" units. The four "burn" management units were designed so that fire would be able to burn through ecotones and move in a more natural, spotty fashion across the landscape. The resulting patchwork of burned and unburned

stands within a management unit will produce a mosaic of vegetation at various stages of maturity, thereby maximizing diversity within and among communities. This will provide habitat for individual species that typically use, or may even be restricted to, communities in a particular state of maturity.

The management units are moderate in size, given the safety and logistical constraints affecting this site. Management units must not be so large that control of a prescribed fire and attendant smoke becomes too difficult or uncertain. Depending on the specific conditions and objectives of a burn, a management unit may be further subdivided into smaller subunits for conducting the prescribed burn.

The burn interval for each of the four "burn" management units was chosen based on the predominant natural community present in that unit. An interval of 5 to 8 years was selected for Management Units 1 and 2 which are dominated by mesic flatwoods and/or wet flatwoods. An interval of 8 to 15 years was selected for Management Units 3 and 5 which are dominated by scrubby flatwoods. Although burn intervals of 2 to 4 years and less than 5 years are recommended (FNAI 2010) for mesic flatwoods and wet flatwoods communities, respectively, these shorter intervals are not currently attainable due to resource limitations, and site-specific smoke management and safety concerns that severely limit weather conditions under which prescribed burning may take place. The burn return interval will be shortened if weather conditions, funding opportunities and resources allow.

When the use of prescribed fire is not feasible/permitted, ERM will strive to create a mosaic of natural communities and successional stages, and reduce the risk of catastrophic wildfire through the use of mechanical reduction methods, subject to and contingent upon annual budgetary funding and appropriations by the BCC. To date, all mechanical vegetation reduction has been conducted on this site using a piece of heavy equipment called a "brontosaurus." This machine is a tracked excavator with either a rotary drum mulching head or a mowing deck at the end of its articulating extension arm. The brontosaurus mechanically grinds or shreds vegetation into medium- to large-sized mulch, producing minimal soil disturbance in the process. After the chopping in an area is complete, the mulch chips are left in place, to allow for the recycling of nutrients. The presence of the mulch does not appear to significantly inhibit resprouting of native vegetation; staff has observed increased species diversities following mechanical chopping.

The prescribed burn program began with a prescribed burn in Management Unit 1 in August 2001. Additional prescribed burns were conducted in the eastern portion of Management Unit 2 and the southeastern portion of Management Unit 1 in October 2007 and in Management Unit 5 in April 2010. Portions of Management Units 3 and 4 were mechanically reduced in preparation for prescribed fire and to reduce the risk of wild fire in November 2012; approximately 9.3 acres were mechanically reduced in Management Unit 1 in February-March 2014.

All of the “burn” units within the natural area are scheduled to be burned within the next 11 years. The proposed burn schedule for the natural area is as follows: Unit 1 in 2015, Unit 2 in 2017, Unit 5 in 2019, Unit 1 in 2021, Unit 3 in 2022 and Unit 2 in 2023.

A specific burn plan will be prepared for each management unit prior to conducting a prescribed burn. A summary of key information to assist with the development of specific burn plans is provided in Appendix G.

There have been five wildfires on this site since the initial management plan was prepared. The first two wildfires occurred in June 2001 and August 2001. Both of these fires occurred in Management Unit 1 and were the result of lightning strikes. They burned 3.14 acres and less than 100 square feet, respectively. The third wildfire occurred in April 2006 near the center of Management Unit 2. This wildfire also was caused by lighting and burned an estimated 1.14 acres before being put out by the Florida Division of Forestry (DOF, now known as FFS).

The fourth wildfire occurred in April 2007 and burned approximately 44.4 acres in Management Units 1 and 2. This wildfire appeared to have been caused by a careless visitor. It scorched 80 to 90 percent of the pine canopy and consumed most of the fuels on the ground. Palm Beach County Fire Rescue, Palm Beach Gardens Fire Rescue and DOF responded to the wildfire. Plow lines created by DOF caused significant damage along the northwestern and eastern perimeter of the fire. The damaged areas were back-tilled by ERM and monitored for nonnative plant invasion. All of the areas affected by the plow lines have recovered.

The most recent wildfire involved a pine tree in Management Unit 3 that was struck by lightning in April 2012. Palm Beach Gardens Fire Rescue was able to extinguish the small fire before it spread. Less than 0.1 acres were affected.

If a wildfire occurs on the site in the future, the appropriate actions will be taken by the authorized fire emergency response agency. Active fire suppression measures will be avoided as much as possible, but will be utilized if deemed necessary by that agency. These suppression measures rely upon the use of heavy machinery and plow lines, and are extremely destructive to vegetation and other natural features. If such measures are undertaken to control a fire, all plow lines will be backfilled after the fire has been extinguished, and disturbed areas will be rehabilitated to the greatest extent possible.

A public education campaign has been developed and implemented for this natural area. This campaign includes informing the adjacent residents of the necessity and benefits of fire, the safety features of prescribed burning versus wildfires, and the strategies that will be developed to minimize the impacts of smoke on the nearby communities. The County will coordinate with the City, Palm Beach County Fire Rescue, FFS and FWC prior to conducting a prescribed burn. If requested, county staff will meet with local community groups such as homeowners' associations to coordinate with residents, provide information on the necessity of conducting prescribed burns, and describe the safety precautions that will be taken to protect adjacent lands.

4.4.2 Invasive/Nonnative Plant Control

Like many fragmented conservation lands in southeastern Florida, the natural area has been invaded by a number of nonnative plant species. To date, 185 species of nonnative plants have been recorded at the natural area – 31.4 percent of the 590 plant species recorded (Appendix A). Many of these species were brought to the site by animals (especially birds), or spread from adjacent residential areas or from vegetation piles that were illegally dumped on the site prior to its acquisition. Many were recorded on the site prior to the implementation of the invasive/nonnative plant control program and may no longer be present. Nonnative plant species are expected to continue to colonize the site from the surrounding residential areas; periodic invasive/nonnative plant control treatments will be required to prevent these species from adversely affecting the natural area.

A number of the nonnative, and some native, plant species recorded at the natural area exhibit invasive tendencies. In this management plan, the phrase "invasive plant species" includes the plants designated as Category I (invasive) and Category II (potentially invasive) by Florida Exotic Pest Plant Council (FLEPPC 2013), those designated as noxious weeds or Class I or Class II prohibited aquatic plants by FDACS (2006 and 2008), as well as certain native plants. Invasive plant species have caused substantial disturbances at the natural area in the past, especially in the hydric hammock, mesic hammock, mangrove swamp and strand swamp natural communities, and around the perimeter of the site. Invasive nonnative plant species pose a serious threat to the natural communities and listed species found at the site, and are a major management concern. At the present time, air potato (*Dioscorea bulbifera*), cogon grass (*Imperata cylindrical*) and rose natalgrass (*Melinis repens*) are considered the highest priority nonnative plant species for removal at the natural area.

Fifty-seven (30.8 percent) of the 185 nonnative plant species recorded at the natural area are designated as either Category I or Category II species by FLEPPC (2013). A current copy of FLEPPC's list of invasive exotic plant species, sorted by category, can be found at http://www.fleppc.org/list/list.htm. Twelve (6.5 percent) of the nonnative plant species have been designated as noxious weeds by FDACS (FDACS 2006), and seven (3.8 percent) have been designated as either Class I or Class II prohibited aquatic plants (FDACS 2008). All of these species are identified in Appendix A.

Control of nonnative and invasive native plant species has been given a high priority in the management of the natural area. The initial multi-phase invasive/nonnative plant control program at the Frenchman's Forest and the Prosperity Oaks Tracts began in June 1997 and April 2004, respectively; they were completed in 2002 and 2006, respectively. The total cost of the initial nonnative plant treatments was approximately $300,000. Follow-up treatments for invasive/nonnative vegetation have been conducted on an as-needed basis since 2002 at the Frenchman's Forest Tract and at the Prosperity Oaks Tract since 2006. The site is now in maintenance condition. A management unit is considered to be in a maintenance condition when

the coverage of invasive plant species does not exceed 1 percent of the canopy or understory layers within any given management year. Although invasive nonnative species are the traditional targets of plant eradication/control activities, invasive native species also can have an adverse impact on fragmented natural communities. If a native plant species begins to have an adverse effect on other native species within the natural area, it may be targeted for eradication/control until such time as the area in which it is located is considered to be in a maintenance condition.

Methodologies used at the natural area to control/eradicate invasive nonnative and invasive native plant species have included mechanical removal methods, herbicidal treatments, removal by hand and the use of periodic prescribed fire. Biological control methods may be implemented in the future if deemed appropriate for the natural area. Ruderal species, which typically are found on open disturbed sites and do not have the capacity to invade functioning natural communities, have been and will continue to be controlled using good management practices, such as prescribed burning and the elimination of unnecessary disturbances.

Mechanical removal methods typically are used to remove accessible, dense stands of highly-invasive nonnative trees such as Australian-pine (*Casuarina equisetifolia*), Brazilian pepper (*Schinus terebinthifolius*) and melaleuca (*Melaleuca quinquenervia*). The tree and its root system are mechanically grubbed out and then chipped for on-site use or off-site disposal. Any outlying sprouts or resprouts from root remnants are spot-treated with herbicides. Mechanical removal methods were used at the natural area in 1999 to remove approximately 7.5 acres of dense Brazilian pepper from the southeast corner of the Frenchman's Forest Tract and again in 2000 to remove approximately 9 acres of dense Brazilian pepper from the strand swamp community in the central portion of the Frenchman's Forest Tract.

Herbicidal treatments typically are used to control/eradicate individual and scattered invasive and nonnative trees, shrubs and palms; inaccessible by heavy equipment, dense stands of invasive nonnative trees; and invasive and nonnative vines and groundcover species. Invasive nonnative aquatic plant species that become problematic at the site may be controlled using an appropriate aquatic herbicide. Treatments utilizing herbicides comply with instructions found on the herbicide label, are applied under the supervision of a licensed applicator and employ Best Management Practices for their application.

Herbicidal application methodologies include hack-and-squirt, cut-stump, basal bark, foliar treatments and broadcast spraying. Hack-and-squirt, cut-stump and basal bark methods are typically used to control/eradicate individual and scattered sapling and adult nonnative trees, shrubs and palms. Foliar treatments are used for invasive and nonnative vines, and for small patches of invasive and nonnative grasses, sedges and forbs. Broadcast spraying is primarily used for larger areas of invasive and nonnative grasses, sedges and forbs. Invasive plant species which are resistant to herbicides or which easily resprout from basal mats, roots or vegetative fragments may require repeated herbicide application before the species is eradicated from an area.

Hand removal is used to remove seedlings of invasive and nonnative tree and shrub species. Since tree and shrub seedlings are not reproductive, they are pulled out of the ground and left to decompose on site after the soil has been shaken from the roots of the plant.

Hand removal also may be used in combination with herbicide treatments to treat invasive and nonnative vines, as well as invasive and nonnative plants that are resistant to herbicides. In the case of invasive and nonnative vines, the targeted vine is cut at an appropriate height. The base is then hand-pulled or treated with a systemic herbicide; vine stems are either removed from the supporting plant or left to decompose in the trees. In the case of plants that are resistant to herbicides, hand removal may be used as the sole plant control method or it may be used as a follow up method to remove plants that are still alive following an herbicidal treatment.

Finally, hand removal may be used to help control plant species that readily reestablish from seed (for example, rose Natalgrass and thalia lovegrass [*Eragrostis atrovirens*]) or that resprout from roots, cuttings, underground rhizomes, tubers, corms, stems or other vegetative fragments (for example, air potato, golden pothos [*Epipremnum pinnatum*], American evergreen [*Syngonium podophyllum*], arrowleaf elephant's ear [*Xanthosoma sagittifolium*] and nightblooming cactus [*Hylocereus nudatus*]). In this latter case, the seedheads and vegetative parts of the invasive nonnative plants are bagged and removed from the site. Care must be taken when removing arrowleaf elephant's ear as its leaves contain oxalic acid which can cause skin irritation (MacDonald, et al 2008).

4.4.3 Nonnative and Nuisance Animal Control

Nonnative and nuisance (feral and certain native species) animals can be a problem within sites like the natural area. Populations of nonnative and nuisance animals will be monitored as part of the systematic and opportunistic wildlife surveys. Targeted surveys for nonnative and nuisance animals also may be undertaken if they are necessary to acquire additional information. Nonnative and nuisance animal control programs will be developed and implemented, as necessary, to control species that adversely affect the natural area. Thus far, eight species of invertebrates - Asian tiger mosquito (*Aedes albopictus*), bigheaded ant (*Pheidole megacephala*), brown widow (*Latrodectus geometricus*), cabbage white (*Pieris rapae*), cottony cushion scale (*Icerya purchasi*), honeybee (*Apis mellifera*), lobate lac scale (*Paratachardina pseudolobata*) and lovebug (*Plecia nearctica*) - and thirteen species of vertebrates - brown anole (*Anolis sagrei*), brown basilisk (*Basiliscus vittatus*), Cuban treefrog (*Osteopilus septentrionalis*), domestic cat (*Felis catus*), Eurasian collared-dove (*Streptopelia decaocto*), European starling (*Sturnus vulgaris*), green iguana (*Iguana iguana*), knight anole (*Anolis equestris*), monk parakeet (*Myiopsitta monachus*), nine-banded armadillo (*Dasypus novemcinctus*), northern curly-tailed lizard (*Leiocephalus carinatus*), spotted tilapia, and white-winged dove (*Zenaida asiatica*) - recorded at the natural area are not indigenous to the South Florida mainland. Vertebrate species recorded at the natural area that may become a nuisance include the coyote (*Canis latrans*) and raccoon (*Procyon lotor*).

None of the nonnative invertebrate species recorded at the natural area appear to be having a negative effect on the natural communities. Therefore, no control methods are proposed for these species at this time. The only nonnative invertebrate species recorded on the site that may have a significant adverse impact on native vegetation within the natural area are the cottony cushion scale and lobate lac scale. Consideration will be given to the use of a biological control for one or both of these species if one becomes available.

The brown anole occurs throughout peninsular Florida and has apparently become the most abundant anole in South Florida (FWC undated[a]). This prolific species is well-adapted to habitats modified by humans and can live in most inland and coastal habitats, including disturbed areas (FWC undated[a]), Meshaka et al. 2004). Although its primary diet is insects, the brown anole also eats hatchling green anoles; this predation appears to have caused a rapid decline in the population of the native green anole in Florida (FWC undated[a], Meshaka et al. 2004). The brown anole was recorded at the natural area by ERM in 1994, 1998, 2000, 2005, 2006 and annually from 2010 to 2013. Potential control efforts for this species will be explored in the future if it is determined that it is having a negative effect on the natural area.

The brown basilisk is a long-limbed, fast-moving lizard that can run on its hind legs, sometimes on the surface of quiet water (Bartlett and Bartlett 2011b, FWC undated[b]). This species is commonly present along canals and pond edges, in agricultural habitats, and in low-density suburban areas in most of South Florida (Bartlett and Bartlett 2011b, FWC undated[b], Meshaka et al. 2004). This lizard is primarily carnivorous, consuming mostly invertebrates, but may eat some fruits; it is prey for various species of snakes (Meshaka et al. 2004). The brown basilisk was recorded at the natural area by ERM in 2008, 2009, 2010 and 2014. Potential control efforts will be explored in the future if it is determined that the brown basilisk is having a negative effect on the natural area.

The coyote was introduced in north Florida, beginning in the 1920s (Coates et al. 1998, FWC undated[c]). It began spreading eastward from Texas at about the same time (FWC undated [c]). This species now occurs statewide and is considered to be a native species by FWC (McCown and Scheick 2007). Coyotes prefer open brushy land that is not heavily wooded; they use hollow logs, brush piles or burrows, or dig dens for shelter and to raise young (FWC undated[c]). The impact of the coyote on native animals is not well quantified, other than sea turtle nests and gopher tortoises, and the harm or benefit to them is under debate. The coyote appears to fill an ecological niche left open by the extirpation of the native red wolf (McCown and Scheick 2007). Coyotes are opportunistic omnivores; they eat whatever animal or plant material is most abundant (McCown and Scheick 2007), including sea turtle eggs in late spring and early summer, and saw palmetto berries in late summer and early fall. A coyote was recorded by a wildlife camera at the natural area by ERM in 2012. Although coyotes may provide a benefit to the natural area by preying on feral cats and raccoons, there is a concern that they could have a significant negative impact on native wildlife, including ground-nesting birds and gopher tortoises. Wildlife cameras and opportunistic surveys will be used to monitor the coyote

population at the natural area and determine if any actions need to be taken to control this species.

The Cuban treefrog is the largest species of treefrog in Florida (Johnson 2013). Cuban treefrogs are present in a variety of natural and human-modified habitats (Bartlett and Bartlett 2011a, Johnson 2013). This species eats a wide variety of food items including roaches, snails, millipedes, spiders and a vast array of insects; it is a known predator of native treefrogs (Johnson 2013, Meshaka et al. 2004). The Cuban treefrog was recorded at the natural area by ERM in 1994 and 1998. Potential control efforts will be explored in the future if this species appears to be negatively impacting native species at the natural area.

FWC has estimated that there are approximately 5.3 million cats in Florida that spend some or all of their time outdoors, potentially preying on wildlife, and that approximately 2.8 million of those may be feral (FWC 2003). Cats are an increasing problem in natural areas in South Florida because of their predation on birds and small animals. There also is the potential for rabies to spread to feral and domestic cats from infected wildlife. Domestic and feral cats were recorded on the site by ERM in 2008 and 2010, and may enter the natural area from adjacent residences. Control of feral and domestic cats will focus on educating the surrounding community, combined with selective live-trapping, if necessary.

Domestic dogs have not yet been reported on the natural area, but may be observed in the future given the site's close proximity to residential areas. Any members of the public observed walking dogs on the site will be informed that domestic pets are not allowed on the site and the owners may be subject to citation under the provisions of the Natural Areas Ordinance. The regulatory signs posted on the boundaries of the site and the natural area rules signs posted at each public entrance both contain a "no pets" statement.

The Eurasian collard-dove is a medium to large-sized, stocky dove. It is most common in coastal, suburban, and agricultural areas where food, roosts and nesting sites are abundant (Johnson and Donaldson-Fortier 2012). Eurasian collard-doves are grain eaters and are frequent visitors to bird feeders (Pranty et al. 2006). This species has been recorded on the natural area on a fairly regular basis since 2007. It is not expected that Eurasian collard-doves will affect the natural area in any significant way; no control methods will be undertaken for this species at the natural area.

The European starling typically is associated with disturbed sites and urban environments, as well as open grassy or agricultural areas (FWC undated[d], Johnson and Givens 2012). This medium-sized songbird is omnivorous; it feeds on a wide variety of invertebrates (such as beetles, insects, earthworms and spiders), as well as seeds, plants and fruits (FWC undated[d], Johnson and Givens 2012). It is a cavity nester, and can aggressively displace native species such as wood ducks, bluebirds, purple martins, woodpeckers and flycatchers from nest holes in trees, human-made structures and artificial nesting boxes (FWC undated[d], Johnson and Givens 2012). This species was recorded at the natural area by ERM on two occasions in 2007, and

again in 2009 and 2011. Due to the limited amount of habitat available for cavity-nesters on the site, this species is not expected to have a significant negative impact on native bird species at the natural area.

The green iguana is very popular in the pet trade and individuals frequently are released or escape (Bartlett and Bartlett 2011b). However, most individuals do not survive cold winter temperatures except in southern Florida (Bartlett and Bartlett 2011b). The cold winter of 2009-2010 appears to have reduced the green iguana population in Palm Beach County. Green iguanas live in most urban and suburban habitats in South Florida (Bartlett and Bartlett 2001b, FWC undated[e]). They prefer dense tree canopies near water, but may be found on canal banks, urban sidewalks and backyards (Bartlett and Bartlett 2011b, FWC undated[e]). They also dig burrows that can undermine sidewalks, seawalls and foundations (Kern 2004). Green iguanas are primarily herbivores; they feed primarily on foliage, flowers and fruit, but also are known to consume insects, lizards, nestling birds and eggs (Kern 2004). Domestic dogs are known to kill green iguanas, but no natural predators are known in Florida for this species (Meshaka et al. 2004). Green iguanas were recorded at the natural area twice in 2005 and again in 2010 by ERM. Potential control measures will be explored in the future if it is determined that this species is having a negative effect on the natural area.

The knight anole is a large, green, nonnative lizard that has become established in low-density suburban areas in South Florida (FWC undated[f]). It typically inhabits the canopies of trees (Meshaka et al. 2004). Knight anoles are omnivores; they feed on large insects and other invertebrates, smaller anoles, frogs, eggs, nestling birds and fruits (FWC undated[f], Meshaka et al. 2004). This species was recorded at the natural area by ERM in 2006 and 2010. Potential control measures will be explored in the future if it is determined that this species is having a negative effect on native wildlife species within the natural area.

The monk parakeet is very popular in the pet trade (Johnson and Logue 2012). It is the most widespread and abundant parrot in North America due to accidental and intentional releases (Pranty et al. 2006). Monk parakeets typically build large, communal stick nests in trees, palms or on artificial structures such as radio towers, light poles and electric utility structures (Johnson and Logue 2012, Pranty et al. 2006). This species feeds on a wide variety of flowers, fruits, seeds, berries and other plant material; it also visits bird feeders and agricultural fields (Johnson and Logue 2012, Pranty et al. 2006). Monk parakeets were recorded at the natural area by ERM in 2008 and 2010. This species will not be targeted for control since it does not appear to adversely affect native plants or animals (Johnson and Logue 2012).

The nine-banded armadillo inhabits dense shady areas such as brush, woodland or pine forests, and prefers areas with sandy or loamy soils that are easy to excavate (Schaefer and Hostetler 2012). It feeds primarily on insects and their larvae, but also eats earthworms, scorpions, spiders, snails, small invertebrates and their eggs (Schaefer and Hostetler 2012). Armadillos are carriers of diseases such as St. Louis encephalitis, leptospirosis, arboviruses and leprosy (FWC undated[g]). They were recorded at the natural area by ERM in 1994, 1998, 2010, 2011 and

2013. Armadillos do not appear to be having a significant impact on the natural area and are not targeted for control at this time.

The northern curly-tailed lizard is a popular animal in the pet trade and individuals frequently are released or escape (FWC undated[h]). This lizard typically occupies open, sandy or rocky habitats, including disturbed areas; it excavates short burrows under rocks, sidewalks and similar materials to provide shelter from inclement weather and to serve as nighttime retreats (Meshaka et al. 2004). It can be found in the coastal portions of Southeast Florida where it inhabits parks, canal banks, seawalls, and urban and agricultural areas (Meshaka et al. 2004). Northern curly-tailed lizards eat invertebrates including beetles, roaches and ants, and may be preyed on by domestic cats and possibly by herons (FWC undated[h], Meshaka et al 2004). This species was recorded at the natural area by ERM in 2010, 2011 and 2012. This species is not expected to adversely affect the natural area; no control methods will be undertaken for this species.

The spotted tilapia is very common in canals, ponds and lakes in South Florida (FWC undated[i]). Spotted tilapias are omnivores; they feed on wide variety of food items, including detritus, diatoms and algae (FWC undated[i]). It grows to 13 inches and about 3 pounds (FWC undated[i]). This fish is commonly caught by cane pole anglers, but in Florida it is illegal to possess and transport live specimens of this species without a special permit; any spotted tilapia caught must be killed immediately (FWC undated[i]). The spotted tilapia was recorded at the natural area by ERM in 2007 and 2010. There currently are no feasible methods to eradicate this species from ditches and/or canals within or adjacent to the natural area or to prevent it from being reintroduced via connections with adjacent water bodies.

The white-winged dove is native to the West Indies, Mexico, Central America and the southwestern United States (FWC undated[j]). Although migratory birds are present in central and southern parts of Florida during October and November, FWC classifies this dove as a nonnative species (FWC undated[j]). Nonmigratory breeding birds are present year-round in South Florida (Maehr and Kale 2005). The white-winged dove is considered a migratory game bird by USFWS and FWC, and as such, both a Florida hunting license and a Florida migratory bird permit are required to legally hunt this species on lands where hunting is permitted (Giuliano et al. 2013); hunting of white-winged doves and all other wildlife is prohibited on county natural areas. White-winged doves feed on seeds, grain, insects and some fruit; they will also visit bird feeders (Pranty et al. 2006). White-winged doves were recorded at the natural area by ERM in 2005. This species is not expected to adversely affect the natural area; no control methods will be undertaken for this species.

4.4.4 Restoration and Enhancement Projects

All of the planned restoration/enhancement projects have been completed at the natural area. However, it will take several years for planted trees to mature and for additional native species to recruit into the restored/enhanced areas. Once this has happened, restoration of the site will be considered complete.

Restoration/enhancement activities conducted on the site included the implementation of an invasive/nonnative plant control program (see Section 4.4.2), the commencement of a prescribed burn program (see Section 4.4.1), the planting of over 600 cabbage palms (see Subsection 4.4.4.1), and the completion of two environmental restoration/enhancement projects (see Subsections 4.4.4.2 and 4.4.4.3) and two hydrological restoration projects (see Subsection 4.4.4.4). These activities have helped restore/enhance the hydric hammock, mangrove swamp, mesic flatwoods, mesic hammock, scrubby flatwoods, strand swamp and wet flatwoods natural communities in terms of biological composition and ecological function. The total cost of the cabbage palm plantings, environmental restoration projects and hydrological restoration projects was approximately $325,000. A portion of the costs associated with the environmental restoration/enhancement projects and the Archie's Creek hydrological restoration project were funded by a $106,377 grant from the SFWMD Indian River Lagoon License Plate Funding Program and a $43,891 grant from the USFWS South Florida Coastal Ecosystem Program.

4.4.4.1 Cabbage Palm Plantings

Over 600 cabbage palms salvaged from offsite development projects were planted at the natural area between 1998 and 2002. About 500 cabbage palms were planted in three compact areas – north and south of the parking lot entrance, and west of the parking lot (Figure 6). The rest of the cabbage palms were scattered throughout a 2-acre portion of the Frenchman's Forest Tract that lies west-northwest of the residential inholding (Figure 6).

4.4.4.2 Hydric Hammock/Mesic Hammock Restoration/Enhancement

Approximately 3.0 acres of hydric hammock and 1.5 acres of mesic hammock were restored/enhanced in the southeastern portion of the Frenchman's Forest Tract between December 2000 and September 2001 (Figure 6). At the time of acquisition, these areas were dominated by dense Brazilian pepper and other invasive/nonnative plant species. Prior to the commencement of the restoration/enhancement project, most of the Brazilian pepper and other nonnative vegetation were mechanically removed and two shallow east-west ditches southwest of the residential inholding were plugged. The hydric hammock/mesic hammock restoration/enhancement project included removal of the remaining invasive/nonnative plants within the project areas. The cleared areas were then planted with native hammock plant species including swamp fern, coco plum, string lily, myrsine, wax myrtle, wild coffee and live oak.

4.4.4.3 Mangrove Swamp Restoration/Enhancement

Two acres of mangrove swamp were restored/enhanced in three separate areas in the southeastern portion of the Frenchman's Forest Tract between December 2000 and September 2001 (Figure 6). The largest of the restored/enhanced areas was south of Archie's Creek (Figure 6). The other two areas were located along the edge of the open water area (Figure 6). Prior to their restoration, all three areas were vegetated by a mixture of white mangroves, and disturbed and

nonnative vegetation; the banks of the open water area were relatively steep and provided limited intertidal habitat. The restoration/enhancement project included removing the invasive/nonnative vegetation, scraping down the restoration areas to create expanded intertidal areas, and planting native mangrove and salt marsh species such as herb-of-grace (*Bacopa monnieri*), smooth cordgrass (*Spartina alterniflora*), sand cordgrass and marshhay cordgrass. In addition, littoral shelves were created within the open water area and planted with red mangroves, cordgrass and other appropriate estuarine species. All of the restored mangrove swamp areas have filled in with naturally-recruited native vegetation.

4.4.4.4 Hydrological Restoration

Two hydrological restoration projects were constructed within the Frenchman's Forest Tract between 2000 and 2002. The purpose of these projects was twofold: 1) reduce the amount of surface water leaving the tract, and 2) provide surface water flows to the northwestern portion of the tract. Together, these hydrological restoration projects have raised water levels and extended hydroperiods within the tract's strand swamp, hydric hammock and wet flatwoods communities.

The purpose of the first hydrological restoration project was to reduce the amount of surface water leaving the tract through three shallow drainage ditches. Two of the three east-west ditches were dug prior to 1953; the third east-west ditch was constructed in the late 1950s or early 1960s (USDA 1953 and 1964). The northern ditch, located northwest of the residential inholding, was used to drain water from the northern and central portions of the strand swamp and hydric hammock into Archie's Creek canal. The two southern ditches, located southwest of the residential inholding, were used to drain water from the southeastern portion of the hydric hammock into Archie's Creek canal. Together, the ditches significantly lowered water levels and reduced hydroperiods within the Frenchman's Forest Tract.

In order to mitigate for these effects, the first hydrological restoration project was designed to significantly reduce the amount of water leaving the tract via the east-west ditches. The project included the construction of a sheet pile weir and earthen berm within, and adjacent to, the northern ditch. The weir and berm raised the control elevation of the central portion of the tract from approximately 1.2 feet to 5.0 feet NGVD (the control elevation of the weir). The project also included the plugging of the southern ditches using fill excavated from the mangrove swamp enhancement project. This action raised the control elevation of the southeastern portion of the hydric hammock from approximately 1.2 to just over 3.0 feet NGVD. Since its completion in September 2001, the first hydrologic restoration project has significantly reduced the amount of water leaving the tract through the northern ditch and has eliminated water losses through the two southern ditches.

