Pine Meadows Conservation Area

Land Management Plan

2010

Pine Meadows Conservation Area

Land Management Plan Summary

Management Area Size: 803 acres.

Date of Acquisition: Acquisition of parcels within the Pine Meadows Conservation Area began in September of 1992.

Date of Plan: February 2010.

Basin: Upper Ocklawaha River Basin. **Planning Basin**: Lake Harris Unit.

Location: Pine Meadows Conservation Area is located in central Lake County approximately 2.5 miles south of the town of Umatilla. It is east of State Road 19, South of County Road 450A and north of County Road 44A.

Funding Sources: The acquisitions were funded with ad valorem taxes.

Management Partners: The District is the lead manager of the conservation area.

Resource Protection and Management:

- WATER RESOURCE PROTECTION – Water resources were protected through acquisition. Water levels are unregulated and allowed to fluctuate with rainfall.
- FIRE MANAGEMENT – Due to the limited amount of burnable acres, no prescribed burning has taken place. The conservation area has been broken up into burn units in the event of a wildfire.
- FLORA AND FAUNA – A plant and animal species survey was done by land management, species will continue to be added as encountered.
- EXOTIC SPECIES – Invasive exotics that are being treated on an as needed basis include Chinaberry (*Melia azedarach*), tropical soda apple (*Solanum viarum*), and water hyacinth (*Eichornia crassipes*). Peruvian primrose willow (*Ludwigia peruviana*) is a problem in the basin marsh and has not been treated.
- CULTURAL AND ARCHAELOGICAL RESOURCES – A review of the Florida Division of Historical Resources files shows one Florida Master Site recorded for the area.

Land Use Management:

- ACCESS – Six gates are present on the property, however only one is generally used by staff.
- RECREATION – No public access facilities are currently provided however installation of a future trail system is being assessed.
- SECURITY – The District coordinates with our private security contractor and the Lake County Sheriff's Office on security issues. The boundaries were posted at time of acquisition. Fences and gates are maintained by the cattle lessee around the southwest pasture.

Administration:

- COOPERATIVE AGREEMENTS, LEASES, EASEMENTS AND CONCESSIONS – A perpetual flowage easement is in effect between the conservation area and the Springhill Farm property (formerly the Brautcheck property) to the east. This eliminated the need for pumping and allowed for water levels within the conservation area to fluctuate with rainfall.
  A Special Use Agreement (SUA) exists for cattle grazing on a portion of the property and a lease agreement is being written which will replace the SUA.

Table of Contents

INTRODUCTION

This management plan provides the guidelines and goals for implementation of land management activities at the Pine Meadows Conservation Area (PMCA) over the next five years.

The PMCA covers approximately 803 acres in central Lake County within the Upper Ocklawaha River Basin. It includes portions of Sections 25 and 36 of Township -18, Range 26 and Sections 30, 31 and 32 of Township -18 and Range 27. The property is approximately 2.5 miles south southeast of the city of Umatilla, south of CR 450A, north of County Road 44 and west of County Road 44A (Figure 1).

Most of PMCA was acquired in the early 1990s as part of an effort by the District to purchase muck farms that were contributing to the pollutant loads into the Upper Ocklawaha Watershed. Purchase of the parcel halted the pumping of water and soil subsidence associated with farming practices and allowed for restoration of historical community types on much of the area. Original drainage of the PMCA area was attempted at least as early as 1941. Aerial photography from that time shows the presence of Hicks Ditch, which bisects the property. Farming practices probably started in the 1970's and ended with acquisition by the District in 1992. The PMCA is mostly basin marsh surrounded by a levee system, with some uplands in the form of improved pasture and mesic flatwoods.

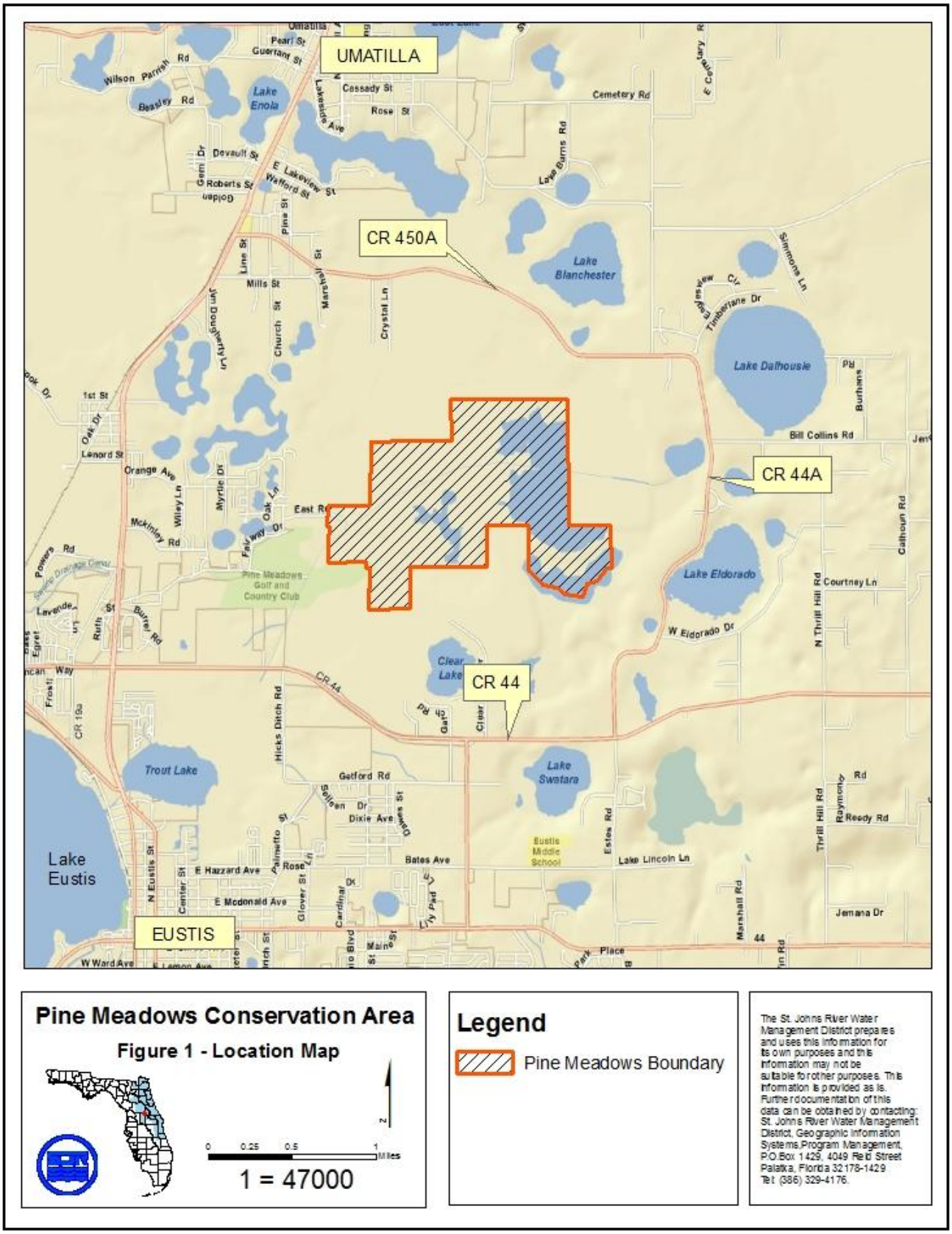
CONSERVATION AREA OVERVIEW

Regional Significance

PMCA was acquired as a part of a larger scale plan to acquire active muck farms to reduce pollutants being pumped into downstream water bodies. Outflow from the farm at PMCA went down Hicks Ditch into Trout Lake and then into Lake Eustis. These lakes help form the Ocklawaha Chain of Lakes which includes some of Florida's most polluted water bodies (Figure 2).

PMCA provides stormwater storage for the surrounding area and is a property for which much of the area can be restored to its historic community type (basin marsh). It has the potential to provide recreation in the form of hiking and nature observation along the levees and on the uplands.

The parcel is isolated from other public lands. It is 6.5 miles east of Emeralda Marsh Conservation Area, 4.5 miles south of Ocala National Forest and 3.5 miles west of Lake Norris Conservation Area. PMCA adds to the regions multiple, although scattered, natural areas present south of Ocala National Forest, and provides an island of protected habitat for a variety of plants and animals especially wetland dependent species.


