

**PROJECT ENVIRONMENTAL IMPACT REPORT
RE-EVALUATION**

**Osceola Parkway Extension
SR 417 to Cyrils Drive**

Natural Resources Evaluation

Final

Central Florida Expressway Authority

Contract No.: 001250

January 2020

**CENTRAL
FLORIDA
EXPRESSWAY
AUTHORITY**

**Natural Resources Evaluation
Osceola Parkway Extension**

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| Appendix B | <i>Eagles Roost Management Plan</i> |
| Appendix C | <i>Canal 29-A Conservation Easement</i> |

1.0 Project Summary

1.1 Project Background

The Central Florida Expressway Authority (CFX) is studying a new expressway connection between State Road 417 near Boggy Creek Road in Orange County and Cyrils Drive in Osceola County. This project is a re-evaluation of the Osceola Parkway Extension (OPE) Project Development and Environment (PD&E) Study that was prepared for the Osceola County Expressway Authority (OCX) in 2017. The Natural Resources Evaluation analyses conducted in support of that PD&E Study largely coincide with the current alternatives being carried forward by CFX. The present re-evaluation was conducted to update the previous analyses to include additional and revised alternatives developed by CFX.

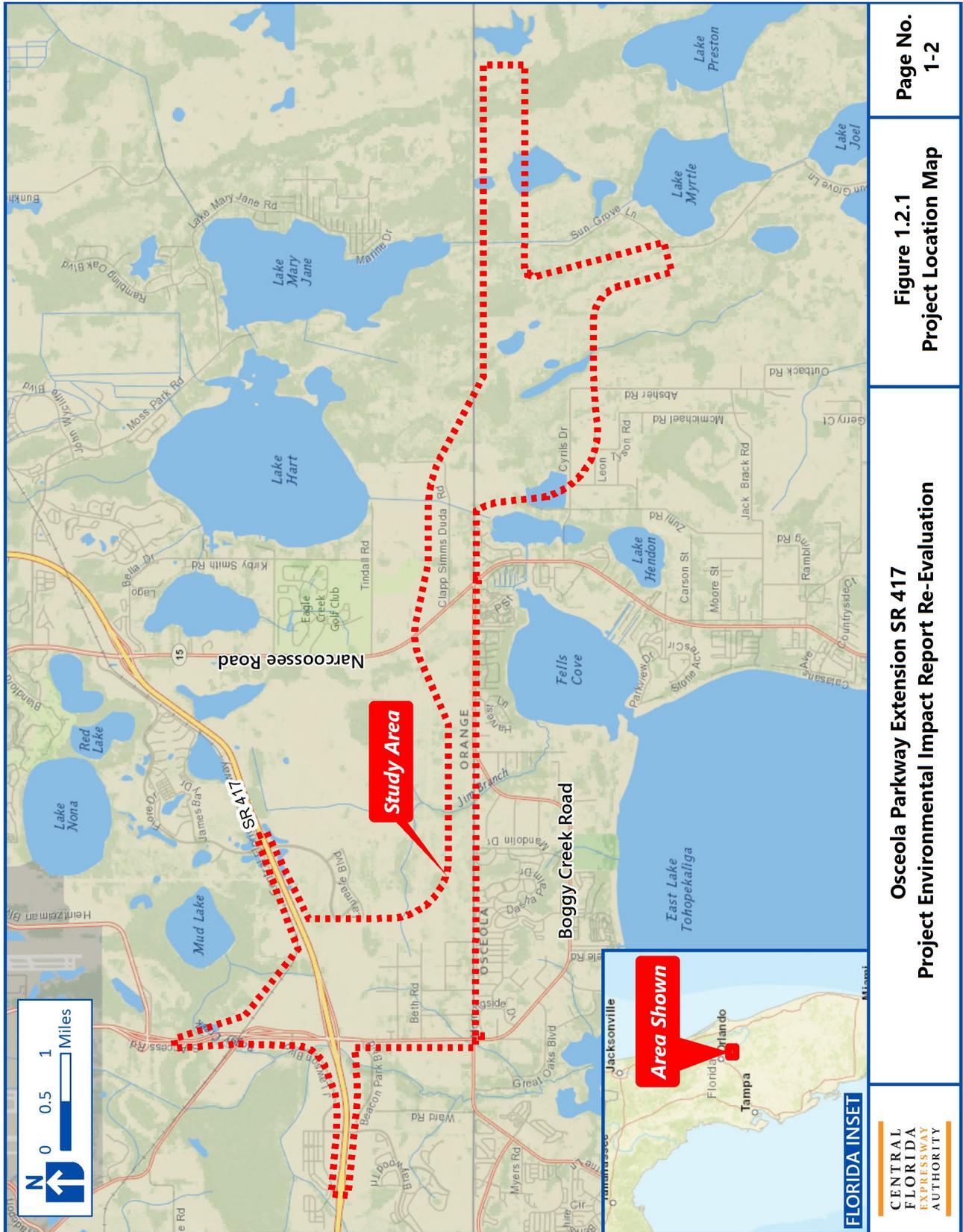
1.2 Project Description

Beginning at an interchange with SR 417, OPE will extend approximately one and a half miles south at which point it will turn eastward just north of the Orange County / Osceola County line. Generally paralleling the county line, OPE will extend east / southeast approximately eight miles. **Figure 1.2.1** shows the current Osceola Parkway Extension study area.

OPE will provide direct, high speed connections between several of Central Florida's economic generators such as the Orlando International Airport, Lake Nona Medical City in Orange County and the Northeast District (NED) in Osceola County. OPE will also advance the expanded regional roadway network adopted by the East Central Florida Corridor Task Force, which recognized the need to provide enhanced east / west multi-modal travel capacity between Central Florida and Florida's east coast.

The OPE was originally conceived to extend the existing Osceola Parkway that begins on the Walt Disney World Resort property and ends approximately 20 miles east near the intersection of Boggy Creek Road and Simpson Road. The original OPE proposed to extend the Osceola Parkway nine miles east to the proposed Northeast Connector Expressway. During the 2017 OCX PD&E study process, it was determined that a direct connection from the existing Osceola Parkway to the proposed OPE was not viable due to high residential and community cohesion impacts. Therefore, the alternatives herein do not directly connect to the existing Osceola Parkway but provide the same regional connectivity and relief that the original study attempted to resolve.

Figure 1.2.1: Project Location Map



Page No.
1-2

Figure 1.2.1
Project Location Map

Osceola Parkway Extension SR 417
Project Environmental Impact Report Re-Evaluation

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1.3 Purpose and Need

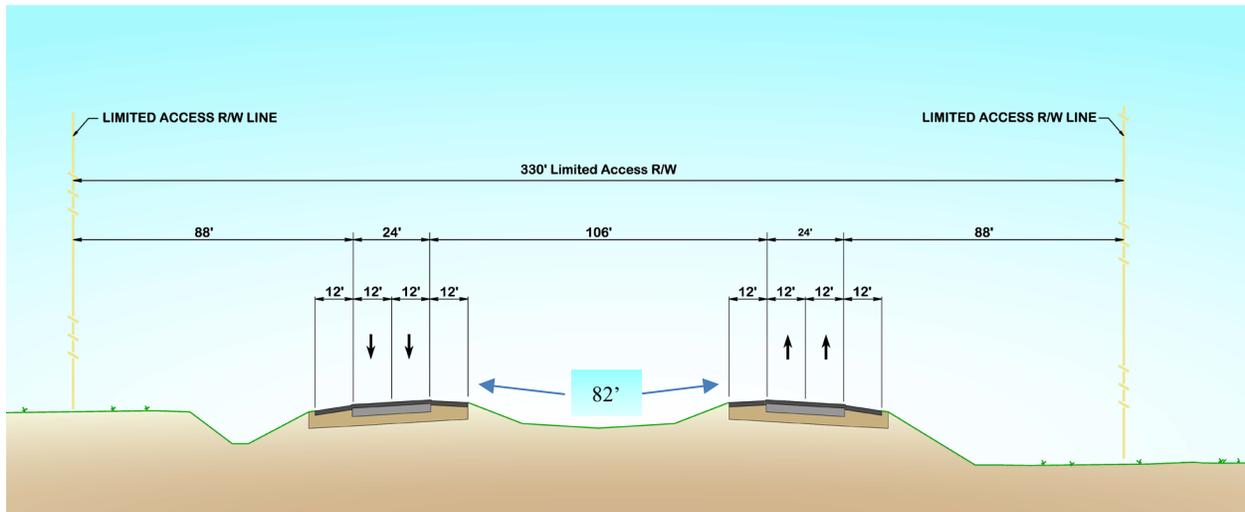
The primary purpose of the OPE is to respond to and prepare for future growth planned and approved in Orange County’s Innovation Way Overlay and Osceola County’s Narcoossee Planning Initiative area and the NED planning areas. Additionally, the OPE will promote regional system linkage and network connectivity to existing SR 417 and SR 528 in east Orange County and the proposed Northeast Connector Expressway that is planned to provide further connectivity to Florida’s Turnpike and US 192.

1.4 Alternatives Description

The need for the project is based on several factors including accommodating future travel demand and capacity needs and improving system linkages. Current infrastructure will not adequately accommodate the planned development in Orange and Osceola counties. Future growth and travel demand is anticipated in the region because of approved proposed developments including NED in Osceola County, planned development in the Innovation Way Planned Overlay Area in Orange County, and planned development in the Narcoossee Planning Initiative area. As a result, local and regional facilities are expected to exceed capacity, creating a gap between proposed developments and a regional transportation system. Additionally, the East Central Florida Corridor Task Force Summary Report recommended potential study areas for new or significantly upgraded east-west corridors in the OPE study area region.

One typical section is considered for the length of the project. The proposed typical section features two 12-foot travel lanes in each direction flanked by 12-foot paved inside and outside shoulders. The proposed median width is 82 feet wide, which can accommodate future widening. The ultimate typical section features an eight-lane section and two potential multi-use lanes with a concrete median barrier wall. The proposed typical section requires 330 feet of limited access right-of-way, which includes a border width of 88 feet on both sides of OPE as shown on **Figure 1.4.1**.

Figure 1.4.1: Proposed Typical Section



The alternatives for the project are split into two sections:

- West Segment from SR 417 to Narcoossee Road (Section 1.4.1); and
- East Segment from Narcoossee Road (Section 1.4.2).

1.4.1 West Segment

The SR 417 to Narcoossee Road segment features two roadway alternatives. In addition to the OCX PD&E Recommended Alternative (2017) West of Narcoossee Road, two additional alternatives for the West segment are identified as follows:

- Lake Nona Alternative; and
- Boggy Creek Road Alternative.

1.4.1.1 Lake Nona Alternative

The Lake Nona Alternative begins with a system interchange with SR 417 that provides access to the Orlando International Airport. The alignment then travels south through the Lake Nona property, where there is a partial interchange with Laureate Boulevard. The alternative continues south until the Orange / Osceola County line, where the alignment curves to the east. Simpson Road is proposed to be extended east of Boggy Creek Road to connect to the Poitras property. An interchange will be provided with this extension of Simpson Road, near the county line. The alignment continues along the Orange / Osceola County line and includes a proposed interchange at Narcoossee Road. Due to the proximity of the proposed interchange with Narcoossee Road, Clapp Simms Duda Road is proposed to be relocated south, so it aligns with the existing Boggy Creek Road signalized intersection. An overview of this alternative and the OCX PD&E Recommended Alternative (2017) West of Narcoossee Road is shown on **Figure 1.4.2**.

1.4.1.2 Boggy Creek Road Alternative

The Boggy Creek Road Alternative closely follows the OCX PD&E Recommended Alternative (2017). The Boggy Creek Road Alternative also begins with a system interchange at SR 417, then travels south and parallel to the east side of Boggy Creek Road. Simpson Road is proposed to be extended east of Boggy Creek Road. An interchange will be provided with this extension of Simpson Road just northeast of the existing Simpson Road and Boggy Creek Road intersection. Similar to the Lake Nona Alternative, after the interchange, the alternative turns eastward and parallels the Orange/ Osceola County line approaching a proposed interchange at Narcoossee Road. Due to the proximity of the proposed interchange with Narcoossee Road, Clapp Simms Duda Road is proposed to be relocated south, so it aligns with the existing Boggy Creek Road signalized intersection. An overview of this alternative and the OCX PD&E Recommended Alternative (2017) West of Narcoossee Road is shown on **Figure 1.4.3**.

1.4.2 East Segment

In addition to the OCX PD&E Recommended Alternative (2017), east of Narcoossee Road, two additional alternatives have been evaluated for the portion of the study area east of Narcoossee Road. The two additional alternatives for the east segment are identified as follows:

- Split Oak Minimization Alternative; and
- Split Oak Avoidance Alternative

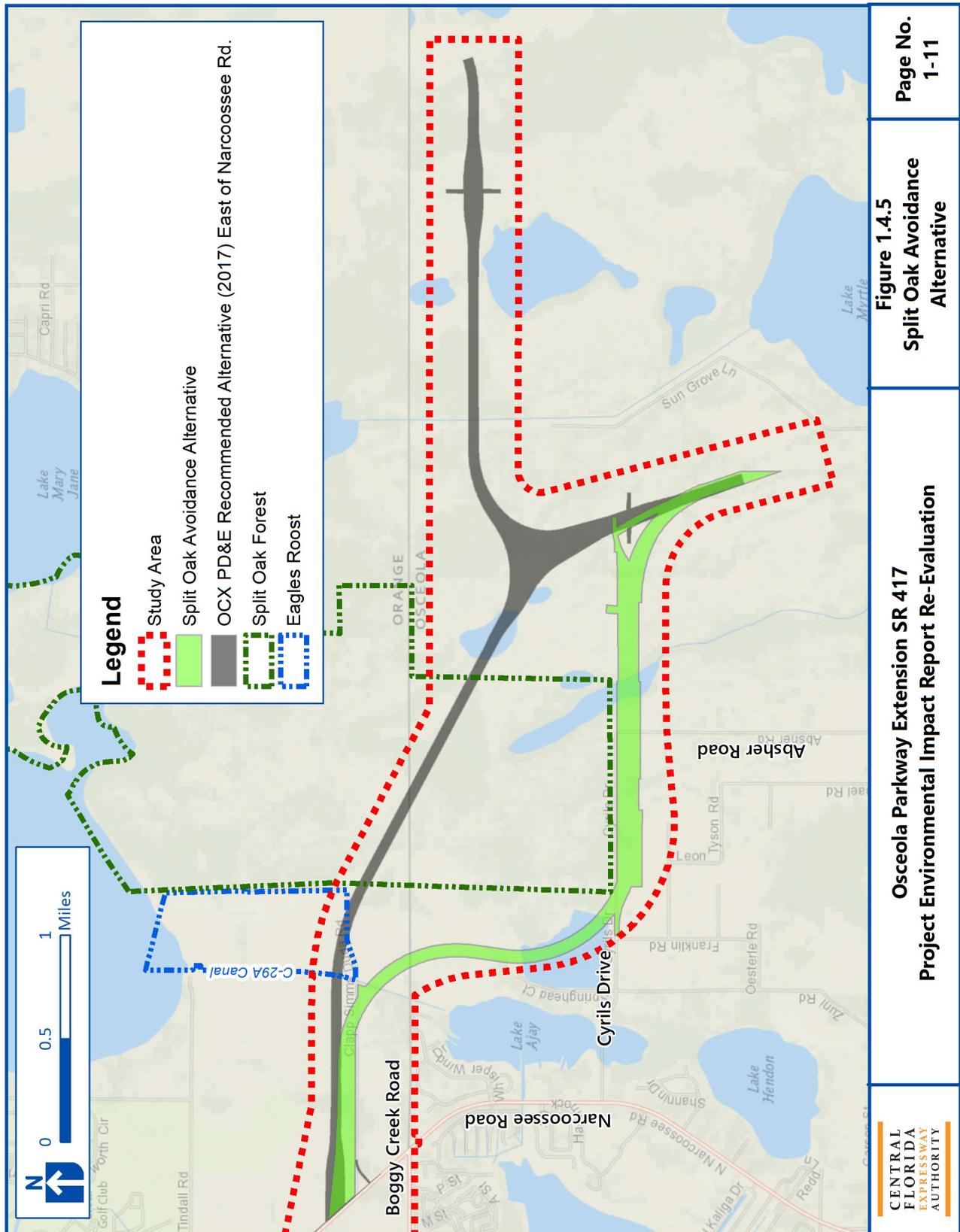
1.4.2.1 Split Oak Minimization Alternative

The Split Oak Minimization Alternative travels north of and parallel to Clapp Simms Duda Road before turning southeast near Canal C-29A. The alternative traverses the southwestern edge of Split Oak Forest and includes a local access interchange with Cyrils Drive just east of Split Oak Forest. An overview of this alternative and the OCX PD&E Recommended Alternative (2017) East of Narcoossee Road is shown on **Figure 1.4.4**.

1.4.2.2 Split Oak Avoidance Alternative

The Split Oak Avoidance Alternative also travels north of and parallel to Clapp Simms Duda Road before turning south just before Canal C-29A. This alternative is positioned west of Split Oak Forest and overpasses Cyrils Drive before being positioned south of and parallel to the existing Cyrils Drive. This alternative then reconfigures Cyrils Drive into a pair of one-way frontage roads on either side of OPE. An interchange with Cyrils Drive is provided near Absher Road. This alternative avoids direct impacts to Split Oak Forest. An overview of this alternative and the OCX PD&E Recommended Alternative (2017) East of Narcoossee Road is shown on **Figure 1.4.5**.

Figure 1.4.5: Split Oak Avoidance Alternative



1.5 Existing Conditions

The following sections describe the existing conditions of the natural and physical environment within the study area.

1.5.1 Existing Land Use

Land cover land use data from the South Florida Water Management District (SFWMD, 2016) was utilized to develop a baseline of existing habitat types within the study area. Limited ground truthing by biologists was conducted during field reviews on August 13, August 14 and November 7, 2018 to confirm existing land uses within the study area. During field reviews, it was noted that several areas that were mapped as improved or unimproved pasture have subsequently been developed. In these areas, the maps included as **Figure 1.5.1** and **1.5.2** were updated from 2018 aerials and photointerpretation to reflect current land uses. Habitat types were mapped using the Florida Land Use/ Cover and Forms Classification System (FLUCFCS).

A summary of habitat types within the project study area are presented in **Table 1.5.1** and **Figures 1.5.1 and 1.5.2** show the habitats within the project study area.

Table 1.5.1: Existing Land Use Types within Study Area

| FLUCFCS Classification | Description |
|-------------------------------|---|
| 111 | Fixed Single Family Units |
| 113 | Mixed Units, Fixed and Mobile Home Units |
| 118 | Rural Residential |
| 121 | Fixed Single Family Units |
| 123 | Mixed Units, Fixed and Mobile Home Units |
| 129 | Medium Density Under Construction |
| 132 | Mobile Home Units |
| 140 | Commercial and Services |
| 149 | Commercial and Services Under Construction. |
| 190 | Open Land |
| 211 | Improved Pastures |
| 212 | Unimproved Pastures |
| 213 | Woodland Pastures |
| 221 | Citrus Groves |
| 243 | Ornamentals |
| 251 | Horse Farms |
| 310 | Herbaceous (Dry Prairie) |
| 320 | Upland Shrub and Brushland |
| 321 | Palmetto Prairies |
| 411 | Pine Flatwoods |
| 420 | Upland Hardwood Forests |
| 434 | Upland Mixed Coniferous / Hardwood |
| 511 | Natural River, Stream, Waterway |
| 512 | Channelized Waterways, Canals |
| 520 | Lakes |
| 530 | Reservoirs |
| 611 | Bay Swamps |
| 615 | Streams and Lake Swamps |
| 617 | Mixed Shrubs |
| 621 | Cypress |
| 624 | Cypress - Pine - Cabbage Palm |
| 625 | Wet Pinelands Hydric Pine |
| 630 | Wetland Forested Mixed |
| 641 | Freshwater Marshes |
| 643 | Wet Prairie |
| 740 | Disturbed Land |
| 743 | Spoil Areas |
| 747 | Dikes and Levees |
| 810 | Transportation |
| 814 | Roads and Highways |
| 834 | Sewage Treatment |

Figure 1.5.1: Existing Land Use Map West Segment

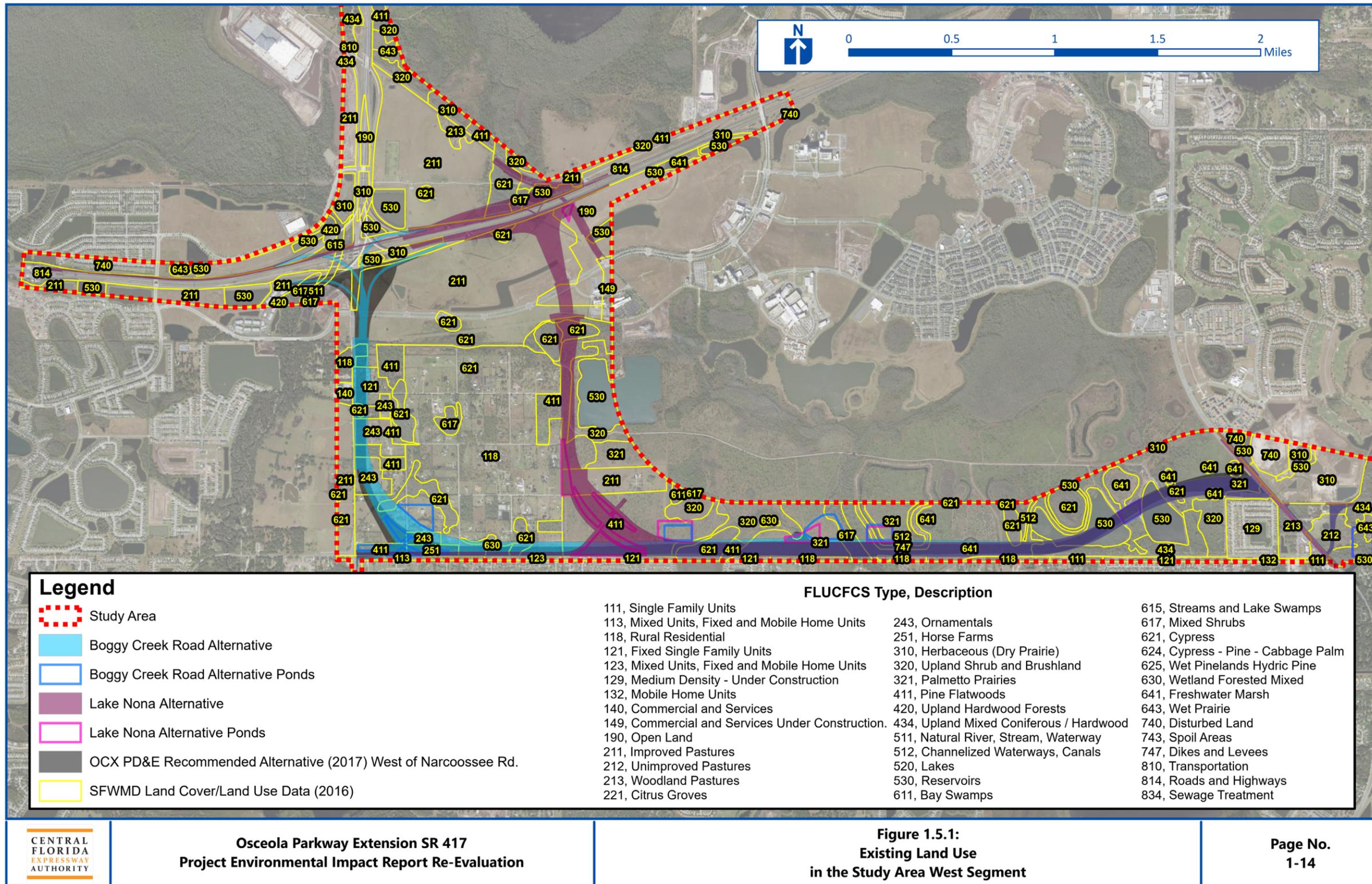
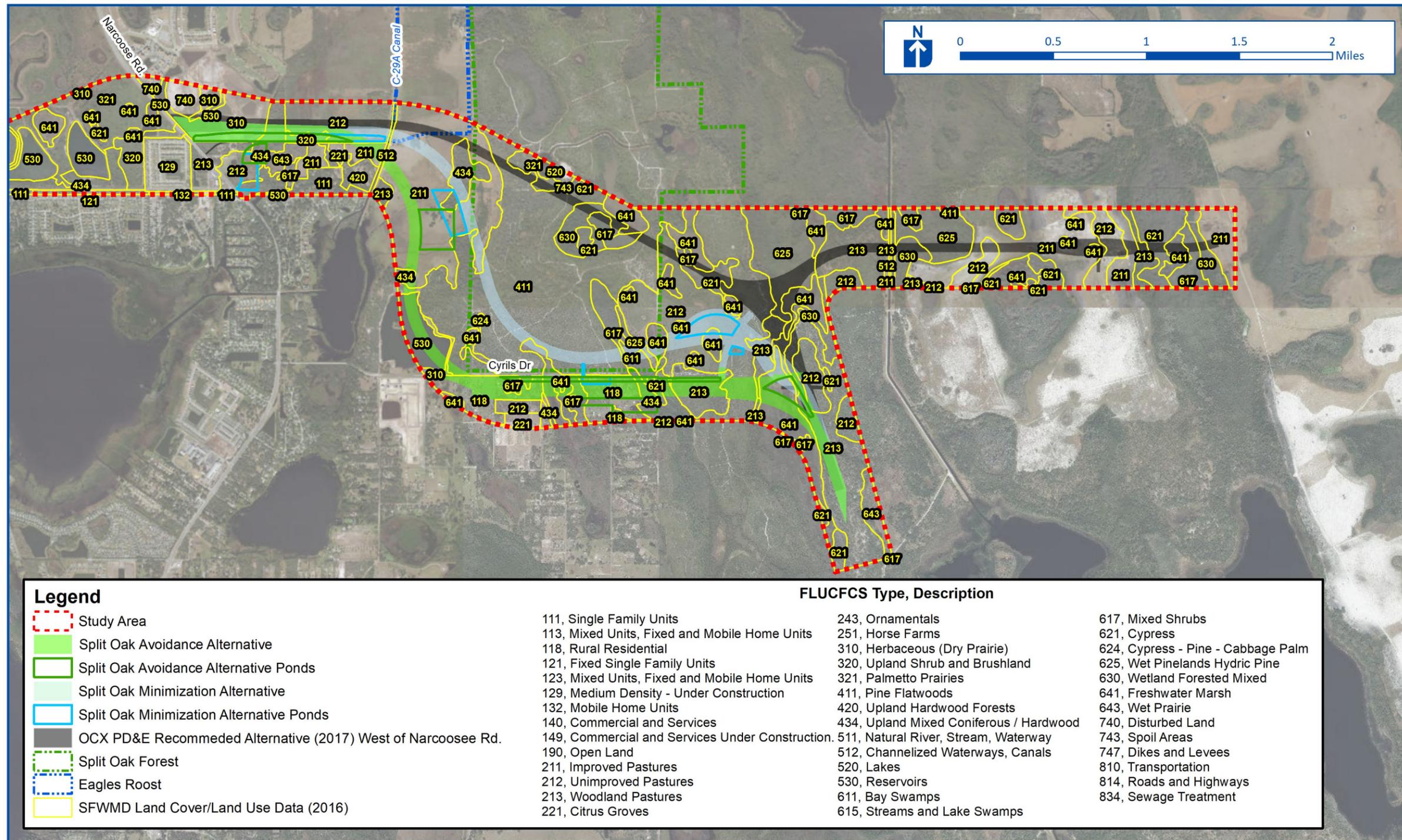


Figure 1.5.2: Existing Land Use Map East Segment



1.5.2 Existing Conservation Areas

As shown on **Figure 1.5.2**, Split Oak Forest Wildlife and Environmental Area (SOFWEA) is one of the predominate land uses within the eastern portion of the study area. Comprising approximately 1,689 acres, SOFWEA lies in all or portions of Sections 2 and 3, Township 25S, Range 31E, with a small portion of the area also located in Section 27, Township 24S, and Range 31E. Public access to the area is provided directly off Cyril's Drive and Clapp Simms Duda Road.

SOFWEA is managed by the Florida Fish and Wildlife Conservation Commission (FWC), in cooperation with Orange and Osceola counties, to conserve and restore natural wildlife habitat for a wide range of imperiled wildlife species and other wildlife species, focusing primarily on the conservation of gopher tortoise habitat. The area was acquired and conserved in part with FWC Gopher Tortoise Mitigation Program funds, to offset development impacts to gopher tortoises. Funding received from wetland mitigation permits and grant funding from the Florida Community Trust Program aides in natural resource conservation and helps provide high-quality fish and wildlife based public outdoor recreational opportunities in SOFWEA. A Management Plan for SOFWEA (2017-2027) is included as **Attachment A**.

Also located within the eastern portion of the study area is Eagles Roost. Eagles Roost is a 232-acre site located off of Clapp Simms Duda Road in Township 24S, Range 31E, Sections 27 and 33. The parcel is located west of SOFWEA. The property was acquired on May 8, 2006 by Orange County through the Green Park Land Acquisition for Conservation and Environmental Protection (PLACE) program. The Green PLACE program mission statement is as follows: *“To preserve and manage environmentally sensitive lands, protect water resource lands and to provide a quality passive recreational outdoors experience for existing and future generations.”* A management plan for Eagles Roost (Revised 2014) is included as **Attachment B**.

Located within Eagles Roost is the Back to Nature Wildlife Refuge and Education Center. In August of 2007, the Orange County Board of County Commissioners approved a lease between Back to Nature Wildlife Refuge and Education Center and Orange County to lease 20 acres for the relocation of their current facility to Eagles Roost. The mission of the Back to Nature Wildlife Refuge is to rescue, raise, rehabilitate, and release injured or orphaned Florida native species.

Within the eastern portion of the study area is Canal C-29A. Canal C-29A is owned and maintained by the South Florid Water Management District. As shown on **Figure 1.5.2**, Canal C-29A connects Lake Hart and Ajay Lake. The approximate right of way width of Canal C-29A varies between 180 and 250 feet. Multiple conservation easements have also been dedicated to the South Florida Water Management District to comprise Canal C-29A. Copies of these conservation easements are included as Appendix C. Both the Split Oak Avoidance and Split Oak Minimization alternatives cross Canal C-29A. Impacts to Canal C-29A will require modifications to these conservation easements as well as a South Florida Water Management District Right of Way Occupancy Permit.

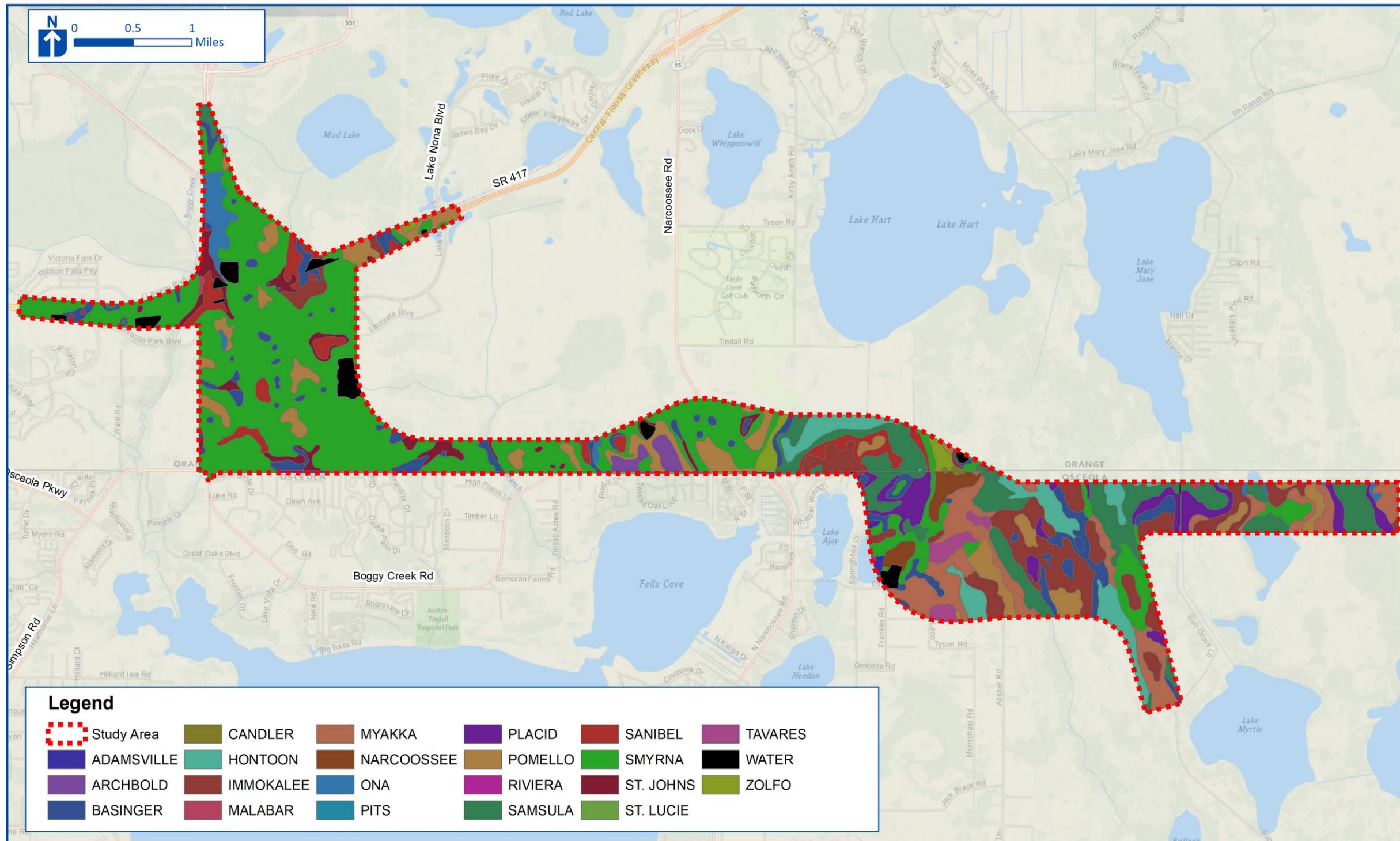
1.5.3 Existing Soil Conditions

The Natural Resources Conservation Service (NRCS) Soil Surveys for Osceola and Orange counties were reviewed for near-surface soil and groundwater information. The NRCS Soil Survey maps of the study area are shown on **Figure 1.5.3**. A summary of NRCS Soil Survey soil types within the project corridor are provided in **Table 1.5.2**. A detailed geotechnical analysis of the soil types is available in a separate Geotechnical Report.

Table 1.5.2: NRCS Soil Types

| Soil Classification | Acres | Percent of Study Area | Drainage Class |
|---------------------|--------|-----------------------|-------------------------|
| Adamsville | 13.4 | 0.2% | Somewhat Poorly Drained |
| Archbold | 54.1 | 0.9% | Moderately Well Drained |
| Basinger | 386.1 | 6.3% | Poorly Drained |
| Candler | 5.1 | 0.1% | Excessively Drained |
| Hontoon | 295.1 | 4.8% | Very Poorly Drained |
| Immokalee | 542.3 | 8.8% | Poorly Drained |
| Malabar | 5.6 | 0.1% | Poorly Drained |
| Myakka | 454.2 | 7.4% | Poorly Drained |
| Narcoossee | 78.7 | 1.3% | Moderately Well Drained |
| Ona | 107.7 | 1.8% | Poorly Drained |
| Pits | 0.5 | 0.0% | - |
| Placid | 229.6 | 3.7% | Very Poorly Drained |
| Pomello | 495.1 | 8.1% | Moderately Well Drained |
| Riviera | 3.7 | 0.1% | Very Poorly Drained |
| Samsula | 626.5 | 10.2% | Very Poorly Drained |
| Sanibel | 205.5 | 3.3% | Very Poorly Drained |
| Smyrna | 2238.2 | 36.4% | Poorly Drained |
| St. Johns | 155.6 | 2.5% | Poorly Drained |
| St. Lucie | 4.3 | 0.1% | Excessively Drained |
| Tavares | 64.7 | 1.1% | Moderately Well Drained |
| Water | 122.1 | 2.0% | - |
| Zolfo | 58.6 | 1.0% | Somewhat Poorly Drained |

Figure 1.5.3: NRCS Soil Survey Soil Types



2.0 Protected Species and Habitat

The protected species and habitats that may occur in the study area are based on available resources and confirmed by qualified ecologists during limited field reviews. Field reviews for the OCX PD&E Recommended Alternative (2017) was collected by Kimley Horn and Associates (KHA) and Inwood in 2016. The ecologists recorded the presence of and utilization by protected species. The term “protected species” generally refers to species that are protected by law, regulation, or rule. More specifically, the term protected species refers to those species listed under the *Endangered Species Act* (ESA) and those listed under Florida’s Endangered and Threatened Species List, Chapter 68A-27, Florida Administrative Code.

The ecologists also documented the types and quality of habitats in the study area which includes the alignments described in Sections 1.4.1 and 1.4.2. This information was used in conjunction with publicly available geographic information systems (GIS) resources and field surveys for the purpose of supporting effect determinations for protected resources. The information was collected and prepared in accordance with Sections 7 and 10 of the ESA and Chapter 16, Protected Species and Habitat, of Part II of the FDOT’s PD&E Manual.

2.1 Protected Species

The U.S. Fish and Wildlife Service’s Environmental Conservation Online System (ECOS) provided the list of potentially occurring federally protected species shown in **Table 2.1.1**. **Table 2.1.1** also includes potentially occurring species which are state listed or included in *Florida’s Imperiled Species Management Plan* (2016 and amended December 2018).

Based on evaluation of collected data and field reviews, the federal- and state-listed species discussed below were observed as having the potential to occur within or adjacent to the study area. Maps reflecting a summary of collected data and field reviews are provided as **Figures 2.1.1** and **2.1.2**. An effect determination was made for each of these federal and state listed species based on an analysis of the potential impacts of the proposed project on each species.

Figure 2.1.1: Western Alternatives Listed Species

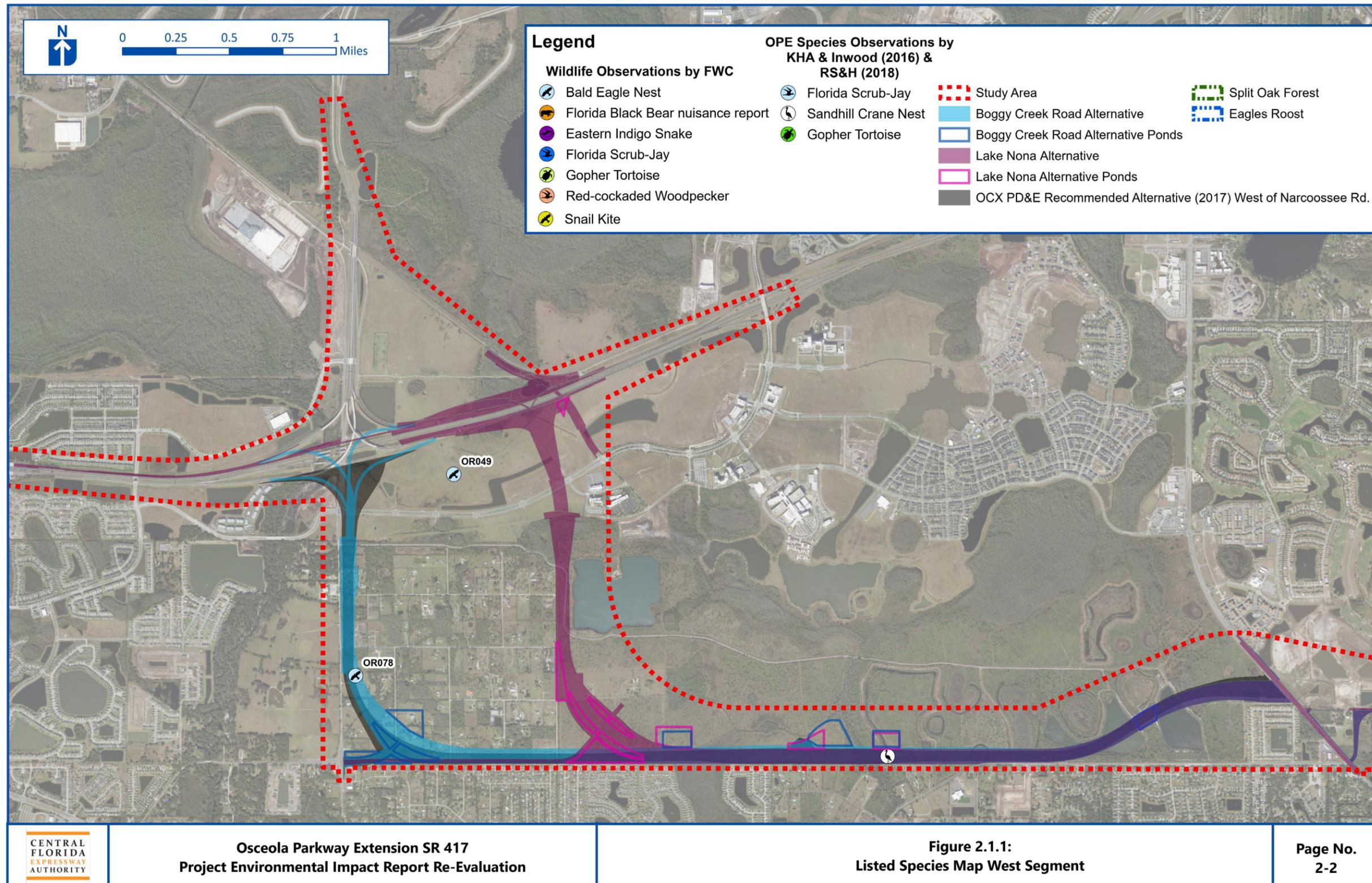


Figure 2.1.2: Eastern Alternatives Listed Species

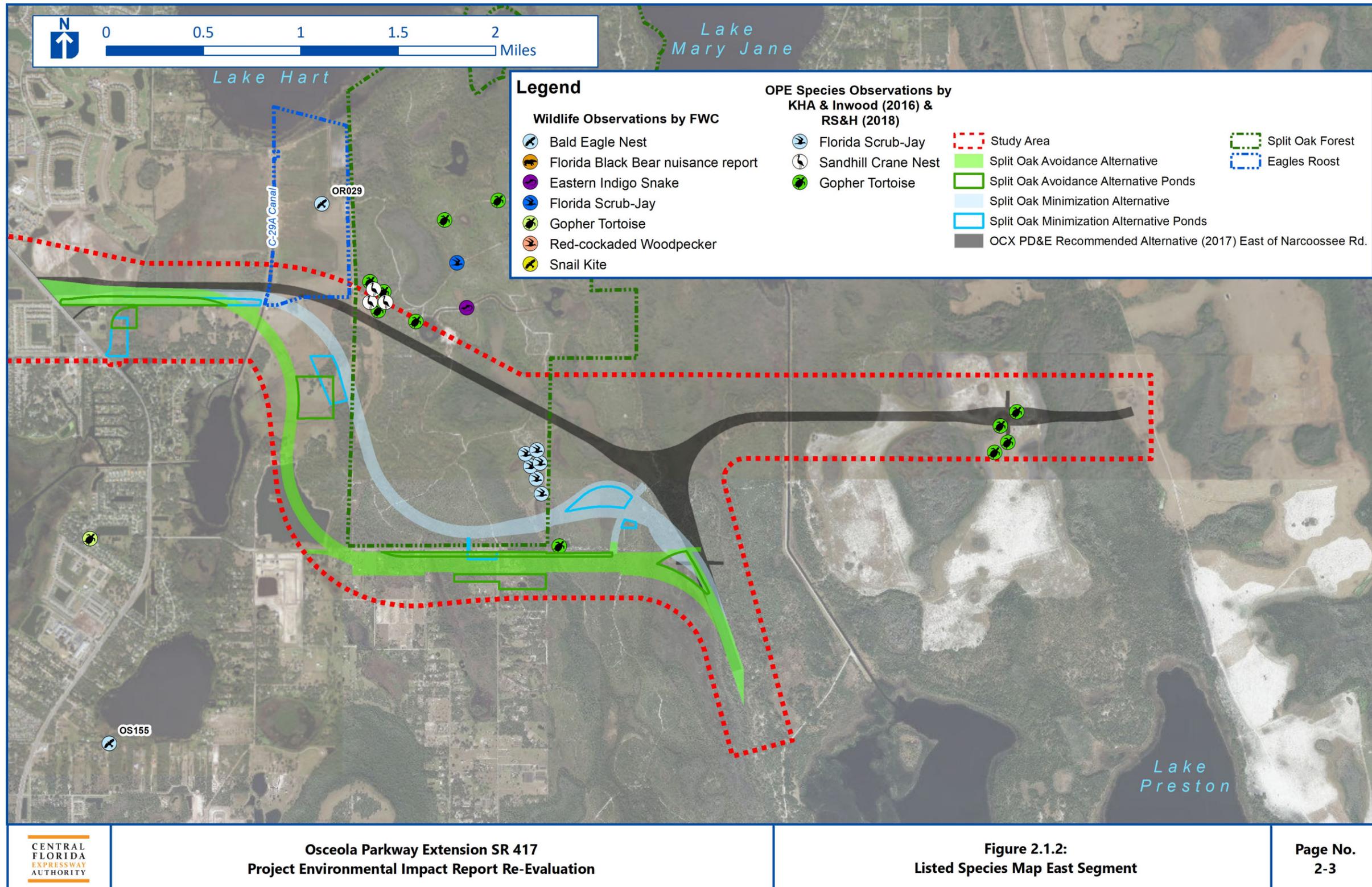


Table 2.1.1: Listed Species

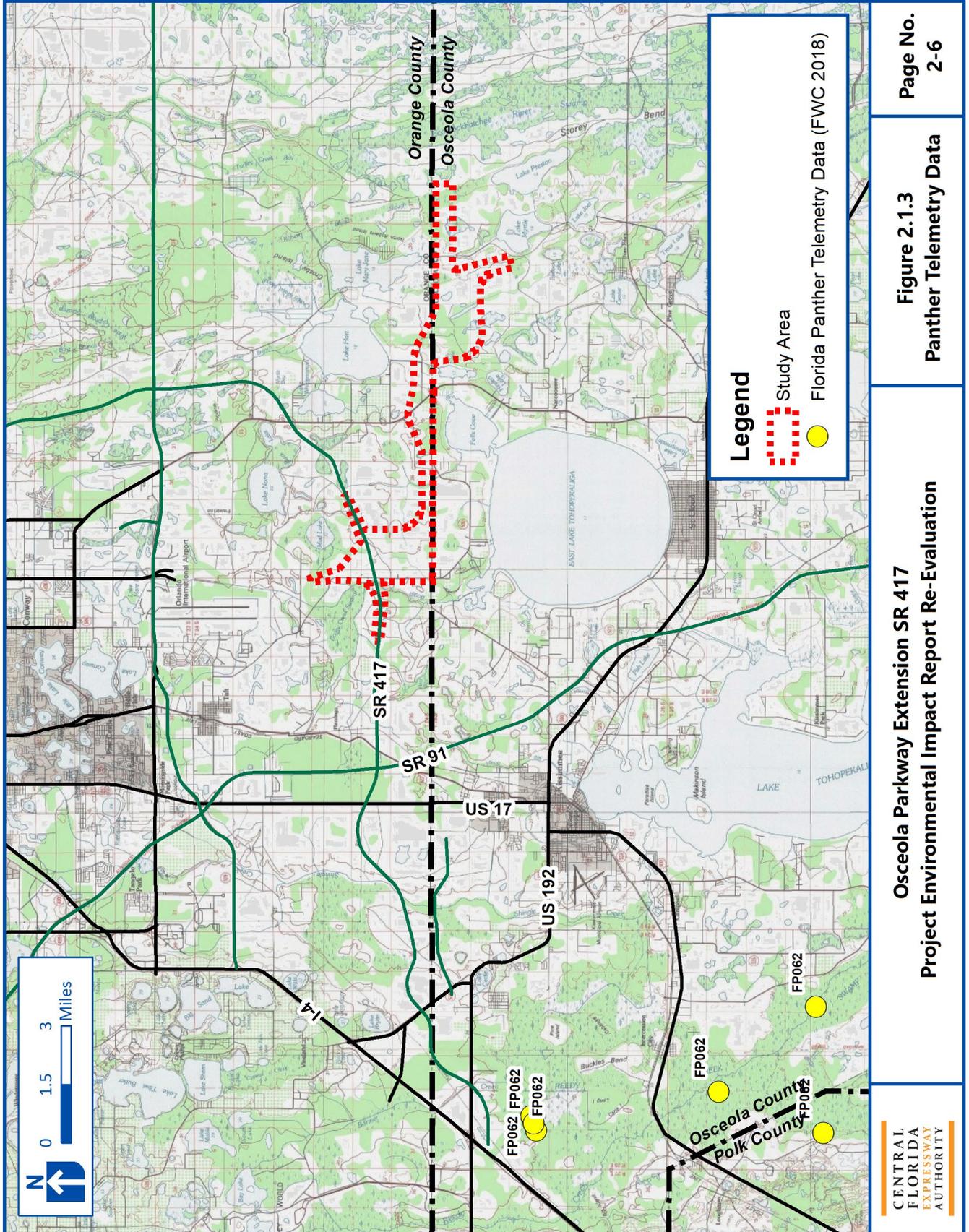
| Common Name | Scientific Name | Federal Status | State Status | Likelihood of Occurrence |
|---|---------------------------------------|----------------|--------------|--------------------------|
| Mammals | | | | |
| Florida Panther | <i>Puma concolor coryi</i> | <i>E</i> | <i>E</i> | Low |
| Florida Black Bear | <i>Ursus americanus floridanus</i> | <i>N</i> | <i>N*</i> | Moderate |
| Reptiles | | | | |
| Eastern Indigo Snake | <i>Drymarchon corais couperi</i> | <i>T</i> | <i>T</i> | High |
| Blue-Tailed Mole Skink | <i>Plestiodon egregious lividus</i> | <i>T</i> | <i>T</i> | Low |
| Sand Skink | <i>Neoseps reynoldsi</i> | <i>T</i> | <i>T</i> | Low |
| American Alligator | <i>Alligator mississippiensis</i> | <i>T(S/A)</i> | <i>N</i> | High |
| Gopher Tortoise | <i>Gopherus polyphemus</i> | <i>C</i> | <i>T</i> | High |
| Florida Pine Snake | <i>Pituophis melanoleucus mugitus</i> | <i>N</i> | <i>T</i> | High |
| Birds | | | | |
| Everglade Snail Kite | <i>Rostrhamus sociabilis plumbeus</i> | <i>E</i> | <i>E</i> | Moderate |
| Red-Cockaded Woodpecker | <i>Picoides borealis</i> | <i>E</i> | <i>E</i> | Moderate |
| Wood Stork | <i>Mycteria americana</i> | <i>T</i> | <i>T</i> | High |
| Audubon's Crested Caracara | <i>Polyborus plancus audubonii</i> | <i>T</i> | <i>T</i> | Low |
| Florida Scrub-Jay | <i>Aphelocoma coerulescens</i> | <i>T</i> | <i>T</i> | High |
| Southeastern American Kestrel | <i>Falco sparverius paulus</i> | <i>N</i> | <i>T</i> | Moderate |
| Florida Sandhill Crane | <i>Grus canadensis pratensis</i> | <i>N</i> | <i>T</i> | High |
| Florida Burrowing Owl | <i>Athene cunicularia floridana</i> | <i>N</i> | <i>T</i> | Low |
| Little Blue Heron | <i>Egretta caerulea</i> | <i>N</i> | <i>T</i> | High |
| Tricolored Heron | <i>Egretta tricolor</i> | <i>N</i> | <i>T</i> | High |
| Roseate Spoonbill | <i>Ajaia ajaja</i> | <i>N</i> | <i>T</i> | Moderate |
| Bald Eagle | <i>Haliaeetus leucocephalus</i> | <i>N**</i> | <i>N**</i> | High |
| <p>E= Endangered; T=Threatened; T(S/A)=Threatened due to Similarity of Appearance; SSC=Species of Special Concern; C – Candidate Species; N=Not Listed; *The Florida black bear is still protected under Florida Black Bear Conservation Rule 68A-4.009 (F.A.C.) and the FWC Florida Black Bear Management Plan **The Bald eagle is still protected under the <i>Bald and Golden Eagle Protection Act</i>, <i>Migratory Bird Treaty Act</i> and FWC Management Plan regulations</p> | | | | |

2.1.1 Federally Protected Species

2.1.1.1 Florida Panther

The Florida panther is considered *Endangered* by the USFWS and FWC. The panther historically occurred throughout the southeastern United States but hunting pressure and habitat alteration severely reduced panther populations. Though the study area does not fall within the USFWS “Primary”, “Secondary”, or “Dispersal” Zones for the Florida panther, the species was designated as having a low potential for occurrence based on the absence of nearby FWC Panther Telemetry points. Telemetry points collected from FWC show that one collared male (FP062) was detected in February 2000 approximately 14 miles west of the study area in proximity of Reedy Creek Swamp. Methodology for the collection of telemetry locations was described by Land et al. (2008). No panther telemetry data has been collected within the study area. Following the USFWS *Panther Effect Determination Key* (February 19, 2007), it has been determined that the proposed project “*may affect, not likely to adversely affect*” the Florida panther. **Figure 2.1.3** shows telemetry data of Florida panther FP062 last active in February 2000.

Figure 2.1.3: Panther Telemetry Points



2.1.1.2 Eastern Indigo Snake

The Eastern indigo snake, listed by both the FWC and the USFWS as *Threatened*, is a habitat generalist, using a variety of habitats from mangrove swamps to xeric uplands. These snakes are cold-sensitive and require gopher tortoise burrows, other animal burrows/dens, or stumps for protection during winter months. These snakes require large tracts of natural, undisturbed habitat, and prefer to forage in and around wetlands for their preferred prey – other snakes.

The Eastern indigo snake was designated as having a high potential for occurrence based on the presence of suitable upland habitat within the study area. To minimize potential adverse impacts to the eastern indigo snake, CFX will implement the USFWS-approved *Standard Protection Measures for the Eastern Indigo Snake* (updated August 1, 2017) during the proposed roadway improvements. With the implementation of these measures, it has been determined that the project “*may affect, not likely to adversely affect*” the eastern indigo snake.

2.1.1.3 Blue-Tailed Mole Skink and Sand Skink

The study area is located within the sand skink and blue-tailed mole skink consultation area. Both the sand skink and blue-tailed mole skink are listed as *Threatened* by the USFWS and FWC. The three most important factors in determining the presence of skinks are location within the Consultation Area, elevation, and suitable soils. Sand skinks occur on sandy ridges of interior Central Florida, including Orange and Osceola counties. They are found within these geographic areas typically at elevations of 82 feet above sea level and higher. They occur in excessively drained, well-drained, and moderately well-drained sandy soils, with suitable soil types including Apopka, Arrendondo, Archbold, Astatula, Candler, Daytona, Duette, Florahome, Gainesville, Hague, Kendrick, Lake, Millhopper, Orsino, Paola, Pomello, Satellite, St. Lucie, Tavares, and Zuber. These soil types typically support scrub, sandhill, or xeric hammock natural communities, though these may be degraded by impacts to overgrown scrub, pine plantation, citrus grove, old field, or pasture. Soil types within the study area that support skink habitat include Pomello and Archbold soils. Suitable skink soil types are shown on **Figure 2.1.4 and Figure 2.1.5**. If a site has suitable soils at the appropriate elevation within the counties where skinks are known to occur, there is a likelihood of presence, and potential effects to skinks should be considered. Primary populations of sand skinks occur on the Lake Wales, Winter Haven, and Mt. Dora Ridges in Highlands, Lake, Marion, Orange, Osceola, Polk, and Putnam counties. Blue-tailed mole skinks seem to be restricted to the Lake Wales Ridge in Highlands, Polk, and Osceola counties. Although this project includes areas of suitable soils at suitable elevation, the study area is not located on the Lake Wales, Winter Haven or Mt. Dora Ridges.

Skink suitable soils impact acreage was calculated for the east and west segments of the study area. Skink suitable soils predominately exist within the west segment of the study area as shown on **Figure 2.1.4**. The OCX PD&E Recommended Alternative (2017) West of Narcoossee Road, Boggy Creek Road, and Lake Nona comprise the west segment of the analysis. The Boggy Creek Road Alternative has the most suitable soils impacts at 39 acres, followed by the Lake Nona Alternative at 33 acres and lastly the OCX PD&E Recommended Alternative (2017) West of Narcoossee with the least amount of skink suitable soils at 32 acres. The Boggy Creek Alternative Ponds has impacts of 3 acres, and the Lake Nona Alternative Ponds has impacts of 3 acres. Skink suitable soils were not present in the east segment of the study area consisting of the OCX PD&E Recommended Alternative (2017) East of Narcoossee, Split Oak Avoidance

Alternative, and Split Oak Minimization Alternative as shown on **Figure 2.1.5**. **Table 2.1.2** shows the skink suitable acreage of each of alternatives by segment.

No surveys for skinks were conducted for this study. Due to the isolation of the suitable soils from occupied skink habitat, it has been determined that the project “*may affect, not likely to adversely affect*” the blue-tailed mole skink and the sand skink. Consultation regarding the sand skink and blue-tailed sand skink will occur during the design phase.