The purpose of the second hydrological restoration project was to provide surface water flows to the northwestern portion of the Frenchman's Forest Tract. Historically excess surface waters from the property west of the Frenchman's Forest Tract (present-day Frenchman's Reserve) flowed slowly into the natural area tract via a series of interconnected wetlands and low lying

uplands. These surface water flows helped maintain fairly even water levels within the tract's wetland communities. This changed in the 1940s or early 1950s when a circuitous ditch was dug to drain water from the Frenchman's Reserve property into the strand swamp in the northwestern portion of the natural area. This ditch quickly funneled excess surface waters from the future Frenchman's Reserve property into the Frenchman's Forest Tract, thereby causing significant variations in water levels – from very high to very low - within the natural area's strand swamp, hydric hammock and wet flatwoods communities. When the Frenchman's Reserve property west of the natural area was developed, ERM worked with the developer to ensure that a portion of the development's stormwater was directed into the natural area to help rehydrate the site's wetlands. This was accomplished through the clearing of an old east-west drainage ditch in the northwestern portion of the natural area and the construction of an outfall from the developed property that discharges into the ditch. The control elevation of the discharge culvert is 6.5 feet NGVD. This control elevation allows excess surface waters from Frenchman's Reserve to flow in a controlled manner into the natural area ditch and ultimately into the adjacent wetland communities. The second hydrological restoration project, which was constructed in 2002, has helped rehydrate the site's strand swamp, hydric hammock and wet flatwoods communities by providing surface water flows to the natural area.

4.5 SECURITY

The City of Palm Beach Gardens has the primary responsibility for public safety and law enforcement at the Frenchman's Forest and Prosperity Oaks Tracts, per the terms of the Interlocal Agreement between the City and the County (Appendix E). These responsibilities include routine patrols of the boundaries and the prevention of vandalism, trespass, dumping, and damage to the property and natural resources. The Palm Beach County Sheriff's Office has the primary responsibility for public safety and law enforcement at the Canal Tract. The County also has contracted with the Sheriff's Office to have Wildlands Task Force deputies conduct extra patrols of the natural area when needed. The Wildlands Task Force is a specially-trained and specially-equipped unit that was formed to prevent illegal OHV use and related activities on the natural areas managed by the County and to enforce the provisions of the Natural Areas Ordinance. There is no on-site manager or security guard and no on-site staff residence.

The County's Natural Areas Ordinance regulates public use of the natural area. The ordinance provides for passive recreational activities such as hiking, nature study and photography; for environmental education; and for scientific research. It prohibits destructive uses such as OHV use, dumping, and poaching of plants and animals. The ordinance gives law enforcement personnel the authority to fine and/or arrest persons damaging a natural area. Except for service animals, no dogs, cats or other domestic animals are permitted on the natural area. Dumping on public lands also is prohibited by state law (state statute 403.413).

The natural area is open to the public daily from sunrise to sunset. Access hours are posted at each public entrance. Currently, city police are responsible for opening and closing the gates to the parking lot.

No vehicles (for example, OHVs, bicycles or skateboards) are permitted beyond the designated parking lot, except to perform the maintenance and prescribed burning activities described in this management plan, and except as authorized by the County's Access Policy for Use of Natural Area Trails and Other Public Use Facilities by Persons with Mobility Disabilities.

In the unlikely event that any unforeseen occurrence, either natural or human-caused, severely alters the natural values of the Frenchman's Forest Natural Area, ERM staff will assess the nature of the alteration and will take remedial action to secure and/or stabilize the site if necessary. Natural events such as fires, floods and hurricanes may shift the ecology of the site from its present condition and cause damage to human-made structures (such as the wildlife observation platform, boardwalk, kiosks, signs and fencing), but in no way would severely limit or eliminate the natural values of the site. The first priority following a natural or human-caused event will be to secure the site with fencing to prevent dumping and vandalism.

The natural area may be closed to public use until the site is stabilized and repairs are made to the structures. The native communities at this site will be managed to naturally regenerate following such an event. The County will inform FCT of the altered condition of the site and future management plans and objectives. If the natural values of the site are severely limited or eliminated, the County and State will discuss future plans for the site. Management practices will be modified to reflect any new conditions at the site, and the management plan will be updated to reflect these changes. All major events affecting the natural communities at the natural area will be discussed in the next annual report to FCT and in the next update of the management plan.

4.6 STAFFING

Because of the low management needs of the Frenchman's Forest Natural Area, the relatively small size of the site and its proximity to developed areas, there is no on-site staffing. ERM has created a roving management team that is responsible for management at this site and other county-managed natural areas. The members of the management team have been trained to conduct all levels of management activities, including invasive/nonnative vegetation control, prescribed burning and monitoring. Volunteers from local citizens' organizations, businesses and schools provide additional support where feasible and necessary. Currently, there are no local volunteers that serve as site stewards for this site. Site stewards periodically visit their assigned site and provide reports on its conditions, and any problems noted, to ERM's volunteer coordinator and site manager.

4.7 COORDINATION WITH ADJACENT LAND MANAGERS

There are no conservation lands located adjacent to or in the immediate vicinity of the natural area. The County will review any proposed land use changes or development plans for properties adjacent to the natural area to ensure the protection of biological communities and to

avoid adverse impacts on listed species, and will work with the City to try to locate any required preserve areas so that they are adjacent to the natural area.

4.8 GREENWAY CONNECTIONS/MANAGEMENT

The natural area is 1 of 35 conservation lands and parks that lie within the Northeast Everglades Natural Area (NENA). NENA includes approximately 165,000 acres of conservation lands in northern Palm Beach County and southern Martin County; it is a cooperative effort among partnering land managers and educational centers to link conservation lands, parks and activity/education centers through a system of designated and thematic elements. More information about NENA may be found on ERM's website at http://www.co.palm-beach.fl.us/erm/nena/.

Management of the natural area helps implement the NENA master plan by providing public use facilities, including hiking trails and by preserving habitat for wildlife. The County will coordinate the development and management of the natural area with agencies managing other conservation lands within NENA to ensure that the natural area is managed as part of a linked conservation lands system that provides passive recreational opportunities without significantly impacting the natural resources of these lands.

4.9 PUBLIC OUTREACH, ENVIRONMENTAL EDUCATION AND SCIENTIFIC RESEARCH

ERM has a very active public outreach and environmental education program. To help members of the public become invested in the natural area, volunteer work days/environmental educational events are held onsite four or more times a year. Volunteer activities range from trash pickups, to removal of nonnative and invasive native plant species, to assisting with environmental restoration projects. A short, site-specific educational presentation is conducted at the beginning of each volunteer work day to give the volunteers a deeper appreciation for the site they are working on. In addition, ERM staff is available to assist the faculty of local schools in developing educational programs for school use of the natural area. If a volunteer site steward is identified in the future, they will receive training from ERM staff prior to assuming their duties.

Interpretative exhibits have been prepared and installed in kiosks located adjacent to the parking lot and on the Prosperity Oaks tract. The kiosk exhibits provide general information about the natural area, its topographic features and aquifer recharge significance, the natural communities and wildlife found on the site, the protection of listed species and their habitats, restoration projects that have been undertaken at the site, ongoing management activities such as prescribed fire, and other interesting information about the site. A paper trail guide has been prepared for the site and is available in brochure boxes attached to the kiosks. The kiosk exhibits and trail guides are updated as appropriate, and the exhibits are periodically changed to provide returning visitors with a more comprehensive view of the natural area.

A half-hour Naturescope program about Frenchman's Forest Natural Area was filmed by the County's public access television station (Channel 20) in 2006. The program is shown periodically on the Channel 20. Interested teachers and members of the public may also view the program at their convenience via a link at the bottom of the Frenchman's Forest Natural Area webpage: http://www.pbcgov.com/erm/natural/natural-areas/frenchmans-forest/.

The natural areas portion of ERM's website includes links to trail guides, photo albums for most natural areas, current management plans, Naturescope programs (if available for that specific natural area), information on how to obtain a free map application for mobile devices, and maps of the County's natural areas. Each natural area map shows the trail system and main public use facilities that are available at that site. The link to the Frenchman's Forest Natural Area management plan will be updated after the plan has been approved by the BCC. Information on the Frenchman's Forest Natural Area can be accessed at: http://www.pbcgov.com/erm/natural/natural-areas/frenchmans-forest/. The natural areas mobile map can be accessed at: http://www.pbcgov.com/erm/mobile-maps.

No specific research needs have been identified for this site. ERM does not anticipate performing any scientific research other than compiling and interpreting the data from monitoring activities, but will allow researchers affiliated with local institutes of higher learning, botanical gardens, and government agencies to conduct scientific research on a permit basis.

4.10 CLIMATE CHANGE

The preservation, restoration and enhancement of the Frenchman's Forest Natural Area will help address climate change in four ways. First, the re-hydration of a portion of the strand swamp and hydric hammock will help rebuild some of the carbon stores that were lost from wetland soils when the area was drained as a result of the construction of the AIWW and the regional drainage system. Second, the preservation and enhancement/restoration of native vegetative communities on the site will help reduce greenhouse gases by converting carbon dioxide to oxygen. Third, the restored/enhanced native vegetation communities within the natural area will serve as a refuge for wildlife that may be affected by climate change-induced habitat losses. Lastly, efforts to restore the site's hydrology - by maintaining higher water levels and extending hydroperiods within the freshwater wetlands - will help maintain a higher water table in, and immediately adjacent to, the natural area. This higher water table will help prevent the landward migration of the saltwater wedge from the AIWW as the result of climate change-induced sea level rise.

5. SITE DEVELOPMENT AND IMPROVEMENT

5.1 PUBLIC USE FACILITIES AND ACCESS

The natural area is a publicly-owned preserve and is operated as a natural resource-based, passive outdoor recreational site. It also is available for environmental education and scientific research. The existing public uses were carefully chosen, designed and located so as to not have a significant impact on any of the rare and endangered plants, animals, and natural communities found on the natural area. At the same time, these public uses provide for adequate public passive recreational opportunities such as nature appreciation and study, photography, and hiking.

The natural area is open to the public during daylight hours, unless a special, after-hours use permit has been issued. The hours of operation are posted at each public access point. City staff open and close the entrance gates to the parking lot on a daily basis (Appendix E). Gate opening/closing responsibilities may be delegated to a local steward or stewardship group if approved by the County.

The major structures and improvements constructed on this site are described in the following sections and shown on Figures 6 and 7. These structures and improvements have helped the County and City achieve their goals of preserving and restoring the natural resources of the natural area, while providing for compatible public uses. The concrete nature trail, observation platform and parking lot comply with Americans with Disabilities Act requirements. The cost to design, permit and construct/install the public use facilities, fencing, gates and signage was approximately $692,707. The County is responsible for maintaining all of public use facilities, fencing and signage on the natural area. Management responsibilities are described in an Interlocal Agreement between the City and the County (Appendix E).

A majority of the public access to the natural area is via a ten-car (including one designated accessible parking space), two-bus parking lot that was constructed in a highly-disturbed portion of the Frenchman's Forest Tract, west of Prosperity Farms Road and north of the Cabana Colony canal (Figure 7). An interpretive kiosk was installed west of the parking lot, near the beginning of the nature trail. A bicycle rack was installed adjacent to the parking lot to encourage visitors to ride bicycles to the natural area. Unpaved areas within the limits of the parking lot have been landscaped with native plant species to provide additional wildlife habitat and to enhance the parking lot's appearance. A double-sided entrance sign has been installed just north of the parking lot driveway and an entrance gate has been installed across the driveway to control entry to the parking lot.

The Prosperity Oaks Tract is 0.3 mile south of the parking lot; the primary public access point for this portion of the natural area is through a pedestrian gate that is accessed via an existing sidewalk west of Prosperity Farms Road (Figure 7). Members of the public also may enter the Prosperity Oaks Tract via one of three "neighborhood" pedestrian gates. These gates are located

adjacent to the Harbour Oaks development, along Valencia Gardens Avenue and along West Edgewater Drive. Informational kiosks have been installed at the Prosperity Farms Road and Harbour Oaks pedestrian entrances.

Approximately 3.6 miles of trail have been created within the natural area. Approximately 2.6 miles of hiking trails and a 0.4–mile-long accessible nature trail were created within the Frenchman's Forest Tract; all of these trails may be accessed via the parking lot. An additional 0.6 miles of hiking trail were created within the Prosperity Oaks Tract and may be accessed via any of the four pedestrian access gates.

With the exception of a 0.1-mile wooden boardwalk segment that crosses the strand swamp, all of the hiking trails within the natural area have a natural soil base. Unless co-located with a management accessway/firebreak, the hiking trails are maintained either by hand at a width of 3 feet or at a width of 6 feet by periodic mowing with a small tractor with a bush hog mower. The hiking trail system includes directional signage, but is not improved or marked for interpretive purposes. All firebreak/management accessways also are available for foot traffic, but are not improved or marked for interpretive purposes. The nature trail is a 5-foot-wide concrete trail which is marked for interpretive purposes. All of the trails were constructed on existing paths and trails, and within disturbed areas whenever feasible. Public use of existing secondary trails leading off designated hiking trails and management accessways/firebreaks will be discouraged by appropriate signage and vegetative barriers, by not maintaining these secondary trails, and by encouraging the regeneration of native vegetation in these trails.

The Frenchman's Forest Tract also includes a wildlife observation platform that extends over the western portion of the open water area (Figure 7). The wildlife observation platform is accessible from the parking lot via the nature/hiking trail system. Drinking water and restrooms are not available at the natural area.

All improvements and major land alterations were done in compliance with applicable local, state, regional and federal laws and regulations. All required licenses and permits were obtained prior to the commencement of any construction, native vegetation removal or major land alterations on the natural area.

5.2 FENCING AND GATES

Due to the sporadic incidence of undesirable off-road vehicle traffic, as well as the potential for poaching of native plants and wildlife from the site, and the historic dumping of trash, the site has been fenced. The fencing, together with management accessways/firebreaks, has also helped to control the dumping of debris onto the site.

Two types of fencing are currently present on the natural area – chain-link and post-and-rail. Six-foot-tall, green-vinyl-coated chain-link fence was installed along the northern and western boundaries of the Frenchman's Forest Tract, along the northern border of the residential

inholding, and along the northern, western and southern boundaries of the Prosperity Oaks Tract. Two rail, post-and-rail fencing was installed along the Prosperity Farms Road sides of the Frenchman's Forest and Prosperity Oaks Tracts. Two-rail, post-and-rail fencing also was installed around the parking lot to keep vehicles within the designated parking lot. The Cabana Colony and Archie's Creek canals are deep enough to prevent vehicular access and deter unauthorized pedestrian access to this site; the portions of the natural area that lie adjacent to these canals are not fenced. Property boundaries lying adjacent to and west and east of the Canal Tract have been fenced by others; access to the canal easement is blocked from the north by a fence and gate that was installed by others.

A total of ten gates have been installed at the natural area. Two 12-foot-wide steel swing gates were installed near the southeast corner of the site, and serve as the parking lot entry and exit gates. Public access to the Frenchman's Forest Tract is through this gated entrance. Steel bull management access gates were installed in two locations along the northeastern portion of the Frenchman's Forest Tract. Another steel bull management access gate was installed in the parking lot fence line. A pedestrian maze gate was installed in the Prosperity Oaks Tract fence line just west of Prosperity Farms Road to serve as the primary public access point for that tract. Four chain link, pedestrian latch gates were installed in other locations around the perimeter of the Prosperity Oaks Tract to provide additional public pedestrian and management access.

5.3 SIGNS

Regulatory signs have been posted at each corner of the natural area and every 500 feet along the perimeter of the natural area, with the exception of the Canal Tract. The signs state that the Frenchman's Forest Natural Area is a protected natural area and cite the appropriate County and City ordinances. Access hours, "Do Not Feed Animals" and "No Pets Allowed" signs are posted in the parking lot and at each of the pedestrian entrance gates. Natural areas rules signs have been installed at the parking lot and at the pedestrian entrances to the Prosperity Oaks Tract. A dedication sign was installed at the entrance driveway to the parking lot. The sign identifies the site as a natural area open to the public, as having been purchased with the funds from FCT and the County, and as being managed by the County with assistance from the City.

"No Trash Area" signs were installed in the natural area parking lot and at each of the pedestrian access gates on the Prosperity Oaks Tract. Trash receptacles are not provided at the natural area for several reasons: 1) ERM believes the lack of trash receptacles encourages people to minimize and recycle their trash as much as possible; 2) the use of trash receptacles within natural areas tends draw wildlife into areas where they may come into conflict with, or be fed by, members of the public; 3) some people use the trash receptacles as their personal "dumpsters" - they empty all the trash from their vehicles into the receptacles - which leaves little or no room for other trash; 4) people continue to place trash into and around trash receptacles even after they are full resulting in unsanitary/unsafe conditions for other visitors and wildlife, and trash which is left around full receptacles then blows into the adjacent natural communities; and 5) ERM has found

that removal of trash receptacles from County-managed natural areas does not increase the amount of trash/litter that is found on any given site.

A nature trail guide has been developed. Paper copies of the guide are available in brochure boxes attached to the kiosks, and an electronic copy can be downloaded from ERM's website. Signposts are located at various points along the nature trail, with station numbers corresponding to descriptive information in the trail guide for that trail.

5.4 MANAGEMENT ACCESSWAYS/FIREBREAKS

Management accessways are primarily used for resource management and on-site monitoring, although portions of these accessways may be incorporated into the hiking trail system. Management accessways provide numerous benefits, including more rapid access in the event of a wildfire, protection of adjacent developed areas from wildfire, and facilitation of the monitoring of dumping and other illegal activities along the natural area's edge. Initially, the management accessways on this site were cleared areas with an unimproved sand/dirt surface that was approximately 15 to 20 feet wide. Following their initial clearing management accessways are maintained at a standard maintenance width of 13 to 15 feet, except when used as a firebreak. This width efficiently and effectively provides safe passage for vehicles and equipment. Routine maintenance of management accessways is accomplished by periodic mowing. Disking of management accessways occurs only around management units where a prescribed burn is planned in the near future, or where a management accessway borders a developed area and a disked firebreak is needed for safety reasons.

A management accessway/firebreak system has been established between each of the five management units within the Frenchman's Forest Tract, as well as around the perimeter of much of the tract (Figure 5). The management accessways/firebreaks were located as much as possible on existing paths, trails and disturbed areas on the site. Prior to construction, all management accessway/firebreak locations were surveyed for listed species. If listed species were likely to be impacted by the management accessway/firebreak construction, the accessways/firebreaks were rerouted wherever possible, or the listed species were relocated elsewhere on the site. Additional firebreaks may be established within management units to separate fire-intolerant natural communities from adjacent burn areas, or to create smaller burn units. Management accessways/firebreaks have not been constructed within the Prosperity Oaks or Canal Tracts due to their small size and the fact that neither tract will be treated with prescribed fire.

5.5 OTHER STRUCTURES AND IMPROVEMENTS

The only "other structures and improvements" constructed within the natural area are a sheet pile weir and earthen berm, and a GeoWeb repair to a portion of the Cabana Colony canal bank/natural area management accessway along the southern boundary of the Frenchman's Forest Tract. The sheet pile weir and earthen berm were constructed within, and adjacent to, an east-west ditch lying northwest of the residential inholding. These structures were constructed in

2001 as part of the first hydrological restoration project (see Section 4.4.4.4). The weir and berm raised the control elevation of the central portion of the Frenchman's Forest Tract from approximately 1.2 feet to 5.0 feet NGVD (the control elevation of the weir).

GeoWeb was used to repair a breach in the northern berm of the Cabana Colony canal (part of a management accessway) that was caused by excessive rainfall during the September 2004 hurricanes. Since the canal berm helps hold surface waters within the natural area and is used by staff as part of a management accessway, it was important to repair and stabilize the berm as quickly as possible. GeoWeb was selected because of its ability to help stabilize soils even on a slope. The GeoWeb repair was completed in December 2004.

5.6 PRIORITY SCHEDULE FOR MANAGEMENT AND RESTORATION ACTIVITIES

The initial development of the natural area has been completed. Site development activities, initial invasive/nonnative vegetation removal, several fuel reduction burns, mechanical chopping of several management units to reduce fuel loads, hydric hammock/mesic hammock and mangrove swamp restoration projects, and two hydrological restoration projects have been completed, as shown in Chapter 14. Fencing, signs and gates were purchased and installed and management accessways/firebreaks were cleared. A fire management plan was prepared and a prescribed burn program initiated. An accessible nature trail, natural-surfaced hiking trails, a boardwalk, observation platform and parking lot have been constructed within the natural area. Three kiosks with interpretive displays and brochure boxes have been installed.

Management of this natural area has now shifted into maintenance mode. The structural elements are replaced when needed due to age or damage. The kiosk posters and trail guide are updated as necessary. A priority schedule for the ongoing work is provided in Table 3.

Work will begin in 2023 on the next update of the management plan.

6. ANNUAL MAINTENANCE AND OPERATING COSTS

The primary funding source for the development of the Frenchman's Forest Tract was the $100 million Palm Beach County Environmentally Sensitive Lands Bond Referendum approved by the voters on March 12, 1991; the primary funding source for the development of the Prosperity Oaks Tract was the Palm Beach County Lands for Conservation Purposes Bond Issue Referendum of March 9, 1999. The County has the primary responsibility for site development, management and maintenance, with assistance from the City as described in an Interlocal Agreement between the City and the County (Appendix E). The City has primary responsibility for public safety and law enforcement within the natural area, and for the daily opening and closing of the parking lot gates. The City also will continue to assist the County with volunteer activities and management activities such as removal of nonnative vegetation, removal of trash and debris collected during volunteer activities, and prescribed burns, subject to the availability of city funds, staff and equipment. Staffing for habitat management and facility maintenance will be accomplished by existing county and city personnel, with assistance from community volunteers.

The County's initial capital costs for nonnative vegetation removal, wildfire mitigation, and site security and development totaled $1,315,988. These expenditures included both mechanical and manual nonnative vegetation removal; installation of fencing, signs and gates; clearing of management accessways/firebreaks; one fuel reduction burn, construction of the public use facilities (accessible nature trail, hiking trails, boardwalk, observation platform and parking lot), planting of over 600 cabbage palms, two environmental restoration/enhancement projects and two hydrological restoration projects. A portion of these capital costs were paid by grants: a $106,377 grant from the SFWMD Indian River Lagoon License Plate Funding Program and a $43,891 grant from the USFWS South Florida Coastal Ecosystem Program.

Annual maintenance and operation expenses for the next 10 years are estimated to be $282,393 (Table 4). Costs of management will continue to be minimized through the cooperation of local citizens' and nonprofit organizations, businesses, schools and individual volunteers and by coordinating the management of natural areas on a countywide basis. It is recognized by both the County and the City that the management of the natural area will require more than volunteer assistance. Some activities, such as prescribed burning and mechanical fuel reduction, herbicide application, operation of chain saws, and other hazardous or extremely technical operations, are not suited to volunteers. The County will provide such services, or assistance from contractors will be obtained where necessary. Maintenance of the public use facilities, implementation and maintenance of the restoration projects, and planned management activities on the natural area are subject to and contingent upon annual budgetary funding and appropriations by the BCC.

The County has established a Natural Areas Stewardship Endowment Fund. Funds received from restricted gifts and other sources are invested, and the interest earned is used to provide operating funds for management of county-owned and county-leased natural areas. The County may also apply for funds available from the Pollution Control Recovery Trust Fund administered

by the Florida Department of Environmental Protection (FDEP). In addition, funds are available as provided in Article 14, Chapter C (Vegetation Preservation and Protection) of the Palm Beach County Unified Land Development Code. Fees collected from violations of the provisions of this section will be deposited into the Natural Areas Fund, and can be used for the management of lands acquired or leased by the County as natural areas. Monies from the sale of development rights on lands purchased by the County as natural areas, as well as monies received from leases of county-owned land in the Agricultural Reserve, also are potential sources of funds for management purposes. Even with these possible funding sources, the County recognizes the need for additional management funds. ERM will investigate all possible local, state, or federal sources of land management funds. The County will not apply for funds from any grant program whose requirements conflict with the terms and conditions of the FCT grant award. Any fee received by ERM from any public or private entity for projects to offset adverse impacts to imperiled species or their habitats will be deposited into the Natural Areas Fund and used to restore, manage, enhance, repopulate or acquire imperiled species habitat and to implement land management plans for sites with such habitats.

7. MONITORING AND REPORTING

The public uses permitted on the site by Palm Beach County were carefully chosen and designed so as to not have a significant impact on any of the rare and endangered plants, animals, and natural communities found on the natural area. No specific carrying capacity has been determined for this natural area. The site is managed specifically to promote natural resource values. In general, the size of the parking lot (10-car, 2-bus) and restricted pedestrian access points are the limiting factors in controlling public usage. No OHVs, bicycles, domestic animals or pets are allowed past the parking lot, so impacts from these sources are minimal. Except for management purposes, all human traffic within the natural area is by foot. As of July 2014, there were nine active geocaches on the site. This recreational activity does not appear to be having any effects on the natural area. The effects of human impacts on the site will be determined through implementation of the monitoring program described in the following sections.

The first migratory bird survey was conducted within the Frenchman's Forest Tract in April 1999; the remainder of the biological monitoring program (photomonitoring and vegetation monitoring) and the hydrological monitoring program were initiated in 2000. A biological monitoring program was initiated in the Prosperity Oaks Tract in 2004; no hydrological monitoring stations have been established within the Prosperity Oaks Tract. The purpose of these monitoring programs is to determine whether the stated management and restoration objectives for hydroperiods, natural vegetation communities and listed species are being achieved. Results of the monitoring program have been/will be used to evaluate the success of hydrological restoration activities, prescribed fires and/or mechanical vegetation reduction activities, invasive/nonnative plant treatments, and other restoration and management efforts at the natural area. The monitoring program and management practices will be adjusted if analysis of the monitoring data indicates that management objectives are not being met. If the monitoring data indicates that public uses are having a negative impact on vegetation and/or wildlife populations, a carrying capacity or additional use restrictions may need to be established for the site. There are no monitoring stations within the Canal Tract since it is managed for drainage purposes by NPBCID.

A series of monitoring protocols has been developed to ensure consistency in monitoring activities on all natural areas managed by ERM. Copies of these protocols are available upon request. The types of monitoring conducted on the natural area are summarized in the following paragraphs. Monitoring data will be used to prepare Annual Site Evaluation reports (see Section 7.6).

7.1 PHOTOMONITORING

The primary objective of photomonitoring is to obtain a qualitative, long-term visual record of changes in vegetative composition and/or condition over time, including the effects of planned management and restoration activities. Photomonitoring also may be used on a short-term basis

to document changes in vegetation coverage which are related to specific restoration or management activities, such as the mechanical removal of nonnative vegetation, ditch filling/plugging, and prescribed fire; or to document changes related to natural events, such as wildfires and tropical storms/hurricanes.

Photomonitoring began at the Frenchman's Forest Tract in 2000 and at the Prosperity Oaks Tract in 2004; photomonitoring is performed annually in September. Eight long-term photomonitoring stations have been established in areas where planned management or restoration activities have occurred, or are anticipated to occur, and in areas in which natural vegetation succession of management interest is expected to occur. Two of the original photomonitoring stations – one each in the Frenchman's Forest and Prosperity Oaks Tracts – became overgrown by native understory a few years after their establishment. Each of these stations was relocated to a more open area near the original photomonitoring station.

The location of each long-term monitoring station was recorded with a global positioning system (GPS) receiver which uses satellite signals to determine the longitude and latitude of a particular spot to an accuracy that can be within one meter. The location of each station also has been clearly described on a photomonitoring form, along with any additional reference points (such as trees, structures, or other unique features) used to help staff locate the station in the field.

One set of color images is taken at each photomonitoring station during each monitoring phase. These images are then combined into a panoramic photograph using digital imaging software and stored electronically with the name of the site, the management unit number and the station number. Each panoramic photograph is centered on a predetermined and repeatable compass heading. When a management unit is burned, changes in vegetation are measured with photos taken pre-burn, immediately post-burn, and at 3, 6 and 12 months post-burn. A reference collection of all images taken is maintained by ERM and used when the annual site evaluation reports are prepared.

7.2 VEGETATION MONITORING

Four vegetation transects were established in the Frenchman's Forest Tract in 2000 – one in each of the original management units. Each transect was 150 feet long and data was recorded at 3-foot intervals. The vegetation transect stations were monitored in 2000 and 2002. The vegetation transects were decommissioned in 2003 due to staff limitations.

If vegetation transects are required by the conditions of a permit, grant or any other agreement, a point intercept transect monitoring method will be used, subject to approval by the overseeing agency or organization. Permanent point intercept transects will be established to monitor changes in vegetation. Transects will be surveyed twice a year, once in the dry season and once in the wet season. Data will be recorded for three strata (canopy, shrub and herbaceous) at predetermined intervals along each transect. If an analysis of the transect data indicates that

negative natural community changes are occurring, additional transects may be established in the affected management unit to determine if the changes are localized or widespread.

Any plant species observed on the site that is listed as endangered or threatened by USFWS, is listed as endangered by FDACS, or is assigned a state rank of S1, S2 or S3 by FNAI will be surveyed annually or biennially in order to track population trends. Additional surveys may be conducted if it is determined that such surveys are necessary to document changing site conditions or the effects of significant events or land management activities, such as prescribed burns. If the population of a species is too large to practically count all individuals, a representative portion of the population is surveyed. Locations of individual plants or groups of plants are mapped with a GPS receiver. A species-specific monitoring plan may be developed for an endangered plant species when more intense monitoring is needed due to regulatory requirements or management information needs, or because the species is highly endangered or suspected to be declining.

Species listed as threatened by FDACS that have a widespread distribution or species that are commercially available will be monitored at least once every 5 years to determine if those species are still present on the natural area. Special surveys with specific objectives may be conducted as needed to document changing site conditions, the effects of a land management activity such as a prescribed burn, or the impacts of a significant natural event such as a hurricane, wildfire, pest, disease or invasive species.

7.3 WILDLIFE MONITORING

A total of 31 migratory bird surveys were performed within the Frenchman's Forest Tract between April 1999 and April 2014; 16 migratory bird surveys were performed within the Prosperity Oaks Tract between October 2005 and April 2014. Nonmigratory surveys have been performed within both tracts since 2010. Between 1999 and 2010, surveys were conducted using random transects. Then in 2011, migratory/nonmigratory point count stations were established in various locations within the Frenchman's Forest and Prosperity Oaks Tracts. Migratory bird surveys and nonmigratory wildlife surveys will be continued on a biannual and annual basis, respectively. Data collected during these surveys will be used to determine what effect, if any, public recreational uses, and management and restoration activities have on resident and migratory wildlife populations at the natural area.