UMATILLA
CR 450A
CR 44A
CR 44
EUSTIS
Lake Enola
Lake Blanchester
Lake Dalhousie
Lake Eldorado
Clear Lake
Trout Lake
Lake Swatara
Lake Eustis
Pine Meadows Golf and Country Club
Eustis Middle School
Pine Meadows Conservation Area
Figure 1 - Location Map
0 0.25 0.5 1 Miles
1 = 47000
Legend
Pine Meadows Boundary
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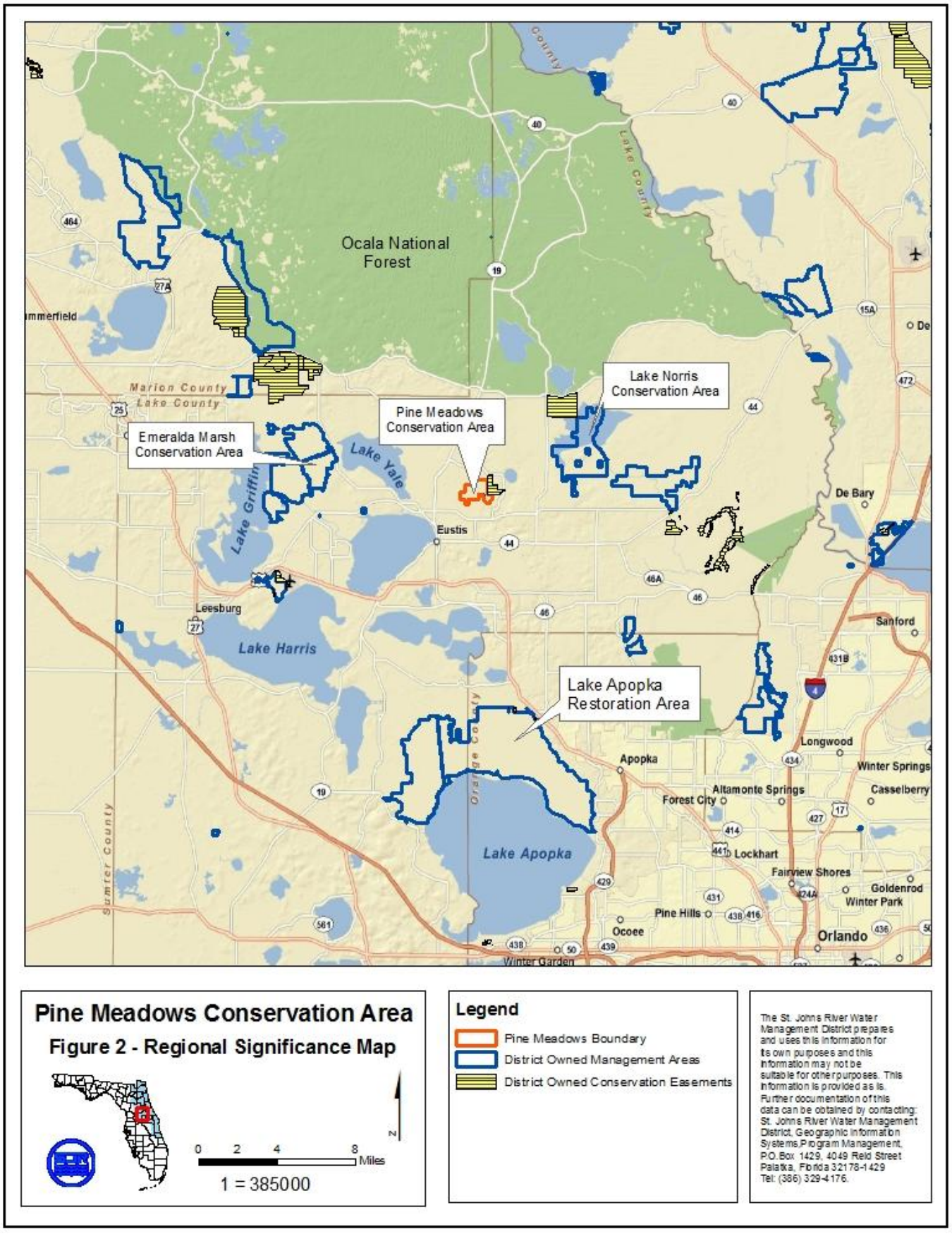
Ocala National Forest
Lake Norris Conservation Area
Pine Meadows Conservation Area
Emeralda Marsh Conservation Area
Lake Griffin
Lake Yale
Eustis
Leesburg
Lake Harris
Lake Apopka Restoration Area
Lake Apopka
Apopka
Sanford
De Bary
Longwood
Winter Springs
Altamonte Springs
Forest City
Casselberry
Lockhart
Fairview Shores
Goldenrod
Winter Park
Pine Hills
Ocoee
Orlando
Winter Garden
Marion County
Lake County
Sumter County
Orange County
Pine Meadows Conservation Area
Figure 2 - Regional Significance Map
0 2 4 8 Miles
1 = 385000
Legend
Pine Meadows Boundary
District Owned Management Areas
District Owned Conservation Easements
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Acquisition History

The acquisition of the 3 parcels making up the PMCA began in 1992 with the purchase of the Carey parcel (Figure 3, Table 1). This parcel makes up the majority of the Conservation Area at about 790 acres. At the time of purchase, it was a functioning farm called Pine Meadows Farm. Farming activities ceased after acquisition and as a result of shutting down the drainage pump, water levels began to rise, impacting PMCA land and adjacent properties as well.

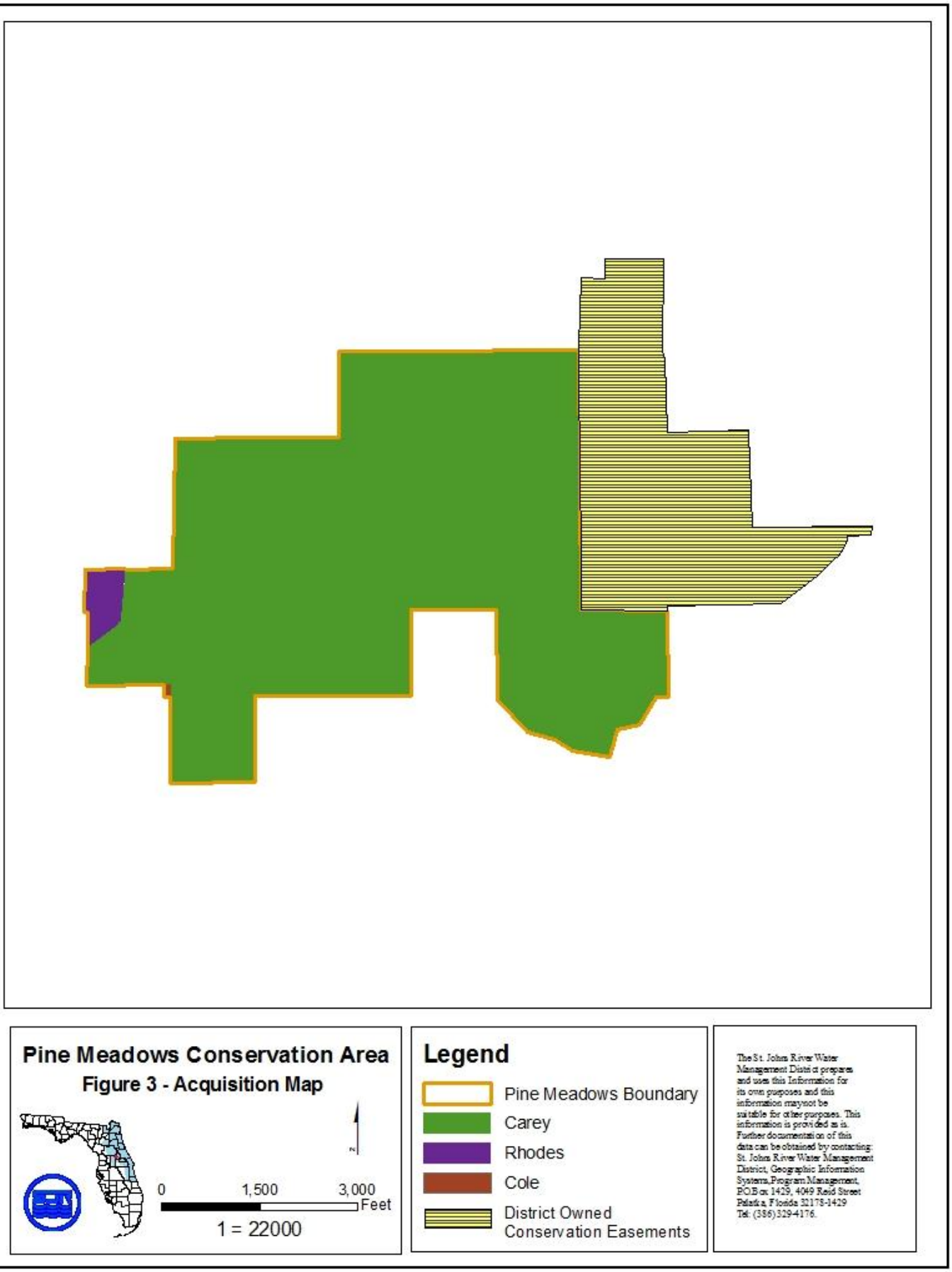
Due to problems with access to the western side of the Carey parcel, the 13 acre Rhodes parcel was purchased in 1998. The Rhodes parcel was being operated as a bee keeping and honey extraction business at time of purchase. An agreement between Mr. Rhodes and the District allowed him to continue his bee keeping operation for several years and allowed the District access to the main drive-able levees on the western side of the Carey parcel.

In 2008 the District purchased another smaller parcel, the Cole parcel. At 1/2 acre it is the smallest of the 3 and is located along the southwest boundary of the Conservation Area and adjacent to the Pine Meadows Golf Course which is closed at the time of writing this plan. The Cole parcel is actually a residential building lot in the Golfview Estates Subdivision. It was purchased to allow access to the pasture and other uplands on the southwest portion of the Carey parcel. In the future, the area could serve as an access point and parking area for the public.

A flowage easement was purchased in 1996 to deal with flooding issues on an adjacent parcel resulting from water flowing off the Carey parcel.

Table 1 – Parcel Acquisitions

Name	LA #	Acres	Total Purchase Price	Closing Date	Funding Source
PARCELS					
Carey	1990-041-P1	789.61	1,211,000.00	9/24/1992	Ad Valorem
Rhodes	1996-119-P1	13.03	118,518.52	9/23/1998	Ad Valorem
Cole	2008-005-P1	.52	45,000.00	6/30/2008	Ad Valorem
EASEMENTS					
Brautcheck	1990-005-P1	269	120,000	8/29/1996	Ad Valorem


Pine Meadows Conservation Area
Figure 3 - Acquisition Map
0
1,500
3,000
Feet
1 = 22000
Legend
Pine Meadows Boundary
Carey
Rhodes
Cole
District Owned
Conservation Easements
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Local Government Land Use Designation

According to the Lake County adopted future land use map, most of PMCA is designated as "Public Resources Lands", with a portion of the north side of the Conservation Area being designated as "Suburban". The Suburban designation allows for:

- Base density 1 dwelling unit per 5 gross acres
- Meeting timeliness 1 dwelling unit per gross acre
- PUD meeting timeliness 3 dwelling units per gross acre

Much of the area surrounding the Conservation Area is also designated as Suburban. There is an area designated as Urban Expansion along the southwest boundary which allows up to 4 dwelling units per acre. Incorporated areas form the remainder of the boundary on the south and north sides of the conservation area (Future Land Use Map, Lake County Florida, 2007).

Under the proposed future land use map, the entire PMCA would be designated as "Conservation". The Conservation Future Land Use Category "consists of property managed for the permanent protection of natural resources, including but not limited to open water bodies, wildlife habitat, wetlands, and aquifer recharge. Lands within the Conservation Future Land Use Category shall be maintained in a natural state", and "The County shall coordinate with federal, state, and local agencies regarding the management of public and private conservation land and shall consult with agencies regarding the potential impact of adjacent uses on the health and management of federal, state, and local conservation land and environmentally sensitive lands. The County shall encourage best management practices associated with native habitats, such as controlled burning, and shall coordinate with the federal, state, and local agencies regarding management programs and policy." (Lake County, 2009)

Under the proposed future land use map, most of the land surrounding PMCA and currently designated as "Suburban" would be changed to "Rural Transition" which allows for one of the following 3 scenarios:

- Maximum of 1 dwelling unit per 20 net acres base density
- Maximum of 1 dwelling unit per 3 net acres with 35% open space
- Maximum of 1 dwelling unit per 1 net acre with 50% open space

Lands designated as "Municipal" would make up the remainder of the adjacent lands according to the proposed future land use map.

Cooperative Agreements, Leases, Easements and Concessions

At the time of this plan writing, a cattle lease is being written which will replace an SUA agreement over an approximately 55 acres portion of the property which is improved pasture.

A perpetual flowage easement, LA# 1990-005-P1, was bought by the District from Mr. Brautcheck who owned the Springhill parcel on the east side of PMCA. The easement continues with the new owners of the property and allows for surface water to flow to and from both properties.