Table 2.1.2: Skink Suitable Soil Impact Acreage

| | Alternative | Skink Suitable Soils Acreage Impact |
|--------------|---|-------------------------------------|
| West Segment | OCX PD&E Preferred Alternative (2017) West of Narcoossee | 32 Acres |
| | Boggy Creek Road | 39 Acres |
| | Boggy Creek Road Ponds | 3 Acres |
| | Lake Nona | 33 Acres |
| | Lake Nona Ponds | 3 Acres |
| East Segment | OCX PD&E Preferred Alternative (2017) East of Narcoossee | Not Present |
| | Split Oak Avoidance | Not Present |
| | Split Oak Avoidance Ponds | Not Present |
| | Split Oak Minimization | Not Present |
| | Split Oak Minimization Ponds | Not Present |

Figure 2.1.4: Skink Suitable Soils West Segment

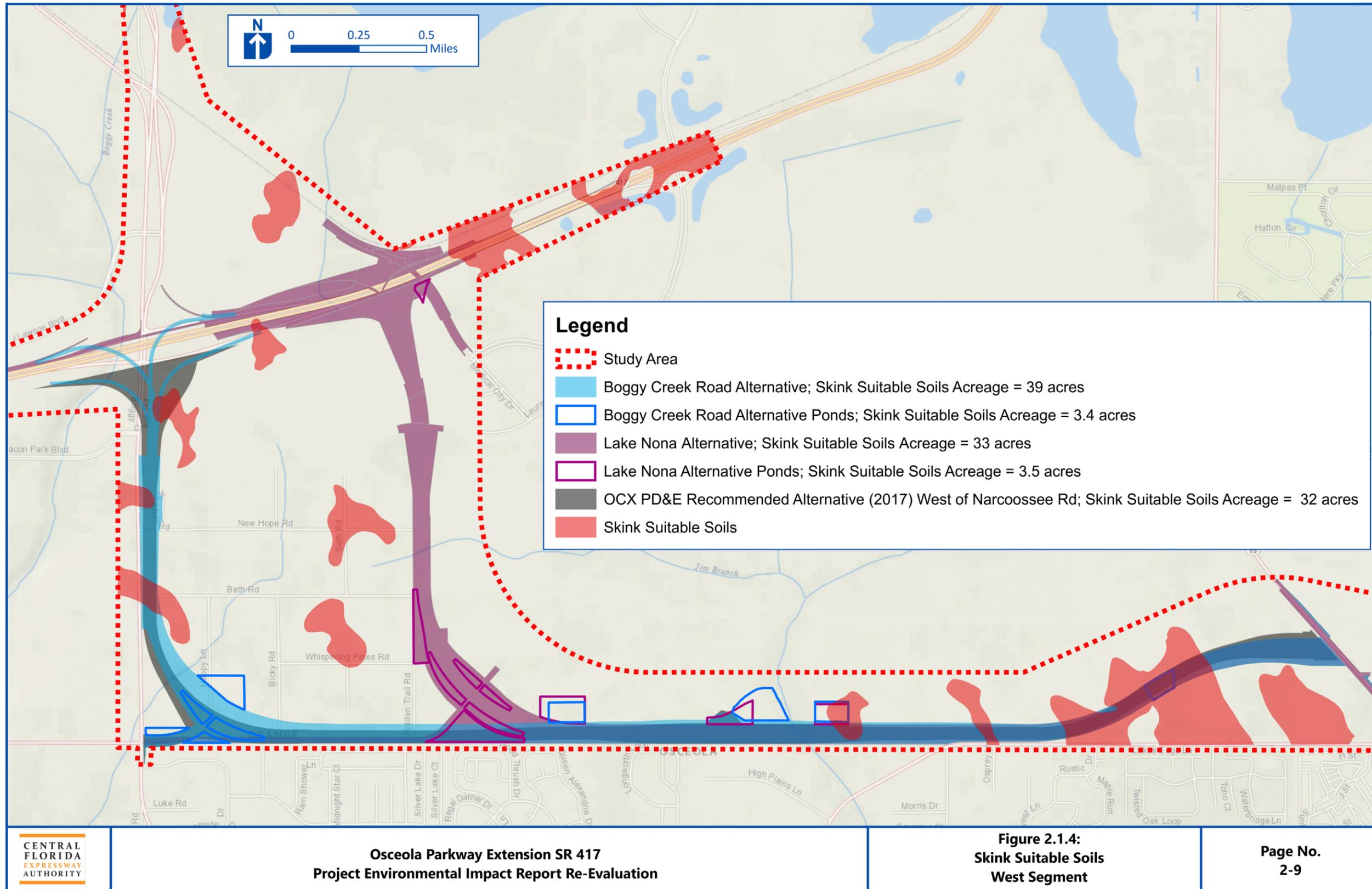
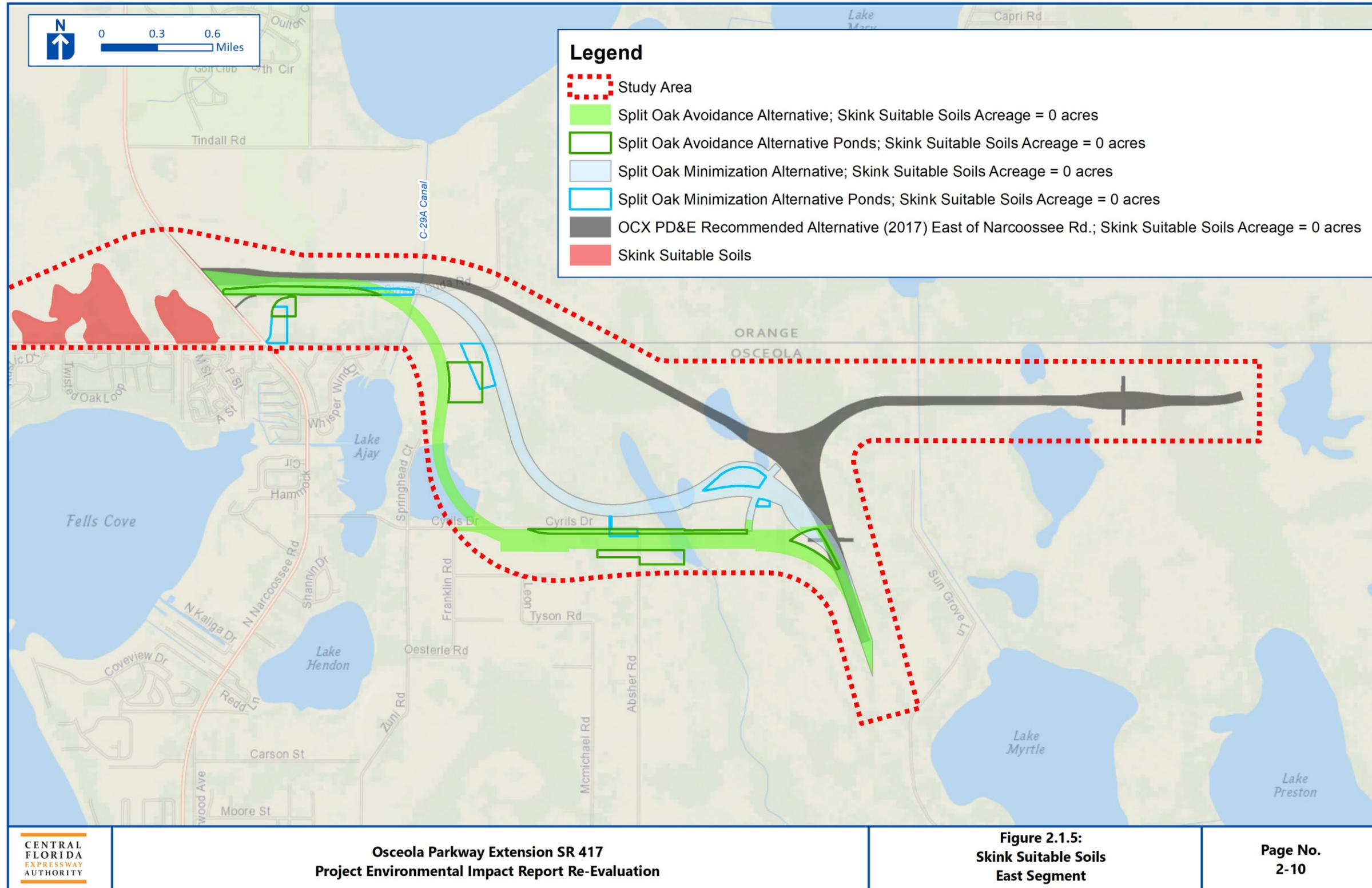


Figure 2.1.5: Skink Suitable Soils East Segment



2.1.1.4 American Alligator

The USFWS continues to protect the alligator under the *Endangered Species Act* classification as *Threatened due to similarity of appearance*. The USFWS thus regulates the harvest of alligators and legal trade in the animals, their skins, and products made from them, as part of efforts to prevent the illegal take and trafficking of endangered “look-alike” reptiles.

The American alligator was designated as having a high potential for occurrence based on visual observations of the species and the presence of suitable habitat within the study area. This species is common within Central Florida and long-term viability of this species is not anticipated to be affected. The USFWS does not consult or make determinations of affect for this species due to its commonality, and listing is maintained primarily for law enforcement purposes. Based on the provision of compensatory mitigation to offset wetland and surface water habitat impacts, CFX has determined that the proposed project, regardless of the selected build alternative, “*may affect, not likely to adversely affect*” the American alligator.

2.1.1.5 Everglade Snail Kite

The Everglade snail kite is listed as *Endangered* by the USFWS since 1987. The Everglade snail kite was designated as having a moderate potential for occurrence based on the project’s location within the USFWS Snail Kite Consultation Area and presence of suitable nesting habitat at East Lake Tohopekaliga.

The project is located within the consultation area for the Everglade snail kite, but outside of critical habitat and the priority management zones. Though the majority of the project will impact uplands, there are impacts proposed to wetland ditches which connect directly to forested and emergent wetlands and littoral fringe. Suitable foraging habitat consists of relatively shallow, emergent wetland vegetation suitable for occupation by apple snails.

No surveys for snail kites or their nesting habitat was conducted for this study. Based on the distance to documented nesting habitat, it has been determined that the proposed project “*may affect, not likely to adversely affect*” the Everglade snail kite. Consultation regarding the Everglade snail kite will occur during the design phase.

2.1.1.6 Red-Cockaded Woodpecker

This species is listed as *Endangered* by the USFWS. The red-cockaded woodpecker (RCW) is a habitat specialist, requiring stands of over-mature pine that have contracted the red-heart disease. RCW’s require diseased trees for cavity building, which they use for nest and roost cavities. Preferred pine stands need to have a fairly open canopy with a sparse subcanopy to allow easy flight. RCWs must also have ample foraging habitat consisting of younger pines surrounding the cavity trees.

The red-cockaded woodpecker was designated as having a low potential for occurrence based on the lack of documented sightings within the project corridor. No species-specific RCW surveys were conducted for this study. Based on this information and the project’s location within the USFWS Red-cockaded Woodpecker Consultation Area, it has been determined that the proposed

project “*may affect, not likely to adversely affect*” the red-cockaded woodpecker. Consultation regarding the red-cockaded woodpecker will occur during the design phase.

2.1.1.7 Wood Stork

The wood stork is listed by USFWS as *Threatened*. The wood stork was designated as having a high potential for occurrence based on the presence of foraging habitat, observations of individuals during field reviews within the study area, and the project’s location within the 18.6-mile Core Foraging Area (CFA) of two active nesting colonies. The primary concern for this species is loss of suitable foraging habitat within the CFA of a wood stork colony.

As part of the design and permitting of this project, impacts to wetlands within the study area will be mitigated for within the CFA of one (1) or more of the affected rookeries or at a federally permitted, regionally significant mitigation bank that has been approved by the USFWS. Therefore, it has been determined that the proposed project “*may affect, not likely to adversely affect*” the wood stork.

2.1.1.8 Audubon’s Crested Caracara

The Audubon’s Crested caracara is listed as *Threatened* by the USFWS. The crested caracara inhabits Florida’s prairies and rangelands. They forage on many kinds of insects, fish, reptiles, birds, and mammals. They will feed on live captured prey, but also on carrion. Caracara nests are usually constructed within cabbage palms.

The project is located within the USFWS Audubon’s Crested Caracara Consultation Area. The project occurs at the northernmost edge of the consultation area for this bird in Central Florida. During field reviews, no caracara or their nests were immediately observed, but full surveys were not conducted following the USFWS *Audubon’s Crested Caracara Draft Survey Protocol – Additional Guidance (2016-2017 Breeding Season)*.

Based on the lack of documented caracara nesting within the study area, it has been determined that the proposed project “*may affect, not likely to adversely affect*” Audubon’s crested caracara. Consultation regarding the caracara will occur during the design phase.

2.1.1.9 Florida Scrub-jay

The Florida scrub-jay, listed as *Threatened* by the USFWS, is an endemic species found in Florida scrub habitats. This gregarious jay is a habitat specialist and typically lives in scrub and scrubby flatwoods habitats. Potential suitable habitat was identified in several locations within SOFWEA. Surveys conducted during the OCX OPE PD&E Study in 2016, identified occupied scrub-jay habitat less than one-half mile north of the project corridor within SOFWEA. This re-evaluation did not include scrub-jay surveys in accordance with the USFWS *Scrub-jay Survey Guidelines* (2007). As the project corridor has not been surveyed following USFWS *Scrub-jay Survey Guidelines*, surveys will be required during the design and permitting phase. If occupied habitat is documented during design-phase surveys, a mitigation plan will likely be required to offset unavoidable impacts.

As no occupied scrub-jay habitat has been documented within the design alternatives evaluated, it has been determined that the proposed project “*may affect, not likely to adversely affect*” the Florida scrub-jay. Consultation regarding the scrub-jay will occur during the design phase.

2.1.2 Federal Species Preliminary Effect Determination Summary

Ten federally listed species were evaluated to determine if the proposed project will affect these species. Based on review of available data, in conjunction with field reconnaissance and surveys, the following preliminary effects determinations shown in **Table 2.1.3** have been made:

Table 2.1.3: Federally Listed Species Preliminary Effect Determination

| Common Name | Preliminary Effect Determination | Federal Status |
|---|---|-----------------------|
| Florida Panther | <i>may affect, not likely to adversely affect</i> | <i>E</i> |
| Eastern Indigo Snake | <i>may affect, not likely to adversely affect</i> | <i>T</i> |
| Blue-Tailed Mole Skink | <i>may affect, not likely to adversely affect</i> | <i>T</i> |
| Sand Skink | <i>may affect, not likely to adversely affect</i> | <i>T</i> |
| American Alligator | <i>may affect, not likely to adversely affect</i> | <i>T(S/A)</i> |
| Everglade Snail Kite | <i>may affect, not likely to adversely affect</i> | <i>E</i> |
| Red-Cockaded Woodpecker | <i>may affect, not likely to adversely affect</i> | <i>E</i> |
| Wood Stork | <i>may affect, not likely to adversely affect</i> | <i>T</i> |
| Audubon’s Crested Caracara | <i>may affect, not likely to adversely affect</i> | <i>T</i> |
| Florida Scrub-Jay | <i>may affect, not likely to adversely affect</i> | <i>T</i> |
| E= Endangered; T=Threatened; T(S/A)=Threatened due to Similarity of Appearance; SSC=Species of Special Concern; C = Candidate Species; N=Not Listed | | |

2.1.3 State-Listed and Other Protected Species

2.1.3.1 Florida Black Bear

The Florida black bear is protected under Florida Black Bear Conservation Rule 68A-4.009 (F.A.C.) and the *FWC Florida Black Bear Management Plan*. The Florida black bear was designated as having a moderate potential for occurrence based on the presence of suitable habitat, partial location of the study area within the FWC-designated Occasional Range of the Central Bear Management Unit, and documentation of the species within one mile the study area. Due to the project's location outside of the FWC-designated Abundant and Common Ranges for the species, it has been determined that the proposed project “*may affect, not likely to adversely affect*” the Florida black bear.

2.1.3.2 Gopher Tortoise

Gopher tortoises are a *Threatened* wildlife species and are protected by state law, Chapter 68A-27, Florida Administrative Code. This species requires well-drained and loose sandy soils for burrowing, and low-growing herbs and grasses for food. These conditions are best found in the sandhill (longleaf pine-xeric oak) community, although tortoises are known to use many other habitats including sand pine scrub, xeric oak hammocks, dry prairies, and pine flatwoods which are commonly found on SOFWEA. During field reviews of the study area, gopher tortoise burrows were observed within SOFWEA.

If gopher tortoises or burrows are found within the study area during the permitting phase of the project, CFX will coordinate with FWC to secure all permits needed to relocate the tortoises and associated commensal species prior to construction. With the implementation of these measures, it has been determined that this project “*may affect, not likely to adversely affect*” the gopher tortoise.

2.1.3.3 Pine Snake

The pine snake is a large, stocky, tan or rusty colored snake with an indistinct pattern of blotches that is listed as *Threatened* by the FWC. The species requires habitats with open canopies and dry sandy soils in sandhill, sand pine scrub, and scrubby flatwoods, in which it burrows and often coexists with gopher tortoises. Suitable habitat exists within the project corridor but there have been no documented sightings of the pine snake within the study area and it was not observed during field reviews. CFX will survey the study area for gopher tortoises prior to construction and will coordinate with FWC to secure the necessary permits to relocate gopher tortoises and associated commensal species prior to construction. With the implementation of these measures, it has been determined that the proposed project “*may affect, not likely to adversely affect*” the pine snake.

2.1.3.4 Southeastern American Kestrel

The Southeastern American kestrel is the smallest falcon species found in the United States and is listed as *Threatened* by the FWC. This species requires pine scrub habitat, dry prairies, mixed pine hardwood forests, and pine flatwoods. Nests are typically built in tall dead trees or utility poles with an unobstructed view of surroundings. No species-specific surveys for the

Southeastern American kestrel were conducted for this study. During the design and permitting phase, CFX will implement field surveys to document suitable nesting cavities.

2.1.3.5 Florida Sandhill Crane

The Florida sandhill crane is a tall, long-necked, long-legged crane that is listed as *Threatened* by the FWC. This species requires wet and dry prairies, marshes, and marshy lake edges. Three pairs of sandhill cranes were observed during field reviews in 2018. No species-specific surveys were conducted for sandhill crane nests for this study. CFX will survey areas of suitable nesting habitat prior to construction if construction activities take place during the nesting season (January through July), and will coordinate with FWC if nesting pairs are identified within 400 feet of the project's construction limits.

2.1.3.6 Florida Burrowing Owl

The Florida burrowing owl is classified as *Threatened* by the FWC. The Florida burrowing owl was designated as having a low potential of occurrence based on the lack of documented sightings within one mile of the study area, the minimal suitable habitat present, and the lack of sightings during field reviews. CFX will survey areas of suitable nesting habitat prior to construction.

2.1.3.7 Wading Birds

The tricolor heron and little blue heron are designated as having a high potential of occurrence based on visual observations of these species in the study area. The roseate spoonbill was designated as having a moderate potential of occurrence based on visual observations. The primary concern for impacts to these species is the loss of foraging habitat consisting primarily of wetlands. As part of the design and permitting of the proposed project, wetland impacts will be mitigated to prevent a net loss of wetland habitat functions and values. Since the mitigation of wetland impacts will be undertaken by CFX, it has been determined that the proposed project “*may affect, not likely to adversely affect*” the little blue heron, tricolored heron, and roseate spoonbill.

2.1.3.8 Bald Eagle

The bald eagle is protected under the *Bald and Golden Eagle Protection Act*, *Migratory Bird Treaty Act*, and FWC's bald eagle rule (F.A.C. 68A-16.002). On April 20th, 2017, the Florida Fish and Wildlife Conservation Commission's approved revisions to the state's bald eagle rule (68A-16.002, F.A.C.). The approved rule revisions became effective in June 2017 and eliminate the need for applicants to obtain both a state and federal permit for activities with the potential to take or disturb bald eagles or their nests. Under the approved revisions, only a federal permit is required.

Based on the USFWS National Bald Eagle Management Guidelines and the *FWC Bald Eagle Management Plan*, construction activities proposed at least 660 feet from an eagle nest do not require an Eagle Permit from the USFWS. Based on FWC's eagle nest locator, nest No. OR078 (last active in 2014) is located within a cell tower within the Boggy Creek alignment. The pedestrian survey conducted in August 2018 did not observe this nest. Updated surveys will be conducted during design to determine if the nest is indeed an eagle's nest and if it remains active. Coordination will be required with USFWS if nests are present within 660 feet of proposed development. Shifts in the alignment may be considered to minimize direct impacts. If an alignment shift cannot be accommodated due to engineering constraints, an incidental take permit may be required.

2.2 Designated Critical Habitat

A review of USFWS's Environmental Conservation Online System, shows that the study area does not include any designated or proposed critical habitat for any threatened or endangered species.

3.0 Wetland Evaluation

3.1 Methodology

The proposed project has been evaluated for potential impacts to wetlands in accordance with Executive Order 11990, “Protection of Wetlands”. Wetlands and surface waters within the study area were identified and assessed in accordance with Part 2, Chapter 9 of the PD&E Manual and consistent with the state wetland jurisdictional methodology, as described in Chapter 62-340, Florida Administrative Code, and the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (1987).

Formal wetland boundary delineations and surveys were not conducted as a part of this study and will be completed as part of the state and federal permit process. Limited ground truthing by biologists was conducted during field reviews on August 13, August 14 and November 7, 2018. During field reviews, a representative sample of wetlands were visited by biologists. When appropriate, these communities are discussed collectively depending upon their hydrologic connection. There are no wetlands or surface waters designated as Outstanding Florida Waterways within the project study area.

3.2 Wetland Impact Analysis

As described in Section 1.3, the project is composed of two segments. In addition to the No-Build alternative, in addition to the OCX PD&E Recommended Alternative (2017), two additional build alternatives have been evaluated. For comparison purposes the OCX PD&E Recommended Alternative (2017) was divided into a segment west of Narcoossee Road, and a segment east of Narcoossee Road, similarly to the additional build alternatives. The east and west segments of the OCX PD&E Recommended Alternative (2017) are shown on **Figures 3.2.1 and 3.2.2**.

The No-Build Alternative would result in no impacts to wetlands, surface waters, or other surface waters.

For the build alternatives, potential direct impacts to wetlands, surface waters, and other surface waters were assessed for the study area. **Table 3.2.1** and **Table 3.2.2** show the proposed wetland, other surface water, and surface water impacts within the study area by alternative and project segment.

Within the West Segment, the OCX PD&E Recommended Alternative (2017) West of Narcoossee Road is anticipated to include approximately 29 acres of impacts to forested wetlands, and 3 acres of impacts to non-forested wetlands. The OCX PD&E Recommended Alternative (2017) West of Narcoossee Road also includes 18 acres of other surface waters. Total impacts to wetlands for the OCX PD&E Recommended Alternative (2017) West of Narcoossee Road is estimated at 32 acres.

Also within the West Segment, the Boggy Creek Road Alternative is anticipated to include approximately 31 acres of impacts to forested wetlands, and 4 acres of impacts to non-forested

wetlands. The Boggy Creek Road Alternative also includes 21 acres of impacts to other surface waters. Total impacts to wetlands for the Boggy Creek Road Alternative is estimated at 35 acres. The Boggy Creek Road Alternative Ponds are anticipated to include approximately 2 acres of forested wetlands, and 2 acres of non-forested wetlands. The Boggy Creek Road Alternative Ponds also include 1 acre of impact to other surface waters. Total impacts to wetlands for the Boggy Creek Road Alternative Ponds are estimated to be 4 acres.

The Lake Nona Alternative in the West Segment is anticipated to include 38 acres of impacts to forested wetlands, and 4 acres of impacts to non-forested wetlands. The Lake Nona Alternative also includes 31 acres of impacts to other surface waters. Total impacts to wetlands for the Lake Nona Alternative is estimated at 42 acres. The Lake Nona Alternative Ponds are anticipated to include less than 1 acre of forested wetlands, and 2 acres of non-forested wetlands. The Lake Nona Alternative Ponds also include 2 acres of impacts to other surface waters. Total impacts to wetlands for the Lake Nona Alternative Ponds are estimated to be 2 acres.

Within the East Segment, the OCX PD&E Recommended Alternative (2017) East of Narcoossee Road is anticipated to include approximately 98 acres of impacts to forested wetlands, and 14 acres of impacts to non-forested wetlands. OCX PD&E Recommended Alternative (2017) east of Narcoossee Road also includes 1 acre of impact to other surface waters. Total impacts to wetlands for the OCX PD&E Recommended Alternative (2017) East of Narcoossee Road is estimated at 112 acres.

Also within the East Segment, the Split Oak Avoidance Alternative is anticipated to include 12 acres of impacts to forested wetlands, and 30 acres of impacts to non-forested wetlands. The Split Oak Avoidance Alternative also includes 19 acres of impacts to other surface waters. Total impacts to wetlands for the Split Oak Avoidance Alternative is estimated at 42 acres. The Split Oak Avoidance Ponds are anticipated to include approximately 1 acre of forested wetlands, and 8 acres of non-forested wetlands. The Split Oak Avoidance Ponds also include less than 1 acre of impact to other surface waters. Total impacts to wetlands for the Split Oak Avoidance Ponds are estimated to be 9 acres.

The Split Oak Minimization Alternative within the East Segment is anticipated to include 10 acres of impacts to forested wetlands, and 26 acres of impacts to non-forested wetlands. The Split Oak Minimization Alternative also includes 1 acre of impacts to other surface waters. Total impacts to wetlands for the Split Oak Minimization Alternative is estimated at 36 acres. The Split Oak Minimization Ponds are anticipated to have no impact to forested wetlands, non-forested wetlands, or other surface waters.

Figure 3.2.1: Western Alternatives Wetland and Surface Water Maps

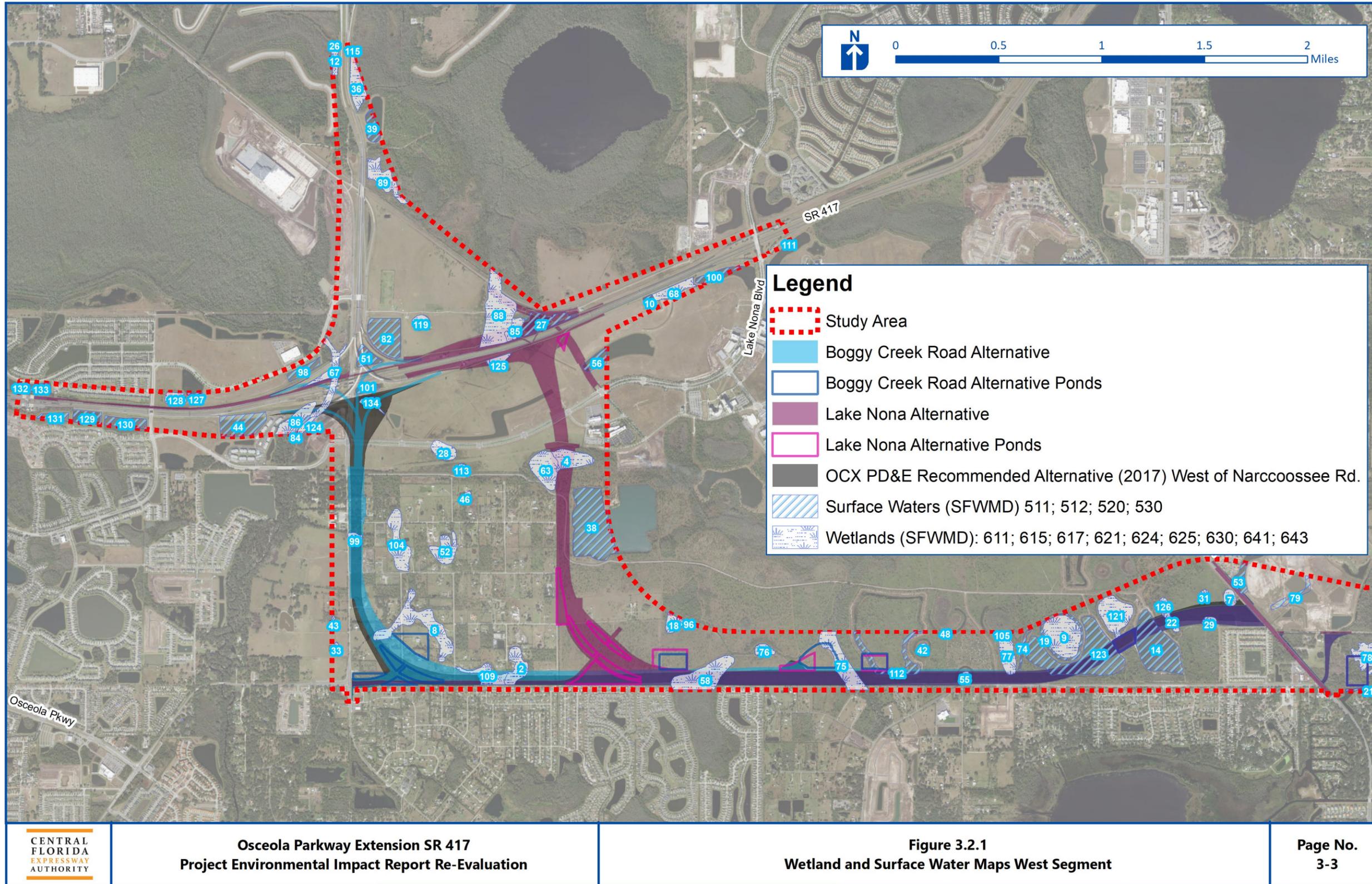


Figure 3.2.2: Eastern Alternatives Wetland and Surface Water Maps

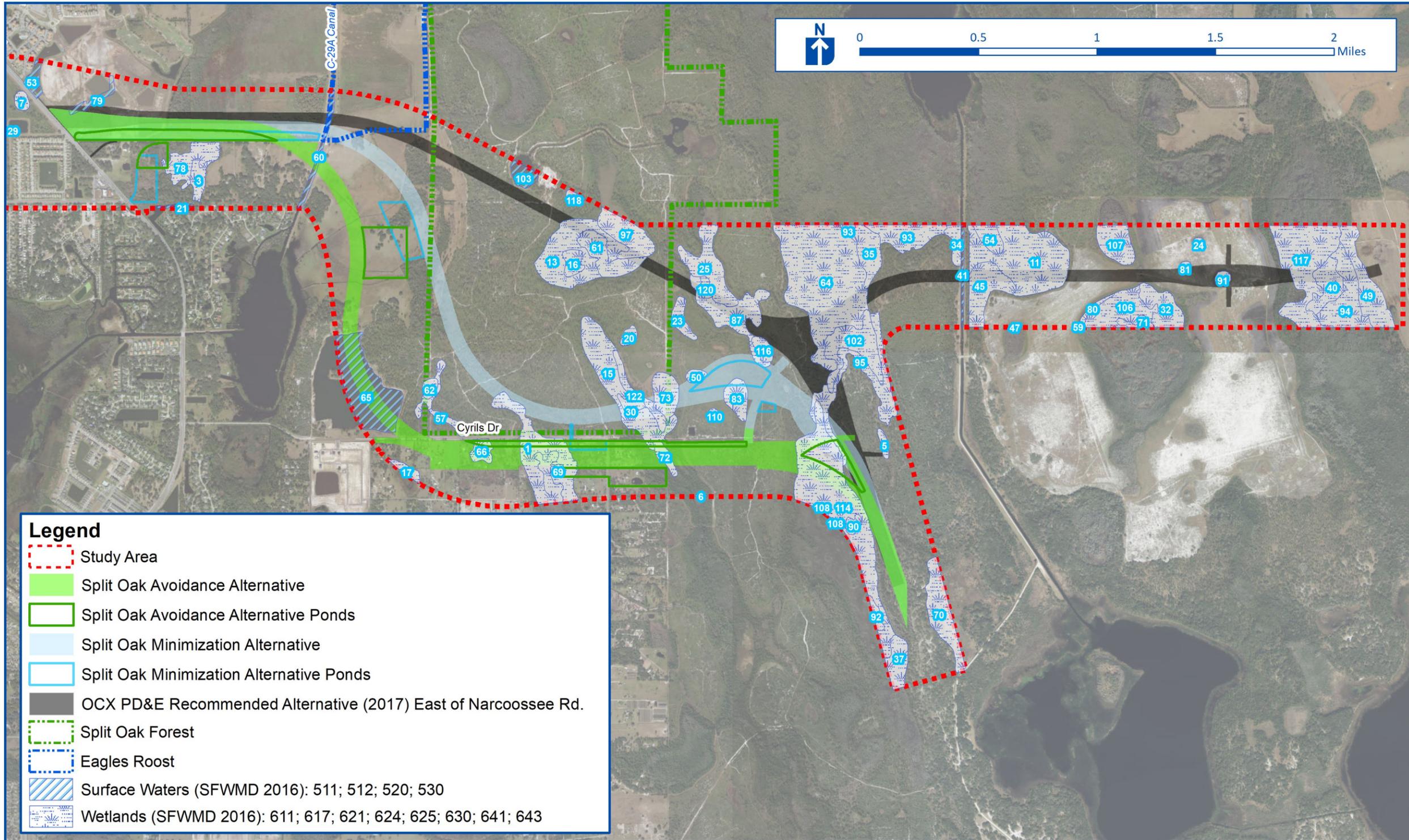


Table 3.2.1: West Segment Wetland Impact Analysis

| Alternative | | Description | FLUCFCS | Map ID | Impact (Acres) | |
|-------------------------------------|---|-------------------------------------|-------------------------|-------------------------------|-----------------------|----|
| West Segment | OCX PD&E Recommended (2017) Alternative West of Narcoossee Rd. | Other Surface Waters | 512, 530 | 14, 112, 123 | 18 | |
| | | Mixed Wetland Hardwoods | 617 | 75, 86 | 3 | |
| | | Cypress | 621 | 2, 8, 22, 58, 77, 99, 134 | 21 | |
| | | Wetland Forested Mixed | 630 | 109 | 5 | |
| | | Freshwater Marshes | 641 | 7, 29, 55, 121, 126 | 3 | |
| | | Forested Wetland Impacts | | | | 29 |
| | | Non-Forested Wetland Impacts | | | | 3 |
| | | Total Wetland Impacts | | | | 32 |
| | | Boggy Creek Road | Other Surface Waters | 512, 530 | 14, 53, 101, 112, 123 | 21 |
| | | | Streams and Lake Swamps | 615 | 67 | 1 |
| | Mixed Wetland Hardwoods | | 617 | 75, 86 | 5 | |
| | Cypress | | 621 | 2, 8, 22, 58, 77, 99, 134 | 20 | |
| | Wetland Forested Mixed | | 630 | 109 | 6 | |
| | Freshwater Marshes | | 641 | 7, 29, 55, 121 | 3 | |
| | Forested Wetland Impacts | | | | 31 | |
| | Non-Forested Wetland Impacts | | | | 4 | |
| | Total Wetland Impacts | | | | 35 | |
| | Boggy Creek Road Ponds | | Other Surface Waters | 512 | 112 | 1 |
| | | Mixed Wetland Hardwoods | 617 | 75 | 2 | |
| | | Wet Prairie | 643 | 67 | 2 | |
| | | Forested Wetland Impacts | | | | 2 |
| | | Non-Forested Wetland Impacts | | | | 2 |
| | Total Wetland Impacts | | | | 4 | |
| | Lake Nona | Other Surface Waters | 512, 530 | 14, 27, 53, 112, 123 | 31 | |
| | | Streams and Lake Swamps | 615 | 67 | 1 | |
| | | Mixed Wetland Hardwoods | 617 | 75, 85 | 7 | |
| | | Cypress | 621 | 2, 4, 22, 58, 63, 77, 88, 125 | 29 | |
| | | Wetland Forested Mixed | 630 | 109 | 2 | |
| Freshwater Marshes | | 641 | 7, 29, 55, 121 | 3 | | |
| Forested Wetland Impacts | | | | 38 | | |
| Non-Forested Wetland Impacts | | | | 4 | | |
| Total Wetland Impacts | | | | 42 | | |
| Lake Nona Ponds | Other Surface Waters | 512 | 112 | 2 | | |
| | Wet Prairie | 643 | 78 | 2 | | |
| | Forested Wetland Impacts | | | | 0 | |
| | Non-Forested Wetland Impacts | | | | 2 | |
| Total Wetland Impacts | | | | 2 | | |

Table 3.2.2: East Segment Wetland Impact Analysis

| Alternative | | Description | FLUCFCS | Map ID | Impact (Acres) | |
|-------------------------------------|--|---|-------------------------|---------------------------------------|----------------|-----|
| Eastern Segment | OCX PD&E Recommended (2017) Alternative East of Narcoossee Rd. | Other Surface Waters | 512, 530 | 41, 53, 60, 79 | 1 | |
| | | Mixed Wetland Hardwoods | 617 | 61, 94, 120 | 15 | |
| | | Cypress | 621 | 5, 87, 117 | 19 | |
| | | Hydric Pine Flatwoods | 625 | 11, 64 | 37 | |
| | | Wetland Forested Mixed | 630 | 13, 45, 49, 95 | 27 | |
| | | Freshwater Marsh | 641 | 25, 35, 40, 81, 91, 97, 102, 114, 116 | 14 | |
| | | Forested Wetland Impacts | | | | 98 |
| | | Non-Forested Wetland Impacts | | | | 14 |
| | | Total Wetland Impacts | | | | 112 |
| | | Split Oak Avoidance | Other Surface Waters | 512, 530 | 60, 65, 79 | 19 |
| | Mixed Wetland Hardwoods | | 617 | 15, 66, 69 | 8 | |
| | Cypress | | 621 | 72 | 3 | |
| | Wetland Forested Mixed | | 630 | 95 | 1 | |
| | Freshwater Marshes | | 641 | 1, 114 | 30 | |
| | Forested Wetland Impacts | | | | 12 | |
| | Non-Forested Wetland Impacts | | | | 30 | |
| | Total Wetland Impacts | | | | 42 | |
| | Split Oak Avoidance Ponds | Other Surface Waters | - | - | 0 | |
| | | Mixed Wetland Hardwoods | 617 | 69 | 1 | |
| | | Wetland Forested Mixed | 630 | 95 | 0 | |
| | | Freshwater Marshes | 641 | 1, 114 | 8 | |
| | | Wet Prairie | 643 | 78 | 0 | |
| | | Forested Wetland Impacts | | | | 1 |
| | | Non-Forested Wetland Impacts | | | | 8 |
| | Total Wetland Impacts | | | | 9 | |
| | Split Oak Minimization | Channelized Waterways, Canals; Reservoirs | 512, 530 | 60, 79 | 1 | |
| Bay Swamps | | 611 | 30 | 3 | | |
| Mixed Wetland Hardwoods | | 617 | 15 | 3 | | |
| Cypress | | 621 | 87 | 1 | | |
| Hydric Pine Flatwoods | | 625 | 122 | 2 | | |
| Wetland Forested Mixed | | 630 | 95 | 4 | | |
| Freshwater Marsh | | 641 | 1, 50, 73, 83, 114, 116 | 23 | | |
| Forested Wetland Impacts | | | | 10 | | |
| Non-Forested Wetland Impacts | | | | 26 | | |
| Total Wetland Impacts | | | | 36 | | |
| Split Oak Minimization Ponds | Other Surface Waters | - | - | - | | |
| | Forested Wetlands | - | - | - | | |
| | Non-Forested Wetlands | - | - | - | | |
| | Forested Wetland Impacts | | | | 0 | |
| Non-Forested Wetland Impacts | | | | 0 | | |
| Total Wetland Impacts | | | | 0 | | |

3.3 Uniform Mitigation Assessment Methodology

The Uniform Mitigation Assessment Methodology (UMAM) per Chapter 62-345, F.A.C., is a state and federally approved method used to assess wetlands in the State of Florida. UMAM was developed by the Florida Department of Environmental Protection (FDEP) and the water management districts to determine the amount of mitigation required to offset adverse impacts to wetlands. The methodology was designed to assess functions provided by wetlands, the amount those functions are reduced by a proposed impact, and the amount of mitigation necessary to offset the proposed functional losses. This method is also used to determine the degree of improvement in ecological value that will be created by proposed mitigation activities.

The UMAM assessment includes a Qualitative Characterization (Part 1) as well as a Quantitative Assessment and Scoring (Part 2). The Qualitative Assessment is a basic descriptor of the site being evaluated. The variables described include the following:

- Significant nearby features,
- Water classifications,
- Assessment area size,
- Hydrology and relationship to contiguous off-site wetlands,
- Uniqueness of the assessment area,
- Functions of the assessment area, and
- Wildlife utilization.

The Quantitative Assessment provides a score of the assessment area in both the current condition and “with project” condition. The assessment scoring evaluates the following parameters:

- Location and landscape support,
- Water environment, and
- Vegetative community.

3.4 Uniform Mitigation Assessment Results

For this PD&E Study, representative UMAM scores were developed for representative wetlands (by FLUCFCS category) directly impacted by the proposed project. In order to calculate functional loss, the difference between the existing condition (current) scores and the proposed condition (with) scores for each habitat type (see **Tables 3.4.1** and **3.4.2**) was multiplied by the acreage of proposed impact to determine the lost value of functions to fish and wildlife resulting from construction of the proposed project (see **Tables 3.4.1** and **3.4.2**). Functional loss was calculated by habitat type for each Build Alternative and Project Segment.

Within the West Segment, the OCX PD&E Preferred Alternative (2017), west of Narcoossee Road is anticipated to result in a loss of 20 UMAM Functional Units. The Boggy Creek Road Alternative is anticipated to result in a loss of 23 UMAM Functional Units. The Boggy Creek Road Alternative Ponds are anticipated to result in a loss of 2 UMAM functional Units. Also within the West Segment, the Lake Nona Alternative is anticipated to result in a loss of 27

UMAM Functional Units. The Lake Nona Alternative Ponds are anticipated to result in a loss of 1 UMAM functional Unit. It is important to note that the UMAM scores for wetlands within the West Segment are generally lower than the wetlands in the East Section due to adjacent developed land uses.

Within the East Segment, the OCX PD&E Preferred Alternative (2017), east of Narcoossee Road is anticipated to result in a loss of 82 UMAM Functional Units. The Split Oak Avoidance Alternative is anticipated to result in a loss of 34 UMAM Functional Units. The Split Oak Avoidance Ponds are anticipated to result in a loss of 7 UMAM Functional Units. Also within the East Segment, the Split Oak Minimization Alternative is anticipated to result in a loss of 27 UMAM Functional Units. The Split Oak Minimization Alternative Ponds are anticipated to result in no loss of UMAM Functional Units.

The estimated functional loss values presented here are based on existing conditions with limited ground truthing. The UMAM scores and values presented in **Tables 3.4.1** and **3.4.2** are subject to agency review and are likely to change during the state and federal permitting process.

Table 3.4.1: West Segment UMAM Functional Loss

| West Segment | Alternative | Description | FLUCF CS | Location and Landscape | Water Environment | Community Structure | Score (Sum/30) | Delta | Impact Acres | Functional Loss |
|-------------------------------|---|-------------------------|----------|------------------------|-------------------|---------------------|----------------|-----------|--------------|-----------------|
| | OCX PD&E Recommended (2017) Alternative West of Narcoossee Rd. | Mixed Wetland Hardwoods | 617 | 5 | 6 | 6 | 0.57 | -0.57 | 3 | -2 |
| | | Cypress | 621 | 6 | 7 | 6 | 0.63 | -0.63 | 21 | -13 |
| | | Wetland Forested Mix | 630 | 6 | 6 | 6 | 0.60 | -0.60 | 5 | -3 |
| | | Freshwater Marsh | 641 | 5 | 6 | 5 | 0.53 | -0.53 | 3 | -2 |
| | Total | | | | | | | | 32 | -20 |
| | Boggy Creek Road | Streams and Lake Swamps | 615 | 7 | 7 | 7 | 0.70 | -0.70 | 1 | -1 |
| | | Mixed Wetland Hardwoods | 617 | 5 | 6 | 7 | 0.60 | -0.60 | 5 | -3 |
| | | Cypress | 621 | 6 | 7 | 7 | 0.67 | -0.67 | 20 | -13 |
| | | Wetland Forested Mixed | 630 | 5 | 6 | 7 | 0.60 | -0.60 | 6 | -4 |
| Freshwater Marsh | | 641 | 5 | 6 | 7 | 0.60 | -0.60 | 3 | -2 | |
| Total | | | | | | | | 35 | -23 | |
| Boggy Creek Road Ponds | Mixed Wetland Hardwoods | 617 | 5 | 6 | 6 | 0.57 | -0.57 | 2 | -1 | |
| | Wet Prairie | 643 | 5 | 6 | 6 | 0.57 | -0.57 | 2 | -1 | |
| Total | | | | | | | | 4 | -2 | |
| Lake Nona | Streams and Lake Swamps | 615 | 7 | 7 | 7 | 0.70 | -0.70 | 1 | -1 | |
| | Mixed Wetland Hardwoods | 617 | 6 | 6 | 7 | 0.63 | -0.63 | 7 | -3 | |
| | Cypress | 621 | 6 | 7 | 7 | 0.67 | -0.67 | 29 | -14 | |
| | Wetland Forested Mixed | 630 | 6 | 6 | 7 | 0.63 | -0.63 | 2 | -1 | |
| | Freshwater Marsh | 641 | 6 | 6 | 7 | 0.63 | -0.63 | 3 | -2 | |
| Total | | | | | | | | 42 | -27 | |
| Lake Nona Ponds | Wet Prairie | 643 | 6 | 6 | 6 | 0.60 | -0.60 | 2 | -1 | |
| | Total | | | | | | | | 2 | -1 |

Table 3.4.2: East Segment UMAM Functional Loss

| Alternative | Description | FLUCF CS | Location and Landscape | Water Environment | Community Structure | Score (Sum/30) | Delta | Impact Acres | Functional Loss |
|---|---------------------------|----------|------------------------|-------------------|---------------------|----------------|-------|--------------|-----------------|
| OCX PD&E Recommended (2017) Alternative East of Narcoossee Rd. | Mixed Wetland Hardwoods | 617 | 8 | 7 | 6 | 0.70 | -0.70 | 15 | -11 |
| | Cypress | 621 | 7 | 7 | 8 | 0.73 | -0.73 | 19 | -14 |
| | Hydric Pine Flatwoods | 625 | 7 | 7 | 8 | 0.73 | -0.73 | 37 | -27 |
| | Wetland Forested Mixed | 630 | 8 | 7 | 7 | 0.73 | -0.73 | 27 | -20 |
| | Freshwater Marsh | 641 | 8 | 7 | 7 | 0.73 | -0.73 | 14 | -10 |
| | Total | | | | | | | | 112 |
| Split Oak Avoidance | Mixed Wetland Hardwoods | 617 | 7 | 8 | 8 | 0.77 | -0.77 | 8 | -6 |
| | Cypress | 621 | 8 | 8 | 9 | 0.83 | -0.83 | 3 | -3 |
| | Wetland Forested Mixed | 630 | 7 | 8 | 8 | 0.77 | -0.77 | 1 | -1 |
| | Freshwater Marsh | 641 | 8 | 8 | 8 | 0.80 | -0.80 | 30 | -24 |
| | Total | | | | | | | | 42 |
| Split Oak Avoidance Ponds | Mixed Wetland Hardwoods | 617 | 7 | 8 | 8 | 0.77 | -0.77 | 1 | -1 |
| | Cypress | 621 | 8 | 8 | 9 | 0.83 | -0.83 | 0 | 0 |
| | Wetland Forested Mixed | 630 | 7 | 8 | 8 | 0.77 | -0.77 | 8 | -6 |
| | Freshwater Marsh | 641 | 8 | 8 | 8 | 0.80 | -0.80 | 0 | 0 |
| | Total | | | | | | | | 9 |
| Split Oak Minimization | Bay Swamps | 611 | 8 | 8 | 7 | 0.77 | -0.77 | 3 | -2 |
| | Mixed Wetland Hardwoods | 617 | 8 | 8 | 7 | 0.77 | -0.77 | 3 | -2 |
| | Cypress | 621 | 8 | 8 | 9 | 0.83 | -0.83 | 1 | -1 |
| | Wet Pinelands Hydric Pine | 625 | 8 | 7 | 7 | 0.73 | -0.73 | 2 | -1 |
| | Wetland Forested Mixed | 630 | 7 | 8 | 7 | 0.73 | -0.73 | 4 | -3 |
| | Freshwater Marsh | 641 | 8 | 8 | 8 | 0.80 | -0.80 | 23 | -18 |
| | Total | | | | | | | | 36 |
| Split Oak Minimization Ponds | | - | - | - | - | - | - | 0 | 0 |
| | Total | | | | | | | | 0 |

4.0 Essential Fish Habitat

The *Magnuson-Stevens Fishery Conservation and Management Act*, as amended through October 11, 1996, requires the regional Fishery Management Councils and the Secretary of Commerce to describe and identify Essential Fish Habitat (EFH) for species under federal *Fishery Management Plans*. EFH is defined in the *Magnuson-Stevens Act* as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The term “fish” includes finfish, crabs, shrimp, and lobsters in the Gulf of Mexico region. On April 23, 1997 [62 Federal Register (FR) 19723], the National Marine Fishery Service (NMFS) issued proposed regulations containing guidelines for the description and identification of EFH in fishery management plans, adverse impacts on EFH, and actions to conserve and enhance EFH. These rules were revised and finalized on January 22, 2002 (67 FR 2343). The regulations also provide a process for NMFS to coordinate and consult with federal and state agencies on activities that may adversely affect EFH. The purpose of the rule is to assist in describing and identifying EFH, minimize adverse effects on EFH, and identify other actions to conserve and enhance EFH. The purpose of the coordination and consultation provisions is to specify procedures for adequate consultation with NMFS on activities that may adversely affect EFH.

The study area is located within the central portion of the state of Florida and the impacts associated with this project will not affect marine or estuarine environments. Therefore, no potential impacts to EFH are proposed or expected.

5.0 Anticipated Permits and Mitigation

Both the USACE and SFWMD regulate impacts to wetlands within the study area. Other agencies, including the USFWS, the U.S. Environmental Protection Agency (EPA), and the FWC, review and comment on wetland permit applications. The FWC also issues permits for gopher tortoise relocation activities. In addition, the FDEP regulates stormwater discharges from construction sites. Any impacts to SOFWEA will require Florida Communities Trust (FCT) approval for impacts (includes approval and coordination with Orange and Osceola counties and coordination with FWC).

It is anticipated that the following permits will be required for this project:

| <u>Permit</u> | <u>Issuing Agency</u> |
|---|-----------------------|
| Section 404 Clean Water Act Dredge and Fill Permit | USACE |
| Section 408 Clean Water Act Permit | USACE |
| Environmental Resource Permit (ERP) | SFWMD |
| Right of Way Occupancy Permit | SFWMD |
| National Pollutant Discharge Elimination System (NPDES) | FDEP |
| Gopher Tortoise Conservation Permit | FWC |
| Listed Species Incidental Take Permit | USFWS |

Section 408 of the *Clean Water Act* requires that any proposed occupation or use of an existing USACE civil works project be authorized by the Secretary of the Army. Examples of civil works projects include levees, dams, sea walls, bulkheads, jetties, dikes, wharfs, piers, and wetland restoration projects funded by or built by the USACE. The USACE may grant such permission if it determines the alteration proposed will not be “injurious to the public interest” and “will not impair the usefulness” of the civil works project. Under USACE policy, a Section 408 permission will not be issued before decisions on *Clean Water Act* Section 404 permits and *Rivers and Harbors Act* Section 10 permits are made.

Wetland impacts which will result from the construction of this project will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 33 U.S.C. §1344. Compensatory mitigation for this project is anticipated to be accommodated utilizing two mitigation banks. For state credits, the Lake X Mitigation Bank has available credits that can accommodate this project. For federal credits, the Colbert Cameron Mitigation Bank has available credits. CFX will coordinate with USACE, USFWS, NMFS, SFWMD and FWC during the design and permit phases of the project to identify the appropriate mitigation.

6.0 Summary Comparison of Alternatives

6.1 Impacts to Listed Species

As described in Section 1.4, the project is composed of two segments: East and West. In addition to the No-Build Alternative, each segment has two build alternatives and the OCX PD&E Recommended Alternative (2017). For comparison purposes, the OCX PD&E Recommended Alternative (2017) was divided into east and west segments similarly to the proposed build alternatives. The No-Build Alternative would result in no impacts to listed species. Each of the build alternatives are anticipated to have impacts to listed species.

Impacts to listed species within the West Segment are anticipated to be comparable between the Boggy Creek Road Alternative, the Lake Nona Alternative and the OCX PD&E Recommended Alternative (2017), west of Narcoossee Road. As no species-specific surveys were conducted during the development of this study, it is not practical to rank one alternative within the West Segment as having higher or lower impacts to listed species by using available data.

Impacts to listed species within the East Segment are anticipated to be lower within the Split Oak Avoidance Alternative and highest with the OCX PD&E Recommended Alternative (2017), east of Narcoossee Road. The Split Oak Avoidance Alternative is not anticipated to have impacts to the Florida scrub-jay, and lower impacts to gopher tortoises. The Split Oak Avoidance Alternative also avoids impacts to the SOFWEA. The Split Oak Minimization Alternative and the OCX PD&E Recommended Alternative (2017) East of Narcoossee Road both have impacts within SOFWEA. The OCX PD&E Recommended Alternative (2017) East of Narcoossee Road has a higher potential for gopher tortoise and sandhill crane nest impacts. Due to the proximity of documented Florida scrub-jay habitat, both the Split Oak Minimization Alternative and the OCX PD&E Recommended Alternative (2017) East of Narcoossee Road, may affect Florida scrub-jay habitat. Due to lack of documented Florida scrub-jay habitat, the Split Oak Minimization Alternative is not anticipated to affect Florida scrub-jay habitat. OCX PD&E Recommended Alternative (2017) will also impact several gopher tortoises observed by KHA & Inwood (2016) towards the east extent of the study area while the Split Oak Minimization Alternative and Split Oak Avoidance Alternative do not.

6.2 Impacts to Wetlands

Each of the build alternatives evaluated are anticipated to have unavoidable impacts to wetlands. Final determination of jurisdictional boundaries, in addition to mitigation requirements, will be coordinated between CFX and permitting agencies during the final design phase of the project. In the west segment, as shown in **Table 3.4.1**, wetland impacts associated with the Lake Nona Alternative are slightly higher than impacts anticipated by the construction of the Boggy Creek Road Alternative and the OCX PD&E Recommended Alternative (2017), west of Narcoossee.

In the east segment, as shown in **Table 3.4.2**, wetland impacts associated with the OCX PD&E Recommended Alternative (2017), east of Narcoossee Road are significantly higher than the Split Oak Avoidance Alternative and the Split Oak Minimization Alternative. The OCX PD&E Recommended Alternative (2017), east of Narcoossee Road has the highest wetland impact

acreage at 112 acres. The Split Oak Minimization alternative in the eastern segment has the lowest wetland impact acreage at 36 acres while the Split Oak Avoidance alternative has 42 acres of impacts. UMAM scores are typically higher in the eastern segment due to this area being less developed than the western segment.

7.0 References

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Appendix A

Split Oak Forest Wildlife and Environmental Area Management Plan

A Management Plan for
Split Oak Forest
Wildlife and Environmental Area
2017 – 2027



Orange and Osceola Counties, Florida

Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, Florida 32399-1600

**A Management Plan
for
Split Oak Forest Wildlife and Environmental Area**

Orange and Osceola Counties, Florida

Owned by Orange and Osceola Counties

Managed by the Florida Fish and Wildlife Conservation Commission



November 2016

Approved Thomas H. Eason

Thomas H. Eason, Ph.D.
Director, Division of Habitat and Species Conservation

LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

Lead Agency: Florida Fish and Wildlife Conservation Commission (FWC)
 Common Name of Property: Split Oak Forest Wildlife and Environmental Area
 Location: Orange and Osceola Counties, Florida
 Acreage Total: 1,689 acres
 Acreage Breakdown:

| <u>Land Cover Classification</u> | <u>Acres</u> | <u>Percent of Total Area</u> |
|----------------------------------|--------------|------------------------------|
| Scrubby flatwoods | 465.38 | 26.30% |
| Mesic flatwoods | 365.14 | 26.30% |
| Wet flatwoods | 212.83 | 12.00% |
| Baygall | 126.8 | 7.20% |
| Basin marsh | 117.41 | 6.60% |
| Dome swamp | 80.78 | 4.60% |
| Mesic hammock | 77.07 | 4.40% |
| Flatwoods lake | 60.31 | 3.40% |
| Spoil area | 57.74 | 3.30% |
| Pasture - improved | 54.29 | 3.10% |
| Xeric hammock | 49.86 | 2.80% |
| Scrub | 38.78 | 2.20% |
| Impoundment/artificial pond | 26.14 | 1.50% |
| Clearing/regeneration | 12.58 | 0.10% |
| Depression marsh | 13.97 | 0.10% |
| Canal/ditch | 3.15 | <0.1% |
| Sandhill | 8.46 | <0.1% |
| Wet prairie | 0.88 | <0.1% |

*GIS-calculated acreage for land cover classification varies slightly from actual total acreage.

Interagency Agreement No.: 93078 (Appendix 13.1)

Use: Single _____ Management Responsibilities:
 Multiple X Agency FWC Responsibilities
LEAD, SUBLESSEE (Wildlife and Environmental Area, resource protection, law enforcement)

Designated Land Use: Wildlife and Environmental Area

Sublease (s): None

Encumbrances: List: None

Type Acquisition: Mitigation Park Program

Unique Features: Natural: Split Oak, Unique assemblage of imperiled wildlife species and natural communities and Lake Hart.

Archaeological/Historical: None documented within the area.

Management Needs: Habitat restoration and improvement; public access and recreational opportunities; hydrological preservation and restoration; exotic and invasive species maintenance and control; imperiled species habitat maintenance, enhancement, and restoration.

Acquisition Needs/Acreage: Currently no parcels or acreage are on the FWC Additions and Inholdings list; However the OCBP Shows Additional Lands Recommended for Potential Conservation (Figure 4 & Figure 11).