Migratory bird surveys are conducted biannually when migratory bird species are expected to be present - September through October and February through May. Non-migratory wildlife surveys are conducted annually from June through August. Surveys will occur in the morning, beginning as soon as it is light enough to see a distance of at least 200 meters (approximately 660 feet) and ending no later than four hours after official sunrise. All surveys will be conducted in a manner that is largely repeatable in order to obtain information that can be compared from year to year. Survey information includes qualitative and quantitative observations of animals, tracks,

burrows/nests, or other signs. Opportunistic wildlife surveys are conducted during other monitoring events and routine site maintenance activities. Special care will be taken to record all sightings of imperiled species.

Any animal species recorded at the site that is listed as endangered, threatened, or of special concern by USFWS or FWC, or is tracked by FNAI, will be recorded as being present on the site. A species-specific monitoring plan may be developed for any endangered animal species that is recorded as breeding on the site, if deemed necessary/feasible by the site manager.

At present ERM conducts regularly-scheduled species-specific monitoring at the natural area for one species – the gopher tortoise. A baseline gopher tortoise monitoring was conducted in 2000. Gopher tortoise surveys have been conducted biennially from March through October since 2004. The survey methodology used at the natural area follows the protocol described in Appendix 4 of the FWC Gopher Tortoise Permitting Guidelines (FWC 2008, revised 2013).

7.4 HYDROLOGICAL MONITORING

As of August 2014, four hydrological monitoring stations had been established within the Frenchman's Forest Tract to measure changes in the tract's hydroperiod. Each station consists of a staff gauge and a monitoring well; water levels are read monthly at each station. The first hydrological monitoring station was established north of the boardwalk in the Frenchman's Forest Tract strand swamp in 2000. Two additional hydrological monitoring stations were installed within the tract in 2001 to measure the effects of the hydrological restoration projects. A fourth monitoring station was added in 2012 to monitor water levels within the southern portion of the strand swamp. The locations of all staff gauges and wells have been recorded with a GPS receiver. Success of the hydrological restoration projects has been determined based on vegetative changes within the site and a comparison of water levels over time.

Surface water quality testing requires expensive laboratory analysis of samples, and is not needed at this site because the natural area does not receive any significant surface runoff from adjacent developed properties. Surface water quality tests will be conducted only when site observations or other data indicate that negative impacts to water quality may have occurred.

7.5 CLIMATE CHANGE MONITORING

All of the monitoring information gathered on the site will be evaluated for changes that may be the result of climate change. If changes in rainfall patterns and/or vegetation communities are noted over time, staff will attempt to mitigate for these changes if possible. If the changes cannot be mitigated for, county staff will modify its management practices to provide the highest quality vegetation communities practicable under the new climate conditions.

7.6 ANNUAL REPORT

ERM will prepare and submit an annual stewardship report to FCT each year on or before February 28. The annual stewardship report will be designed to meet the reporting requirements for the FCT-funded portion of the natural area. ERM also will prepare an Annual Site Evaluation (ASE) report for the entire site each year in March. Each annual stewardship report and ASE will include information related to structural improvements, natural events, management activities and restoration activities which occurred during the prior year, as well as the degree of success of any management and restoration activities relative to the stated management goals for the site. Each report will include a description of any changes to the monitoring plan that occurred during the prior year, as well as recommendations for future management actions for the natural area. A general review of management efforts related to natural vegetation communities and the status of listed species also will be completed at the end of each management year and included in both the annual stewardship report and ASE.

The ASE will be the vehicle through which detailed information on the management of the natural area will be shared with other ERM staff, including any new or current employee who may be assigned as the site manager. ASEs will provide information that will be used in conjunction with data stored in the NRS portion of ERM's Environmental Enterprise Database (EEDB) to allow staff biologists, ecologists and engineers to analyze and evaluate the success of staff management activities on that natural area over a period of years. ASEs also will provide the basis for trend analysis of site data that will be performed at least every five years by staff.

Information on all listed species described in the management plan and all new listed species observed on the Frenchman's Forest Natural Area will be provided to FNAI on an annual basis, using one of the forms that are available at http://www.fnai.org/fieldreportingforms.cfm or as otherwise requested by FNAI.

8. CHRONOLOGY OF MAJOR EVENTS (1996 — 2014)

1996

December — Temporary signs and 4,226 feet of perimeter fencing installed at Frenchman's Forest Tract

1997

April — The County, City and State executed a Conceptual Approval Agreement for a $2,868,282 FCT grant which reimbursed the County for a portion of the cost to acquire the Frenchman's Forest Tract (joint application with the City)

June — Nonnative plant control program initiated

1998

January — Interlocal Agreement with City of Palm Beach Gardens for management responsibilities related to the natural area executed by BCC

June — Future Land Use for Frenchman's Forest Tract changed from Residential Low to Conservation

July — Initial management plan approved by BCC

August — Approximately 2 acres of Brazilian pepper monoculture were removed along the Prosperity Farms Road right of way in the southeastern portion of the Frenchman's Forest Tract and from an area just west of the proposed parking lot

September — 410 salvaged cabbage palms were planted just west of Prosperity Farms Road, on either side of the proposed driveway for the parking lot, and just west of the proposed parking lot

1999

April — Migratory wildlife surveys began within the Frenchman's Forest Tract

May — Approximately 7.5 acres of Brazilian pepper mechanically removed from the southeast corner of the Frenchman's Forest Tract

August — BCC executed a grant contract to receive $106,377 from the SFWMD Indian River Lagoon License Plate Program to help pay for a mangrove swamp/hydric hammock/mesic hammock restoration project

September — BCC executed a grant contract to receive $43,891 from the USFWS Florida Ecosystem Program to help pay for a mangrove swamp/hydric hammock/mesic hammock restoration project

2000

Biological monitoring program implemented at the Frenchman's Forest Tract - photomonitoring, vegetation transect and staff/rain gauge stations were established.

February — Construction of management accessways/firebreaks completed

April — Approximately 9 acres of Brazilian pepper mechanically removed from the strand swamp community in the central portion of the Frenchman's Forest Tract using a hydro-ax

December — Construction of public use facilities began on the Frenchman's Forest Tract; the mangrove swamp/hydric hammock/mesic hammock restoration and hydrological restoration projects began within the Frenchman's Forest Tract

2001

April — Binks Estates Limited Partnership donated a 7.4-acre reserved 120-foot-wide right of way through the Frenchman's Forest Tract to the County; the County granted Binks Estates Limited Partnership a perpetual easement for construction and maintenance of an outfall structure and dissipater along the western edge of the Frenchman's Forest Tract; an existing ditch was cleaned out to route the water to the strand swamp and hydric hammock communities

June — Wildfire in Management Unit 1 burned an estimated 3.14 acres

July — 21 cabbages palms planted near west end of boardwalk

August — Wildfire in Management Unit 1 burned less than 100 square feet

	Prescribed burn of Management Unit 1
September	Construction of public use facilities and associated signage completed.
	Construction of mangrove swamp, hydric hammock/mesic hammock and Archie's Creek canal hydrological restoration projects completed
October	Official opening of the Frenchman's Forest Tract to the public; volunteer site stewards began patrols of natural area

2002

January	100 cabbage palms planted near water control structure for Archie's Creek
April	Initial nonnative plant removal process completed at the Frenchman's Forest Tract
August	A former shallow stormwater conveyance ditch was cleared of vegetation and excess fill to connect the Frenchman's Reserve outfall structure to the strand swamp and replace some of the historic water flows to the strand swamp
October	75 cabbage palms relocated from the I-95 right of way to Frenchman's Forest Tract near the public use facilities
December	Six-foot-high chain link fence installed along western perimeter of Frenchman's Forest Tract

2003

	Vegetation transect monitoring stations were replaced by photomonitoring stations
	Five separate instances of vandalism noted: graffiti on kiosk and some signs, destruction of signs, pushing over a section of fence and a fire in parking lot; all of the damage was repaired and local police department notified
June	The Prosperity Oaks Tract was acquired by the County – 3.01 acres were purchased by the County and 8.00 acres were donated to the County by The Grande at Palm Beach Gardens, Inc.

July	Vandalism noted: small pits being dug for paintball and dirt bikes
October	Trash receptacle added to parking lot
November	Volunteer Natural Area Stewardship training/meeting
	Southern and western perimeter of Prosperity Oaks Tract fenced

2004

January	Problems with illegal trapping; FWC and WTF came in to monitor and stop this activity
	Two photomonitoring stations were established to document the effects of the nonnative plant removal program at the Prosperity Oaks Tract
April	Cut in chain link fence along northern perimeter of the Frenchman's Forest Tract was repaired
	Nonnative plant removal program initiated in the Prosperity Oaks Tract
September	The natural area was affected by two hurricanes - Jeanne and Francis – and one tropical depression. Winds from the hurricanes damaged the wildlife observation platform's roof, and fallen trees damaged the boardwalk through the strand swamp and chain link fence surrounding the Frenchman's Forest Tract; excess rainfall eroded the management accessway along Cabana Colony canal; winds and rains downed trees and broke limbs in both tracts. The natural area was closed to the public while staff cleared the management accessways and trails of storm debris.
	Northern perimeter of Prosperity Oaks Tract fenced
December	Geoweb installation to section of management accessway on south perimeter that had eroded as a result of excess rainfall the September storms

2005

	A large Florida butterfly orchid was poached from the site
	Graffiti at parking lot and wildlife observation platform; some signage removed;

	all graffiti was sanded or painted over and the missing signs were replaced
	Prosperity Oaks Tract eastern perimeter was fenced; three public access gates and one maintenance gate were installed
February	Three dead raccoons found at Prosperity Oaks Tract and one dead raccoon found at Frenchman's Forest Tract; a test for rabies came back negative; the cause of these deaths was unknown.
March	County Engineering (Roads and Bridges) began infrastructure improvements in the neighborhood east of Prosperity Farms Road. Excess water from dewatering activities associated with the improvement project was directed into a small isolated depressional wetland within the natural area without ERM approval. ERM later agreed to allow County Engineering to direct the excess water to a portion of the strand swamp. PVC pipes were laid in the management accessway to minimize impacts of the dewatering process. Dewatering continued until June 2005, at which time the PVC pipes were removed from the natural area.
June	Volunteers planted 80 giant leather ferns that were salvaged from a site that was undergoing development; the ferns were planted at Archie's creek, on the fresh water side of the weir.
	Roads and bridges 'dewatering' project was completed; the PVC pipes were removed
August	Natural area was selected by FWC for inclusion in the South Section of the Great Florida Birding Trail
October	Hurricane Wilma caused damage to fencing, boardwalk railing and trees. The natural area was closed to the public while staff cleared the management accessways and trails of storm debris.
December	Volunteers helped cut a 0.25-mile natural-surfaced trail to connect two existing hiking trails
	Great horned owls nesting onsite with one owlet

2006

	Natural Area was added to the Great Florida Birding and Wildlife Trail

Another large Florida butterfly orchid was poached from the site

A third photomonitoring station was created in the northeast portion of the Prosperity Oaks Tract to monitor an area that was previously infested with Brazilian pepper and air potato

Initial nonnative plant removal process completed at the Prosperity Oaks Tract

February — A fourth public access gate (trailhead) was added in the Prosperity Oaks Tract fence line to allow access from Prosperity Farms Road

March — County received title to a 0.77–acre property located west of the northeast portion of the Frenchman's Forest Tract and a 1.51-acre canal property located northwest of the Prosperity Oaks Tract. Both parcels were donated to the County by Communities Finance Company LLC

April — Storm debris along trails from hurricane Wilma was chipped/reduced to reduce fire hazard

A wildfire started by an arsonist burned 1.14 acres in Management Unit 2

July — Palm Beach County Naturescope show filmed at natural area (show tied for 1st place for 'Best Video in a Series' 2006 Crystal Award)

November — A 1,000-foot-long pedestrian trail was cut through the Prosperity Oaks Tract by volunteers; the tract was opened to the public

2007

Kiosk information updated at Frenchman's Forest Tract; two kiosks were added to Prosperity Oaks Tract

Additional incidents of graffiti at parking lot and wildlife observation platform; some signage removed; all graffiti was sanded or painted over and the missing signs were replaced

Photostation #4 on the Frenchman's Forest Tract was relocated due to an expansion of the strand swamp

A tree contractor hired by the Harbour Oaks Homeowners' Association (HOA) cut 25 trees within the Prosperity Oaks Tract; the settlement agreement required

	the HOA to pay $9,250 into the Natural Areas Fund
January	For the second year in a row, a great horned owl pair nested on the natural area; one owlet was fledged
April	Wildfire in Management Units 1 and 2 covering 44 acres
October	Prescribed burn was conducted to burn 14 acres in the eastern portion of Management Unit 2 and southeastern portion of Management Unit 1 which were not burned in the April 2007 wildfire
November	One of the wildlife observation platform support pilings that had rotted out was replaced
	Volunteers planted 200 red mangrove seedlings in and along the Cabana Colony Canal

2008

Graffiti was again observed at the wildlife observation platform; it was removed by the Palm Beach County Sheriff's Office's Graffiti Busters

2009

February	Volunteers planted 50 pond-cypress trees in the strand swamp adjacent to Archie's Creek canal
September	Frenchman's Forest Tract was rezoned from Planned Development Area to Conservation

2010

Staff began attempts to get permission from one of two landowners south of the natural area to build a pedestrian trail and bridge (across the Cabana Colony canal) to connect the Frenchman's Forest Tract with the Prosperity Oak Tract

Cold weather experienced during the January to March time period appeared to have reduced populations of exotic lizards on the site

A fourth photomonitoring station was created in the scrubby flatwoods community within the Prosperity Oaks Tract

February Volunteers planted 52 dahoon seedlings in the strand swamp south of Archie's Creek water control structure

April Prescribed burn of Management Unit 5 (formerly Management Unit 3b)

June Six strangler fig, 49 wild coffee and 15 white stopper were planted in the northeastern portion of the Prosperity Oaks Tract

DOF paid a clearing contractor to reduce brush within 50 feet of the northern boundary of the Frenchman's Forest Tract as part of a wildfire abatement program

July Magnum mulcher was used to widen management accessways that had become overgrown

2011

Interpretive brochure and kiosk information material updated

Several incidents of vandalism occurred – additional graffiti was found the wildlife observation platform and some trail markers were removed; the graffiti was removed and the markers were replaced

Staff continued to work with Cross Community Church to try and gain approvals to create a pedestrian path and bridge from the Frenchman's Forest Tract to the Prosperity Oaks Tract

2012

Plans to create a pedestrian connection were cancelled due to lack of access between Lone Pine Road and the Frenchman's Forest Tract

Again, new graffiti was observed at the wildlife observation platform and some trail markers were removed; the graffiti was removed and the markers were replaced

April Lightning struck a pine tree which was found smoldering by a visitor to the natural area. Palm Beach Gardens Fire Rescue put the fire out.

May 5k run for charity (Cross Community Church) through Frenchman's Forest Tract

November Mechanical fuel reduction of 10 acres within Management Unit 3 and the eastern portion of Management Unit 4

December A wildlife camera revealed the presence of a coyote on the Frenchman's Forest Tract

2013

Cabbage palm, coco plum and native vines are out-competing other native plant species; control of these species may be needed in the future to keep them from forming monocultures

2014

February Mechanical fuel reduction of 9.3 acres within Management Unit 1

_____ Update to management plan approved by NAMAC

_____ Update to management plan approved by BCC

_____ Update to management plan approved by FCT

9. ACRONYMS

ADA - Americans with Disabilities Act
AIWW – Atlantic Intracoastal Waterway
ARC - Acquisition and Restoration Council
ATV – all-terrain vehicle
BCC – Palm Beach County Board of County Commissioners
BIPM – Bureau of Invasive Plant Management
BLM – U.S. Department of the Interior, Bureau of Land Management
CARL - Conservation and Recreation Lands
CFR – Code of Federal Regulations
CLASC - Palm Beach County Conservation Land Acquisition Selection Committee
CLPO – Palm Beach County Conservation Lands Protection Ordinance
DRI – development of regional impact
DSL - Division of State Lands
E&PW – Palm Beach County Department of Engineering and Public Works
ERM - Palm Beach County Department of Environmental Resources Management
ERP – environmental resource permit
ESLAAC – Palm Beach County Environmentally Sensitive Lands Acquisition Advisory Committee
ESLASC – Palm Beach County Environmentally Sensitive Lands Acquisition Selection Committee
EAA – Everglades Agricultural Area
FAC – Florida Administrative Code
FAU – Florida Atlantic University
FCT – Florida Communities Trust
FDACS - Florida Department of Agriculture and Consumer Services
FDCA – Florida Department of Community Affairs
FDEP - Florida Department of Environmental Protection
FDHR - Florida Department of State, Division of Historical Resources
FDOT – Florida Department of Transportation
FEC – Florida East Coast Railway
FGFWFC – Florida Game and Fresh Water Fish Commission
FFS - Florida Forest Service
FGTC - Florida Greenways and Trails Council
FIND - Florida Inland Navigation District
FLEPPC - Florida Exotic Pest Plant Council
FNAI - Florida Natural Areas Inventory
FPL- Florida Power and Light
FPSF – First Park South Florida
FRP – Florida Research Park
FS – Florida Statutes
FTA – Florida Trail Association
FWC - Florida Fish and Wildlife Conservation Commission
GIS – geographic information system
GPS - global positioning system

IC – incident commander
IRC – Institute for Regional Conservation
ITID - Indian Trail Improvement District
ITWCD – Indian Trail Water Control District
JDSP – Jonathan Dickinson State Park
JID - Jupiter Inlet District
LAAC – Land Acquisition Advisory Council
LAMAC – Land Acquisition and Management Advisory Council
LOST – Lake Okeechobee Scenic Trail
LRD – Loxahatchee River District
LRPI – Loxahatchee River Preservation Initiative
LWDD – Lake Worth Drainage District
MPO – Palm Beach Metropolitan Planning Organization
NAMAC - Palm Beach County Natural Areas Management Advisory Committee
NAO – Palm Beach County Natural Areas Ordinance
NAVD – North American Vertical Datum
NCGAA – North County General Aviation Airport
NENA – Northeast Everglades Natural Area
NETA – Northeast Everglades Trail Association
NGVD - National Geodetic Vertical Datum
NMFS – U.S. Department of Commerce, National Marine Fisheries Service
NPBCID – Northern Palm Beach County Improvement District
NPBCWCD – Northern Palm Beach County Water Control District
NRCS – Natural Resources Conservation Service
OGT – Office of Greenways and Trails
OHV – off-highway vehicle
OTL – Ocean to Lake Trail
PBPC – Palm Beach Park of Commerce
PBSO - Palm Beach County Sheriff's Office
PBSWCD – Palm Beach Soil & Water Conservation District
SCS - Soil Conservation Service
SFWMD - South Florida Water Management District
SIRWCD – South Indian River Water Control District
SOR – Save Our Rivers
SWA – Solid Waste Authority of Palm Beach County
TCF – The Conservation Fund
TCRPC – Treasure Coast Regional Planning Council
TDR – transfer of development rights
TIITF – Trustees of the Internal Improvement Trust Fund
TNC – The Nature Conservancy
ULDC – Unified Land Development Code
USACE – United States Army Corps of Engineers
USCGS – United States Coast and Geodetic Survey
USDA – United States Department of Agriculture
USFWS - United States Department of the Interior, Fish and Wildlife Service
USGS – United States Geological Survey

WCA – Water Catchment Area
WCI – Watermark Communities, Inc.
WEA – wildlife and environmental area
WHIP – Wildlife Habitat Incentives Program
WMA – wildlife management area