NATURAL RESOURCES OVERVIEW

Topography and Hydrology

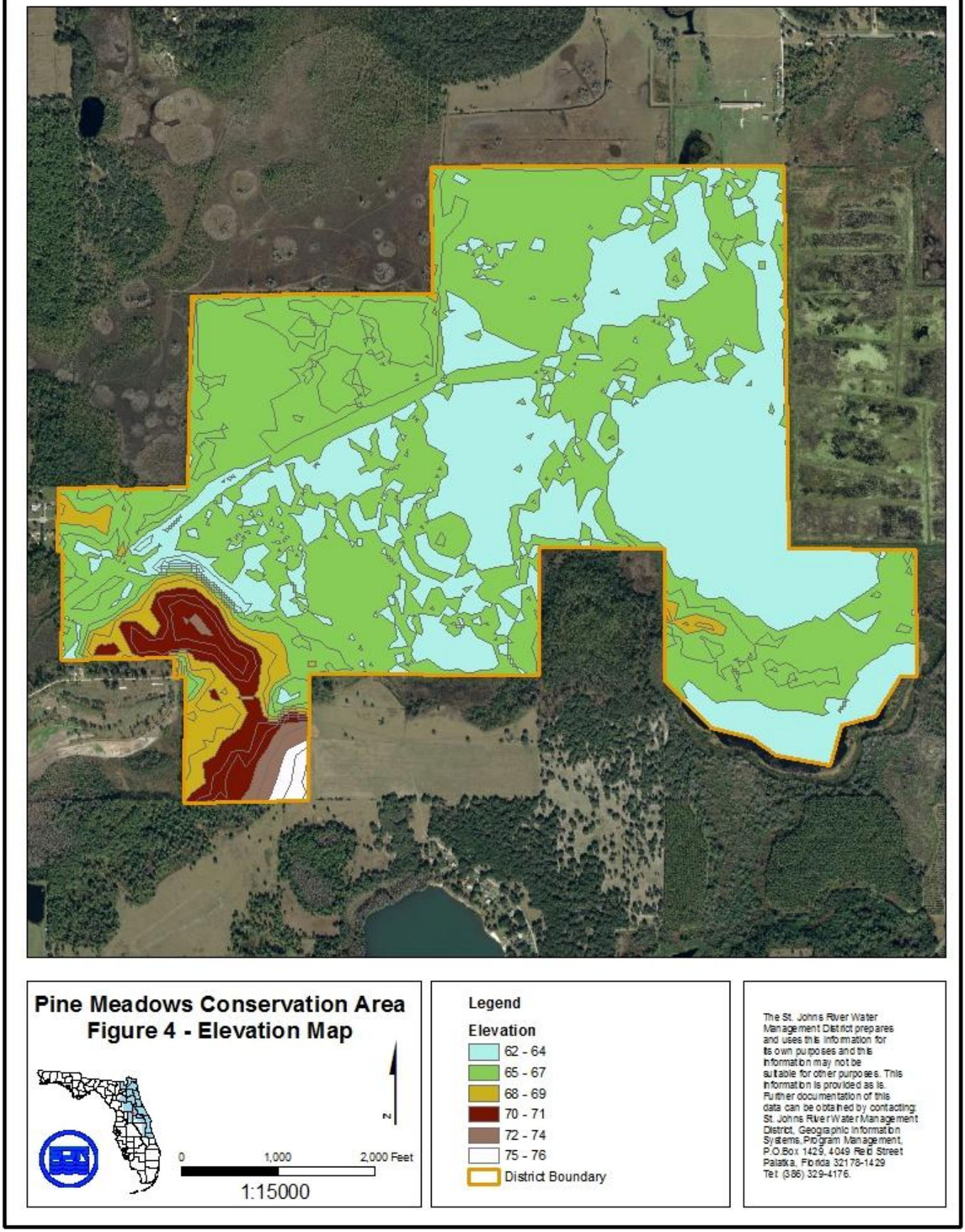
According to the Physiographic Divisions of Florida, the PMCA falls in the Central Lakes District and the Central Lakes subdivision. The Conservation Area has elevations of from 62 to 75 feet (Figure 4). Most of the Conservation Area is in the lower portion of this range, between 62 and 67 feet. The highest elevations are the uplands which are mostly in the southwest corner, and along the levees which are not reflected on the topographical map.

The majority of the conservation area is shown as having been "sawgrass marsh", "pond and bay" and "marsh" according to a copy of an 1849 hand drawn map (Figure 5) found on the Florida Bureau of Survey and Mapping web site. Roughly 90 years later, a portion of Hicks Ditch, the main interior drainage ditch that bisects the property from the southwest to the northeast, was evident on the 1941 aerial photo (Figure 6). Hicks Ditch ultimately drains into Trout Lake to the south and then into Lake Eustis.

Muck farming on PMCA started sometime in the 1970's and by the time of an 1984 aerial photo, a grid of drainage ditches and levees is evident. This farming method requires water to be drawn down to allow planting on the rich muck soils. The main crop on PMCA was grain for cattle feed. Water was pumped out of the farmed basin marsh area by a 1500 gallon per minute pump that was installed on the western side of the property and discharged into Hicks Ditch. A second 1500 gpm pump conveyed water from the eastern portion of the farm to the western side. Both drainage pumps were removed in the 1990's after District purchase of the parcel. Many wetland areas in the region were converted to farms in the 1970's. The wetland nature of the areas required active pumping each year during rain events. That pumping transported significant amounts of nutrients from the farms into downstream waters. These farming practices caused significant water quality problems for the area lakes and were the motivating factor behind the purchase of PMCA and similar areas now owned and managed by the District.

The Upper Ocklawaha River Basin which includes PMCA was designated as a Surface Water Improvement and Management Act (SWIM) priority site in 1988. The SWIM Act states that it is "the duty of the State through State agencies and subdivisions to enhance the environmental and scenic value of surface waters". One of the major goals of the program is to reduce nutrient levels flowing into State waters.

After the purchase by the District, the PMCA water levels were allowed to return to naturally occurring levels by eliminating the pumping. Water levels rose higher than they had in many years and resulted in the flooding of adjacent areas. Water flowed around or over the levee system on the northeast boundary and onto the Brautcheck property, now called Springhill Farm. The District eventually bought a perpetual flowage easement from Mr. Brautcheck, LA# 1990-005-P1, which allows water to flow back and forth across the two properties and required Mr. Brautcheck to maintain the levee between the two properties.


Pine Meadows Conservation Area
Figure 4 - Elevation Map
N
0
1,000
2,000 Feet
1:15000
Legend
Elevation
62 - 64
65 - 67
68 - 69
70 - 71
72 - 74
75 - 76
District Boundary
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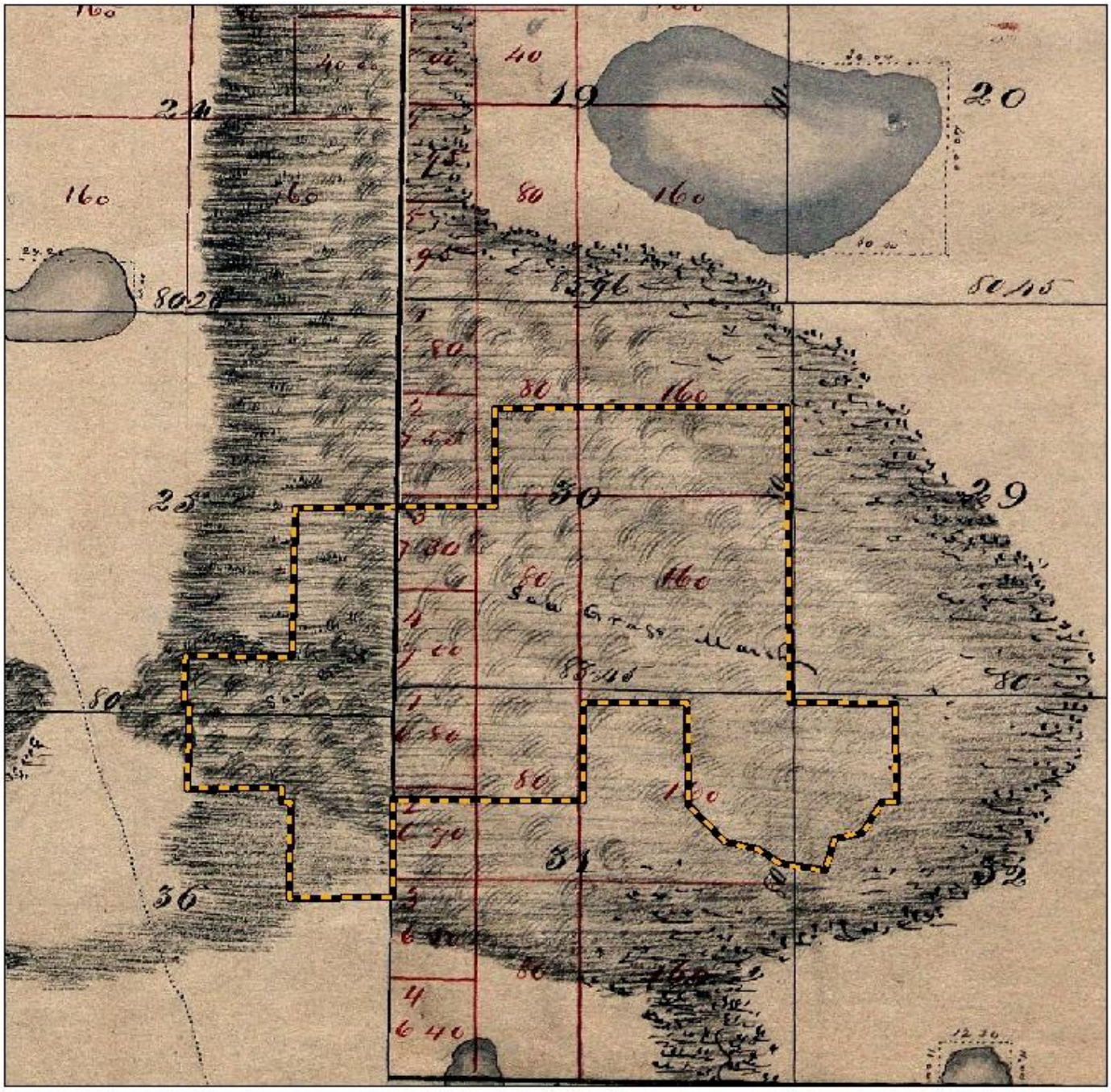