Surplus Lands/Acreage: None

Public Involvement: Management Advisory Group consensus building meeting and Public Hearing (Appendix 13.5)

DO NOT WRITE BELOW THIS LINE (FOR DIVISION OF STATE LANDS USE ONLY)

ARC Approval Date _____ BTIITF Approval Date: _____

Comments: _____

Land Management Plan Compliance Checklist

Required for State-owned conservation lands over 160 acres

Section A: Acquisition Information Items

| Item # | Requirement | Statute/Rule | Page Numbers and/or Appendix |
|--------|--|---------------------|----------------------------------|
| 1 | The common name of the property. | 18-2.018 & 18-2.021 | ii, 1 |
| 2 | The land acquisition program, if any, under which the property was acquired. | 18-2.018 & 18-2.021 | 3-6 |
| 3 | Degree of title interest held by the Board, including reservations and encumbrances such as leases. | 18-2.021 | 3-7 |
| 4 | The legal description and acreage of the property. | 18-2.018 & 18-2.021 | ii, 1, 3, Appendix 13.1 and 13.2 |
| 5 | A map showing the approximate location and boundaries of the property, and the location of any structures or improvements to the property. | 18-2.018 & 18-2.021 | 10-14, 92 |
| 6 | An assessment as to whether the property, or any portion, should be declared surplus. <i>Provide information regarding assessment and analysis in the plan, and provide corresponding map.</i> | 18-2.021 | 54-56 |
| 7 | Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property. <i>Please clearly indicate parcels on a map.</i> | 18-2.021 | 74-77 |
| 8 | Identification of adjacent land uses that conflict with the planned use of the property, if any. | 18-2.021 | 9, 15 |
| 9 | A statement of the purpose for which the lands were acquired, the projected use or uses as defined in 253.034 and the statutory authority for such use or uses. | 259.032(10) | 3-4 |
| 10 | Proximity of property to other significant State, local or federal land or water resources. | 18-2.021 | 7-9,13 |

Section B: Use Items

| Item # | Requirement | Statute/Rule | Page Numbers and/or Appendix |
|--------|--|---------------------|------------------------------|
| 11 | The designated single use or multiple use management for the property, including use by other managing entities. | 18-2.018 & 18-2.021 | 54-56 |
| 12 | A description of past and existing uses, including any unauthorized uses of the property. | 18-2.018 & 18-2.021 | 51-54 |
| 13 | A description of alternative or multiple uses of the property considered by the lessee and a statement detailing why such uses were not adopted. | 18-2.018 | 54-55 |
| 14 | A description of the management responsibilities of each entity involved in the property's management and how such responsibilities will be coordinated. | 18-2.018 | 6-7, 78 |
| 15 | Include a provision that requires that the managing agency consult with the Division of Historical Resources, Department of State before taking actions that may adversely affect archeological or historical resources. | 18-2.021 | 50, 74, 78, 86-87 |

| | | | |
|----|--|---------------------|---------------------------------------|
| 16 | Analysis/description of other managing agencies and private land managers, if any, which could facilitate the restoration or management of the land. | 18-2.021 | 73-78 |
| 17 | A determination of the public uses and public access that would be consistent with the purposes for which the lands were acquired. | 259.032(10) | 52-55 |
| 18 | A finding regarding whether each planned use complies with the 1981 State Lands Management Plan, particularly whether such uses represent “balanced public utilization,” specific agency statutory authority and any other legislative or executive directives that constrain the use of such property. | 18-2.021 | 52-54 |
| 19 | Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan. | BOT requirement | Appendix 13.16 and 13.17 |
| 20 | An assessment of the impact of planned uses on the renewable and non-renewable resources of the property, including soil and water resources, and a detailed description of the specific actions that will be taken to protect, enhance and conserve these resources and to compensate/mitigate damage caused by such uses, including a description of how the manager plans to control and prevent soil erosion and soil or water contamination. | 18-2.018 & 18-2.021 | 16-18, 25-26, 50, 54-55, 61-69, 73-80 |
| 21 | *For managed areas larger than 1,000 acres, an analysis of the multiple-use potential of the property which shall include the potential of the property to generate revenues to enhance the management of the property provided that no lease, easement, or license for such revenue-generating use shall be entered into if the granting of such lease, easement or license would adversely affect the tax exemption of the interest on any revenue bonds issued to fund the acquisition of the affected lands from gross income for federal income tax purposes, pursuant to Internal Revenue Service regulations. | 18-2.021 & 253.036 | 54-55 |
| 22 | If the lead managing agency determines that timber resource management is not in conflict with the primary management objectives of the managed area, a component or section, prepared by a qualified professional forester, that assesses the feasibility of managing timber resources pursuant to section 253.036, F.S. | 18-021 | Appendix 13.13 |
| 23 | A statement regarding incompatible use in reference to Ch. 253.034(10). | 253.034(10) | 55 |

*The following taken from 253.034(10) is not a land management plan requirement; however, it should be considered when developing a land management plan: The following additional uses of conservation lands acquired pursuant to the Florida Forever program and other state-funded conservation land purchase programs shall be authorized, upon a finding by the Board of Trustees, if they meet the criteria specified in paragraphs (a)-(e): water resource development projects, water supply development projects, storm-water management projects, linear facilities and sustainable agriculture and forestry. Such additional uses are authorized where: (a) Not inconsistent with the management plan for such lands; (b) Compatible with the natural ecosystem and resource values of such lands; (c) The proposed use is appropriately located on such lands and where due consideration is given to the use of other available lands; (d) The using entity reasonably compensates the titleholder for such use based upon an appropriate measure of value; and (e) The use is consistent with the public interest.

| Section C: Public Involvement Items | | | |
|-------------------------------------|---|--------------------------|------------------------------|
| Item # | Requirement | Statute/Rule | Page Numbers and/or Appendix |
| 24 | A statement concerning the extent of public involvement and local government participation in the development of the plan, if any. | 18-2.021 | 16, Appendix 13.5 |
| 25 | The management prospectus required pursuant to paragraph (9)(d) shall be available to the public for a period of 30 days prior to the public hearing. | 259.032(10) | Appendix 13.5 |
| 26 | LMPs and LMP updates for parcels over 160 acres shall be developed with input from an advisory group who must conduct at least one public hearing within the county in which the parcel or project is located. <i>Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.</i> | 259.032(10) | 16, Appendix 13.5 |
| 27 | Summary of comments and concerns expressed by the advisory group for parcels over 160 acres | 18-2.021 | Appendix 13.5 |
| 28 | During plan development, at least one public hearing shall be held in each affected county. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing. <i>Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.</i> | 253.034(5) & 259.032(10) | Appendix 13.5 |
| 29 | The manager shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan. <i>Include manager's replies to the team's findings and recommendations.</i> | 259.036 | 58-59 |
| 30 | Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S. | 18-2.021 | N/A |
| 31 | If manager is not in agreement with the management review team's findings and recommendations in finalizing the required 10-year update of its management plan, the managing agency should explain why they disagree with the findings or recommendations. | 259.036 | N/A |

| Section D: Natural Resources | | | |
|------------------------------|---|---------------|------------------------------|
| Item # | Requirement | Statute/Rule | Page Numbers and/or Appendix |
| 32 | Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding soil types. <i>Use brief descriptions and include USDA maps when available.</i> | 18-2.021 | 17-18, 25-26, Appendix 13.7 |
| 33 | Insert FNAI based natural community maps when available. | ARC consensus | 38-39 |
| 34 | Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding outstanding native landscapes containing relatively unaltered flora, fauna and geological conditions. | 18-2.021 | 18, 27-37 |

| | | | |
|-------|---|--------------------------------------|-------------------------|
| 35 | Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding unique natural features and/or resources including but not limited to virgin timber stands, scenic vistas, natural rivers and streams, coral reefs, natural springs, caverns and large sinkholes. | 18-2.018 & 18-2.021 | 18. 27-37, 50-52 |
| 36 | Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes. | 18-2.021 | 50 |
| 37 | Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding mineral resources, such as oil, gas and phosphate, etc. | 18-2.018 & 18-2.021 | 50 |
| 38 | Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding fish and wildlife, both game and non-game, and their habitat. | 18-2.018 & 18-2.021 | 37-49 |
| 39 | Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding State and Federally listed endangered or threatened species and their habitat. | 18-2.021 | 46-49 |
| 40 | The identification or resources on the property that are listed in the Natural Areas Inventory. <i>Include letter from FNAI or consultant where appropriate.</i> | 18-2.021 | 49, Appendix 13.8 |
| 41 | Specific description of how the managing agency plans to identify, locate, protect and preserve or otherwise use fragile, nonrenewable natural and cultural resources. | 259.032(10) | 58-116 |
| 42 | Habitat Restoration and Improvement | 259.032(10) & 253.034(5) | |
| 42-A. | Describe management needs, problems and a desired outcome and the key management activities necessary to achieve the enhancement, protection and preservation of restored habitats and enhance the natural, historical and archeological resources and their values for which the lands were acquired. | ↓ | 58-116 |
| 42-B. | Provide a detailed description of both short (2-year planning period) and long-term (10-year planning period) management goals, and a priority schedule based on the purposes for which the lands were acquired and include a timeline for completion. | | 81-108 |
| 42-C. | The associated measurable objectives to achieve the goals. | | 81-108 |
| 42-D. | The related activities that are to be performed to meet the land management objectives and their associated measures. <i>Include fire management plans - they can be in plan body or an appendix.</i> | | 58-116, Appendix 13.3 |
| 42-E. | A detailed expense and manpower budget in order to provide a management tool that facilitates development of performance measures, including recommendations for cost-effective methods of accomplishing those activities. | | 112-114, Appendix 13.12 |
| 43 | ***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. <i>See footnote.</i> | 253.034(5) | 18-39 |
| 44 | Sustainable Forest Management, including implementation of prescribed fire management | 18-2.021, 253.034(5) & 259.032(10) ↓ | |

| | | | |
|-------|--|------------------------------------|--------------------------|
| 44-A. | Management needs, problems and a desired outcome (see requirement for # 42-A). | | 58-116 |
| 44-B. | Detailed description of both short and long-term management goals (see requirement for # 42-B). | | 81-108 |
| 44-C. | Measurable objectives (see requirement for #42-C). | | 81-108 |
| 44-D. | Related activities (see requirement for #42-D). | | 58-116, Appendix 13.3 |
| 44-E. | Budgets (see requirement for #42-E). | | 112-114, Appendix 13.12 |
| 45 | Imperiled species, habitat maintenance, enhancement, restoration or population restoration | 259.032(10) & 253.034(5) | |
| 45-A. | Management needs, problems and a desired outcome (see requirement for # 42-A). | ↓ | 58-116 |
| 45-B. | Detailed description of both short and long-term management goals (see requirement for # 42-B). | | 81-108 |
| 45-C. | Measurable objectives (see requirement for #42-C). | | 81-108 |
| 45-D. | Related activities (see requirement for #42-D). | | 58-116 |
| 45-E. | Budgets (see requirement for #42-E). | | 112-114, Appendix 13.12 |
| 46 | ***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. <i>See footnote.</i> | 253.034(5) | 68-70 |
| 47 | Place the Arthropod Control Plan in an appendix. If one does not exist, provide a statement as to what arrangement exists between the local mosquito control district and the management unit. | BOT requirement via lease language | Appendix 13.14 and 13.15 |
| 48 | Exotic and invasive species maintenance and control | 259.032(10) & 253.034(5) | |
| 48-A. | Management needs, problems and a desired outcome (see requirement for # 42-A). | ↓ | 58-116 |
| 48-B. | Detailed description of both short and long-term management goals (see requirement for # 42-B). | | 81-108 |
| 48-C. | Measurable objectives (see requirement for #42-C). | | 81-108 |
| 48-D. | Related activities (see requirement for #42-D). | | 58-116 |
| 48-E. | Budgets (see requirement for #42-E). | | 112-114, Appendix 13.12 |

| Section E: Water Resources | | | |
|----------------------------|--|--------------|------------------------------|
| Item # | Requirement | Statute/Rule | Page Numbers and/or Appendix |
| 49 | A statement as to whether the property is within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation. <i>If yes, provide a list of the</i> | | 49-50 |

| | | | |
|-------|--|--------------------------|-------------------------|
| | <i>appropriate managing agencies that have been notified of the proposed plan.</i> | 18-2.018 & 18-2.021 | |
| 50 | Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding water resources, including water classification for each water body and the identification of any such water body that is designated as an Outstanding Florida Water under Rule 62-302.700, F.A.C. | 18-2.021 | 49-50 |
| 51 | Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding swamps, marshes and other wetlands. | 18-2.021 | 49-50 |
| 52 | ***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. <i>See footnote.</i> | 253.034(5) | 49-50 |
| 53 | Hydrological Preservation and Restoration | 259.032(10) & 253.034(5) | |
| 53-A. | Management needs, problems and a desired outcome (see requirement for # 42-A). | ↓ | 73 |
| 53-B. | Detailed description of both short and long-term management goals (see requirement for # 42-B). | | 81-108 |
| 53-C. | Measurable objectives (see requirement for #42-C). | | 81-108 |
| 53-D. | Related activities (see requirement for #42-D). | | 58-116 |
| 53-E. | Budgets (see requirement for #42-E). | | 112-114, Appendix 13.12 |

| Section F: Historical, Archeological and Cultural Resources | | | |
|---|--|--|------------------------------|
| Item # | Requirement | Statute/Rule | Page Numbers and/or Appendix |
| 54 | **Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding archeological and historical resources. <i>Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.</i> | 18-2.018, 18-2.021 & per DHR's request | 50 |
| 55 | ***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage. | 253.034(5) | 50, 74 |
| 56 | A description of actions the agency plans to take to locate and identify unknown resources such as surveys of unknown archeological and historical resources. | 18-2.021 | 74, Appendix 13.11 |
| 57 | Cultural and Historical Resources | 259.032(10) & 253.034(5) | |
| 57-A. | Management needs, problems and a desired outcome (see requirement for # 42-A). | ↓ | 58-116 |
| 57-B. | Detailed description of both short and long-term management goals (see requirement for # 42-B). | | 81-108 |
| 57-C. | Measurable objectives (see requirement for #42-C). | | 81-108 |
| 57-D. | Related activities (see requirement for #42-D). | | 58-116 |
| 57-E. | Budgets (see requirement for #42-E). | | 112-114, Appendix 13.12 |

**While maps of Native American sites should not be included in the body of the management plan, the DSL urges each managing agency to provide such information to the Division of Historical Resources for inclusion in their proprietary database. This information should be available for access to new managers to assist them in developing, implementing and coordinating their management activities.

| Section G: Facilities (Infrastructure, Access, Recreation) | | | |
|--|--|--------------------------|------------------------------|
| Item # | Requirement | Statute/Rule | Page Numbers and/or Appendix |
| 58 | ***Quantitative data description of the land regarding an inventory of infrastructure and associated acreage. <i>See footnote.</i> | 253.034(5) | 74-77, 92 |
| 59 | Capital Facilities and Infrastructure | 259.032(10) & 253.034(5) | |
| 59-A. | Management needs, problems and a desired outcome (see requirement for # 42-A). | ↓ | 81-108 |
| 59-B. | Detailed description of both short and long-term management goals (see requirement for # 42-B). | | 58-116 |
| 59-C. | Measurable objectives (see requirement for #42-C). | | 58-116 |
| 59-D. | Related activities (see requirement for #42-D). | | 81-108 |
| 59-E. | Budgets (see requirement for #42-E). | | 112-114, Appendix 13.12 |
| 60 | *** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage. | 253.034(5) | 74-77, 92 |
| 61 | Public Access and Recreational Opportunities | 259.032(10) & 253.034(5) | |
| 61-A. | Management needs, problems and a desired outcome (see requirement for # 42-A). | ↓ | 81-108 |
| 61-B. | Detailed description of both short and long-term management goals (see requirement for # 42-B). | | 58-116 |
| 61-C. | Measurable objectives (see requirement for #42-C). | | 58-116 |
| 61-D. | Related activities (see requirement for #42-D). | | 81-108 |
| 61-E. | Budgets (see requirement for #42-E). | | 112-114, Appendix 13.12 |

| Section H: Other/ Managing Agency Tools | | | |
|---|--|-----------------------------------|------------------------------|
| Item # | Requirement | Statute/Rule | Page Numbers and/or Appendix |
| 62 | Place this LMP Compliance Checklist at the front of the plan. | ARC and managing agency consensus | iv-xi |
| 63 | Place the Executive Summary at the front of the LMP. Include a physical description of the land. | ARC and 253.034(5) | ii-iii |
| 64 | If this LMP is a 10-year update, note the accomplishments since the drafting of the last LMP set forth in an organized (categories or bullets) format. | ARC consensus | 56-58 |
| 65 | Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management. | 259.032(10) | 81-108 |

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|----|---|-------------|-------------------------|
| 66 | Summary budget for the scheduled land management activities of the LMP including any potential fees anticipated from public or private entities for projects to offset adverse impacts to imperiled species or such habitat, which fees shall be used to restore, manage, enhance, repopulate, or acquire imperiled species habitat for lands that have or are anticipated to have imperiled species or such habitat onsite. The summary budget shall be prepared in such a manner that it facilitates computing an aggregate of land management costs for all state-managed lands using the categories described in s. 259.037(3) which are resource management, administration, support, capital improvements, recreation visitor services, law enforcement activities. | 253.034(5) | 112-114, Appendix 13.12 |
| 67 | Cost estimate for conducting other management activities which would enhance the natural resource value or public recreation value for which the lands were acquired, include recommendations for cost-effective methods in accomplishing those activities. | 259.032(10) | 112-114, Appendix 13.12 |
| 68 | A statement of gross income generated, net income and expenses. | 18-2.018 | 112-114, Appendix 13.12 |

*** = The referenced inventories shall be of such detail that objective measures and benchmarks can be established for each tract of land and monitored during the lifetime of the plan. All quantitative data collected shall be aggregated, standardized, collected, and presented in an electronic format to allow for uniform management reporting and analysis. The information collected by the DEP pursuant to s. 253.0325(2) shall be available to the land manager and his or her assignee.

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Management Plan Acronym Key

| | |
|--------|---|
| ADA | Americans with Disabilities Act |
| ACSC | Area of Critical State Concern |
| ARC | Acquisition and Restoration Council |
| BEBR | Bureau of Economic and Business Research |
| CAS | Conservation Action Strategy |
| CLIP | Critical Lands and Waters Identification Project |
| DACS | Department of Agriculture and Consumer Services |
| DEP | Department of Environmental Protection |
| DOD | Department of Defense |
| DSL | Division of State Lands |
| FAC | Florida Administrative Code |
| FFAIAL | Florida Forever Addition and Inholding Acquisition List |
| FFS | Florida Forest Service |
| FLEPPC | Florida Exotic Pest Plant Council |
| FLUE | Florida Land Use Element |
| FNAI | Florida Natural Areas Inventory |
| FNST | Florida National Scenic Trail |
| FS | Florida Statute(s) |
| FWC | Florida Fish and Wildlife Conservation Commission |
| FWRI | Fish and Wildlife Research Institute |
| FWHAP | FWC's Fish and Wildlife Habitat Acquisition Program |
| GFC | Florida Game and Freshwater Fish Commission |
| GIS | Geographic Information Systems |
| GPS | Geographic Positioning System |
| IMPP | Internal Management Policies and Procedures |
| IPCC | Intergovernmental Panel on Climate Change |
| IWHRS | Integrated Wildlife Habitat Ranking System |
| LAP | Landowner Assistance Program |
| LATF | Land Acquisition Trust Fund |
| LMR | Land Management Review |
| MAG | Management Advisory Group |
| NPS | National Park Service |
| OBVM | Objective-Based Vegetation Management |
| OCPB | Optimal Conservation Planning Boundary |
| OFW | Outstanding Florida Waters |
| OGT | Office of Greenways and Trails |
| ORB | Optimal Resource Boundary |
| RSPH | Rare Species Potential Habitat |
| SCHA | Strategic Habitat Conservation Areas |

| | |
|--------|---|
| SFWMD | South Florida Water Management District |
| SJRWMD | St. John's River Water Management District |
| SWFWMD | Southwest Florida Water Management District |
| TNC | The Nature Conservancy |
| TPL | Trust for Public Land |
| UCF | University of Central Florida |
| USFWS | United States Fish and Wildlife Service |
| WCPR | Wildlife Conservation Prioritization and Recovery |
| WEA | Wildlife and Environmental Area |
| WMA | Wildlife Management Area |

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1 Introduction and General Information

Buffering the southern boundary of Lake Hart, with Lake Mary Jane to the northeast, and Lake Ajay to the west, just 1 mile south of metropolitan Orlando, the Split Oak Forest Wildlife and Environmental Area (SOFWEA) conserves 1,689 acres of important wildlife habitat. Providing important habitat and wildlife corridor links to nearby conservation lands, the SOFWEA serves as vital habitat for a rich diversity of imperiled and focal wildlife including the, gopher tortoise (*Gopherus polyphemus*), swallow-tailed kite (*Elanoides forficatus*), Sherman's fox squirrel (*Sciurus niger shermani*), and other more prevalent wildlife. Setting astride the southern border of Orange County and the northern border of Osceola County within an increasingly urbanized region, visitors to SOFWEA have opportunities to find solace from the nearby urban bustle and see a diverse assemblage of Florida's imperiled, rare and other wildlife, rare plants and colorful wildflowers along trails winding through verdant scrubby and mesic flatwoods forests that are still emblematic of the primeval landscape of Florida.

Located in a landscape of ranchlands, citrus groves, conservation lands, prairies, flatwoods, and scrub flatwoods; the SOFWEA's natural communities, including ancient scrub lands, hammocks, flatwoods, marshes and swamp habitats, provide a wide diversity of wildlife habitats. Given its confluence with adjacent and nearby lakes the area also conserves important watershed and water quality attributes.



SOFWEA is managed by the Florida Fish and Wildlife Conservation Commission (FWC), in cooperation with Orange and Osceola counties, to conserve and restore natural wildlife habitat for a wide range of imperiled wildlife species such as the gopher tortoise, and other wildlife species, focusing primarily on the conservation of gopher tortoise habitat. The area was acquired and conserved in part with FWC Gopher Tortoise Mitigation Program funds, to offset development impacts to gopher tortoises, funding from Wetland Mitigation permits to conserve wetlands, along with grant funding from the Florida Community Trust Program to conserve natural resources, and in order to provide high-quality fish and wildlife based public outdoor recreational opportunities that are compatible with the primary purposes for acquisition and management of the area such as hiking, wildlife viewing, and environmental education. The diverse array and quality of habitat types found on the SOFWEA, results in a variety of resident and migratory birds that can be found on the area

throughout the year, providing excellent birding opportunities, as well as other wildlife viewing opportunities.

1.1 Management Plan Purpose

This Management Plan serves as the basic statement of policy and direction for the management of SOFWEA. It provides information including the past usage, conservation acquisition history, and descriptions of the natural and historical resources found on SOFWEA. Furthermore, it identifies FWC's future management intent, goals and associated short and long-term objectives, as well as identifying challenges and solutions. This Management Plan has been developed to guide each aspect of SOFWEA's management for the next ten years.

Although the lands covered by this Management Plan are not titled to the Board of Trustees, they are being submitted to the ARC and Board of Trustees for review and approval for a variety of important reasons. Foremost among these, is that the FWC has determined that it is essential for all of the conservation areas that it manages, including those lands titled to agencies other than the Board of Trustees, to have conservation land management plans that are in conformance with the State's statutory framework and criteria for the development of management plans for state-owned conservation lands. This ensures that each conservation area that FWC manages has a comprehensive, consistent, accountable, land management plan that is developed under and meets the current ARC, Board of Trustees, and FWC planning framework and requirements.

Further, FWC may also request for the SOFWEA to be included on the list of FWC managed conservation lands that receive funding through the Land Acquisition Trust Fund (LATF) conservation land management funding formula. Since, in order for a public conservation area to be eligible to continue to qualify to receive land management funding through the LATF land management funding formula, the area is required to have an ARC and Board of Trustees approved land management plan that meets the State's management plan requirements for state-owned conservation lands. For these reasons, this Management Plan is submitted and required to meet the ARC and Board of Trustees criteria for approval.

Moreover, this Management Plan will also be submitted to the Orange and Osceola counties for review and approval in keeping with the terms of the SOFWEA Partnership Agreement.

This Management Plan is submitted for review to the Acquisition and Restoration Council (ARC) acting on behalf of Orange and Osceola Counties in compliance to Chapters 253 and 259, Florida Statutes (FS), and Chapters 18-2 and 18-4, Florida Administrative Code (FAC). Format and content were drafted in accordance with ARC requirements for management plans and the model plan outline provided by the staff of DSL. Terms

(Appendix 13.4) used in this Management Plan describing management activities and associated measurable goals and objectives conform to those developed for the Land Management Uniform Accounting Council Biennial Land Management Operational Report.

1.1.1 FWC Planning Philosophy

The FWC’s planning philosophy includes emphasizing management recommendation consensus-building among stakeholders and input from user groups and the general public at the beginning of the planning process. The FWC engages stakeholders by convening a Management Advisory Group and solicits additional input from user groups and the general public at a public hearing (Appendix 13.5). The FWC also engages area, district, and regional agency staff, as well as other FWC staff expertise, in developing this Management Plan, thereby facilitating area biologist and manager “ownership” of the Management Plan, and thus the development of meaningful management intent language, goals with associated measurable objectives, timelines for completion, and the identification of challenges and solution strategies for inclusion in the SOFWEA Management Plan (Sections 5 – 8).

Furthermore, FWC maintains transparency and accountability throughout the development and implementation of this Management Plan. A “living document” concept, linking this updated Management Plan to the previous one, is accomplished by reporting on the objectives, management activities, and projects accomplished over the last planning timeframe (previous ten years; see Section 4), thereby ensuring agency accountability through time. Also, in an effort to remain adaptive for the duration of this Management Plan, continuous input and feedback will be collected from FWC staff, stakeholders, user groups, and other interested parties and individuals. As needed, amendments to this Management Plan will be presented to DSL and ARC for review and consideration.

1.2 Location

As noted above, the SOFWEA is located along the border of Orange and Osceola counties, approximately five miles north of St. Cloud and eight miles east of Kissimmee. Comprising approximately 1,689 acres, SOFWEA lies in all or portions of Sections 2 and 3, Township 25S, Range 31E, with a small portion of the area also located in Section 27, Township 24S, and Range 31E. Public access to the area is provided directly off of Cyril’s Drive and Clapp Simms Duda Road.

1.3 Acquisition

1.3.1 Purpose for Acquisition of the Property

In accordance with the SOFWEA Partnership Agreement between FWC, Orange and Osceola counties described in more detail below, SOFWEA was acquired and established for

the purpose of conserving natural and cultural resources, and for conserving wildlife species habitat as a conservation measure designed to offset environmental impacts caused by existing and proposed development, as well as other purposes enumerated below with funding from the Florida Communities Trust Program (FCT), Orange and Osceola Counties' Wetland Mitigation Permits and the FWC Mitigation Park Program. Lands acquired by FWC through its FWC Mitigation Park Program, such as SOFWEA, were acquired as a means to provide an offsite compensation alternative to state and federal listed species regulatory decisions. In general, the primary acquisition and conservation goals and purposes of the FWC Mitigation Park Program for acquiring Mitigation Parks such as SOFWEA were:

- 1) Promote habitat conditions critical to meeting the life history requirements of the gopher tortoise and associated upland species; conserve, protect, and restore landscapes, forests, watershed, water resources, historical resources, and other elements important to ecosystem functions;
- 2) Provide an off-site mitigation alternative to the traditional method of on-site preservation of habitat within the boundaries of a development project requiring state and federal listed species permits; and
- 3) Provide public outdoor fish and wildlife-based recreational opportunities that are compatible with the conservation and management of the area's natural and historical resources.

The following mission statement was developed and approved by the FWC and Orange and Osceola Counties to guide management activities at the SOFWEA. "It shall be the primary management missions at SOFWEA to manage plant communities and public use in a manner that gives first consideration to the habitat needs and life history requirements of the gopher tortoise."

Additionally, the FCT Split Oak Forest Grant Project funding has perpetual obligations, covenants and restrictions that cover the purposes for acquiring the Project Site. Specifically, the covenants stipulate: "the Project Site shall be managed for the conservation, protection and enhancement of natural and cultural resources and for passive natural resource-based public outdoor recreation that is compatible with the conservation, protection and enhancement of the Project Site, along with related uses necessary for the accomplishment of this purpose."

Consistent with these purposes, the SOFWEA conserves habitat for the gopher tortoise as well as other imperiled, rare and occurring wildlife species and is managed by FWC, in cooperation with Orange and Osceola counties, to provide ecological diversity, high quality wildlife habitat, and wildlife-oriented public outdoor recreational opportunities.

1.3.2 Acquisition History

In 1991, Osceola County and Orange County respectively approved a partnership application in cooperation with the FWC, then the Florida Game and Freshwater Fish Commission, which was submitted to the FCT, formerly within the now defunct Department of Community Affairs, now housed within the Florida Department of Environmental Protection (DEP), to acquire SOFWEA. With the assistance of grant funds awarded to Orange and Osceola Counties by the FCT, the Counties jointly acquired the parcel. Subsequently, the FCT approved the SOFWEA Partnership Application and Agreement noted above in 1992. On March 15, 1994, Orange and Osceola Counties approved an interagency agreement between the counties and FWC. This agreement established the FWC as the managing agency of SOFWEA, with the purpose of establishing the area as a Mitigation Park to protect vital habitat for the gopher tortoise. The area also served as a Wetland Mitigation Bank, and both Orange and Osceola counties sold mitigation credits to private/public entities to offset wetland impacts. In 1995 the FCT approved a conservation easement vested in the FWC. As a part of the agreement between FWC and Orange and Osceola counties, FWC reimbursed Orange and Osceola counties for a part of the cost of acquiring the area with funds from the FWC Mitigation Park Program, in return for the Counties granting the FWC a perpetual conservation easement on the area. In short, the SOFWEA Conservation Easement provides the FWC perpetual management authority and responsibility for the SOFWEA, in cooperation with Orange and Osceola counties, under the FWC Mitigation Park Program.



FWC implemented the now defunct Mitigation Park Program in 1988 under Section 372.074 of the Florida Statutes (FS), (since replaced by Chapter 379, FS), to help protect gopher tortoises from the impacts of development, by providing an offsite alternative to the previous method of on-site preservation of habitat within the boundaries of a development. When developers proposed to develop habitat for gopher tortoises through this program, they paid mitigation “taking” fees that were used to buy and manage high quality habitat elsewhere. As a result, the program provided an alternative method to preserve wildlife habitat, while allowing developers to develop imperiled species habitat on their development project sites. It also consolidates mitigation within a geographical region by buying larger and more manageable tracts, which are established as Wildlife and Environmental Areas (WEAs) and can be utilized by the public for low-intensity, natural resource-based public outdoor recreation. All of the WEAs established through this program are managed primarily to protect and enhance habitat important to upland

endangered or threatened wildlife, especially the gopher tortoise. The Mitigation Park Program has since been discontinued, but the 14 mitigation tracts acquired through the program continue to be actively managed by FWC for their original purposes of acquisition and conservation.

Gopher Tortoise Mitigation Parks, now established by the FWC as WEAs, provide conservation of important fish and wildlife habitat while allowing for public outdoor recreation within a multiple-use management regime that is primarily focused on restoration and management of gopher tortoise habitat. For this reason, management activities emphasize the maintenance and restoration of optimum listed species habitat.

1.3.3 Mitigation Credits

Based upon mitigation criteria outlined in the Interagency Agreement for SOFWEA, between Orange and Osceola Counties and the FWC, any property owner or developer may apply for upland or wetland mitigation permits/credits, to utilize allotted mitigation credits at SOFWEA, to use as mitigation to offset development impacts on imperiled wildlife species and wetlands respectively.

Essentially, the formula for establishing the number of potential mitigation credits that are assigned to a respective mitigation area such as SOFWEA, is based on the number of acres of viable, sustainable habitat calculated for each species of imperiled wildlife, which is determined through wildlife and habitat surveys that are determined to be on the mitigation area. In this way, the total acreage qualified to be used as mitigation is calculated. In general, mitigation credits are assigned for each acre of functional habitat as calculated for those species of imperiled wildlife that are projected to be sustainable on the area with genetically viable stable populations over time.

However, it should be noted that all previously available wetland and upland mitigation credits have been purchased and utilized for SOFWEA; consequently, there are no remaining mitigation credits available for use on SOFWEA.

1.4 Management Authority

The FWC is the designated lead managing agency for SOFWEA under the authority granted by the interagency agreement between Orange and Osceola Counties and the FWC, and the conservation easement vested in the FWC by the FCT. Further management authority derives from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters 253, 259, 327, 370, 373, 375, 378, 379, 403, 487, 870, and 597 and of the Florida Statutes. These constitutional provisions and laws provide FWC the authority to protect, conserve, and manage the State's fish and wildlife resources.

1.5 Management Directives

The Interagency Agreement with FWC and Orange and Osceola Counties directs FWC to “establish the Project as a Wildlife and Environmental Area pursuant to Rule 39-17.002...assignment of management responsibility shall not preclude Orange or Osceola from recreational use of the Project as long as said recreational uses comply with specific regulations promulgated by FWC pursuant to Rule 39-17.005, F.A.C.” Also, under the Conservation Easement vested in FWC directs FWC to “ensure that the area...shall be used and managed at a FWC Mitigation Park...to perform habitat management activities and to enforce the right herein granted by the Grantor, its heirs, successors, or assigns... to preserve and protect and...enhance the natural and ecological features of the Property.”

1.6 Title Interest and Encumbrances

Title to the original 1,689 acres of the lands acquired within SOFWEA is vested in Orange and Osceola counties, along with a conservation easement vested in the FWC. Consequently, as noted above, under the SOFWEA conservation easement, the FWC has lead management authority and responsibility, in cooperation with Orange and Osceola counties, for all resources within the established boundary of SOFWEA.

Additional FWC management authority derives from Article IV, Section 9 of the Florida Constitution as well as the guidance and directives of Chapters 253, 259, 327, 370, 372, 375, 378, 379, 403, 487, 597, and 870 of the Florida Statutes. These laws establish the authority of the FWC with regard to protection and management of the State’s fish and wildlife resources.

According to the Land Management Uniform Accounting Council’s biennial report, SOFWEA is documented as having an area of 1,689 acres. However, GIS-calculated acreage data for the area from the FNAI maintained FLMA shapefiles (April 2016), indicates the area has an acreage of 1,772 acres. The FWC will continue to work with FNAI, Orange and Osceola counties, and DEP to reconcile this apparent acreage discrepancy and will recommend an updated boundary survey in the SOFWEA Management Plan to aid in rectifying this apparent acreage discrepancy. There are no known encumbrances or outstanding mineral rights or other interests within the established boundary of SOFWEA.

1.7 Proximity to Other Public Conservation Lands

As noted above, the SOFWEA is located in the vicinity of an extensive network of conservation lands, including Eagles Roost Preserve, Isle of Pine Preserve, and Moss Park, which are managed by Orange County and located directly adjacent to the area, as well as other conservation lands managed by the FWC, Osceola County, University of Central Florida (UCF), the SFWMD, the SJRWMD, and several private conservation organizations.

Several Florida Forever projects are also located in the vicinity of the area shown in Table 1 and in Figure 4. Tables 1 and 2 list the Florida Forever projects and conservation lands within a 15-mile radius of the SOFWEA, including lands managed by public and private entities, that conserve cultural and natural resources within this region of Florida. Most of the conservation lands listed in Table 2 are owned in full-fee by a public entity. However, some of these areas fall within a less-than-fee ownership classification, where the land is owned and being managed by a private landowner while a public agency or not-for-profit organization holds a conservation easement on the land.

Table 1. Florida Forever Projects within a 15 mile Radius of SOFWEA

| Project Name | GIS Acres |
|------------------------------|------------------|
| Big Bend Swamp/Holopaw Ranch | 56,729.44 |
| Conlin Lake X | 9,074.82 |

Table 2. Conservation Lands within a 15 mile Radius of SOFWEA

| State of Florida | Managing Agency |
|---|------------------------|
| Paradise Island | FWC |
| Tosohatchee Wildlife Management Area | FWC |
| University of Central Florida East Parcel | UCF |
| University of Central Florida McKay Tract | UCF |

| Water Management District | Managing Agency |
|--|------------------------|
| Dietrich Conservation Easement | SJRWMD |
| Hal Scott Preserve Conservation Easement | SJRWMD |
| Hal Scott Regional Preserve and Park | SJRWMD |
| Oak Street Extension Preserve | SFWMD |
| Shingle Creek | SFWMD |

| County/City | Managing Agency |
|---|------------------------|
| Cherokee Point Conservation Area | Osceola County |
| Crosby Island Marsh Preserve | Orange County |
| Eagles Roost | Orange County |
| Evans Property | Orange County |
| Isle of Pine Preserve | Orange County |
| Ken Bosserman Econlochatchee River Preserve | Orange County |
| Lake Lizzie Conservation Area | Osceola County |
| Long Branch Park | Orange County |

| | |
|-------------------------------------|----------------|
| Makinson Island Conservation Area | Osceola County |
| Moss Park | Orange County |
| Nunnally Property | Orange County |
| Pine Lily Preserve | Orange County |
| Ranger Property | Orange County |
| Savage/Christmas Creek Preserve | Orange County |
| Shingle Creek Regional Park | Osceola County |
| Sunflower Property | Orange County |
| TM Ranch 4 Mitigation Bank | Orange County |
| Tupperware Island Conservation Area | Osceola County |
| Twin Oaks Conservation Area | Osceola County |
| Vienna Property | Orange County |

| Private/Public Conservation Organization | Managing Agency |
|---|-------------------------------|
| Big Econlochatchee River Sanctuary | Florida Audubon Society, Inc. |
| Homestead News Sanctuary | Florida Audubon Society, Inc. |
| TM-Econ Phases 123 Mitigation Bank | Holland Properties |

| Acronym Key | Agency Name |
|-------------|---|
| FWC | Florida Fish and Wildlife Conservation Commission |
| SFWMD | South Florida Water Management District |
| SJRWMD | St. John's River Water Management District |
| UCF | University of Central Florida |

1.8 Adjacent Land Uses

As described above, the SOFWEA is located in Central Florida in the southeastern region of Orange County and the northeastern region of Osceola County. Approximately 1 mile west of SOFWEA is Highway 15 and bordering the southern portion of the area is Cyrila Drive. The Central Florida Greenway is located approximately 4 miles west of SOFWEA, and the Orlando International Airport is located approximately 15 miles northwest of the area.

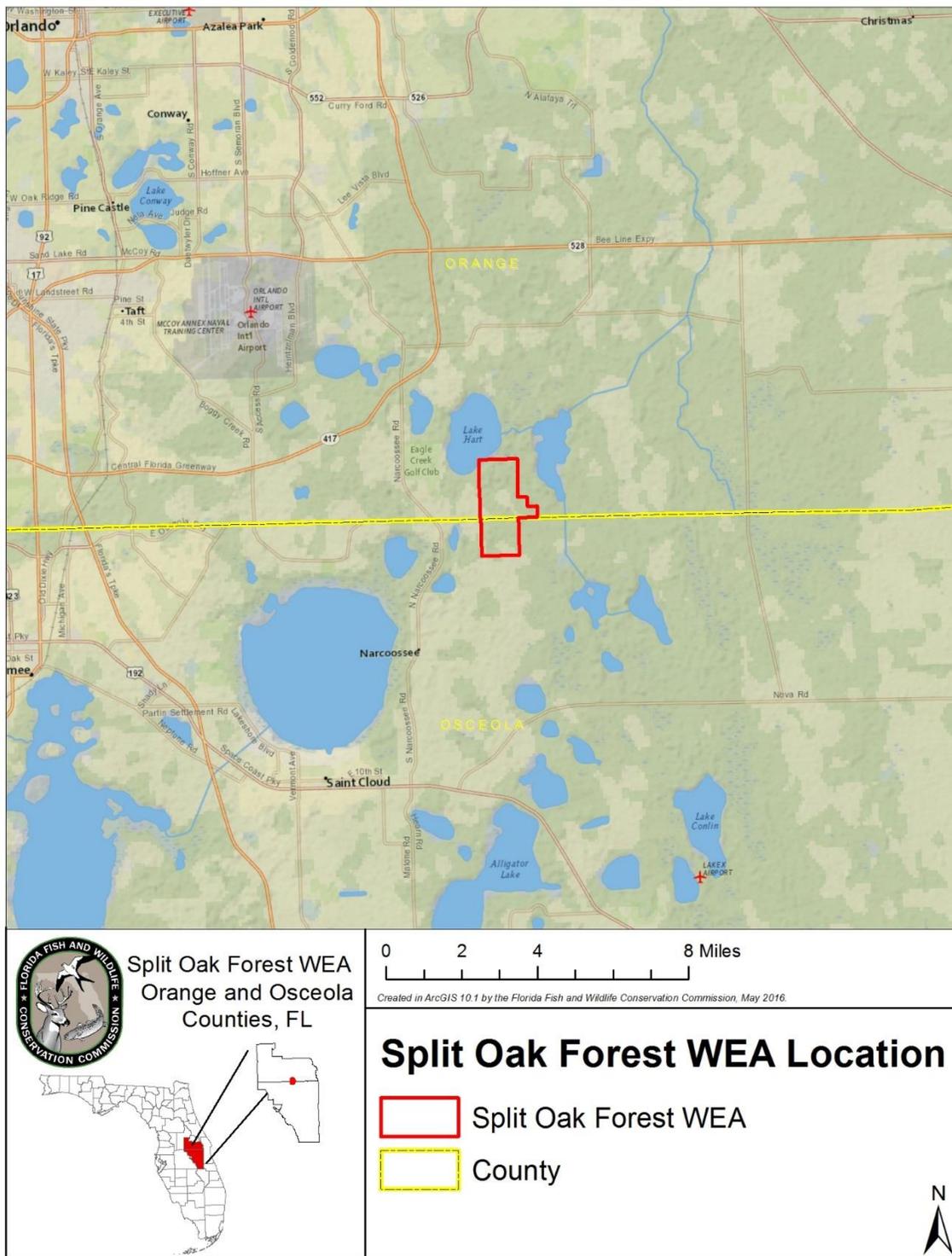


Figure 1. SOFWEA Location

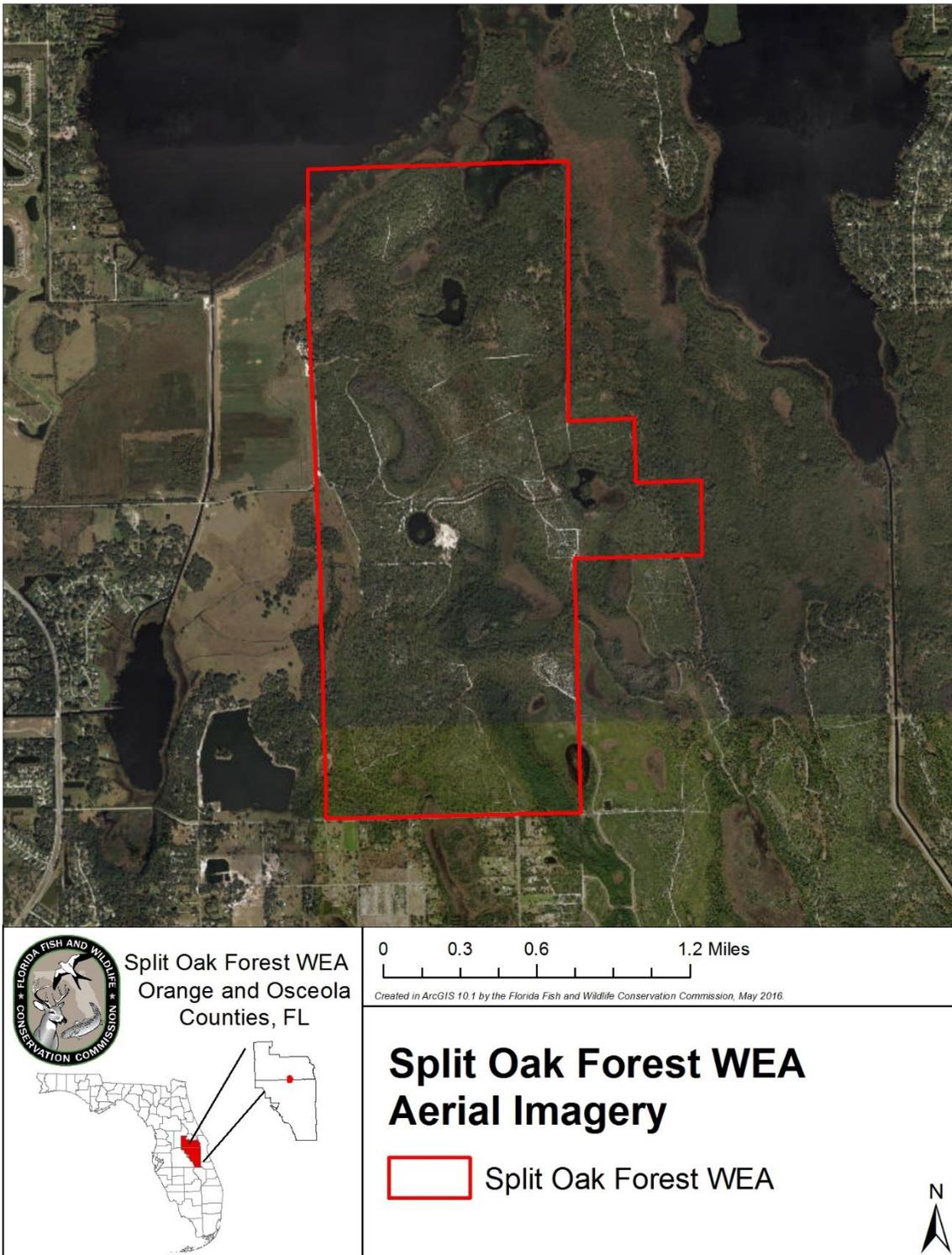


Figure 2. SOFWEA Aerial Imagery

Florida Fish and Wildlife Conservation Commission | Split Oak Forest WEA Management Plan

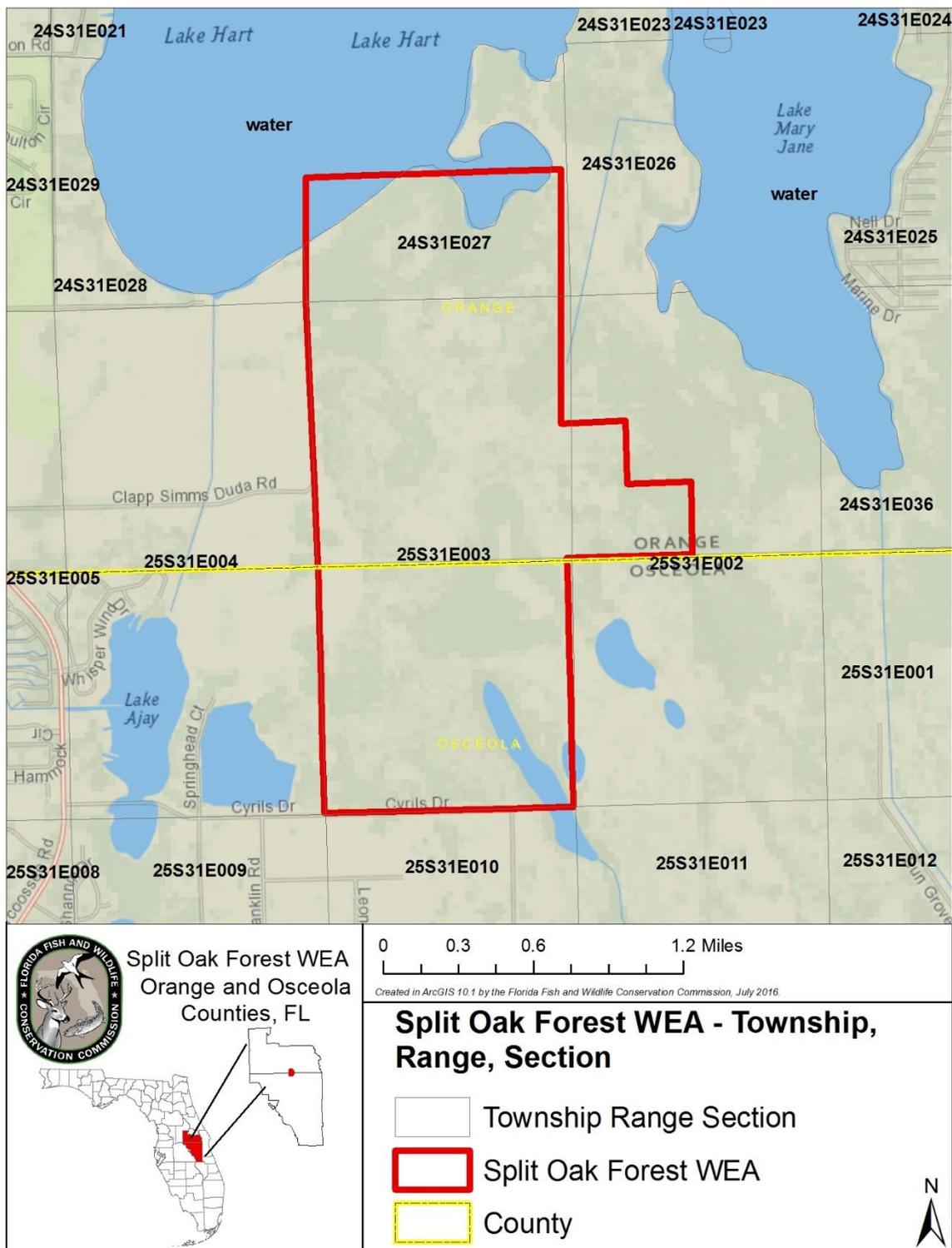


Figure 3. SOFWEA- Township, Range, and Section

Florida Fish and Wildlife Conservation Commission | Split Oak Forest WEA Management Plan

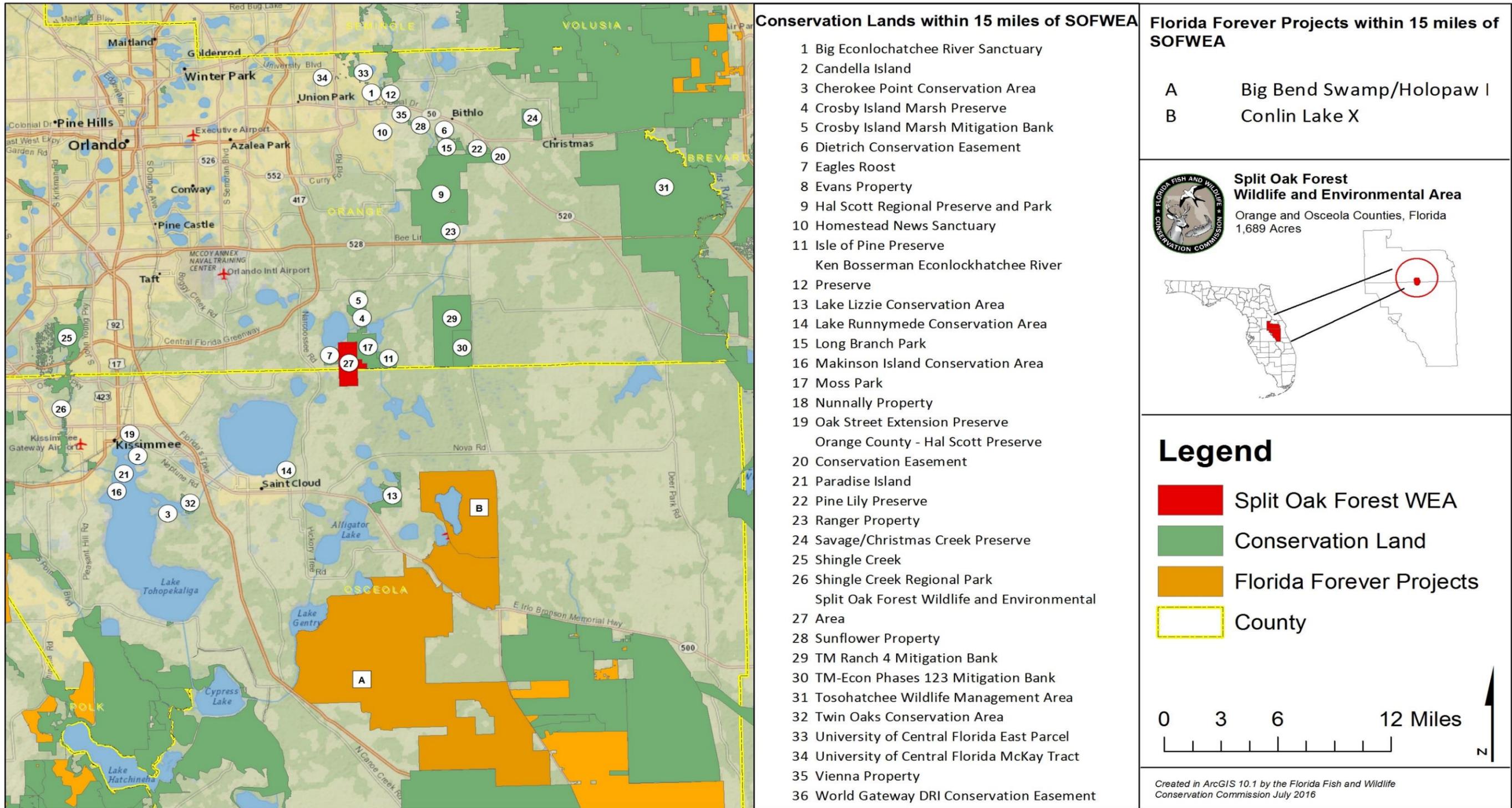


Figure 4. SOFWEA Conservation Lands and Florida Forever Projects within a 15 mile Vicinity

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The 2015 U.S. Census estimates that there are 1,288,126 people living in Orange County and 323,993 people living in Osceola County. The Department of Economic Affairs, Bureau of Economic and Business Research's (BEBR) medium-range population projection indicates that in the year 2025, there will be 427,900 people living in Osceola County and 1,551,400 people living in Orange County. The BEBR population projections for the counties surrounding Orange and Osceola counties for the year 2025 are as follows: Brevard County-621,000; Indian River County-166,400; Lake County-394,000; Okeechobee County-42,600; Polk County-744,600; and Seminole County-502,100.

The current zoning ordinance for the SOFWEA is conservation/preservation. According to Osceola and Orange County's comprehensive plan, conservation/preservation lands allows for 1 unit/5 acres. According to the Orange and Osceola counties' Recreation Master Plan, the following activities are allowed: hiking, fishing, wildlife viewing, nature study, geocaching, and equestrian usage thru permit only. Activities that are not approved on the SOFWEA include biking, hunting, and camping. Orange and Osceola counties' future land use maps indicate that the SOFWEA will continue to be designated and zoned as conservation and preservation/rural lands.

The current land use designations for areas in the vicinity of the SOFWEA in the Osceola county portion are low density residential and mixed use. In Orange County the areas surrounding SOFWEA are designated as rural, conservation, and planned development.

Osceola and Orange counties are among the most heavily-developed counties in central Florida and many of the lands in the immediate vicinity of the SOFWEA have been platted and are designated as low-density residential. So, although the SOFWEA is located in moderately developed area of Orange and Osceola counties, there are ongoing plans for increased residential development adjacent or in the immediate vicinity of SOFWEA. The Osceola Parkway Extension route is being considered to run adjacent to or thru SOFWEA. Careful coordination between FWC, Osceola County and adjacent Deseret Ranch will be required for evaluation of the potential environmental impacts, and for the required mitigation of such impacts, if potential consideration of routing the Osceola Parkway is proposed for the area. Additionally, as stated above, much of the land within the immediate vicinity of the area are designated as conservation and preservation lands according to Orange and Osceola counties' current zoning ordinance and future land use maps.

The SOFWEA is not within an area of critical state concern or presently under study for such a designation.

1.9 Public Involvement

The FWC conducted a Management Advisory Group (MAG) meeting in Orlando, Florida on June 8th, 2016, to obtain input from both public and private stakeholders regarding

Florida Fish and Wildlife Conservation Commission | Split Oak Forest WEA Management
Plan

management of SOFWEA. Results of this meeting were used by FWC to develop management goals and objectives and to identify opportunities and strategies for inclusion in this Management Plan. A summary of issues and opportunities raised by the SOFWEA MAG, as well as a listing of participants, is included as Appendix B. Further, a public hearing, as required by Chapter 259.032(10), FS, was held in Kissimmee, Florida on July 14th, 2016. The report of that hearing is also contained in Appendix 13.5.4. A website is also maintained for receipt of public input at <http://myfwc.com/conservation/terrestrial/management-plans/develop-mps/>. Further testimony and input is also received at a public hearing held by ARC when this Management Plan is considered for approval. Input received from all public involvement efforts has been considered in the development of this Management Plan.

2 Natural and Historical Resources

2.1 Physiography

The SOFWEA is located within the mid-peninsular physiographic zone south of the Orlando ridge and to the east of the northern portion of the Lake Wales Ridge. The mid-peninsular zone contains discontinuous highlands separated by broad valleys and is composed of distinct physiographic divisions. The SOFWEA lies within the Osceola Plain physiographic division. The area is predominantly flat, with only gentle slopes and slight changes in elevation.

2.1.1 Climate

The climate of Orange and Osceola Counties, like most of peninsular Florida, is humid and subtropical, with long, warm, and humid summers and mild, dry winters. In the summer, temperature tends to remain relatively constant from day to day, with high temperatures being tempered by clouds and frequent afternoon rain showers. In the winter, on the other hand, temperatures tend to vary considerably due to dry, cold air coming in the form of cold fronts from the north. The average annual temperature is 82° Fahrenheit (F) in the summer and 62° F in the winter. The average annual rainfall is approximately 51 inches, with approximately 60% of the rainfall occurring in the wettest months from June to September. Temperatures tend to be the highest in July and August, when the average maximum temperature is 92° F and the average minimum is nearly 74° F. January tends to be the coldest month, with an average maximum temperature of around 71° F and an average minimum temperature of 49° F.

2.1.2 Topography

SOFWEA occurs in a physiographic district known as the Eastern Flatwoods District. Elevations within the area vary from a maximum of 93 feet above Mean Sea Level (MSL),

to a minimum MSL of 60 feet. SOFWEA's elevation usually ranges from 60-70 feet. The topography of this area is generally low and flat, with sandy soils and wide-ranging areas of flatwoods.

The SOFWEA does not contain beaches, dunes, or virgin timber.

2.1.3 Soils

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) data were used to identify SOFWEA's soil series and soil depth to water table (Figures 5 and 6). Five map units described in the soil survey of SOFWEA are distributed as shown in Figure 5. Analyses of depth to water table for map units occurring within SOFWEA are also provided in Figure 6. The NRCS defines a soil map unit as: "a collection of soil areas or non-soil areas (miscellaneous areas) delineated in a soil survey." Soil map units may contain multiple soil components, which are given names that are unique identifiers. Figure 5 provides aggregation data for SOFWEA map units.

Soils found within the SOFWEA are generally associated with improved pasture and prairies and are thus poorly to very poorly drained sandy or organic soils. Smyrna fine sand makes up nearly 20% of the area, Samsula muck and Immokalee fine sand together make up nearly a third of the area, Pomello fine sand makes up a little more than 10% of the area, and Myakka fine sand makes up about 10% of the area. Various other sands occur on the area including Basinger fine sand, Hontoon muck, Narcoossee fine sand, Placid fine sand, Sanibel muck, St. John's fine sand, Tavares fine sand, and Zolfo fine sand. More extensive soils series descriptions may be found in Appendix 13.7.

2.1.4 Geologic Conditions

The Central Highlands Region of peninsular Florida consists of a series of rather localized high grounds, comprising near subparallel north-south ridges that are remnants of beach and sand-dune systems associated with Early Pleistocene shorelines. The region consists of xeric residual sandhills, beach ridges and dune fields, the whole of which is interspersed with numerous sinkhole, lakes and basins caused by erosion of the underlying limestone bedrock. The main axis of the Central Highlands is the Central Ridge, extending from south-eastern Lake County in the north to southern Highlands County in the south. Undifferentiated Quaternary Sediments geological unit is what makes up SOFWEA.

Undifferentiated Quaternary Sediments (Pleistocene/Holocene) - Much of Florida's surface is covered by a varying thickness of undifferentiated sediments consisting of siliciclastics, organics and freshwater carbonates. Where these sediments exceed 20 feet (6.1 meters) thick, they were mapped as discrete units. In an effort to subdivide the undifferentiated sediments, those sediments occurring in flood plains were mapped as alluvial and flood plain deposits. Sediments showing surficial expression of beach ridges and dunes were

mapped separately as were the sediments composing Trail Ridge. Terrace sands were not mapped refer to Healy [1975] for a discussion of the terraces in Florida. The subdivisions of the Undifferentiated Quaternary Sediments are not lithostratigraphic units, but are utilized in order to facilitate a better understanding of the State's geology. The siliciclastics are light gray, tan, brown to black, unconsolidated to poorly consolidated, clean to clayey, silty, unfossiliferous, variably organic-bearing sands to blue green to olive green, poorly to moderately consolidated, sandy, silty clays. Gravel is occasionally present in the panhandle. Organics occur as plant debris, roots, disseminated organic matrix and beds of peat. Freshwater carbonates, often referred to as marls in the literature, are scattered over much of the State. In southern Florida, freshwater carbonates are nearly ubiquitous in the Everglades. These sediments are buff colored to tan, unconsolidated to poorly consolidated, fossiliferous carbonate muds. Sand, silt and clay may be present in limited quantities. These carbonates often contain organics. The dominant fossils in the freshwater carbonates are mollusks.

2.2 Vegetation

Through the services of the Florida Natural Areas Inventory (FNAI), FWC has mapped the current natural and anthropogenic communities of SOFWEA which describes 18 natural and anthropogenic community types existing on SOFWEA, (Table 3, and Figure 7). FWC



biologists, along with contracted surveys through FNAI, have documented a variety of rare species (Table 5) and numerous species of invasive exotic plant species (Table 6) as occurring on the SOFWEA. Figure 8 displays the historic natural communities of SOFWEA, which depicts the composition of native plant communities on the area prior to substantial alteration of the region's hydrology and land for agricultural and development uses.