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11. FIGURES

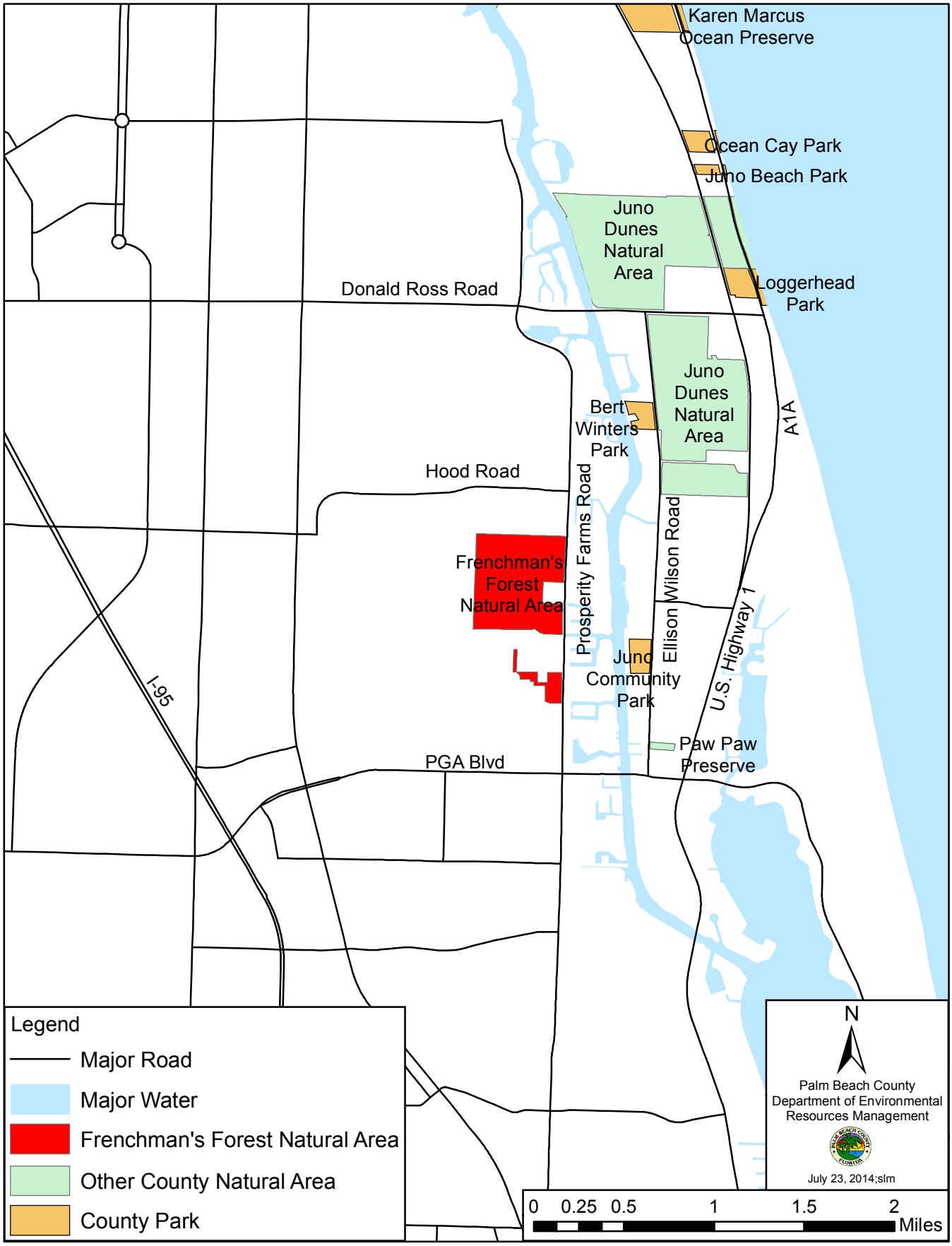


Figure 1 - Frenchman's Forest Natural Area Location Map

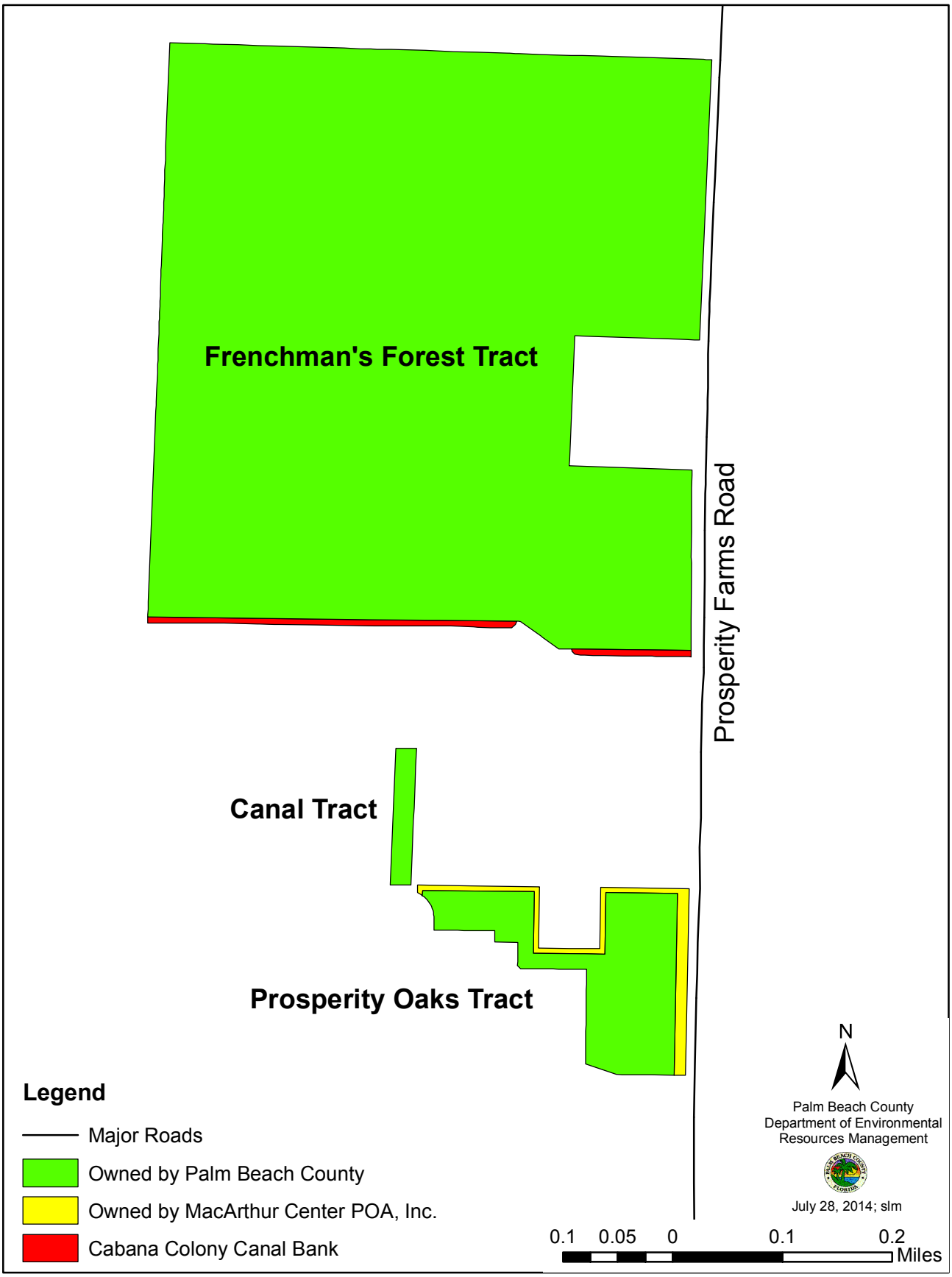


Figure 2 - Frenchman's Forest Natural Area Tract and Ownership Map

Figure 3. Frenchman's Forest Natural Area Soils Map

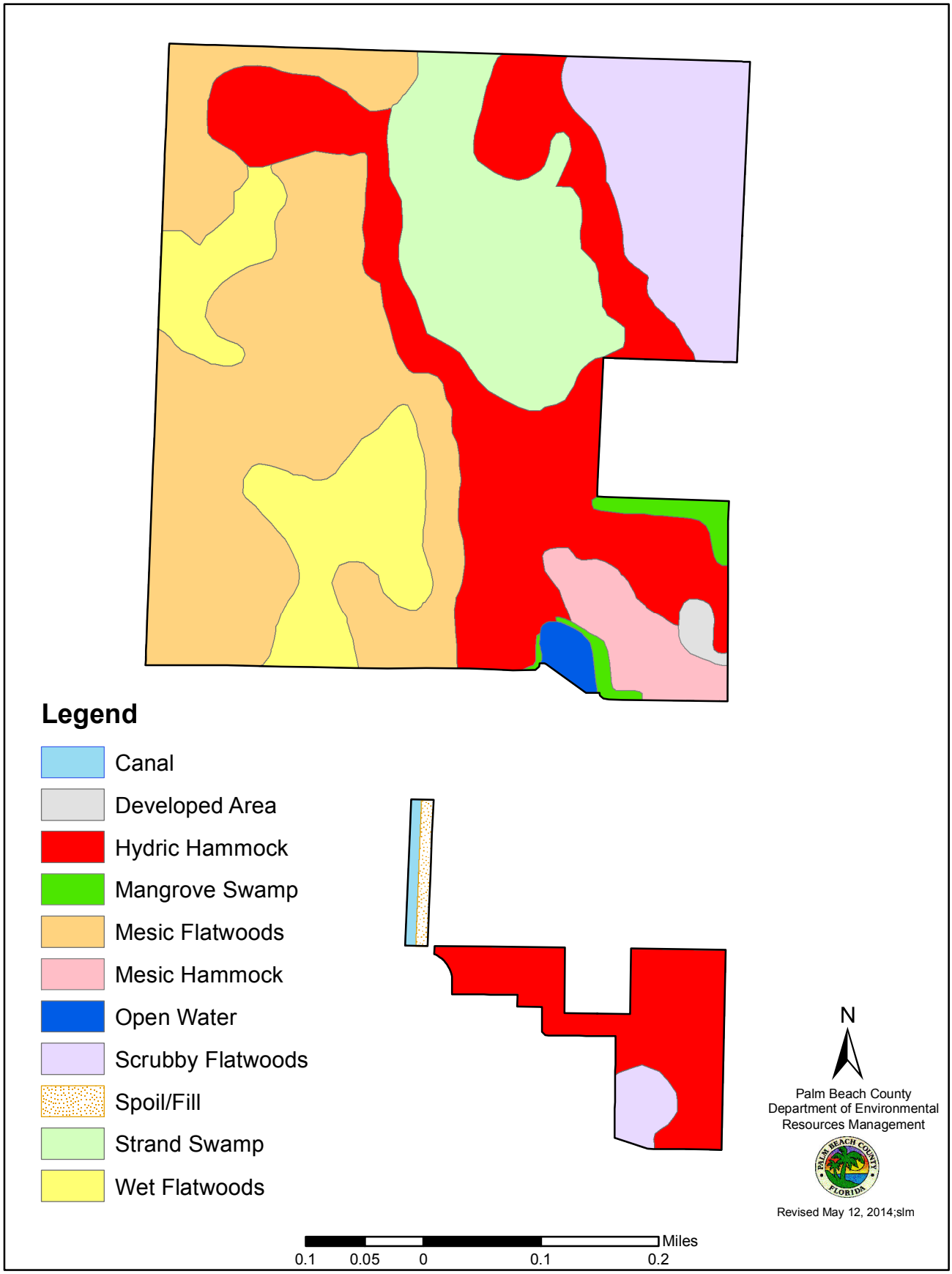


Figure 4. Frenchman's Forest Natural Area Vegetation Communities Map

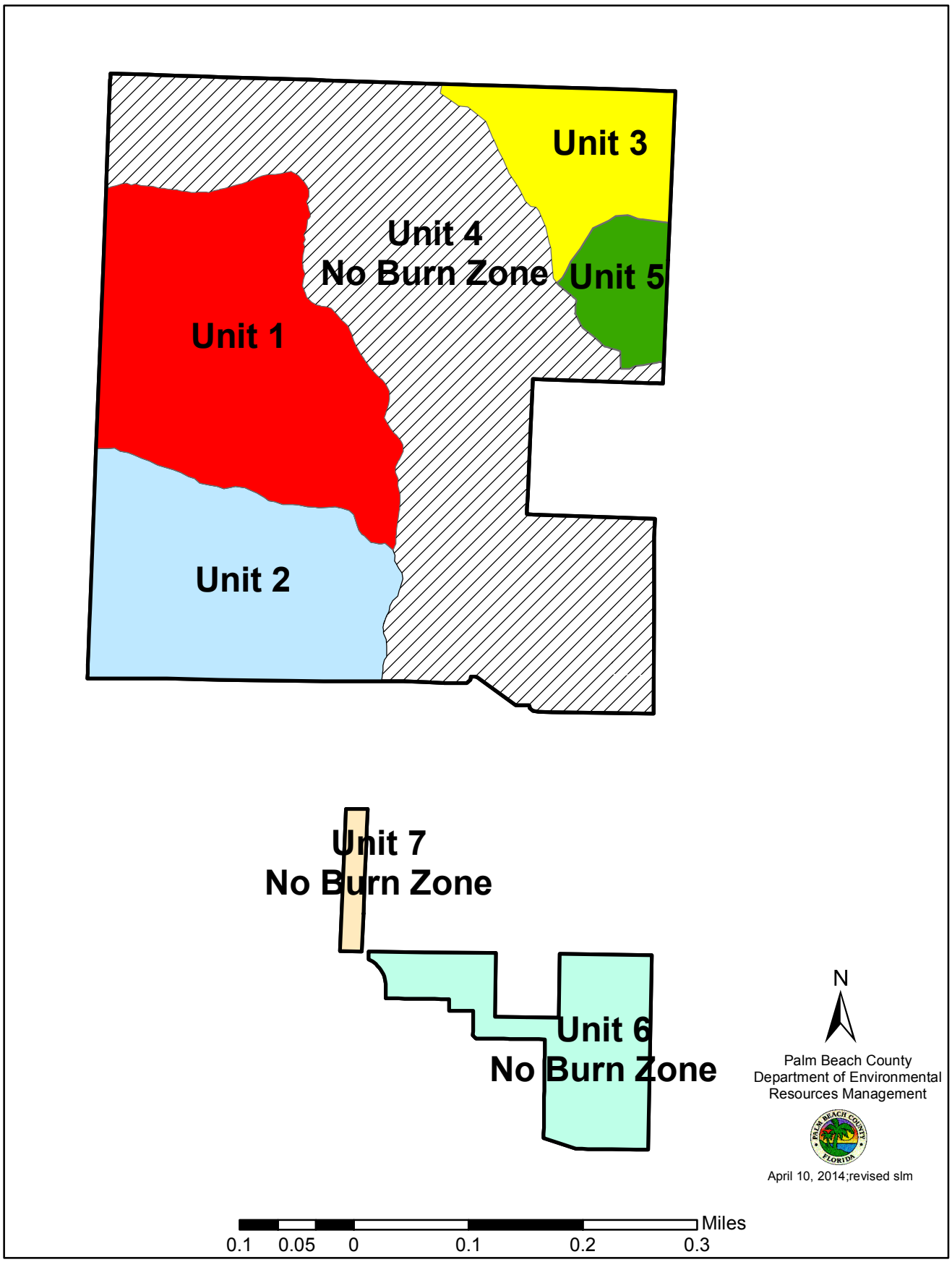


Figure 5. Frenchman's Forest Natural Area Management Units Map

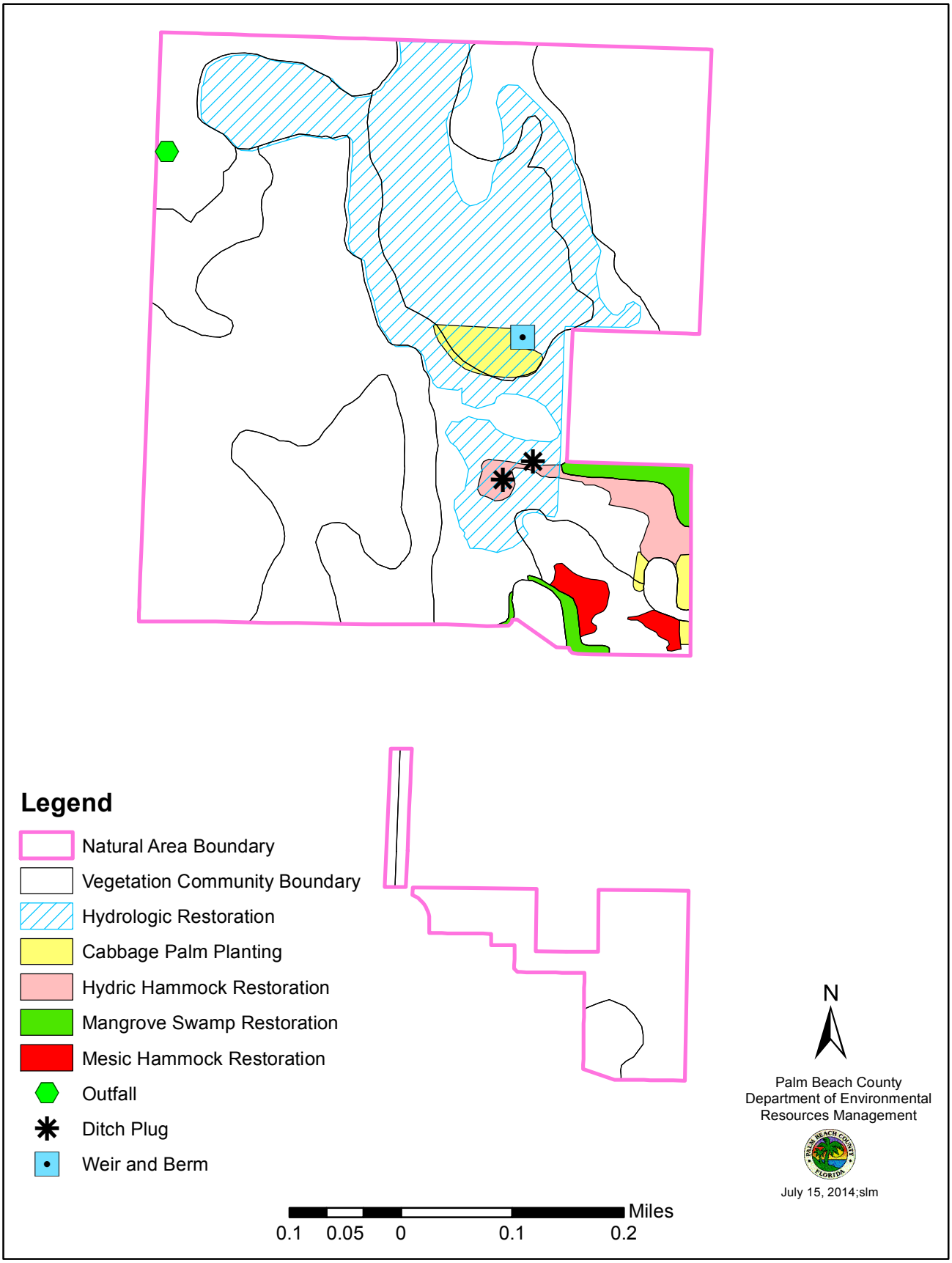


Figure 6. Frenchman's Forest Natural Area Restoration Map

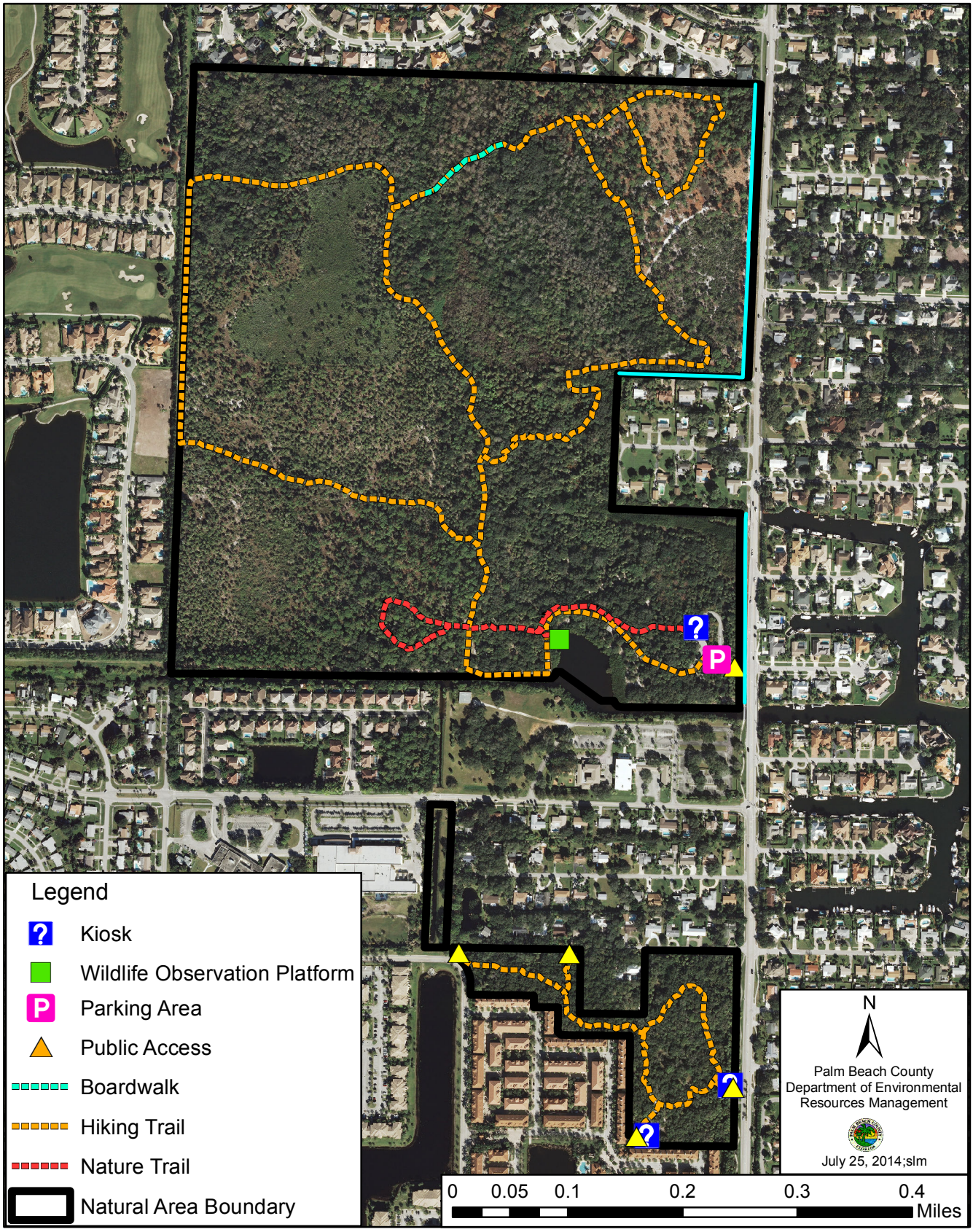


Figure 7 - Frenchman's Forest Natural Area Facilities Map

12. TABLES

Table 1. Listed Plant Species Recorded at the Frenchman's Forest Natural Area

		LISTING STATUS		
SCIENTIFIC NAME	COMMON NAME	FNAI	USFWS	FDACS
Encyclia tampensis	Butterfly orchid	N	N	CE
Ophioglossum palmatum	Hand fern	G4/S2	N	E
Opuntia stricta	Shell mound prickly-pear	N	N	T
Osmunda cinnamomea	Cinnamon fern	N	N	CE
Osmunda regalis var. *spectabilis*	Royal fern	N	N	CE
Swietenia mahogoni	Mahogany	N	N	T
Tillandsia balbisiana	Inflated & reflexed wild pine	N	N	T
Tillandsia fasciculata	Common wild pine	N	N	E
Tillandsia flexuosa	Banded airplant	G5/S3	N	T
Tillandsia utriculata	Giant wild pine	N	N	E

CE = Commercially exploited
E = Endangered
FDACS = Florida Department of Agriculture and Consumer Services
FNAI = Florida Natural Areas Inventory
N = Not listed
T = Threatened
USFWS = United States Fish and Wildlife Service

Occurrences determined from field surveys by ERM (1990-2013). Ranks assigned by FNAI are from a June 2013 tracking list (FNAI 2013), designations assigned by the Florida Department of Agriculture and Consumer Services (FDACS) are from FDACS (2004), and designations assigned by the United States Fish and Wildlife Service (USFWS) are from USFWS (undated). Definitions for the ranks and designations used by these entities are provided in Appendix C.

Table 2. Listed Animal Species Recorded at the Frenchman's Forest Natural Area

		LISTING STATUS		
SCIENTIFIC NAME	COMMON NAME	FNAI	USFWS	FWC
Alligator mississippiensis	American alligator	G5/S4	T(S/A)	FT(S/A)
Aphrissa statira	Statira sulphur	G5/S2S3	N	N
Ardea alba	Great egret	G5/S4	N	N
Crotalus adamanteus	Eastern diamond-backed rattlesnake	G4/S3	N	N
Egretta caerulea	Little blue heron	G5/S4	N	SSC**
Egretta tricolor	Tricolored heron	G5/S4	N	SSC**
Eudocimus albus	White ibis	G5/S4	N	SSC*
Eumaeus atala	Atala	G4/S2	N	N
Falco columbarius	Merlin	G5/S2	N	N
Falco peregrinus	Peregrine falcon	G4/S2	N	N
Gopherus polyphemus	Gopher tortoise	G3/S3	C	ST
Haliaeetus leucocephalus	Bald eagle	G5/S3	N	N
Hemiargus ceraunus antibubastus	Ceraunus blue	N	T(S/A)	FT(S/A)
Leptotes cassius theonus	Cassius blue	N	T(S/A)	FT(S/A)
Mycteria americana	Wood stork	G4/S2	E	FE
Nyctanassa violacea	Yellow-crowned night-heron	G5/S3	N	N
Pandion haliaetus	Osprey	G5/S3S4	N	SSC***
Passerina ciris	Painted bunting	G5/S3	N	N
Picoides villosus	Hairy woodpecker	G5/S3	N	N
Setophaga ruticilla	American redstart	G5/S2	N	N
Siproeta stelenes	Malachite	G5/S2	N	N
Sterna antillarum	Least tern	G4/S3	N	ST
Trichechua manatus latirostris	West Indian manatee	G2/S2	E	FE

C = Candidate
E = Endangered
FE = Federally-designated Endangered
FT = Federally-designated Threatened
FT(S/A) = Federally-designated Threatened due to Similarity of Appearance
FWC = Florida Fish and Wildlife Conservation Commission
FNAI = Florida Natural Areas Inventory
N = Not listed
SSC = State Species of Special Concern
ST = State-designated Threatened
T = Threatened
T(S/A) = Threatened due to Similarity of Appearance
USFWS = United States Fish and Wildlife Service

*FWC has approved a staff recommendation that these species be removed from the list of endangered and threatened species in Florida. A species will not be formally removed from the list until after a management plan prepared by FWC staff for that species and reviewed by the public has been approved by FWC. Species designated by USFWS as endangered are considered by FWC to be endangered species in Florida; there is no separate state category for endangered species. The only separate state category is for species considered to be threatened within Florida. There will be no category for species of special concern within Florida after all of the current species of special concern have either been designated as state threatened or removed from the list.

**FWC has approved a staff recommendation to change the status of these species from species of special concern to state-designated threatened. The change will not become effective until after an imperiled species management plan prepared by FWC staff and reviewed by the public has been approved by FWC.

*** Currently only the Monroe County population of this species is listed as a state species of special concern. FWC staff has recommended that populations of nonmigratory ospreys in nearby counties also should be given this designation until addition information such as genetic analysis becomes available to determine the relationships between these populations. If they are considered to be one population, it would be termed the southern coastal osprey population. The expansion of the designation to the other populations will not become effective until after an imperiled species management plan prepared by FWC staff has been reviewed by the public and approved by FWC.

Occurrences determined from data collected by ERM (1990-2013). Ranks assigned by FNAI are from a June 2013 tracking list (FNAI 2013); designations assigned by FWC are from FWC (2013); and designations assigned by USFWS are from USFWS (undated). Definitions for the ranks and designations used by these entities are provided in Appendix C.

Table 3. Priority Schedule for Management Activities

ACTIVITY	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Update/revise management plan	X									X	
NAMAC review of revised management plan	X										X
County Commission approval of revised management plan	X										X
Prescribed burn or mechanical fuel reduction - Unit 1		X						X			
Prescribed burn or mechanical fuel reduction - Unit 2				X						X	
Prescribed burn or mechanical fuel reduction - Unit 5						X					
Prescribed burn or mechanical fuel reduction - Unit 3									X		
Conduct monitoring activities	X	X	X	X	X	X	X	X	X	X	X
Conduct maintenance invasive/nonnative plant control activities	X	X	X	X	X	X	X	X	X	X	X
Conduct regular facilities maintenance/mowing	X	X	X	X	X	X	X	X	X	X	X
Coordinate volunteer work day – cleanup of site	X	X	X	X	X	X	X	X	X	X	X

Table 4. Estimated Annual Maintenance and Operation Costs (in 2014 dollars)

Site Management and Maintenance (excluding 1.51-acre Canal Tract)

Opening and closing of entrance gates (daily @ $20/day)	$7,300*
Prescribed habitat burns or mechanical fuel reduction (personnel and equipment - $27,500 per burn or reduction, 6 burns/reductions in a 10-year period/10 years to next management plan update) = $16,500	$16,500**
Mowing of management accessways/hiking trails (4 times/year @ $390/time)	$1,560**
Fence line maintenance (4 times/year @ $390/time)	$1,560**
Maintenance of public use facilities, including parking lot, nature trail and trail markers/signs and trimming of hiking trail vegetation (26 times/year @ $327/time)	$8,502**
Pressure-washing of and application of water-repellent sealer to boardwalk and observation platform (once a year)	$654**
Site management – monitoring program, annual reports, management plan updates, listed species protection, volunteer coordination and supervision, educational materials and intergovernmental coordination	$108,030**
Nonnative/invasive plant control (168 acres @ $333/acre/year)	$55,944***
Repair/replacement due to damage/vandalism (0.005% of structural facilities cost of $692,707)	$3,464***
Subtotal – present annual cost	**$203,514**

Capital Facilities Maintenance and Replacement

Removal and replacement of facilities with 10- and 20-year expected life (facilities with 10-year expected life include trail markers, all signs, restriping of parking lot and post-and-rail fencing; facilities with 20-year expected life include bicycle rack, bollard, all metal gates, chain-link fencing, kiosk, boardwalk decking and handrails, and wheelstops)	$381,127
Estimated annual cost over 10 years @ 4% interest rate	$46,993***
Removal and replacement of facilities with 10 and 30-year expected life (facilities with 30-year expected life include observation platform structure with pilings, boardwalk structure with pilings, milling and resurfacing of parking lot and entrance road)	$433,232
Estimated annual cost over 20 years @ 4% interest rate	$31,886***
Subtotal – estimated annual capital replacement costs	**$78,879*** **
TOTAL ANNUAL COST (in 2014 dollars)	**$282,393**

* To be performed by existing City of Palm Beach Gardens personnel.

** To be performed by existing Palm Beach County personnel.

*** To be paid for with interest from the Natural Areas Stewardship Endowment Fund.

NOTE: All facilities and activities listed are subject to annual budgetary funding and appropriations by the Palm Beach County Board of County Commissioners

APPENDIX A

PLANT SPECIES RECORDED AT FRENCHMAN'S FOREST NATURAL AREA

APPENDIX A

PLANT SPECIES RECORDED AT FRENCHMAN'S FOREST NATURAL AREA

Updated July 17, 2014

Scientific Name	Common Name
Abrus precatorius *NX (I)	Rosary pea
Acacia auriculiformis * (I)	Earleaf acacia
Acacia farnesiana	Sweet acacia
Acalypha amentacea subs. *wilkesiana* *	Wilkes' copperleaf
Acer rubrum	Red maple
Acrostichum danaeifolium	Giant leather fern
Aeschynomene indica *	Indian jointvetch
Agave neglecta	Wild century plant
Aglaonema sp. *	Aglaonema
Albizia lebbeck * (I)	Woman's tongue
Aletris lutea	Yellow colicroot
Aloe sp. *	Aloe
Alternanthera flavescens	Yellow joyweed
Alternanthera sessilis * NX	Sessile joyweed
Amaranthus hybridus *	Pigweed
Amaranthus spinosus *	Spiny amaranth
Amaranthus viridis *	Slender amaranth
Ambrosia artemisiifolia	Common ragweed
Ampelopsis arborea	Peppervine
Amphicarpum muhlenbergianum	Blue maidencane
Andropogon glomeratus	Bushy bluestem
Andropogon sp.	Bluestem
Andropogon ternarius	Splitbeard bluestem
Andropogon virginicus	Broomsedge bluestem
Annona glabra	Pond apple
Antigonon leptopus * (II)	Coral vine
Ardisia elliptica * NX (I)	Shoebutton
Ardisia escallonioides	Marlberry
Aristida gyrans	Corkscrew threeawn
Aristida lanosa	Woolysheath threeawn
Aristida purpurascens	Arrowfeather threeawn
Aristida rhizomophora	Florida threeawn
Aristida sp.	Threeawn
Aristida spiciformis	Bottlebrush threeawn
Aristida stricta var. *beyrichiana*	Wiregrass
Asclepias pedicellata	Savannah milkweed
Asimina reticulata	Netted pawpaw
Asparagus aethiopicus * (I)	Sprenger's asparagus-fern
Asparagus setaceus *	Common asparagus-fern

Asystasia gangetica * (II)	Chinese violet
Avicennia germinans	Black mangrove
Axonopus furcatus	Big carpetgrass
Baccharis glomeruliflora	Silverling
Baccharis halimifolia	Groundsel tree
Bacopa caroliniana	Blue waterhyssop
Bacopa monnieri	Herb-of-grace
Bejaria racemosa	Tarflower
Bidens alba	Beggarticks
Bischofia javanica * (I)	Javanese bishopwood
Blechnum serrulatum	Swamp fern
Boehmeria cylindrica	False nettle
Boerhavia diffusa	Red spiderling
Buchnera americana	American bluehearts
Bulbostylis ciliatifolia	Capillary hairsedge
Bulbostylis stenophylla	Sandyfield hairsedge
Bursera simaruba	Gumbo limbo
Caesalpinia bonduc	Gray nicker
Caladium sp.*	Caladium
Calliandra haematocephala *	Powderpuff tree
Callicarpa americana	American beautyberry
Callisia fragrans * (II)	Basketplant
Callisia repens *	Creeping inchplant
Callisia sp.	Callisia
Calystegia sepium	Hedge false bindweed
Canna flaccida	Bandanna-of-the-Everglades
Canna x generalis *	Garden canna
Cardamine pensylvanica	Pennsylvania bittercress
Carica papaya	Papaya
Carphephorus corymbosus	Florida paintbrush
Caryota mitis *	Burmese fishtail palm
Cassytha filiformis	Love vine
Casuarina equisetifolia * NX (PAP I) (I)	Australian-pine
Catharanthus roseus *	Madagascar periwinkle
Cenchrus echinatus	Southern sandbur
Cenchrus spinifex	Coastal sandbur
Cephalanthus occidentalis	Common buttonbush
Ceratiola ericoides	Florida rosemary
Cereus repandus *	Peruvian applecactus
Chamaecrista fasciculata	Partridge pea
Chamaecrista nictitans	Sensitive pea
Chamaecrista pilosa *	Hairy sensitive pea
Chamaesyce blodgettii	Limestone sandmat
Chamaesyce hirta	Pillpod sandmat
Chamaesyce hypericifolia	Graceful sandmat
Chamaesyce hyssopifolia	Hyssopleaf sandmat

Chamaesyce maculata	Spotted sandmat
Chamaesyce ophthalmica	Florida hammock sandmat
Chapmannia floridana	Florida Alicia
Chenopodium ambrosioides *	Mexican tea
Chiococca alba	Snowberry
Chlorophytum comosum *	Spider plant
Chromolaena odorata	Jack-in-the-bush
Chrysobalanus icaco	Coco plum
Chrysopsis scabrella	Coastalplain goldenaster
Cirsium nuttallii	Nuttall's thistle
Citrus reticulata *	Tangerine
Citrus sp.*	Citrus
Citrus x *aurantium* *	Grapefruit, sour orange, sweet orange
Cladina evansii	Powder-puff lichen
Cladina subtenuis	Dixie reindeer lichen
Cladium jamaicense	Jamaican swamp sawgrass
Cladonia leporina	Jester lichen
Cladonia sp.	Cladonia
Clerodendrum speciosissimum *	Javanese glorybower
Cnidoscolus stimulosus	Tread softly
Coccoloba uvifera	Seagrape
Colocasia esculenta * (I)	Wild taro
Commelina diffusa *	Common dayflower
Commelina erecta	Whitemouth dayflower
Conocarpus erectus	Buttonwood
Conoclinium coelestinum	Blue mistflower
Conyza canadensis	Canadian horseweed
Cordyline fruticosa *	Tiplant
Coreopsis floridana	Florida tickseed
Coreopsis leavenworthii	Leavenworth's tickseed
Costus spicatus *	Spiked spiralflag
Crinum americanum	String-lily
Crinum zeylanicum *	Milk-and-wine lily
Crotalaria pallida var. *obovata* *	Smooth rattlebox
Crotalaria rotundifolia	Rabbitbells
Crotalaria sp.	Rattlebox
Crotalaria spectabilis *	Showy rattlebox
Croton glandulosus	Vente conmigo
Croton linearis	Pineland croton
Croton michauxii	Michaux's croton
Ctenium aromaticum	Toothachegrass
Cupaniopsis anacardioides * NX (I)	Carrotwood
Cyanthillium cinereum *	Little ironweed
Cycas circinalis *	Queen sago
Cynanchum scoparium	Leafless swallowwort
Cynodon dactylon *	Bermudagrass

Cyperus compressus	Poorland flatsedge
Cyperus croceus	Baldwin's flatsedge
Cyperus distinctus	Swamp flatsedge
Cyperus esculentus *	Yellow nutgrass
Cyperus flavescens	Yellow flatsedge
Cyperus haspan	Haspan flatsedge
Cyperus lecontei	Leconte's flatsedge
Cyperus ligularis	Swamp flatsedge
Cyperus odoratus	Fragrant flatsedge
Cyperus ovatus	Pinebarren flatsedge
Cyperus polystachyos	Manyspike flatsedge
Cypreus sp.	Flatsedge
Cyperus surinamensis	Tropical flatsedge
Dactyloctenium aegyptium * (II)	Durban crowfootgrass
Dalbergia ecastophyllum	Coinvine
Dalbergia sissoo * (II)	Indian rosewood
Datura stramonium	Jimsonnweed
Dalea feayi	Feay's prairieclover
Desmodium incanum *	Zarzabacoa comun
Desmodium tortuosum *	Dixie ticktrefoil
Desmodium triflorum *	Threeflower ticktrefoil
Dianella ensifolia *	Cerulean flaxlily
Dichanthelium aciculare	Needleleaf witchgrass
Dichanthelium commutatum	Variable witchgrass
Dichanthelium ensifolium	Cypress witchgrass
Dichanthelium erectifolium	Erectleaf witchgrass
Dichanthelium laxiflorum	Openflower witchgrass
Dichanthelium portoricense	Hemlock witchgrass
Dichanthelium sp.	Witchgrass
Dichanthelium strigosum	Roughhair witchgrass
Dicliptera sexangularis	Sixangle foldwing
Dieffenbachia seguine *	Dumb cane
Digitaria ciliaris	Southern crabgrass
Digitaria eriantha *	Pangolagrass
Digitaria sp.	Crabgrass
Dimocarpus longan *	Longan
Diodia teres	Poor Joe
Diodia virginiana	Virginia buttonweed
Dioscorea bulbifera * NX (I)	Air-potato
Diospyros digyna *	Black sapote
Diospyros virginiana	Common persimmon
Dracaena fragrans *	Fragrant dracaena
Dracaena reflexa var. *angustifolia* *	Song of India
Dracaena sp. *	Dracaena
Drosera capillaris	Pink sundew
Drymaria cordata	West Indian chickweed