Pine Meadows Conservation Area

Figure 5 - 1849 Map

N

0 1,500 3,000 Feet

1 = 22000

Legend

Pine Meadows Boundary

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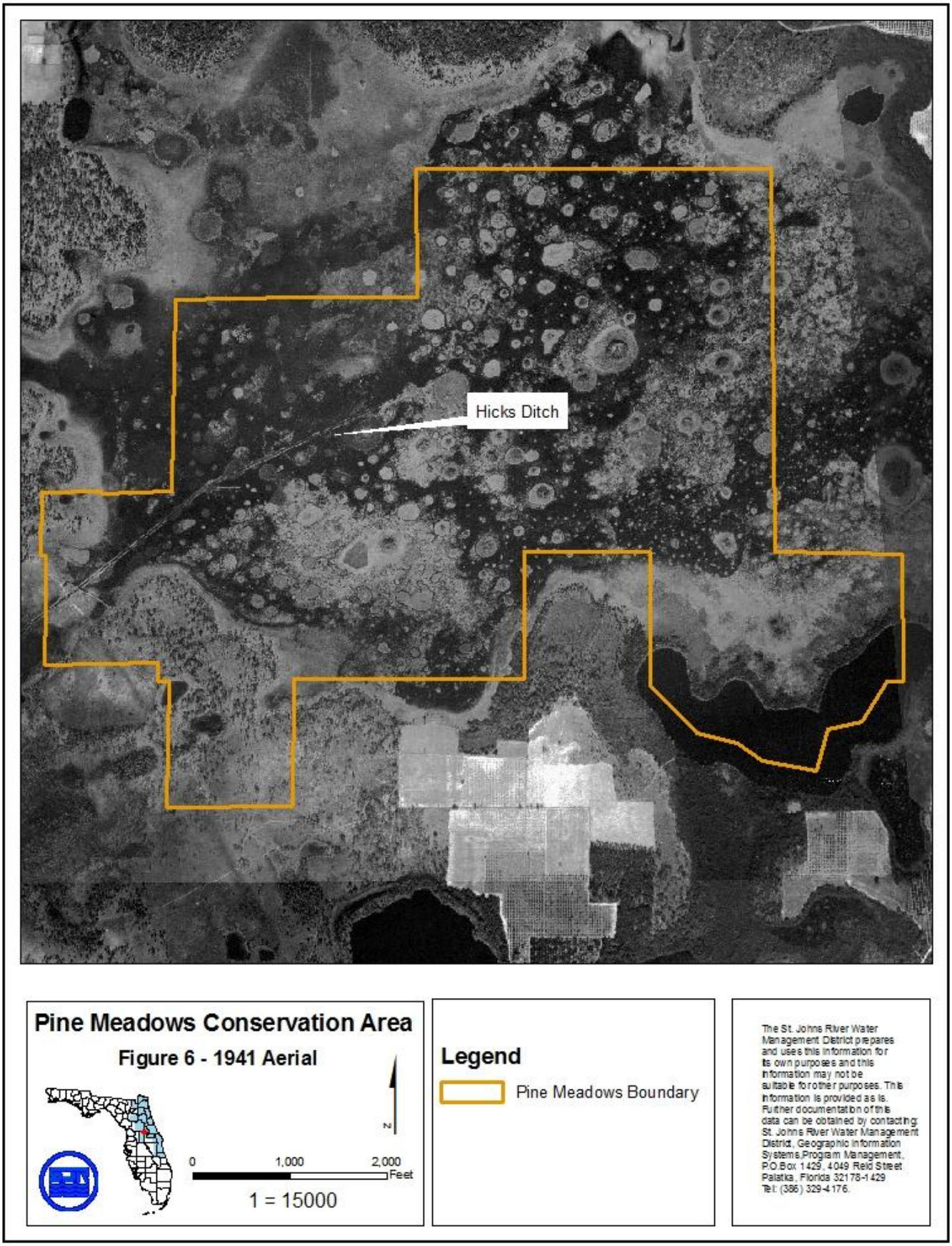
Hicks Ditch
Pine Meadows Conservation Area
Figure 6 - 1941 Aerial
N
0
1,000
2,000
Feet
1 = 15000
Legend
Pine Meadows Boundary
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In 1996 the District contracted with Environmental Science and Engineering Inc. of Gainesville, Florida to produce the first of a 3 part study of the Hicks Ditch Drainage Basin, which includes the PMCA, for the purpose of dealing with water quality and quantity issues in the approximate 18 square mile basin. The goal was to create a watershed management master plan (WMMP) for the basin, which would help the District and Lake County make decisions regarding planning and regulation. The study consists of three phases:

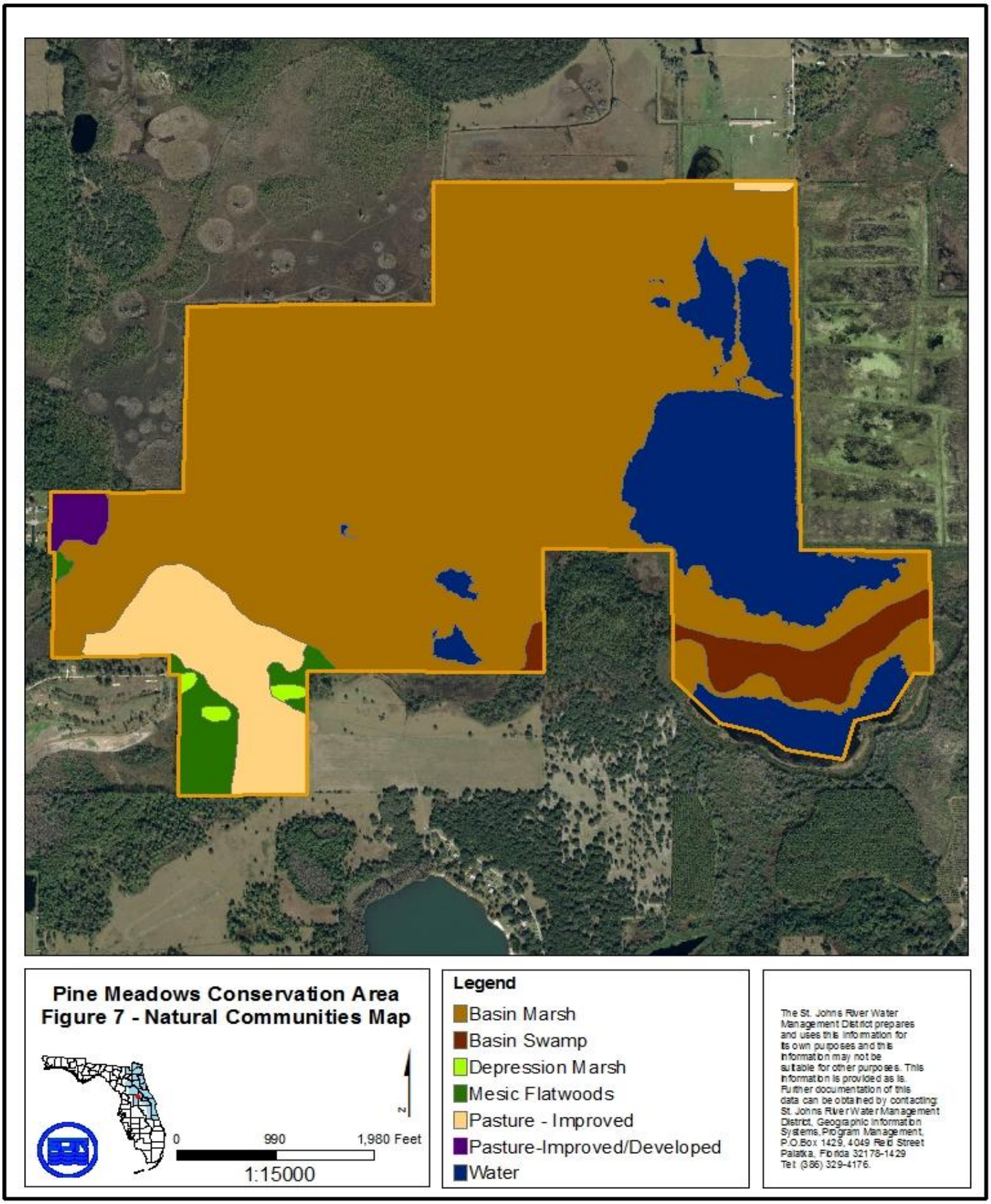
- Phase I - Problem Definition
- Phase II- Conceptual Design and Permitting
- Phase III - Implementation and Construction

Phase I of the study found that flood condition levels in the Hicks Ditch area, in the vicinity of the Pine Meadows Golf Course on the southern boundary of PMCA, had increased approximately 1.5 feet from the time of the previous District study conducted in 1990. This increase was attributed to sedimentation of Hicks Ditch. As a result, efforts were taken to clean out Hicks Ditch to alleviate the increase in water levels during flood events. Beginning in 2000, the District cleaned out the portion of the ditch on PMCA and down to the golf course. Lake County cleaned out the remainder of the ditch and a culvert was installed where previously there had been a pump. These actions alleviated the flooding problem. At the time of writing, there are no plans for phases II and III of the study.

The PMCA was assessed by Ducks Unlimited in 2003 for a potential wetland restoration and enhancement site to provide habitat for waterfowl, wading birds and shorebirds. The wetlands would have been divided into 4 cells enabling the manipulation of water levels at given times of the year to encourage floating leaved and submersed vegetation in certain areas and emergent vegetation in others. At the time of writing of this plan, the Ducks Unlimited proposal is no longer being considered.

Natural Communities

The dominant FNAI community types at PMCA are basin marsh, improved pasture, basin swamp, mesic flatwoods, and depression marsh (Figure 7, 8, Table 2). A significant area of open water exists on the eastern side of the property, and levees surround and bisect the basin marsh area and have vegetation expected of disturbed sites.