Table 3. Natural Community Types on SOFWEA

| Community Type | GIS Acres | Percentage |
|-----------------------|------------------|-------------------|
| Basin marsh | 117.41 | 6.6% |
| Baygall | 126.80 | 7.2% |
| Canal/ditch | 3.15 | <0.1% |
| Clearing/regeneration | 12.58 | 0.1% |
| Depression marsh | 13.97 | 0.1% |
| Dome swamp | 80.78 | 4.6% |
| Flatwoods lake | 60.31 | 3.4% |

| | | |
|-----------------------------|--------|-------|
| Impoundment/artificial pond | 26.14 | 1.5% |
| Mesic flatwoods | 365.14 | 20.6% |
| Mesic hammock | 77.07 | 4.4% |
| Pasture - improved | 54.29 | 3.1% |
| Sandhill | 8.46 | <0.1% |
| Scrub | 38.78 | 2.2% |
| Scrubby flatwoods | 465.38 | 26.3% |
| Spoil area | 57.74 | 3.3% |
| Wet flatwoods | 212.83 | 12.0% |
| Wet prairie | 0.88 | <0.1% |
| Xeric hammock | 49.86 | 2.8% |

Table 4. Plant Species Observed at SOFWEA

| Common Name | <i>Scientific Name</i> |
|--------------------------|---|
| American beautyberry | <i>Callicarpa americana</i> |
| American bluehearts | <i>Buchnera americana</i> |
| American white waterlily | <i>Nymphaea odorata</i> |
| Atlantic St. John's wort | <i>Hypericum tenuifolium</i> |
| Bahiagrass | <i>Paspalum notatum</i> |
| Ballmoss | <i>Tillandsia recurvata</i> |
| Bartram's airplant | <i>Tillandsia bartramii</i> |
| Blackroot | <i>Pterocaulon pycnostachyum</i> |
| Bladderwort | <i>Utricularia</i> sp. |
| Blue huckleberry | <i>Gaylussacia frondosa</i> var. <i>tomentosa</i> |
| Blue maidencane | <i>Amphicarpum muhlenbergianum</i> |
| Bluestem | <i>Andropogon</i> sp. |
| Bogbutton | <i>Lachnocaulon</i> sp. |
| Bottlebrush threeawn | <i>Aristida spiciformis</i> |
| Bracken fern | <i>Pteridium aquilinum</i> |
| Broadleaf cattail | <i>Typha latifolia</i> |
| Broomsedge bluestem | <i>Andropogon virginicus</i> |
| Bulltongue arrowhead | <i>Sagittaria lancifolia</i> |
| Bushy bluestem | <i>Andropogon glomeratus</i> |
| Cabbage palm | <i>Sabal palmetto</i> |
| Caesar's weed | <i>Urena lobata</i> |
| Carolina redroot | <i>Lachnanthes caroliana</i> |
| Chalky bluestem | <i>Andropogon virginicus</i> var. <i>glaucus</i> |
| Chapman's oak | <i>Quercus chapmanii</i> |
| Chinese tallowtree | <i>Triadica sebifera</i> |

| | |
|---------------------------|----------------------------------|
| Cinnamon fern | <i>Osmunda cinnamomea</i> |
| Climbing hempvine | <i>Mikania scandens</i> |
| Clustered mille graines | <i>Oldenlandia uniflora</i> |
| Coastalplain chaffhead | <i>Carphephorus corymbosus</i> |
| Coastalplain milkwort | <i>Polygala setacea</i> |
| Coastalplain palafox | <i>Palafoxia integrifolia</i> |
| Coastalplain staggerbush | <i>Lyonia fruticosa</i> |
| Cogongrass | <i>Imperata cylindrica</i> |
| Combleaf mermaidweed | <i>Proserpinaca pectinata</i> |
| Common buttonbush | <i>Cephalanthus occidentalis</i> |
| Creeping bramble fern | <i>Hypolepis repens</i> |
| Creeping primrosewillow | <i>Ludwigia repens</i> |
| Crowngrass | <i>Paspalum</i> sp. |
| Dahoon | <i>Ilex cassine</i> |
| Deerberry | <i>Vaccinium stamineum</i> |
| Dogfennel | <i>Eupatorium capillifolium</i> |
| Dwarf huckleberry | <i>Gaylussacia dumosa</i> |
| Dwarf live oak | <i>Quercus minima</i> |
| Earleaf greenbrier | <i>Smilax auriculata</i> |
| Eastern poison ivy | <i>Toxicodendron radicans</i> |
| Elliott's milkpea | <i>Galactia elliotii</i> |
| Erect pricklypear | <i>Opuntia stricta</i> |
| Falsefennel | <i>Eupatorium leptophyllum</i> |
| Fascicled beaksedge | <i>Rhynchospora fascicularis</i> |
| Fetterbush | <i>Lyonia lucida</i> |
| Flatsedge | <i>Cyperus</i> sp. |
| Florida indian plantain | <i>Arnoglossum floridanum</i> |
| Forked bluecurls | <i>Trichostema dichotomum</i> |
| Fourpetal St. John's wort | <i>Hypericum tetrapetalum</i> |
| Fringed yelloweyed grass | <i>Xyris fimbriata</i> |
| Gallberry | <i>Ilex glabra</i> |
| Giant airplant | <i>Tillandsia utriculata</i> |
| Giant bristlegrass | <i>Setaria magna</i> |
| Glade lobelia | <i>Lobelia glandulosa</i> |
| Golden polypody | <i>Phlebodium aureum</i> |
| Gopher apple | <i>Licania michauxii</i> |
| Green arrow arum | <i>Peltandra virginica</i> |
| Green fly orchid | <i>Epidendrum conopseum</i> |
| Groundsel tree | <i>Baccharis halimifolia</i> |
| Guava | <i>Psidium guajava</i> |
| Hairy chaffhead | <i>Carphephorus paniculatus</i> |

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|------------------------------|---|
| Hooded pitcherplant | <i>Sarracenia minor</i> |
| Large gallberry | <i>Ilex coriacea</i> |
| Laurel greenbrier | <i>Smilax laurifolia</i> |
| Lemon bacopa | <i>Bacopa caroliniana</i> |
| Licoriceweed | <i>Scoparia dulcis</i> |
| Little bluestem | <i>Schizachyrium scoparium</i> |
| Live oak | <i>Quercus virginiana</i> |
| Lizard's tail | <i>Saururus cernuus</i> |
| Loblolly bay | <i>Gordonia lasianthus</i> |
| Longleaf pine | <i>Pinus palustris</i> |
| Longleaf threeawn | <i>Aristida palustris</i> |
| Lopsided indiagrass | <i>Sorghastrum secundum</i> |
| Maiden ferns | <i>Thelypteris</i> sp. |
| Maidencane | <i>Panicum hemitomon</i> |
| Maleberry | <i>Lyonia ligustrina</i> var. <i>foliosiflora</i> |
| Meadow-beauty | <i>Rhexia</i> sp. |
| Michaux's croton | <i>Croton michauxii</i> |
| Mohr's thoroughwort | <i>Eupatorium mohrii</i> |
| Muscadine | <i>Vitis rotundifolia</i> |
| Myrtle oak | <i>Quercus myrtifolia</i> |
| Myrtleleaf St. John's wort | <i>Hypericum myrtifolium</i> |
| Narrowfruit horned beaksedge | <i>Rhynchospora inundata</i> |
| Narrowleaf silkgrass | <i>Pityopsis graminifolia</i> |
| Netted chain fern | <i>Woodwardia areolata</i> |
| Netted pawpaw | <i>Asimina reticulata</i> |
| Nutrush | <i>Scleria</i> sp. |
| Nuttall's meadowbeauty | <i>Rhexia nuttallii</i> |
| October flower | <i>Polygonella polygama</i> |
| Panic grass | <i>Panicum</i> sp. |
| Peelbark St. John's wort | <i>Hypericum fasciculatum</i> |
| Pennywort | <i>Hydrocotyle</i> sp. |
| Pickerelweed | <i>Pontederia cordata</i> |
| Piedmont pinweed | <i>Lechea torreyi</i> |
| Pond cypress | <i>Taxodium ascendens</i> |
| Pond pine | <i>Pinus serotina</i> |
| Pricklypear | <i>Opuntia humifusa</i> |
| Queensdelight | <i>Stillingia sylvatica</i> |
| Rattlepods | <i>Crotalaria</i> sp. |
| Red maple | <i>Acer rubrum</i> |
| Resurrection fern | <i>Pleopeltis polypodioides</i> var. <i>michauxiana</i> |
| Rose rush | <i>Lygodesmia aphylla</i> |

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|---------------------------|--|
| Rosy camphorweed | <i>Pluchea baccharis</i> |
| Rough hedgehyssop | <i>Gratiola hispida</i> |
| Roundleaf thoroughwort | <i>Eupatorium rotundifolium</i> |
| Roundpod St. John's wort | <i>Hypericum cistifolium</i> |
| Royal fern | <i>Osmunda regalis</i> var. <i>spectabilis</i> |
| Running oak | <i>Quercus pumila</i> |
| Rusty staggerbush | <i>Lyonia ferruginea</i> |
| Sand cordgrass | <i>Spartina bakeri</i> |
| Sand holly | <i>Ilex ambigua</i> |
| Sand live oak | <i>Quercus geminata</i> |
| Sandyfield beaksedge | <i>Rhynchospora megalocarpa</i> |
| Sarsaparilla vine | <i>Smilax pumila</i> |
| Saw greenbrier | <i>Smilax bona-nox</i> |
| Saw palmetto | <i>Serenoa repens</i> |
| Sawgrass | <i>Cladium jamaicense</i> |
| Sawtooth blackberry | <i>Rubus argutus</i> |
| Scrubland goldenaster | <i>Chrysopsis subulata</i> |
| Sedge | <i>Carex</i> sp. |
| Seminole false foxglove | <i>Agalinis filifolia</i> |
| Shiny blueberry | <i>Vaccinium myrsinites</i> |
| Shoestring fern | <i>Vittaria lineata</i> |
| Shortleaf gayfeather | <i>Liatris tenuifolia</i> |
| Shortleaf rosegentian | <i>Sabatia brevifolia</i> |
| Slash pine | <i>Pinus elliotii</i> |
| Slender club-moss | <i>Lycopodiella caroliniana</i> |
| Slender flattop goldenrod | <i>Euthamia caroliniana</i> |
| Slimleaf pawpaw | <i>Asimina angustifolia</i> |
| Smallfruit beggarticks | <i>Bidens mitis</i> |
| Soft rush | <i>Juncus effusus</i> subsp. <i>solutus</i> |
| Southern bogbutton | <i>Lachnocaulon beyrichianum</i> |
| Southern needleleaf | <i>Tillandsia setacea</i> |
| Southern umbrellasedge | <i>Fuirena scirpoidea</i> |
| Spadeleaf | <i>Centella asiatica</i> |
| Spanish moss | <i>Tillandsia usneoides</i> |
| Sphagnum moss | <i>Sphagnum</i> sp. |
| Spikerush | <i>Eleocharis</i> sp. |
| St. Andrew's cross | <i>Hypericum hypericoides</i> |
| Sugarcane plumegrass | <i>Saccharum giganteum</i> |
| Summer farewell | <i>Dalea pinnata</i> |
| Sundews | <i>Drosera</i> sp. |
| Swamp bay | <i>Persea palustris</i> |

| | |
|--------------------------------|---|
| Laurel oak | <i>Quercus laurifolia</i> |
| Swamp tupelo | <i>Nyssa sylvatica</i> var. <i>biflora</i> |
| Sweetbay | <i>Magnolia virginiana</i> |
| Tall elephantsfoot | <i>Elephantopus elatus</i> |
| Taperleaf waterhorehound | <i>Lycopus rubellus</i> |
| Tarflower | <i>Bejaria racemosa</i> |
| Tenangle pipewort | <i>Eriocaulon decangulare</i> |
| Toothed midsorus fern | <i>Blechnum serrulatum</i> |
| Torpedograss | <i>Panicum repens</i> |
| Tropical soda apple | <i>Solanum viarum</i> |
| Turkey oak | <i>Quercus laevis</i> |
| Virginia buttonweed | <i>Diodia virginiana</i> |
| Virginia chain fern | <i>Woodwardia virginica</i> |
| Virginia marsh St. John's wort | <i>Triadenum virginicum</i> |
| Warty panicgrass | <i>Panicum verrucosum</i> |
| Water cowbane | <i>Oxypolis filiformis</i> |
| Water oak | <i>Quercus nigra</i> |
| Wax myrtle | <i>Myrica cerifera</i> |
| Whitetop aster | <i>Sericocarpus tortifolius</i> |
| Wild pennyroyal | <i>Piloblephis rigida</i> |
| Winged sumac | <i>Rhus copallinum</i> |
| Wiregrass | <i>Aristida stricta</i> var. <i>beyrichiana</i> |
| Witchgrass | <i>Dichanthelium</i> sp. |
| Woodsgrass | <i>Oplismenus hirtellus</i> |
| Yellow hatpins | <i>Syngonanthus flavidulus</i> |
| Yellow-eyed grass | <i>Xyris</i> sp. |

Table 5. Rare Plant Species of the SOFWEA

| Common Name | Scientific Name | Status |
|------------------------|------------------------------|---------------|
| Erect pricklypear | <i>Opuntia stricta</i> | ST |
| Balbis' airplant | <i>Tillandsia balbisiana</i> | SE |
| Giant airplant | <i>Tillandsia utriculata</i> | SE |
| Giant orchid | <i>Eulophia ecristata</i> | ST |
| Hooded pitcherplant | <i>Sarracenia minor</i> | ST |
| Manyflowered grasspink | <i>Calapogon multiflorus</i> | ST |
| Pine lily | <i>Lilium catesbaei</i> | ST |
| Yellow fringed orchid | <i>Platanthera ciliaris</i> | ST |

Table 6. Exotic Invasive Plant Species Known to Occur on the SOFWEA

| Common Name | Scientific Name | FLEPPC Category |
|-------------------------|------------------------------------|------------------------|
| Alligatorweed | <i>Alternanthera philoxeroides</i> | II |
| Brazilian pepper | <i>Schinus terebinthifolius</i> | I |
| Caesar's weed | <i>Urena lobata</i> | I |
| Camphor tree | <i>Cinnamomum camphora</i> | I |
| Chinaberry | <i>Melia azedarach</i> | II |
| Chinese tallowtree | <i>Triadica sebifera</i> | I |
| Citrus tree | <i>Citrus sp.</i> | |
| Cogongrass | <i>Imperata cylindrica</i> | I |
| Cuban bulrush | <i>Oxycoryum cubense</i> | |
| Guava | <i>Psidium guajava</i> | I |
| Guinea grass | <i>Panicum maximum</i> | II |
| Heart-of-flame | <i>Bromelia balansae</i> | |
| Lantana | <i>Lantana camara</i> | I |
| Natalgrass | <i>Melinis repens</i> | I |
| Old world climbing fern | <i>Lygodium microphyllum</i> | I |
| Primrose willow | <i>Ludwigia peruviana</i> | I |
| Queen palm | <i>Syagrus romanzoffiana</i> | II |
| Skunk-vine | <i>Paederia foetida</i> | I |
| Smutgrass | <i>Sporobolus indicus</i> | I |
| Strawberry guava | <i>Psidium cattleianum</i> | I |
| Sweet viburnum | <i>Viburnum odoratissimum</i> | |
| Sword fern | <i>Nephrolepis cordifolia</i> | I |
| Torpedograss | <i>Panicum repens</i> | I |
| Tropical soda apple | <i>Solanum viarum</i> | I |
| Vasey grass | <i>Paspalum urvillei</i> | |

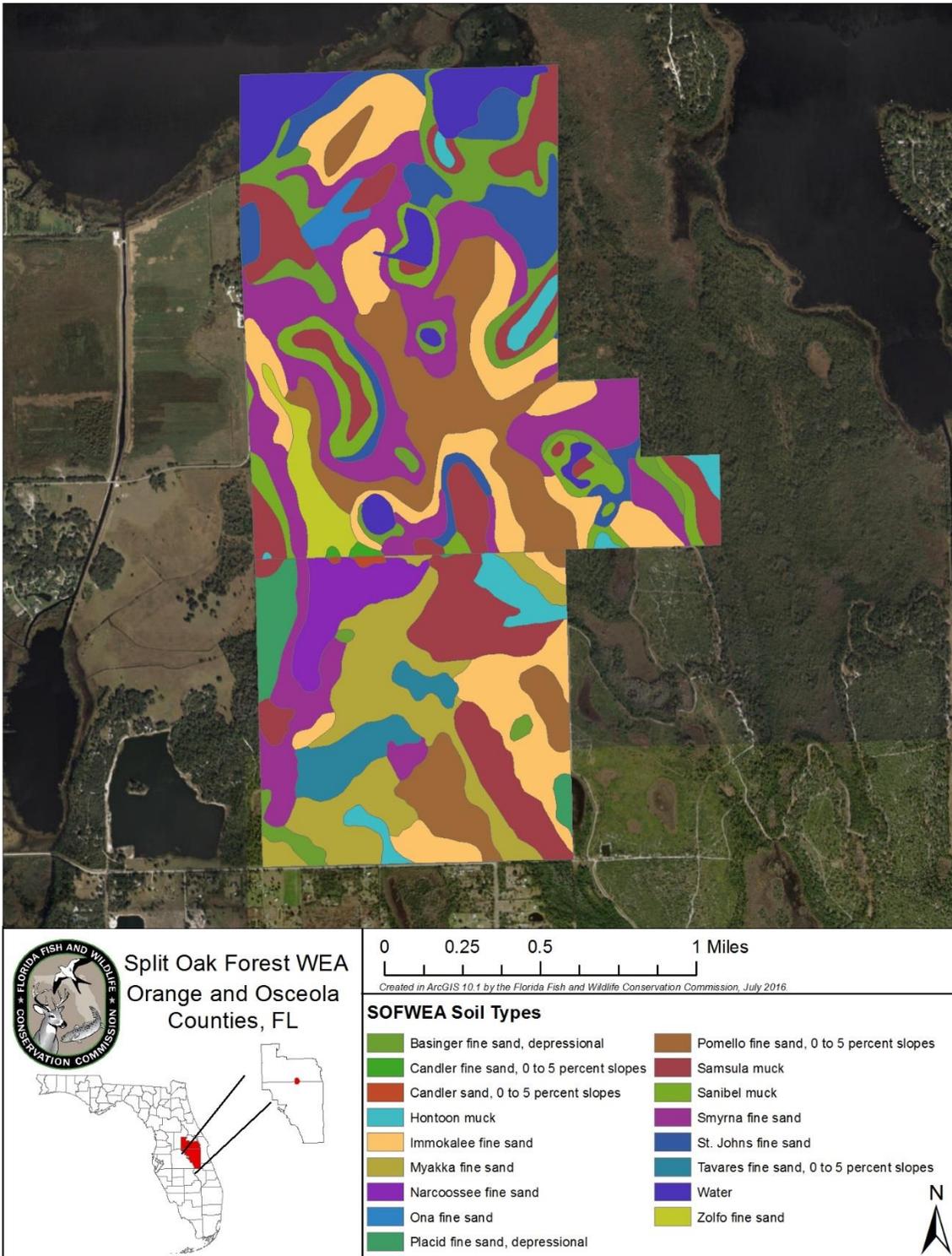


Figure 5. SOFWEA Soil Types

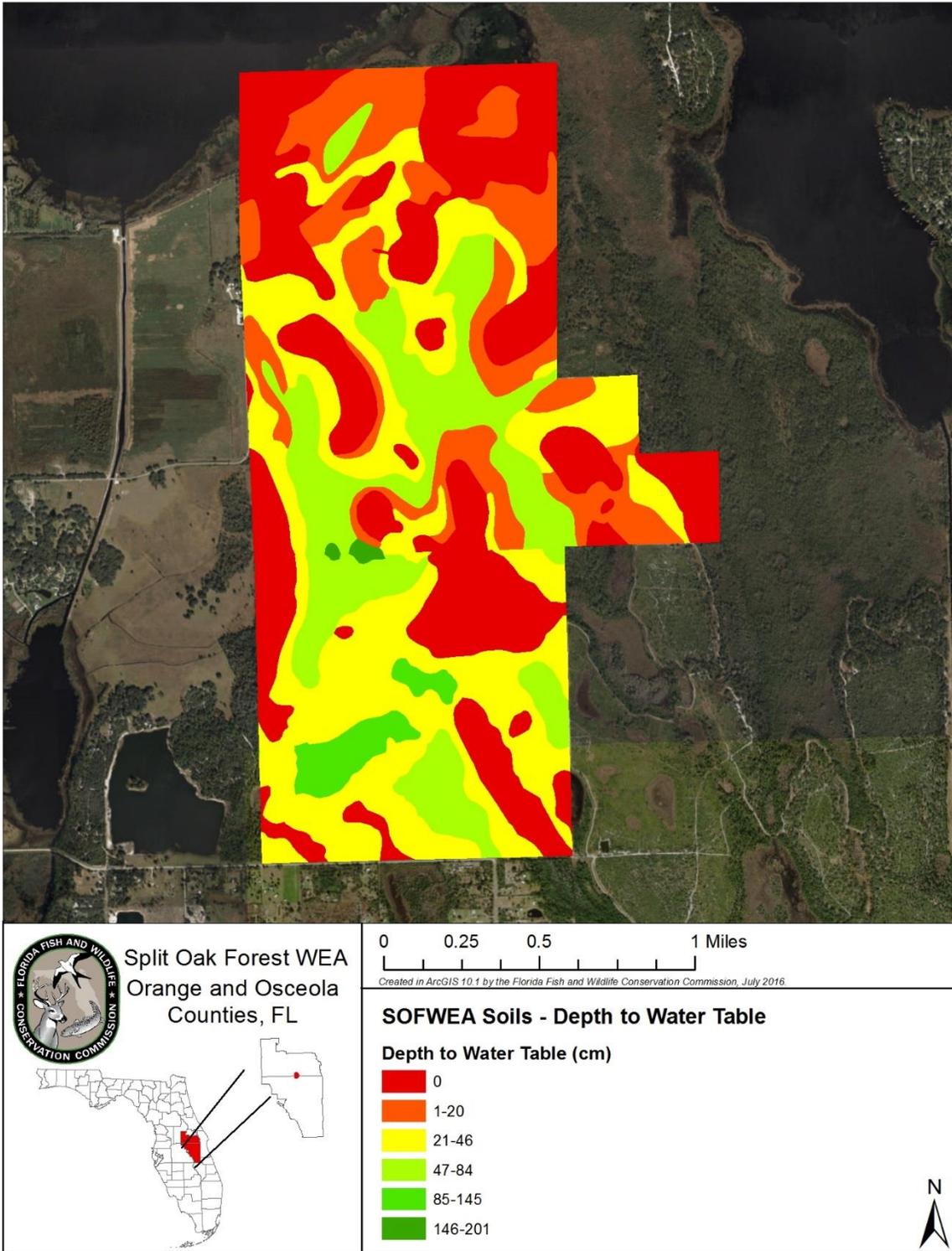


Figure 6. SOFWEA Soils - Depth to Water Table

2.2.1 FNAI Natural Community Descriptions

Basin Marsh (~117.41 acres)

Basin marshes are herbaceous or shrubby wetlands situated in large and irregularly shaped depressions. Basin marsh is an herb-dominated community that occurs in large, often irregularly shaped depressions. Basin marshes are regularly inundated freshwater herbaceous wetlands that may occur in a variety of situations, but in contrast to depression marshes, are not small or shallow inclusions within a fire-maintained natural community. Plant species composition is heterogeneous, both within and between marshes, but can generally be divided into submersed, floating-leaved, emergent, and grassy zones from deepest to shallowest portions; shrub patches may be present within any of these zones. Species composition may be similar to that of generally smaller, more isolated depression marshes, and variations occur because basin marshes accumulate thicker peat deposits, have a longer, more permanent hydroperiod, and burn far less often than do depression marshes, generally every 1-10 years.

At SOFWEA, basin marsh occurs primarily around Lake Hart and Lake Mary Jane that border the property to the northeast and northwest respectively. Also, there are several other isolated marshes on the area that usually contain baygall and swamp communities within them. The primary vegetative components of these marshes are hydrophytic herbs, especially maidencane, fascicled beaksedge, narrowfruit horned beaksedge, and sand cordgrass. In deeper central portions or lakeshores, sawgrass, bulltongue arrowhead, and American white waterlily may become dominant. Other common herbs include blue maidencane, lemon bacopa, spadeleaf, Virginia buttonweed, dogfennel, slender flattop goldenrod, southern umbrellasedge, Carolina redroot, rosy camphorweed, and combleaf mermaidweed.

Woody vegetation is sparse and typically represented by a few stunted trees including swamp tupelo and pond cypress, as well as shrubs such as peelbark St. John's wort, fetterbush, wax myrtle, and swamp bay mainly around the shallow perimeter.

Disturbances to basin marshes at SOFWEA have been caused primarily by the alteration of three marshes in preparation for development that occurred before the land was acquired by Orange and Osceola counties and FWC. The marshes were dug out to develop ponds with higher surrounding areas created by the spoil. These are now virtually unrecognizable as natural communities with the exception of the easternmost marsh, of which half the former area now remains intact. For the rest of the wetlands, overall hydrologic change likely caused by ditching and groundwater drawdown may be having a significant effect on an increasing weedy cover.

Baygall (~ 126.80 acres)

Baygalls are generally characterized as dense evergreen hardwood forests in seepage depressions, often at the base of sandy slopes that occur in depressions or seepage areas where groundwater is at or near the surface for long periods of time. Although most baygalls are small in acreage, some form large, mature forests. Soils are generally composed of peat, with seepage from uplands, rainfall, and capillary action from adjacent wetlands maintaining a saturated substrate. Baygall typically develops at the bases of slopes, edges of floodplains, in depressions, and in stagnant drainages. Generally influenced by flowing water, baygall is often drained by small blackwater streams.

At SOFWEA, there are two large (>40 acres) and two small (~5 acres) baygalls as well as several areas of baygall that form ecotones between swamps and surrounding flatwoods. The larger baygalls grade into and form a mosaic with swamp and marsh vegetation.

In general, the canopy is dominated by loblolly bay and sweetbay, with an understory of dahoon, large gallberry, fetterbush, wax myrtle, St. Andrew's cross, and swamp bay. In wetter areas, pond cypress may become common. Herbs are sparse and may include toothed midsorus fern, Carolina redroot, royal fern, green arrow arum, lizard's tail, sphagnum moss, netted chain fern, and Virginia chain fern. Laurel greenbrier is a common vine.

Disturbances are mainly due to hydrologic alteration and the historic lack of fire that occurred prior to the area being acquired for conservation which alters the edge of the baygall and allows expansion of the shrubby components into otherwise non-baygall dominated communities.

Depression Marsh (~ 13.97 acres)

Depression marsh, an herbaceous wetland community found in low flatlands, forms the characteristic pockmarked landscape seen on aerial photographs of the flat landscapes of the Florida peninsula. Depression marsh is usually characterized as a shallow, rounded depression in sand substrate with herbaceous vegetation and shrubs, often in concentric bands. These marshes also frequently form an outer rim around swamp communities such as dome swamps. They form when the overlying sands slump into depressions dissolved in underlying limestone. Depression marshes often burn with the surrounding landscape, and are seasonally inundated. Depression marshes typically occur in landscapes occupied by fire-maintained natural communities such as mesic flatwoods, dry prairie, or sandhill. Depression marshes are typically small wetlands that are circular or oval in shape and are dominated by herbaceous species. Hydroperiods can range widely from as few as 50 days or less to more than 200 days of inundation per year. Depression marshes often dry out during periods of low rainfall, and as a result, burn when fires occur in the surrounding

uplands. The substrate is usually acid sand with possibly some deepening peat toward the center. Because water depth in depression marshes usually increases toward the center, vegetation may form distinctive natural community zones corresponding to the depth of the water.

At SOFWEA, depression marshes are usually dominated by falsefennel, creeping primrosewillow, maidencane, rosy camphorweed, narrowfruit horned beaksedge, and fringed yelloweyed grass. Weedier elements such as bushy bluestem, broomsedge bluestem, and dogfennel are also common. Trees and shrubs, if present, are few and may include stunted slash pine, common buttonbush, and peelbark St. John's wort, typically occurring around the edges of the marsh.

Depression marshes make up a small percentage of SOFWEA, and disturbances to those depression marshes are mainly due to hydrologic changes over time probably resulting from groundwater drawdown. These drier marshes are exploited by weedy herbs and encroaching shrubs.

Dome Swamp (~80.78 acres)

Dome swamp is an isolated, forested, depression wetland occurring within a fire-maintained community such as mesic flatwoods. These swamps are generally small, but may also be large and shallow. The characteristic dome shape is created by smaller trees that grow in the shallower waters of the outer edge, while taller trees grow in the deeper water in the interior of the swamp. Pond cypress often dominates, but swamp tupelo, may also form pure stands or occur as a co-dominant. Other canopy or subcanopy species include red maple, dahoon, swamp bay, slash pine, sweetbay, and loblolly bay. Shrubs are typically sparse to moderate, but often are absent in dome swamps with a high fire frequency or dense in swamps where fire has long been absent. Shrubs common in dome swamps include Virginia willow, fetterbush, common buttonbush, coastalplain willow, wax myrtle, titi, and St. John's wort. Herbaceous species can be dense or absent and include a wide variety of ferns, graminoids, and herbs. Sphagnum moss often occurs in patches where the soil is saturated but not flooded. The center of the dome swamp contains the largest cypress trees and the understory can be open with deeper water and floating and emergent species such as alligatorflag, big floatingheart, floating water spangles, duckweeds, and bulltongue arrowhead.

At SOFWEA, dome swamps make up about 5% of the area and are most often found on flat terraces, where they develop when the overlying sand has slumped into a depression in the underlying limestone, creating a rounded depression connected to a shallow water table. In uplands with clay subsoils, dome swamps may occupy depressions over a perched water table. Soils in dome swamps are variable but are most often composed of a layer of peat,

which may be thin or absent at the periphery, becoming thicker toward the center of the dome. This peat layer is generally underlain with acidic sands or marl and then limestone or a clay lens.

Flatwoods Lake (~60.31 acres)

The distinctions between this community, and Depression Marsh, are often quite subtle, because of their successional interrelationships. Depression Marsh is characterized as a shallow, generally round or elliptical depression vegetated with concentric bands of hydrophytic herbaceous plants. Depending upon the depth and slope of the depression, an open water zone with or without floating plants may occur at the center. The open water zone is considered to be a Marsh Lake if it is small in comparison to the surrounding marsh.

Otherwise, the system is considered to be a Flatwoods Lake or a Prairie Lake, depending upon the surrounding community.



Flatwoods Lake is surrounded by either a sparse, Wet Prairie-like zone or a dense ring of saw palmetto and other shrubs.

Typical plants include spikerush, yellow-eyed grasses, St. John's wort, chain fern, coastalplain willow, maidencane, wax myrtle, and creeping primrosewillow. Many animals utilize marshes primarily for feeding and breeding areas but spend most of their time in other habitats. Other animals are more dependent on marshes, spending most of their time within them. Typical animals include green treefrog, American alligator, great blue heron, great egret, little blue heron, tricolored heron, and limpkin.

The depressions in which these communities develop are typically formed by one of two geological processes: (1) solution holes form in the underlying limestone, causing surface sands to slump into a circular depression; or (2) during higher sea levels, offshore currents, waves, and winds scoured depressions that became seasonally or permanently inundated after the seas regressed. Soils in these depressions generally consist of acidic sands with some peat and occasionally a clay lens.

Water is derived mostly from runoff from the immediately surrounding uplands. These natural communities' function as aquifer recharge areas by acting as reservoirs which release groundwater when adjacent water tables drop during drought periods. Water

generally remains throughout the year in a Flatwoods/Prairie Lake or a Marsh Lake, although water levels may fluctuate substantially.

At SOFWEA, this community occurs on the southern end of Lake Hart which borders the area.

Mesic Flatwoods (~ 365.14 acres)

Mesic flatwoods historically were the most widespread natural community in Florida, covering the flat sandy terraces left behind by former high sea levels. Mesic flatwoods are open, pine forests with a diverse understory of shrubs and herbs occurring on low, flat terrain. Soils are acidic, nutrient-poor, fine sands with upper layers darkened by organic matter. Drainage in this flat terrain can be impeded by a loosely cemented organic layer (spodic horizon) formed within several feet of the soil surface. The soils may be alternately xeric during dry periods, and saturated or even inundated after heavy rain events. Fire is an important factor in maintaining high plant diversity and naturally occurs primarily during the late spring/early summer lightning season.

At SOFWEA, mesic flatwoods are mostly found in the southern half of the property. To the north, the mesic flatwoods are commonly restricted to wide borders around wetlands. The canopy is dominated by longleaf pine or slash pine, although pines may be sparse or even absent in some areas. In addition to saw palmetto, the shrub layer commonly includes tarflower, dwarf huckleberry, blue huckleberry, Atlantic St. John's wort, gallberry, coastalplain staggerbush, dwarf wax myrtle, running oak, dwarf live oak, and shiny blueberry. The herbaceous layer is diverse and dominated by wiregrass in less disturbed areas.

Mesic Hammock (~ 77.07 acres)

Mesic hammocks are forests of temperate evergreen hardwood species occurring along wetlands or as islands within wetlands where they are sheltered from fire. Mesic hammock is a well-developed evergreen hardwood and/or palm forest, typically with a closed canopy of live oak. Mesic hammock may occur as “islands” on high ground within basin or floodplain wetlands, as patches of oak/palm forest in dry prairie or flatwoods communities, on river levees, or in ecotones between wetlands and upland communities. Historically, mesic hammocks were likely restricted to fire shadows, or other naturally fire-protected areas such as islands and peninsulas of lakes. Other landscape positions that can provide protection from the spread of fire are likely places for mesic hammock development, including edges of lakes, sinkholes, other depressional or basin wetlands, and river floodplains. Although mesic hammock is not generally considered a fire-adapted community, some small patches of hammock occurring as islands within marshes or prairies may experience occasional low-intensity ground fires. Mesic hammocks occur on

well-drained sands mixed with organic matter and are rarely inundated. High moisture is maintained by heavy shading of the ground layer and accumulation of litter. Where limestone is near the surface, rocky outcrops are common in mesic hammocks. Fire is rare, and when mesic hammocks burn they may convert to the community they border.

At SOFWEA, mesic hammocks have relatively low species diversity. They are characterized by a closed canopy of mostly live oak with occasional slash pine. Other oaks, namely swamp laurel oak and water oak are common and cabbage palm is occasional in the subcanopy. Both the shrub and herb layers are sparse.

Sandhill (~8.46 acres)

Sandhills are open canopy, pine-dominated communities occurring on rolling hills of deep sands with deep, often yellowish, well-drained sands. These are open, xeric communities dominated by widely spaced longleaf pine trees with a sparse midstory of deciduous oaks and a moderate to dense groundcover of grasses, herbs, and low shrubs. The midstory trees and low shrubs can be sparse to dense, depending on fire history, and typically include turkey oak, bluejack oak, sand live oak, sand post oak, sparkleberry, dwarf huckleberry, pricklypear, and gopher apple. The diverse herbaceous groundcover is often dominated by wiregrass, with other grasses and herbs including pineywoods dropseed, lopsided indiagrass, and a variety of forbs with many species of legumes and asters.

Sandhills are dependent on frequent, low intensity ground fires every 1 to 3 years to reduce hardwood competition and to perpetuate pines and grasses.

At SOFWEA, the sandhill community is restricted to a single remnant. Two other probable historic sandhills are currently xeric hammock. In the remnant sandhill located in the southwest corner of the area, longleaf pines form a sparse canopy with sand live oak and turkey oak common in the subcanopy layer. Shrubs are scattered and low and include gopher apple, Chapman's oak, myrtle oak, and saw palmetto. Wiregrass is a frequent herb with Elliott's milkpea, and lopsided indiagrass also common.

Overall this community is very similar to the nearby scrubby flatwoods and scrub communities that occur on SOFWEA. The percentage of the area occupied by sandhill, even historically, is small and there is not good development of the sandhill structure. The sandhills have been historically fire suppressed, and oaks have become well established.

Scrub (~ 38.78 acres)

Scrub is a community composed of evergreen, xerophytic shrubs, with or without a canopy of pines, and is found on dry, infertile, sandy ridges. Scrub communities dominated by a canopy of sand pine are usually found on the highest sandy ridgelines. The pine canopy may range from widely scattered trees with a short, spreading growth form, to tall thin

trees forming a dense canopy of uniform height. Scrub is located on dry, infertile, sandy ridges which often mark the location of former shorelines. Scrub occurs in many forms, but is often characterized by thickets of scrub oaks and other shrubs occurring on xeric, sandy soils with numerous open patches of barren sand. The ground cover is generally very sparse, and is typically dominated by ground lichens or, rarely, herbs.

At SOFWEA, scrub occurs in at least three patches and has probably succeeded to present-day xeric hammock in a fourth patch. No sand pine was found in these scrubs, but xeric oaks such as sand live oak, Chapman's oak, and myrtle oak are abundant in the shrub layers. Saw palmetto may be common as well as other, more scrubby, shrubs including rusty staggerbush, pricklypear, and scrub wild olive. Herbs are rare, including sandyfield beaksedge, rose rush, and October flower. Epiphytes such as ballmoss and Spanish moss may be common on oak branches.

At SOFWEA, scrub grades into and may be hard to distinguish from scrubby flatwoods. Past fire suppression magnifies this difficulty, since the overgrowth of scrubby oaks and shading of wiregrass creates the overall appearance of scrub rather than flatwoods. Recent prescribed fires have made this distinction easier, but some areas seem to be naturally intermediate between scrubby flatwoods and true scrub. In general, scrub was mapped in areas that were completely lacking wiregrass and with very few or no longleaf pines.

At least one historic scrub was cleared by the time of the 1947 aerials. This area has since developed into a xeric hammock with a closed canopy of sand live oak. Current roads are minor disturbances in the existing scrubs.

Scrubby Flatwoods (~ 465.38 acres)

Scrubby flatwoods have elements characteristic of both mesic flatwoods and scrub communities. Scrubby flatwoods have 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. Principal canopy species are longleaf pine and slash pine in northern and Central Florida. The shrub layer consists of oak species and shrubs typical of mesic flatwoods, as well as grasses and dwarf varieties of other shrubs. Scrubby flatwoods occur on slight rises within mesic flatwoods and in transitional areas between scrub and mesic flatwoods. Soils of scrubby flatwoods are moderately well-drained sands with or without an organic layer (spodic horizon).

At SOFWEA, scrubby flatwoods are widespread, especially in the northern half of the area. These flatwoods generally have an open canopy of longleaf pine, although slash pine may also be present. Sand live oak can form sparse subcanopy trees. Shrub dominants include saw palmetto, rusty staggerbush, fetterbush, Chapman's oak, sand live oak, myrtle oak,

running oak, netted pawpaw, tarflower, shiny blueberry, and dwarf huckleberry. Herbs are frequent and dominated by wiregrass.

This community grades into and can be indistinguishable from scrub particularly in areas of oak overgrowth, and this is discussed further in the scrub description. Also, a few areas of canopy sized sand live oaks have been partly or entirely converted to xeric hammock with the accumulation of oak litter and shading in the understory that inhibits frequent fires. There are several small oak dome xeric hammocks that are considered as inclusions within the scrubby flatwoods. In the central portions of SOFWEA, some areas of scrubby flatwoods are very prairie-like in appearance with no pines and low shrubs; however adjacent less frequently burned units have much taller shrubs.

Wet Flatwoods (~ 212.83 acres)

Wet flatwoods occur in broad, low flatlands, often in a mosaic with these communities. They are found in the ecotones between mesic flatwoods, shrub bogs, wet prairies, dome swamps, or strand swamps. Wet flatwoods are pine forests with a sparse or absent midstory and a dense groundcover of hydrophytic grasses, herbs, and low shrubs. The relative density of shrubs and herbs varies greatly in wet flatwoods. Shrubs tend to dominate where fire has been absent for a long period or where cool season fires predominate; herbs are more abundant in locations that are frequently burned. Soils and hydrology also influence the relative density of shrubs and herbs. Soils of shrubby wet flatwoods are generally poorly to very poorly drained sands. These soils generally have a mucky texture in the uppermost horizon. Loamy sands are typical of soils in grassy wet flatwoods.

At SOFWEA, wet flatwoods make up about 12% of the area and are located primarily on the northern portion of SOFWEA. They are found in the ecotones between mesic flatwoods, shrub bogs, wet prairies, dome swamps, or strand swamps. Wet flatwoods are pine forests with a sparse or absent midstory and a dense groundcover of hydrophytic grasses, herbs, and low shrubs. The relative density of shrubs and herbs varies greatly in wet flatwoods. Shrubs tend to dominate where fire has been absent for a long period or where cool season fires predominate; herbs are more abundant in locations that are frequently burned. Soils and hydrology also influence the relative density of shrubs and herbs. Soils of shrubby wet flatwoods are generally poorly to very poorly drained sands. These soils generally have a mucky texture in the uppermost horizon. Loamy sands are typical of soils in grassy wet flatwoods. Wet flatwoods typically have an open pine canopy with an understory of hydrophytic herbs and shrubs. Wet flatwoods that burn frequently typically have a sparse understory and a dense complement of herbs and smaller shrubs. Conversely, thick, shrubby understory layers tend to suppress groundcover plants.

Wet Prairie (~ <1 acre)

Wet prairies are nearly treeless flatlands dominated by wiregrass or wiry beaksedges with a diverse assemblage of hydrophytic herbs, grasses, and dwarf shrubs. Wet prairie is an herbaceous community found on continuously wet, but not inundated, soils of gentle slopes between lower lying depression marshes, shrub bogs, or dome swamps, and slightly higher wet or mesic flatwoods, or dry prairie. Wet prairies are grass- and sedge-dominated wetlands maintained by a high or perched ground water table and frequent fires. They also occur in narrow seepage zones of saturated soil at the base of gentle slopes of stream drainages and in flat lowlands. Wet prairie usually occurs on acidic, nutrient-deficient, saturated soils.

At SOFWEA, only one wet prairie was located. This small patch (~1 acre) of prairie vegetation was located adjacent to a larger basin marsh. The canopy and shrub layers consisting of longleaf pine and St. John's wort accounted for less than 2% of the total cover. The majority of vegetation cover was a dense layer of wiregrass, blue maidencane, and other herbs. A few plants of hooded pitcherplant were found in this community.

Wet prairies may have been more widespread on the area historically. It is impossible to say, however, whether the lack of trees pictured in the historic photographs in certain areas which are currently flatwoods is a natural state or caused by logging. Wet prairie vegetation may also be present in narrow bands forming an ecotone between flatwoods and marshes.

Xeric Hammock (~49.86 acres)

Xeric hammock is an evergreen forest found on well-drained sandy soils. The low canopy is typically closed and usually dominated by sand live oak. An emergent canopy of pine may be present. Xeric hammock typically develops where fire-exclusion allows for the establishment of the oak canopy. This may occur naturally when the area has significant barriers to fire, or more commonly, as the result of human intervention. In these areas, xeric hammock can form extensive stands or can occur as small patches within or near sandhill or scrub. Xeric hammock can also occur on high islands within flatwoods, or on a high, well-drained ridge within a floodplain. Xeric hammock also can occur on barrier islands and in other coastal environs as an advanced successional stage of scrub.



A mature, closed canopy of scrub oaks reaching stature of short trees and an occasionally dense shrub layer characterizes the xeric hammock community.

At SOFWEA, xeric hammock is located in a few patches on historic sandhills, scrub, and scrubby flatwoods. This community type is often the product of long-term fire suppression and other anthropogenic effects. The largest of the hammocks occurs in an area that was cleared in the past, and has since become oak dominated. Because xeric hammock may be derived from several communities, the species composition is quite varied.

The canopy of xeric hammock at SOFWEA is dominated by sand live oak with longleaf pine occasionally emerging above. In historic sandhill, a few turkey oaks may also be present. The shrub layer can be dense to sparse and dominated by saw palmetto, Chapman's oak, myrtle oak, rusty staggerbush, and deerberry. The herbaceous layer is sparse and often contains remnant, suppressed wiregrass as well as other species. Epiphytes are occasional and include ballmoss, and Spanish moss.

FNAI Altered Community Descriptions

Canal/Ditch (~3.15 acres)

Canal/ditch areas are areas where the historic natural community has been altered by an artificial drainage way. Approximately 3.15 acres of the SOFWEA are classified as canals and ditches.

Clearing/regeneration (~12.58 acres)

Clearing/regeneration areas are dove fields, wildlife food plots, old homesites, or recent or historic clearings that have significantly altered the groundcover and/or overstory of the original natural community. There are several small patches scattered throughout SOFWEA that are classified as clearing/regeneration.

Impoundment/Artificial pond (~26.14 acres)

Artificial pond is a created habitat meant for water retention, including impoundments and cattle ponds. There are at least three artificial ponds on the SOFWEA.

Pasture –Improved (~ 54.29 acres)

Improved pastures are typically grass-dominated features with evidence of current or recent pasture activity such as mowing, chopping or burning. Extant taxonomic elements include longleaf pine in the canopy and sand live oak and live oak in the tall shrub layer. Species present as short shrubs include wax myrtle, sand live oak and saw palmetto.

Primary species in the herbaceous layer are bluestem, broomsedge bluestem, flatsedge, slender flattop goldenrod, pricklypear, bahiagrass, blackroot, and smutgrass. This community is dominated by weedy, herbaceous pasture species.

At SOFWEA, there is one such pasture located on the western edge of the property that has been converted from a historic basin marsh. This area is an open expanse of bahiagrass and other weeds with a few longleaf pines scattered near the neighboring flatwoods. There is a small area of disturbed baygall occurring within the pasture.

Spoil area (~57.74 acres)

Spoil areas include places where dredge or spoil material is deposited. At SOFWEA, a total of 58 acres of the area are classified as spoil areas, with individual spoil areas ranging in size from less than an acre to more than seven acres. Most of these spoil areas are located along the northern portion of the SOFWEA which were created as a result of development activities prior to acquisition of the area for conservation. The largest spoil areas surround the wet flatwoods on the area.

2.2.2 Forest Resources

Predominate forest resources existing on SOFWEA are its high-quality mesic, scrubby and wet flatwoods communities and to a lesser its mesic hammock, scrub and floodplain forest communities. The FWC has obtained a timber assessment from the Florida Forest Service (FFS). The timber assessment is incorporated into the Appendix of this Management Plan.

2.3 Fish and Wildlife Resources

As described above, the SOFWEA has a variety of natural communities and habitat types that support a wide array of imperiled, rare, and more prevalent wildlife species. Active, ongoing wildlife management practices and the high quality of habitat make the SOFWEA an excellent place to view wildlife. The SOFWEA's mesic, wet, and scrubby flatwoods, marshes, swamps, and other communities provide critical habitat for resident and migratory wildlife.

Additionally, the FWC maintains an inventory of fauna occurring on or near the SOFWEA listed in the following tables, including amphibians and reptiles (Table 7), birds (Table 8), mammals (Table 9), fish (Table 10), butterflies (Table 11). Table 12 contains an inventory of the exotic wildlife species that have been documented on or near the SOFWEA.

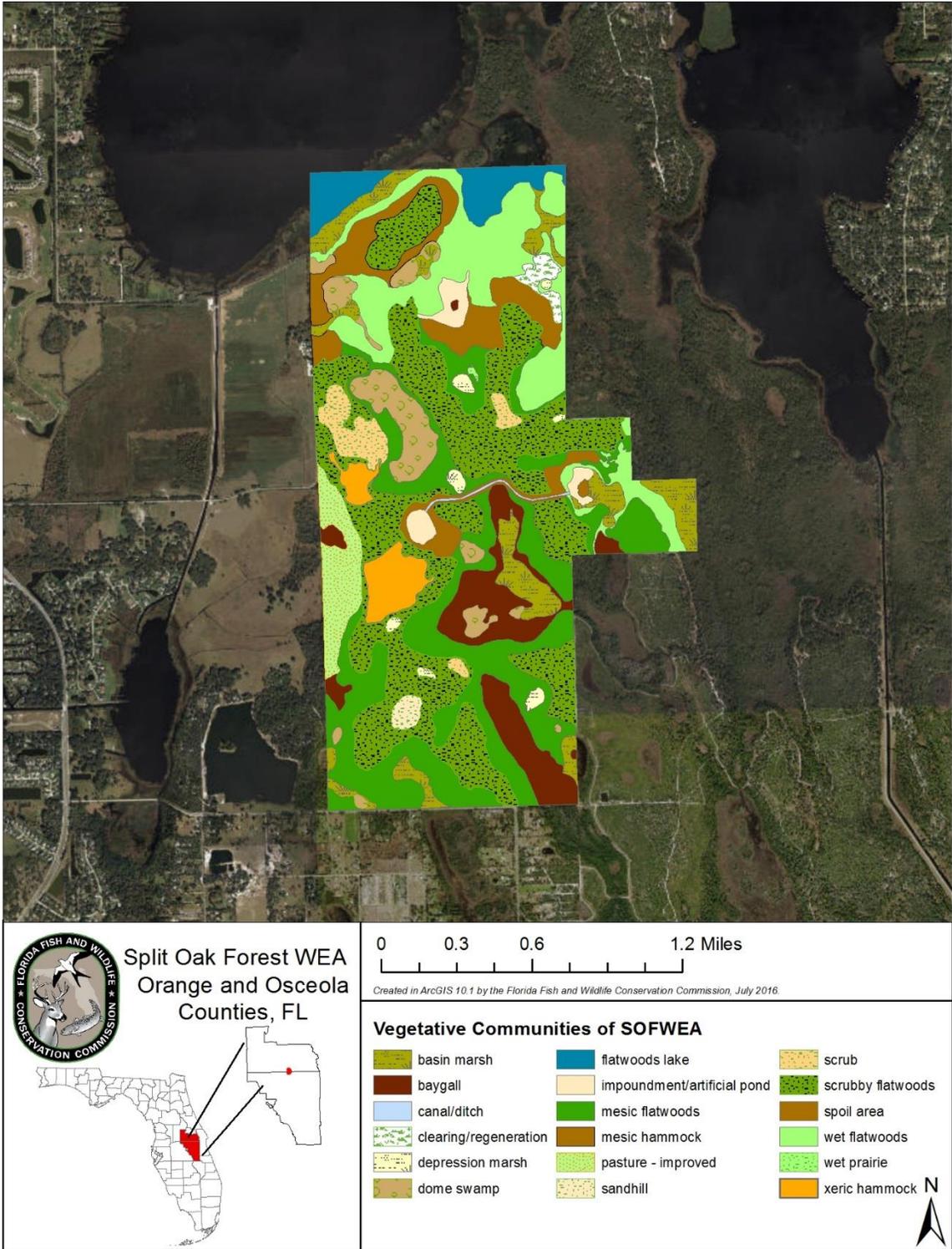


Figure 7. SOFWEA Current Vegetative Communities

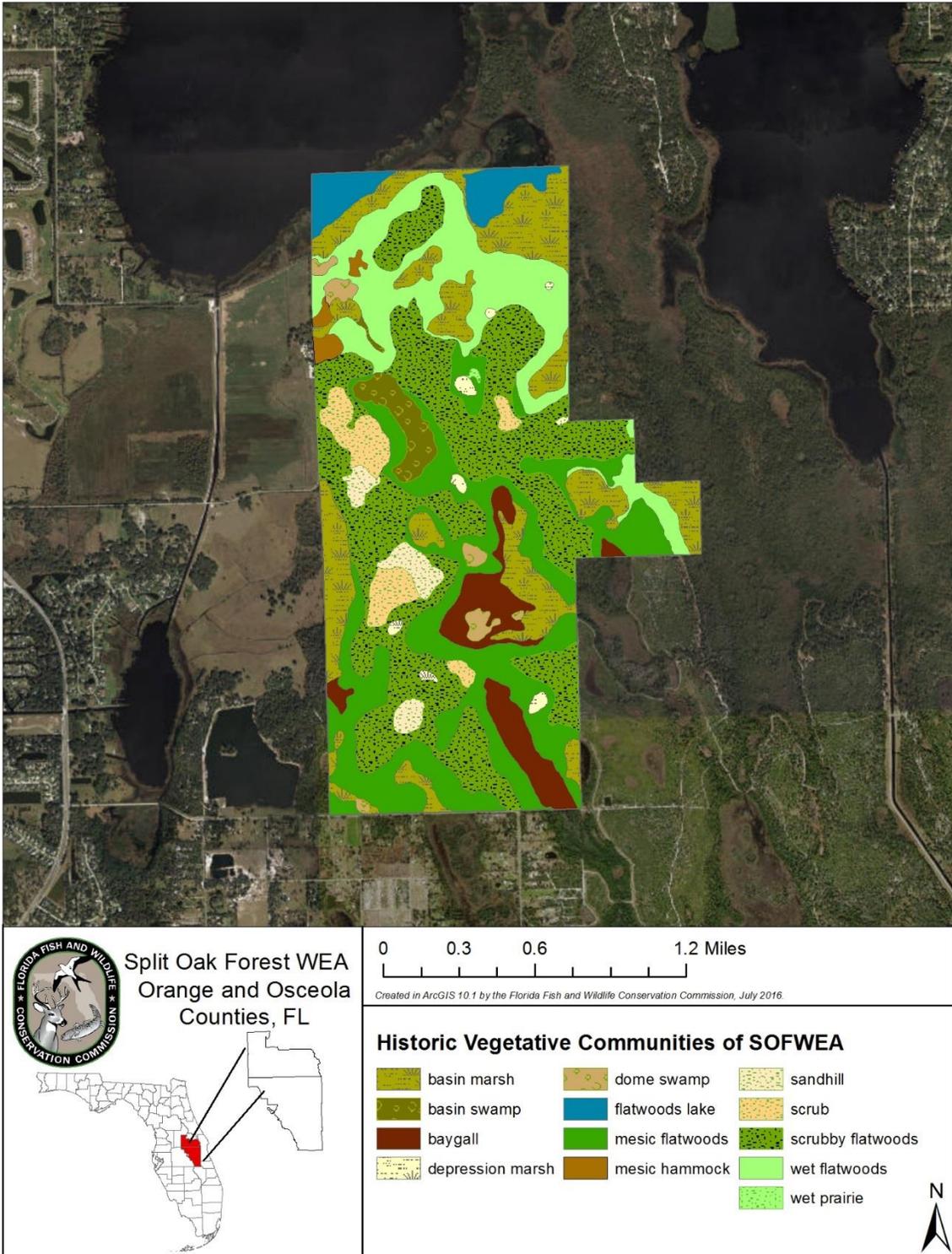


Figure 8. SOFWEA Historic Vegetative Communities

Table 7. Amphibian and Reptile Species Known or Expected to Occur on SOFWEA

| Common Name | Scientific Name |
|---------------------------------|---------------------------------------|
| American alligator | <i>Alligator mississippiensis</i> |
| Dusky pigmy rattlesnake | <i>Sistrurus miliarius barbouri</i> |
| Eastern coral snake | <i>Micrurus fulvius</i> |
| Eastern diamondback rattlesnake | <i>Crotalus adamanteus</i> |
| Eastern garter snake | <i>Thamnophis sirtalis sirtalis</i> |
| Florida box turtle | <i>Terrapene carolina bauri</i> |
| Florida cottonmouth | <i>Agkistrodon piscivorus conanti</i> |
| Florida pine snake | <i>Pituophis melanoleucus mugitus</i> |
| Florida redbelly turtle | <i>Pseudemys nelsoni</i> |
| Florida snapping turtle | <i>Chelydra serpentina osceola</i> |
| Florida softshell | <i>Apalone ferox</i> |
| Gopher frog | <i>Lithobates capito</i> |
| Gopher tortoise | <i>Gopherus polyphemus</i> |
| Green anole | <i>Anolis carolinensis</i> |
| Green treefrog | <i>Hyla cinerea</i> |
| Ground skink | <i>Scincella lateralis</i> |
| Little grass frog | <i>Pseudacris ocularis</i> |
| Oak toad | <i>Anaxyrus quercicus</i> |
| Peninsula ribbon snake | <i>Thamnophis sauritus sackenii</i> |
| Pig frog | <i>Lithobates grylio</i> |
| Pine woods treefrog | <i>Hyla femoralis</i> |
| Southeastern five-lined skink | <i>Plestiodon inexpectatus</i> |
| Southern black racer | <i>Coluber constrictor priapus</i> |
| Southern chorus frog | <i>Pseudacris nigrita</i> |
| Southern cricket frog | <i>Acris gryllus dorsalis</i> |
| Southern leopard frog | <i>Lithobates sphenoccephalus</i> |
| Southern toad | <i>Anaxyrus terrestris</i> |
| Squirrel treefrog | <i>Hyla squirella</i> |
| Striped mud turtle | <i>Kinosternon baurii</i> |
| Yellow rat snake | <i>Pantherophis alleghaniensis</i> |

Table 8. Native Bird Species Known or Expected to Occur on SOFWEA

| Common Name | Scientific Name |
|--------------------|------------------------------|
| American crow | <i>Corvus brachyrhynchos</i> |
| American goldfinch | <i>Spinus tristis</i> |
| American kestrel | <i>Falco sparverius</i> |

| | |
|--------------------------|-------------------------------------|
| American robin | <i>Turdus migratorius</i> |
| Anhinga | <i>Anhinga anhinga</i> |
| Bachman's sparrow | <i>Peucaea aestivalis</i> |
| Barn swallow | <i>Hirundo rustica</i> |
| Barred owl | <i>Strix varia</i> |
| Belted kingfisher | <i>Megascops alcyon</i> |
| Black vulture | <i>Coragyps atratus</i> |
| Blue jay | <i>Cyanocitta cristata</i> |
| Blue-gray gnatcatcher | <i>Poliophtila caerulea</i> |
| Boat-tailed grackle | <i>Quiscalus major</i> |
| Brown thrasher | <i>Toxostoma rufum</i> |
| Brown-headed cowbird | <i>Molothrus ater</i> |
| Brown-headed nuthatch | <i>Sitta pusilla</i> |
| Burrowing owl | <i>Athene cunicularia floridana</i> |
| Carolina wren | <i>Thryothorus ludovicianus</i> |
| Cedar waxwing | <i>Bombycilla cedrorum</i> |
| Chipping sparrow | <i>Spizella passerina</i> |
| Chuckwill's widow | <i>Antrostomus carolinensis</i> |
| Common grackle | <i>Quiscalus quiscula</i> |
| Common ground-dove | <i>Columbina passerina</i> |
| Common moorhen | <i>Gallinula chloropus</i> |
| Common nighthawk | <i>Chordeiles minor</i> |
| Common snipe | <i>Gallinago gallinago</i> |
| Common yellowthroat | <i>Geothlypis trichas</i> |
| Cooper's hawk | <i>Accipiter cooperii</i> |
| Crested caracara | <i>Caracara cheriway</i> |
| Double-crested cormorant | <i>Phalacrocorax auritus</i> |
| Downey woodpecker | <i>Picoides pubescens</i> |
| Eastern bluebird | <i>Sialia sialis</i> |
| Eastern meadowlark | <i>Sturnella magna</i> |
| Eastern phoebe | <i>Sayornis phoebe</i> |
| Eastern screech-owl | <i>Megascops asio</i> |
| Eastern towhee | <i>Pipilo erythrophthalmus</i> |
| Fish crow | <i>Corvus ossifragus</i> |
| Florida mottled duck | <i>Anas fulvigula</i> |
| Florida sandhill crane | <i>Grus canadensis pratensis</i> |
| Florida scrub-jay | <i>Aphelocoma coerulescens</i> |
| Glossy ibis | <i>Plegadis falcinellus</i> |
| Great blue heron | <i>Ardea herodias</i> |
| Great crested flycatcher | <i>Myiarchus crinitus</i> |
| Great egret | <i>Ardea alba</i> |

| | |
|-------------------------------|-----------------------------------|
| Great horned owl | <i>Bubo virginianus</i> |
| Green heron | <i>Butorides virescens</i> |
| Grey catbird | <i>Dumetella carolinensis</i> |
| Hairy woodpecker | <i>Picoides villosus</i> |
| Killdeer | <i>Charadrius vociferus</i> |
| Limpkin | <i>Aramus guarauna</i> |
| Little blue heron | <i>Egretta caerulea</i> |
| Loggerheaded shrike | <i>Lanius ludovicianus</i> |
| Mourning dove | <i>Zenaida macroura</i> |
| Northern bobwhite | <i>Colinus virginianus</i> |
| Northern cardinal | <i>Cardinalis cardinalis</i> |
| Northern flicker | <i>Colaptes auratus</i> |
| Northern harrier | <i>Circus cyaneus</i> |
| Northern mockingbird | <i>Mimus polyglottos</i> |
| Northern parula | <i>Setophaga americana</i> |
| Osprey | <i>Pandion haliaetus</i> |
| Palm warbler | <i>Setophaga palmarum</i> |
| Pied-billed grebe | <i>Podilymbus podiceps</i> |
| Pileated woodpecker | <i>Dryocopus pileatus</i> |
| Pine warbler | <i>Setophaga pinus</i> |
| Prairie warbler | <i>Setophaga discolor</i> |
| Read-shouldered hawk | <i>Buteo lineatus</i> |
| Red-bellied woodpecker | <i>Melanerpes carolinus</i> |
| Red-eyed vireo | <i>Vireo olivaceus</i> |
| Red-headed woodpecker | <i>Melanerpes erythrocephalus</i> |
| Red-tailed hawk | <i>Buteo jamaicensis</i> |
| Red-winged blackbird | <i>Agelaius phoeniceus</i> |
| Ruby-throated hummingbird | <i>Archilochus colubris</i> |
| Sandhill crane | <i>Grus canadensis</i> |
| Sharp-shinned hawk | <i>Accipiter striatus</i> |
| Short-tailed hawk | <i>Buteo brachyurus</i> |
| Southeastern American Kestrel | <i>Falco sparverius paulus</i> |
| Southern bald eagle | <i>Haliaeetus leucocephalus</i> |
| Snowy egret | <i>Egretta thula</i> |
| Summer tanager | <i>Piranga rubra</i> |
| Swallow-tailed kite | <i>Elanoides forficatus</i> |
| Tree swallow | <i>Tachycineta bicolor</i> |
| Tricolor heron | <i>Egretta tricolor</i> |
| Tufted titmouse | <i>Baeolophus bicolor</i> |
| Turkey vulture | <i>Cathartes aura</i> |
| White ibis | <i>Eudocimus albus</i> |

| | |
|-----------------------|----------------------------|
| White-eyed vireo | <i>Vireo griseus</i> |
| Wild turkey | <i>Meleagris gallopavo</i> |
| Wood duck | <i>Aix sponsa</i> |
| Wood stork | <i>Mycteria americana</i> |
| Yellow-billed cuckoo | <i>Coccyzus americanus</i> |
| Yellow-rumped warbler | <i>Setophaga coronata</i> |
| Yellow-throated vireo | <i>Vireo flavifrons</i> |

Table 9. Mammal Species Known or Expected to Occur on SOFWEA

| Common Name | Scientific Name |
|------------------------|------------------------------------|
| Bobcat | <i>Lynx rufus</i> |
| Cotton mice | <i>Peromyscus gossypinus</i> |
| Cotton rat | <i>Sigmodon hispidus</i> |
| Coyote | <i>Canis latrans</i> |
| Eastern cottontail | <i>Sylvilagus floridanus</i> |
| Eastern gray squirrel | <i>Sciurus carolinensis</i> |
| Eastern mole | <i>Scalopus aquaticus</i> |
| Florida black bear | <i>Ursus americanus floridanus</i> |
| Florida mouse | <i>Podomys floridanus</i> |
| Gray fox | <i>Urocyon cinereoargenteus</i> |
| Marsh rabbit | <i>Sylvilagus palustris</i> |
| Nine-banded armadillo | <i>Dasypus novemcinctus</i> |
| Opossums | <i>Didelphis virginiana</i> |
| Raccoon | <i>Procyon lotor</i> |
| River otter | <i>Lontra canadensis</i> |
| Sherman's fox squirrel | <i>Sciurus niger shermani</i> |
| White-tailed deer | <i>Odocoileus virginianus</i> |

Table 10. Native Fish Species Known or Expected to Occur on SOFWEA

| Common Name | Scientific Name |
|-------------------------|---|
| Bluegill sunfish | <i>Lepomis macrochirus</i> |
| Florida largemouth bass | <i>Micropterus salmoides floridanus</i> |
| Mosquito fish | <i>Gambusia affinis</i> |

Table 11. Butterflies Know or Expected to Occur on SOFWEA

| Common Name | Scientific Name |
|--------------------------------|--------------------------------|
| Aaron's skipper | <i>Poanes aaroni</i> |
| Barred yellow | <i>Eurema daira</i> |
| Black swallowtail | <i>Papilio polyxenes</i> |
| Carolina satyr | <i>Hermeuptychia sosybius</i> |
| Ceraunus blue | <i>Hemiargus ceraunus</i> |
| Checkered white | <i>Pontia protodice</i> |
| Cloudless sulphur | <i>Phoebis sennae</i> |
| Common White checkered-skipper | <i>Pyrgus sp.</i> |
| Common buckeye | <i>Junonia coenia</i> |
| Confused cloudywing | <i>Thorybes confusis</i> |
| Delaware skipper | <i>Anatrytone logan</i> |
| Dorantes longtail | <i>Urbanus dorantes</i> |
| Eastern tiger swallowtail | <i>Pterourus glaucus</i> |
| Eufala skipper | <i>Lerodea eufala</i> |
| Fiery skipper | <i>Hylephila phyleus</i> |
| Georgia satyr | <i>Neonympha areolatus</i> |
| Gray hairstreak | <i>Strymon melinus</i> |
| Great southern white | <i>Ascia monuste</i> |
| Gulf fritillary | <i>Agraulis vanillae</i> |
| Horace's duskywing | <i>Erynnis horatius</i> |
| Least skipper | <i>Ancyloxypha numitor</i> |
| Little metalmark | <i>Calephelis virginiensis</i> |
| Monarch | <i>Danaus plexippus</i> |
| Northern cloudywing | <i>Thorybes pylades</i> |
| Ocola skipper | <i>Panoquina ocola</i> |
| Palamedes swallowtail | <i>Pterourus palamedes</i> |
| Pearl crescent | <i>Phyciodes tharos</i> |
| Queen | <i>Danaus gilippus</i> |
| Red-banded hairstreak | <i>Calycopis cecrops</i> |
| Sachem | <i>Atalopedes campestris</i> |
| Sleepy orange | <i>Abaeis nicippe</i> |
| Southern broken-dash | <i>Wallengrenia otho</i> |
| Southern skipperling | <i>Copaeodes minima</i> |
| Spicebush swallowtail | <i>Pterourus troilus</i> |
| Tawny-edged skipper | <i>Polites themistocles</i> |
| Twin-spot skipper | <i>Oligoria maculata</i> |
| Variegated fritillary | <i>Euptoieta claudia</i> |

| | |
|-------------------|-------------------------------|
| Viceroy | <i>Limenitis archippus</i> |
| Whirlabout | <i>Polites vibex</i> |
| White hairstreak | <i>Parrhasius m-album</i> |
| White peacock | <i>Anartia jatrophae</i> |
| Zarucco duskywing | <i>Erynnis zarucco</i> |
| Zebra swallowtail | <i>Eurytides marcellus</i> |
| Zebra heliconian | <i>Heliconius charitonius</i> |

Table 12. Exotic Wildlife Species Known or Expected to Occur on SOFWEA

| Common Name | Scientific Name |
|--------------------|---------------------------------------|
| Brown anole | <i>Anolis sagrei</i> |
| Cattle egret | <i>Bubulcus ibis</i> |
| Cuban tree frog | <i>Osteopilus septentrionalis</i> |
| Feral hogs | <i>Sus scrofa</i> |
| Greenhouse frog | <i>Eleutherodactylus planirostris</i> |
| Tilapia | <i>Tilapia aurea</i> |

2.3.1 Integrated Wildlife Habitat Ranking System

The FWC has developed the Integrated Wildlife Habitat Ranking System (IWHRS) as a Geographic Information Systems (GIS)-based assessment tool that incorporates a wide variety of land cover and wildlife species data. The IWHRS evaluates the Florida landscape based upon the habitat needs of wildlife as a way to identify ecologically significant lands in the state, and to assess the potential impacts of management and land-use changes. The IWHRS was developed to provide technical assistance to various local, regional, state, and federal agencies, and entities interested in wildlife needs and conservation in order to: (1) determine ways to avoid or minimize project impacts by evaluating alternative placements, alignments, and transportation corridors during early planning stages, (2) assess direct, secondary, and cumulative impacts to habitat and wildlife resources, and (3) identify appropriate parcels for public land acquisition for wetland and upland habitat mitigation purposes. The IWHRS (2009) indicates that the SOFWEA has a very high mean wildlife value of 8.2. The IWHRS may also serve as a part of the GIS Model analyses available for evaluating the Osceola Expressway Extension impacts on the SOFWEA, if the Parkway is formally proposed for consideration and approval to route it on the area. The FWC’s IWHRS map for the SOFWEA is shown in Figure 9.