Dypsis lutescens *	Areca palm
Eclipta prostrata	False daisy
Elephantopus elatus	Tall elephantsfoot
Eleusine indica *	Indian goosegrass
Emilia fosbergii *	Florida tassleflower
Emilia sonchifolia *	Lilac tassleflower
Encyclia tampensis	Florida butterfly orchid
Epipremnum pinnatum * (II)	Golden pothos
Eragrostis atrovirens *	Thalia lovegrass
Eragrostis ciliaris *	Gophertail lovegrass
Eragrostis elliottii	Elliott's lovegrass
Eragrostis virginica	Coastal lovegrass
Erechtites hieraciifolius	Fireweed
Eriobotrya japonica *	Loquat
Eryngium aromaticum	Fragrant eryngo
Eugenia axillaris	White stopper
Eugenia uniflora * (I)	Surinam cherry
Eupatorium capillifolium	Dogfennel
Eupatorium mohrii	Mohr's thoroughwort
Eupatorium rotundifolium	Roundleaf thoroughwort
Eupatorium serotinum	Lateflowering thoroughwort
Eupatorium sp.	Thoroughwort
Euphorbia graminea *	Grassleaf spurge
Euphorbia polyphylla	Lesser Florida spurge
Eustachys glauca	Saltmarsh fingergrass
Eustachys petraea	Pinewoods fingergrass
Euthamia caroloniana	Slender flattop goldenrod
Ficus altissima * (II)	Council tree
Ficus aurea	Strangler fig
Ficus benjamina *	Weeping fig
Ficus microcarpa * (I)	Indian laurel
Fimbristylis autumnalis	Slender fimbry
Fimbristylis cymosa	Hurricanegrass
Fimbristylis spadicea	Marsh fimbry
Forestiera segregata	Florida swampprivet
Froelichia floridana	Cottonweed
Fuirena scirpoidea	Southern umbrellasedge
Gaillardia pulchella	Firewheel
Galactia elliottii	Elliott's milkpea
Galactia volubilis	Eastern milkpea
Galium hispidulum	Coastal bedstraw
Galium tinctorium	Stiff marsh bedstraw
Gamochaeta pennsylvanica *	Pennsylvania everlasting
Gaura angustifolia	Southern beeblossom
Gomphrena serrata *	Prostrate globe amaranth
Gratiola hispida	Rough hedgehyssop

Habenaria floribunda	Toothpetal false reinorchid
Hamelia patens	Firebush
Helianthemum corymbosum	Pinebarren frostweed
Helianthemum nashii	Florida scrub frostweed
Helianthemum sp.	Frostweed
Helianthus debilis	East coast dune sunflower
Heliconia sp.*	Heliconia
Heliotropium angiospermum	Scorpionstail
Heliotropium polyphyllum	Pineland heliotrope
Heteropogon melanocarpus *	Sweet tanglehead
Heterotheca subaxillaris	Camphorweed
Hibiscus acetosella *	African rosemallow
Hibiscus rosa-sinensis *	Garden rosemallow
Houstonia procumbens	Innocence
Hylocereus undatus *	Nightblooming cactus
Hymenocallis latifolia	Perfumed spiderlily
Hypericum brachyphyllum	Coastalplain St. John’s-wort
Hypericum cistifolium	Roundpod St. John's-wort
Hypericum fasciculatum	Peelbark St. John's-wort
Hypericum gentianoides	Pineweeds
Hypericum hypericoides	St. Andrew's-cross
Hypericum tenuifolium	Atlantic St. John’s-wort
Hypericum tetrapetalum	Fourpetal St. John’s-wort
Hypoxis juncea	Fringed yellow stargrass
Hyptis verticillata *	John Charles
Ilex cassine	Dahoon
Ilex glabra	Gallberry
Impatiens balsamina *	Garden balsam
Imperata cylindrical * NX (I)	Cogongrass
Indigofera caroliniana	Carolina indigo
Indigofera hirsuta *	Hairy indigo
Indigofera spicata *	Trailing indigo
Indigofera suffruticosa *	Anil de pasto
Ipomoea alba	Moonflowers
Ipomoea hederifolia	Scarletcreeper
Ipomoea indica	Oceanblue morning-glory
Ipomoea sagittata	Saltmarsh morning-glory
Iresine diffusa	Juba’s bush
Itea virginica	Virginia willow
Ixora sp. *	Jungleflame
Jasminum fluminense * (I)	Brazilian jasmine
Jasminum multiflorum *	Star jasmine
Jatropha curcas *	Nutmeg plant
Juncus marginatus	Grassleaf rush
Juncus scirpoides	Needlepod rush
Kalanchoe daigremontiana *	Devil’s backbone

Kalanchoe delagoensis *	Chandelier plant
Kalanchoe pinnata * (II)	Life plant
Kosteletzkya pentacarpos	Virginia saltmarsh mallow
Kyllinga brevifolia *	Shortleaf spikesedge
Kyllinga odorata	Frangrant spikesedge
Kyllinga pumila	Low spikesedge
Lachnanthes caroliana	Carolina redroot
Lachnocaulon anceps	Whitehead bogbutton
Lactuca graminifolia	Grassleaf lettuce
Laguncularia racemosa	White mangrove
Lantana camara * (I)	Shrubverbena
Laportea aestuans *	West Indian woodnettle
Lechea deckertii	Deckert's pinweed
Lechea torreyi	Piedmont pinweed
Leersia hexandra	Southern cutgrass
Lepidium virginicum	Virginia pepperweed
Liatris chapmanii	Chapman's gayfeather
Liatris gracilis	Slender gayfeather
Liatris sp.	Gayfeather
Liatris spicata	Dense gayfeather
Liatris tenuifolia	Shortleaf gayfeather
Licania michauxii	Gopher apple
Linaria canadensis	Canadian toadflax
Linderina crustacea *	Malaysian false pimpernel
Lindernia grandiflora	Savannah false pimpernel
Linum medium	Stiff yellow flax
Ludwigia maritima	Seaside primrosewillow
Ludwigia octovalvis	Mexican primrosewillow
Ludwigia peruviana *(I)	Peruvian primrosewillow
Ludwigia repens	Creeping primrosewillow
Lygodesmia aphylla	Rose-rush
Lygodium microphyllum * NX (I)	Old World climbing fern
Lyonia fruticosa	Coastalplain staggerbush
Lyonia lucida	Fetterbush
Lythrum alatum	Winged loosestrife
Macroptilium lathyroides *	Wild bushbean
Magnolia virginiana	Sweetbay
Malvaviscus arboreus var. *drummondii* *	Texas waxmallow
Malvaviscus penduliflorus *	Turkscap mallow
Manilkara zapota * (I)	Sapodilla
Mecardonia acuminata	Axilflower
Melaleuca quinquenervia * NX (PAP I)(I)	Melaleuca
Melia azedarach * (II)	Chinaberrytree
Melilotus albus *	White sweetclover
Melinis repens * (I)	Rose natalgrass
Melothria pendula	Creeping cucumber

Merremia dissecta *	Noyau vine
Mikania cordifolia	Florida Keys hempvine
Mikania scandens	Climbing hempvine
Mimosa quadrivalvis	Sensitive briar
Mirabilis jalapa *	Four-o'clock
Mitreola sessilifolia	Swamp hornpod
Mollugo verticillata *	Indian chickweed
Momordica charantia *	Balsampear
Morinda royoc	Redgal
Murraya paniculata * (II)	Orange jessamine
Musa acuminata *	Dwarf banana
Myrica cerifera	Wax myrtle
Myrsine cubana	Myrsine
Neoregelia spectabilis *	Painted fingernail plant
Nephrolepis brownii * (I)	Asian sword fern
Nephrolepis cordifolia * (I)	Tuberous sword fern
Nephrolepis exaltata	Wild Boston fern
Nephrolepis falcata *	Fishtail sword fern
Nephrolepis x *averyi*	Avery's sword fern
Nerium oleander *	Oleander
Nuphar advena	Spatterdock
Octoblepharum albidum	Octoblepharum moss
Oeceoclades maculata *	Monk orchid
Oenothera laciniata	Cutleaf eveningprimrose
Oldenlandia corymbosa *	Flattop mille graines
Ophioglossum palmatum	Hand fern
Oplismenus hirtellus	Basketgrass
Opuntia ficus-indica *	Tuna cactus
Opuntia humifusa	Pricklypear
Opuntia sp.	Pricklypear
Opuntia stricta	Shell mound prickly-pear
Osmunda cinnamomea	Cinnamon fern
Osmunda regalis var. *spectabilis*	Royal fern
Oxalis corniculata	Common yellow woodsorrel
Oxalis debilis *	Pink woodsorrel
Palafoxia feayi	Feay's palafox
Panicum dichotomiflorum	Fall panicgrass
Panicum hemitomum	Maidencane
Panicum hians	Gaping panicum
Panicum maximum * (II)	Guineagrass
Panicum repens * (I)	Torpedo grass
Panicum rigidulum	Redtop panicum
Panicum virgatum	Switchgrass
Parietaria floridana	Florida pellitory
Parmotrema sp.	Ruffle lichen
Paronychia americana	American nailwort

Parthenocissus quinquefolia	Virginia creeper
Paspalum boscianum	Bull crowngrass
Paspalum caespitosum	Blue crowngrass
Paspalum conjugatum	Sour paspalum
Paspalum distichum	Knotgrass
Paspalum laeve	Field paspalum
Paspalum monostachyum	Gulfdune paspalum
Paspalum notatum *	Bahia grass
Paspalum plicatulum	Brownseed paspalum
Paspalum setaceum	Thin paspalum
Paspalum vaginatum	Seashore paspalum
Passiflora edulis *	Passionfruit
Passiflora suberosa	Corkystem passionflower
Pectis glaucescens	Sanddune cinchweed
Pectis prostrata	Spreading cinchweed
Peltandra virginica	Green arrow arum
Persea americana *	Avocado
Persea borbonia var. *humilis*	Silk bay
Persea palustris	Swamp bay
Philodendron bipinnatifidum *	Split-leaf philodendron
Philodendron sp.*	Philodendron
Phlebodium aureum	Golden polypody
Phyla nodiflora	Turkey tangle fogfruit
Phyllanthus abnormis	Drummond's leafflower
Phyllanthus tenellus *	Mascarene Island leafflower
Physalis angulata	Cutleaf groundcherry
Physalis arenicola	Cypresshead groundcherry
Physalis pubescens	Husk tomato
Physalis walteri	Walter's groundcherry
Phytolacca americana	American pokeweed
Pilea microphylla	Artillery plant
Piloblephis rigida	Wild pennyroyal
Pinus clausa	Sand pine
Pinus elliottii	Slash pine
Piriqueta cistoides caroliniana	Pitted stripeseed
Pistia stratiotes * (PAP II)(I)	Water-lettuce
Pityopsis graminifolia	Narrowleaf silkgrass
Plantago virginica	Southern plantain
Pleopeltis polypodioides var. *michauxiana*	Resurrection fern
Pluchea baccharis	Rosy camphorweed
Pluchea foetida	Stinking camphorweed
Pluchea odorata	Sweetscent
Pluchea sp.	Camphorweed
Plumbago auriculata *	Cape leadwort
Podocarpus macrophyllus *	Yew plum pine
Poinsettia cyathophora	Paintedleaf

Poinsettia heterophylla	Fiddler's spurge
Polanisia tenufolia	Slenderleaf clammyweed
Polygala nana	Candyroot
Polygala polygama	Racemed milkwort
Polygala ramosa	Low pinebarren milkwort
Polygala rugelii	Yellow milkwort
Polygala setacea	Coastalplain milkwort
Polygala violacea	Showy milkwort
Polygonella ciliata	Hairy jointweed
Polygonella fimbriata	Sandhill jointweed
Polygonella gracilis	Tall jointweed
Polygonella polygama	October flower
Polygonella robusta	Largeflower jointweed
Polygonum hydropiperoides	Mild waterpepper
Polypremum procumbens	Rustweed
Polyscias guilfoylei *	Frosted aralia
Pontederia cordata	Pickerelweed
Portulaca amilis *	Paraguayan purslane
Portulaca oleracea *	Little hogweed
Portulaca pilosa	Pink purslane
Pouzolzia zeylanica *	Pouzolz's bush
Pseudognaphalium obtusifolium	Rabbit tobacco
Psidium guajava * (I)	Guava
Psilotum nudum	Whisk-fern
Psychotria nervosa	Wild coffee
Psychotria sulzneri	Shortleaf wild coffee
Pteridium aquilinum	Bracken
Pteris tripartita *	Giant brake
Pterocaulon pycnostachyum	Blackroot
Ptilimnium capillaceum	Mock bishopsweed
Quercus chapmanii	Chapman's oak
Quercus geminata	Sand live oak
Quercus laurifolia	Laurel oak
Quercus minima	Dwarf live oak
Quercus myrtifolia	Myrtle oak
Quercus pumila	Running oak
Quercus virginiana	Live oak
Ramalina sp.	Ramalina
Ravenala madagascariensis *	Traveler's tree
Rhexia mariana	Pale meadowbeauty
Rhexia nuttallii	Nuttal's meadowbeauty
Rhizophora mangle	Red mangrove
Rhododendron sp.	Rhododendron
Rhus copallinum	Winged sumac
Rhynchospora colorata	Starrush whitetop
Rhynchospora divergens	Spreading beaksedge

Rhynchospora fascicularis	Fascicled beaksedge
Rhynchospora intermedia	Pinebarren beaksedge
Rhynchospora megalocarpa	Sandyfield beaksedge
Rhynchospora microcarpa	Southern beaksedge
Rhynchospora nitens	Shortbeak beaksedge
Rhynchospora plumosa	Plumed beaksedge
Richardia brasiliensis *	Tropical Mexican clover
Richardia grandiflora *	Largeflower Mexican clover
Richardia scabra *	Rough Mexican clover
Rivina humilis	Rougeplant
Roystonea regia	Florida royal palm
Rubus cuneifolius	Sand blackberry
Ruellia blechum * *(II)*	Browne's blechum
Ruellia ciliatiflora *	Hairyflower wild petunia
Ruellia simplex * *(I)*	Britton's wild petunia
Russelia equisetiformis *	Firecracker plant
Sabal palmetto	Cabbage palm
Saccharum giganteum	Sugarcane plumegrass
Sacciolepis indica *	Indian cupscale
Sacciolepis striata	American cupscale
Sagittaria lancifolia	Bulltongue arrowhead
Salix caroliniana	Coastalplain willow
Sambucus nigra subs. *canadensis*	Elderberry
Sansevieria hyacinthoides * (II)	Bowstring hemp
Sarcostemma clausum	White twinevine
Schefflera actinophylla * (I)	Australian umbrella tree
Schefflera arboricola *	Dwarf schefflera
Schinus terebinthifolius * NX (PAP I)(I)	Brazilian pepper
Schizachyrium scoparium	Little bluestem
Schoenplectus californicus	Giant bulrush
Scleria ciliata	Fringed nutrush
Scleria triglomerata	Tall nutgrass
Scoparia dulcis	Sweetbroom
Selaginella arenicola	Sand spike-moss
Selenicereus pteranthus *	Princess-of-the-night
Senna pendula var. *glabrata* * (I)	Valamuerto
Serenoa repens	Saw palmetto
Sesuvium portulacastrum	Shoreline seapurslane
Setaria parviflora	Knotroot foxtail
Seymeria pectinata	Piedmont blacksenna
Sida cordifolia *	Llima
Sida rhombifolia	Indian hemp
Sida ulmifolia	Common fanpetals
Sideroxylon salicifolium	Willow bustic
Sisyrinchium xerophyllum	Jeweled blue-eyed grass
Smilax auriculata	Earleaf greenbrier

Smilax bona-nox	Saw greenbrier
Smilax laurifolia	Laurel greenbrier
Smilax sp.	Greenbrier
Solanum americanum	American black nightshade
Solanum diphyllum * (II)	Twoleaf nightshade
Solanum viarum * NX (I)	Tropical soda apple
Solidago fistulosa	Pinebarren goldenrod
Solidago gigantea *	Giant goldenrod
Solidago odora subs. *chapmanii*	Chapman's goldenrod
Solidago stricta	Wand goldenrod
Sonchus asper *	Spiny sowthistle
Sonchus oleraceus *	Common sowthistle
Sorghum bicolor *	Broomcorn
Spartina alterniflora	Saltmarsh cordgrass
Spartina bakeri	Sand cordgrass
Spartina patens	Marshhay cordgrass
Spermacoce prostrata	Prostrate false buttonweed
Spermacoce remota	Woodland false buttonweed
Spermacoce verticillata *	Shrubby false buttonweed
Sphagneticola trilobata * (II)	Creeping oxeye
Sphagnum sp.	Sphagnum
Sporobolus indicus *	Smutgrass
Sporobolus virginicus	Seashore dropseed
Stenotaphrum secundatum	St. Augustinegrass
Stillingia sylvatica	Queensdelight
Stipulicida setacea	Pineland scalypink
Stylisma villosa	Hairy dawnflower
Stylosanthes biflora	Sidebreak pencilflower
Swietenia mahagoni	West Indian mahogany
Syagrus romanzoffiana * (II)	Queen palm
Syngonium podophyllum * (I)	American evergreen
Syzygium cumini * (I)	Java plum
Taxodium ascendens	Pond-cypress
Tecoma capensis *	Cape honeysuckle
Tephrosia rugellii	Rugel’s hoarypea
Terminalia catappa * (II)	West Indian almond
Terminalia muelleri * (II)	Australian almond
Teucrium canadense	Wood sage
Thelypteris dentata *	Downy shield fern
Thelypteris interrupta	Hottentot fern
Thelypteris kunthii	Southern shield fern
Tillandsia balbisiana	Inflated & reflexed wild pine
Tillandsia fasciculata	Common wild pine
Tillandsia flexuosa	Banded airplant
Tillandsia paucifolia	Potbelly airplant
Tillandsia recurvata	Ballmoss

Tillandsia setacea	Southern needleleaf
Tillandsia usneoides	Spanish moss
Tillandsia utriculata	Giant wild pine
Toxicodendron radicans	Eastern poison ivy
Tradescantia fluminensis * (I)	Small-leaf spiderwort
Tradescantia spathacea * (II)	Oyster-plant
Tradescantia zebrina *	Wandering-Jew
Tribulus cistoides * (II)	Burrnut
Trichostema dichotomum	Forked bluecurls
Tridax procumbens * NX	Coatbuttons
Trimezia martinicensis *	Martinique trimezia
Triplasis americana	Perennial sandgrass
Triumfetta semitriloba *	Sacramento burrbark
Urena lobata * (I)	Caesarweed
Urochloa distachya *	Tropical signalgrass
Urochloa mutica * (I)	Paragrass
Utricularia subulata	Zigzag bladderwort
Vaccinium myrsinites	Shiny blueberry
Vaccinium stamineum	Deerberry
Verbena scabra	Harsh vervain
Verbesina virginica	White crownbeard
Veronica peregrina	Neckweed
Vigna luteola	Hairypod cowpea
Viola lanceolata	Bog white violet
Vitex trifolia * (II)	Simpleleaf chaste tree
Vitis aestivalis	Summer grape
Vitis rotundifolia	Muscadine
Vitis shuttleworthii	Calloose grape
Vittaria lineata	Shoestring fern
Woodwardia virginica	Virginia chain fern
Xanthosoma sagittifolium * (II)	Arrowleaf elephant’s ear
Ximenia americana	Hog plum
Xyris caroliniana	Carolina yelloweyed grass
Xyris elliottii	Elliott’s yelloweyed grass
Xyris flabelliformis	Savannah yelloweyed grass
Xyris floridana	Florida yelloweyed grass
Xyris platylepis	Tall yelloweyed grass
Xyris sp.	Yelloweyed grass
Youngia japonica *	Oriental false hawksbeard
Yucca aloifolia	Spanish bayonet
Yucca filamentosa	Adam’s needle
Yucca guatemalensis *	Bluestem yucca
Zamia furfuracea *	Cardboard cycad
Zanthoxylum clava-herculis	Hercules’-club
Zanthoxylum fagara	Wild lime

NOTES:

* = Nonnative species

NX = Species is on the state noxious weed list (Rule 5B-57.007, Florida Administrative Code)

PAP I = Species designated as Class I Prohibited Aquatic Plant by FDACS (2008)

PAP II = Species designated as Class II Prohibited Aquatic Plant by FDACS (2008)

(I) = Exotic species designated as Category I by FLEPPC (FLEPPC 2013)

(II) = Exotic species designated as Category II by FLEPPC (FLEPPC 2013)

Scientific and common names of species generally follow Rule 5B-40.0055 and Rule 5B-57.007, Florida Administrative Code; FNAI (2013); Nature Serve (2012); ITIS (2014); and Wunderlin and Hansen (2008). Lichens are from Brodo et al. (2001).

APPENDIX B

ANIMAL SPECIES RECORDED AT FRENCHMAN'S FOREST NATURAL AREA

APPENDIX B

ANIMAL SPECIES RECORDED AT FRENCHMAN'S FOREST NATURAL AREA UPDATED 4/10/14

SCIENTIFIC NAME	COMMON NAME
MOLLUSCA	
Gastropoda (Gastropods)	
Littoraria angulifera	Mangrove periwinkle
ARTHROPODA	
Malacostraca (Malacostracans)	
Armases cinereum	Squareback marsh crab
Callinectes sapidus	Blue crab
Arachinida (Arachnids)	
Argiope argentata	Silver garden spider
Eriophora ravilla	Tropical orb weaver
Gasteracantha cancriformis	Spinybacked orbweaver
*Latrodectus geometricus**	Brown widow
Leucauge venusta	Orchard orbweaver
Nephila clavipes	Golden silk orbweaver
Peucetia viridans	Green lynx spider
Insecta (Insects)	
Coleoptera	
Adalia bipunctata	Two spotted lady beetle
Thermonectus sp.	Predaceous diving beetle
Diptera	
*Aedes albopictus**	Asian tiger mosquito
Aedes sp.	Mosquito
Apachekolos tenuipes	Robber fly
Chrysops sp.	Deerfly
Culex sp.	Mosquito
Culicidae (family)	Mosquito
Eupeodes americanus	American flower fly
Liohippelates pusio	Eye gnat
*Plecia nearctica**	Lovebug
Tabanus sp.	Horse fly

Hemiptera

Acanthocephala femorata	Florida Leaf-footed bug
*Icerya purchasi**	Cottony cushion scale
*Paratachardina pseudolobata**	Lobate lac scale
Tibicen sp.	Cicada

Hymenoptera

*Apis mellifera**	Honeybee
Bombus pensylvanicus	American bumble bee
Camponotus sp.	Carpenter ant
Formica exsectoides	Allegheny mound ant
*Pheidole megacephala**	Bigheaded ant
Pogonomyrmex sp.	Harvester ant
Polistes sp.	Paper wasp
Sceliphron caementarium	Black and yellow mud dauber
Solenopsis geminata	Fire ant
Solenopsis sp.	Fire ant

Lepidoptera

Abaeis nicippe	Sleepy orange
Agraulis vanillae	Gulf fritillary
Anartia jatrophae	White peacock
Anatrytone logan	Delaware skipper
Aphrissa statira	Statira sulphur
Asbolis capuncinus	Monk skipper
Ascia monuste	Great southern white
Battus polydamas	Polydamas swallowtail
Colias eurytheme	Orange sulphur
Cymaenes tripunctus	Three-spotted skipper
Danaus eresimus	Soldier
Danaus gilippus	Queen
Danaus plexippus	Monarch
Dryas iulia	Julia
Erynnis horatius	Horace's duskywing
Eumaeus atala	Atala
Eurema daira	Barred yellow
Heliconius charithonia	Zebra
Hemiargus ceraunus antibubastus	Ceraunus blue butterfly
Hesperiidae (family)	Skipper
Hylephila phyleus	Fiery skipper
Junonia coenia	Common buckeye
Leptotes cassius theonus	Cassius blue butterfly
Limenitis archippus	Viceroy
Marpesia petreus	Ruddy daggerwing
Nathalis iole	Dainty sulphur
Papilio cresphontes	Giant swallowtail
Papilio palamedes	Palamedes swallowtail
Papilio polyxenes	Black swallowtail

Phocides pigmalion	Mangrove skipper
Phoebis philea	Orange-barred sulphur
Phoebis sennae	Cloudless sulphur
Phyciodes phaon	Phaon crescent
Phyciodes tharos	Pearl crescent
Pieridae (family)	White
*Pieris rapae**	Cabbage white
Polites vibex	Whirlabout
Pyrgus communis	Common checkered-skipper
Pyrgus oileus	Tropical checkered-skipper
Pyrgus sp.	Skipper
Pyrisitia lisa	Little yellow
Siproeta stelenes	Malachite
Strymon melinus	Gray hairstreak
Thyridopteryx ephermeraeformis	Evergreen bagworm moth
Urbanus proteus	Long-tailed skipper
Utetheisa bella	Bella moth
Vanessa atalanta	Red admiral
Xylophanes tersa	Tersa sphinx

Neuroptera

Myrmeleon sp.	Antlion

Odonata

Anax junius	Common green darner
Celithemis eponina	Halloween pennant
Celithemis fasciata	Banded pennant
Coryphaeschna ingens	Regal darner
Erythemis plebeja	Pin-tailed pondhawk
Erythemis simplicicollis	Eastern pondhawk
Erythemis vesiculosa	Great pondhawk
Erythrodiplax minuscula	Little blue dragonlet
Erythrodiplax umbrata	Band-winged dragonlet
Libellula auripennis	Golden-winged skimmer
Libellula vibrans	Great blue skimmer
Pachydiplax longipennis	Blue dasher
Tramea carolina	Carolina saddlebags
Tramea lacerata	Black saddlebags
Tramea onusta	Red saddlebags

Orthoptera

Arphia granulata	Southern yellow-winged grasshopper
Gryllus sp.	Cricket
Melanoplus femurrubrum	Red-legged grasshopper
Romalea microptera	Eastern lubber grasshopper
Schistocera americana	American grasshopper
Schistocera damnifica	Mischievous bird grasshopper

CHORDATA

Amphibia (Amphibians)

Anaxyrus quercicus	Oak toad
Anaxyrus terrestris	Southern toad
Hyla cinerea	Green treefrog
Lithobates sphenocephalus	Southern leopard frog
*Osteopilus septentrionalis**	Cuban treefrog

Reptilia (Reptiles)

Crocodilia

Alligator mississippiensis	American alligator

Squamata

Anolis carolinensis	Green anole
*Anolis equestris**	Knight anole
*Anolis sagrei**	Brown anole
Aspidoscelis sexlineata	Six-lined racerunner
*Basiliscus vittatus**	Brown basilisk
Coluber constrictor	North American racer
Coluber flagellum	Coachwhip
Crotalus adamanteus	Eastern diamond-backed rattlesnake
Diadophis punctatus	Ring-necked snake
*Iguana iguana**	Green iguana
*Leiocephalus carinatus**	Northern curly-tailed lizard
Micrurus fulvius	Harlequin coralsnake
Opheodrys aestivus	Rough greensnake
Ophisaurus ventralis	Eastern glass lizard
Plestiodon inexpectatus	Southeastern five-lined skink

Testudines

Apalone ferox	Florida softshell
Gopherus polyphemus	Gopher tortoise
Terrapene carolina	Eastern box turtle

Aves (Birds)

Accipitriformes

Accipiter cooperii	Cooper's hawk
Accipiter striatus	Sharp-shinned hawk
Buteo brachyurus	Short-tailed hawk
Buteo jamaicensis	Red-tailed hawk
Buteo lineatus	Red-shouldered hawk
Cathartes aura	Turkey vulture
Circus cyaneus	Northern harrier
Coragyps atratus	Black vulture
Elanoides forficatus	Swallow-tailed kite

Haliaeetus leucocephalus	Bald eagle
Pandion haliaetus	Osprey
Anseriformes	
Anas discors	Blue-winged teal
Anas fulvigula	Mottled duck
Lophodytes cucullatus	Hooded merganser
Apodiformes	
Archilochus colubris	Ruby-throated hummingbird
Chaetura pelagica	Chimney swift
Caprimulgiformes	
Antrostomus carolinensis	Chuck-will's-widow
Antrostomus vociferus	Eastern whip-poor-will
Chordeiles minor	Common nighthawk
Charadriiformes	
Sternula antillarum	Least tern
Ciconiiformes	
Butorides virescens	Green heron
Mycteria americana	Wood stork
Columbiformes	
Columbina passerina	Common ground-dove
*Streptopelia decaocto**	Eurasian collared-dove
*Zenaida asiatica**	White-winged dove
Zenaida macroura	Mourning dove
Coraciiformes	
Megaceryle alcyon	Belted kingfisher
Cuculiformes	
Coccyzus americanus	Yellow-billed cuckoo
Falconiformes	
Falco columbarius	Merlin
Falco peregrinus	Peregrine falcon
Falco sparverius	American kestrel
Galliformes	
Colinus virginianus	Northern bobwhite
Meleagris gallopavo	Wild turkey
Gruiformes	
Fulica americana	American coot
Gallinula galeata	Common gallinule

Passeriformes

Agelaius phoeniceus	Red-winged blackbird
Ammodramus savannarum	Grasshopper sparrow
Bombycilla cedrorum	Cedar waxwing
Cardinalis cardinalis	Northern cardinal
Corvus brachyrhynchos	American crow
Corvus ossifragus	Fish crow
Cyanocitta cristata	Blue jay
Dumetella carolinensis	Gray catbird
Empidonax sp.	Flycatcher
Geothlypis trichas	Common yellowthroat
Helmitheros vermivorum	Worm-eating warbler
Hirundo rustica	Barn swallow
Icterus spurius	Orchard oriole
Lanius ludovicianus	Loggerhead shrike
Mimus polyglottos	Northern mockingbird
Mniotilta varia	Black-and-white warbler
Myiarchus crinitus	Great crested flycatcher
Oreothlypis peregrina	Tennessee warbler
Parkesia noveboracensis	Northern waterthrush
Passerina ciris	Painted bunting
Passerina cyanea	Indigo bunting
Pheucticus ludovicianus	Rose-breasted grosbeak
Pipilo erythrophthalmus	Eastern towhee
Piranga olivacea	Scarlet tanager
Piranga rubra	Summer tanager
Polioptila caerulea	Blue-gray gnatcatcher
Progne subis	Purple martin
Protonotaria citrea	Prothonotary warbler
Quiscalus major	Boat-tailed grackle
Quiscalus quiscula	Common grackle
Regulus calendula	Ruby-crowned kinglet
Sayornis phoebe	Eastern phoebe
Seiurus aurocapilla	Ovenbird
Setophaga americana	Northern parula
Setophaga caerulescens	Black-throated blue warbler
Setophaga citrina	Hooded warbler
Setophaga coronata	Yellow-rumped warbler
Setophaga discolor	Prairie warbler
Setophaga dominica	Yellow-throated warbler
Setophaga fusca	Blackburnian warbler
Setophaga magnolia	Magnolia warbler
Setophaga palmarum	Palm warbler
Setophaga pensylvanica	Chestnut-sided warbler
Setophaga pinus	Pine warbler
Setophaga ruticilla	American redstart
Setophaga striata	Blackpoll warbler

Setophaga tigrina	Cape May warbler
Setophaga virens	Black-throated green warbler
*Spindalis zena**	Western spindalis
*Sturnus vulgaris**	European starling
Tachycineta bicolor	Tree swallow
Thryothorus ludovicianus	Carolina wren
Toxostoma rufum	Brown thrasher
Troglodytes aedon	House wren
Turdus migratorius	American robin
Tyrannus tyrannus	Eastern kingbird
Vireo flavifrons	Yellow-throated vireo
Vireo griseus	White-eyed vireo
Vireo olivaceus	Red-eyed vireo
Vireo solitarius	Blue-headed vireo

Pelecaniformes

Aix sponsa	Wood duck
Ardea alba	Great egret
Ardea herodias	Great blue heron
Bubulcus ibis	Cattle egret
Egretta caerulea	Little blue heron
Egretta tricolor	Tricolored heron
Eudocimus albus	White ibis
Nyctanassa violacea	Yellow-crowned night-heron

Piciformes

Colaptes auratus	Northern flicker
Dryocopus pileatus	Pileated woodpecker
Melanerpes carolinus	Red-bellied woodpecker
Picoides pubescens	Downy woodpecker
Picoides villosus	Hairy woodpecker

Psittaciformes

*Myiopsitta monachus**	Monk parakeet

Strigiformes

Bubo virginianus	Great horned owl
Strix varia	Barred owl

Suliformes

Anhinga anhinga	Anhinga
Phalacrocorax auritus	Double-crested cormorant

Mammalia (Mammals)

*Canis latrans**	Coyote
*Dasypus novemcinctus**	Nine-banded armadillo
Didelphis virginiana	Virginia opossum
*Felis catus**	Domestic cat

Glaucomys volans	Southern flying squirrel
Lontra Canadensis	North American river otter
Lynx rufus	Bobcat
Procyon lotor	Raccoon
Scalopus aquaticus	Eastern mole
Sciurus carolinensis	Eastern gray squirrel
Sylvilagus floridanus	Eastern cottontail
Trichechus manatus	West Indian manatee
Urocyon cinereoargenteus	Gray fox

Actinopterygii (Ray-Finned Fishes)

Archosargus probatocephalus	Sheepshead
Centropomus undecimalis	Common snook
Gambusia holbrooki	Eastern mosquitofish
Lepisosteus osseus	Longnose gar
Lutjanus griseus	Gray snapper
Mugil cephalus	Striped mullet
Mugil curema	White mullet
Sphyraena barracuda	Great barracuda
*Tilapia mariae**	Spotted tilapia

* = Nonnative species

NOTE: Scientific and common names of species generally follow FWC (2013), FNAI (2013), NatureServe (2013), ITIS (2014) or Arnett (2000).