Pine Meadows Conservation Area
Figure 7 - Natural Communities Map
N
0
990
1,980 Feet
1:15000
Legend
Basin Marsh
Basin Swamp
Depression Marsh
Mesic Flatwoods
Pasture - Improved
Pasture-Improved/Developed
Water
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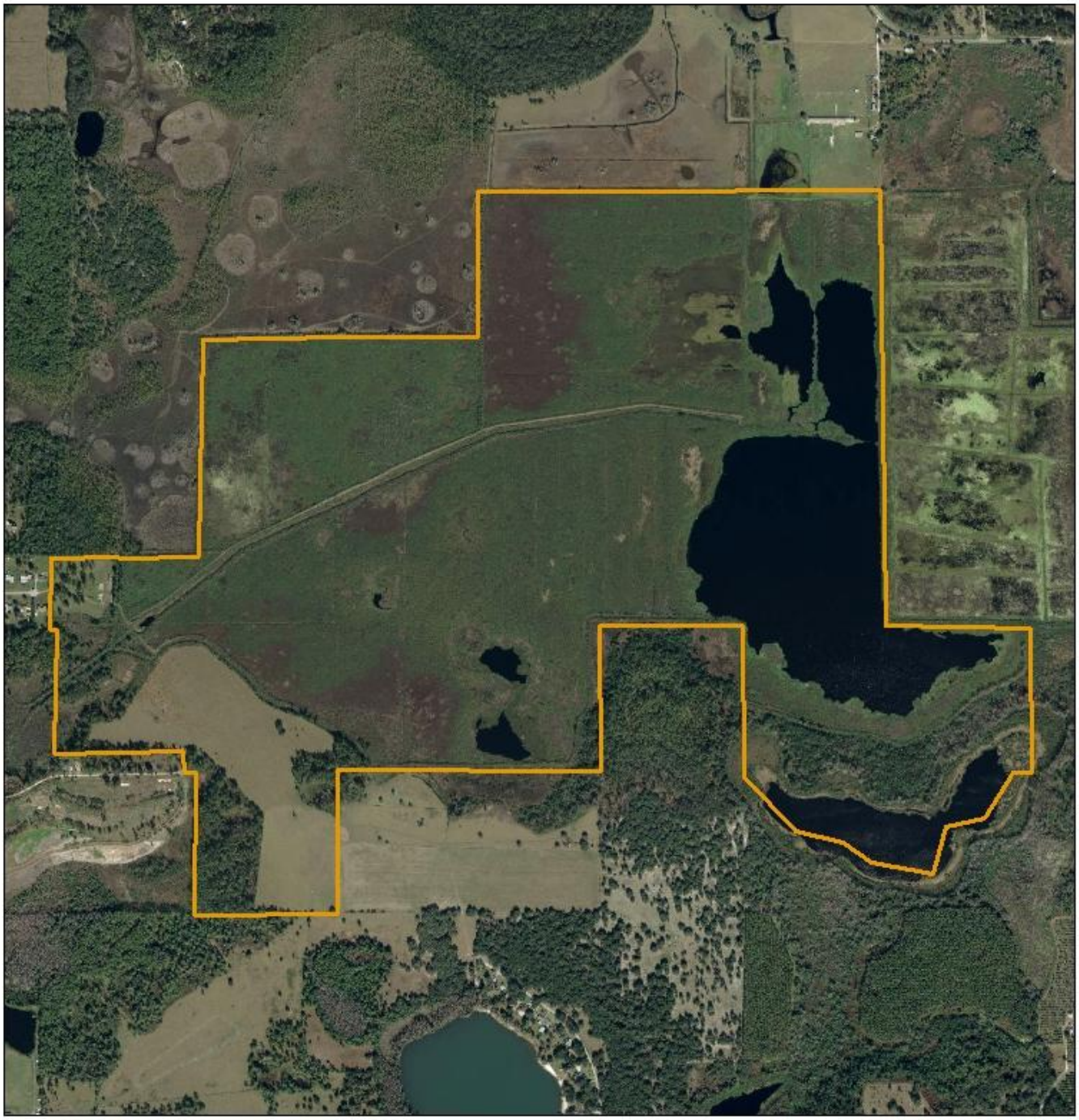

Pine Meadows Conservation Area

Figure 8 - Aerial Imagery Map

N

0 1,000 2,000 Feet

1 = 15000

Legend

Pine Meadows Boundary

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Table 2 – Natural Community Types

Community Type	Acres	Percent Coverage	FNAI Ranking
Basin Marsh	530	66%	G4/S4
Basin Swamp	28	<4%	G4/S3
Mesic Flatwoods	19	<3%	G4/S4
Depression Marsh	3	<1%	G4/S4
Altered Landcover Type			
Pasture - Improved	56	<7%	
Pasture – Improved/Developed	8	<1%	
Other			
Water	159	<20%	
	803	**100%**	

Basin Marsh (530 acres)

As previously mentioned, the area was historically mostly basin marsh with some uplands. When farming was taking place, most of the basin marsh was converted to muck farm and the higher areas adjacent to the basin marsh were used as pasture. Since cessation of the farming activities after District purchase, the wetland species that re-colonized the basin marsh include large areas of exotic and native shrubs, with some areas of emergent and floating vegetation, both native and exotic.

Recently the Environmental Sciences Division of the District completed an assessment of the vegetation cover type changes on PMCA and Springhill Farm between the years of 1941 and 2005 based on aerial photo interpretation (Pachhai, 2009). The largest vegetation cover change was a conversion from herbaceous wetlands to the anthropogenic activities associated with farming. Another large scale change that took place happened after the District bought the land and stopped the farming activities. After pumping was shut down in 1992 and water levels were allowed to rise, much of the area became open water with some shallow marsh. A drawdown was initiated because of flooding in the late 1990s, and much of the area that had been open water and shallow marsh has become dominated by shrubs including primarily exotic Peruvian primrose willow. Other shrubs present are saltbush (*Baccharis halimifolia*), wax myrtle (*Myrica cerifera*), and coastal plain willow (*Salix caroliniana*). Since the drawdown, water levels have been unregulated and allowed to fluctuate with rainfall with a culvert installed on the western side of the parcel allowing drainage down Hicks Ditch.

A vegetation monitoring survey flight was conducted at the time of the writing of this plan in December 2009 by District Environmental Sciences Division staff. Photos from the survey revealed extensive coverage by shrub species in much of the basin marsh area, most of which appears to be Peruvian primrose willow. Some areas of emergent herbaceous vegetation are also evident along with patches of coastal plain willow. The main drainage ditch that bisects the basin marsh and the property was mostly filled in with sedges, rushes and grasses. Floating vegetation along the edges of the remaining

open water areas includes common water-hyacinth and water lettuce (*Pistia stratiotes*) both Florida Exotic Pest Plant Council category I exotic plants.

Basin Swamp (28 acres)

An area south of the main body of open water on the eastern side of the conservation area is basin swamp. This area is shown on the 1941 vegetation cover map as wet prairie according to the assessment done by Pachhai 2009. The area is slightly higher than much of the basin marsh and on the outside of the levee system and has succeeded to a swamp community.

Mesic Flatwoods (19 acres)

The small mesic flatwoods along the western side of the parcel contains a thick duff layer. Pine trees on the site have feeder roots present in the duff layer. Fire introduced into flatwoods such as this that has no recent fire activity can kill mature trees by burning up the feeder roots further stressing the tree beyond normal fire stress. This area could benefit from a fire, however the small size (14 acres) and the fact that pine trees would most likely be killed, even by a cool fire, may make it unfeasible.

Depression Marsh (3 acres)

Three small depression marshes occur within the 2 mesic flatwoods areas. They have dense grass growth dominated by maidencaine (*Panicum hemitomon*). Other species present include black gum (*Nyssa sylvatica*) and buttonbush (*Cephalanthus occidentalis*).

Improved Pasture (64 acres)

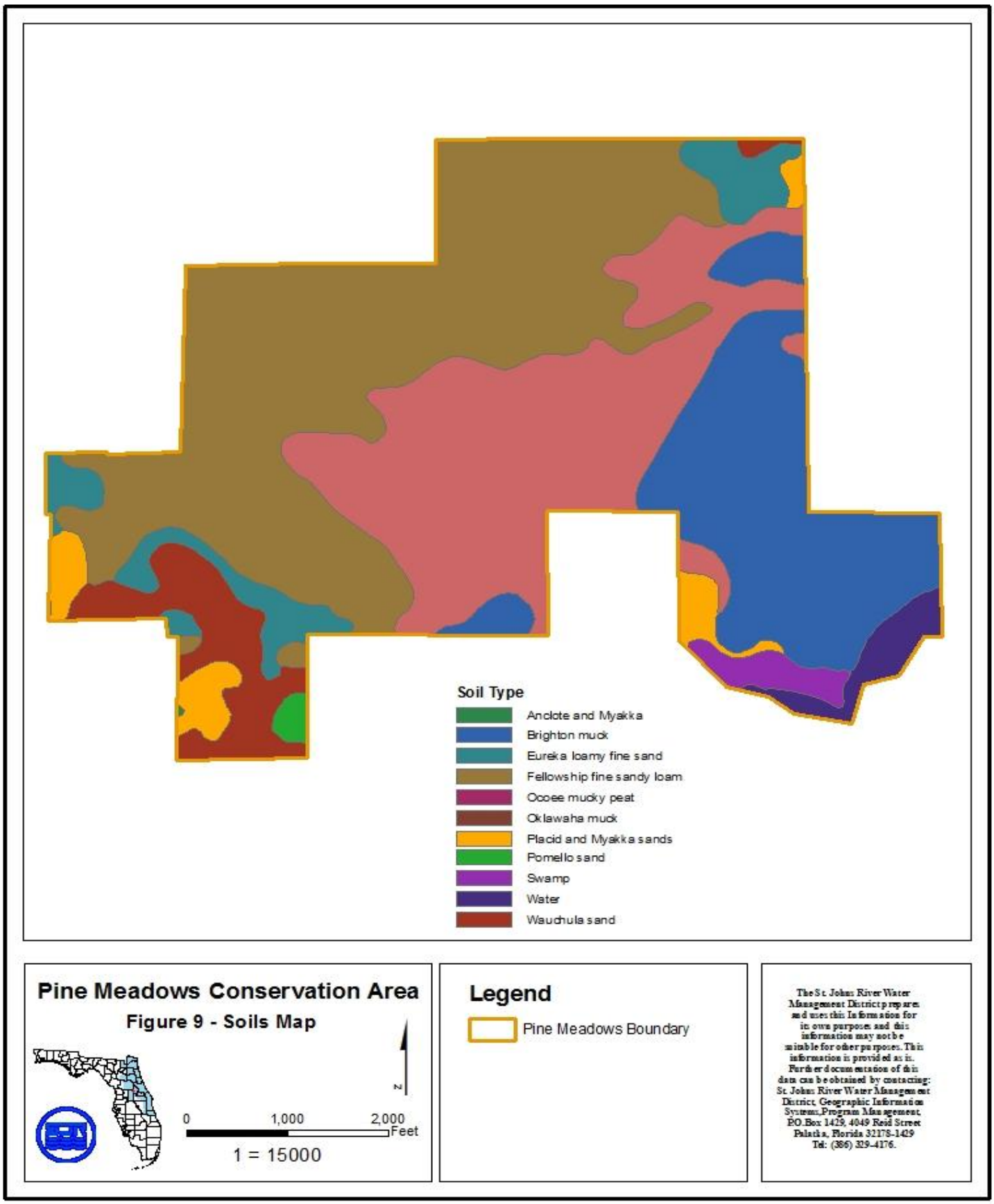
The 13 acre Rhodes property is mostly made up of a small area of pasture that has the remaining building foundations from sheds present during prior beekeeping operations. Species present were a mix of pasture and flatwoods species. Much of the area is mowed bahia grass (*Paspalum notatum*) with mature slash pine (*Pinus elliottii*) and live oaks (*Quercus virginiana*) present as well as American beautyberry (*Callicarpa Americana*), black berry (*Rubus pensilvanicus*), muscadine grape (*Vitis rotundifolia*) and Virginia creeper (*Parthenocissus quinquefolia*). The large pasture area which is just south of the Rhodes parcel and which is subject to a cattle lease is mostly bahia grass pasture with a few cabbage palms (*Sabal palmetto*) and live oaks and some exotic tropical soda apple (*Solanum viarum*). A small area of pasture is also located on the northeast corner of the PMCA and is being encroached upon by a neighboring farm.