2.3.2 Imperiled Species

For the purposes of this Management Plan, the term “imperiled species” refers to plant and animal species that are designated as endangered, threatened, or a species of special concern by FWC, or that are designated as endangered or threatened by the U.S. Fish and

Wildlife Service. This designation is also commonly known as “listed species.” Table 13 lists the focal and imperiled wildlife species that have been documented as occurring on or in the vicinity of the SOFWEA. Figure 10 displays FWC wildlife observations and FNAI element occurrences that have been documented within the SOFWEA. Eleven imperiled animal species have been documented at the SOFWEA.

All abbreviations and status determinations were derived from Florida’s Endangered and Threatened Species published by the FWC in October 2012. The FWC maintains the state list of animals designated as Federally Endangered or Threatened, State-designated Threatened or Species of Special Concern, in accordance with Rules 68A-27.003 and 68A-27.005, respectively, of the Florida Administrative Code <https://www.flrules.org/>.

In January 2013, new threatened species rules approved by the FWC went into effect. The list of wildlife presented here reflects those changes to the rules. All federally listed species that occur in Florida are now included on Florida’s list as Federally Endangered or Threatened species. In addition, the state has a listing process to identify species that are not federally listed but at risk of extinction. These species will be called State-designated Threatened. All State-designated species that have recently undergone status reviews were presented and approved at the June 2011 Commission meeting. The FWC will continue to maintain a separate Species of Special Concern category until all the species have been reviewed and those species are either designated as State-Threatened and given a management plan or removed from the list. More detailed species descriptions and associated management prescriptions are available on the FWC website: <http://www.myfwc.com/wildlifehabitats/profiles/>.

Table 13. Imperiled Wildlife Species occurring on or near the SOFWEA

| Common Name | Scientific Name | Status |
|-------------------------------|---------------------------------------|---------------|
| Birds | | |
| Burrowing owl | <i>Athene cunicularia floridana</i> | ST |
| Florida sandhill crane | <i>Grus canadensis pratensis</i> | ST |
| Florida scrub-jay | <i>Aphelocoma coerulescens</i> | FT |
| Little blue heron | <i>Egretta caerulea</i> | ST |
| Southeastern American kestrel | <i>Falco sparverius paulus</i> | ST |
| Tricolored heron | <i>Egretta tricolor</i> | ST |
| Wood stork | <i>Mycteria americana</i> | FT |
| Mammals | | |
| Sherman's fox squirrel | <i>Sciurus niger shermani</i> | SSC |
| Reptiles | | |
| American alligator | <i>Alligator mississippiensis</i> | FT (S/A) |
| Florida pine snake | <i>Pituophis melanoleucus mugitus</i> | ST |

| Abbreviation | Status |
|--------------|--|
| FE | Federal Endangered |
| FT | Federal Threatened |
| FT(S/A) | Federally Threatened due to similarity of appearance |
| SSC | State Species of Special Concern |
| ST | State Threatened |
| NL | Not Listed |

2.3.3 FWC Wildlife Observations and FNAI Element Occurrences

A diversity of wildlife species is found on the SOFWEA. The FNAI element occurrence records include six imperiled species and a notable migratory bird concentration area. As defined by the FNAI, an “element” is any exemplary or rare component of the natural environment, such as a species, natural community, bird colony, spring, sinkhole, cave, or other ecological feature. An element occurrence is a single extant habitat which sustains or otherwise contributes to the survival of a population or a distinct, self-sustaining example of a particular element. The FNAI assigns a rank to each “element” occurrence. This ranking system was developed by The Nature Conservancy and the Natural Heritage

Program Network based on the element’s global rank (element’s worldwide status) or state rank (status of element in Florida). The FNAI ranking system and definitions are located on the following website: www.fnai.org/ranks.cfm.

Known locations of FWC wildlife occurrences and FNAI element occurrences from the most recent GIS databases of the respective agencies are displayed in Figure 10. Appendix 13.8 contains a letter from the FNAI authorizing the FWC to utilize their database for the purpose of displaying known plant and animal resources.

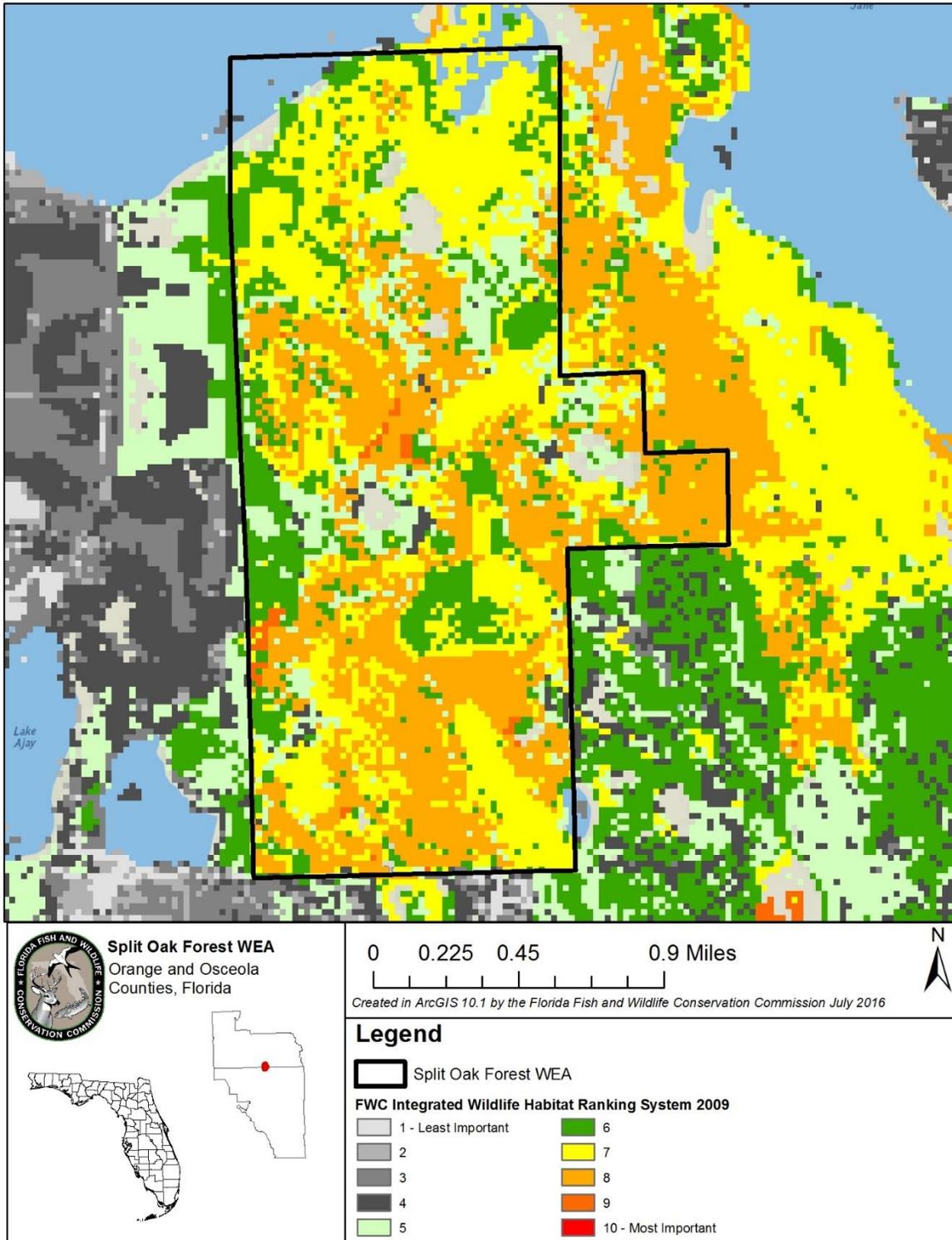


Figure 9. SOFWEA Integrated Wildlife Habitat Ranking

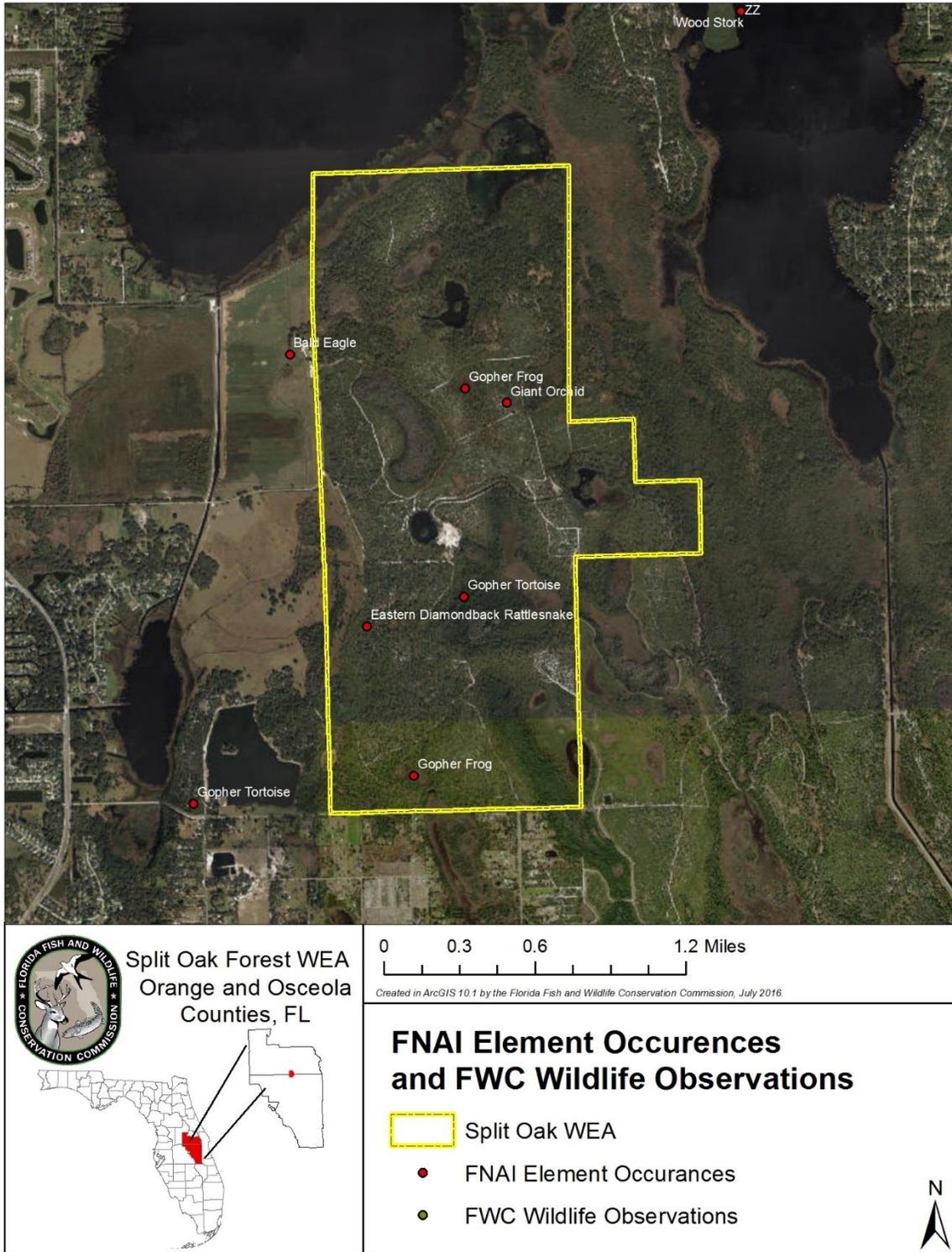


Figure 10. SOFWEA - FNAI Element Occurrences and FWC Wildlife Observations

2.4 Native Landscapes

The predominant native landscapes occurring on the SOFWEA are scrubby flatwoods, mesic flatwoods, and wet flatwoods. Other significant native landscapes present on the area include baygall, depression marsh, and scrub. As described in detail above, complete descriptions of the natural communities found the SOFWEA can be found in Section 2.2 of this Management Plan.

2.5 Water Resources

All surface waters of the State are classified by DEP according to designated uses as described in Chapter 62-302.44 FAC. The surface waters of SOFWEA are designated as Class III, and classified for fish consumption; recreation, as well as propagation and maintenance of a healthy, well-balanced population of fish and wildlife.

One major lake, Lake Hart, is found in association with SOFWEA, roughly a half mile of lakeshore within the SOFWEA boundary. The SOFWEA does not contain a first magnitude spring, nor is it designated as an aquatic preserve and is not under consideration for such designation, and there are no portions of SOFWEA that are designated as Outstanding Florida Waters (OFW).

2.6 Beaches and Dunes

There are no beach or dune resources on the SOFWEA.

2.7 Mineral Resources

There are no known commercial mineral deposits on the SOFWEA.

2.8 Archaeological and Historical Resources

The DHR Master Site File indicates that there are no recorded archaeological sites within the boundaries of the SOFWEA. However, the FWC will coordinate with DHR to assess the need for conducting a cultural resource survey.

As a part of the objectives of this management plan, the FWC will ensure that management staff receive Archaeological Resource Management (ARM) training. Furthermore, the FWC will ensure all known sites are recorded in the DHR Master Site File.

2.9 Scenic Resources

The SOFWEA offers remarkably scenic views of Lake Hart and hardwood hammocks. As a result, the area has long been valued for its scenic wilderness-like quality currently unaffected by development and other human alterations of the landscape. Wildlife is abundant year-round throughout the area. The scenery of the SOFWEA can be enjoyed by

hiking on the area's trails. Some of the scenic sites on the SOFWEA have been developed with interpretive signage and wildlife viewing platforms.

3 Uses of the Property

3.1 Previous Use and Development

Florida was inhabited for thousands of years before Spanish explorer Ponce de Leon landed on the peninsula he named La Florida in 1513. Among those early indigenous people were the Ais, Apalachee, Calusa, Timucua and Tocobago tribes. Here in the central part of the state, the Timucua and Tocobago people roamed the land. It is estimated that about 50,000 Timucua lived in Florida at the time that European explorers arrived.

Consequently, prior to European settlement, the landscape of Florida, including this area of the Florida peninsula, was settled and used by a variety of Native American peoples whose culture relied mainly on hunting, fishing, and subsistence agriculture. Though some land alteration occurred, only minor alteration of the landscape is thought to have taken place until the advent of European settlement beginning with the Spanish occupation of Florida in the sixteenth century. During the 17th and 18th centuries, the native tribes throughout the Southeastern United States were displaced, resettled or enslaved by European settlers and their governments during this era. Many were either forced into slavery, their land was taken away, their homes destroyed, and many were decimated by disease. To escape, some fled south, landing in Central Florida. Once there, tribes merged into what became known as Seminoles. The name Seminole comes from the Spanish word *cimarron*, which means "runaway."

Osceola County was named after one of the most famous Seminole leaders, Osceola, who led the Seminoles to many successes on the battlefield in their battle to remain an independent tribal nation through three separate wars with the U. S. At the conclusion of the Third Seminole War in 1858, many Native Americans had been removed from Florida.

Eventually, the Seminoles were either removed to a reservation in Oklahoma or fled south to the Everglades where their descendants live today as a sovereign tribal nation on the Seminole Reservation. Although most of the state's Native Americans were decimated in the onslaught of new settlers and their settlements.

Along with more advanced agricultural practices, the Spanish and other European settlers brought livestock, primarily cattle and hogs, as well as horses to Florida. This began an era of broad use of the landscape for agriculture. Rangeland cattle grazing and other agricultural practices began to be utilized in a more systematic way and occurred throughout much of the central Florida peninsula through most of the European settlement era from the 16th through the 20th centuries. Use of these agricultural practices began an

era of increased alteration of the natural landscape. However, it wasn't until the 19th and 20th centuries that major settlement and more extensive alteration of the landscape in the area began with the widespread use of agriculture and associated development.

The SOFWEA derives its name from a unique squat-trunk live oak (*Quercus virginiana*) located on the north side of the property, which split into two halves prior to acquisition of the area. Portions of the property were once used for turpentine and cattle operations. Previous owners cleared approximately 54 acres to create improved pasture along the western boundary of SOFWEA, just south of the Clapp Simms Duda Road entrance. Area staff have found evidence of clearing activities associated with a small orange grove (2-4 acres, now fallow), and possible homestead activities in the xeric oak communities just east of the improved pasture.

In the late 1980s, prior to State acquisition, the owners converted 12 acres of scrubby flatwoods on the east side of the property into pasture. The effort has left the area with scattered scrub oak varieties (*Quercus* spp.) with extensive bare ground between oak clusters. Later, 3 basin marshes were excavated to create artificial impoundments for future planned development of the site. The result of the excavations produced 3 large ponds with adjacent large spoil areas. However, the remaining acreage on SOFWEA is comprised primarily of essentially intact mesic flatwoods, scrubby flatwoods, scrub, xeric hammock, mesic hammock, wet flatwoods, basin marsh, depression marsh, sandhill, baygall, dome swamp, and wet prairie.

3.2 Current Use of the Property

Currently, SOFWEA is managed for the conservation and protection of fish and wildlife habitat and fish and wildlife based public outdoor recreation. A wide range of operational and resource management actions are conducted on SOFWEA each year including activities such as prescribed burning; wildlife habitat restoration and improvement; invasive exotic species maintenance and control; road repairs and maintenance; imperiled species management, monitoring and protection; facilities and infrastructure maintenance and repair; conservation acquisition and stewardship activities; archeological and historical resources monitoring and protection; and research related activities.



Current and anticipated resource uses of the property are diverse. The area also offers excellent opportunities for bird watching, especially for Florida scrub-jay and wading birds.

The diversity of vegetation not only harbors a variety of bird species but also provides good opportunities for mammalian wildlife viewing. Other uses include hiking, photography, sightseeing, and horseback riding.

Due to the proximity of population centers in Orange and Osceola Counties, public use can be expected to increase as public awareness of opportunities increases.

Osceola Parkway Extension

Another planned land use that may impact the area is the planned Osceola Parkway Extension, as the Osceola Expressway Authority has developed plans to extend the Osceola Parkway as part of the County's growth management strategy to create an expressway system that generally follows its urban growth boundary. The Osceola Expressway Authority has proposed several alternate routes for this extension, some of which are routed across the west side of SOFWEA, just north of the Orange County line, moving eastward and exiting the property just south of the Osceola County line. The FWC is currently working, in cooperation with Orange and Osceola Counties, and with the Osceola Expressway Authority to avoid or minimize the potential impacts and fragmentation the planned roadway could have on SOFWEA if the Parkway extension is routed across the area.

3.2.1 Visitation and Economic Benefits

Visitation and public use of the area for fish and wildlife based public outdoor recreational opportunities is the primary source of economic benefits from the SOFWEA, and contributes to the overall economy for the central region of Florida. If the current maximum visitation level of 162 visitors per day were achieved, a total of 59,130 visitors per year could be expected. If the area were at carrying capacity, FWC economic analysis estimates indicate that the SOFWEA could potentially generate an estimated economic impact of \$6,755,603 for the State and the Central region of Florida. This estimated annual economic impact would aid in the support or creation of an estimated 118 jobs. However, it should be noted that the current visitation rates for the area are estimated to be far below the area's established carrying capacity.

The above figures are based on expenditure data from the 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation (USFWS) and 2006 IMPLAN economic models assembled by Southwick Associates and the USFWS. The results were updated to 2010 based on hunting and fishing license trends and inflation. The results were combined and weighted based on the numbers of hunters, anglers and wildlife viewers statewide. The results assume participants' expenditures and the results impacts are consistent throughout the state. Users applying these results to local situations should be aware that differences might exist between these statewide averages and the site in question, and make adjustments if needed.

Further revenue generating potential of the SOFWEA will depend upon future uses to be approved in the management plan. Additional revenue from environmental lands such as the SOFWEA might include sales of various permits and recreational user fees and ecotourism activities, if such projects could be feasibly and economically developed without impacting the area’s natural resources. The annual area regulations can be consulted to clarify the necessary and required permits, fees, and regulations. The long-term values of ecosystem services to local and regional land and water resources, and to human health, through the protection of air and water quality are expected to continue to be significant.

3.3 Single- or Multiple-use Management

SOFWEA will be managed under the multiple-use concept as a Wildlife and Environmental Area. SOFWEA will provide fish and wildlife resource based public outdoor recreation and educational opportunities, while protecting the natural and historical resources found on the area. Any natural and historical resources of SOFWEA will be managed under the guidance of ARC, the Conceptual State Lands Management Plan, and as outlined in the original purposes for acquisition.

3.3.1 Analysis of Multiple-use Potential

The following actions or activities have been considered under the multiple-use concept as possible uses to be allowed on SOFWEA. Uses classified as “Approved” are considered to be in accordance with the purposes for acquisition, as well as with the Conceptual State Lands Management Plan, and with the FWC agency mission, goals and objectives as expressed in the Agency Strategic Plan (Appendix 13.9). Uses classified as "Conditional" indicate that the use may be acceptable but will be allowed only if approved through a process other than the management plan development and approval process (e.g., special-use permitting, managed-area regulation and rule development). Uses classified as “Rejected” are not considered to be in accordance with the original purpose of acquisition or one or more of the various forms of guidance available for planning and management:

| | <u>Approved</u> | <u>Conditional</u> | <u>Rejected</u> |
|------------------------------------|-----------------|--------------------|-----------------|
| Apiaries | | ✓ | |
| Astronomy | | ✓ | |
| Bicycling | | | ✓ |
| Cattle grazing | | | ✓ |
| Citrus or other agriculture | | | ✓ |
| Ecosystem services and maintenance | ✓ | | |
| Ecotourism | | ✓ | |
| Environmental Education | ✓ | | |
| First-responder training | | ✓ | |
| Fishing | | ✓ | |

| | | | |
|--------------------------------------|---|---|---|
| Geocaching | | ✓ | |
| Hiking | ✓ | | |
| Horseback riding | | ✓ | |
| Hunting | | | ✓ |
| Linear facilities | | | ✓ |
| Military training | | | ✓ |
| Preservation of historical resources | ✓ | | |
| Primitive camping | | | ✓ |
| Protection of imperiled species | ✓ | | |
| Off-road vehicle use | | | ✓ |
| Shooting Sports Park | | | ✓ |
| Soil and water conservation | ✓ | | |
| Timber harvest | | ✓ | |
| Wildlife observation | ✓ | | |

3.3.2 Incompatible Uses and Linear Facilities

Consideration of incompatible uses and linear facilities on SOFWEA are made in accordance with the requirements of Section 253.034(10) FS, and other applicable Florida constitution, statute, rule, and policy requirements, as well as other provisions governing applications for proposed incompatible uses or linear facilities on state-owned conservation lands. Upon approval and implementation of this management plan, any proposed future uses that have been classified herein as Rejected, or other proposed future uses that are determined to be incompatible with the purposes of acquisition or other management authorizations and guidance, will be forwarded for review and approval consideration to the DEP-DSL, the ARC and the Board of Trustees prior to any incompatible use or linear facility being authorized on the SOFWEA.

3.3.3 Assessment of Impact of Planned Uses of the Property

To communicate FWC’s planned uses and activities, specific management intentions, long- and short-term goals and with associated objectives, identified challenges, and solution strategies have been developed for SOFWEA (Sections 5 -8). A detailed assessment of the benefits and potential impacts of planned uses and activities on natural and historical resources was an integral part of the development of the management activities and intent, goals, objectives, challenges, and strategies sections of this Management Plan.

3.4 Acreage Recommended for Potential Surplus Review

On conservation lands where FWC is the lead manager, FWC evaluates and identifies recommended areas for a potential surplus designation by DSL, ARC, and the Board of Trustees. This evaluation consists of GIS modeling and analysis, aerial photography interpretation, analysis of fish and wildlife resources, a review of resource and operational

management needs, and a review of public access and recreational use of the area. Also, FWC considers recommendations for surplus lands as they relate to Florida’s “No Net Loss of Hunting Lands” legislation (Ch. 379.3001 F.S.), as well as surplus restrictions for lands acquired through the Federal Aid in Wildlife Restoration Act (Pittman-Robertson) or through other federal grant programs.

The evaluation of SOFWEA by FWC has determined that all portions of the area are being managed and operated for the original purposes of acquisition, and remain integral to the continued conservation of important fish and wildlife resources, and continue to provide quality fish and wildlife resource based public outdoor recreational opportunities. Therefore, no portion of the SOFWEA is recommended for potential surplus review.

4 Accomplished Objectives from the SOFWEA Management Plan 1995

This section is dedicated to reporting the extent to which the Objectives described in the SOFWEA Management Plan 1995 (pages 7-8) were successfully completed.

Accomplishments for SOFWEA during the previous planning timeframe are further discussed in more comprehensive detail throughout **Section 5 Management Activities and Intent** of this Management Plan.

The following **Resource Management Goals and Objectives** from the 1995 SOFWEA Management Plan describe the planned activities for SOFWEA during this period. The degree to which FWC was able to accomplish the planned activities during this period is reflected as **Percent Accomplished** for each associated Objective.

| <u>Goals and Objectives</u> | <u>Percent Accomplished</u> |
|--|-----------------------------|
| Goal 1: To maintain, increase, and ensure the abundance and distribution of state listed wildlife within the project site. | |
| Objective 1: Implement appropriate habitat management and restoration activities in order to satisfy the life history requirements of listed species populations. <i>Comment: The FWC has established OBVM management prescriptions and associated monitoring and has implemented resource management regimes, including prescribed burning, exotic species treatment, and mechanical treatments, etc. on the area.</i> | 100% |
| Objective 2: Primary consideration will be directed to the needs of listed wildlife populations, even to the exclusion of user considerations. | 100% |

| | |
|--|------|
| <i>Comment: All resource, operational and recreational management and uses on the area, aids and is compatible with imperiled wildlife management prescriptions.</i> | |
| Objective 3: Establish techniques to monitor the status of listed species populations in order to evaluate and refine management activities. <i>Comment: The FWC has developed a WCPR strategy for the area, and is implementing imperiled species management, monitoring, and survey actions to support, maintain and enhance imperiled species populations on the area.</i> | 100% |
| Goal 2: Provide recreational uses which are compatible with the protection and maintenance of listed wildlife populations, the retention of naturally occurring vegetative associations and protection of sensitive natural area resources. | |
| Objective 1: Provide recreational uses that feature the area's uniqueness as a diverse assemblage of high quality natural plant communities. <i>Comment: The FWC has established and developed hiking trails, kiosks and viewing platforms at Bonnet Pond and Sawgrass Pond on the area, to facilitate wildlife viewing recreational opportunities on the area.</i> | 100% |
| Objective 2: Reduce wildlife disturbances and enhance wildlife visibility by limiting unsupervised access to daylight hours only. <i>Comment: The FWC has established a daytime use only regulations on the area. (68A-17.005(5)(d))</i> | 100% |
| Goal 3: Manage for the quality and productivity of the site's xeric plant communities. | |
| Objective 1: Promote management activities such as ecological burning which are necessary to the maintenance of these communities. <i>Comment: The FWC has established OBVM management prescriptions and associated monitoring and has implemented resource management regimes, including prescribed burning, exotic species treatment, and mechanical treatments, etc. which includes all the xeric hammock communities on the area.</i> | 100% |
| Objective 2: Provide protection to sensitive plant communities and individual plant species by controlling use of motorized vehicles and by directing pedestrian traffic along established hiking trails. <i>Comment: The FWC controls and prohibits use of motorized vehicles on the area, and has directed recreational use to designated trails. (68A-17.005(5)©)</i> | 100% |

| | |
|--|------|
| Goal 4: Increase public awareness of the importance of protecting and managing listed species populations. | |
| Objective 1: Provide information regarding the effectiveness of mitigation parks and other habitat protection techniques. <i>Comment: The FWC has developed kiosks to interpret the importance of the habitat and resource management actions necessary to perpetuate and protect imperiled species on the area.</i> | 100% |
| Objective 2: Demonstrate the interrelationships between listed wildlife populations and fire-adapted plant communities. <i>Comment: The FWC has developed kiosks to interpret the importance of the habitat and resource management actions necessary to perpetuate and protect imperiled species on the area, which includes information to demonstrate the interrelationships between listed wildlife populations and fire-adapted plant communities.</i> | 100% |
| Objective 3: Provide self-interpretive hiking trails to listed species habitats and unique environmental features. <i>Comment: The FWC has established and developed hiking trails, kiosks and viewing platforms at Bonnet Pond and Sawgrass Pond on the area, to facilitate wildlife viewing recreational opportunities on the area, which provides self-interpretive hiking trails to listed species habitats and unique environmental features.</i> | 100% |

5 Management Activities and Intent

The following section provides a description of agency plans to locate, identify, protect, preserve or otherwise use fragile natural resources and nonrenewable historical resources. In general, the FWC management intent for SOFWEA is to restore and maintain natural communities in a condition that sustains ecological processes and conserves biological diversity, especially fish and wildlife resources. In conjunction with this primary emphasis, it is FWC’s intent to provide quality fish and wildlife resource based public outdoor recreational opportunities on SOFWEA. The FWC will utilize the best available data, guidelines, natural resource management practices, and recreational management practices to achieve these outcomes in accordance with the original purposes for acquisition. Furthermore, as noted earlier, the management activities described in this section are in compliance with those of the Conceptual State Lands Management Plan.

5.1 Land Management Review

Pursuant to Chapter 259.036, FS, the DEP-DSL is required to “cause periodic management reviews to be conducted” on Board of Trustees conservation lands to determine if they “are being managed for the purposes for which they were acquired and in accordance with a land management plan adopted pursuant to s. 259.032.” However, as previously discussed, title to the SOFWEA is held by Orange and Osceola Counties, with FWC holding a conservation easement for the area and, therefore, no land management review (LMR) is statutorily required for the area. As a result, no LMR has been conducted for the SOFWEA.

5.2 Adaptive Management

Adaptive management is "learning by doing";¹ it is the adjustment or modification of conservation actions to achieve a desired conservation goal. In practice, adaptive management is a rigorous process that includes sound planning and experimental design with a systematic evaluation process that links monitoring to management.^{1,2} Adaptive management requires flexibility for implementation, but should be fitted over a fundamentally sound, well-planned design.

An adaptive management process produces the strongest inference and most reliable results when experimental design components are incorporated into the monitoring process. Adaptive management is most rigorously applied in an active format when components of experimental design (i.e., controls, replication, and randomization) are included in the monitoring process.^{2,3} Incorporating valid statistical analyses of results will further enhance the value of the adaptive management process. However, in some situations, rigorous experimental design procedures can be relaxed without invalidating monitoring results. In a passive format, adaptive management can involve applying a conservation action at a site, observing the results and adjusting the action in the future if warranted.^{2,3}

Proposed adaptive management, monitoring and performance measures are developed through literature reviews and FWC staff meetings. Overall, a results-based approach is incorporated into this Management Plan, for which effective monitoring is an integral component. The FWC will monitor conservation actions, species, habitats, and major threats to the conservation of the natural and historical resources of SOFWEA.

5.2.1 Monitoring

A well-developed monitoring protocol is also one of the principal, required criteria for the management of SOFWEA. Monitoring and performance measures are important, but often overlooked elements of conservation planning. Monitoring provides the critical link between implementing conservation actions and revising management goals.

Monitoring is the systematic, repeated measurement of environmental characteristics to detect changes, and particularly trends, in those characteristics. Monitoring provides essential feedback, the data needed to understand the costs, benefits, and effectiveness of planned conservation actions and the management projects undertaken to address them.²

For natural communities, monitoring protocols are established through FWC's Objective-Based Vegetation Management (OBVM, Section 5.3.1) program, which monitors how specific vegetative attributes are responding to FWC management. For imperiled and focal fish and wildlife species, monitoring protocols are established through FWC's Wildlife Conservation Prioritization and Recovery (WCPR, Section 5.4.2) program. FWC staff may monitor additional fish and wildlife species when deemed appropriate. Exotic and invasive plant and animal species (Section 5.5) are also monitored as needed and appropriate. Recreational uses are monitored through FWC's Public Access and Wildlife Viewing program, and work in conjunction with the establishment and adjustment of public access carrying capacities (Section 5.6.3). Historical resources (Section 5.9) are monitored with guidance from the Florida Department of State's Division of Historical Resources (DHR).

5.2.2 Performance Measures

Performance measures include qualitative or quantitative measures used to provide an estimate or index of the characteristic of interest, and to chart the overall progress of conservation actions towards specific goals. Successful monitoring programs and their associated performance measures provide natural resource professionals with valuable feedback on the effectiveness of conservation actions and make it possible to implement a more flexible adaptive management approach. An adaptive management approach ultimately will be more efficient and effective when it tracks inputs, incorporates an effective monitoring program that integrates performance measures, and evaluates results against desired goals.

5.2.3 Implementation

The SOFWEA Management Plan serves as the guiding framework to implement this adaptive management process. It serves as the underpinning for the integration of management programs (OBVM, WCPR, Public Access and Wildlife Viewing, Recreation Master Plans, etc.) underway to accomplish needed conservation actions that are planned to manage the natural resources of SOFWEA, and resolve conservation threats to fish and wildlife and the habitats they occupy. Based on evaluations of project results, the conservation actions are revised as necessary, and the adaptive management process is repeated.

5.3 Habitat Restoration and Improvement

On SOFWEA, FWC will focus on managing for native habitat diversity, emphasizing maintenance of high-quality natural communities, and restoration of disturbed areas. Restoration may be achieved on disturbed areas by the re-introduction of fire, restoring historic hydrological conditions and/or the use of mechanical or chemical forest management techniques as appropriate. Retention of the native old growth component of forests, while also providing for natural regeneration, remains an important consideration. SOFWEA has high-quality native communities including basin marsh, baygall, depression marsh, dome swamp, flatwoods lake, mesic flatwoods, mesic hammock, sandhill, scrub, scrubby flatwoods, wet flatwoods, wet prairie, and xeric hammock that FWC will continue to manage and protect. On disturbed upland sites, FWC may initiate ground cover and natural community restoration if determined feasible along with consideration of any ongoing wildlife and recreational uses on such areas.

The FNAI has conducted surveys and mapped the current vegetative communities and historic vegetation communities on SOFWEA. This information will be used to guide and prioritize management and restoration efforts on the area.

5.3.1 Objective-Based Vegetation Management

The FWC uses a comprehensive resource management approach to managing FWC-managed areas. Restoring the form and function of Florida's natural communities is the foundation of this management philosophy. The FWC uses OBVM to monitor how specific vegetative attributes are responding to FWC management.

The first step in implementing OBVM is to map the current, and in most cases the historic natural communities, on the managed area using the FNAI Natural Community Classification. The FWC contracts with FNAI to provide these mapping services, and plans to have natural community maps recertified on most areas on a five-year basis. A natural community, as defined by FNAI, is a distinct and recurring assemblage of populations of plants, animals, fungi and microorganisms naturally associated with each other and their physical environment.



After natural communities have been mapped, FWC land managers will identify those natural communities that will influence and guide management decisions, known as the

actively managed natural communities. Through OBVM monitoring, FWC collects data on a number of specific vegetation attributes that provide insight about the condition of the natural community. Because FWC is interested in the overall effect of management on the natural communities, OBVM data is analyzed at the natural community level.

Measurable habitat management objectives referred to as ‘desired future conditions’ are established for each actively managed natural community. Desired future conditions are the acceptable range of values for quantifiable vegetation attributes, such as basal area, shrub height and cover, and ground cover. The FWC collaborated with the FNAI to identify ‘reference sites’ for each actively managed natural community and applied the OBVM monitoring methodology at these reference sites to determine what attribute values occur in a high-quality community (<http://www.fnai.org/reference-natural-communities.cfm>). FWC staff considers the reference site attribute values when setting area-specific desired future conditions for natural communities.

Vegetation monitoring samples the selected attributes, with the results being compared to the established desired future conditions. All monitoring performed under OBVM is completed using the program’s Standard Operating Procedures.

Consistent, long-term monitoring of managed natural communities will quantify changes in habitat conditions, provide information on the cumulative effects of management activities, and measure progress towards meeting management objectives for desired habitat conditions. Measured changes in vegetation condition are intended to be used to inform future land management actions.

Initial mapping and vegetation sampling provides FWC staff with baseline data indicating natural community structure, distribution, and condition on the area. Comparing the subsequent monitoring results to desired future conditions, provides important operational information on a natural community’s vegetation structural status at a given point in time and trend over time. Using this information, managers can evaluate, adjust and modify their management practices to meet the stated objectives. By comparing natural community mapping products through the years, managers can track progress in moving altered communities to functioning natural communities.

5.3.2 Prescribed Fire and Fire Management

Periodic spring and summer fires occurred in fire-adapted communities under natural conditions. Plant species composition reflects the frequency and intensity of these fires. In the absence of fire, fallow fields on former longleaf sites follow a successional pattern through mixed pine-hardwood forests to an exclusively hardwood community rather than to the original plant community. The plant species composition may differ slightly on poorer

soils of the slash pine flatwoods, but the dominant role of fire in controlling hardwoods is equally important in either ecosystem.

Timber removal, site preparation, drainage, and lack of fire have all combined to alter the plant species composition of the area resulting in a loss of fuel and inhibiting the return to a more “natural” fire management regime. Site-specific combinations of prescribed fire, mechanical and chemical vegetation control, reforestation, and restoration of natural water regimes are likely necessary actions needed to restore the area to historic natural communities.

The FWC employs a fire management regime to increase both species and habitat diversity and will continue a prescribed burning program on the SOFWEA in accordance with vegetative management objectives. As fire moves across a landscape, some areas carry fire better than others. Areas with higher vegetative fuel loads typically burn more evenly and with greater intensity. Areas with lower vegetative fuel loads or wetland areas inundated with water typically will not carry fire as evenly, and usually burn at a lower intensity. Employing a burning program with different burning frequencies, intensities, and seasonality (dormant season vs. growing season) of prescribed burns create habitat diversity and a mosaic of vegetation patterns. This mosaic is designed to have both frequently burned and infrequently burned aspects.

On some areas, prescribed burning is limited by the buildup of mid-story brush and a lack of pyrogenic groundcover fuels. This condition creates unsuitable habitat for many wildlife species. Mechanical control of brush on upland sites by roller chopping, logging, shredding, or incidentally by equipment during commercial thinning operations, can reduce shading and encourage the grasses and forbs that are necessary to sustain prescribed fire.

Single drum (with standard, not offset blades), one-pass roller chopping can be a valuable management tool, enabling the use of prescribed fires in areas heavily invaded by dense woody vegetation. However, roller chopping may damage the herbaceous ground cover, especially wiregrass. Therefore, its application will be limited to situations where burning can only be accomplished by first reducing woody vegetation by mechanical means.



Whenever possible, existing firebreaks such as roads and trails, as well as natural breaks such as creeks and wetlands, will be used to define burning compartments. Disk harrows, mowing, and foam lines will be used as necessary to minimize disturbance and damage created by fire plows.

The transitional areas between two adjacent but different vegetative cover types, such as forests and wetlands, are known as ecotones. With the possible exception of wildfire suppression, mechanical soil disturbance in ecotones will be avoided in order to protect habitats for important rare species that often occur between flatwoods and riparian drainages. Silvicultural site preparation and creation of firebreaks are avoided when possible in these zones. Additionally, fires are allowed to burn into the edges of marshes, swamps and other wetlands in order to maintain these habitats. Once fuel loads have been reduced and a more open appearance has returned, vegetative management objectives will likely dictate a fire return interval that averages 1-4 years for most of the area's fire adapted communities, preferably during the spring and early summer months.

In addition to the general prescribed fire management guidelines described above, an area-specific Prescribed Fire Plan has been developed and will be implemented for SOFWEA. This plan will include, but not be limited to, delineation of burn management units, detailed descriptions of prescribed fire methodology, safety, and smoke management guidelines.

During the previous planning period, 100% of the area's fire adapted communities have been treated with prescribed fire. Approximately 100% of the fire-adapted communities have are within are within the recommended fire return intervals. As detailed in the goals and objectives in Section 6 below, FWC plans to conduct prescribed burning on 400 acres per year of the area's fire adapted communities resulting in 100% of the area's burnable acreage being maintained within the recommended fire return intervals during this planning period. Potential projected challenges with continuing to successfully implement prescribed fire on the area are described further in Section 3 (Osceola Parkway Extension) above, Section 8 (Challenges) below. The continuing benefits of prescribed fire on the area's wildlife habitats along with other ongoing habitat restoration activities that are being implemented on SOFWEA are discussed in more detail below.

5.3.3 Habitat Restoration

Significant habitat management activities have taken place within many of the natural communities of SOFWEA over the course of the previous management period beginning in 1995. As noted above, since 1995, almost all management units with fire-adapted natural communities have been treated with prescribed fires, most on a repeated basis as established within the management plan. This has aided in the restoration of native ground cover and improved wildlife habitat throughout SOFWEA. In addition to conducting prescribed burning, mechanical treatments such as roller chopping and mowing has been conducted on all areas scrub, scrubby flatwoods and some selected areas of mesic flatwoods, some on a repeated basis to further improve the habitat value of the natural communities at SOFWEA and specifically encourage better habitat conditions for listed wildlife such as the gopher tortoise.

In addition to the prescribed burning activities described above, the FWC has established OBVM management prescriptions and associated monitoring and has implemented resource management regimes, including prescribed burning, exotic species treatment, and mechanical treatments, etc. which includes all the xeric hammock communities on the area.

Continuing habitat management activities on the area will focus on enhancing natural communities, maintaining recommended fire return intervals for fire adapted communities, treating and removing exotic plant species, and controlling vegetation through mowing and roller chopping as needed. Chemical removal is also planned to be implemented on some selected hardwoods in the xeric oak habitat in order to restore to sandhill habitat. Exotic species control is more extensively discussed in Section 5.5, below. Further habitat management and improvement objectives planned for the area are delineated in Section 6 below.

5.4 Fish and Wildlife Management, Imperiled and Focal Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration

5.4.1 Fish and Wildlife

Due to the variety of natural communities present on the area, a diversity of associated wildlife, including imperiled, rare, game and non-game species, can be found on the SOFWEA. In managing for wildlife species, an emphasis will be placed on conservation, protection, and management of natural communities. On the SOFWEA, natural communities important to wildlife include scrubby flatwoods, mesic flatwoods, wet flatwoods, and depression marsh, as well as, natural communities that are less represented on the SOFWEA, but which are still important to wildlife, including floodplain swamp, sandhill and scrub.

The size and natural community composition of the SOFWEA creates a habitat mosaic for a wide variety of wildlife species. Resident wildlife will be managed for optimum richness, diversity, and abundance. In addition to resident wildlife, the SOFWEA provides resources critical to many migratory birds including: waterfowl, passerines, raptors, and others. Habitats important to migratory species will be protected, maintained or enhanced.

Wildlife management emphasis is placed on documenting the occurrence and abundance of rare and imperiled species on the property. The FWC will continue to update inventories for certain species, with emphasis on rare and imperiled fish and wildlife species. Monitoring of wildlife species will continue as an ongoing effort for the area.

Concurrent with ongoing species inventory and monitoring activities, management practices are designed to restore, enhance, or maintain rare and imperiled species and their

habitats. This will be further augmented by following approved federal and FWC species recovery plans, guidelines, and other scientific recommendations for these species. Guided by these recommendations, land management activities including prescribed burning and timber stand improvements will address rare and imperiled species requirements and habitat needs. Section 5.4.2 below provides further information on FWC’s comprehensive species management strategy for rare and imperiled wildlife and their respective habitats.

Additionally, a comprehensive species list has been developed for the area, which will be updated and modified as appropriate over time. The species list that has been developed for the area is provided above in Section 2.3.

5.4.2 Imperiled and Focal Species: Wildlife Conservation Prioritization and Recovery

The FWC has identified the need to: 1) demonstrate optimal wildlife habitat conservation on FWC-managed lands; 2) develop science-based performance measures to evaluate management; 3) recover imperiled species; and 4) prevent future imperilment of declining wildlife species. To help meet these needs, the FWC uses a comprehensive resource management approach to managing FWC-managed conservation areas. Restoring the form and function of Florida’s natural communities is the foundation of this management philosophy. The FWC uses OBVM to monitor how specific vegetative parameters are responding to FWC management, and uses the WCPR program to ensure management is having the desired effect on wildlife.

The goal of WCPR is to provide assessment, recovery, and planning support for the FWC-managed areas to enhance management of focal species and the recovery of imperiled species. WCPR program objectives include prioritizing what FWC does for imperiled and focal species on FWC-managed areas; ensuring the actions taken on these areas are part of statewide conservation programs and priorities; and informing others about the work accomplished on lands FWC manages.



The WCPR program helps FWC take a proactive, science-based approach to species management on FWC-managed lands. This approach assesses information from statewide potential habitat models and Population Viability Analysis, and in conjunction with input from species experts and people with knowledge of the area, creates site-specific wildlife assessments for imperiled wildlife species and a select suite of focal species. Staff combines these assessments with area-specific management considerations to develop a wildlife management strategy for the area. Each strategy contains area-specific measurable

objectives for managing priority species and their habitat, prescribes management actions to achieve these objectives, and establishes monitoring protocols to verify progress towards meeting the objectives. By providing FWC managers with information on actions they should undertake, the FWC intends for the strategy to assure the presence and persistence of Florida's endangered and threatened fish and wildlife species (see <http://myfwc.com/media/1515251/Threatened-Endangered-Species.pdf>), as well as select focal species found on the area.

In summary, for FWC-managed areas, the WCPR program helps assess imperiled and focal wildlife species needs and opportunities, prioritize what FWC does for imperiled and focal species, prescribe management actions to aid in species recovery, prescribe monitoring protocols to allow evaluation of the species' response to management, and ensure the information is shared with others. Through the actions of this program, FWC will facilitate fulfilling the needs of focal and imperiled wildlife species on SOFWEA. In the long-term, by implementing these strategies on FWC-managed lands and continuing to assess wildlife species' needs, FWC will continue to play an integral role in aiding the recovery of imperiled species and preventing the future imperilment of declining wildlife species.

The FWC held a WCPR workshop for the SOFWEA in December 2014. After incorporating input from a review by experts, subsequently the WCPR Strategy was reviewed and approved by FWC in July 2015. Using statewide landcover-based habitat models, the SOFWEA WCPR Strategy identifies 16 focal species as having potential habitat on the area. Of the focal species identified as having habitat on the area, the SOFWEA WCPR Strategy provides measurable objectives or recommends some level of monitoring for gopher frog, striped newt, Florida pine snake, gopher tortoise, Bachman's sparrow, brown-headed nuthatch, Cooper's hawk, Florida sandhill crane, Florida mouse, Florida scrub-jay, northern bobwhite, red-cockaded woodpecker, short-tailed hawk, southern bald eagle, swallow-tailed kite, wading birds, and Sherman's fox squirrel. Limited opportunity species included Florida black bear, snail kite, and the burrowing owl.

During the previous planning period the FWC also conducted several gopher tortoise surveys and the installation of a bat house. In addition, FWC implemented a gopher tortoise restocking project on SOFWEA in order to augment the existing population as a result of a significant gopher tortoise population decline that occurred on the area as a result of an upper respiratory or similar pathogen infecting the population there. Initially, the gopher tortoises are located within a confined area of habitat until they are adapted to the area. Relocation monitoring is ongoing for these animals. Upon a determination that sufficient adaptation to the area has occurred their confinement will be discontinued and they will be free to roam the area at that time. This restocking project along with other

ongoing imperiled species management activities will be continue to be implemented in accordance with the SOFWEA WCPR Strategy.

The FWC will continue to implement the SOFWEA WCPR Strategy (Appendix 13.6). The FWC will also continue to review and revise this document as appropriate.

Table 14. Focal Species Identified as Having Potential Habitat on the SOFWEA

| Common Name | Scientific Name |
|-------------------------------|---------------------------------------|
| Bachman’s sparrow | <i>Peucaea aestivalis</i> |
| Brown-headed nuthatch | <i>Sitta pusilla</i> |
| Burrowing owl | <i>Athene cunicularia floridana</i> |
| Cooper’s hawk | <i>Accipiter cooperii</i> |
| Crested caracara | <i>Caracara cheriway</i> |
| Florida black bear | <i>Ursus americanus floridanus</i> |
| Florida mottled duck | <i>Anas fulvigula</i> |
| Florida mouse | <i>Podomys floridanus</i> |
| Florida pine snake | <i>Pituophis melanoleucus mugitus</i> |
| Florida sandhill crane | <i>Grus canadensis pratensis</i> |
| Florida scrub-jay | <i>Aphelocoma coerulescens</i> |
| Gopher frog | <i>Lithobates capito</i> |
| Gopher tortoise | <i>Gopherus polyphemus</i> |
| Limpkin | <i>Aramus guarauna</i> |
| Northern bobwhite | <i>Colinus virginianus</i> |
| Red-cockaded woodpecker | <i>Picoides borealis</i> |
| Sherman’s fox squirrel | <i>Sciurus niger shermani</i> |
| Short-tailed hawk | <i>Buteo brachyurus</i> |
| Snail kite | <i>Rostrhamus sociabilis plumbeus</i> |
| Southeastern American kestrel | <i>Falco sparverius paulus</i> |
| Southern bald eagle | <i>Haliaeetus leucocephalus</i> |
| Striped newt | <i>Notophthalmus perstriatus</i> |
| Swallow-tailed kite | <i>Elanoides forficatus</i> |

5.5 Exotic and Invasive Species Maintenance and Control

The FWC will continue efforts to control the establishment and spread of Florida Exotic Pest Plant Council (FLEPPC) Category I or II plants on SOFWEA. Control technologies may include mechanical, chemical, biological, and other appropriate treatments.

Treatments utilizing herbicides will comply with instructions found on the herbicide label and employ the Best Management Practices for their application.

Exotic and invasive plant species known to occur on the SOFWEA and treated annually by FWC include alligatorweed, Brazilian pepper, Caesar's weed, camphor tree, Chinaberry, Chinese tallowtree, citrus tree, cogongrass, Cuban bulrush, guava, Guineagrass, Heart-of-flame, Lantana, Natalgrass, Old world climbing fern, primrose willow, queen palm, skunk-vine, smutgrass, strawberry guava, sweet viburnum, sword fern, torpedograss, tropical soda apple, and vaseygrass. Exotic and invasive plant species have been identified as occurring at varying densities on approximately 100 acres of the SOFWEA. However, the FWC's methodology for determining the number of acres "infested" with invasive exotic plants only represents a cumulative acreage, and does not reflect the degree of the invasive exotic occurrence. The degree of infestation among areas identified with invasive exotic plant occurrences often varies substantially by species, level of disturbance, environmental conditions, and the status of ongoing eradication and control efforts. The FWC will continue to focus treatments on areas identified as having invasive exotic plant occurrences, as well as treating any new occurrences as they are identified through continued monitoring.

During the previous planning period FWC completed exotic species treatments on an as needed basis. Currently, treatment and control of Chinese tallowtree and cogongrass continues to be the predominant exotic invasive plant species management challenge at SOFWEA. The FWC will continue to focus treatments on areas identified as having invasive exotic plant occurrences, as well as treating any new occurrences as they are identified through continued monitoring. Ongoing exotic species challenges are further detailed in Section 8 below.

Additionally, the FWC will continue efforts to control the introduction of exotic and invasive species, as well as pests and pathogens, on the SOFWEA by inspecting any vehicles and equipment brought onto the area by contractors and requiring that they be free of vegetation and dirt. If vehicles or equipment used by contractors are found to be contaminated, they will be referred to an appropriate location to clean the equipment prior to being allowed on the area. This requirement is included in every contract for contractors who are conducting any operational or resource management work on the area. In this way, FWC implements a proactive approach to controlling the introduction of exotic pests and pathogens to the area.

An exotic animal species of concern on the SOFWEA is the feral hog. These animals have high reproductive rates, and when populations reach high densities, feral hogs can significantly degrade natural communities through foraging activity (rooting). The FWC will consult with other regional natural resource managing agencies and private landowners to coordinate feral hog control measures as necessary. Trapping is another

measure that may be implemented to augment ongoing feral hog control efforts and to further reduce the natural community damage and degradation caused by this species.

5.6 Public Access and Recreational Opportunities

The SOFWEA will be managed under a low intensity, multiple-use concept that includes providing opportunities for fish and wildlife-based public outdoor recreation. The recreational activities offered on the SOFWEA include hiking and wildlife viewing.

Authorized recreational uses are managed consistent with the purposes for acquiring the SOFWEA, including promoting habitat conditions critical to meeting the life history requirements of the gopher tortoise, and ensuring the conservation and ecological integrity of the area while managing for low intensity, multiple-uses, thus providing fish and wildlife based public outdoor recreational opportunities for Florida's citizens and visitors.

During the previous planning period FWC completed the public access, recreational and facility improvements on the SOFWEA. The FWC has established and developed hiking trails, kiosks and viewing platforms at Bonnet Pond and Sawgrass Pond on the area, to facilitate wildlife viewing recreational opportunities on the area. Further planned public access facility improvements are detailed in Section 6. Ongoing public access or recreational challenges are addressed in Section 3 above and Section 8 below. The FWC will continue to implement public access recreational and educational opportunities on the area in accordance with the SOFWEA Recreational Master Plan upon its approval and implementation.

5.6.1 Americans with Disabilities Act

When public facilities are developed on areas managed by FWC, every effort is made to comply with the Americans with Disabilities Act (Public Law 101-336). As new facilities are developed, the universal access requirements of this law are followed in all cases except where the law allows reasonable exceptions. Recreation facilities in semi-primitive or primitive zones will be planned to be universally accessible to the degree possible except as allowed by the ADA⁴ where:

1. Compliance will cause harm to historical resources, or significant natural features and their characteristics.
2. Compliance will substantially alter the nature of the setting and therefore the purpose of the facility.
3. Compliance would not be feasible due to terrain or prevailing construction practices.
4. Compliance would require construction methods or materials prohibited by federal or state statutes, or local regulations.

5.6.2 Recreation Master Plan

The FWC has adopted a comprehensive approach to the planning and administration of fish and wildlife resource based public outdoor recreational opportunities at the SOFWEA. To accomplish this, the FWC will develop a Recreation Master Plan for the SOFWEA that will be used to further design and develop appropriate infrastructure that will support the recreational use of the area by the general public. This Recreation Master Plan will include planning for parking, trail design, and area resource interpretation. The plan will also include the Florida National Scenic Trail that will cross the SOFWEA from north to south and the opening of a relocated public access point on the south end of the SOFWEA in Osceola County.

5.6.3 Public Access Carrying Capacity

Baseline carrying capacities for users on FWC-managed lands are established by conducting a site specific sensitivity analysis using available data for the site. The intent of the carrying capacity analysis is to minimize wildlife and habitat disturbance and provide the experience of being “immersed in nature” that visitors to FWC-managed areas desire. Carrying capacities are just a first step; management of recreational use requires a means of monitoring visitor impacts. Responding to these impacts may require adjusting the carrying capacities as necessary. The carrying capacities generated through this process are used as a tool to help plan and develop public access, wildlife viewing, and fish and wildlife resource based public outdoor recreation opportunities.

Based on an analysis of the overall approved uses and supported public access user opportunities, and the anticipated proportional visitation levels of the various user groups, the FWC has determined that the SOFWEA can currently support 162 visitors per day. However, visitation to SOFWEA is currently minimal, which provides excellent opportunities for quiet and solitude while viewing the area’s wildlife.

Importantly, public access carrying capacities are not developed to serve as a goal for expanding the public use of a particular area to match the established carrying capacity. Rather, they are developed to establish maximum thresholds for public use of the respective area in order to protect the natural and historical resources on the SOFWEA and to ensure that visitors will have a high-quality visitor experience. The public access carrying capacity will be periodically reevaluated, and additional capacity may be contemplated as part of the Recreation Master Plan implementation process.

5.6.4 Wildlife Viewing

The SOFWEA is home to a variety of resident wildlife found within its flatwoods, scrub, and other natural communities. The SOFWEA’s size and variety of habitat types, create outstanding wildlife viewing opportunities. Additionally, wildlife viewing opportunities are

projected to increase upon the completion of planned improvements for public access and wildlife viewing outlined in Section 6.9 of this draft plan.

5.6.5 Hunting

Hunting is prohibited on the SOFWEA. However, hunting opportunities are offered on nearby public lands.

5.6.6 Fishing

Fishing is authorized year-round at the SOFWEA. However, fishing opportunities on the SOFWEA are limited.

5.6.7 Boating

Boating is prohibited on the SOFWEA in accordance with the purpose of acquisition covenants on the area. However, boating opportunities are offered on nearby public lakes and streams.

5.6.8 Trails

Currently, the SOFWEA offers nearly seven and a half miles of designated trails and nearly 10.7 miles of undesignated trails. The inclusion of the Florida National Scenic Trail to the trail inventory is anticipated to also utilize existing trails.

5.6.8.1 Bicycling

Bicycling is prohibited on the SOFWEA. However, bicycling opportunities are offered on nearby public lands.

5.6.8.2 Equestrian

Horseback riding is authorized through a permit only process on the SOFWEA.

5.6.9 Camping

Camping is prohibited on the SOFWEA. However, camping opportunities are offered on nearby public lands.

5.6.10 Geocaching

Geocaching, also known as Global Positioning System (GPS) Stash Hunt and GeoStash, is a contemporary combination of orienteering and scavenger hunting generally utilizing a GPS receiver unit. Geocache websites routinely promote good stewardship. However, the potential exists for resource damage, user conflicts, or safety issues caused by inappropriately placed caches and/or links that do not provide adequate information about the area.