APPENDIX C

DEFINITIONS OF DESIGNATIONS AND RANKS FOR LISTED SPECIES AND NATURAL COMMUNITIES

APPENDIX C

DEFINITIONS OF DESIGNATIONS AND RANKS FOR LISTED SPECIES AND NATURAL COMMUNITIES

United States Fish and Wildlife Service (USFWS) - Wildlife and Plants

Species listed in the Code of Federal Regulations (CFR) and protected under the provisions of the Endangered Species Act of 1973 (16 USC 1531-1543, as amended); animals are listed in 50 CFR 17-11 and plants are listed in 50 CFR 17-12; definitions are from 16 USC 1532, 36 CFR 219.36 and 50 CFR 17.50.

Endangered (E)	Any species which is in danger of extinction through all or a portion of its range other than a species of the Class Insecta determined by the Secretary [of the Interior] to constitute a pest whose protection under the provisions of this chapter would present an overwhelming and overriding risk to man
Threatened (T)	Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range
Candidate (C)	Species identified by the United States Fish and Wildlife Service (USFW) or the National Marine Fisheries Service (NFMS), which are considered to be candidates for listing under the Endangered Species Act as published in the *Federal Register*.

If a species is not endangered or threatened, but it closely resembles an endangered or threatened species, such species may be treated as endangered or threatened if the Director of USFWS makes a determination that the species shall appear in the list in 50 CFR 17.11 (wildlife) or the list in 50 CFR 17.12 (plants) and that the notation (S/A) shall appear in the status column following the letter “E” for endangered or the letter “T” for threatened, due to its similarity of appearance to an endangered or threatened species – for example, E (S/A) or T (S/A).

Florida Fish and Wildlife Conservation Commission (FWC) - Animals

Species listed in Chapter 68A-27 of the Florida Administrative Code (F.A.C.) as Florida Endangered and Threatened Species and protected under that chapter and the Endangered and Threatened Species Act, Section 372.072, Florida Statutes (F.S.); definitions are from Chapter 68A-27.

Federally-designated Endangered and Threatened Species (FE) and (FT)	Species of fish or wild animal life, subspecies or isolated populations of species or subspecies, whether vertebrate or invertebrate, that are native to Florida and are classified as Endangered or Threatened under Commission rule by virtue of designation by the United States Departments of Interior or Commerce as endangered or threatened under the Federal Endangered Species Act, 16 U.S.C. § 1531 et seq. and rules thereto.
State-designated Threatened Species (ST)	As designated by the Commission, species of fish or wild animal life, subspecies, or isolated population of a species or subspecies, whether vertebrate or invertebrate, that are native to Florida and are classified as Threatened as determined by paragraph (a), (b), (c), (d), or (e) [in subsequent part of definition] in accordance with Rule 68A-27.0012., F.A.C. The designation of a species as threatened shall include all subspecies unless stated otherwise in Commission rule.
Species of Special Concern (SSC)	Per Rule 68A-27.005: During the moratorium period created in subsection 68A-27.0012(4), F.A.C.: Management plans will be developed for the species listed in this rule and the species will be evaluated under the listing criteria in subsection 68A-27.001(3), F.A.C. for listing as a State-designated Threatened species. If the Commission determines that the species warrants listing as a State-designated Threatened species, final Commission action on the listing shall include removing reference to the species from this rule. If the species evaluation demonstrates the species does not quality for listing as a State-designated Threatened species, the Commission will remove the species from this rule upon completion of a management plan. After a biological status review is conducted and a management plan is approved, the Commission will decide whether a species should remain listed when the species is determined to be data deficient pursuant to the Guidelines for Using the IUCN Red List Categories and Criteria.
Candidate Species	A species of fish or wild animal life, subspecies, or isolated populations of species or subspecies, whether invertebrate or vertebrate, that the Commission has determined warrants listing as a State-designated Threatened Species in accordance with Rule 68A-27.0012, F.A.C., and is awaiting final Commission action to be added to the list of Florida Endangered and Threatened Species in Rule 68A-27.003, F.A.C.

Florida Department of Agriculture and Consumer Affairs (FDACS) - Plants

Species listed in Chapter 5B-40 of the Rules of FDACS, Division of Plant Industry and protected under the Preservation of Native Flora of Florida Act (Section 581.185, F.S.); definitions are from that Act

Endangered (E)	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 species or threatened species pursuant to the federal Endangered Species Act of 1973, as amended. Pub. L. No. 93-205 (87 Stat. 884).
Threatened (T)	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.
Commercially Exploited (CE)	Species native to the state which are subject to being removed in significant numbers from native habitats in the state and sold or transported for sale.

Florida Natural Areas Inventory (FNAI) - Plants, Animals and Natural Communities

FNAI ranks indicate the global (G) or state (S) status of a species or a natural community. The global rank is based on an element's worldwide status; the state rank is based on the status of the element in Florida. Rank definitions are from FNAI (2013).

<u>FNAI Global Rank Definitions</u>

G1 Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.

G2 Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

G3 Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

G4 Apparently secure globally (may be rare in parts of range).

G5 Demonstrably secure globally.

GH Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker).

GX Believed to be extinct throughout range.

GXC Extirpated from the wild but still known from captivity or cultivation.

G#? Tentative rank (e.g., G2?).

G#G# Range of rank; insufficient data to assign specific global rank (e.g., G2G3).

G#T# Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have the same definition as above (e.g., G3T1).

G#Q Rank of questionable species – ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q).

G#T#Q Same as above, but validity as subspecies or variety is questioned.

GU Unrankable; due to a lack of information no rank or range can be assigned (e.g., GUT2).

GNA Ranking is not applicable because the element is not a suitable target for conservation (e.g., a hybrid species).

GNR Element not yet ranked (temporary).

GNRTNR Neither the element nor the taxonomic subgroup has yet been ranked.

<u>FNAI State Rank Definitions</u>

S1 Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.

S2 Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

S3 Either very rare and local in Florida (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

S4 Apparently secure in Florida (may be rare in parts of range).

S5 Demonstrably secure in Florida.

SH Of historical occurrence in Florida, possibly extirpated, but may be rediscovered (e.g., ivory-billed woodpecker).

SX Believed to be extirpated throughout Florida.

SU Unrankable; due to a lack of information no rank or range can be assigned.

SNA State ranking is not applicable because the element is not a suitable target for conservation (e.g., a hybrid species).

SNR Element not yet ranked (temporary).

APPENDIX D

CONSERVATION EASEMENTS

CFN 20100258291
OR BK 23951 PG 0922
RECORDED 07/16/2010 09:15:16
Palm Beach County, Florida
Sharon R. Bock, CLERK & COMPTROLLER
Pgs 0922 - 927; (6pgs)

Return to:
South Florida Water Management District
Post Office Box 24680
West Palm Beach, Florida 33416-4680

Prepared by:
Palm Beach County Department of Environmental Resources Management
2300 North Jog Road, 4th Floor
West Palm Beach, FL 33411

DEED OF CONSERVATION EASEMENT FOR FRENCHMAN'S FOREST NATURAL AREA

THIS DEED OF CONSERVATION EASEMENT is given this 12th day of July, 2010, by Palm Beach County, a political subdivision of the State of Florida, whose business mailing address is 301 N. Olive Avenue, West Palm Beach, Florida 33401 ("Grantor") to the South Florida Water Management District, a public corporation of the State of Florida existing by virtue of Chapter 25270, Laws of Florida, 1949, and operating pursuant to Chapter 373, Florida Statutes (F.S.) and Title 40E, Florida Administrative Code, as a multipurpose water management district with its principal office at 3301 Gun Club Road, West Palm Beach, FL 33406 ("Grantee"). As used herein, the term Grantor shall include any and all successors or assigns of the Grantor, and all subsequent owners of the "Property" (as hereinafter defined) and the term Grantee shall include any successor or assign of Grantee.

WITNESSETH

WHEREAS, Grantor is the owner of that certain real property situated in Palm Beach County, Florida, more specifically described in Exhibit "A" attached hereto and incorporated herein (the "Property"); and

WHEREAS, Grantor desires that the Property be preserved and maintained in perpetuity as part of the County's Natural Areas System; and

WHEREAS, the Grantor is agreeable to granting and securing to the Grantee a perpetual conservation easement as defined in Section 704.06, F.S., over the Property and Grantee is willing to accept such conservation easement; and

WHEREAS, the Florida Communities Trust has awarded the Grantor a grant partially reimbursing the Grantor's costs in acquiring all or a portion of the Property and restricted the use of that portion of the Property to purposes consistent with the Preservation 2000 grant program through a Grant Award Agreement (R98-536D), recorded in Palm Beach County Official Records Book 10452, pages 1599 through 15.., between the Florida Communities Trust and the Grantor, and the Grantee is in agreement that the restrictions thus placed on the Property are consistent with the intent to ensure the perpetual maintenance and protection of said Property; and

WHEREAS, the Grantee acknowledges that any change to this conservation easement that affects the Property shall be subject to review and approval by the Florida Communities Trust prior to implementation of that change, for so long as the terms and conditions of the Grant Award Agreement, as may be amended from time to time, are in effect for the Property.

NOW, THEREFORE, in consideration of the above and the mutual covenants, terms, conditions, and restrictions contained herein, and pursuant to the laws of the State of Florida and in particular Section 704.06, F.S., Grantor hereby voluntarily grants, creates, and establishes a conservation easement for and in favor of the Grantee upon the Property of the nature and character and to the extent hereinafter set forth, which shall run with the land and be binding upon the Grantor, and shall remain in full force and effect forever.

1. **Purpose.** It is the purpose of this conservation easement (Easement) to assure that the Property will be retained forever predominantly in its natural condition and that the land and water areas will be retained and managed in a manner that will protect native plant and animal communities. Grantee will hold this Easement exclusively for conservation purposes.
2. **Rights of Grantee.** To accomplish the purpose of this Easement, the following rights are conveyed to Grantee by this Easement:
    a. To enter upon the Property at reasonable times in order to enforce the rights herein, provided that such entry shall not unreasonably interfere with the use and quiet enjoyment of the Property by the Grantor; and
    b. To enjoin any activity on or use of the Property that is inconsistent with this Easement and to enforce the restoration of such areas or features of the Property that may be damaged by any inconsistent activity or use.

3. **Reserved Rights.** Grantor reserves to itself and to its successors and assigns all rights accruing from ownership of the Property, including the right to engage in, or permit or invite others to engage in, all uses of the Property that are not expressly prohibited herein and that are not inconsistent with the purpose of this Easement. Without limiting the generality of the foregoing, the following rights are expressly reserved:

    a. The Grantor may construct, maintain and operate public use facilities for the purpose of educating the public about the natural resources of the Property or for the purpose of providing opportunities for recreational activities which have minimal or no impact on natural resources or ecosystems; and
    b. The Grantor may place signs or markers as necessary to identify property boundaries, trails, restoration areas or other site features or activities related to management and maintenance or the passive recreational use of the Property; and
    c. The Grantor may construct and maintain management roads, firebreaks, trails, walkways, docks, and facilities necessary to support the public use and land management activities; and

d. The Grantor may remove or kill, by any lawful means, exotic or nuisance vegetation and animal species, conduct prescribed burns, and conduct other management activities necessary to carry out conservation purposes; and
e. The Grantor may conduct site restoration or enhancement projects determined by the Grantor not to conflict with the purpose of this Easement.

4. **Prohibited uses and activities.** Subject to the reserved rights stated in Section 3, the following uses and activities are prohibited in or on the Property:
    a. Construction or placing of buildings, roads, signs, billboards, advertising, utilities, or other structures on or above the ground, other than those roads, structures or signs that may be authorized herein and are consistent with or necessary to accomplish the purpose of this Easement; and
    b. Dumping or placing of soil or other substance or material as landfill, or dumping or placing of trash, waste or unsightly or offensive materials; and
    c. Removal or destruction of trees, shrubs, other vegetation, or wildlife; and
    d. Excavation, dredging, or removal of loam, peat, gravel, soil, rock, or other material substance in such manner as to affect the surface; and
    e. Activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, or fish and wildlife habitat preservation including, but not limited to, ditching, diking and interior fencing (perimeter fencing shall not be considered a violation of this subparagraph); and
    f. Acts or uses detrimental to such aforementioned retention of land or water areas; and
    g. Acts or uses which are detrimental to the preservation of any features or aspects of the Property having historical or archaeological significance, except for those lawful acts necessary to achieve natural area restoration.

5. **Access.** No right of access by the general public is conveyed or restricted by this Easement.

6. **Operation and Upkeep.** Grantee shall not be responsible for any costs and liabilities related to the operation, upkeep and maintenance of the Property.

7. **Enforcement.** Enforcement of the terms, provisions and restrictions of this Easement shall be at the reasonable discretion of Grantee, and any forbearance on behalf of Grantee to exercise its rights hereunder in the event of any breach hereof by Grantor shall not be deemed or construed to be a waiver of Grantee's rights hereunder.

8. **Assignment.** Upon prior written approval by Grantor, this Easement may be transferred or assigned by Grantee to another organization qualified to hold such interests under applicable State laws. Transfers or assignments shall be accomplished by written amendment of this Easement.

9. **Severability.** If any provision of this Easement or the application thereof to any person or circumstance is found to be invalid, the remainder of the provisions of this Easement shall not be affected thereby, as long as the purpose of the Easement is protected.

10. **Amendment.** This Easement may be amended, altered, released or revoked only by written agreement between the parties hereto and their assigns or successors, which shall be filed in the public records in Palm Beach County.

11. **Notices.** All notices, consents, approval or other communications hereunder shall be in writing and shall be deemed properly given if sent by United States certified mail, return receipt requested, addressed to the appropriate party or successor.

12. **Entire Agreement**. This Easement, (including the Exhibits hereto and any written amendments thereto, executed by all parties), constitutes the entire Easement, and supersedes all prior agreements and understandings, oral and written, between the parties with respect to the subject matter hereof.

TO HAVE AND TO HOLD unto Grantee forever. The covenants, terms, conditions, restrictions and purpose imposed with this Easement shall be binding upon Grantor, and shall continue as a servitude running in perpetuity with the Property.

Grantor hereby covenants with said Grantee that Grantor has good right and lawful authority to convey this Easement.

IN WITNESS WHEREOF, the Parties hereto have executed this Conservation Easement this 12th day of July, 2010.

PALM BEACH COUNTY, FLORIDA
BY ITS BOARD OF COUNTY COMMISSIONERS

By: _____
Burt Aaronson, Chair

ATTEST:
SHARON R. BOCK, CLERK & COMPTROLLER

By: _____
Deputy Clerk

BOARD OF COUNTY COMMISSIONERS PALM BEACH COUNTY FLORIDA

APPROVED AS TO FORM AND LEGAL SUFFICIENCY

By: _____
Assistant County Attorney

APPROVED AS TO TERMS AND CONDITIONS

By: _____
Richard E. Walesky, Director
Department of Environmental Resources Management

EXHIBIT A

LEGAL DESCRIPTION OF THE PROPERTY

A PARCEL OF LAND LYING IN SECTION 32, TOWNSHIP 41 SOUTH, RANGE 43 EAST, WITHIN THE MUNICIPAL LIMITS OF THE CITY OF PALM BEACH GARDENS, PALM BEACH COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTHWEST QUARTER (NW 1/4) OF SECTION 32, TOWNSHIP 41 SOUTH, RANGE 43 EAST, PALM BEACH COUNTY, FLORIDA, LESS THE NORTH 1,320 FEET THEREOF AND LESS THE RIGHT-OF-WAY FOR PROSPERITY FARMS ROAD, TOGETHER WITH THAT PART OF THE SOUTH HALF (S 1/2) OF SAID SECTION 32 LYING WEST OF THE RIGHT-OF-WAY OF PROSPERITY FARMS ROAD AND LYING NORTH OF THE NORTH RIGHT-OF-WAY LINE OF THE 80 FOOT WIDE CANAL RIGHT-OF-WAY RUNNING EAST AND WEST ACROSS SAID SOUTH HALF (S 1/2) OF SECTION 32 AS SHOWN ON THE PLAT OF "PLAT NO. 1 PALM BEACH CABANA COLONY", RECORDED IN PLAT BOOK 26, PAGES 203 THROUGH 205 OF THE PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA, LESS AND EXCEPTING THEREFROM THE EAST 640 FEET OF THE NORTH 625 FEET OF THE SOUTHWEST QUARTER (SW 1/4) OF SAID SECTION 32.

LESS AND EXCEPTING THEREFROM A STRIP OF LAND 25.00 FEET IN WIDTH PARALLEL WITH AND ADJACENT TO THE WEST RIGHT OF WAY LINE OF PROSPERITY FARMS ROAD.

TOGETHER WITH

A PARCEL OF LAND LYING IN SECTION 32, TOWNSHIP 41 SOUTH, RANGE 43 EAST, WITHIN THE MUNICIPAL LIMITS OF THE CITY OF PALM BEACH GARDENS, PALM BEACH COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THAT PART OF A STRIP OF LAND 25.00 FEET IN WIDTH PARALLEL WITH, WESTERLY OF, AND ADJACENT TO THE WEST RIGHT OF WAY LINE OF PROSPERITY FARMS ROAD LYING WITHIN THE NORTHWEST QUARTER (NW 1/4) OF SECTION 32, TOWNSHIP 41 SOUTH, RANGE 43 EAST, PALM BEACH COUNTY, FLORIDA; LESS THE NORTH 1,320 FEET THEREOF.

CONTAINS: 157.216 ACRES

STATE OF FLORIDA • PALM BEACH COUNTY
I hereby certify that the foregoing is a true copy of the record in my office.
THIS 16 DAY OF JULY, 20 10
SHARON R. BOCK
CLERK & COMPTROLLER
By: _____
DEPUTY CLERK

CFN 20100452835
OR BK 24220 PG 0844
RECORDED 11/30/2010 11:02:55
Palm Beach County, Florida
Sharon R. Bock, CLERK & COMPTROLLER
Pgs 0844 - 848; (5pgs)

Return to:
South Florida Water Management District
Post Office Box 24680
West Palm Beach, Florida 33416-4680

Prepared by:
Palm Beach County Department of Environmental Resources Management
2300 North Jog Road, 4th Floor
West Palm Beach, FL 33411

DEED OF CONSERVATION EASEMENT FOR PROSPERITY OAKS NATURAL AREA

THIS DEED OF CONSERVATION EASEMENT is given this__day of NOV 2 9 2010, 2010, by Palm Beach County, a political subdivision of the State of Florida, whose business mailing address is 301 N. Olive Avenue, West Palm Beach, Florida 33401 ("Grantor") to the South Florida Water Management District, a public corporation of the State of Florida existing by virtue of Chapter 25270, Laws of Florida, 1949, and operating pursuant to Chapter 373, Florida Statutes (F.S.) and Title 40E, Florida Administrative Code, as a multipurpose water management district with its principal office at 3301 Gun Club Road, West Palm Beach, FL 33406 ("Grantee"). As used herein, the term Grantor shall include any and all successors or assigns of the Grantor, and all subsequent owners of the "Property" (as hereinafter defined) and the term Grantee shall include any successor or assign of Grantee.

WITNESSETH

WHEREAS, Grantor is the owner of that certain real property situated in Palm Beach County, Florida, more specifically described in Exhibit "A" attached hereto and incorporated herein (the "Property"); and

WHEREAS, Grantor desires that the Property be preserved and maintained in perpetuity as part of the County's Natural Areas System; and

WHEREAS, the Grantor is agreeable to granting and securing to the Grantee a perpetual conservation easement as defined in Section 704.06, F.S., over the Property and Grantee is willing to accept such conservation easement; and

NOW, THEREFORE, in consideration of the above and the mutual covenants, terms, conditions, and restrictions contained herein, and pursuant to the laws of the State of Florida and in particular Section 704.06, F.S., Grantor hereby voluntarily grants, creates, and establishes a conservation easement for and in favor of the Grantee upon the Property of the nature and character and to the extent hereinafter set forth, which shall run with the land and be binding upon the Grantor, and shall remain in full force and effect forever.

1. **Purpose.** It is the purpose of this conservation easement (Easement) to assure that the Property will be retained forever predominantly in its natural condition and that the land and water areas will be retained and managed in a manner that will protect native plant and animal communities. Grantee will hold this Easement exclusively for conservation purposes.
2. **Rights of Grantee.** To accomplish the purpose of this Easement, the following rights are conveyed to Grantee by this Easement:
    a. To enter upon the Property at reasonable times in order to enforce the rights herein, provided that such entry shall not unreasonably interfere with the use and quiet enjoyment of the Property by the Grantor; and
    b. To enjoin any activity on or use of the Property that is inconsistent with this Easement and to enforce the restoration of such areas or features of the Property that may be damaged by any inconsistent activity or use.

3. **Reserved Rights.** Grantor reserves to itself and to its successors and assigns all rights accruing from ownership of the Property, including the right to engage in, or permit or invite others to engage in, all uses of the Property that are not expressly prohibited herein and that are not inconsistent with the purpose of this Easement. Without limiting the generality of the foregoing, the following rights are expressly reserved:

    a. The Grantor may construct, maintain and operate public use facilities for the purpose of educating the public about the natural resources of the Property or for the purpose of providing opportunities for recreational activities which have minimal or no impact on natural resources or ecosystems; and
    b. The Grantor may place signs or markers as necessary to identify property boundaries, trails, restoration areas or other site features or activities related to management and maintenance or the passive recreational use of the Property; and
    c. The Grantor may construct and maintain management roads, firebreaks, trails, walkways, docks, and facilities necessary to support the public use and land management activities; and
    d. The Grantor may remove or kill, by any lawful means, exotic or nuisance vegetation and animal species, conduct prescribed burns, and conduct other management activities necessary to carry out conservation purposes; and
    e. The Grantor may conduct site restoration or enhancement projects determined by the Grantor not to conflict with the purpose of this Easement.

4. **Prohibited uses and activities.** Subject to the reserved rights stated in Section 3, the following uses and activities are prohibited in or on the Property:
    a. Construction or placing of buildings, roads, signs, billboards, advertising, utilities, or other structures on or above the ground, other than those roads, structures or signs that may be authorized herein and are consistent with or necessary to accomplish the purpose of this Easement; and

b. Dumping or placing of soil or other substance or material as landfill, or dumping or placing of trash, waste or unsightly or offensive materials; and
c. Removal or destruction of trees, shrubs, other vegetation, or wildlife; and
d. Excavation, dredging, or removal of loam, peat, gravel, soil, rock, or other material substance in such manner as to affect the surface; and
e. Activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, or fish and wildlife habitat preservation including, but not limited to, ditching, diking and interior fencing (perimeter fencing shall not be considered a violation of this subparagraph); and
f. Acts or uses detrimental to such aforementioned retention of land or water areas; and
g. Acts or uses which are detrimental to the preservation of any features or aspects of the Property having historical or archaeological significance, except for those lawful acts necessary to achieve natural area restoration.

5. **Access.** No right of access by the general public is conveyed or restricted by this Easement.

6. **Operation and Upkeep.** Grantee shall not be responsible for any costs and liabilities related to the operation, upkeep and maintenance of the Property.

7. **Enforcement.** Enforcement of the terms, provisions and restrictions of this Easement shall be at the reasonable discretion of Grantee, and any forbearance on behalf of Grantee to exercise its rights hereunder in the event of any breach hereof by Grantor shall not be deemed or construed to be a waiver of Grantee's rights hereunder.

8. **Assignment.** Upon prior written approval by Grantor, this Easement may be transferred or assigned by Grantee to another organization qualified to hold such interests under applicable State laws. Transfers or assignments shall be accomplished by written amendment of this Easement.

9. **Severability.** If any provision of this Easement or the application thereof to any person or circumstance is found to be invalid, the remainder of the provisions of this Easement shall not be affected thereby, as long as the purpose of the Easement is protected.

10. **Amendment.** This Easement may be amended, altered, released or revoked only by written agreement between the parties hereto and their assigns or successors, which shall be filed in the public records in Palm Beach County.

11. **Notices.** All notices, consents, approval or other communications hereunder shall be in writing and shall be deemed properly given if sent by United States certified mail, return receipt requested, addressed to the appropriate party or successor.

12. **Entire Agreement**. This Easement, (including the Exhibits hereto and any written amendments thereto, executed by all parties), constitutes the entire Easement, and

supersedes all prior agreements and understandings, oral and written, between the parties with respect to the subject matter hereof.

TO HAVE AND TO HOLD unto Grantee forever. The covenants, terms, conditions, restrictions and purpose imposed with this Easement shall be binding upon Grantor, and shall continue as a servitude running in perpetuity with the Property.

Grantor hereby covenants with said Grantee that Grantor has good right and lawful authority to convey this Easement.

IN WITNESS WHEREOF, the Parties hereto have executed this Conservation Easement this day of NOV 2 9 2010, 2010.

PALM BEACH COUNTY, FLORIDA
BY ITS BOARD OF COUNTY COMMISSIONERS

By: _____
Karen T. Marcus, Chair

ATTEST:
SHARON R. BOCK, CLERK & COMPTROLLER

By: _____
Deputy Clerk

APPROVED AS TO FORM AND LEGAL SUFFICIENCY CONDITIONS

By: _____
Assistant County Attorney

APPROVED AS TO TERMS AND

By: _____
Robert Robbins, Deputy Director
Department of Environmental
Resources Management

EXHIBIT A

LEGAL DESCRIPTION OF THE PROPERTY

Tracts D and E of Harbour Oaks, according to the Plat thereof recorded in Plat Book 99, at page 96, public records of Palm Beach County, Florida.

TOGETHER WITH an easement for access and maintenance over the portions of Section 5, Township 42 South, Range 43 East, City of Palm Beach Gardens, Palm Beach County, Florida, being more particularly described as follows:

A portion of Parcels K and O of the "Grande at Palm Beach Gardens", according to the Plat thereof as recorded in Plat Book 92, at Pages 179 through 182, of the Public Records of Palm Beach County, Florida, being more particularly described as follows:

Begin at the Northwest corner of said Parcel "K" (the next five courses being along the northerly boundary limits of Parcel "K"); thence S89°16'50"E for 586.99 feet; thence S00° 47'03"W for 295.16 feet; thence S89°16'50"E for 295.16 feet; thence N00° 47'03"E for 295.16 feet; thence S89°16'50"E for 400.00 feet; thence S89°16'35"E along the north lines of Parcels "K" and "O" for 55.00 feet; thence S01°05'31"W along the easterly line of said Parcel "O" for 544.60 feet; thence S05°00'46"W continuing along the easterly line of said Parcel "O" for 175.49; thence S01°05'31"W along the easterly line of said Parcel "O" for 179.34 feet; thence N89° 16'50"W for 73.00 feet; thence N01° 05'31"E along a line lying 55.00 feet West of and parallel with the east line of said Parcel "K" for 873.94 feet; (each of the next five courses being 25.00 feet South, East, South, West and South respectively of the northerly boundary limits of Parcel "K"); thence N89° 16'50"W for 344.86 feet; thence S00° 47'03"W for 295.16 feet; thence N89° 16'50"W for 561.99 feet; thence N00° 47'03"E along the West line of said Parcel "K" for 25.00 feet to the Point of Beginning.

All lying and being in the City of Palm Beach Gardens, Palm Beach County, Florida.

STATE OF FLORIDA • PALM BEACH COUNTY
I hereby certify that the foregoing is a true copy of the record in my office.
THIS 30 DAY OF NOV, 2010
SHARON R. BOCK
CLERK & COMPTROLLER
By D. Thomas
DEPUTY CLERK

APPENDIX E

INTERLOCAL AGREEMENT

R98 80 D

INTERLOCAL AGREEMENT BETWEEN THE CITY OF PALM BEACH GARDENS, FLORIDA AND PALM BEACH COUNTY FOR THE ACQUISITION OF THE FRENCHMAN'S FOREST SITE AND ITS MANAGEMENT AS A NATURAL AREA

THIS AGREEMENT, made and entered into on this _____ day of JAN 13 1998, 1997, by and between the City of Palm Beach Gardens, hereinafter referred to as the "City", and Palm Beach County, Florida, hereinafter referred to as the "County", a political subdivision of the State of Florida.