Water (159 acres)

A significant amount of open water exists on the property the size of which fluctuates with water levels.

Levees

Though not listed on the land cover type map, levees cover a sizeable area on PMCA. Since access to the site is limited without an airboat, part of the species survey was conducted along a mowed levee on


Soil Type
Anclote and Myakka
Brighton muck
Eureka loamy fine sand
Fellowship fine sandy loam
Ocoee mucky peat
Oklawaha muck
Placid and Myakka sands
Pomello sand
Swamp
Water
Wauchula sand
Pine Meadows Conservation Area
Figure 9 - Soils Map
N
0
1,000
2,000
Feet
1 = 15000
Legend
Pine Meadows Boundary
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the southwestern portion of the conservation area. Species found along the sides of the levee and on top of un-mowed portions of the levee included salt bush, wax myrtle, and winged sumac (*Rhus copallinum*) along with exotics including Peruvian primrose willow, lantana (*Lantana camara*), and Chinaberry (*Melia azedarach*).

Soils

Soils present on the site are shown on the soils map (Figure 9) and further described in Appendix 2 . The dominant soils under the basin marsh and depression marsh areas are Fellowship fine sandy loam and Ocoee mucky peat. Soils under much of the open water portions of the site along with some of the basin marsh are Brighton muck soils. The upland areas currently in pasture (previously mesic flatwoods) and mesic flatwoods are mostly Wauchula sand and Eureka loamy fine sand. Placid and Myakka sand soils and Pomello sand support most of the remainder of the pasture and mesic flatwoods communities along with small areas of Anclote and Myakka soils.

MANAGEMENT SUMMARY AND IMPLEMENTATION

The following sections outline past management activities, and management strategies for resource protection, land use and administration for the next five years.

RESOURCE PROTECTION AND MANAGEMENT

Water Resource Protection

Land acquisition and a cessation of the farming activities have been the major methods of resource protection at PMCA. Water levels were manipulated in the past both in attempts to restore the parcel and mitigate flooding problems on adjacent parcels. Pumps were removed and a culvert was installed along the main drainage ditch where it leaves the property on the western boundary. The culvert is the only current means of water level control besides some potential farm culverts that may still exist. Water levels are currently unregulated but are influenced by the levees and culvert. Water quality is monitored and water levels are recorded 6 times per year by the District's Environmental Sciences Division. Pesticide levels were assessed through fish tissue samples in 2006, and through sediment samples in 1998. Low levels of pesticides were found.

Two methods of water level control have been proposed by Environmental Sciences (Fulton, 1996). A higher level of from 65 to 67 feet NGVD would allow for more open water, benefit the fishery and minimize exotic vegetation control needed. Levee repairs and culvert removal would have to take place for the high water level option.

The other option was the low water option. The low water level option (<65' NGVD), increases flood storage capability and encourages the shallow emergent wetland but also the invasion by primrose willow. If water levels were maintained at a low enough level, the site could be burned or possibly chopped and then burned to help control the primrose willow. Both the high and low water level options were rejected for the current unregulated water level option.

Water Resources Strategies

- Continue periodic water quality and water level monitoring as needed.

Fire Management

No fire management plan has been written for this Conservation Area and no fire management has taken place to date due to the limited amount of acreage requiring fire. The site has been divided up into burn units (Figure 10) in the event of a wildfire or if conditions should warrant a prescribed fire which would be handled according to the annual burn plan.

The 1 mile, 2 mile, 5 mile, and 10 mile smoke buffering boundaries are shown on Figure 11. Wildfires on site will be handled according to the District Fire Management Plan.

Fire Management Strategies

- Assess the mesic flatwoods on the southwestern side of the parcel, and basin marsh areas for potential prescribed burns.

Flora and Fauna

Vegetation changes were assessed by Environmental Sciences for the period of 1941 to 2005. Besides the brief survey conducted by land management for this plan (Appendix 1), no other work is known to have been done on the flora and fauna of the property.

Flora and Fauna strategies

- Continue to monitor vegetation changes annually using aerial surveys and site visits.
- Continue to update species lists as observations take place.

Exotic Species

The site is visited periodically to check on land management issues including exotic plant infestations. Invasives are treated on an as needed basis. Exotic plant control to date has targeted Chinese tallow tree(*Sapium sebiferum*), Chinaberry, camphor tree (*Cinnamomum camphora*), castor bean (*Ricinus communis*), tropical soda apple, water hyacinth, and water lettuce.

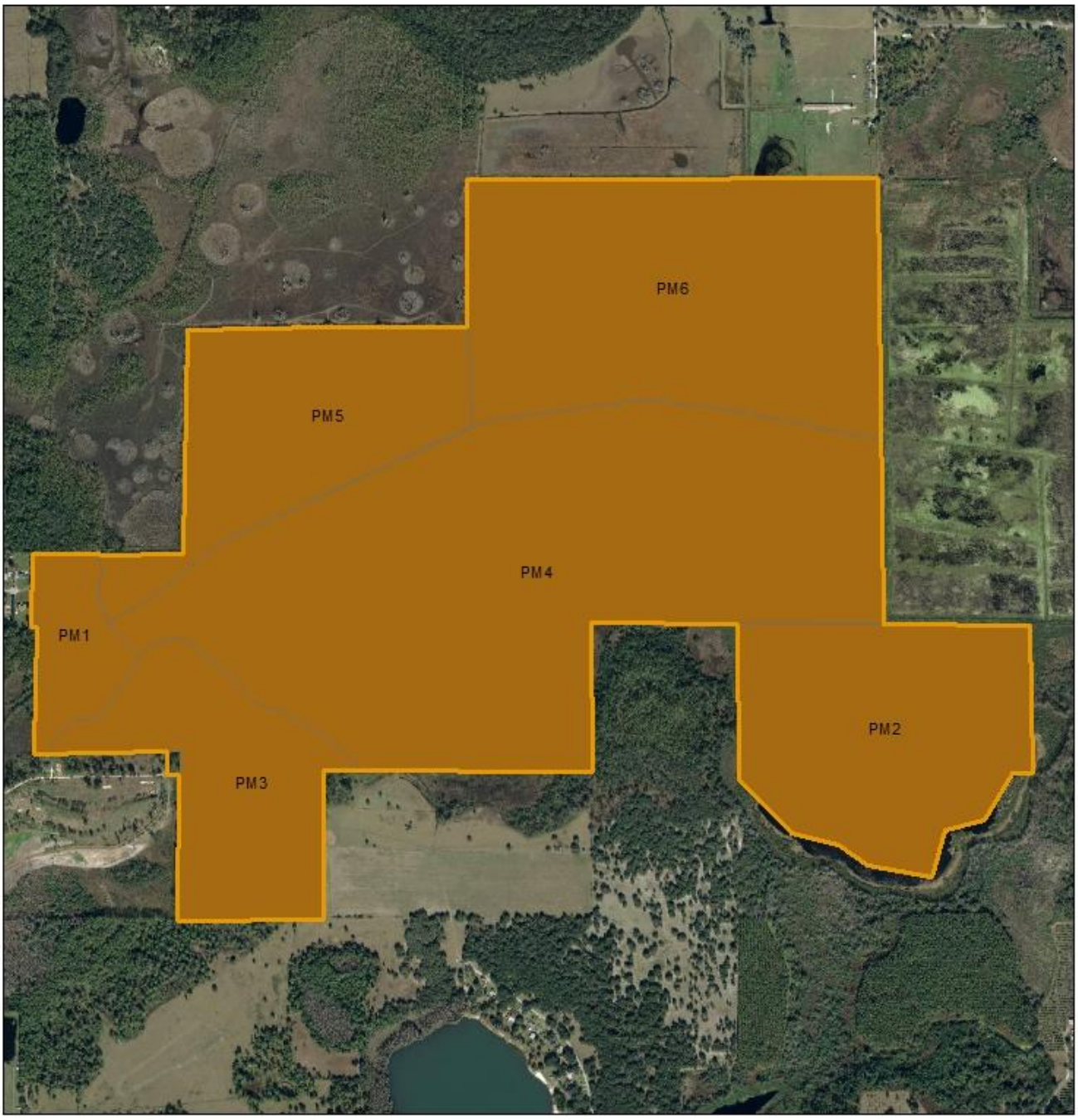
Although there are infestations by Peruvian primrose willow throughout much of the PMCA, there are no plans to treat this species during the scope of this plan.

Exotic Species Strategies

- Continue to monitor site on a regular basis for infestations.
- Treat exotics as needed.

Cultural Resources Protection

A review of the Florida Division of Cultural Resources records revealed one Florida Master Site on the Conservation Area.