It is the policy of the FWC to allow placement of geocaches only in those locations that do not present the potential for resource damage, user conflicts, or threats to the safety of the activity participants. The placement of geocaches on FWC-managed lands is governed by specific guidelines. These guidelines may be found on the following FWC website: [http://myfwc.com/media/1074886/FWC Geocache Guidelines.pdf](http://myfwc.com/media/1074886/FWC_Geocache_Guidelines.pdf).

5.7 Hydrological Preservation and Restoration

5.7.1 Hydrological Assessment

The FWC will conduct or obtain a hydrological assessment of the area to identify potential hydrology restoration needs on the SOFWEA.

5.8 Forest Resource Management

Pursuant to OBVM management goals, the FWC will continue to manage timber resources for wildlife benefits and natural community restoration. Management activities including the use of timber thinning and harvesting may be utilized. Reforestation techniques often vary depending on the natural community characteristics and species composition of the area. One of the primary management techniques for reforestation involves regeneration harvests of off-site pine species once they reach merchantable pulpwood size and then replanting with a naturally occurring pine species for the area, however it has been determined that SOFWEA does not have any off-site pine species that require these reforestation management techniques. Another often used technique is to conduct a series of thinning operations gradually to reduce the pine basal area to 30-40 sq. ft./acre and then under-plant sites with an appropriate pine species to increase the uneven-aged character of the stands, overstory structure, and species diversity. However, the current density of pine forests on the SOFWEA indicate that such timber thinning activities will not be necessary in the near future.

Forested wetlands are managed for stands with old growth characteristics. Snags will be protected to benefit cavity-nesting species.

A Timber Assessment, was conducted by the Florida Forest Service in November, 2016 (Appendix 13.13). The management of timber resources will be considered in the context of this Timber Assessment, and the overall land management goals and activities. Also, the FWC will continue to consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate.

5.9 Historical Resources

Procedures outlined by the Florida Department of State's Division of Historical Resources (DHR) will be followed to preserve archaeological and historical resources. The FWC will

continue to consult with the DHR in an attempt to locate and preserve any historical or archaeological features on the area. As necessary, the FWC will also contact professionals from the DHR for assistance prior to any ground-disturbing activity on the area.

The DHR Master Site File indicates that there are no recorded archaeological sites within the boundaries of the SOFWEA. However, the FWC will coordinate with DHR to assess the need for conducting a cultural resource survey.

As a part of the objectives of this management plan, the FWC will ensure that management staff receive Archaeological Resource Management (ARM) training. Furthermore, the FWC will ensure all known sites are recorded in the DHR Master Site File.

5.10 Capital Facilities and Infrastructure

The FWC's land management philosophy is designed to conserve the maximum amount of wildlife habitat while providing the minimal number of capital facilities and infrastructure necessary to effectively conduct operational and resource management activities, and provide ample opportunities for fish and wildlife resource based public outdoor recreation. For these reasons, planned capital facilities and infrastructure will focus on improving access, recreational potential, hydrology, or other resource and operational management objectives.

Current capital facilities and infrastructure on SOFWEA include two observation decks, two kiosks, approximately 7.5 miles of designated trails, and 10.7 miles of undesignated trails. Two trailhead entrances, with parking, are located on the western boundary in Orange County and on the southern boundary in Osceola County.

As described in Section 6.9 of this Management Plan, for any public facilities that are developed on areas managed by FWC, every effort is made to comply with the Americans with Disabilities Act (Public Law 101-336).

5.11 Land Conservation and Stewardship Partnerships

The FWC utilizes a three-tiered approach to identifying, acquiring or otherwise protecting important conservation lands adjacent to or in proximity to existing FWC-managed areas. This involves development of an Optimal Resource Boundary (ORB), Optimal Conservation Planning Boundary (OCPB) and associated Conservation Action Strategy (CAS).

Increasingly, cooperative land steward partnership efforts with private landowners plays an integral role in this effort as does ongoing land conservation, either through fee-simple or less-than-fee conservation easements. In combination, this tiered model helps FWC to further the regional conservation of important fish and wildlife habitats through a proactive, comprehensive, and cooperative approach towards conservation.

5.11.1 Optimal Resource Boundary

This three tiered model begins with the development of an ORB, which is a resource-based analysis on a regional scale that integrates important FWC conservation research and analysis into practical planning, acquisition, and management efforts through GIS analysis. The ORB focuses on critical and important wildlife species or habitat considerations such as rare and imperiled species habitat within a particular region or ecosystem-like area on a landscape scale within which an FWC managed area is contained while eliminating urban areas or lands that have already been conserved or protected.

5.11.2 Optimal Conservation Planning Boundary

The second tier is known as the OCPB. The OCPB combines the regional natural resources identified in the ORB, as well as regional and local area conservation planning, including habitat conservation and restoration, habitat linkages, management challenges, land use and zoning issues, infrastructure including roads and developments, improving access, eliminating inholdings, providing prescribed burn buffers, resolving boundary irregularities, water resource protection, and conserving other important natural and historical resources.

The OCPB provides the basis for development of a broader CAS for SOFWEA. Although the OCPB provides the basis for potential future voluntary, willing-seller conservation acquisitions, it is designed to function primarily as a conservation planning boundary. The OCPB identifies surrounding lands and natural resources that may be important to the continued viability of fish and wildlife populations in the region. As they are currently managed, these lands appear to contribute to regional conservation and may support conservation landscape linkages.

5.11.3 Conservation Action Strategy

The CAS is the third tier, and implements the results of the ORB and OCPB tiers. This element of the process incorporates the conservation planning recommendations into an action strategy that prioritizes conservation needs. The CAS is integral to the development of conservation stewardship partnerships and also implements the current approved process for establishing the FWC Florida Forever Inholdings and Additions acquisition list.

Primary components of the CAS may include:

- FWC Landowner Assistance Program
- FWC conservation planning
- FWC Additions and Inholdings Program Land Conservation Work Plan
- Forest Stewardship Program proposals
- Florida Forever project proposals and boundary modifications
- Conservation easements

- Federal or State grant conservation proposals
- Regional or local conservation proposals
- Local, state, and federal planning proposals
- Non-governmental organization conservation proposals
- Roadway mitigation proposals

Continued conservation of these lands may be aided by available voluntary landowner stewardship programs, conservation easements, and in some cases, potential voluntary conservation acquisitions. Participation in any FWC conservation effort is entirely voluntary and at the sole choice of willing landowners.

Private landowners seeking assistance with habitat management will likely find it offered within FWC's Landowner Assistance Program (LAP). The FWC employs biologists who are available to provide wildlife-related assistance with land-use planning and habitat management. There are many forms of assistance that include technical, financial, educational, and various forms of recognition that seek to award landowners who manage their wildlife habitat responsibly. More information on FWC's LAP program and online habitat management tools are available online at: <http://myfwc.com/conservation/special-initiatives/lap/> .

5.11.4 FWC Florida Forever Additions and Inholdings Acquisition List

Currently, FWC has identified no potential additions or privately held inholdings for SOFWEA. Upon completion of the CAS, additions to the FWC Florida Forever Additions and Inholdings acquisition list may be recommended.

5.12 Research Opportunities

The FWC intends to cooperate with researchers, universities, and others as feasible and appropriate. For SOFWEA, the FWC will continue to assess and identify research needs, and pursue research and environmental education partnership opportunities as appropriate. Research proposals involving the use of the area are evaluated on an individual basis. All research activities on SOFWEA must have prior approval by FWC.

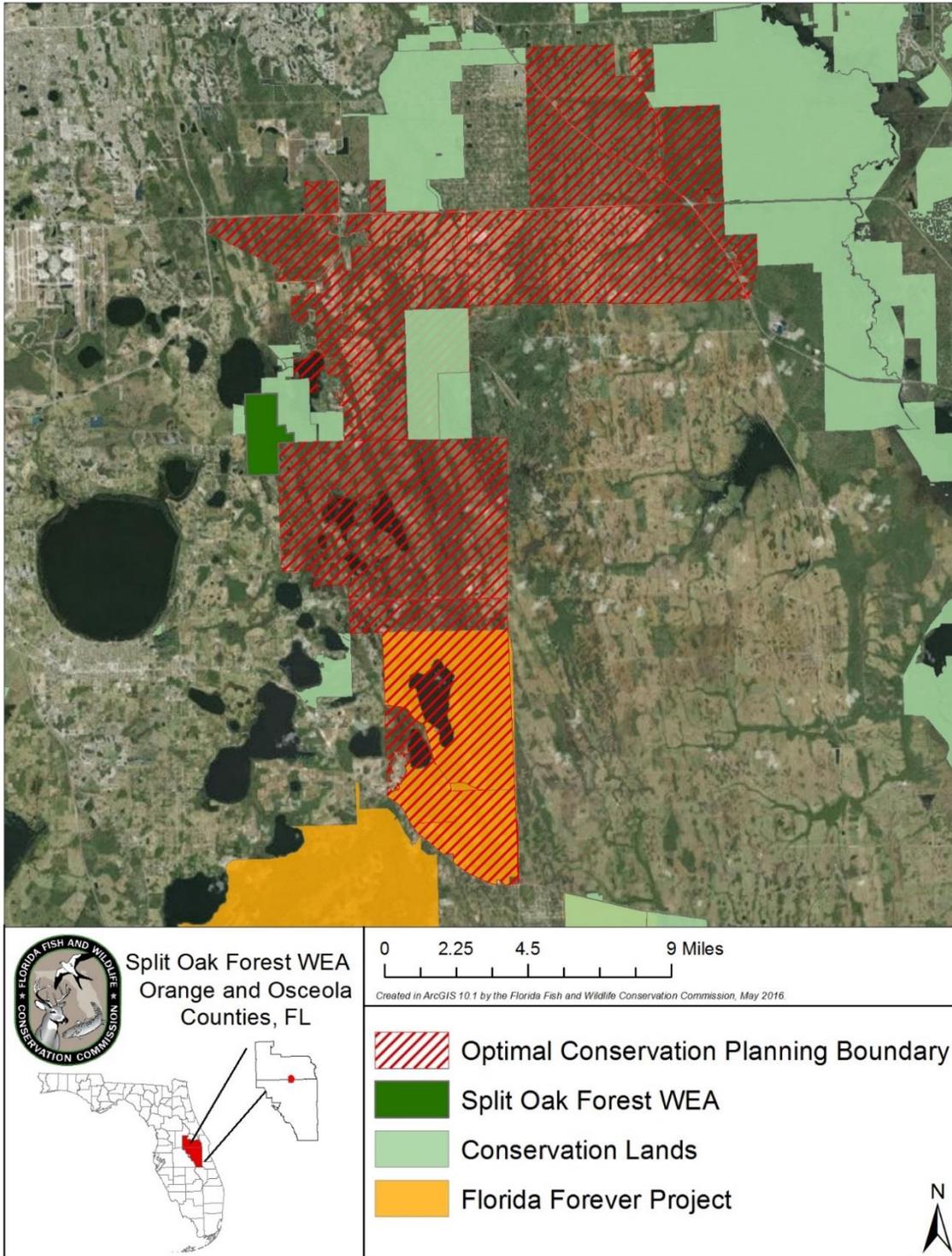


Figure 11. SOFWEA - Optimal Conservation Planning Boundary

5.13 Cooperative Management and Special Uses

5.13.1 Cooperative Management

The FWC is responsible for the overall management and operation of the SOFWEA. The FFS assists the FWC by providing technical assistance on forest resource management. In addition, the FWC cooperates and consults with the DEP and the SFWMD for the monitoring and management of both ground and surface water resources of the SOFWEA.

5.13.2 First Responder and Military Training

First-responder (public governmental police department or agency, fire and emergency medical service personnel) training and military training are conditionally allowed on SOFWEA. Such activities are considered allowable uses only when undertaken intermittently for short periods of time, and in a manner that does not impede the management and public use of SOFWEA, and causes no measurable long-term impact to the natural resources of the area. Additionally, FWC staff must be notified and approve the training through issuance of a permit prior to any such training taking place on SOFWEA. Any first-responder or military training that is not low-impact, intermittent and occasional would require an amendment to this management plan, and therefore will be submitted by FWC to DSL and ARC for approval consideration prior to authorization.

5.13.3 Apiaries

Currently, there are no apiaries operating on SOFWEA. However, use of apiaries is conditionally approved for SOFWEA, and is deemed to be consistent with purposes for acquisition, is in compliance with the Conceptual State Lands Management Plan, and is consistent with the FWC agency mission, goals, and objectives as expressed in the agency Strategic Plan and priorities document (Appendix 13.9). The location, management, and administration of apiaries on SOFWEA will be guided by the FWC Apiary Policy (Appendix 13.10).

5.14 Climate Change

Because of Florida's unique ecology and topography, any potential impacts as a result of climate change may be particularly acute and affect multiple economic, agricultural, environmental, and health sectors across the state. The impact of climate change on wildlife and habitat may already be occurring, from eroding shorelines and coral bleaching to increases in forest fires and saltwater intrusion into inland freshwater wetlands.

The Intergovernmental Panel on Climate Change (IPCC), a multi-national scientific body, reports that climate change is likely proceeding at a rate where there will be unavoidable impacts to humans, wildlife, and habitat. Given current levels of heat-trapping greenhouse gas emissions, shifts in local, regional, and national climate patterns including changes in

precipitation, temperature, increased frequency and intensity of extreme weather events, rising sea levels, tidal fluctuations, and ocean acidification are projected . The current trend of global temperature increase has appeared to accelerate in recent decades, and continued greenhouse gas emissions may result in projected global average increases of 2 – 11.5° F by the end of the century.⁵

This apparent change in global climate has the potential to disrupt natural processes; in some areas, climate change may cause significant degradation of ecosystems that provide services such as clean and abundant water, sustainable natural resources, protection from flooding, as well as hunting, fishing and other recreational opportunities. Consequently, climate change is a challenge not only because of its likely direct effects, but also because of its potential to amplify the stress on ecosystems, habitats, and species from existing threats such as exponential increases in surface and ground water use, habitat loss due to increased urbanization, introduction of invasive species, and fire suppression.

Potential impacts that may be occurring as a result of climate change include: change in the timing of biological processes, such as flowering, breeding, hibernation, and migration;^{6, 7, 8} more frequent invasions and outbreaks of exotic invasive species;⁹ and loss of habitat in coastal areas due to sea level rise.¹⁰ Some species are projected to adjust to these conditions through ecological or evolutionary adaptation, whereas others are projected to exhibit range shifts as their distributions track changing climatic conditions. Those species that are unable to respond to changing climatic conditions are projected to go extinct. Some estimates suggest that as many as 20% - 30% of the species currently assessed by the IPCC are at risk of extinction within this century if global mean temperatures exceed increases of 2.7 – 4.5° F.¹¹ A number of ecosystems are projected to be affected at temperature increases well below these levels.

At this time, the potential effects of climate change on Florida’s conservation lands are just beginning to be studied and are not yet well understood. For example, FWC has begun a process for currently developing climate change adaptation strategies for monitoring, evaluating, and determining what specific actions, if any, may be recommended to ameliorate the projected impacts of climate change on fish and wildlife resources, native vegetation, and the possible spread of exotic and invasive species. Currently, FWC is continuing its work on the development of these potential adaptation strategies. However, as noted above, the effects of climate change may become more frequent and severe within the time period covered by this Management Plan.

For these reasons, there is a continuing need for increased information and research to enable adaptive management to cope with potential long-term climate change impacts. The most immediate actions that FWC can take are to work with partners to gather the best

scientific data possible for understanding natural processes in their current state, model possible impacts and subsequent changes from climate change, develop adaptive management strategies to enhance the resiliency of natural communities to adapt to climate change, and formulate criteria and monitoring for potential impacts when direct intervention may be necessary to protect a species. To this end, when appropriate, FWC will participate in organizations such as the Peninsular Florida Land Conservation Cooperative or similar organizations so that FWC continues to gain understanding and share knowledge of key issues related to potential climate change. In addition, FWC will consider the need for conducting vulnerability assessments to model the potential effects of climate change, especially sea level rise and storm events, on imperiled species and their habitats on FWC managed land.

Elements of climate change that may potentially affect the SOFWEA include more frequent and more potent storm events, alteration of vegetation reproductive cycles, the spread of exotic species, and changes in the fire regime. To address the potential impacts of climate change on the SOFWEA, goals and objectives have been developed as a component of this Management Plan. Depending on the recommendations of the adaptive management strategies described above, additional specific goals and objectives to mitigate potential climate change impacts may be developed for the SOFWEA Management Plan in the future.

To address the potential impacts of climate change on the SOFWEA, Goals and Objectives have been developed as a component of this Management Plan (Section 6.12). Depending on the recommendations of the adaptive management strategies described above, additional specific goals and objectives to mitigate potential climate change impacts may be developed for the SOFWEA Management Plan in the future.

5.15 Soil and Water Conservation

Soil disturbing activities will be confined to areas that have the least likelihood of experiencing erosion challenges. On areas that have been disturbed prior to acquisition, an assessment will be made to determine if soil erosion is occurring, and if so, appropriate measures will be implemented to stop or control the effects of this erosion.

6 Resource Management Goals and Objectives

The management goals described in this section are considered broad, enduring statements designed to guide the general direction of management actions to be conducted in order to

achieve an overall desired future outcome for SOFWEA. The objectives listed within each management goal offer more specific management guidance and measures, and are considered the necessary steps to be completed to accomplish the management goals. Many of the objectives listed have specific end-of-the-calendar-year target dates for completion and all of them are classified as having either short-term (less than two years) or long-term (up to ten years) timelines for completion.

6.1 Habitat Restoration and Improvement

Goal: Improve extant habitat and restore disturbed areas.

Short-term (TWO YEARS)

- 6.1.1** Conduct prescribed burning on 400 acres of fire adapted communities per year.
- 6.1.2** Maintain 800 acres of fire adapted communities (50%) within 4-8 year target fire return interval.
- 6.1.3** Develop and implement a prescribed burn plan.
- 6.1.4** Conduct habitat/natural community improvement on 135 acres per year including roller chopping and mowing, on pasture, scrubby flatwoods, mesic flatwoods, and scrub communities, as appropriate (Figure 12).
- 6.1.5** Conduct habitat/natural community restoration activities on 5 acres to restore to historic sandhill habitat (Figure 12).
- 6.1.6** Continue to implement OBVM.

Long Term (UP TO 10 YEARS)

- 6.1.7** Conduct prescribed burning on 400 acres of fire adapted communities per year.
- 6.1.8** Continue to maintain 1,683 acres of fire adapted communities (95%) per year within target fire return interval.
- 6.1.9** Continue to implement OBVM.
- 6.1.10** Continue to implement the prescribed burn plan.

- 6.1.11 Conduct habitat/natural community improvement on 135 acres per year including roller chopping and mowing, on pasture, scrubby flatwoods, mesic flatwoods, and scrub communities, as appropriate (Figure 12).
- 6.1.12 Continue to conduct habitat/natural community restoration activities on 10 acres to restore to historic sandhill habitat (Figure 12).
- 6.1.13 Conduct thinning on northern wet flatwoods, if prescribed burning does not restore the basal area to established thresholds (Figure 12).

6.2 Imperiled and Focal Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration

Goal: Maintain, improve, or restore imperiled species populations and habitats.

Short-term

- 6.2.1 Continue to implement the WCPR strategy.
- 6.2.2 Monitor 5 imperiled and focal species, including gopher tortoise, brown headed nuthatch, Bachman sparrow, Florida scrub jay, and Florida mouse.
- 6.2.3 As described in the WCPR Strategy, conduct a baseline survey for the Bachman's sparrow and the brown-headed nuthatches on the area.
- 6.2.4 As described in the WCPR Strategy, continue annual monitoring of Florida scrub-jays.
- 6.2.5 Continue to collect opportunistic wildlife species occurrence data. (Gopher frog, Florida pine snake, burrowing owl, Cooper's hawk, crested caracara, Florida black bear, Florida sandhill crane, Florida mottled duck, limpkin, red-cockaded woodpecker, short-tailed hawk, snail kite, Southeastern American kestrel Southern bald eagle, swallow-tailed kite, Sherman's fox squirrel, and wading birds)
- 6.2.6 Conduct a rare plant survey.

Long-term

- 6.2.7 Continue to implement WCPR strategy by managing identified habitats and monitoring identified species.
- 6.2.8 Continue to monitor 5 imperiled and focal species, including gopher tortoise, brown headed nuthatch, Bachman sparrow, Florida scrub jay, and Florida mouse.

- 6.2.9 As described in the WCPR Strategy, conduct a gopher tortoise survey every 5 years on the area.
- 6.2.10 As described in the WCPR Strategy, continue to conduct surveys for the Bachman's sparrow and brown-headed nuthatches every 2-3 years on the area.
- 6.2.11 As described in the WCPR Strategy, continue annual monitoring of Florida scrub-jays.
- 6.2.12 As described in the WCPR Strategy, conduct a Florida mouse survey by 2025.
- 6.2.13 Continue to collect opportunistic wildlife species occurrence data.
(Gopher frog, Florida pine snake, burrowing owl, Cooper's hawk, crested caracara, Florida black bear, Florida sandhill crane, Florida mottled duck, limpkin, red-cockaded woodpecker, short-tailed hawk, snail kite, Southeastern American kestrel Southern bald eagle, swallow-tailed kite, Sherman's fox squirrel, and wading birds)

6.3 Other Wildlife (Game and Nongame) habitat maintenance, enhancement, restoration, or population restoration

Short Term

- 6.3.1 Continue to collect opportunistic wildlife occurrence data.
- 6.3.2 Continue to monitor 1 kestrel nest box.

Long Term

- 6.3.3 Install and monitor one bat box.
- 6.3.4 Install and monitor 10-20 Eastern bluebird nest boxes.
- 6.3.5 Install and monitor 4-6 wood duck boxes.
- 6.3.6 Continue to monitor 1 kestrel nest box.
- 6.3.7 Continue to collect opportunistic wildlife occurrence data.

6.4 Exotic and Invasive Species Maintenance and Control

Goal: Remove exotic and invasive plants and animals and conduct needed maintenance-control.

Short-term

- 6.4.1 Annually treat at least 100 acres of EPPC Category I and Category II invasive exotic plant species. (Caesar weed, cogon grass, heart-of-flame, lantana, skunk-vine, Chinese tallow, tall grass, Old World climbing fern, and other less occurring species that have been identified on the area as listed in Table 6)
- 6.4.2 Implement control measures on one exotic and nuisance animal species (feral hog)
- 6.4.3 Opportunistically monitor other exotic animal species that may occur on the area such as, cattle egret, Cuban tree frog, and green house frog.

Long-term

- 6.4.4 Annually treat at least 100 acres of EPPC Category I and Category II invasive exotic plant species. (Caesar weed, cogon grass, heart-of-flame, lantana, skunk-vine, Chinese tallow, tall grass, Old World climbing fern, and other less occurring species that have been identified on the area as listed in Table 6)
- 6.4.5 Implement control measures on one exotic and nuisance animal species (feral hog)
- 6.4.6 Continue to opportunistically monitor other exotic animal species that may occur on the area such as, cattle egret, Cuban tree frog, and green house frog.

6.5 Public Access and Recreational Opportunities

Goal: Provide public access and recreational opportunities.

Short-term

- 6.5.1 Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 162 visitors per day.
- 6.5.2 Maintain/design/develop 7.5 miles of designated trails and 10.7 undesignated trails, including the Florida National Scenic Trail.
- 6.5.3 Cooperate with other agencies, Orange and Osceola Counties, stakeholders, and regional landowners to investigate regional recreational opportunities including linking hiking, and multi-use trail systems between adjacent public areas (i.e. Florida National Scenic Trail).
- 6.5.4 Maintain a website, three kiosks, trail map, and interpretive panels for interpretation and education

- 6.5.5 Develop the Recreational Master Plan.
- 6.5.6 Monitor trails annually for visitor impacts.
- 6.5.7 Continue to cooperate with the U.S. Forest Service and the Florida Trail Association regarding the potential of relocation of the FNST across SOFWEA.
- 6.5.8 Relocate the south public access in Osceola County to a more seasonally dry location on the south boundary of the SOFWEA

Long-term

- 6.5.9 Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 162 visitors per day.
- 6.5.10 Continue to maintain/design/develop 7.5 miles of designated trails and 10.7 undesignated trails.
- 6.5.11 Continue to provide a website, three kiosks, trail map, and interpretive panels for interpretation and education.
- 6.5.12 Monitor trails annually for visitor impacts.
- 6.5.13 Reassess recreational opportunities every three years.
- 6.5.14 Continue to provide fishing opportunities on appropriate water bodies.
- 6.5.15 Cooperate with other agencies, County, stakeholders, and regional landowners to investigate regional recreational opportunities including linking hiking, and multi-use trail systems between adjacent public areas.
- 6.5.16 Continue to identify partnerships that could provide for environmental educational programs and outreach.

6.6 Hydrological Preservation and Restoration

Goal: Protect water quality and quantity, restore hydrology to the extent feasible, and maintain the restored condition.

Short-term

- 6.6.1 Conduct or obtain a site hydrological assessment to identify potential hydrology restoration needs.

- 6.6.2 To maintain and enhance natural hydrological functions, install and maintain low-water crossings and culverts as appropriate.
- 6.6.3 Continue to cooperate with the SFWMD and DEP for the monitoring of surface and ground water quality and quantity.

Long-term

- 6.6.4 To enhance natural hydrological functions, continue to install and maintain low-water crossings and culverts as appropriate.
- 6.6.5 Implement hydrological restoration plan, as appropriate.
- 6.6.6 Continue to cooperate with the SFWMD and DEP for the monitoring of surface and ground water quality and quantity

6.7 Forest Resource Management

Goal: Manage timber resources to improve or restore natural communities for the benefit of wildlife.

Short-term

- 6.7.1 Cooperate with the FFS to complete a Timber Assessment.
- 6.7.2 Consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate.

Long-term

- 6.7.3 Continue to consult with the FFS or a professional forestry consultant regarding forest management activities as appropriate.

6.8 Cultural and Historical Resources

Goal: Protect, preserve and maintain historical resources.

Short-term

- 6.8.1 Ensure all known sites are recorded in the Florida Division of Historical Resources Master Site file.
- 6.8.2 Coordinate with DHR to assess the need for conducting a historical resource survey.

Long-term

- 6.8.3 Cooperate with DHR in designing site plans for development of infrastructure.
- 6.8.4 Cooperate with DHR to manage and maintain known existing cultural resources.
- 6.8.5 Coordinate with DHR for historical resource management guideline staff training.

6.9 Capital Facilities and Infrastructure

Goal: Develop the capital facilities and infrastructure necessary to meet the goals and objectives of this Management Plan.

Short-term

- 6.9.1 Continue to maintain five facilities (three designated entrances and two observation platforms).
- 6.9.2 Monitor trails and infrastructure annually for visitor impacts.
- 6.9.3 Maintain 7.5 miles of designated trails existing on site and 10.7 of undesignated trails (as applicable) (Figure 12).
- 6.9.4 To improve or repair five facilities, and 7.5 miles of trails and 10.7 of undesignated trails existing on site (as applicable) Figure 12.
- 6.9.5 Improve or repair one facility (one entrance kiosk) (Figure 12).
- 6.9.6 Obtain an updated boundary survey of the area.

Long-term

- 6.9.7 Monitor trails and infrastructure annually for visitor impacts.
- 6.9.8 Continue to maintain five facilities (three designated entrances and two observation platforms).
- 6.9.9 Maintain 7.5 miles of designated trails existing on site and 10.7 of undesignated trails (as applicable) Figure 12
- 6.9.10 To improve or repair five facilities, and 7.5 miles of trails and 10.7 of undesignated trails existing on site (as applicable) Figure 12.
- 6.9.11 Improve or repair four facilities. (2 entrances and 2 observation platforms)

6.10 Land Conservation and Stewardship Partnerships

Goal: Enhance fish and wildlife conservation, resource, and operational management through development of an optimal boundary.

Short-term

- 6.10.1** Identify potential important wildlife habitat, landscape-scale linkages, wildlife corridors, and operational/resource management needs.
- 6.10.2** Identify and develop conservation stewardship partnerships.
- 6.10.3** Identify and pursue conservation acquisition needs.
- 6.10.4** Develop and maintain a GIS shapefile and other necessary data to facilitate nominations from the FWC OCPB and for FWC's LAP and Land Acquisition Programs.
- 6.10.5** Develop a Conservation Action Strategy.
- 6.10.6** Contact and inform adjoining landowners about the FWC Landowners Assistance Program to pursue non-acquisition conservation stewardship, partnerships, and potential conservation easements.
- 6.10.7** Determine which parcels should be added to the FWC acquisition list.
- 6.10.8** Identify potential non-governmental organization partnerships and grant program opportunities.
- 6.10.9** Determine efficacy of conducting an adjacent landowner's assistance/conservation stewardship partnership workshop.
- 6.10.10** Identify potential conservation easements donations.
- 6.10.11** Evaluate and determine if any portions of SOFWEA are no longer needed for conservation purposes, and therefore may be designated as surplus lands.

Long-term

- 6.10.12** To minimize fragmentation of the area, continue to identify strategic parcels to revise the completed OCPB for SOFWEA as appropriate and necessary.
- 6.10.13** Continue to identify and develop conservation stewardship partnerships.
- 6.10.14** Continue to identify and pursue conservation acquisition needs.

- 6.10.15 Continue to maintain a GIS shapefile and other necessary data to facilitate nominations from the FWC OCPB and for the FWC LAP and Land Acquisition Program.
- 6.10.16 Continue to propose nominations of selected properties as additions to the FWC acquisition list.
- 6.10.17 Continue to pursue acquisition of parcels added to the FWC acquisition list as acquisition work plan priorities and funding allow.
- 6.10.18 As feasible, continue to periodically contact and meet with adjacent landowners for willingness to participate in the Conservation Action Strategy, and coordinate landowner assistance/conservation stewardship partnership workshops as deemed appropriate.
- 6.10.19 Coordinate and conduct landowner assistance/conservation stewardship partnership workshop(s) as necessary and appropriate.
- 6.10.20 Continue to identify potential conservation easements donations.
- 6.10.21 Continue to evaluate and determine if any portions of SOFWEA are no longer needed for conservation purposes, and therefore may be designated as surplus lands.

6.11 Cooperative Management and Special Uses

Short Term

- 6.11.1 Continue to cooperate with Orange and Osceola Counties with ongoing management in accordance with the SOFWEA Interagency Partnership Agreement (Appendix 13.1).
- 6.11.2 Continue to cooperate with FDOT, DEP and Orange and Osceola Counties on appropriate mitigation for the proposed extension of Osceola Parkway if it is approved to be routed on the area.
- 6.11.3 Continue to cooperate with Orange and Osceola counties and other law enforcement as appropriate regarding conducting first responder training on the area.
- 6.11.4 Continue to cooperate with DEP regarding compliance with FCT covenants and agreements covering the area.
- 6.11.5 Continue to cooperate with FFS regarding conducting prescribed burning and prescribed burning training.

- 6.11.6 Cooperate with Orange and Osceola counties regarding the development and implementation of the Arthropod Control Plan.
- 6.11.7 Continue to cooperate with North American Butterfly Association on conducting the annual butterfly count on the area.
- 6.11.8 Continue to cooperate and communicate with adjacent landowners regarding ongoing management activities, such as prescribed burning and exotic treatments.
- 6.11.9 Consider applying for available and appropriate grant funding opportunities to enhance conservation and management on the area.

Long Term

- 6.11.10 Continue to cooperate with Orange and Osceola Counties with ongoing management in accordance with the SOFWEA Interagency Partnership Agreement.
- 6.11.11 Continue to cooperate with FDOT, DEP and Orange and Osceola Counties on the potential consideration and appropriate mitigation for the proposed extension of Osceola Parkway if it is approved to be located on the area.
- 6.11.12 Continue to cooperate with Orange and Osceola counties and other law enforcement as appropriate regarding conducting first responder training on the area.
- 6.11.13 Continue to cooperate with DEP regarding compliance with FCT covenants and agreements.
- 6.11.14 Continue to cooperate with FFS regarding conducting prescribed burning and prescribed burning training.
- 6.11.15 Cooperate with Orange and Osceola counties regarding the development and implementation of the Arthropod Control Plan.
- 6.11.16 Continue to cooperate with North American Butterfly Association on conducting the annual butterfly count on the area.
- 6.11.17 Continue to cooperate and communicate with adjacent landowners regarding ongoing management activities, such as prescribed burning and exotic treatments.
- 6.11.18 Consider applying available and appropriate grant funding opportunities to enhance conservation and management on the area.

6.12 Climate Change

Goal: Develop appropriate adaptation strategies in response to projected climate change effects and their potential impacts on natural resources, including fish and wildlife, and the operational management of the SOFWEA.

Long-term

- 6.12.1** Coordinate with FWC-FWRI Climate Change Adaptation Initiative to identify potential impacts of projected climate change on fish and wildlife resources and operational management of the SOFWEA.
- 6.12.2** Incorporate appropriate climate change adaptation strategies into the WCPR for the SOFWEA.
- 6.12.3** As appropriate, update the SOFWEA Prescribed Fire Plan to incorporate new scientific information regarding projected climate change, such as increased frequency of drought, on the fire regime of SOFWEA's fire-adapted habitats.
- 6.12.4** As science, technology, and climate policy evolve, educate natural resource management partners and the public about the agency's policies, programs and efforts to study, document and address potential climate change; assess the need to incorporate public education about climate change into the update of the SOFWEA Recreation Master Plan.

6.13 Research Opportunities

Goal: Explore and pursue cooperative research opportunities.

Long-term

- 6.13.1** Explore and pursue cooperative research opportunities through universities, Fish and Wildlife Research Institute, etc.
- 6.13.2** Continue to cooperate with researchers, universities, and others as appropriate.
- 6.13.3** Continue to assess the need for and pursue research and environmental education partnership opportunities as appropriate.

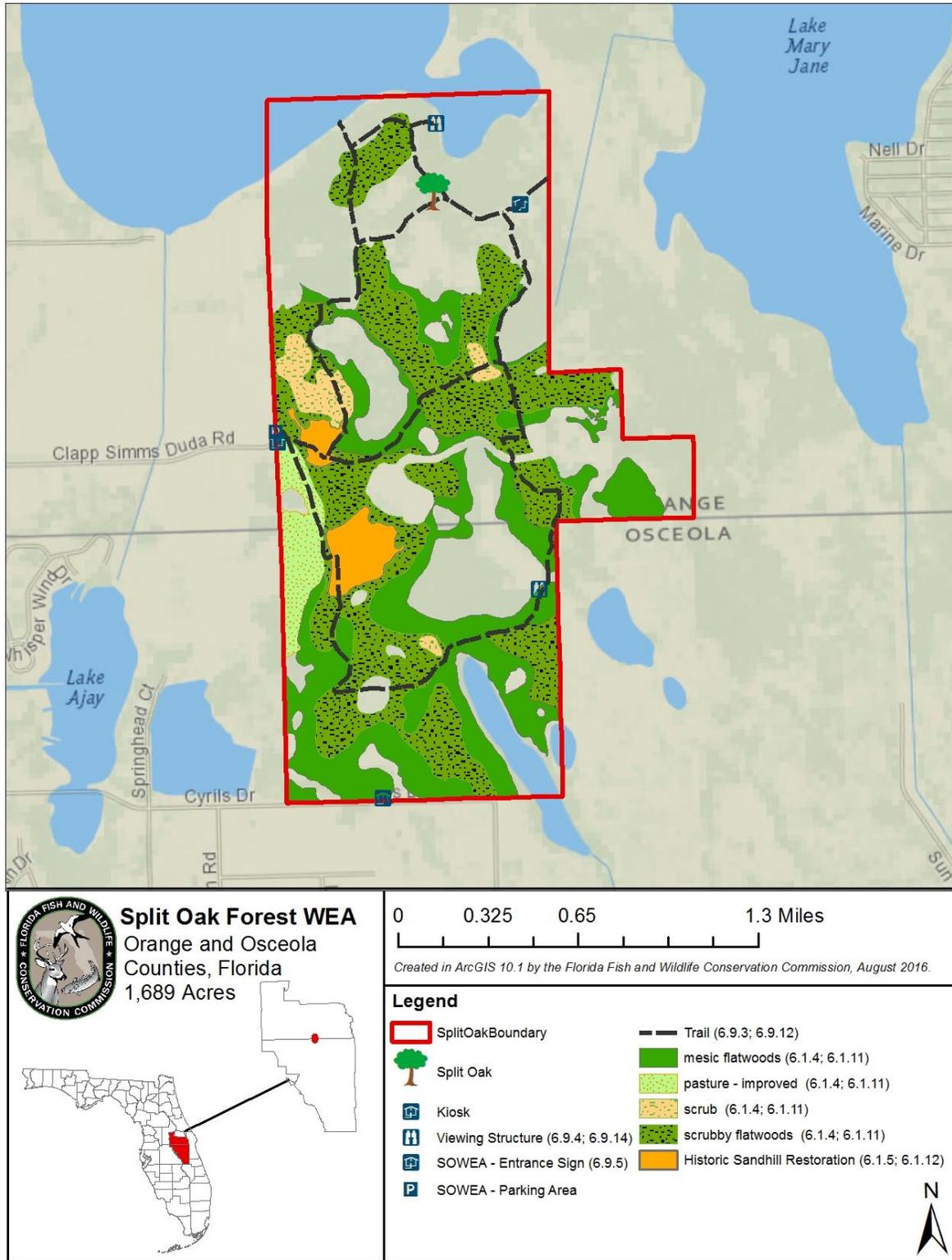
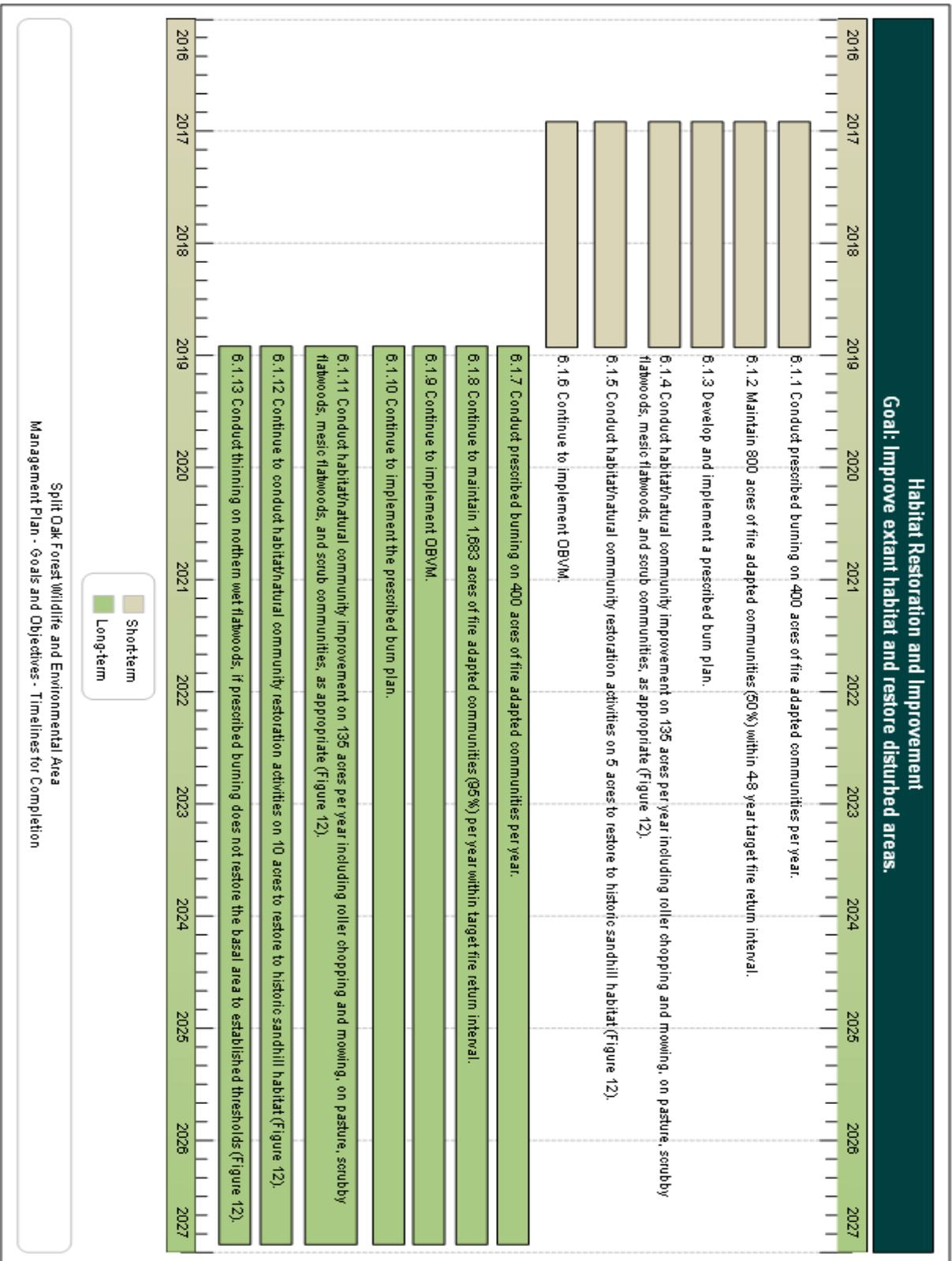
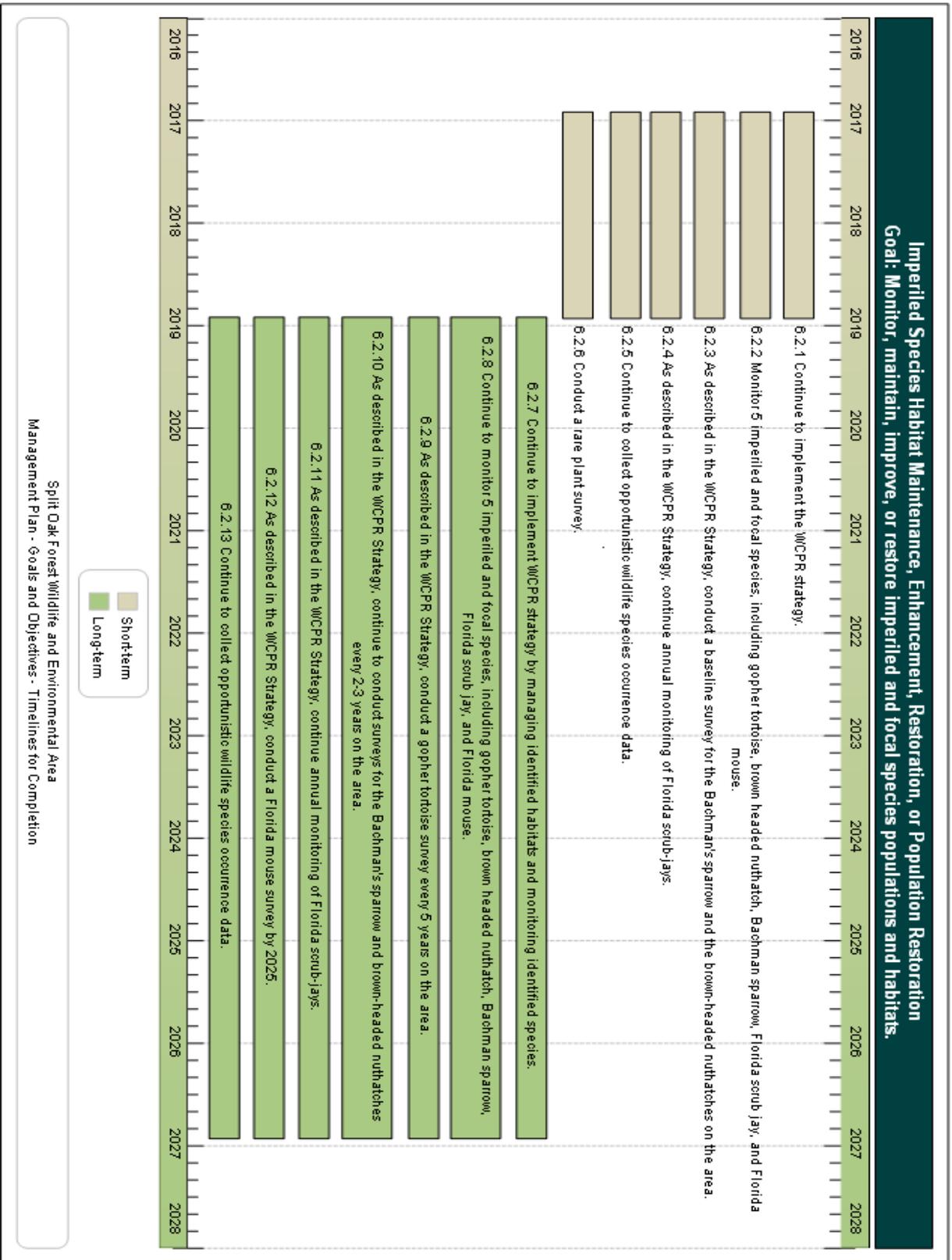


Figure 12. SOFWEA Project Locations

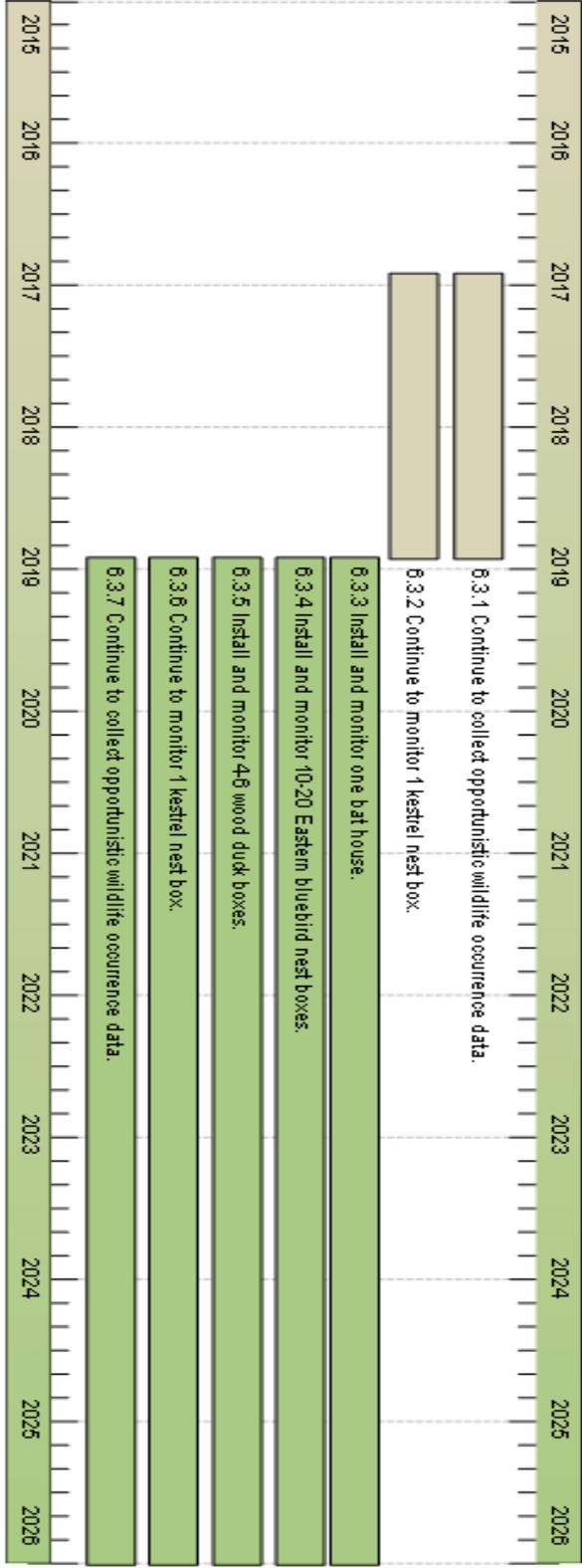
7 Schedule: Timelines for Completion of Resource Management Goals and Objectives

The following section presents the short- and long-term goals and objectives for the management of SOFWEA graphically in a timeline format. These timelines directly reflect the short- and long-term goals and objectives presented above in Section 6.

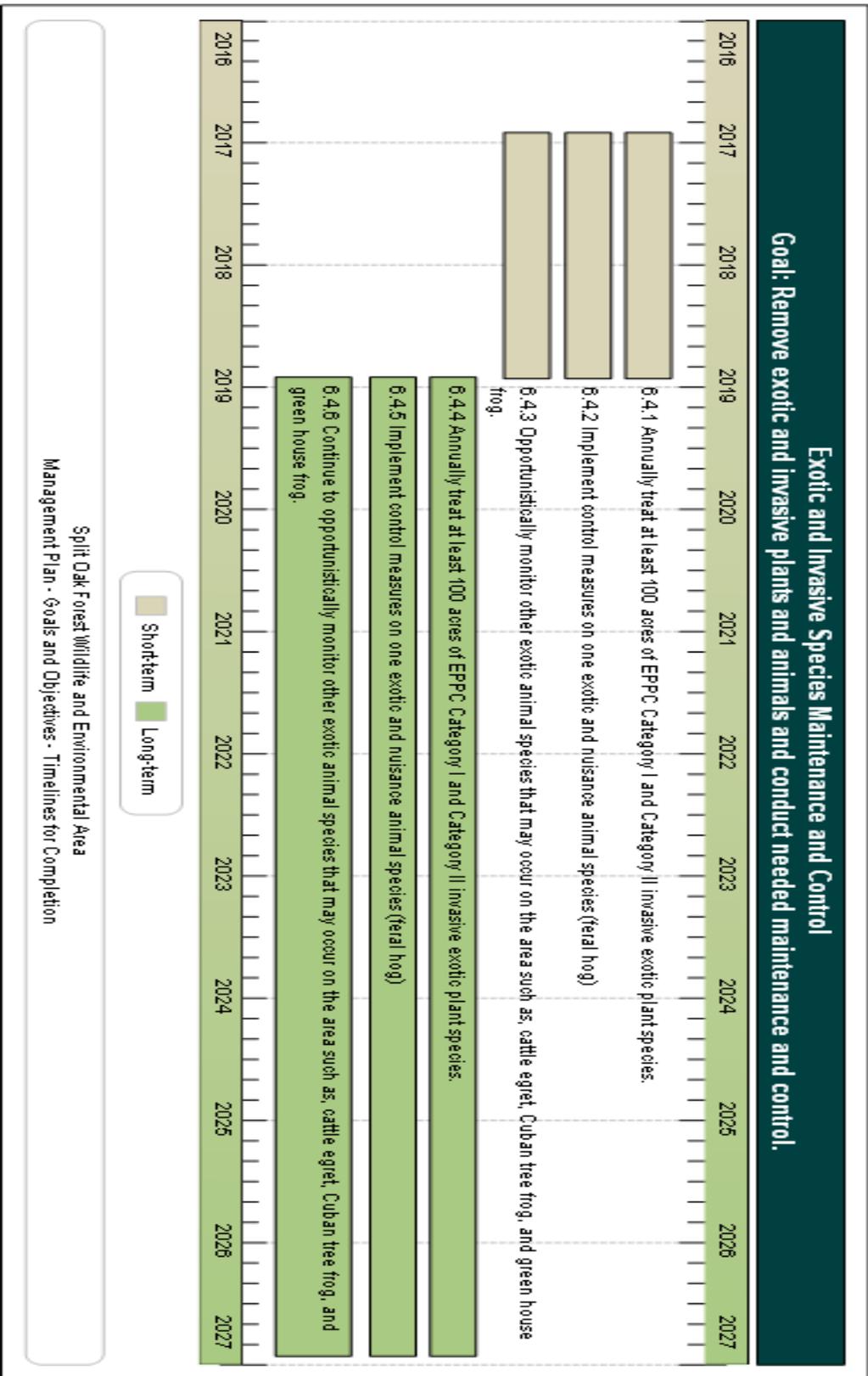


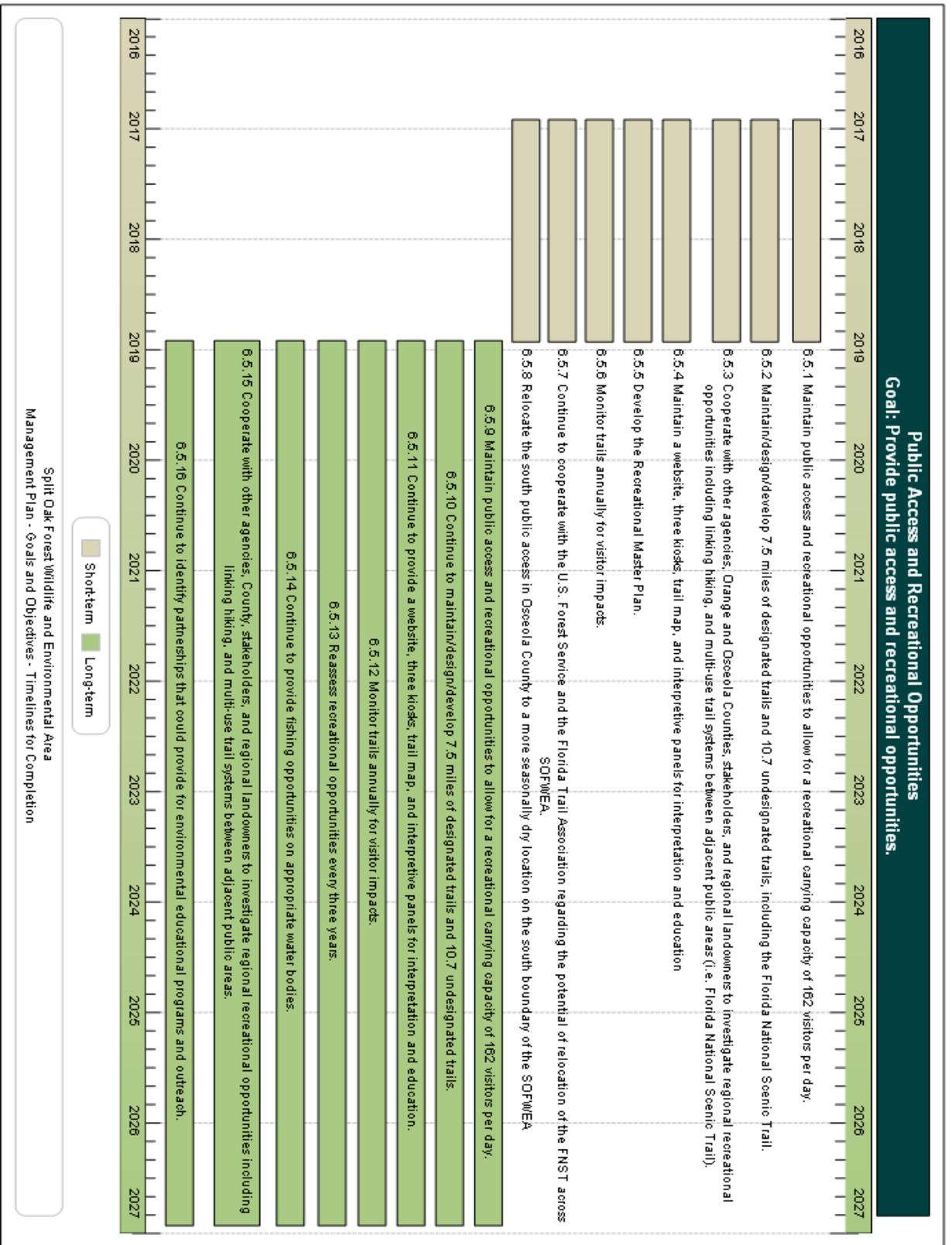


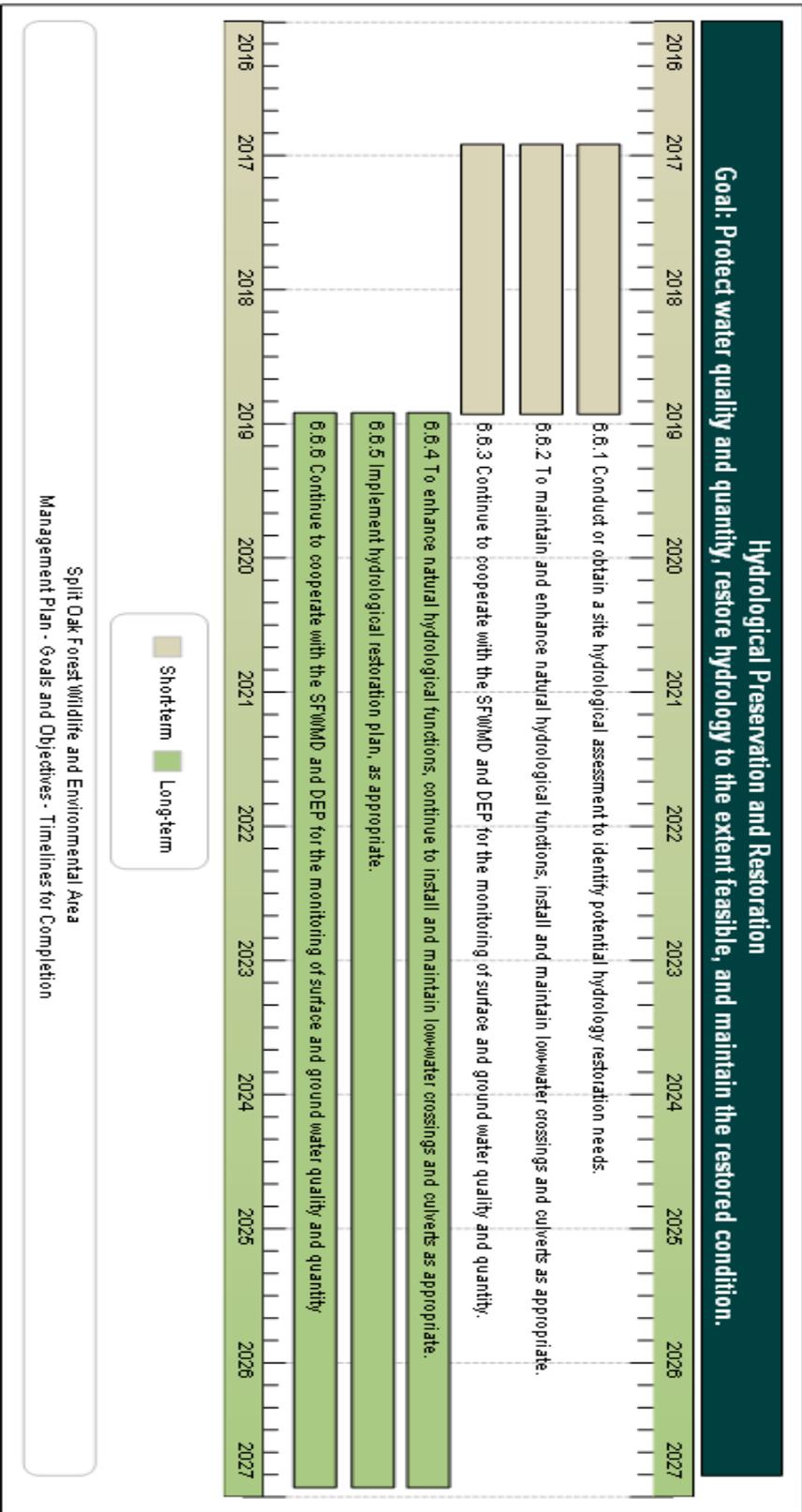
Other Wildlife (Game and Nongame) Habitat Maintenance, Enhancement, Restoration, or Population Restoration
Goal: Monitor, maintain, improve, or restore game and non-game species populations and habitats.