WITNESSETH:

WHEREAS, on March 12, 1991, the voters of Palm Beach County approved a $100 million bond referendum for the acquisition of environmentally sensitive lands; and

WHEREAS, the Frenchman's Forest site in the City of Palm Beach Gardens was designated as one of the high-priority sites to be acquired with funds from this bond referendum; and

WHEREAS, both the City and the County have deemed that it is in the best interest of the residents and citizens of Palm Beach County and the City of Palm Beach Gardens to acquire the Frenchman's Forest property in order to preserve the site in its natural state for future generations as an intact native Florida ecosystem; and

WHEREAS, the Board of County Commissioners and the City of Palm Beach Gardens have submitted a partnership grant application to the Florida Communities Trust (FCT) for state matching funds to acquire the Frenchman's Forest Natural Area; and

WHEREAS, the County and the City, as the FCT Recipients, have signed a Conceptual Approval Agreement with FCT for the receipt of these funds; and

WHEREAS, the County has purchased the Frenchman's Forest site, now known as the Frenchman's Forest Natural Area, and wishes to be reimbursed by FCT for the State's portion of the acquisition costs; and

WHEREAS, the Conceptual Approval Agreement requires that the parties of the partnership application enter into an interlocal agreement which sets forth the relationship among the partners and the fiscal and management responsibilities and obligations incurred by each partner for the acquisition and management of the site, and that the interlocal agreement be made a part of the project plan; and

WHEREAS, the execution of this agreement is in the best interest of both governmental units and the residents and citizens of same; and

WHEREAS, Section 163.01, Florida Statutes, allows governmental units to enter into intergovernmental agreements to make the most efficient use of their powers by enabling them to cooperate with each other on the basis of mutual advantage.

NOW, THEREFORE, in consideration of the mutual covenants, agreements, and restrictions set forth herein, the parties to this agreement agree as follows:

ARTICLE I - IN GENERAL

1. The County and City agree that the County has acquired and will manage certain real property located within the corporate limits of the City of Palm Beach Gardens, Florida, known as the "Frenchman's Forest Natural Area", which real property is more particularly described in Exhibit A attached hereto and made a part hereof.

2. The management of the property by the County, with assistance from the City, shall serve to preserve the biological communities on the property in their natural state as examples of high

quality native Florida mesic pine flatwoods, hydric hammock, scrubby flatwoods and cypress strand swamp ecosystems in Palm Beach County. It is the intent of the parties that the Frenchman's Forest Natural Area shall be managed solely as a nature preserve, to provide certain scientific and educational benefits and to provide passive recreational opportunities for residents and citizens of the City and the County. The property shall be kept in its natural state, such that present and future generations will be able to experience the natural values currently exhibited on the property, acts of God or other events beyond the control of the City and the County notwithstanding.

3. The parties hereto agree to review their respective zoning ordinances and comprehensive plans and to take steps to designate this property appropriately in the future under their comprehensive land use plans and zoning ordinances, given its intended use as a natural area. The future land use designation assigned to the Natural Area shall be for conservation. If an amendment to the City's and/or County's comprehensive land use plan is required, the amendment shall be proposed at the next comprehensive plan amendment cycle available.

4. The Natural Area shall be managed only for the conservation, protection and enhancement of natural and historical resources and for passive, natural resource-based public outdoor passive recreation that is compatible with the conservation, protection and enhancement of the Natural Area. The parties may make and maintain physical improvements to the property, such as fencing, a parking area, foot trails, and a small nature center that may be constructed by the City on a disturbed portion of the Natural Area, if consistent with the Board of County Commissioners-approved management plan, if consistent with the Board of County Commissioners-approved management plan.

5. The Natural Area shall be open to the public. The locations of public access points and any restrictions on access will be described in the management plan.

6. The parties shall use their best efforts, through their agents and employees, to prevent the unauthorized use of the Natural Area or any use not compatible with the management of the site as a natural area or nature preserve.

7. In the acquisition, management, and maintenance of the subject property, each party shall be liable for its own actions and negligence.

8. The title to the property shall be held by the County.

9. This Interlocal Agreement shall be recorded in the Public Records of Palm Beach County, Florida, in accordance with applicable law.

10. This Agreement shall be deemed to be the sole agreement between the parties, and no prior agreements or other writings shall supersede that which is contained in this Interlocal Agreement.

11. For the purposes of this Interlocal Agreement, notices to the other party shall be deemed sufficient when addressed to the following address and deposited in the United States Mail:

a. City of Palm Beach Gardens
Office of the City Manager
10500 N. Military Trail
Palm Beach Gardens, FL 33410-4698

b. Palm Beach County
Department of Environmental Resources Management
3323 Belvedere Road, Bldg. 502
West Palm Beach, FL 33406-1548

ARTICLE II - JOINT RESPONSIBILITIES

12. The County, in cooperation with the City, shall manage the Natural Area for habitat preservation and passive recreation, keeping the property in its natural state except for the maintenance of fences, firebreaks and foot trails and other management activities appropriate for a nature preserve. Management activities will initially consist of removal of trash and invasive vegetation from the site. Long-term management of this site will require controlling invasive vegetation, monitoring listed plant and animal species, and prescribed burning. Subject to annual appropriations by the County's Board of County Commissioners and the City of Palm Beach Gardens, personnel time and expertise for on-going, site-specific management of this site will be provided by both parties. A detailed division of responsibilities for the management of this site will be provided in the management plan. The parties shall apply for any funds available from the State for management purposes, and will minimize management costs through the involvement of volunteers.

13. The parties shall prepare, separately or jointly, brochures and other educational material describing the natural resources, uses, and joint management of the property. Any material prepared by one party shall be submitted to the other party for its prior review and approval. Approval shall not be unreasonably withheld. The cost of any jointly-prepared materials shall be shared equally by the parties, and the costs of any material prepared individually shall be solely that party's responsibility. Both parties shall encourage students and residents to use the Natural Area for educational and passive recreational purposes.

14. The Natural Area will be identified as being publicly owned and operated as a passive, natural resource-based public outdoor passive recreational site in all signs, literature and advertising.

15. The parties agree that the County will erect signs or monuments identifying the Natural Area as being open to the public, as having been purchased with funds from the State and the County, and as being managed by the County, with the cooperation of the City.

ARTICLE III - RESPONSIBILITIES OF THE COUNTY

16. The County agrees to comply with all requirements of FCT for provision to the County of the State's share of fifty percent (50%) of the acquisition costs.

17. The County agrees to plan and to pay for physical improvements to the site that would encourage public use of the site as a nature preserve. All physical improvements would be subject to FCT approval and budget approval by the Board of County Commissioners. These facilities may include, but not be limited to, walking and interpretive trails, an educational display (kiosk), and parking facilities. The County, if requested by the City, and if consistent with the Board of County Commissioners-approved management plan, will provide input into the planning and design of a small nature center that may be constructed by the City on a disturbed portion of the Natural Area and paid for by the City. The City and County shall use their best efforts to plan and construct these facilities, taking into consideration primarily the sensitivity and needs of the biological community and secondarily the intended research, educational and passive recreational uses of the property.

18. The County agrees to secure the Natural Area with fencing, gates and signage to discourage unauthorized activities such as dumping of trash and off-road vehicle usage, while permitting public access to the Natural Area for scientific research, environmental education, and passive recreational activities. The County will be responsible for upkeep of the fences, gates, kiosk, parking area, and signs.

19. The County will develop a management plan and a controlled burn plan for the Natural Area, in consultation with the City. The management plan will be subject to the approval of FCT.

20. The management plan will contain a mechanism for the City and the County to determine jointly the future of the Natural Area, should any unforeseen events or activities, either natural or man-made, severely limit or eliminate the natural values presently on the property.

21. The County, in coordination with the City, will prepare and submit an annual report to FCT, as required in the Conceptual Approval Agreement.

22. Management of all natural areas acquired by the County will be coordinated on a county-wide basis to protect ecosystems and populations of listed species throughout the County.

23. The County agrees to identify a County employee as a contact person to interact with the City in planning for and managing the Natural Area.

24. The County agrees to identify a County employee as the public contact person to coordinate group usage and research on the Natural Area and to answer public inquiries about the site.

ARTICLE IV - RESPONSIBILITIES OF THE CITY

25. The City agrees to assume primary responsibility for public safety and law enforcement at the Natural Area. This includes routine patrols of the boundaries and the prevention of vandalism, vehicular trespass, dumping, and damage to property and natural resources.

26. The City agrees to provide weekly garbage pick-up and will assume responsibility for the daily opening and closing of any gates providing public access to the site. This responsibility may be delegated to a local resident or stewardship group if approved by both the County and the City.

27. The City agrees to construct and pay for a small nature center at City's sole discretion, on a disturbed portion of the Natural Area, consistent with the Board of County Commissioners approved management plan. If such a center is constructed, the City further agrees to pay for and construct the parking area and to provide all supplies, equipment, staff, and personnel necessary to operate and maintain the nature center.

28. During volunteer activities, the City agrees to assist the County in the long-term management of the site, including removal of exotic vegetation and removal of trash and debris collected. The City further agrees to assist the County, as feasible, in the conduct of periodic prescribed burns on the Natural Area.

29. The City agrees that at the time it reviews any proposed changes and uses of, or activities on, real property immediately adjacent to the Natural Area, it shall take into consideration the protection of the natural resources on the preserve and any potential adverse impacts on those resources.

30. The City agrees to identify a City employee as the contact person to interact with the County in planning for and managing the Natural Area.

31. The City will encourage students and residents to use the site for educational and passive recreational purposes.

32. The City agrees to review the proposed management plan and the proposed engineering design plan and to provide comments to the County on these documents. The City further agrees to waive any municipal fees, assessments, or permits applicable to the Natural Area due to the construction, use, or maintenance of public facilities, such as those applied to stormwater drainage, utilities, or buildings.

WHEREFORE, the parties hereto have set their hands and seals on the day set forth next to their signatures.

ATTEST:

BOARD OF COUNTY COMMISSIONERS
Dorothy H. Wilken, Clerk

BY: _____
Deputy Clerk

DATE: JAN 13 1998

(SEAL)

BOARD OF COUNTY COMMISSIONERS CLERK ★ PALM BEACH COUNTY, FLORIDA

APPROVED AS TO FORM AND
LEGAL SUFFICIENCY:

_____
BY: Assistant County Attorney

DATE: 12/19/97

PALM BEACH COUNTY, FLORIDA, BY
ITS BOARD OF COUNTY COMMISSIONERS

BY: _____
Chairman

DATE: JAN 13 1998 R98 80 D

ATTEST:

BY: _____
Clerk

DATE: 12/4/97

(SEAL)

APPROVED AS TO FORM AND
LEGAL SUFFICIENCY:

BY: _____
City Attorney

DATE: 12/4/97

CITY OF PALM BEACH GARDENS, FLORIDA,
BY ITS COUNCIL

BY: _____
Mayor

DATE: 12/4/97

EXHIBIT A

Parcel 1 - Frenchman's Forest Tract

A parcel of land lying in Section 32, Township 41 South, Range 43 East, within the municipal limits of the City of Palm Beach Gardens, Palm Beach County, Florida, being more particularly described as follows:

The Northwest Quarter (NW 1/4) of Section 32, Township 41 South, Range 43 East, Palm Beach County, Florida, LESS the North 1,320 feet thereof and less the right of way for Prosperity Farms Road. TOGETHER WITH that part of the South Half (S ½) of said Section 32 lying West of the right of way of Prosperity Farms Road and lying North of the North right of way line of the 80 foot wide canal right of way running East and West across said South Half (S ½) of Section 32 as shown on the Plat of "Plat No. 1 Palm Beach Cabana Colony", recorded in Plat Book 26, pages 203 through 205 of the public records of Palm Beach County, Florida. LESS AND EXCEPTING THEREFROM the East 640 feet of the North 625 feet of the Southwest Quarter (SW 1/4) of said Section 32.

LESS AND EXCEPTING THEREFROM a strip of land 25.00 feet in width parallel with and adjacent to the West right of way line of Prosperity Farms Road.

ALSO LESS a strip of land 120 feet in width, 60 feet on both sides of the following described centerline:

Commencing at the Southeast corner of the Southwest Quarter (SW 1/4) of said Section 32; Thence South 89° 16' 35" East, along the South line of the Southeast Quarter (SE 1/4) of said Section 32, a distance of 95.00 feet to the centerline of Prosperity Farms Road per Road lat Book 2, pages 136 and 137, (the South line of the Southeast Quarter (SE 1/4) of said Section 32 is assumed to bear South 89° 16' 35" East and all other bearings referenced herein are relative thereto); Thence North 00° 11' 27" East, along said centerline of Prosperity Farms Road, a distance of 1,655.47 feet; Thence North 89° 16' 50" West, a distance of 40.00 feet to the West right of way line of Prosperity Farms Road and the Point of Beginning of the herein described centerline; Thence continue North 89° 16' 50" West, a distance of 435.50 feet to a point of curvature of a curve tangent to the previous course, concave to the North, having a radius of 3,820.00 feet, and a central angle of 21° 11' 19". Thence proceed Westerly along the arc of said curve for a distance of 1,412.68 feet to a point of tangency; Thence North 68° 05" 31" West, a distance of 470.58 feet to a point of curvature of a curve tangent to the previous course, concave to the South, having a radius of 3,820.00 feet, and a central angle of 09° 06' 37"; Thence proceed Westerly along the arc of said curve for a distance of 607.40 feet to the Point of Terminus of the herein described centerline. (Said centerline as shown on the Alignment Description and Sketch for Hood Road prepared by the Engineering Services Section of the Palm Beach County Engineering and Public Works Department and referenced as Project 90611 and drawing number S-1-91-272 with a date of 6-13-91).

Containing in all, 149.21 acres more or less.

APPENDIX F

GRANT AWARD AGREEMENT

Ms. Ann Perry
Florida Communities Trust
2555 Shumard Oak Blvd., Room 310
Tallahassee, FL 32399-2100

Jun-10-1998 04:50pm 98-217645
ORB 10452 Pg 1599

This instrument prepared by:
Ann J. Wild
Florida Communities Trust
Department of Community Affairs
2555 Shumard Oak Blvd.
Tallahassee, FL 32399-2100

161826

R98 536 D APR 21 1998

CONTRACT #98-CT-42-57-7A-31-011

FLORIDA COMMUNITIES TRUST
P7A AWARD# 96-011-P7A

GRANT AWARD AGREEMENT

THIS AGREEMENT is entered into this 21st day of May, 1998, by and between the FLORIDA COMMUNITIES TRUST ("FCT"), a nonregulatory agency within the State of Florida Department of Community Affairs, and CITY OF PALM BEACH GARDENS and PALM BEACH COUNTY ("FCT Recipient"), in order to impose terms, conditions, and restrictions on the use of the proceeds of certain bonds, hereinafter described, and the lands acquired with such proceeds and as described in Exhibit "A" attached hereto and made a part hereof ("Project Site"), as shall be necessary to ensure compliance with applicable Florida Law and federal income tax law and to otherwise implement provisions of Chapters 253, 259, and 380, Florida Statutes.

WHEREAS, Part III Chapter 380, Florida Statutes, the Florida Communities Trust Act, creates a nonregulatory agency within the Department of Community Affairs, which will assist local governments in bringing into compliance and implementing the conservation, recreation and open space, and coastal elements of their comprehensive plans and in otherwise conserving natural resources and resolving land use conflicts by providing financial assistance to local governments to carry out projects and activities authorized by the Florida Communities Trust Act;

WHEREAS, Section 259.101(3)(c), Florida Statutes, provides for the distribution of ten percent (10%) of the net Preservation 2000 Revenue Bond proceeds to the Department of Community Affairs to provide land acquisition grants and loans to local governments through the FCT;

WHEREAS, the Governor and Cabinet authorized the sale and issuance of State of Florida Department of Natural Resources Preservation 2000 Revenue Bonds ("Bonds");

WHEREAS, the Bonds were issued as tax-exempt bonds, meaning that the interest on the Bonds is excluded from the gross income of Bondholders for federal income tax purposes;

WHEREAS, Rule 9K-4.010(2)(e), F.A.C., authorizes FCT to impose conditions for funding on those FCT applicants whose projects have been selected for funding in accordance with Rule Chapter 9K-4, F.A.C.;

WHEREAS, the FCT has approved the terms under which the Project Site was acquired and the FCT Recipient has acquired title to the Project Site and the Project Site shall be subject to such covenants and restrictions as are sufficient to ensure that the use of the Project Site at all times complies with Section 375.051, Florida Statutes and Section 9, Article XII of the State Constitution and such covenants and restrictions shall contain clauses providing for the conveyance of title to the Project Site to the Board of Trustees of the Internal Improvement Trust Fund upon the failure of the FCT Recipient to use the Project Site acquired thereby for such purposes; and

WHEREAS, such covenants and restrictions shall be imposed by an agreement which shall describe with particularity the real property which is subject to the agreement and shall be recorded in the county in which the real property is located; and

WHEREAS, the purpose of this Agreement is to set forth the covenants and restrictions that are imposed on the Project Site subsequent to its acquisition with FCT Preservation 2000 Bond Proceeds.

NOW THEREFORE, in consideration of the mutual covenants and undertakings set forth herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, FCT and FCT Recipient do hereby contract and agree as follows:

I. GENERAL CONDITIONS.

1. Upon execution and delivery by the parties hereto, the FCT Recipient shall cause this Agreement to be recorded and filed in the official public records of Palm Beach County, Florida, and in such manner and in such other places as FCT may reasonably request, and shall pay all fees and charges incurred in connection therewith.

2. The FCT Recipient and FCT agree that the State of Florida Department of Environmental Protection will forward this Agreement to Department of Environmental Protection Bond Counsel for review. In the event Bond Counsel opines that an amendment is required to this Agreement so that the tax exempt status of the Preservation 2000 Revenue Bonds is not jeopardized, FCT and FCT Recipient shall amend the Agreement accordingly.

3. This Agreement may be amended at any time. Any amendment must be set forth in a written instrument and agreed to by both the FCT Recipient and FCT.

4. This Agreement and the covenants and restrictions contained herein shall run with the Property herein described and shall bind, and the benefits shall inure to, respectively, the FCT and the FCT Recipient and their respective successors and assigns.

5. This Agreement shall be governed by and construed in accordance with the laws of the State of Florida, with respect to both substantive rights and with respect to procedures and remedies.

6. Any notice required to be given hereunder shall be given by personal delivery, by registered mail or by registered expedited service at the addresses specified below or at such other addresses as may be specified in writing by the parties hereto, and any such notice shall be deemed received on the date of delivery if by personal delivery or expedited delivery service, or upon actual receipt if sent by registered mail.

FCT:
Florida Communities Trust
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
ATTN: Executive Director

FCT Recipient:
Palm Beach County Dept. of Envir.
Resources Management
3323 Belvedere Road, Building 502
ATTN: Richard E. Walesky, Director

FCT Recipient:
City of Palm Beach Gardens
10500 N. Military Trail
Palm Beach Gardens, FL 33410
ATTN: Ms. Bobbie Herakovich, City Manager

7. If any provision of the Agreement shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired.

II. PROJECT SITE REQUIREMENTS IMPOSED BY CHAPTER 259, CHAPTER 375, AND CHAPTER 380, PART III, FLORIDA STATUTES.

1. If any essential term or condition of this grant agreement is violated by the FCT Recipient or by some third party with the knowledge of the FCT Recipient and the FCT Recipient does not correct the violation within 30 days of notice of the

violation, fee simple title to all interest in the Project Site shall be conveyed to the Board of Trustees of the Internal Improvement Trust Fund. The FCT shall treat such property in accordance with Section 308.508(4)(e), Florida Statutes.

2. Any transfer of the Project Site shall be subject to the approval of FCT and FCT shall enter into a new agreement with the transferee, containing such covenants, clauses, or other restrictions as are sufficient to protect the interest of the people of Florida.

3. The interest, if any, acquired by the FCT Recipient in the Project Site will not serve as security for any debt of the FCT Recipient unless FCT approves the transaction.

4. If the existence of the FCT Recipient terminates for any reason, title to all interest in the Project Site it has acquired with the FCT award shall be conveyed to the Board of Trustees of the Internal Improvement Trust Fund, unless FCT negotiates an agreement with another local government or nonprofit organization which agrees to accept title to all interest in and to manage the Project Site.

5. In the event that the Project Site is damaged or destroyed or title to the Project Site, or any part thereof, is taken by any governmental body through the exercise or the threat of the exercise of the power of eminent domain, the FCT Recipient shall deposit with the FCT any insurance proceeds or any condemnation award, and shall promptly commence to rebuild, replace, repair or restore the Project Site in such manner as is consistent with the Agreement. The FCT shall make any such insurance proceeds or condemnation award moneys available to provide funds for such restoration work. In the event that the FCT Recipient fails to commence or to complete the rebuilding, repair, replacement or restoration of the Project Site after notice from the FCT, the FCT shall have the right, in addition to any other remedies at law or in equity, to repair, restore, rebuild or replace the Project Site so as to prevent the occurrence of a default hereunder.

Notwithstanding any of the foregoing, FCT will have the right to seek specific performance of any of the covenants and restrictions of this Agreement concerning the construction and operation of the Project Site.

III. PROJECT SITE OBLIGATIONS IMPOSED BY FCT ON THE FCT RECIPIENT.

1. The Project Site shall be managed only for the conservation, protection and enhancement of natural and historical resources and for resource-based public outdoor recreation which is compatible with the conservation, protection and enhancement of

the Project Site, along with other related uses necessary for the accomplishment of this purpose. The proposed uses for the Project Site are specifically designated in the Project Plan as approved by FCT.

2. The FCT Recipient shall prepare and submit to FCT an annual report as required by Rule 9K-4.013, F.A.C.

3. The FCT Recipient shall ensure that the future land use designation assigned to the Project Site is for a category dedicated to open space, conservation, or outdoor recreation uses as appropriate. If an amendment to the FCT Recipient's comprehensive plan is required to comply with this paragraph, the amendment shall be proposed at the next comprehensive plan amendment cycle available to the FCT Recipient.

4. FCT Recipient shall ensure, and provide evidence thereof to FCT, that all activities under this Agreement comply with all applicable local, state, regional and federal laws and regulations, including zoning ordinances and the adopted and approved comprehensive plan for the jurisdiction as applicable. Evidence shall be provided to FCT that all required licenses and permits have been obtained prior to the commencement of any construction.

5. The FCT Recipient shall, through its agents and employees, prevent the unauthorized use of the Project Site or any use thereof not in conformity with the FCT approved project plan.

6. FCT staff or its duly authorized representatives shall have the right at any time to inspect the Project Site and the operations of the FCT Recipient at the Project Site.

7. All buildings, structures, improvements, and signs shall require the prior written approval of FCT as to purpose. Further, tree removal, other than non-native species, and/or major land alterations shall require the written approval of FCT. The approvals required from FCT shall not be unreasonably with- held by FCT upon sufficient demonstration that the proposed structures, buildings, improvements, signs, vegetation removal or land alterations will not adversely impact the natural resources of the Project Site. The approval by FCT of the FCT Recipient's management plan addressing the items mentioned herein shall be considered written approval from FCT.

8. If archaeological and historic sites are located on the Project Site, the FCT Recipient shall comply with Chapter 267, Florida Statutes. The collection of artifacts from the Project Site or the disturbance of archaeological and historic sites on the Project Site will be prohibited unless prior written authorization has been obtained from the Department of State, Division of Historical Resources.

9. The FCT Recipient shall ensure that the Project Site is identified as being publicly owned and operated as a passive, natural resource-based public outdoor recreational site in all signs, literature and advertising regarding the Project Site. The FCT Recipient shall erect a sign(s) identifying the Project Site as being open to the public and as having been purchased with funds from FCT and FCT Recipient.

IV. OBLIGATIONS INCURRED BY FCT RECIPIENT AS A RESULT OF BOND PROCEEDS BEING UTILIZED TO PURCHASE THE PROJECT SITE.

1. If the Project Site is to remain subject, after its acquisition by the State and the FCT Recipient, to any of the below listed activities or interests, the FCT Recipient shall provide at least 60 days written notice of any such activity or interest to FCT prior to the activity taking place, and shall provide to FCT such information with respect thereto as FCT reasonably requests in order to evaluate the legal and tax consequences of such activity or interest:

a. any lease of any interest in the Project Site to a non-governmental person or organization;

b. the operation of any concession on the Project Site to a non-governmental person or organization;

c. any sales contract or option to buy things attached to the Project Site to be severed from the Project Site, with a non-governmental person or organization;

d. any use of the Project Site by non-governmental persons other than in such person's capacity as a member of the general public;

e. a management contract of the Project Site with a non-governmental person or organization; and

f. such other activity or interest as may be specified from time to time in writing by FCT to the FCT Recipient.

2. FCT Recipient agrees and acknowledges that the following transaction, events, and circumstances may not be permitted on the Project Site as they may have negative legal and tax consequences under Florida law and federal income tax law:

a. a sale of the Project Site or a lease of the Project Site to a non-governmental person or organization;

b. the operation of a concession on the Project Site by a non-governmental person or organization;

c. a sale of things attached to the Project Site to be severed from the Project Site to a non-governmental person or organization;

d. any change in the character or use of the Project Site from that use expected at the date of the issuance of any series of bonds from which the disbursement is to be made;

e. any use of the Project Site by non-governmental persons other than in such person's capacity as a member of the general public;

f. a management contract of the Project Site with a non-governmental person or organization; and

g. such other activity or interest as may be specified from time to time in writing by FCT to the FCT Recipient.

DELEGATIONS AND CONTRACTUAL ARRANGEMENTS BETWEEN THE FCT RECIPIENT AND OTHER GOVERNMENTAL BODIES, NOT FOR PROFIT ENTITIES, OR NON GOVERNMENTAL PERSONS FOR USE OR MANAGEMENT OF THE PROJECT SITE WILL IN NO WAY RELIEVE THE FCT RECIPIENT OF THE RESPONSIBILITY TO ENSURE THAT THE CONDITIONS IMPOSED HEREIN ON THE PROJECT SITE AS A RESULT OF UTILIZING BOND PROCEEDS TO ACQUIRE THE PROJECT SITE ARE FULLY COMPLIED WITH BY THE CONTRACTING PARTY.

V. CONDITIONS PARTICULAR TO THE PROJECT SITE THAT MUST BE ADDRESSED IN THE MANAGEMENT PLAN

1. The FCT Recipient shall provide outdoor recreational facilities including nature trails, interpretive signage and parking on the Project Site. The facilities shall be developed in a manner that allows the general public reasonable access for observation and appreciation of the significant natural resources on the Project Site without causing harm to those resources.

2. The timing and extent of a vegetative survey of vegetative communities and plant species on the Project Site shall be specified in the management plan. The FCT Recipient shall detail how the survey shall be used during development of the site to insure the protection, restoration, and preservation of the natural resources on the Project Site.

3. The mesic and scrubby flatwoods, oak hammock, depressional marsh and tidal swamp communities that exist on the Project Site shall be appropriately managed to ensure the long-term viability of these vegetative communities.

4. The Project Site shall be managed in a manner that optimizes habitat conditions for listed wildlife species that utilize or could potentially utilize the Project Site, including

the gopher tortoise. The FCT Recipient shall coordinate with the Game and Fresh Water Fish Commission on the management of the Project Site for the protection of listed species and listed species habitat. The FCT Recipient shall also conduct periodic surveys of listed species using the Project Site and develop informational signs relating to the protection of listed animal species and their habitat.

5. The FCT Recipient shall restore approximately 27.5 acres of the Project Site by removing exotic vegetation, restoring the natural hydrology of the tidal swamp lagoon and creating a vegetated littoral shelf along the lagoon shoreline to improve the quality of stormwater runoff from the site.

6. A vegetation analysis of the Project Site shall be performed to determine which areas of the Project Site need a prescribed burning regime implemented to maintain natural fire-dependent vegetative communities. The FCT Recipient shall coordinate with Division of Forestry and Game and Fresh Water Fish Commission on the development of a prescribed burn plan for the Project Site.

7. Prior to the commencement of any proposed development activities, measures will be taken to determine the presence of any archaeological sites. All planned activities involving known archaeological sites or potential site areas shall be closely coordinated with the Department of State, Division of Historic Resources, in order to prevent the disturbance of significant sites.

8. The FCT Recipient shall ensure that the Project Site and listed animal species and their habitat are sufficiently buffered from the adverse impacts of adjacent land uses.

9. The FCT Recipient shall provide environmental educational programs at the Project Site. The programs shall be conducted on a regularly scheduled basis.

10. The FCT Recipient shall incorporate the Project Site into an overall management and resource protection strategy to implement the City's Pedestrian/Nature Trailway to link environmentally-sensitive conservation and recreation areas within the city.

11. Access to the Project Site by pedestrians and bicyclists shall be promoted as an alternative to automobile access.

12. The FCT Recipient shall remove all trash and debris from the Project Site.

13. The requirements imposed by other grant program funds that may be sought by the FCT Recipient for activities associated

with the Project Site shall not conflict with the terms and conditions of the FCT award.

THIS GRANT AWARD AGREEMENT embodies the entire Agreement between the parties.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement.

Witness: Cindy Harvey
Witness Name:
Burt Colt
Witness Name:

CITY OF PALM BEACH GARDENS,
a municipality within
the State of Florida

By: Bobbie Herekovich
Its: City Manager
Date: 3/16/98

Accepted as to Legal Form and Sufficiency
Carole Post
Date: 3/24/98

STATE OF FLORIDA
COUNTY OF Palm Beach

The foregoing instrument was acknowledged before me this 16th day of March, 1998, by Bobbie Herekovich, as City Manager. He is personally known to me, or has produced _____ as identification.