Pine Meadows Conservation Area
Figure 10 - Fire Management Unit Map

N

0 1,000 2,000 Feet

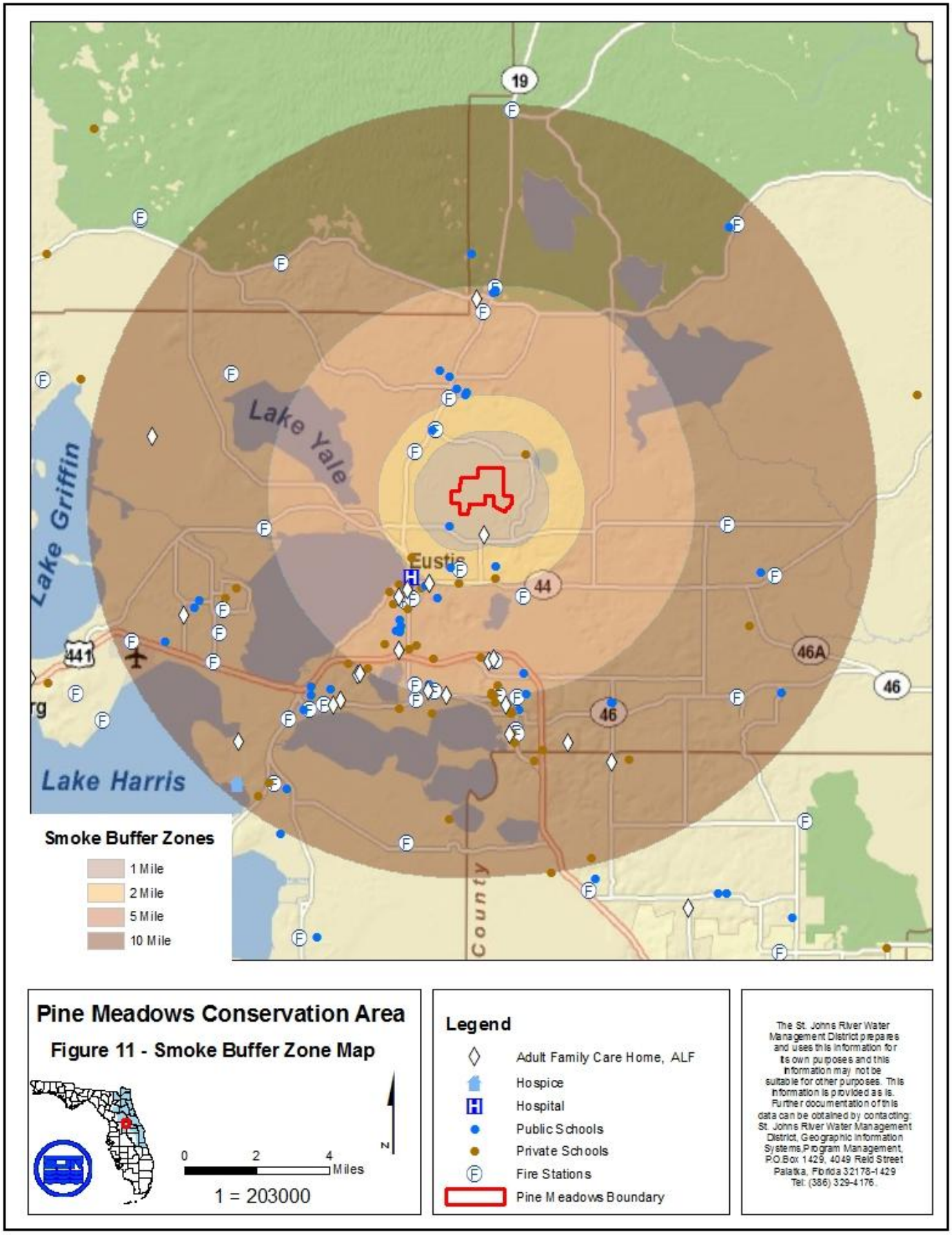
1:15000

Legend

Pine Meadows Boundary

West Region FMU

The St. Johns River Water Management District prepares and uses this information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems, Program Management, P.O.Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel: (386) 329-4176.


19
Lake Yale
Lake Griffin
Lake Harris
Eustis
44
441
46A
46
46
County
Smoke Buffer Zones
1 Mile
2 Mile
5 Mile
10 Mile
Pine Meadows Conservation Area
Figure 11 - Smoke Buffer Zone Map
0
2
4
Miles
1 = 203000
N
Legend
Adult Family Care Home, ALF
Hospice
Hospital
Public Schools
Private Schools
Fire Stations
Pine Meadows Boundary
The St. Johns River Water Management District prepares and uses this information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems,Program Management, P.O.Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel: (386) 329-4176.

Cultural Resources Strategies

- Protect known cultural site as required.
- Report any new sites found to the Florida Division of Cultural Resources.

LAND USE MANAGEMENT

Access

There are 6 gates on PMCA however only 1 is used regularly by staff. Two gates require passing through private property and one is not accessible without the installation of a culvert and ditch crossing. There are roads through the Rhodes parcel and along portions of the levees. These roads are Type D, which have a limited stabilized surface with or without ditches.

No public access facilities are available on site at the time of writing but foot traffic is allowed. To allow staff access for management, regular mowing of portions of the southwestern levees takes place by the cattle lessee along with fence and gate maintenance in the pasture area. Access along the remainder of the levees is possible only with some repairs to the levee system and with additional mowing. The new cattle lease agreement will require the cattle lessee to install a low water crossing and a culvert crossing to allow access to the pasture area from the main internal levee (Hicks Ditch) area and the Cole parcel respectively.

Access Strategies

- Ensure cattle lessee installs and maintains low water crossing and culvert crossing at agreed to locations to allow staff two access sites to the leased pasture area.

Recreation

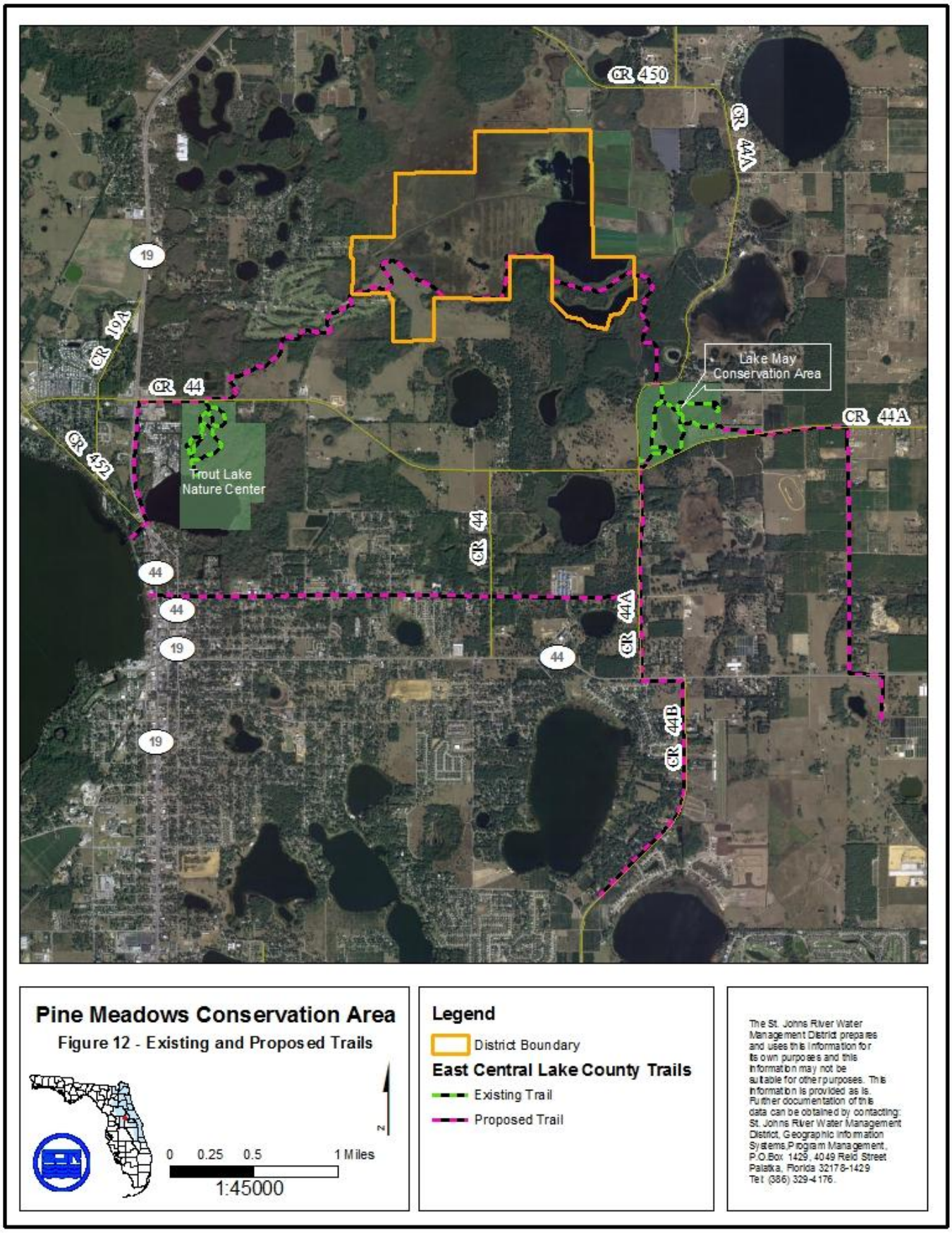
There are no recreational amenities at the time of plan writing. A trail system that is still in the concept phase has been proposed by Lake County (Figure 12). It would be a multi-use trail and would connect existing trails at the Trout Lake Nature Center and the Lake May Conservation Area and would pass through the southern end of the PMCA. The proposed trail system requires the purchase of several parcels before it can be brought to fruition. The District remains receptive to the idea of having the trail on the PMCA and will continue working with Lake County on the conceptual trail system if it comes to reality.

Recreation Strategies

- Continue to work with Lake County on proposals regarding the Trout Lake Nature Center, to Lake May Conservation Area, trail.

Security

The property was posted at the time of surveying. Fencing is present on portions of the property. Security has not been a major issue up to the time of writing other than some prohibited activities including someone building a tree fort on the Rhodes property. The wetlands limit walk-in access in


CR 450
CR 44A
19
CR 19A
CR 44
Lake May
Conservation Area
CR 44A
CR 457
Trout Lake
Nature Center
CR 44
44
44
19
CR 44A
44
19
CR 44B
Pine Meadows Conservation Area
Figure 12 - Existing and Proposed Trails
0 0.25 0.5 1 Miles
1:45000
Legend
District Boundary
East Central Lake County Trails
Existing Trail
Proposed Trail
The St. Johns River Water Management District prepares and uses this information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems,Program Management, P.O.Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel (386) 329-4176.

much of the area. Fences and gates along the southwest pasture area are maintained by the cattle lessee.

Security Strategies

- Continue regular site visits to monitor for illegal entry/activity.
- Coordinate with the District security contractor and the Lake County Sheriffs office for any security related issues.

ADMINISTRATION

Acquisition

As of the date of this writing there are no planned acquisitions associated with the PMCA.

Acquisition Strategies

- No acquisitions are anticipated at the time of this plan.

Cooperative Agreements, Leases, Easements and Concessions

A perpetual flowage easement is in effect between the conservation area and the Springhill Farm property (formerly the Brautcheck property)to the east. This eliminated the need for pumping and allowed for water levels within the conservation area to fluctuate with rainfall.
An SUA agreement has handled cattle grazing on a portion of the property up to the time of writing. A lease agreement is being written which will replace the SUA.

Cooperative Agreements, Leases, Easements and Concessions Strategies

Finalize the cattle lease agreement for the southwest pasture area.