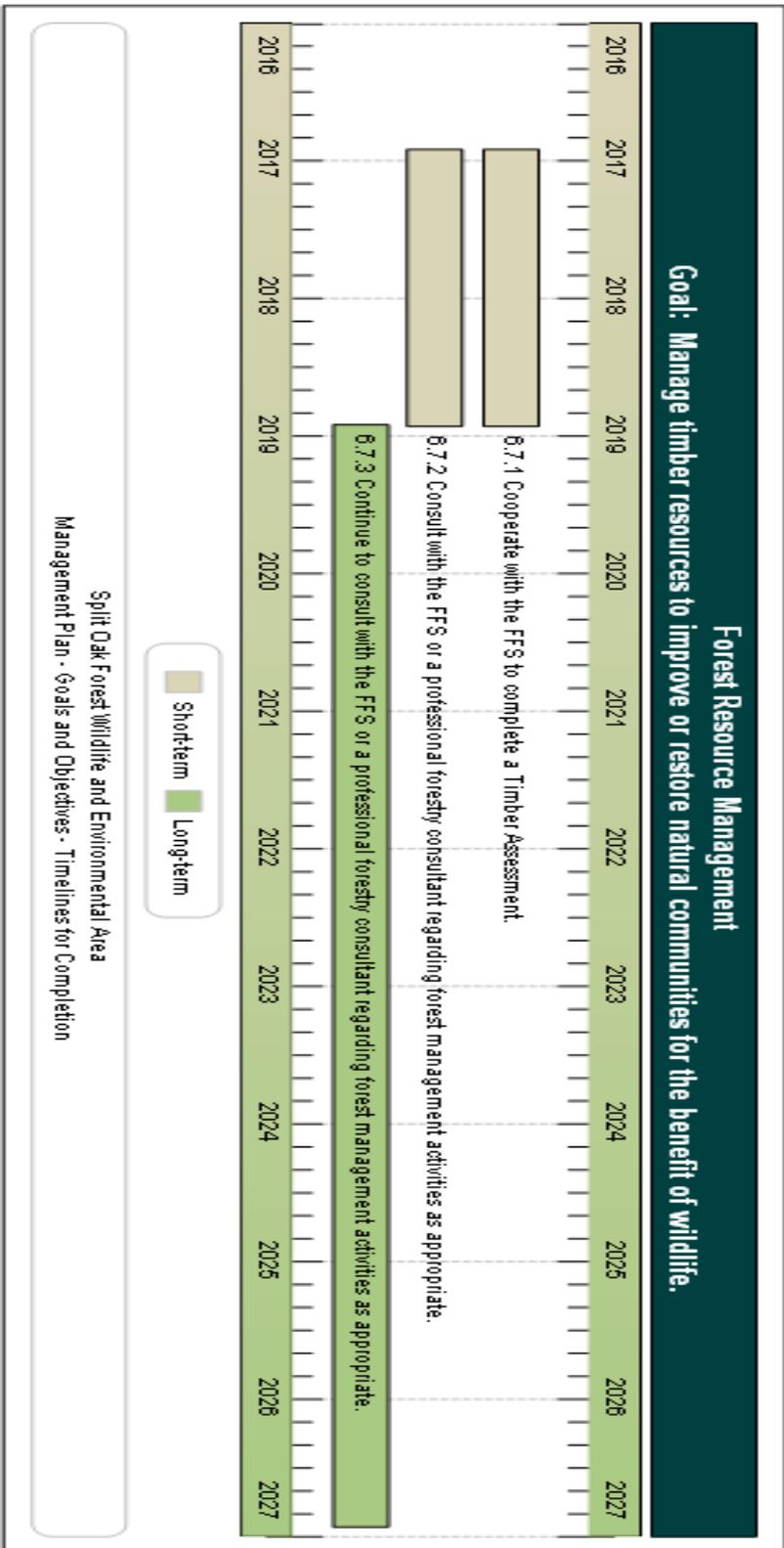


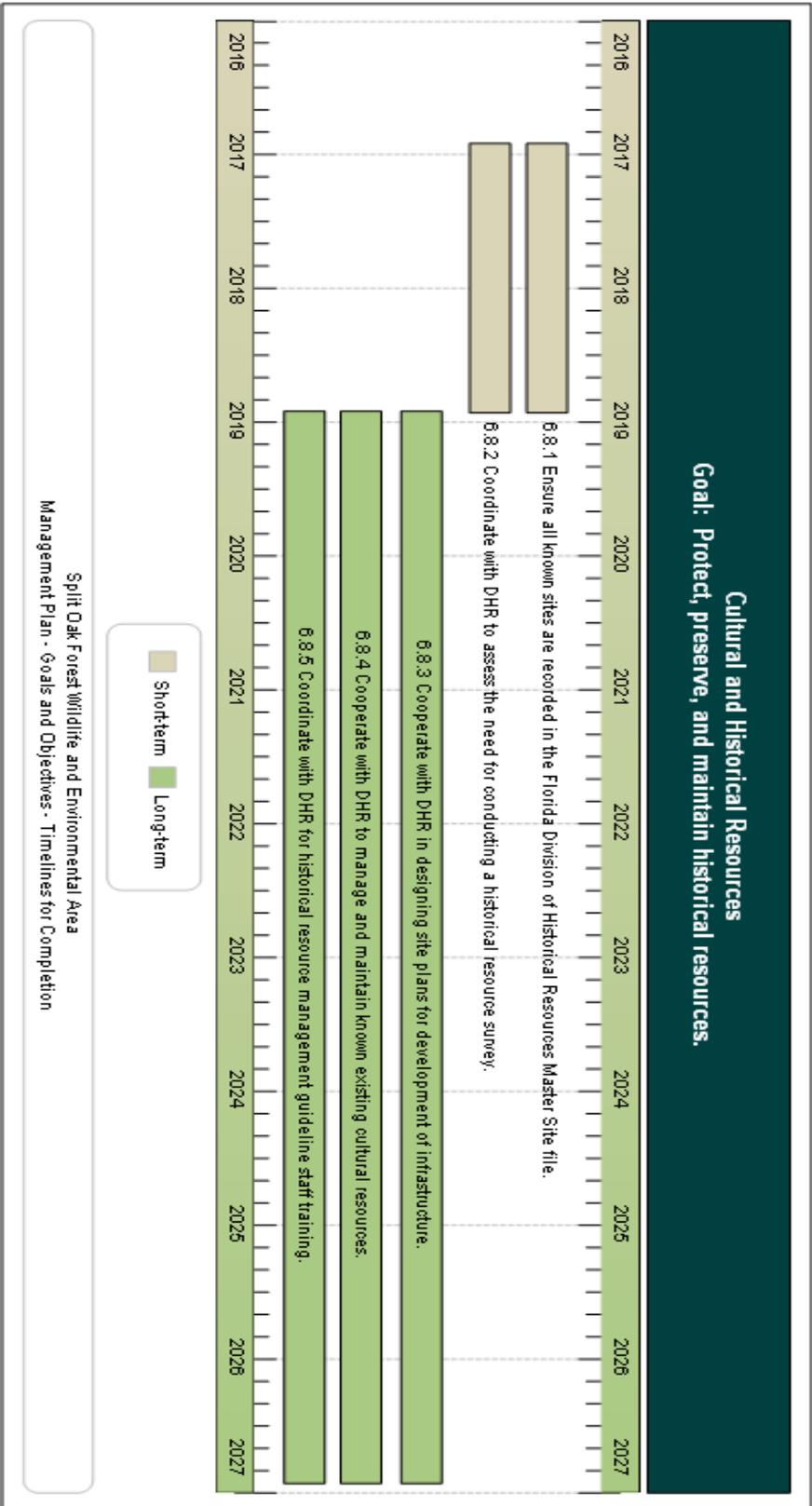
Split Oak Forest Wildlife and Environmental Area
 Management Plan - Goals and Objectives - Timelines for Completion

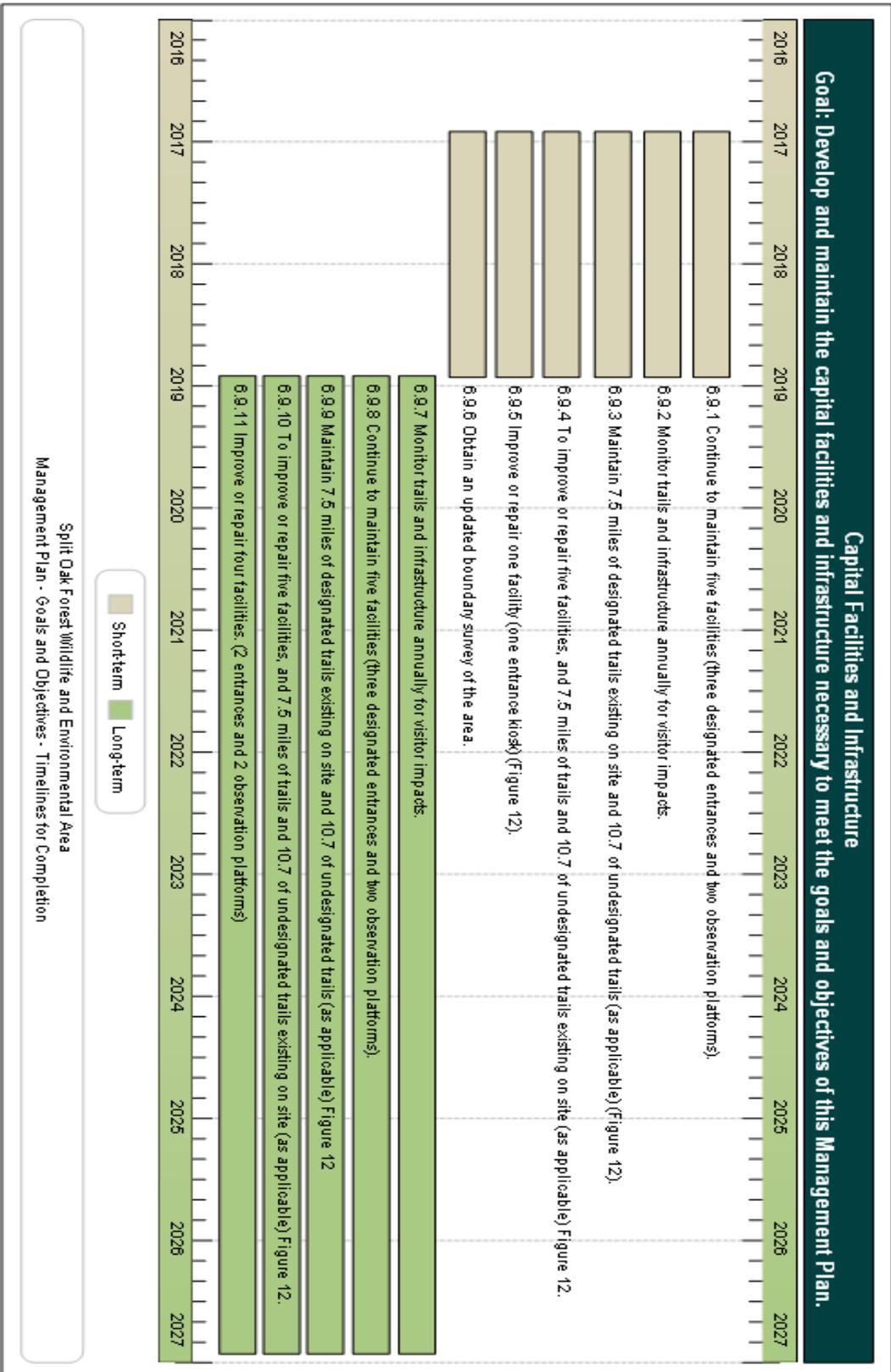




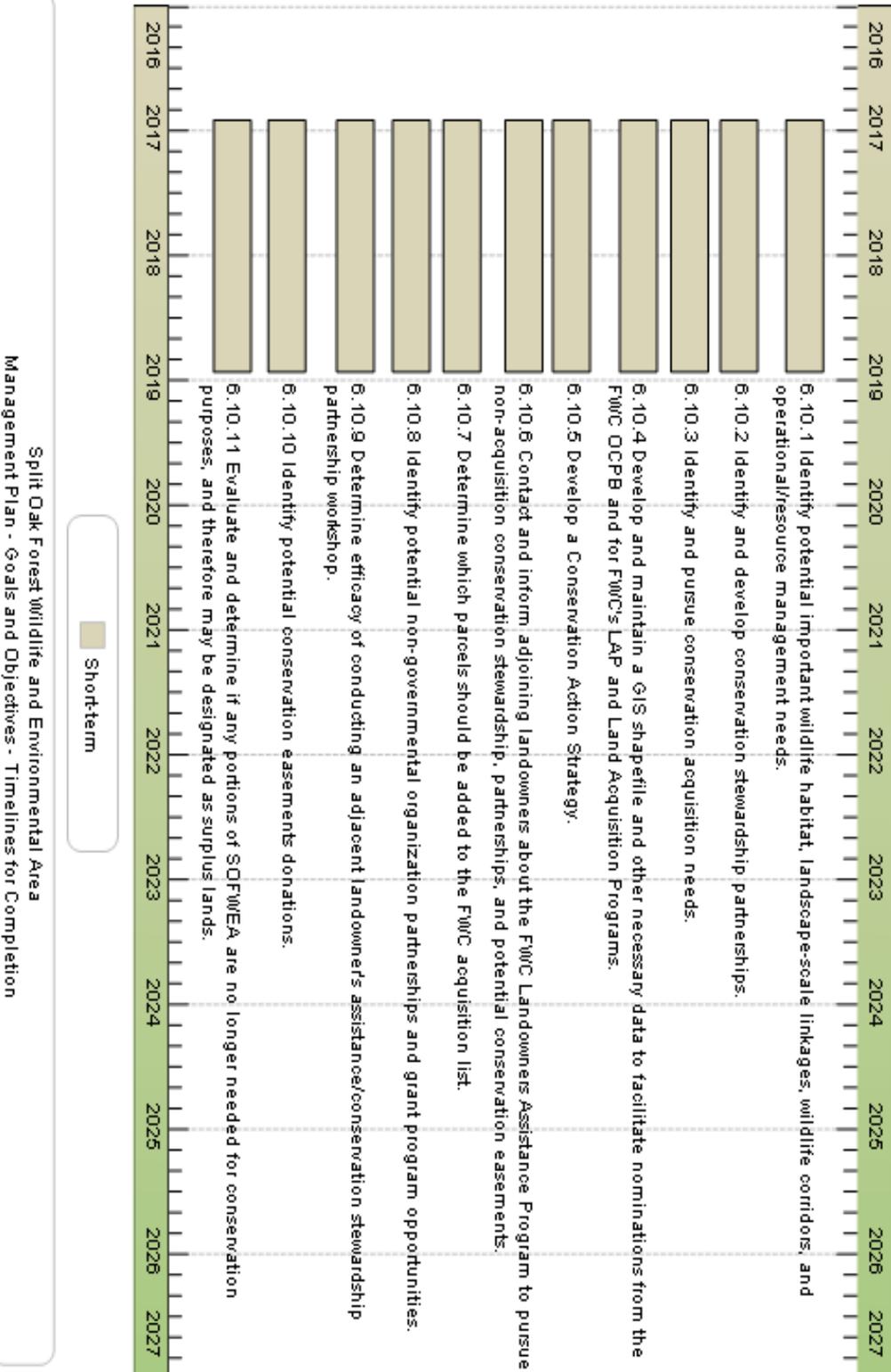




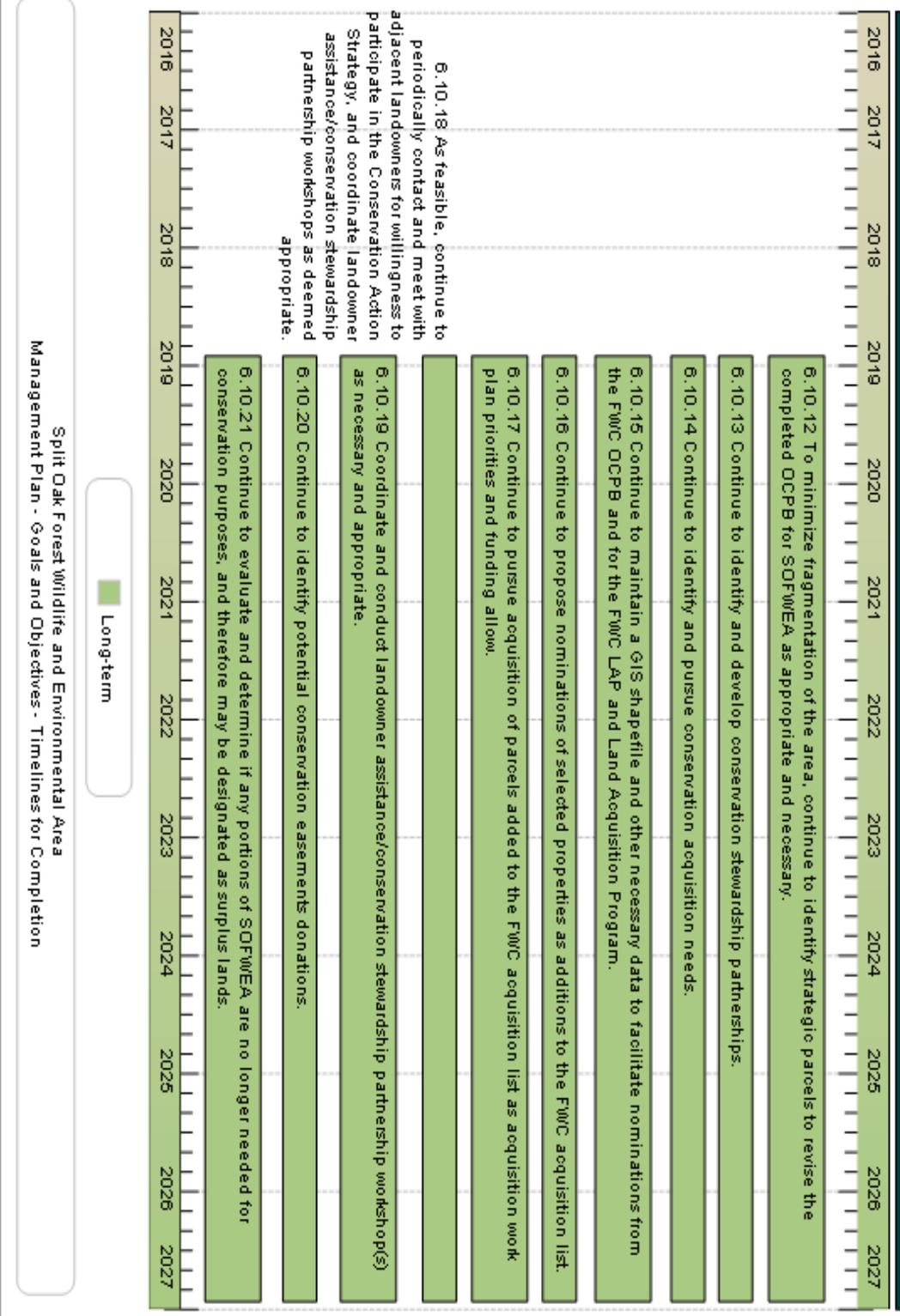


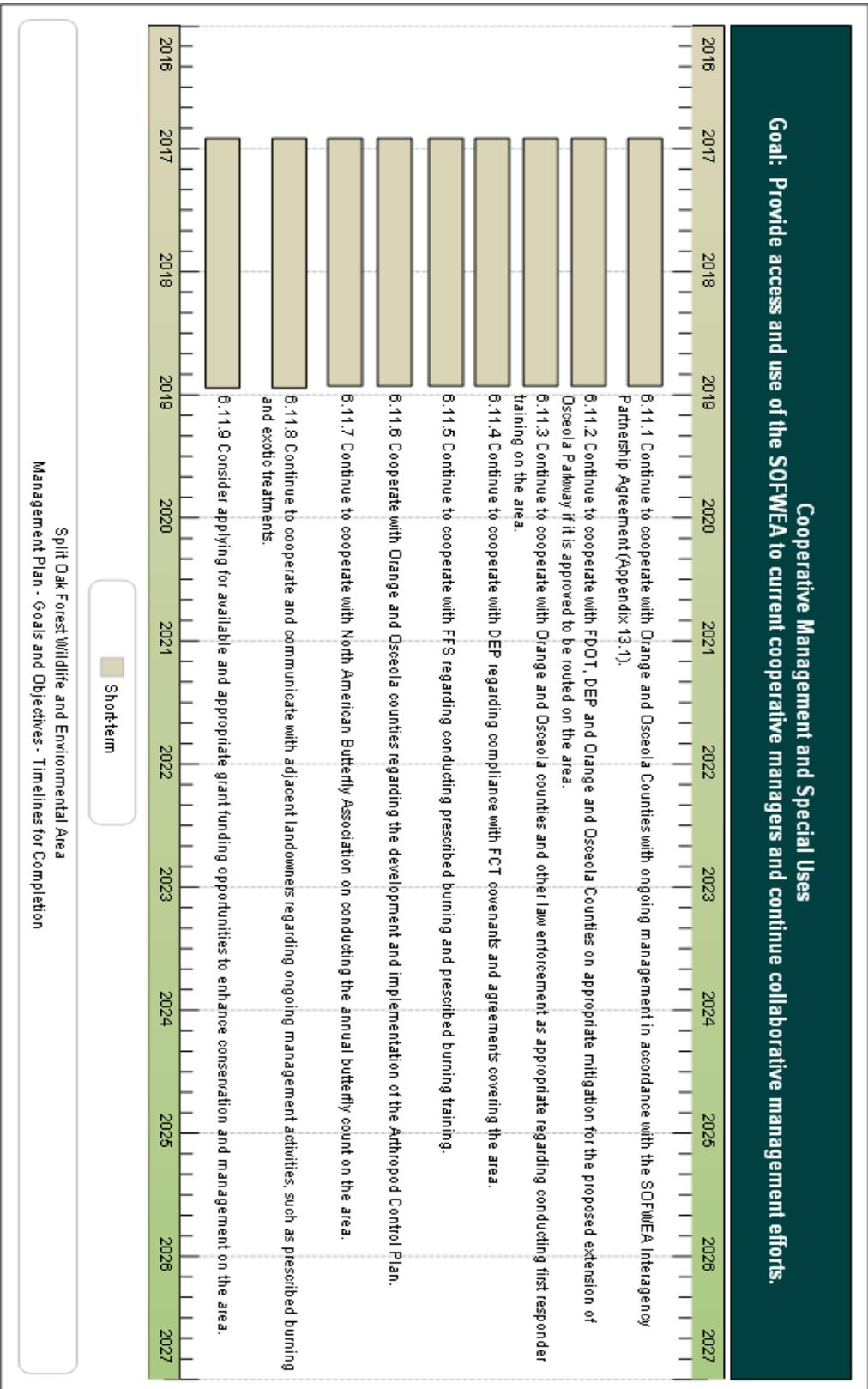


Land Conservation and Stewardship Partnerships
Goal: Enhance fish and wildlife conservation, resource, and operational management through development of an optimal boundary.

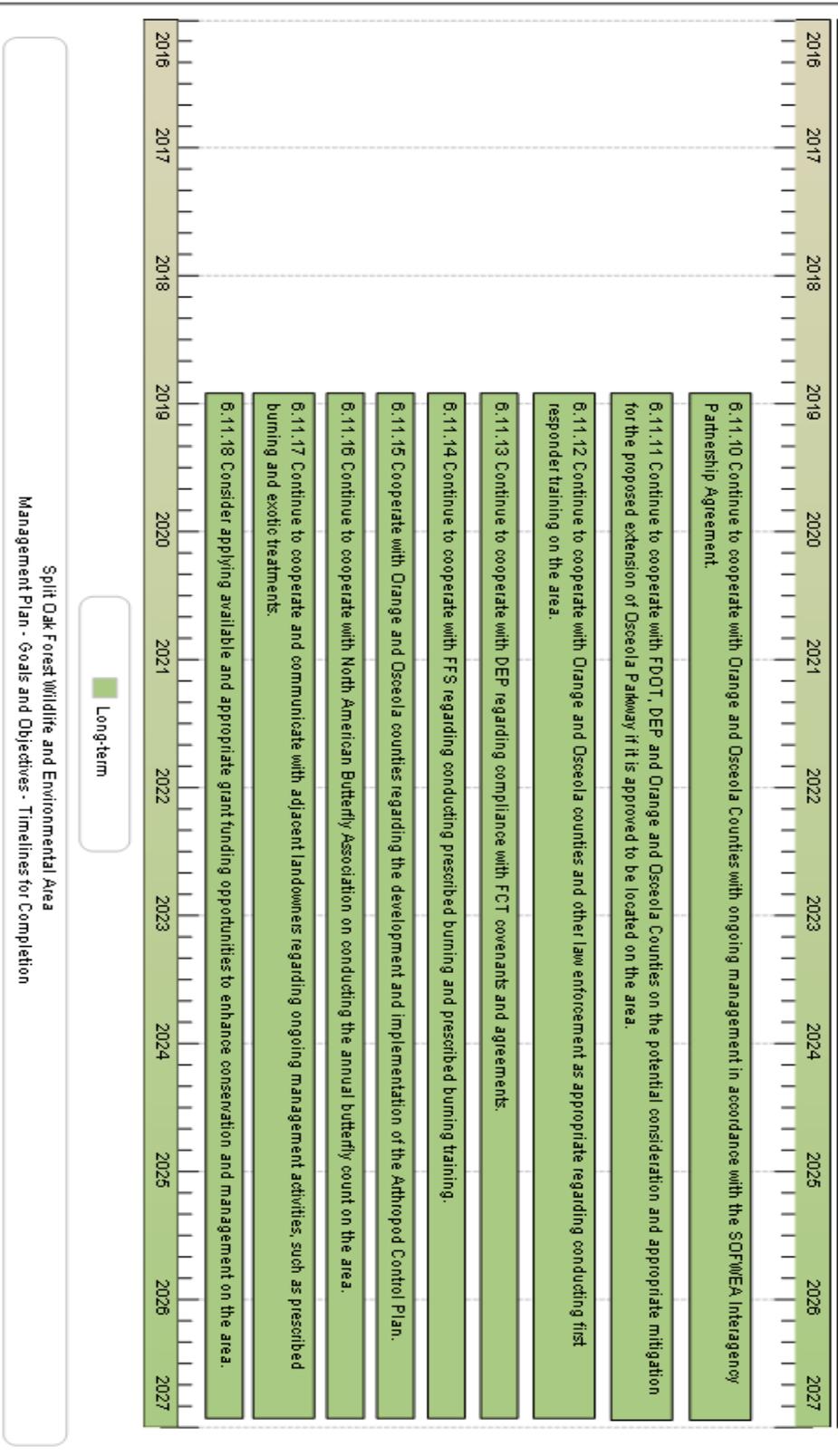


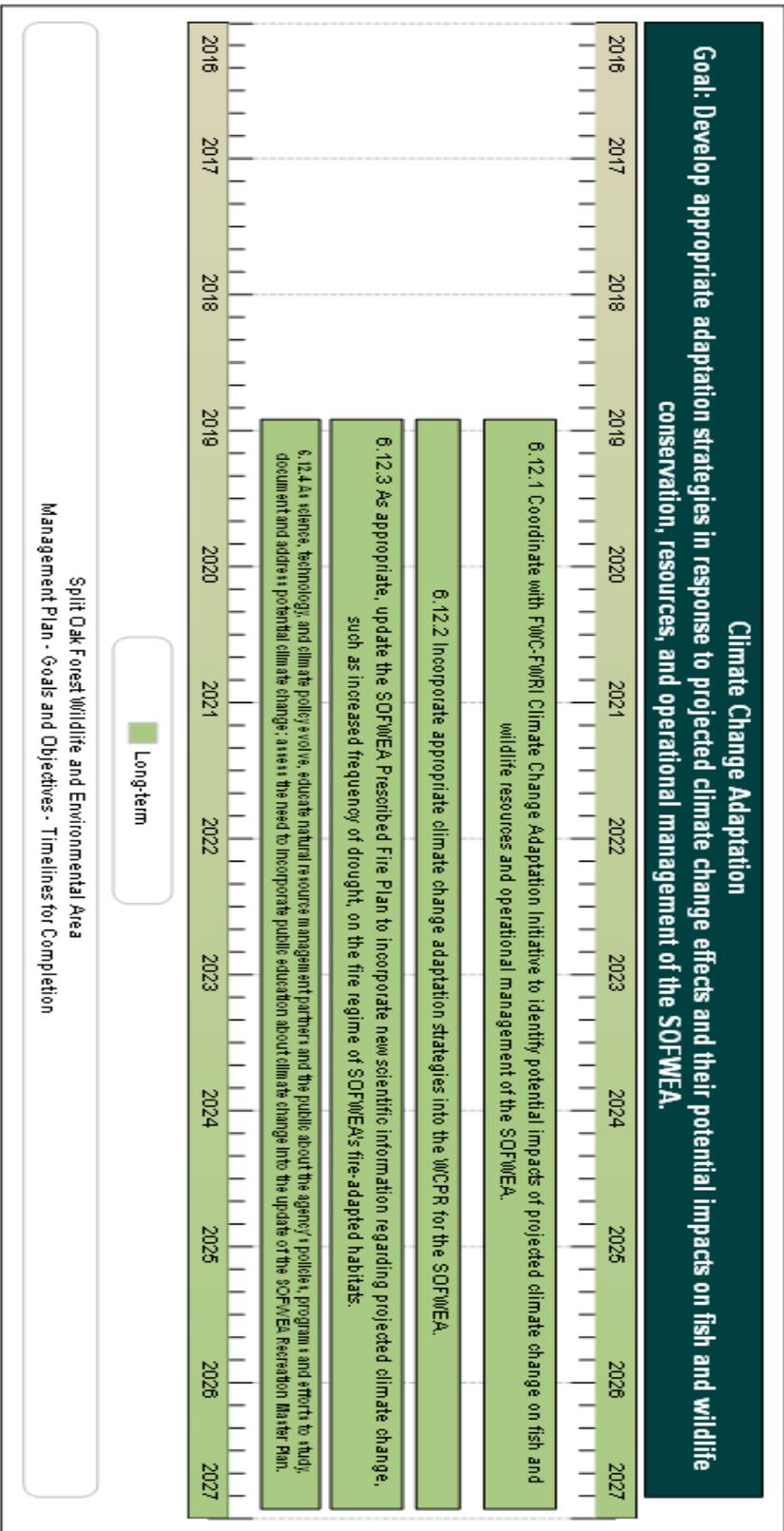
Land Conservation and Stewardship Partnerships
Goal: Enhance fish and wildlife conservation, resource, and operational management through development of an optimal boundary.

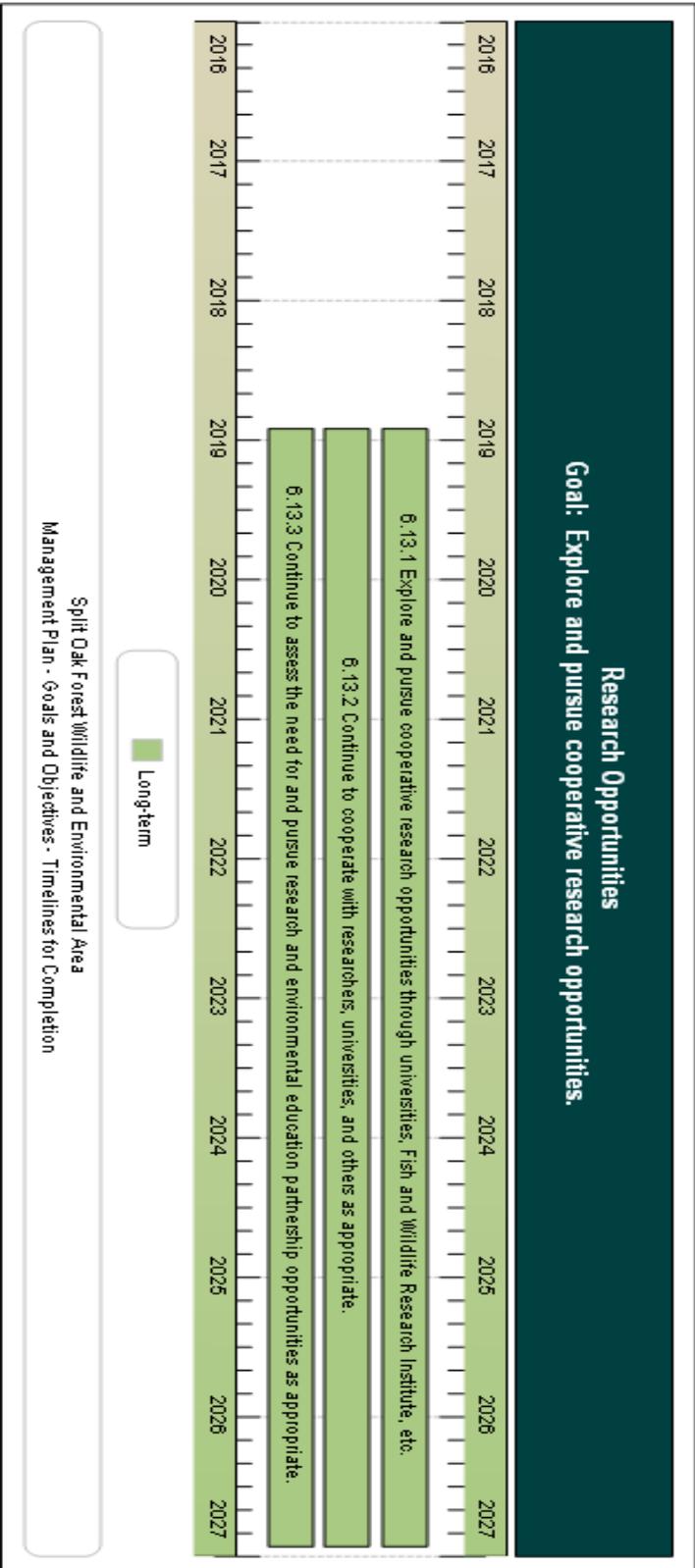




Cooperative Management and Special Uses
Goal: Provide access and use of the SOFWEA to current cooperative managers and continue collaborative management efforts.







8 Resource Management Challenges and Strategies

The following section identifies and describes further management needs and challenges associated with SOFWEA and provides solution strategies that will address these challenges. These specific challenges may not be fully addressed in the broader goals and objectives section above, and are thereby provided here.

8.1 Challenge: Currently SOFWEA has insufficient habitat to sustain certain imperiled species and preclude biological isolation, such as the Florida Scrub Jay, Red-cockaded Woodpecker, and Indigo Snake.

- 8.1.1 Strategy: Pursue conservation efforts to increase potential viable habitat on surrounding lands for these species.
- 8.1.2 Strategy: Cooperate and coordinate with surrounding landowners to assist with the resource management activities.

8.2 Challenge: SOFWEA is not a widely known recreation destination.

- 8.2.1 Strategy: Work with Orange and Osceola counties' parks and recreation and tourism development groups to promote SOFWEA.
- 8.2.2 Strategy: Cross promote SOFWEA with other regional conservation lands.

8.3 Challenge: Potential future development on adjacent lands can result in incompatible land uses increasing management challenges for the area for continuing to conduct management activities such as prescribed burning and exotic species treatments.

- 8.3.1 Strategy: Cooperate and work with Orange and Osceola Counties to ensure land use and zoning designations adjacent to SOFWEA will continue to be compatible with the management of the area.
- 8.3.2 Strategy: Incorporate a notification process to adjacent neighbors for management practices, and certain activities that have to occur.

8.4 Challenge: The proposed extension of Osceola Parkway through SOFWEA will result in incompatible land uses, wildlife resource impacts, resource and operational impacts, and recreational management impacts and challenges for the area if the Parkway is approved to be routed through the area.

8.4.1 Strategy: Continue to cooperate and work with FDOT and Orange and Osceola Counties to ensure any unavoidable impacts are minimized and sufficiently mitigated to maintain existing habitats and replace habitats eliminated by any potential development of the parkway on the area.

8.4.2 Strategy: Continue to cooperate with FDOT, DEP and Orange and Osceola counties to ensure Drainage Retention Area's are not developed on the area from the proposed road development.

8.4.3 Strategy: Continue to cooperate with adjacent landowners for completing management activities on the area, such as prescribed burning

8.4.4 Strategy: Ensure all FWC staff is directly involved with the road design, construction and development plans.

8.4.5 Strategy: Explore various funding opportunities through roadway mitigation funds to assist in long term management of the area if the Parkway is approved to be located on the area.

8.5 Challenge: Currently there is insufficient staffing for SOFWEA to maintain optimal resource and operational management of the area.

8.5.1 Strategy: Cooperate with other nearby FWC staff to assist when needed.

8.5.2 Strategy: Request additional funding for an additional position.

8.5.3 Strategy: Use contractual services for appropriate activities.

8.5.4 Strategy: Continue to work with Orange and Osceola staff to assist in management activities.

8.6 Challenge: Currently there are high densities of exotic species on adjacent lands including but not limited to old world climbing fern and aquatic soda apple providing an extensive source of seed that disperses onto the SOFWEA.

- 8.6.1 Strategy: Coordinate with the local Cooperative Invasive Species Management Area (CISMA), FWC's Uplands Invasive Plant Species Section, and FWC's Landowner Assistance Program to work with adjacent landowners to control and manage exotic invasive plants on adjacent properties.
- 8.6.2 Strategy: Work with neighboring land owners through FWC Private Landowners Assistance Program personnel to treat old world climbing fern.
- 8.6.3 Strategy: Coordinate with other governmental and private organizations to obtain resources to control and manage exotic invasive species on adjacent properties.
- 8.7 Challenge: Currently there is documented illegal use and activity ongoing on the area.**
- 8.7.1 Strategy: Continue to work with FWC LE and Orange and Osceola Counties' law enforcement to patrol illegal uses on the area.
- 8.8 Challenge: Currently SOFWEA regulations prohibit bicycling and only allow equestrian uses by special permit. SOFWEA Stakeholders and recreational users are requesting these restrictions be removed, and reclassify these uses as approved ongoing recreational uses on the area.**
- 8.8.1 Strategy: FWC will meet with FCT/DEP and Orange and Osceola Counties to determine the feasibility of removing these use restrictions.
- 8.8.2 Strategy: Explore feasibility of allowing these uses and the impacts it may have on the area
- 8.9 Challenge: Currently, law enforcement staffing is at insufficient levels for optimal management of SOFWEA.**
- 8.9.1 Strategy: Pursue funding for increased law enforcement and management staffing and additional private sector contract services.
- 8.9.2 Strategy: Explore potential volunteer resources for assisting with management.

9 Cost Estimates and Funding Sources

The following represents the actual and unmet budgetary needs for managing the lands and resources of SOFWEA. This cost estimate was developed using data developed by FWC and other cooperating entities, and is based on actual costs for land management activities, equipment purchase and maintenance, and for development of fixed capital facilities. Funds needed to protect and manage the property and to fully implement the recommended program are derived primarily from the Land Acquisition Trust Fund and from State Legislative appropriations. However, private conservation organizations may be cooperators with the agency for funding of specific projects. Alternative funding sources, such as monies available through mitigation, may be sought to supplement existing funding.

The cost estimate below, although exceeding what FWC typically receives through the appropriations process, is estimated to be what is necessary for optimal management, and is consistent with the current and planned resource management and operation of SOFWEA. Cost estimate categories are those currently recognized by FWC and the Land Management Uniform Accounting Council. More information on these categories, as well as the Fiscal Year 2015 operational plan showing detailed cost estimates by activity and categories of expenditures, may be found in Appendix 13.12.

Split Oak Forest WEA Management Plan Cost Estimate
Maximum expected one year expenditure

| <u>Resource Management</u> | <u>Expenditure</u> | <u>Priority</u> | <u>Priority schedule:</u> |
|---|---------------------------|------------------------|----------------------------------|
| Exotic Species Control | \$12,537 | (1) | (1) Immediate (annual) |
| Prescribed Burning | \$77,129 | (1) | (2) Intermediate (3-4 years) |
| Cultural Resource Management | \$1,906 | (1) | (3) Other (5+ years) |
| Timber Management | \$601 | (1) | |
| Hydrological Management | \$8,430 | (1) | |
| Other (Restoration, Enhancement, Surveys, Monitoring, etc.) | \$44,062 | (1) | |
| Subtotal | \$144,666 | | |
| | | | |
| <u>Administration</u> | | | |
| General administration | \$5,015 | (1) | |
| | | | |
| <u>Support</u> | | | |
| Land Management Planning | \$16,338 | (1) | |
| Land Management Reviews | \$5,343 | (3) | |
| Training/Staff Development | \$1,503 | (1) | |
| Vehicle Purchase | \$166,103 | (2) | |
| Vehicle Operation and Maintenance | \$13,445 | (1) | |
| Other (Technical Reports, Data Management, etc.) | \$3,306 | (1) | |
| Subtotal | \$206,039 | | |
| | | | |
| <u>Capital Improvements</u> | | | |
| New Facility Construction | \$6,146 | (2) | |
| Facility Maintenance | \$17,493 | (1) | |
| Subtotal | \$23,639 | | |
| | | | |
| <u>Visitor Services/Recreation</u> | | | |
| Info./Education/Operations | \$6,479 | (1) | |
| | | | |
| <u>Law Enforcement</u> | | | |
| Resource protection | \$0 | (1) | |
| | | | |
| <u>Total</u> | \$385,838 | * | |

* Based on the characteristics and requirements of this area, 1.4 FTE positions would be optimal to fully manage this area. All land management funding is dependent upon annual legislative appropriations.

Split Oak Forest WEA Management Plan Cost Estimate
Ten-year projection

| <u>Resource Management</u> | <u>Expenditure</u> | <u>Priority</u> | Priority schedule: |
|---|---------------------------|------------------------|------------------------------|
| Exotic Species Control | \$110,154 | (1) | (1) Immediate (annual) |
| Prescribed Burning | \$677,667 | (1) | (2) Intermediate (3-4 years) |
| Cultural Resource Management | \$16,747 | (1) | (3) Other (5+ years) |
| Timber Management | \$5,283 | (1) | |
| Hydrological Management | \$74,067 | (1) | |
| Other (Restoration, Enhancement, Surveys, Monitoring, etc.) | \$387,136 | (1) | |
| Subtotal | \$1,271,054 | | |
| | | | |
| <u>Administration</u> | | | |
| General administration | \$44,062 | (1) | |
| | | | |
| <u>Support</u> | | | |
| Land Management Planning | \$143,551 | (1) | |
| Land Management Reviews | \$15,295 | (3) | |
| Training/Staff Development | \$13,209 | (1) | |
| Vehicle Purchase | \$584,525 | (2) | |
| Vehicle Operation and Maintenance | \$118,128 | (1) | |
| Other (Technical Reports, Data Management, etc.) | \$29,049 | (1) | |
| Subtotal | \$903,756 | | |
| | | | |
| <u>Capital Improvements</u> | | | |
| New Facility Construction | \$17,753 | (2) | |
| Facility Maintenance | \$153,692 | (1) | |
| Subtotal | \$171,445 | | |
| | | | |
| <u>Visitor Services/Recreation</u> | | | |
| Info./Education/Operations | \$56,921 | (1) | |
| | | | |
| <u>Law Enforcement</u> | | | |
| Resource protection | \$0 | (1) | |
| | | | |
| <u>Total</u> | \$2,447,238 | * | |

* Based on the characteristics and requirements of this area, 1.3 FTE positions would be optimal to fully manage this area. All land management funding is dependent upon annual legislative appropriations.

10 Analysis of Potential for Contracting Private Vendors for Restoration and Management Activities

The following management and restoration activities have been considered for outsourcing to private entities. It has been determined that items selected as “approved” below are those that FWC either does not have in-house expertise to accomplish or which can be done at less cost by an outside provider of services. Those items selected as “conditional” items are those that could be done either by an outside provider or by the agency at virtually the same cost or with the same level of competence. Items selected as “rejected” represent those for which FWC has in-house expertise and/or which the agency has found it can accomplish at less expense than through contracting with outside sources:

| | Approved | Conditional | Rejected |
|---|----------|-------------|----------|
| • Dike and levee maintenance | | | ✓ |
| • Exotic species control | | | ✓ |
| • Mechanical vegetation treatment | | | ✓ |
| • Public contact and educational facilities development | | | ✓ |
| • Prescribed burning | | | ✓ |
| • Timber harvest activities | | | ✓ |
| • Vegetation inventories | | | ✓ |

11 Compliance with Federal, State, and Local Governmental Requirements

The operational functions of FWC personnel are governed by the agency’s Internal Management Policies and Procedures (IMPP) Manual. The IMPP Manual provides internal guidance regarding many subjects affecting the responsibilities of agency personnel including personnel management, safety issues, uniforms and personal appearance, training, as well as accounting, purchasing, and budgetary procedures.

When public facilities are developed on areas managed by FWC, every effort is made to comply with Public Law 101 - 336, the Americans with Disabilities Act. As new facilities are developed, the universal access requirements of this law are followed in all cases except where the law allows reasonable exceptions (e.g., where handicap access is structurally impractical or where providing such access would change the fundamental character of the facility being provided).

Uses planned for SOFWEA are in compliance with the Conceptual State Lands Management Plan and its requirement for “balanced public utilization,” and are in compliance with the mission of FWC as described in its Agency Strategic Plan (Appendix 13.9). Such uses also comply with the authorities of the FWC as derived from Article IV, Section 9, of the Florida Constitution as well as the guidance and directives of Chapters, 253, 259, 327, 370, 379, 403, 870, 373, 375, 378, 487, and 597 FS.

The FWC has developed and utilizes an Arthropod Control Plan for SOFWEA in compliance with Chapter 388.4111 F.S. (Appendix 13.14-13.15). This plan was developed in cooperation with the local Orange and Osceola County arthropod control agencies. This plan is also in conformance with the Local Government Comprehensive Plan as approved and adopted for Orange and Osceola Counties, Florida, (Appendix 13.16-13.17).

12 Endnotes

- ¹ Aldridge, C. L., M. S. Boyce and R. K. Baydack. 2004. Adaptive management of prairie grouse: how do we get there? *Wildlife Society Bulletin* 32:92-103.
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- ⁴ Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas, Final Report (1999).
- ⁵ Karl, T. R., J. M. Melillo, and T. C. Peterson (Eds.). 2009. *Global Climate Change Impacts in the United States*. Cambridge University Press. New York, NY.
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- ¹⁰ Stevenson, J. C., M. S. Kearney, and E. W. Koch. 2002. Impacts of sea level rise on tidal wetlands and shallow water habitats: A case study from Chesapeake Bay. *American Fisheries Society Symposium* 32:23-36.
- ¹¹ IPCC. 2007b. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK.
- ¹² Emanuel, K.A. 1987. The Dependence of Hurricane Intensity on Climate. *Nature* 326: 483-485.
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- ¹⁵ Mann, M.E. and K.A. Emanuel. 2006. Atlantic Hurricane Trends Linked to Climate Change. *Eos Trans. AGU* 87: 233-244.
- ¹⁶ Stanton, E.A. and F. Ackerman. 2007. *Florida and Climate Change: The Costs of Inaction*. Tufts University Global Development and Environment Institute and Stockholm Environment Institute–US Center, Tufts University, Medford, MA.
- ¹⁷ Clough, J.S. 2008. *Application of the Sea-Level Affecting Marshes Model (SLAMM 5.0) to Crystal River NWR*. Warren Pinnacle Consulting, Inc. for U.S. Fish and Wildlife Service. 46 pp.

Appendix B
Eagles Roost Management Plan

EAGLES ROOST

LAND MANAGEMENT PLAN

Prepared by

Orange County Environmental Protection Division
Green PLACE Program

June, 2008

(Revised December 2014)

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INTRODUCTION

In his 2002 State of the County Address, former Mayor Richard T. Crotty announced his plans for the creation of the Green Park Land Acquisition for Conservation and Environmental Protection (PLACE) program. In 2003, former Mayor Crotty and the Board of County Commissioners approved the funding for the Green PLACE Program. The initial funding for the program was a \$20 million Public Service Tax Bond. Subsequent funding of \$125 million was approved by the Mayor and the Board of County Commissioners in July of 2006. The Green PLACE program mission statement is as follows:

“To preserve and manage environmentally sensitive lands, protect water resource lands and to provide a quality passive recreational outdoors experience for existing and future generations.”

With the assistance from the Green PLACE Ad Hoc Committee and its successor, the Green PLACE Advisory Board, a strategy was established for the acquisition of environmentally sensitive lands which focused on the creation and expansion of ecological corridors. In addition, the Green PLACE Ad Hoc Committee assisted with the development of property uses that are allowed or prohibited for all Green PLACE properties (Appendix A).

Orange County Green PLACE has adopted an internal Standard Operating Procedure (SOP) that states that a management plan must be written and implemented for all Green PLACE properties. The management plans must address land management issues, such as fire management, hydrologic restoration, threatened and endangered species, and invasive / exotic plant and animal species control. Secondly, the management plan needs to address the issues of public access and recreational uses.

Site Description and Location

Eagles Roost is a 232-acre site located off of Clapp Simms Duda Road in Orlando, Florida in Township 24S, Range 31E, Sections 27 and 33 (Figure 1). The parcel is located west of the Split Oak Forest Wildlife Environmental Area (WEA), which is owned by Orange and Osceola Counties and is managed by the Florida Fish and Wildlife Conservation Commission (FWC). The parcel can be accessed at the end of Clapp Simms Duda Road.

Eagles Roost is mainly composed of improved and unimproved pasture with smaller communities of basin swamp and flatwoods lake. Main canopy species on the property include longleaf pine (*Pinus palustris*), slash pine, cypress (*Taxodium spp.*), red maple (*Acer rubrum*) and black gum (*Nyssa sylvatica*). Groundcover species include, but are not limited to, buttonbush (*Cephalanthus occidentalis*), soft rush (*Juncus effusus*), white beggar-ticks (*Bidens pilosa*) and elderberry (*Sambucus canadensis*).

LAND MANAGEMENT GOALS

The following goals provide the general framework for management of Eagles Roost Preserve:

- Maintain and restore, where appropriate, the natural hydrological regime and quality of surface waters,
- Maintain and restore native natural communities (including control of exotic species),
- Enhance species diversity,
- Maintain and protect listed species,
- Protect archeological and cultural resources, and
- Provide opportunities for public recreation where compatible with the goals listed above.

This management plan provides strategies and actions to be employed in furtherance of these broad, guiding statements.

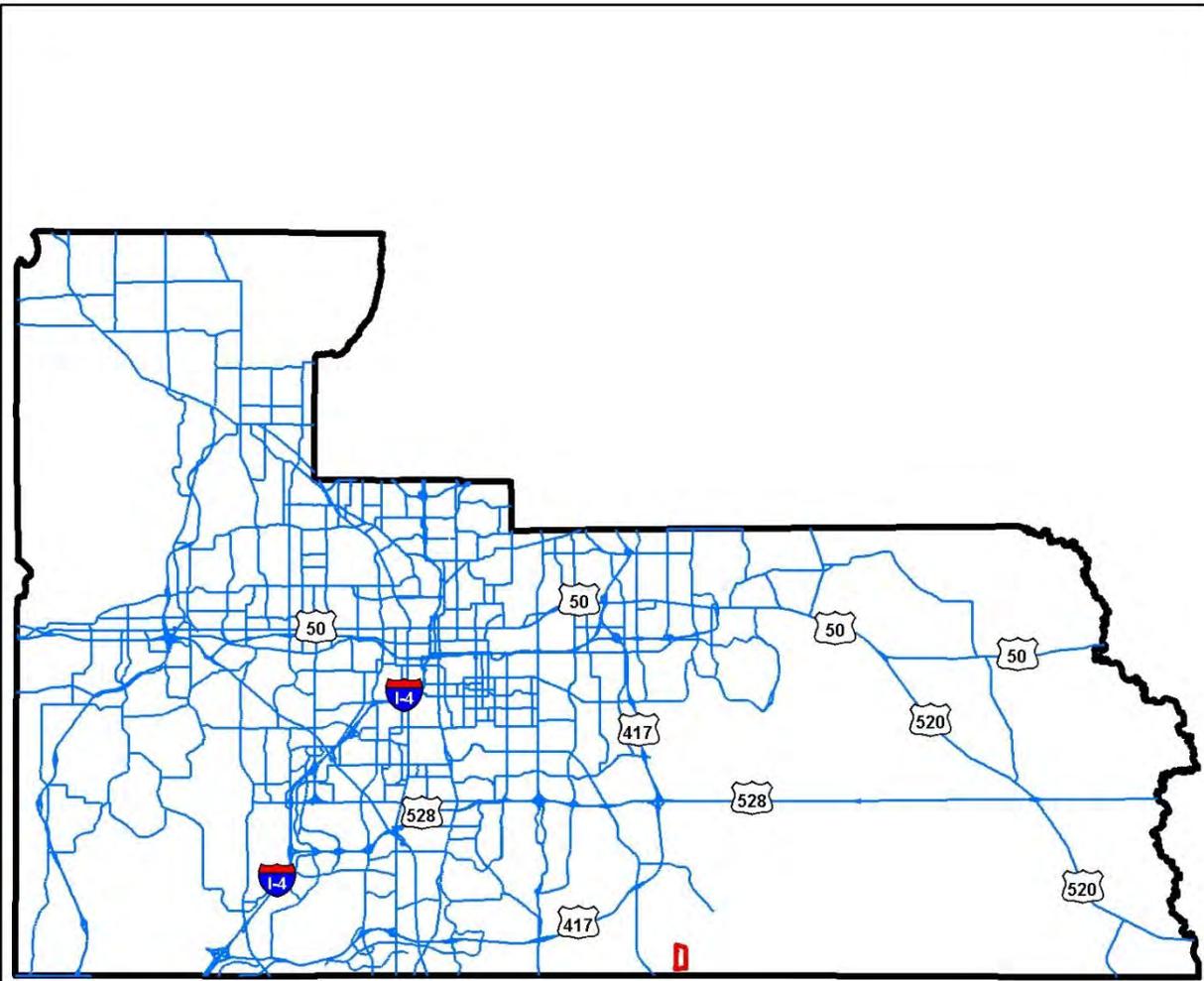
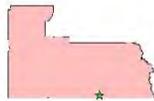


Figure 1
Eagles Roost
Preserve
Location Map 1



0 1.5 3 6 Miles

Legend

-  Eagles Roost Preserve
-  County Boundary
-  Major Streets

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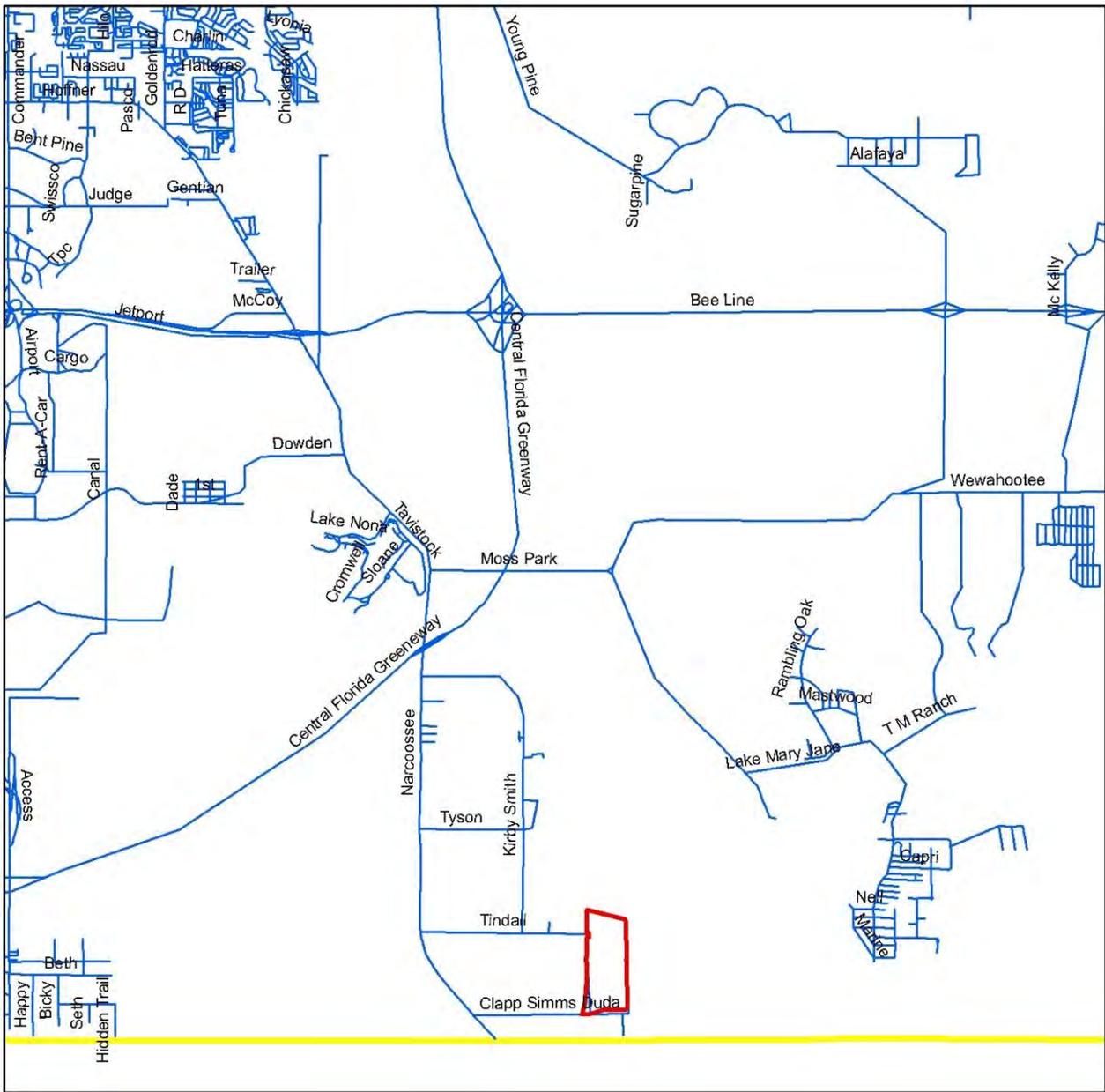
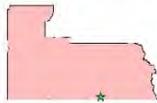


Figure 2
Eagles Roost
Preserve
Location Map 2



0 0.3 0.6 1.2 Miles

Legend

-  Eagles Roost Preserve
-  Roads
-  County Boundary

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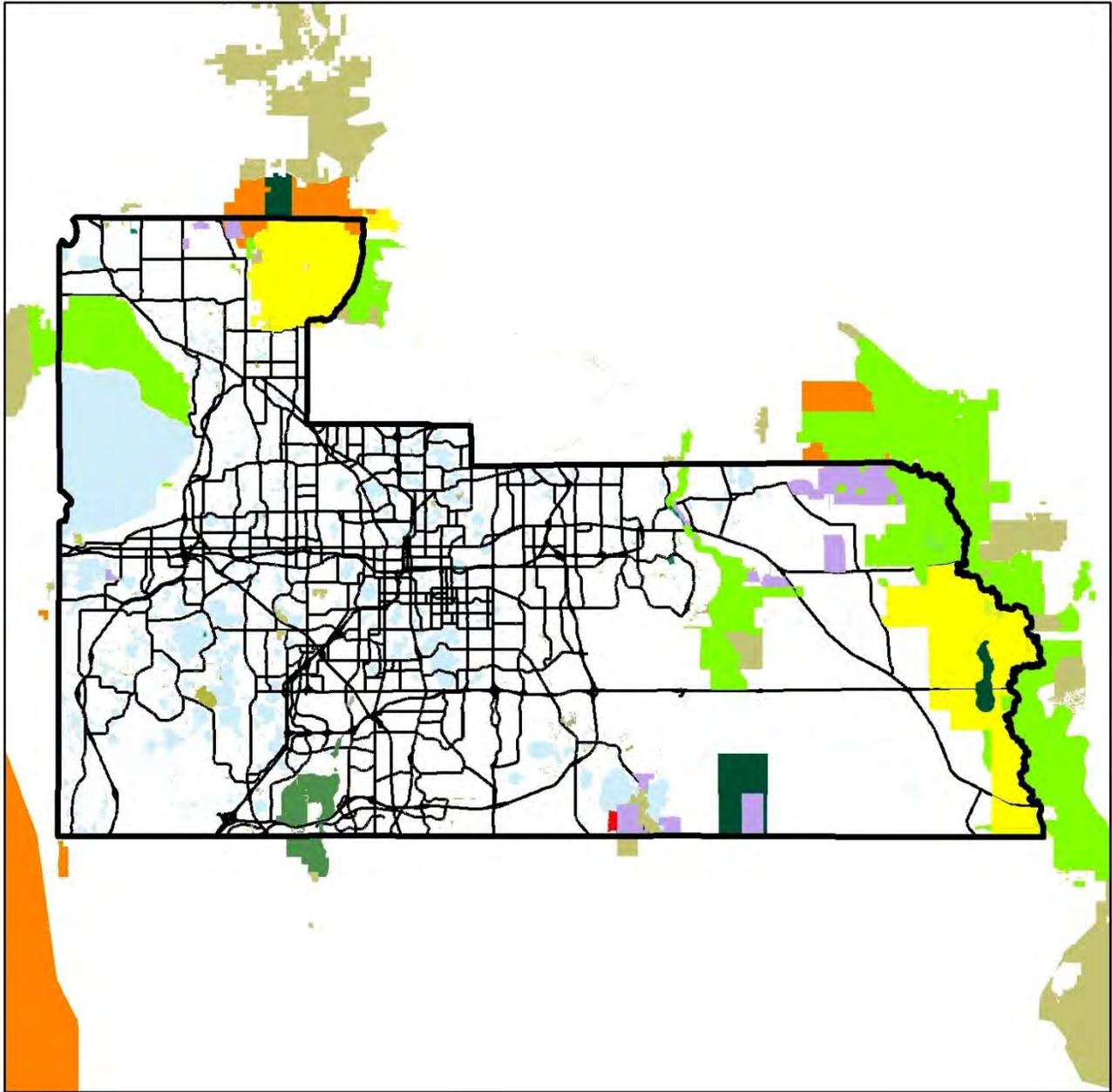
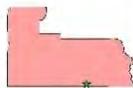
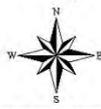


Figure 3
Eagles Roost Preserve
Regional Significance



Map



0 2 4 8 Miles

Legend

- County Boundary
- Green PLACE Properties
- Eagles Roost Preserve
- Audubon Property
- Mitigation Banks
- SJRWMD Lands
- SJRW Lands
- Florida Forever (FFBOT)
- Other State Lands
- Florida Managed Areas (FLMA)
- Major Streets

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AREA OVERVIEW

Regional Significance

The property is part of a large ecological corridor, which consists of both private mitigation areas and publicly owned lands in the southeastern portion of the County (Figure 3). These lands include: Split Oak Forest WEA, Isle of Pine Preserve, Moss Park, World Gate Way DRI Mitigation Area, Eagles Creek Conservation Easement, Crosby Island Marsh Preserve, and the Crosby Island Mitigation Area. Lastly, the property is within three miles of the TM/Econ Mitigation Bank.