Cynthia M. Harvey
Notary Public
Print Name: Cynthia M. Harvey
Commission No. CC400994G
My Commission Expires: 9/26/98

CYNTHIA M. HARVEY
Notary Public-State of Florida
My Commission Expires
September 26, 1998
CC4009946

PALM BEACH COUNTY

Barbara J. Volkmann
Witness Name:

By: Maude Ford Lee
Its: VICE-CHAIR

R98 536 D

Stephanie Carrillo
Witness Name:

Date: APR 21 1998

Attest: Dorothy H. Wilken, Clerk
BOARD OF COUNTY COMMISSIONERS

By: _____

Title: Deputy Clerk

Date: APR 21 1998

(SEAL)

Accepted as to Legal Form and Sufficiency:

_____

Date: 4/6/98

STATE OF FLORIDA
COUNTY OF PALM BEACH

The foregoing instrument was acknowledged before me this 21st day of April, 1998. By Maude Ford Lee, as Vice Chair of Palm Beach County. He is personally known to me.

_____
Notary Public
Print Name: _____
Commission No. _____
My Commission Expires: _____

Willa Oswalt
Commission # CC 729238
Expires May 6, 2002
BONDED THRU
ATLANTIC BONDING CO., INC.

96-011-P7A
02/13/98

FLORIDA COMMUNITIES TRUST

Witness Name: Linda Mayon

James F. Murley, Chair

Witness Name: Janice D. Dughi

Date: 5/21/98

Accepted as to Legal Form and Sufficiency:

Ann J. Wild, Trust Counsel

Date: 5-18-98

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 21st day of May, 1998, by JAMES F. MURLEY, as Chair of the Florida Communities Trust. He is personally known to me.

Janice D. Dughi
MY COMMISSION # CC593851 EXPIRES
December 10, 2000
BONDED THRU TROY FAIN INSURANCE, INC.

Janice D. Dughi
Notary Public
Print Name:
Commission No.
My Commission Expires:

Parcel 1 - Frenchman's Forest Tract

A parcel of land lying in Section 32, Township 41 South, Range 43 East, within the municipal limits of the City of Palm Beach Gardens, Palm Beach County, Florida, being more particularly described as follows:

The Northwest Quarter (NW 1/4) of Section 32, Township 41 South, Range 43 East, Palm Beach County, Florida, LESS the North 1,320 feet thereof and less the right of way for Prosperity Farms Road. TOGETHER WITH that part of the South Half (S 1/2) of said Section 32 lying West of the right of way of Prosperity Farms Road and lying North of the North right of way line of the 80 foot wide canal right of way running East and West across said South Half (S 1/2) of Section 32 as shown on the Plat of "Plat No. 1 Palm Beach Cabana Colony", recorded in Plat Book 26, pages 203 through 205 of the public records of Palm Beach County, Florida. LESS AND EXCEPTING THEREFROM the East 640 feet of the North 625 feet of the Southwest Quarter (SW 1/4) of said Section 32.

LESS AND EXCEPTING THEREFROM a strip of land 25.00 feet in width parallel with and adjacent to the West right of way line of Prosperity Farms Road.

ALSO LESS a strip of land 120 feet in width, 60 feet on both sides of the following described centerline:

Commencing at the Southeast corner of the Southwest Quarter (SW 1/4) of said Section 32; Thence South 89° 16' 35" East, along the South line of the Southeast Quarter (SE 1/4) of said Section 32, a distance of 95.00 feet to the centerline of Prosperity Farms Road per Road Plat Book 2, pages 136 and 137 (the South line of the Southeast Quarter (SE 1/4) of said Section 32 is assumed to bear South 89° 16' 35" East and all other bearings referenced herein are relative thereto); Thence North 00° 11' 27" East, along said centerline of Prosperity Farms Road, a distance of 1,655.47 feet; Thence North 89° 16' 50" West, a distance of 40.00 feet to the West right of way line of Prosperity Farms Road and the Point of Beginning of the herein described centerline; Thence continue North 89° 16' 50" West, a distance of 435.50 feet to a point of curvature of a curve tangent to the previous course, concave to the North, having a radius of 3,820.00 feet, and a central angle of 21° 11' 19". Thence proceed Westerly along the arc of said curve for a distance of 1,412.68 feet to a point of tangency; Thence North 68° 05' 31" West, a distance of 470.58 feet to a point of curvature of a curve tangent to the previous course, concave to the South, having a radius of 3,820.00 feet, and a central angle of 09° 06' 37"; Thence proceed Westerly along the arc of said curve for a distance of 607.40 feet to the Point of Terminus of the herein described centerline. (Said centerline as shown on the Alignment Description and Sketch for Hood Road prepared by the Engineering Services Section of the Palm Beach County Engineering and Public Works Department and referenced as Project 90611 and drawing number S-1-91-272 with a date of 6-13-91.)

CONTRACT # 97-CT-47-97-7A-A1-011 FLORIDA COMMUNITIES TRUST
P7A AWARD #96-011-P7A

ADDENDUM I TO CONCEPTUAL APPROVAL AGREEMENT

THIS ADDENDUM I to the Conceptual Approval Agreement is entered into by and between the FLORIDA COMMUNITIES TRUST ("FCT"), a nonregulatory agency within the State of Florida Department of Community Affairs, PALM BEACH COUNTY and the CITY OF PALM BEACH GARDENS ("FCT Recipient"), this 23rd day of February, 1998.

WHEREAS, the parties hereto entered into a Conceptual Approval Agreement which sets forth the conditions of conceptual approval that must be satisfied by FCT Recipient prior to the receipt of the FCT Preservation 2000 award and the restrictions that are imposed on the Project Site subsequent to its acquisition with the FCT Preservation 2000 award;

WHEREAS, the initial term of the Conceptual Approval Agreement expires October 31, 1997;

WHEREAS, the FCT Recipient in accordance with GENERAL CONDITIONS paragraph 3 of the Conceptual Approval Agreement and in compliance with Rule 9K-4.010(2)(k), F.A.C., has timely submitted to FCT a written request for extension of the October 31, 1997, deadline;

WHEREAS, GENERAL CONDITIONS paragraph 14 of the Conceptual Approval Agreement states that the agreement may be amended at any time prior to FCT giving final project plan approval to the FCT Recipient. Any agreement must be set forth in a written instrument and agreed to by both the FCT Recipient and FCT;

WHEREAS, the parties hereto desire to extend the term of the Conceptual Approval Agreement as provided by Rule 9K-4.010(2)(k), F.A.C.;

NOW THEREFORE, the FCT and FCT RECIPIENT mutually agree as follows:

1. Notwithstanding the language of Section I. GENERAL CONDITIONS, paragraph 3. and paragraph 4., the parties hereby agree to revive it nunc pro tunc as though it had not lapsed in accordance with paragraph 3.

2. In every respect, this amendment is to be construed and applied as though the parties had both signed it before October 31, 1997.

3. The Conceptual Approval Agreement by and between FCT and FCT Recipient is hereby extended until April 30, 1998.

4. The date of execution of this addendum shall be the date that the last party signs this addendum.

THIS ADDENDUM I TO CONCEPTUAL APPROVAL AGREEMENT, the CONCEPTUAL APPROVAL AGREEMENT and its Exhibits "A", "B" and "C" embody the entire Agreement between the parties.

IN WITNESS WHEREOF, the parties hereto have duly executed this ADDENDUM I TO CONCEPTUAL APPROVAL AGREEMENT.

PALM BEACH COUNTY, FLORIDA
Department of Environmental Resources Management

By: _____
Director

Date: 12/18/97

Accepted as to Form and Legal Sufficiency:

By: _____
County Attorney

Date: 12/18/97

FLORIDA COMMUNITIES TRUST

By: _____
James F. Murley, Chair

Date: 2/25/98

CITY OF PALM BEACH GARDENS

By: _____

Title: City Manager

Date: 12/18/97

Accepted as to Form and Legal Sufficiency:

_____
Ann J. Wild, Trust Counsel

Date: 2/19/98

Accepted as to Form and Legal Sufficiency:

_____
City Attorney

Date: 12/18/97

ADDI\96-011-P7A
9-24-97

CONTRACT # 97-CT-4Z-97-7A-A1-011

FLORIDA COMMUNITIES TRUST
P7A AWARD # 96-011-P7A

ADDENDUM II TO CONCEPTUAL APPROVAL AGREEMENT

THIS ADDENDUM II to the Conceptual Approval Agreement is entered into by and between the FLORIDA COMMUNITIES TRUST ("FCT"), a nonregulatory agency within the State of Florida Department of Community Affairs, PALM BEACH COUNTY, and the CITY OF PALM BEACH GARDENS ("FCT Recipient"), this 6th day of April, 1998.

WHEREAS, the parties hereto entered into a Conceptual Approval Agreement which sets forth the conditions of conceptual approval that must be satisfied by FCT Recipient prior to the receipt of the FCT Preservation 2000 award and the restrictions that are imposed on the Project Site subsequent to its acquisition with the FCT Preservation 2000 award;

WHEREAS, the initial term of the Conceptual Approval Agreement expired October 31, 1997;

WHEREAS, the Conceptual Approval Agreement was amended by ADDENDUM I to expire April 30, 1998;

WHEREAS, the FCT Recipient in accordance with GENERAL CONDITIONS paragraph 3 of the Conceptual Approval Agreement and in compliance with Rule 9K-4.010(2)(k), F.A.C., has timely submitted to FCT a written request for extension of the April 30, 1998, deadline;

WHEREAS, GENERAL CONDITIONS paragraph 14 of the Conceptual Approval Agreement states that the agreement may be amended at any time prior to FCT giving final project plan approval to the FCT Recipient. Any agreement must be set forth in a written instrument and agreed to by both the FCT Recipient and FCT;

WHEREAS, the parties hereto desire to extend the term of the Conceptual Approval Agreement as provided by Rule 9K-4.010(2)(k), F.A.C.;

NOW THEREFORE, the FCT and FCT RECIPIENT mutually agree as follows:

1. Notwithstanding the language of Section I. GENERAL CONDITIONS, paragraph 3., the parties hereby agree to revive it nunc pro tunc as though it had not lapsed in accordance with paragraph 3.

2. In every respect, this amendment is to be construed and applied as though the parties had both signed it before April 30, 1998.

3. The Conceptual Approval Agreement by and between FCT and FCT Recipient is hereby extended a time sufficient to complete the reimbursement.

4. The date of execution of this addendum shall be the date that the last party signs this

addendum.

THIS ADDENDUM II TO CONCEPTUAL APPROVAL AGREEMENT, ADDENDUM I, the CONCEPTUAL APPROVAL AGREEMENT and its Exhibits "A", "B" and "C" embody the entire Agreement between the parties.

IN WITNESS WHEREOF, the parties hereto have duly executed this ADDENDUM II TO CONCEPTUAL APPROVAL AGREEMENT.

PALM BEACH COUNTY, FLORIDA
Department of Environmental Resources Management

By: _____
Director

Date: 3/24/98

Accepted as to Form and Legal Sufficiency:

By: _____
County Attorney

Date: 3/23/98

FLORIDA COMMUNITIES TRUST

By: _____
James F. Murley, Chair

Date: 4/6/98

CITY OF PALM BEACH GARDENS

By: _____

Title: City Manager

Date: 3/18/98

Accepted as to Form and Legal Sufficiency:

_____
Ann J. Wild, Trust Counsel

Date: 4-6-98

Accepted as to Form and Legal Sufficiency:

_____
City Attorney

Date: 3/6/98

ADDII\96-011-P7A
2-13-98

APPENDIX G

FIRE MANAGEMENT PLAN

APPENDIX G

FIRE MANAGEMENT PLAN FOR FRENCHMAN'S FOREST NATURAL AREA

This plan contains generalized procedures that will apply to all burns conducted on the Frenchman's Forest Natural Area Specific information for each burn management unit will be gathered and reviewed prior to preparing the prescribed burn plan for each unit. A prescribed burn plan will not be finalized until a few days before a unit is planned to be burned in order to incorporate the current conditions on that unit. Therefore, specific prescribed burn plans will not be included in this fire management plan. Prescribed burn units are delineated by management units; the locations of individual management units can be seen on Figure 5 of the natural area's management plan. Additional information on fire management can be found in Section 4.4.1 of the management plan.

G.1 GOALS

The goals of the burn program at the Frenchman's Forest Natural Area are to reintroduce fire to the wet prairie, wet flatwoods, depression marsh, and mesic flatwoods habitats at a frequency and intensity that will maintain these habitats in their various seral stages within the natural area. The fires are to be allowed to burn in a natural "patchy" fashion to most closely mimic natural fire patterns. The resulting patchwork of burned and unburned stands within a management unit will produce a mosaic of vegetation at various stages of maturity, thereby maximizing diversity within and among communities. This will provide habitat for individual species which typically use, or may even be restricted to, communities in a particular state of maturity. Additional goals to be achieved by the reintroduction of fire include: 1) providing viable wildlife habitat and ensuring the long-term existence of listed plants and animals that utilize the Frenchman's Forest Natural Area; 2) assisting in the control of invasive non-native vegetation; and 3) reducing fuel loads that could lead to catastrophic wildfires. Individual goals for the success of each burn are established as part of the burn prescription and will generally include a desired percentage of consumption of ground cover and understory, and a percentage of acceptable crown scorch and consumption.

G.2 GENERAL PROCEDURES

The Incident Command System will be used on prescribed burns. This system enables communications to be guided through a chain-of-command process and permits the prescribed burn to be conducted in an organized manner. This system is used by Palm Beach County Fire-Rescue and the Florida Department of Agriculture and Consumer Services' Florida Forest Service (FFS), which enables these agencies to be easily brought into the prescribed burn operation when their assistance is requested.

G.2.1 Personnel

The Palm Beach County Department of Environmental Resources Management (ERM) will provide the personnel necessary to conduct prescribed burns. Additional personnel assistance may be sought from the Palm Beach County Fire-Rescue, Palm Beach County Parks and Recreation Department, and FFS. Each burn team will be headed by an Incident Commander (IC), who will conduct the prescribed burn. The IC must have received certification to conduct prescribed burns from FFS. The Fire Management Coordinator (FMC) will prepare the prescribed burn plan, conduct pre-burn coordination with other agencies and homeowners' groups, make crew assignments and coordinate communications. The IC will obtain a burn permit, oversee the burn, and make final decisions and adjustments during the burn.

The other positions on the burn crew may include division supervisor, ignition crew, safety officer, weather officer, information officer, holding crew, and spotters. The division supervisor is in charge of directing crews under his or her command in accordance with instructions from the IC, reporting all changes in burn or crew status to the IC, and has overall responsibility for the geographical area or role the division controls. The safety officer briefs the burn team on safety hazards and precautions, monitors the safety conditions throughout the burn, and reports any potentially hazardous conditions and injuries to the IC. The weather officer monitors weather conditions, records periodic weather observations, and makes periodic weather status reports to the IC. The holding crew drives and operates mechanized equipment such as a truck- or tractor-mounted water tank and pump. Spotters monitor the prescribed burn to see that it remains within management unit boundaries, and otherwise assist the division supervisor. The information officer coordinates with media representatives.

G.2.2 Equipment

ERM will provide the equipment resources necessary to conduct prescribed burns. Additional equipment resources may be sought from Palm Beach County Fire-Rescue and FFS. All burn crew members shall wear Nomex fire-resistant outer clothing, leather lace-up boots with non-slip soles, leather gloves, a plastic firefighter's helmet, eye protection, an emergency fire shelter, and personal drinking water. Round-point shovels, fire rakes, and fire flaps will be available for crew members' use. Other hand tools available to the burn crew will be drip torches for igniting the fire and a belt weather kit for weather monitoring. All crew members have been issued radios for communication during burns. Crew members assigned to work together may use one radio due to feedback issues when multiple radios are used in close proximity. A first-aid kit and other safety equipment shall be kept in each crew vehicle.

Mobile equipment such as 4-wheel-drive pickup trucks (equipped with water tanks, pumps, and hoses) and all-terrain vehicles will be used, as well as other fire-suppression equipment such as tractor-mounted plow units, pumper trucks, and engines that may be supplied by FFS and Palm Beach County Fire-Rescue. FFS personnel with tractor-mounted plows and pumper trucks are stationed at the Loxahatchee Work Center on "D" Road in Loxahatchee Groves. They will be

notified of any prescribed burn so that they can respond if more aggressive fire suppression measures are necessary.

G.2.3 Pre-burn Checklist

- Prepare specific burn prescription plan for each management unit
- Establish perimeter firebreaks
- Inspect management unit to identify potentially hazardous areas or species protection needs
- Assemble and inspect necessary equipment
- Make burn crew assignments
- Prepare maps and materials for pre-burn briefing
- Notify local agencies and officials and arrange for backup assistance
- Notify adjacent landowners and residents
- Monitor weather forecasts as the proposed burn day approaches
- Contact local law-enforcement authorities for assistance in directing traffic, if necessary

G.2.4 Burn Day Checklist

- Obtain burn authorization from FFS
- Mobilize burn crew and equipment
- Notify adjacent landowners and others who have requested prior notification of the burn
- Post burn notices on site and on adjacent highways and other roads, as needed
- Obtain spot weather forecast for management unit and other information necessary to determine that burn parameters will comply with prescription
- Coordinate on-site advance notice of burn with Palm Beach County Sheriff's Office; request deputies to use their vehicle-mounted megaphones to notify visitors of the need to leave the site because of the pending burn
- Conduct pre-burn safety and ignition plan briefing for burn team
- Monitor weather forecasts and record on-site weather data
- Conduct test burn
- Conduct main burn if prescription conditions are met
- Mop-up and extinguish hot spots

G.2.5 Post-burn Checklist

- Monitor burn for rekindling of fire
- Remove burn notice signs
- Conduct post-burn review and burn crew input session
- Evaluate burn for success in meeting environmental objectives
- Evaluate burn plan and burn crew for areas of improvement
- Continue to evaluate burn at regular intervals
- Respond to follow-up contacts/requests for news media information

G.2.6 Forms

Standardized burn prescription forms are used as the basis of the burn prescription. Examples of the various forms used are attached as Exhibit 1. Other forms that may be used may vary slightly in design, but in general deal with incident objectives, organizational structure of the burn team, and a medical plan for the burn. Examples are supplied as Exhibits 2, 3, and 4, respectively.

G.3 FIRE MANAGEMENT PRESCRIPTION PREPARATION

Prior to conducting a prescribed burn within the Frenchman's Forest Natural Area management units a prescription for the burn will be developed. This prescription is a carefully prepared document that provides the strategy for introducing fire to the natural area in the safest manner possible. Preparation of the fire prescription for each burn involves the consideration of several factors, which may include, but are not limited to:

- Size and location of the management unit
- Boundaries of the management unit
- Topography and soils of the management unit
- Habitat type, density, and crown height
- Fuel load
- Presence of listed plant and animal species
- Smoke-sensitive areas (e.g., hospitals, schools, nursing homes, highways and roads, and other areas as determined by following the guidance for smoke management published in A Guide for Prescribed Fire in Southern Forests, pages 29-32, a publication of the National Wildfire Coordinating Group, February 1989)
- Dispersion Index
- Drought Index
- Temperature
- Wind speed
- Relative humidity
- Fine fuel moisture
- Staffing and equipment availability
- Time to complete the burn
- Specific objectives of the burn

PALM BEACH COUNTY
DEPARTMENT OF ENVIRONMENTAL RESOURCES MANAGEMENT
Cypress Creek Burn Unit 4 Prescription

BURN UNIT# 4	**QUAD NAME**: Rood	**SECTION** 31,32	**TOWNSHIP** 40 S	**RANGE** 42 E	**BURN UNIT SIZE (ac)**: 65
DATE PREPARED:1/19/12	**NWS LATITUDE**: 26.9530 N	**NWS LONGITUDE**: -80.1735 W	**AUTHORIZATION #**		
	FFS LATITUDE: 26°57'11" N	**FFS LONGITUDE**: 80°10"25" W			
PRESCRIPTION BY: Kraig Krum, CPBM # 03-3359 and DOF Customer # 1308294		**ADDRESS & PHONE**: 2300 N. Jog Rd; WPB, FL 561-233-2400			
CERTIFIED BURNER: Barry Jennings, CPBM # 90-1234 and DOF Customer # 1305782					

A. PREVIOUS BURNS	**Date**: unknown	**Fire Type**: wildfire	**Results**: n/a
B. STAND DESCRIPTION – Scrubby, mesic and wet flatwoods with wetlands interspersed; blackwater creek in se corner			
1. Overstory Type: slash pine	**Fuel Model**: 7	**Density**: 75 /per acre	**Height to Crown**: 20-40'
2. Understory Type: grass/palmetto	**Understory Height**: to 6'	**Overstory Percent Cover:** 40%	
3. Dead Fuel Type: fronds/needle/grass	**Stand Age**: 30+	**Estimated Tons per Acre:** 6-8	
4. Soil Type and Topography: sandy, flat			
C. PURPOSE(S) OF BURN: ecological management, restoration of fire interval, reduction of wildfire risks			
D. SPECIFIC OBJECTIVES: burn **>** 90% of the understory; keep crown scorch <90%; keep crown consumption to <15%			

E. PRE-BURN FACTORS	
1. Passed Smoke Screening Test? Yes	
2. Special Precautions: Close visitor entrances, put up signs on roads affected by smoke, notify PBSO-WTF	
3. Notification List: List to be kept at the ERM Natural Resources Stewardship (NRS) office and contacts made by NRS staff	
4. Applicable Regulations: Authorization required by Division of Forestry (DOF)	
5. Smoke-Sensitive Areas & Critical Targets (see map): I-95, Florida Turnpike, Jupiter Farms Elementary	
6. # of Crew Needed: 12-16	**7. Equipment Needed:** hand tools, 3 brush trucks, 2 atv's, buggy, tractor-plow on standby

F. WEATHER FACTORS	**Desired Range**	**Predicted**	**Actual**
1. 20' Wind Speed (mph)	2 – 15	7 - 9	
2. Wind Direction	ENE, E, ESE	East	
3. Minimum Mixing Height (feet)	> 1700	2700-3000	
4. Dispersion Index	35 - 70	35 - 38	
5. Minimum Relative Humidity (%)	45 - 80	48	
6. Maximum Temperature (F)	70 - 95	75	
7. Fine Fuel Moisture (%)	9 - 17	10-12	
8. Days Since ½" Rain	2 - 7	7	
9. County Average Drought Index	50 – 600	532 (ERC- 26)	

G. FIRE BEHAVIOR	**Desired Range**	**Actual Range**
1. Firing Methods	backing, strip-head, spot, flanking	
2. Months to Burn	January – May	
3. Time to Begin Ignition	10 am – noon	
4. # of Hours to Complete	4 – 6	
5. Average Flame Lengths (feet)	2 – 8	
6. Rate of Spread (feet/hour)	75 - 1500	
7. Fire Line Intensity (btu)	30 - 100	

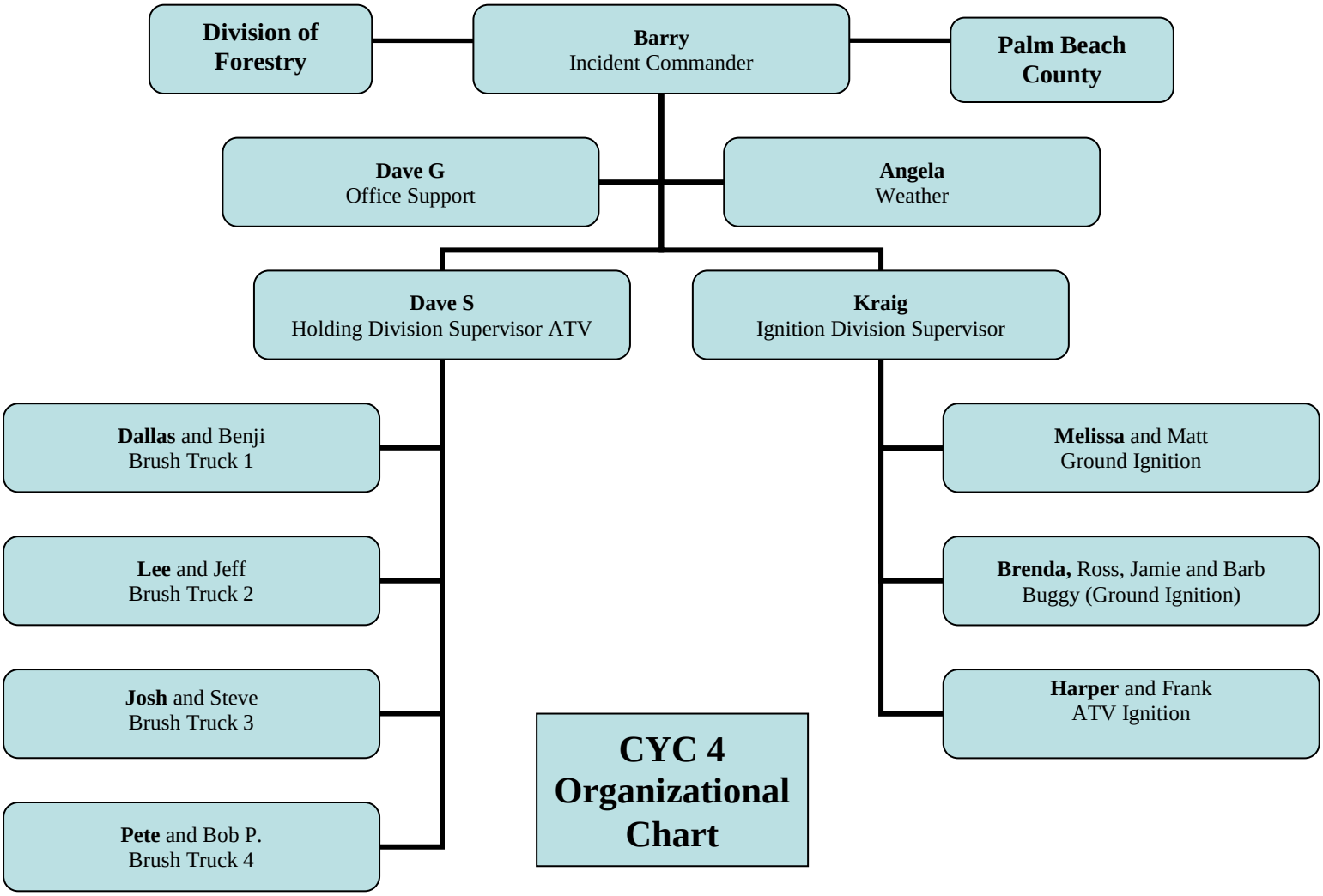
H. POST BURN EVALUATIONS	**Immediately After Burn**	**Future**
1. Objectives Met?		**Date:**
2. Escapes (indicate on map)		**Insect or Disease Damage:**
3. Spotting		
4. Smoke Problems		
5. % Understory Veg Consumed		
6. % Crown Scorch		
7. % Live Crown Consumed		**Tree Mortality:**
8. Adverse Publicity		
9. Remarks		

I. SIGNATURE OF CERTIFIED BURNER AND DATE:

Exhibit 2

INCIDENT OBJECTIVES ICS 202	1. INCIDENT NAME Cypress Creek Mgt. Unit 4	2. DATE PREPARED 1/19/12
3. **OPERATIONAL PERIOD** (DATE/TIME) 1/12 through 5/12		
4. **OBJECTIVES** 1) Burn at least 90% of the understory to restore the natural fire interval and reduce fuel loading by starting a backing fire, down wind, at a point designated by the IC. Complete this line according to IC directions. Unit 4 is defined by a disced fireline as shown on the Operations Map. Keep crown scorch to under 75%, and tree consumption to no more than 10%.		
2) Strip-head fire at the direction of the IC as conditions and fuels permit.		
3) Watch for spotovers in adjacent units. Extinguish immediately. Cool down intense fire on the fireline to prevent preheating fuel opposite the burn unit, and to prevent embers from jumping the fireline.		
5. **CONTINGENCY:** Palm Beach County FR and the DOF will take command of the fire should it escape and be determined a wildfire by the IC. All units should extinguish any spotovers, should they occur. PBC ERM will only pursue escaped fires that can be attacked from the rear where there are no unburned fuels preventing visibility between the fireline and the spotover.		
6. **MOP-UP:** Begin mop-up as soon as possible. Smoldering fuels will be allowed to burn down or out in areas burned first to reduce the chance of re-ignition. Once ignition nears completion, the IC will begin to direct crews to start the mop-up phase of this prescribed burn.		
7. **GENERAL SAFETY MESSAGES** 1) Watch for heat exhaustion; drink plenty of fluids.		
2) Know your safety zones and escape routes, refer to wetlands and firelines on the map.		
3) Do not alter burn techniques/strategies without direction from the IC.		
202 ICS	7. PREPARED BY: Kraig Krum, CPBM #03-3359	8. APPROVED BY (INCIDENT COMMANDER) Barry Jennings, CPBM #90-1234

Exhibit 3


Division of Forestry
Barry
Incident Commander
Palm Beach County
Dave G
Office Support
Angela
Weather
Dave S
Holding Division Supervisor ATV
Kraig
Ignition Division Supervisor
Dallas and Benji
Brush Truck 1
Lee and Jeff
Brush Truck 2
Josh and Steve
Brush Truck 3
Pete and Bob P.
Brush Truck 4
Melissa and Matt
Ground Ignition
Brenda, Ross, Jamie and Barb
Buggy (Ground Ignition)
Harper and Frank
ATV Ignition
CYC 4 Organizational Chart

Medical Plan
Cypress Creek Unit 4

This medivac protocol will be used in the event an injury occurs during a prescribed burn on Loxahatchee River Natural Area.

Palm Beach County Fire Rescue (PBCFR) will provide medical staff to act as the medical unit and provide first responder medical assistance if assisting with the burn.

1. Report injuries to the IC via command organizational structure.

2. First burn team member to assist will insure injured is in a safe location.

3. Personnel on scene to provide first aid.

4. IC to determine status of injured.

5. If IC determines the injured requires medical assistance, PBC Fire Rescue responds. If PBCFR is not assisting with the burn, they will be advised what type of vehicle will be needed to get to injured (4-wheel drive, etc.), and what vehicle(s) we have available should they need help getting to the injured.

6. If the condition of the injured requires transport to a hospital by helicopter, Fire Rescue on the scene will make the request.

7. If the IC determines that the injured will only need transport to an emergency room by our personnel then transportation will be decided by the IC at that time. The injured will be taken to Jupiter Hospital Emergency Room.

8. If the injury does not require emergency room treatment, then worker's compensation procedures will be followed; that is, the injured will be taken to the Occupational Health Clinic, and a Supervisors Incident Report must be filled out by the employee's immediate supervisor.