IMPLEMENTATION CHART

TASK	RESPONSIBLE LEAD	DUE DATE	COOPERATORS
RESOURCE PROTECTION AND MANAGEMENT			
Water Resources			
Continue water quality and quantity surveys as needed	DES	Six times a year or as needed	
Flora and Fauna			
Continue to develop species lists	DLM	Ongoing	
Fire Management			
Assess the Mesic Flatwoods and marsh area for burning	DLM	Ongoing	
Exotic Species			
Continue regular site inspections and control as needed	DLM	Ongoing	
Cultural Resources Protection			
Protect known cultural site	DLM	Ongoing	FDHR
Report any new sites to Florida Division of Historical Resources	DLM	Ongoing	FDHR
Recreation			
Assess potential for trails	DLM	Ongoing	
Security			
Continue regular site visits and cooperation with District security contractor and Lake County Sheriff's Office	DLM	Ongoing	PS, LCSO
Acquisition			
Evaluate adjacent parcels for acquisition	DLA	Ongoing	DLM
Leases, Easements and Concessions			
Finalize cattle grazing lease between Richards and District	DLM	Ongoing	

DLM = Division of Land Management
DES = Division of Environmental Sciences
DLM = Division of Land Acquisition
FDHR = Florida Division of Historical Resources
PS = Plantation Security
LCSO = Lake County Sheriffs Office

APPENDIXES

Appendix 1 - Species Lists

Listed Species				
Scientific Name	**Common Name**	**FFWCC**	**USFWS**	**FNAI**
Reptiles				
Alligator mississippiensis	American alligator	**SSC (1,3)**		**G5, S4**

Exotic Species	
Scientific Name	**Common Name**
Plants	
Cinnamomum camphora	Camphortree
Eichhornia crassipes	Common Water-Hyacinth
Lantana camara	Lantana; Shrubverbena
Ludwigia peruviana	Peruvian Primrosewillow
Melia azedarach	Chinaberrytree
Momordica balsamina	Southern Balsampear
Morrenia odorata	Latexplant
Sapium sebiferum	Popcorntree; Chinese Tallowtree
Schinus terebinthifolia	Brazilian Pepper
Solanum viarum	Tropical Soda Apple
Urena lobata	Caesarweed
Fish	
Hoplosternum littorale	Armored Catfish
Mammals	
Sus scrofa	Feral Hog

Comprehensive Species List	
Plants	
Scientific Name	**Common Name**
Acer rubrum	Red Maple
Ambrosia artemisiifolia	Common Ragweed
Andropogon glomeratus	Bushy Bluestem
Baccharis halimifolia	Groundsel Tree; Sea Myrtle
Bidens bipinnata	Spanish Needles
Callicarpa americana	American Beautyberry
Cinnamomum camphora	Camphortree
Cirsium vulgare	Bull Thistle
Cladium jamaicense	Jamaica Swamp Sawgrass
Commelina diffusa	Common Dayflower
Diospyros virginiana	Common Persimmon
Eichhornia crassipes	Common Water-Hyacinth
Eleocharis baldwinii	Baldwin's Spikerush; Roadgrass
Eupatorium capillifolium	Dogfennel

Geranium carolinianum	Carolina Cranesbill
Gomphrena serrata	Prostrate Globe Amaranth; Arrasa Con Todo
Habenaria floribunda	Toothpetal False Reinorchid; Mignonette Orchid
Ilex cassine	Dahoon
Indigofera hirsuta	Hairy Indigo
Lantana camara	Lantana; Shrubverbena
Ludwigia peruviana	Peruvian Primrosewillow
Melia azedarach	Chinaberrytree
Momordica balsamina	Southern Balsampear
Morrenia odorata	Latexplant
Myrica cerifera	Southern Bayberry; Wax Myrtle
Nyssa sylvatica	Blackgum
Osmunda cinnamomea	Cinnamon Fern
Parthenocissus quinquefolia	Virginia Creeper; Woodbine
Passiflora incarnata	Purple Passionflower
Phytolacca americana	American Pokeweed
Pinus elliottii	Slash Pine
Pinus palustris	Longleaf Pine
Pinus serotina	Pond Pine
Plantago virginica	Virginia Plantain; Southern Plantain
Prunus serotina	Black Cherry
Quercus laurifolia	Laurel Oak; Diamond Oak
Quercus nigra	Water Oak
Quercus virginiana	Live Oak
Rhus copallinum	Winged Sumac
Rubus cuneifolius	Sand Blackberry
Sabal palmetto	Cabbage Palm
Sagittaria lancifolia	Bulltongue Arrowhead
Salix caroliniana	Carolina Willow; Coastalplain Willow
Sambucus nigra canadensis	American Elder; Elderberry
Sapium sebiferum	Popcorntree; Chinese Tallowtree
Schinus terebinthifolia	Brazilian Pepper
Setaria magna	Giant Bristlegrass
Solanum viarum	Tropical Soda Apple
Spartina bakeri	Sand Cordgrass
Spermacoce verticillata	Shrubby False Buttonweed
Taxodium distichum	Bald-Cypress
Thalia geniculata	Alligatorflag; Fireflag
Tillandsia recurvata	Ballmoss
Tillandsia usneoides	Spanish Moss
Toxicodendron radicans	Eastern Poison Ivy
Typha latifolia	Broadleaf Cattail
Urena lobata	Caesarweed
Vaccinium myrsinites	Shiny Blueberry
Vitis rotundifolia	Muscadine
Woodwardia virginica	Virginia Chain Fern

Invertebrates	
Butterflies	
Agraulis vanillae	Gulf Fritillary
Anartia jatrophae	White Peacock
Heliconius charithonia	Zebra Heliconian
Vertebrates	
Fish	
Ameiurus nebulosus	Brown Bullhead
Amia calva	Bowfin
Hoplosternum littorale	Armored Catfish
Lepisosteus platyrhincus	Florida Gar
Lepomis macrochirus	Bluegill
Micropterus salmoides	Largemouth Bass
Pomoxis nigromaculatus	Black Crappie
Reptiles	
Alligator mississippiensis	American Alligator
Anolis sagrei	Brown Anole
Amphibians	
Lithobates sphenocephalus utricularius	Southern Leopard Frog
Avian	
Dendroica pinus	Pine Warbler
Dumetella carolinensis	Gray Catbird
Mammal	
Canis latrans	Coyote
Dasypus novemcinctus	Nine-Banded Armadillo
Odocoileus virginianus	White-Tailed Deer
Sus scrofa	Feral Hog

FNAI GLOBAL RANK DEFINITIONS

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

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

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

FNAI STATE RANK DEFINITIONS

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).

FEDERAL LEGAL STATUS

Provided by FNAI for information only.
For official definitions and lists of protected species, consult the relevant federal agency.

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

LE Endangered: species in danger of extinction throughout all or a significant portion of its range.
LT Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
LT,PDL Species currently listed threatened but has been proposed for delisting.
LT,PE Species currently listed Threatened but has been proposed for listing as Endangered.
SAT Treated as threatened due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.
PE Proposed for listing as Endangered species.
PT Proposed for listing as Threatened species.

C Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
XN Non-essential experimental population.
SC Not currently listed, but considered a "species of concern" to USFWS.
N Not currently listed, nor currently being considered for listing as Endangered or Threatened.

STATE LEGAL STATUS

Provided by FNAI for information only.
For official definitions and lists of protected species, consult the relevant state agency.

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

LE Endangered: species, subspecies, or isolated population so few or depleted in number or so restricted in range that it is in imminent danger of extinction.
LT Threatened: species, subspecies, or isolated population facing a very high risk of extinction in the future.
LS Species of Special Concern is a species, subspecies, or isolated population which is facing a moderate risk of extinction in the future.
PE Proposed for listing as Endangered.
PT Proposed for listing as Threatened.
PS Proposed for listing as Species of Special Concern.
N Not currently listed, nor currently being considered for listing.

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

LE Endangered: species of plants native to Florida 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; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.
LT Threatened: 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 number as to cause them to be Endangered.
PE Proposed for listing as Endangered.
PT Proposed for listing as Threatened.
N Not currently listed, nor currently being considered for listing.

Appendix 2 – Soils Descriptions

Anclote – The Anclote series consists of very deep, very poorly drained, rapidly permeable soils in depressions, poorly defined drainage ways, and flood plains. They formed in thick beds of sandy marine sediments. Anclote soils are in depressions, flats, or poorly defined drainage ways in the Lower Coastal Plain. Native vegetation consists of cypress, bay, popash, pond pine, cabbage palm, red maple, and juncus species.

Brighton Muck - The Brighton series consists of very deep, very poorly drained, moderately rapid to rapidly permeable organic soils in depressions, freshwater marshes, and swamps in peninsular Florida. They formed from the remains of woody plants. Natural vegetation consists mostly of sawgrass, prairie iris, ferns, bull-tongue, greenbriar, buttonbush, maidencane, sedges, and arrow arums in some areas, with other areas being dominated by baldcypress, red bay, white bay, and red maple.

Eureka Loamy Fine Sands - The Eureka series consists of deep, poorly drained, slowly and very slowly permeable soils that formed in clayey and loamy marine sediments. These soils are on low, broad flat interstream divides and depressions of central and south Florida. Most areas are in native vegetation of longleaf and slash pines, sweetbay, magnolia, water oak, and sweetgum with an understory of inkberry, pineland threeawn, bluestems, indiangrass, and waxmyrtle.

Fellowship Fine Sandy Loam - The Fellowship series consists of poorly drained and very poorly drained soils that are more than 80 inches thick. Fellowship soils formed in clayey marine sediments. They are on uplands of Peninsular Florida. Most areas are in native vegetation of sweetgum, slash pine, hickory, magnolia, water oak, red maple, and Carolina ash. Depressional areas also have cypress.

Myakka – Deep and very deep, poorly to very poorly drained soils formed in sandy marine deposits. These soils are on flatwoods, high tidal areas, flood plains, depressions, and gently sloping to barrier islands. Slopes in areas where these soils are found range from 0-8%. Native vegetation includes longleaf and slash pines with an undergrowth of saw palmetto, running oak, inkberry, wax myrtle, huckleberry, chalky bluestem, pineland threeawn, and scattered fetterbush.

Ocoee Mucky Peat - The Ocoee Series consists of deep, very poorly drained soils that formed in herbaceous organic material and sandy mineral material. These soils are on floodplains, freshwater marshes, and depressions. Most areas are drained and protected from flooding and used for truck crops, sod crops, and improved pasture. Undrained areas are vegetated by sawgrass, reeds, lilies, Florida willow, and other aquatic non-woody and woody plants.

Oklawaha Muck – The Oklawaha series consists of deep, very poorly drained soils that formed in herbaceous organic material and loamy and clayey mineral material. These soils are on floodplain, freshwater marshes, and depressions. These soils are located in Lake County, Florida; floodplain between Lake Apopka and Lake Dora. Most areas are in natural vegetation of sawgrass, lilies, sedges, cypress, bay, maple, and blackgum and used for range, wildlife habitat, or water storage areas.

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