Acquisition History

The property was acquired on May 8, 2006, from Lake Hart Properties, LLC by Orange County through its Green PLACE program. In May of 2006, a Warranty Deed to the County conveyed 232 acres for the purposes of resource management and passive outdoor recreational opportunities (Appendix B). Accordingly, the County is the owner and perpetual steward of the property.

Cooperative Agreements

The County has not entered into any Cooperative Agreements on this property.

Leases, Easements and Concessions

The County has not entered into any Easements or Concessions at this time. In August of 2007, the Board of County Commissioners approved a lease between Back to Nature Wildlife Refuge and Education Center and Orange County to lease 20 acres for the relocation of their current facility to Eagles Roost. The lease is effective for a 15-year term and is renewable for additional 15-year periods (Appendix C).

Cultural / Historical Resources

A previous landowner conducted an Archaeological, Architectural and Historical Survey of the parcel in December of 1989. Results of the survey can be found in the Division of Historical and Cultural Resources as survey #2/58 (Appendix D).

Existing Improvements / Alterations

The site's natural communities have been largely impacted due to past agricultural uses on the property and consist mainly of improved and unimproved pasture. Past agricultural uses included cattle grazing and sod farming. The previous owners also introduced exotic species such as Chinese tallow (*Sapium sebiferum*), camphor tree (*Cinnamomum camphora*) and elephant ear (*Xanthasoma spp.*) to the site. Existing structures that remain on the site include a pole barn, smokehouse and an outhouse.

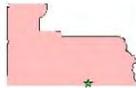
The property also has a series of canals, berms and swales that have been constructed on the property.

Future Land Use and Zoning

The Future Land Use category of A-1 Agricultural is predominant over the entire property. The County has amended the Future Land Use Classification to Preservation.



Figure 4
Eagles Roost Preserve
Historical Map
1944 Aerial



0 235 470 940 Feet

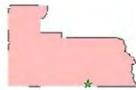
Legend

 Eagles Roost

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Figure 5
Eagles Roost Preserve
Historical Map
1947 Aerial

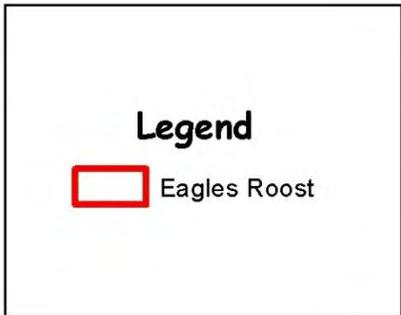
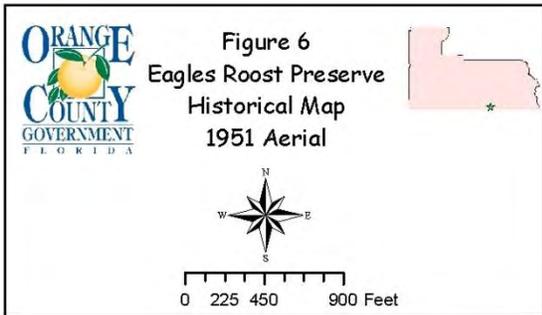
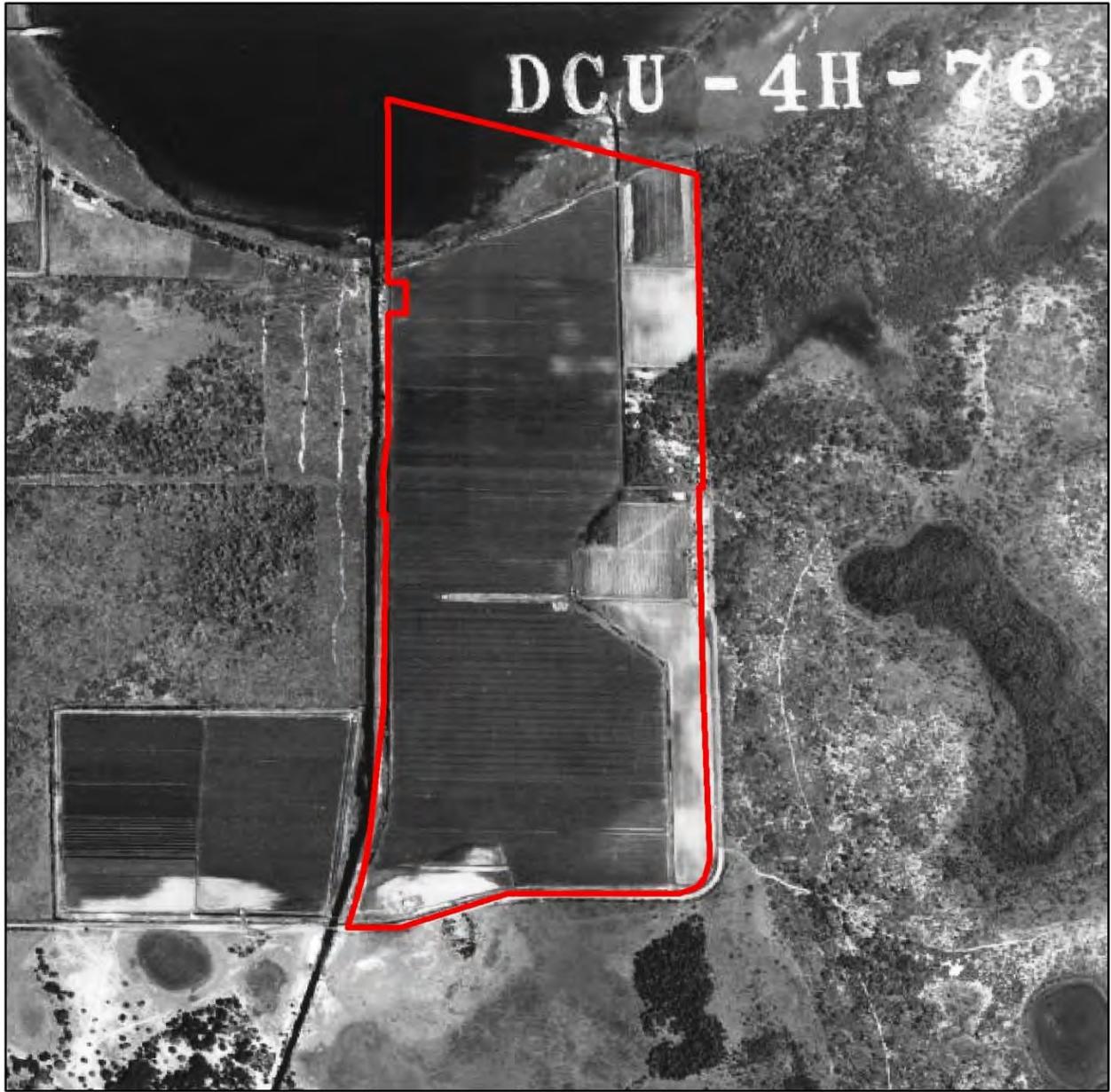


0 215 430 860 Feet

Legend

 Eagles Roost

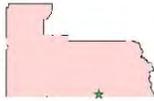
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Figure 7
Eagles Roost Preserve
Historical Map
1963 Aerial



0 190 380 760 Feet

Legend

 Eagles Roost

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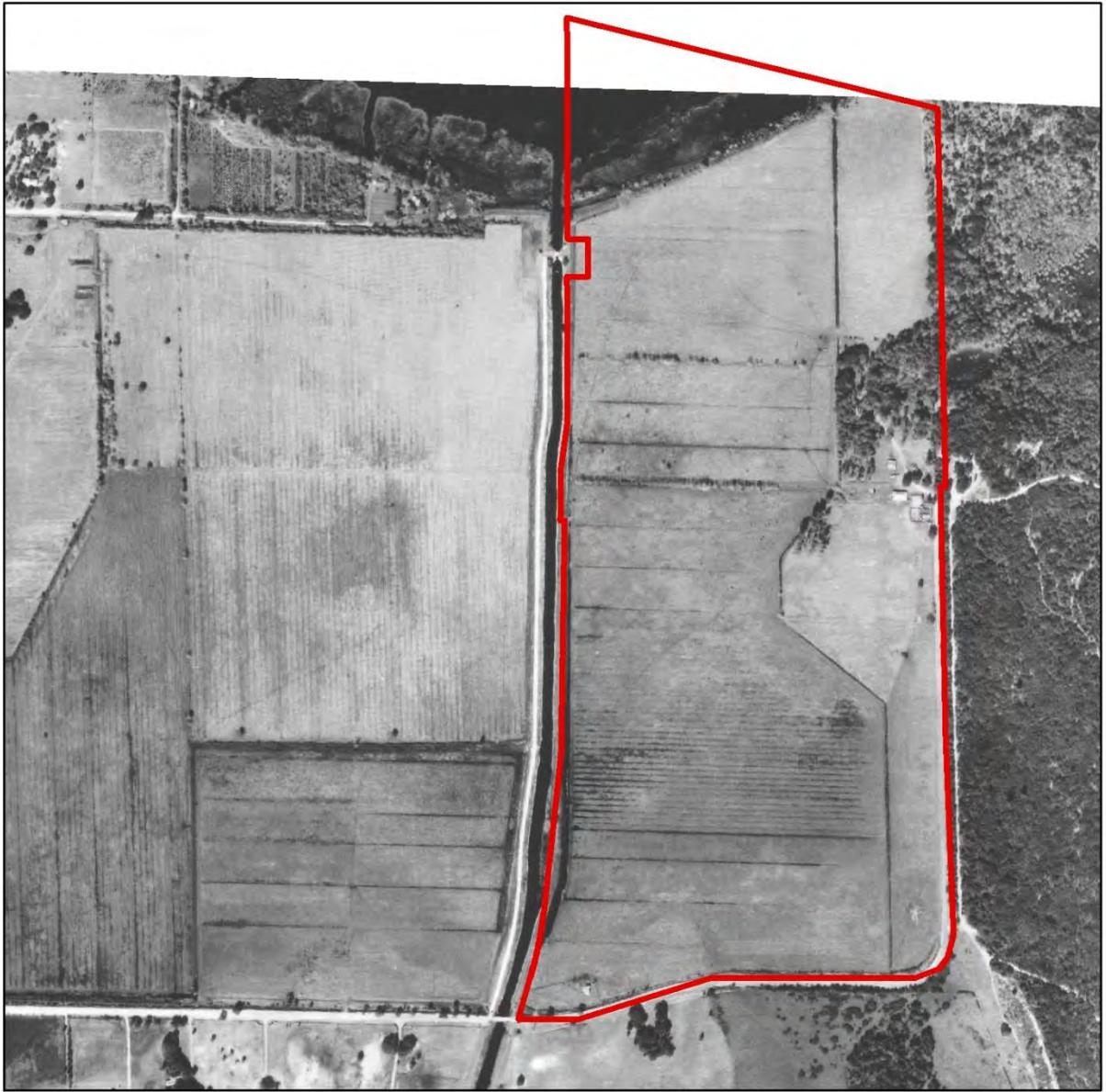
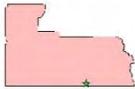


Figure 8
Eagles Roost Preserve
Historical Map
1987 Aerial



0 180 360 720 Feet

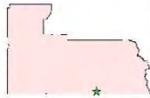
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 Eagles Roost

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Figure 9
Eagles Roost Preserve
Historical Map
1997 Aerial

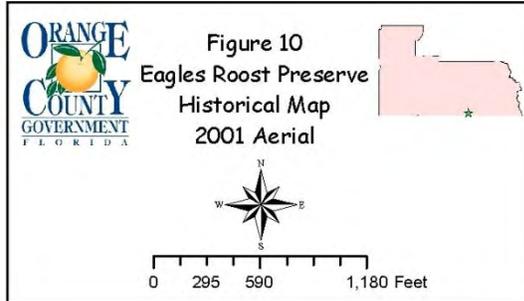
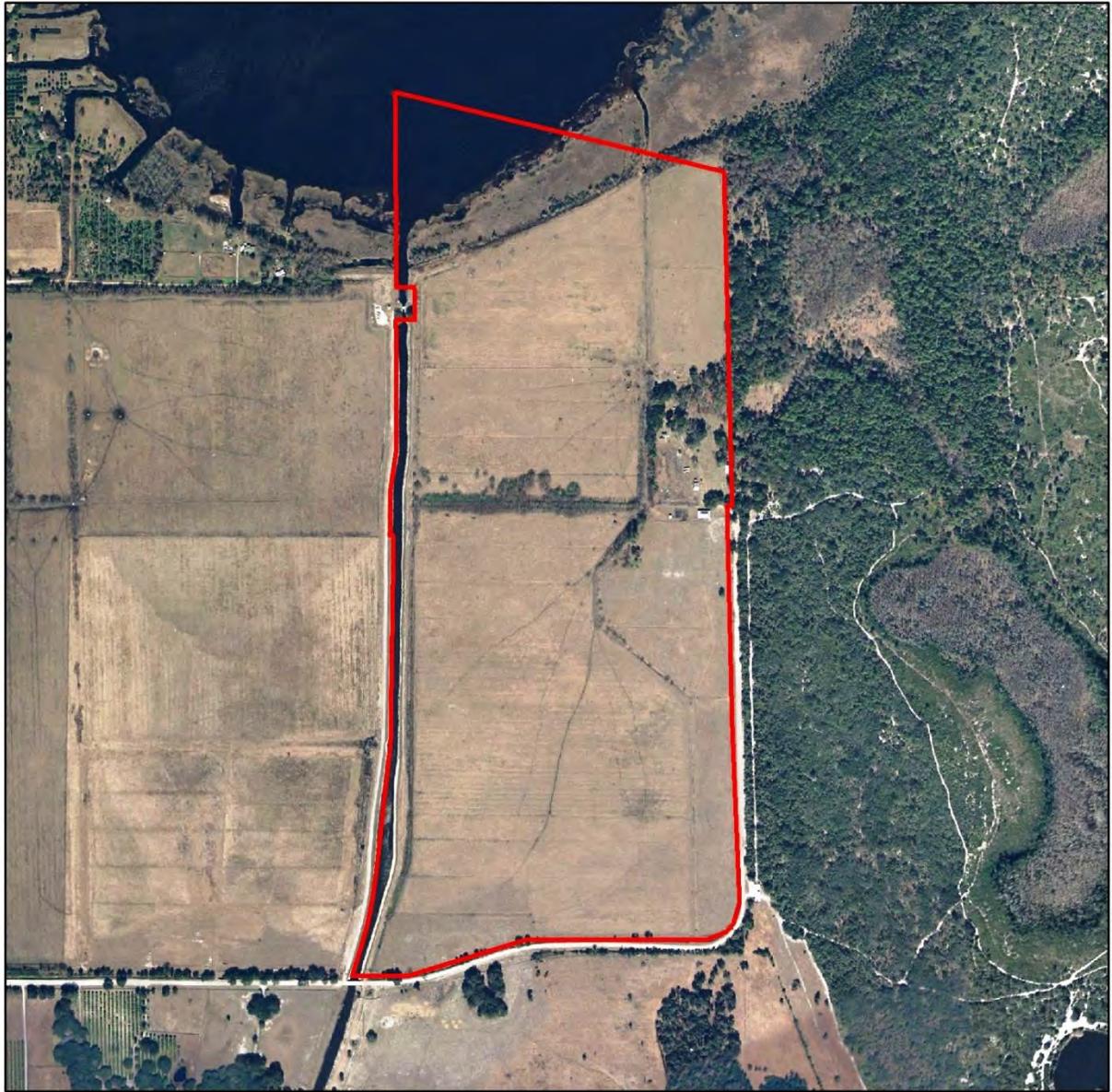


0 145290 580 Feet

Legend

 Eagles Roost

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Legend

 Eagles Roost

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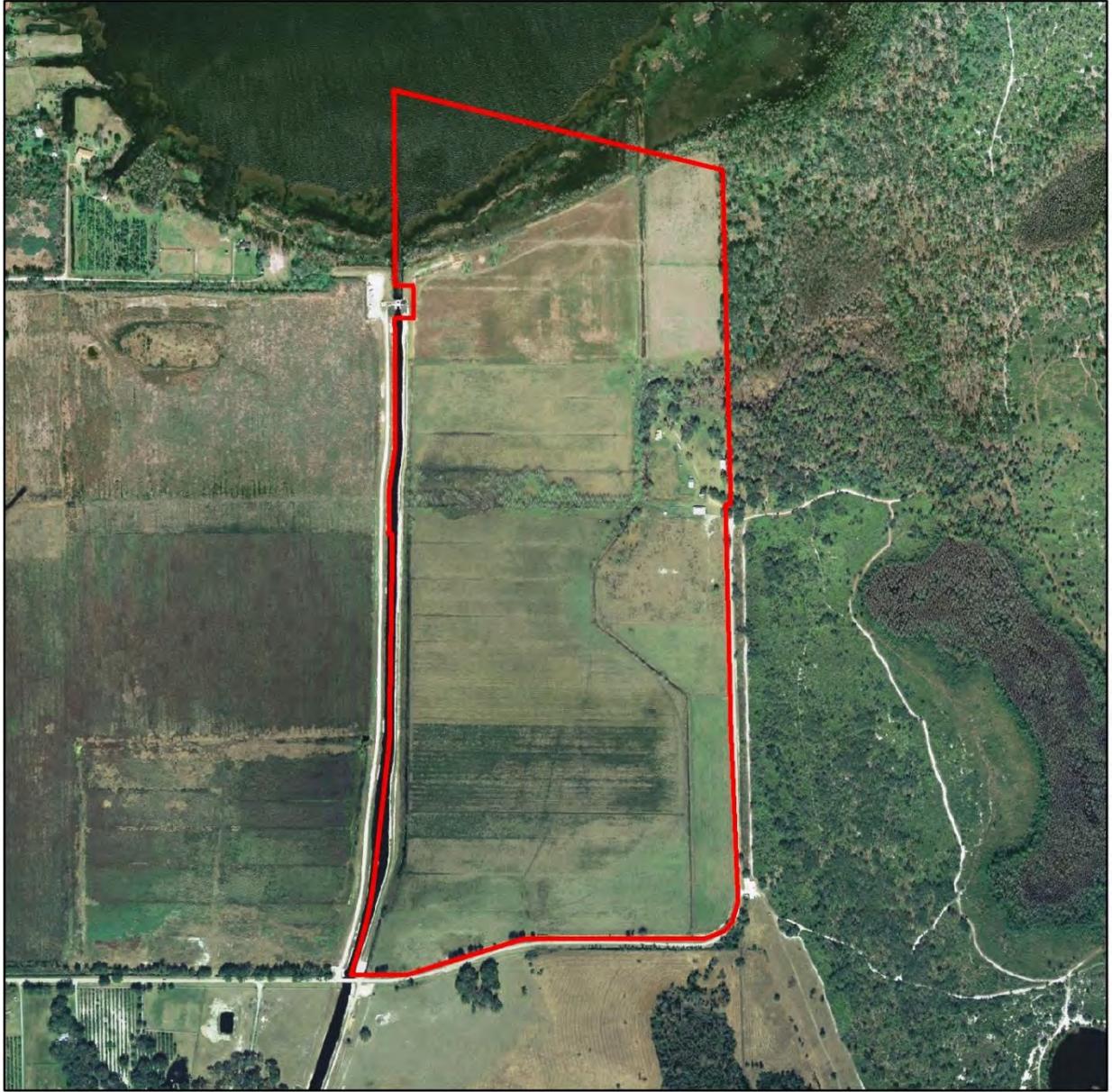
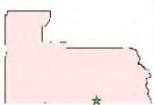


Figure 11
Eagles Roost Preserve
Historical Map
2006 Aerial



0 295 590 1,180 Feet

Legend

 Eagles Roost

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NATURAL RESOURCES OVERVIEW

Topography and Surface Hydrology

Topographic relief across the property is minimal with the highest elevation reaching 69 feet above sea level and the lowest elevation at 59 feet above sea level. The highest elevations are located along the eastern portion of the property with lower elevations located along the western portion (Figure 12).

Eagles Roost is located within the Lake Hart Drainage Basin. Lake Mary Jane connects into Lake Hart which flows in a southerly direction into the northern portion of Eagles Roost. The water flow continues south through a channel of canals and lakes into Lake Tohopekaliga which eventually flows into the Kissimmee Chain of Lakes.

Historically, Eagles Roost consisted of wetland habitats such as basin marsh and basin swamp before hydrological alterations and pasture conversion began in the late 1800's and continued into the late 1930's. The hydrological alterations contain attributes such as a drainage canal, culverts, swales, and ditches that were created for historic agricultural purposes and flooding control (Figure 14). Currently, several swales begin on the western boundary and run on a straight west to east line. A South Florida Water Management District (SFWMD) drainage canal is located adjacent to the western boundary of the property, running from the southern end of the property directly north into the lakefront. A drainage ditch and berm run directly parallel with the canal and ends just before the lakefront. Also, a large berm and ditch system is located parallel along the shoreline of Lake Hart as well as along the eastern and southern portions of the property boundary.

These hydrological alterations have caused major impacts to the property such as obstructing the normal water flow from the lake onto the property, not allowing normal surface water sheet flow across the property, greatly reducing the historic water table, and transitioning the historic groundcover vegetation from a more dominant obligate/facultative wet species composition into a species composition that is now dominantly facultative.

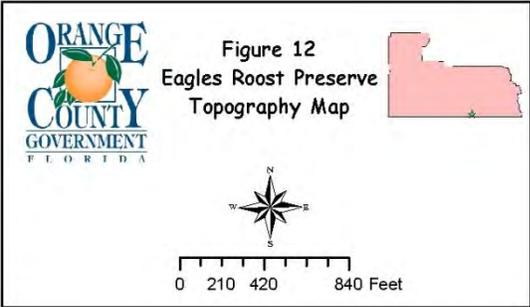
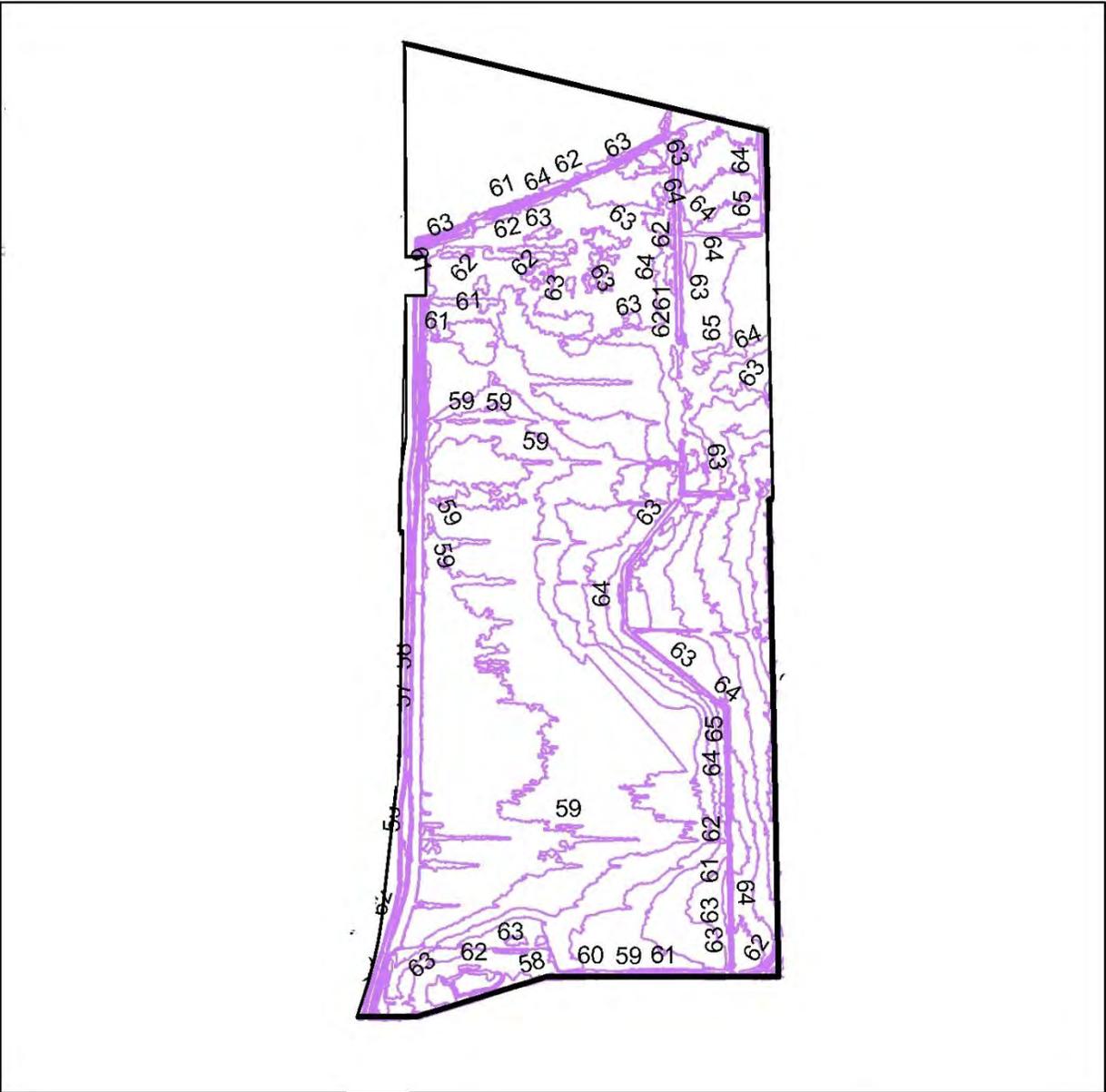
Goal: Maintain and restore, where appropriate, the natural habitats, hydrological regime and quality of surface waters on the parcel.

Strategy: Restore or improve the hydrology and topography to its original state on Eagles Roost Preserve.

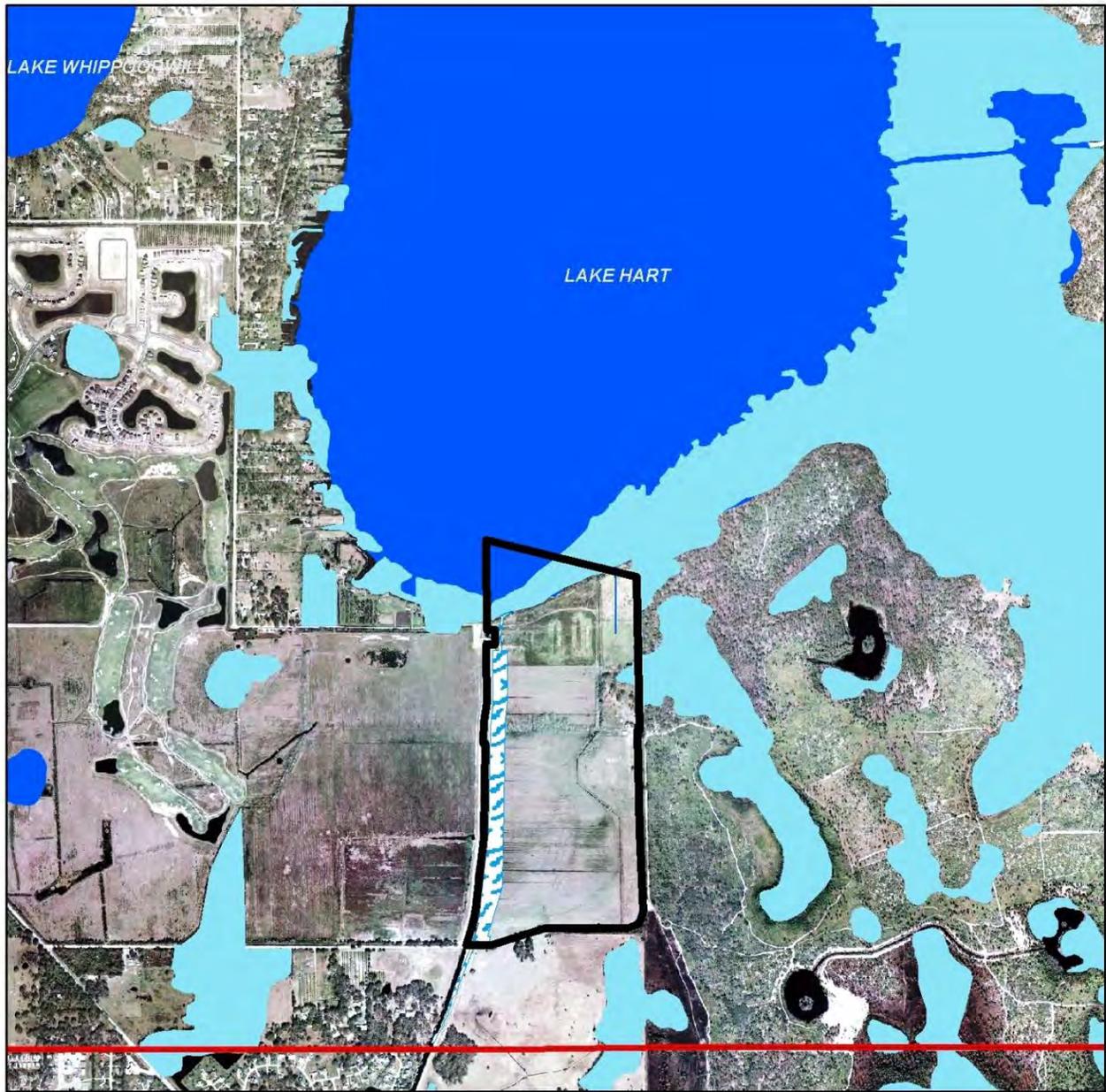
Actions:

- Explore TMDL (Total Maximum Daily Load) levels for Lake Hart.
- Investigate the possibilities on how the TMDL levels might be used to decrease water quality impairments.
- Investigate the movement of surface water through the property.

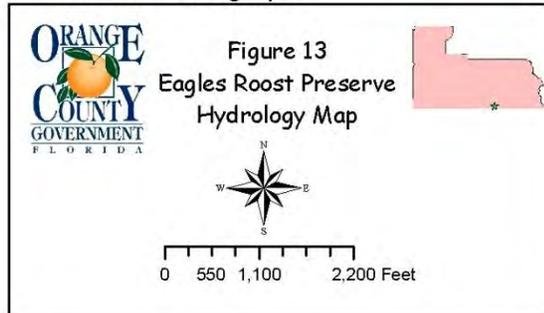
- Investigate the possibility of restoring the natural communities and topography back to historic conditions.
- Collect hydrological information on the property to assist in future restoration efforts.
- Plan and implement hydrological restoration efforts.



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2005 Aerial Photograph



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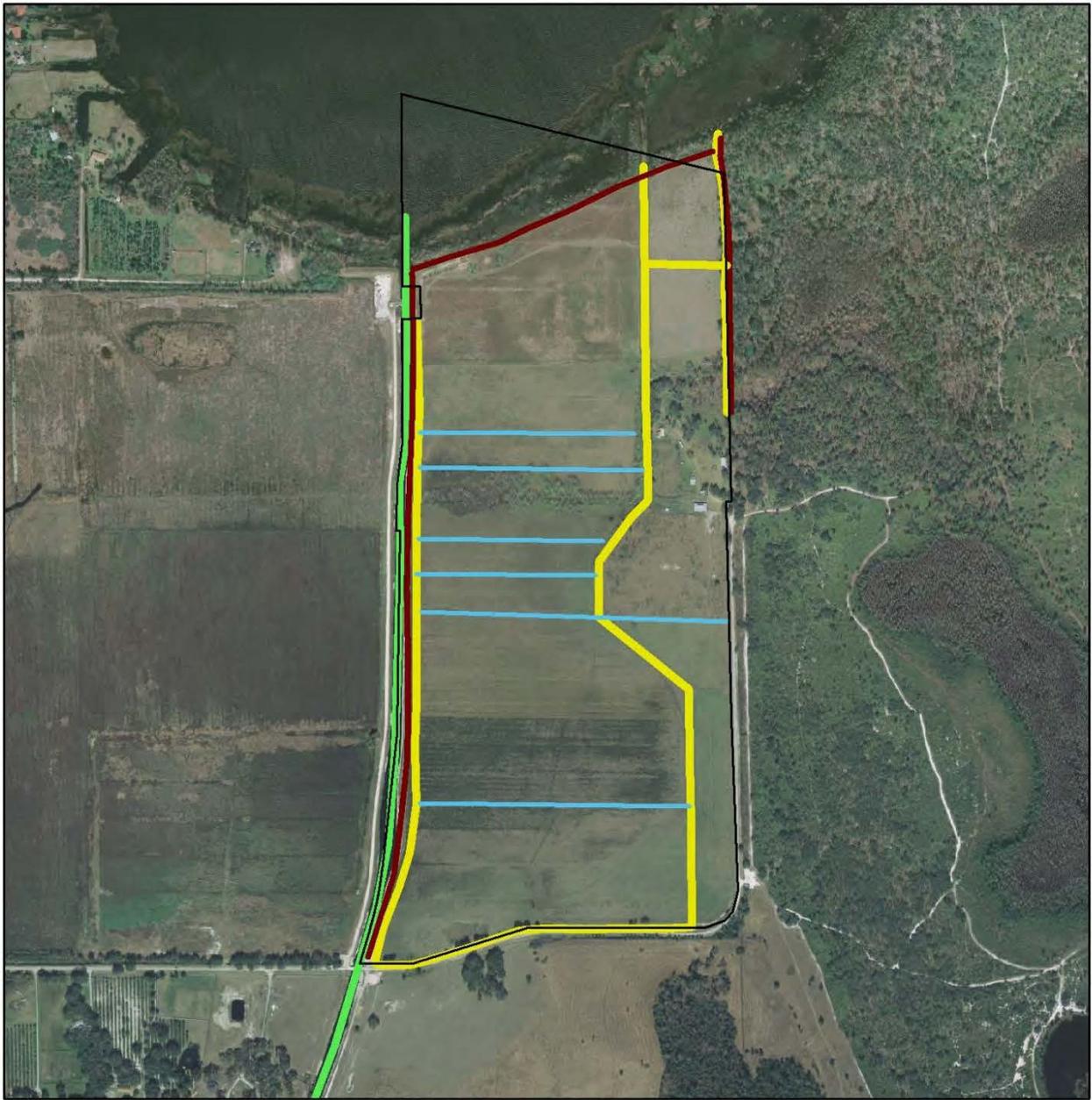
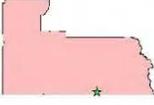



Figure 14
 Eagles Roost Preserve
 Hydrological
 Alteration Map





Legend

 Eagles Roost
Hydrological Alterations
 Berm
 Canal
 Ditch
 Swale

Orange County 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.

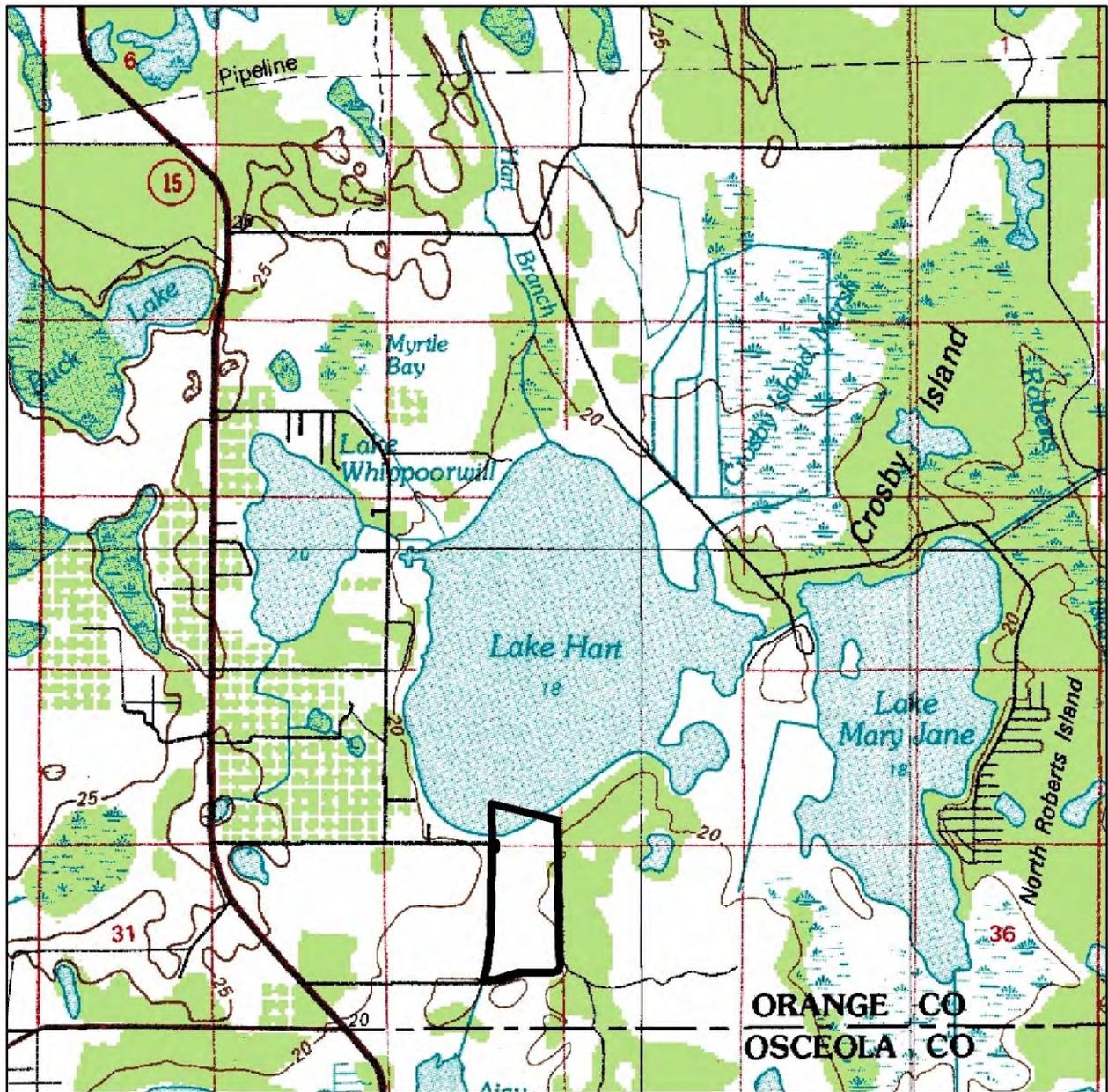
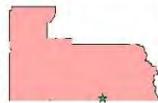


Figure 15
Eagles Roost Preserve
USGS Quadrangle
Map 1



0 0.2 0.4 0.8 Miles

Legend

 Eagles Roost

Orange County 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.

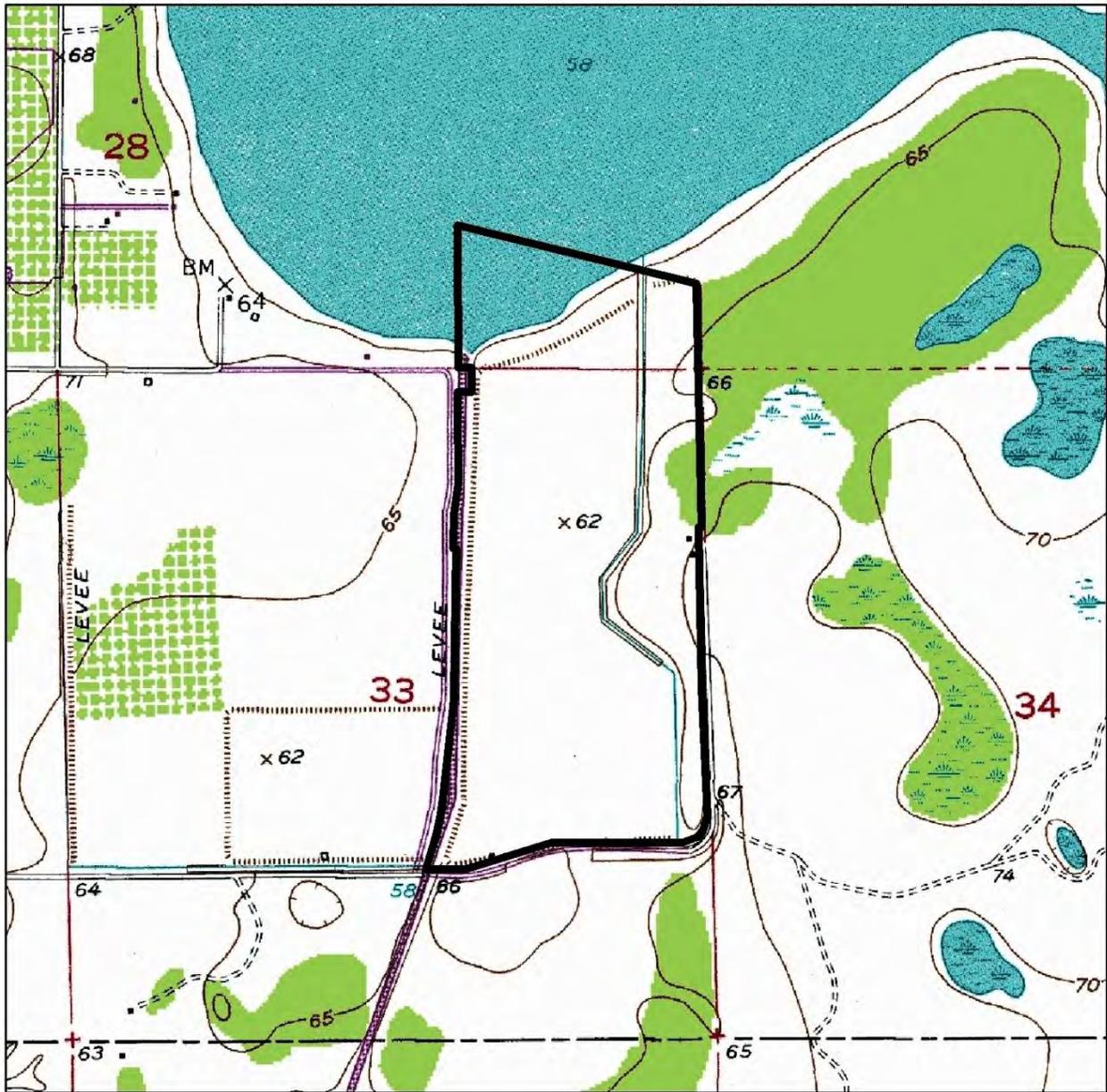
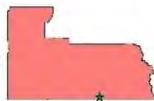


Figure 16
Eagles Roost Preserve
USGS Quadrangle
Map 2



0 0.05 0.1 0.2 Miles

Legend

 Eagles Roost

Orange County 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.

Soils

The dominant soil types within Eagles Roost, as defined by the Natural Resource Conservation Service (formerly the Soil Conservation Service) are as follows:

Basinger Fine Sand, Depressional
Hontoon Muck
Immokalee Fine Sand
Pomello Fine Sand
Samsula Muck
Sanibel Muck
Smyrna Fine Sand
St. Johns Fine Sand

Basinger Fine Sand, Depressional- Very deep, very poorly drained, rapidly permeable soils in depressions, poorly defined drainage ways, and floodplains. Slopes range from 0-2%. Natural vegetation consists of wax myrtle, St. Johns wort, maidencane, cypress, slash pine, longleaf pine, pond pine, and other water tolerant plants.

Hontoon Muck- This soil is nearly level and very poorly drained. It is found in freshwater swamps and marshes. Undrained areas are often ponded for 6 to 9 months. Slopes are smooth and less than 1 percent. Natural vegetation consists of cypress, red maple, sweetgum and water-tolerant grasses.

Immokalee Fine Sand- These soils are deep to very deep and poorly drained to very poorly drained soils. They occur on flatwoods and in depressions of Peninsular Florida. Slopes tend to be 0 – 2%, but may range to 5%. Principle vegetation is longleaf and slash pine with undergrowth of saw palmetto, gallberry, wax myrtle, and pineland threeawn. In depressions, water tolerant plants such as cypress, loblolly bay, red maple, sweetbay, maidencane, bluestem, sand cordgrass, and blue joint panicum are more common. Most areas with Immokalee soils are in rangeland and forests.

Pomello Fine Sand- Very deep, moderately well to somewhat poorly drained soils that are sandy to depths of more than 80 inches. Pomello soils were formed in sandy marine sediments in the flatwoods areas of peninsular Florida. Slopes range from 0-5%. Native vegetation is dominated by scrub oak, dwarf live oak, saw palmetto, longleaf pine, and slash pine.

Samsula Muck- Consists of very deep, very poorly drained, rapidly permeable soils. These soils are in swamps, poorly defined drainage ways, and floodplains. Slopes are less than 2%. Most areas are in native vegetation and used for water storage and as wildlife habitat. Natural vegetation consists of loblolly bay with scattered cypress, maple, gum, and pine trees with a ground cover of greenbriers, ferns, and other aquatic plants.

Sanibel Muck- Consists of very poorly drained sandy soils with organic surfaces. They formed in rapidly permeable marine sediments. The soils occur on nearly level to depressional areas with slopes less than 2%. Most areas are in natural vegetation, which consists of mostly sawgrass, ferns and sedges.

Smyrna Fine Sand- Smyrna soils consist of very deep to very poorly drained soils formed in thick deposits of sandy marine materials. Slopes range from 0-2%. Natural vegetation consists of longleaf and slash pines with an undergrowth of saw palmetto, gallberry, and panicum.

St. Johns Fine Sand- Consists of very deep, very poorly drained, moderately permeable soils on broad flats and depressional areas of the lower coastal plain. Slopes range from 0 to 2 percent. Principal vegetation of the forested areas is longleaf pine, slash pine, and pond pine with an undergrowth of saw palmetto, gallberry, wax myrtle, huckleberry and pineland threeawn.

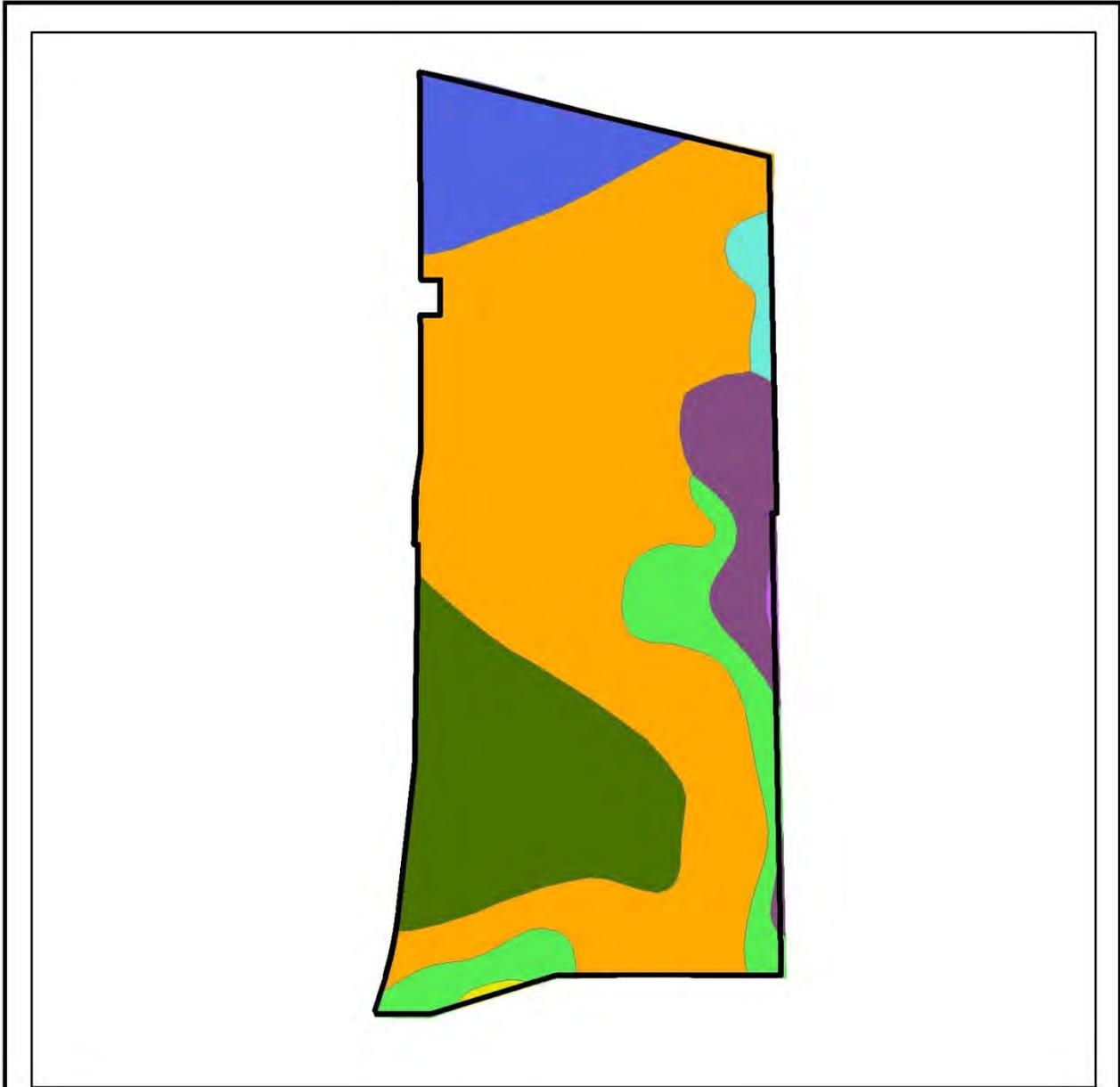
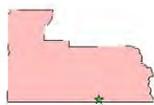
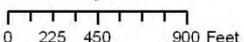



Figure 17
Eagles Roost Preserve
Soils Map





Legend

Soils

| Mapunit Name | Color |
|--|-------------|
| HONTOON MUCK | Dark Green |
| IMMOKALEE FINE SAND | Purple |
| POMELLO FINE SAND, 0 TO 5 PERCENT SLOPES | Yellow |
| SAMSULA MUCK | Orange |
| SANIBEL MUCK | Light Green |
| SMYRNA FINE SAND | Purple |
| ST. JOHNS FINE SAND | Cyan |
| WATER | Blue |

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Natural Communities

Eagles Roost consists of 3 natural communities. This information is summarized in Table 1.

A comprehensive survey of the property was conducted by staff from the Florida Natural Areas Inventory (FNAI) in September 2006. This survey along with field evaluation conducted by County staff resulted in the identification of several natural communities.

Table 1. Natural Communities

| <u>Natural Communities</u> | <u>Approximate Acreage</u> |
|----------------------------------|----------------------------|
| Improved Pasture | 209 |
| Basin Swamp | 2 |
| Flatwoods Lake | 21 |
| | |
| Approximate Total Acreage | 232 |

Improved Pasture

Grazing land permanently producing introduced or domesticated native forage species that receives varying degrees of periodic cultural treatment to enhance forage quality and yields and is primarily harvested by grazing animals. In Florida, improved pastures are areas where the native vegetation has been replaced with non-native species such as bahiagrass (*Paspalum notatum*) and St. Augustinegrass (*Stenotaphrum secundatum*). Often, improved pastures have been drained and are fertilized regularly. In the case of Eagles Roost, these areas are maintained by mowing activities.

BASIN WETLANDS

Basin Swamp

This community type is vegetated with hydrophytic trees and shrubs that can withstand an extended hydroperiod. Dominant plants include red maple, cypress, black gum, slash pine, wax myrtle, Virginia chain fern and lizard's tail. Without fire, hardwood invasion and peat accumulation will eventually create a Bottomland Forest or Bog. Typical fire intervals in Basin Swamps may be anywhere from 5 to 150 years. Cypress and pines are very tolerant of light surface fires, but muck fires burning into the peat can kill the trees, lower the ground surface, and transform a swamp into a pond or lake. Occasional fires are necessary to maintain the cypress and pine components.

LACUSTRINE

Flatwoods Lake

Typical plants include yellow eyed grasses (*Xyris spp.*), St. John's wort (*Hypericum spp.*), chain fern (*Woodwardia spp.*), maidencane (*Panicum hemitomom*), wax myrtle (*Myrica cerifera*), pickerelweed (*Pontederia cordata*), and sawgrass (*Cladium jamaicense*). Soils in these depressions generally consist of acidic sands with some peat and occasionally a clay lens. Water is derived mostly from runoff from the immediately surrounding uplands. This community functions as an aquifer recharge area by acting as a reservoir which releases groundwater when adjacent water tables drop during drought periods. Water generally remains throughout the year in a Flatwoods Lake, although water levels may fluctuate substantially.

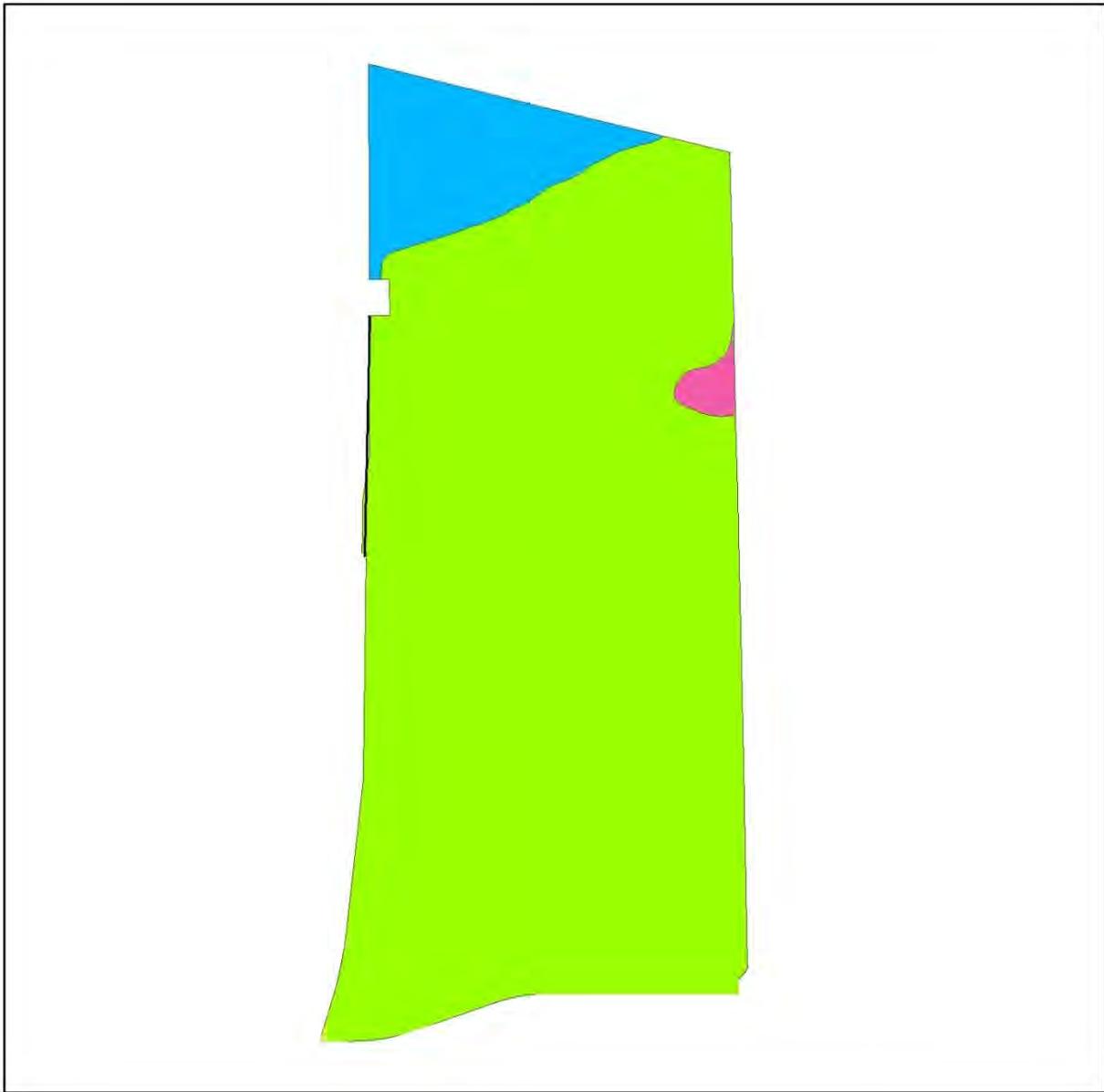


Figure 18
Eagles Roost Preserve
Natural Communities
Map



0 225 450 900 Feet

Legend

Natural Communities

-  flatwoods lake - 21 acres
-  basin swamp - 2 acres
-  pasture - improved - 209 acres

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Exotic Species

Plants

Exotic, non-indigenous, non-native, and alien species are all terms used to describe plants that are of foreign origin. Some exotic species can be invasive when they harm or displace native species and alter native ecosystem function.

In addition to invasive species such as Chinese tallow and tropical soda apple, there are also sparse to moderate amounts of encroaching landscape plant species throughout the property. A list of Eagles Roost's exotic invasive and nuisance species is provided in Table 2.

A detailed inventory of exotic invasive and nuisance plants has not been conducted and other exotic species are likely to exist on-site. Staff has prepared an inventory database for exotic invasive plant species found within Eagles Roost and are developing strategies to remove the species or to control their coverage. Staff are currently developing a comprehensive treatment and monitoring program to ensure the long-term removal of these species from property.

Table 2: Exotic Plants Species List – Eagles Roost

| Scientific Name | Common Name | Category |
|---------------------------------|---------------------|----------|
| <i>Cinnamomum camphora</i> | Camphor Tree | I |
| <i>Dioscorea bulbifera</i> | Air Potato | I |
| <i>Imperata cylindrica</i> | Cogon Grass | I |
| <i>Lantana camara</i> | Lantana | I |
| <i>Melinis repens</i> | Natal Grass | I |
| <i>Psidium cattleianum</i> | Strawberry Guava | I |
| <i>Ricinus communis</i> | Castor Bean | II |
| <i>Sapium sebiferum</i> | Chinese Tallow | I |
| <i>Solanum viarum</i> | Tropical Soda Apple | I |
| <i>Syngonium podophyllum</i> | Arrowhead Vine | I |
| <i>Urena lobata</i> | Caesar's Weed | II |
| <i>Xanthosoma sagittifolium</i> | Elephant Ear | II |

The Florida Exotic Pest Plant Council (FLEPPC) compiles invasive species lists that are revised every two years. Professional botanists and others perform exhaustive studies to determine invasive exotic plants that should be placed on the lists. Invasive exotic plants are termed as Category I, Category II, or Category E which are explained as the following:

Category I - Invasive exotics that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with native species. This definition does not rely on the economic severity or geographic range of the problem, but on the documented ecological damage caused.

Category II - Invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. These species may become ranked Category I, if ecological damage is demonstrated.

Category E- Exotics that are not or not yet classified in any other category.

Animals

At this time no exotic animal species have been observed at Eagles Roost.

Goal: Maintain and restore native natural communities including control of exotic species.

Strategy: Eradicate or control to a manageable level exotic invasive and nuisance species.

Actions:

- Develop a methodology and work plan to accomplish the identification of exotic plant and animal species.
- GPS the location of identified exotic species within and/or adjacent to the property.
- Control and eradication efforts of newly occurring or re-occurring populations of these undesirable species may include, but are not limited to, mechanical and chemical procedures with priority being given to Category I pest plants listed by FLEPPC.
- Routinely monitor the management area for new or re-occurrence of exotic invasive and nuisance species.
- Educate neighboring property owners and the public regarding the planting of undesirable plants or non-native plants as listed by FLEPPC.

General Wildlife

This property is characterized by a diversity of wildlife habitat. No comprehensive faunal surveys have been initiated for the property. For a list of observed species refer to Appendix E. Some examples of wildlife which may be found on the property include; wild turkey (*Meleagris gallopavo*), white-tailed deer (*Odocoileus virginianus*), and wood duck (*Aix sponsa*).

Listed Species (Fauna)

The United States Fish and Wildlife Services (USFWS) and the State of Florida under the auspices of the Florida Fish and Wildlife Conservation Commission (FWC) compile lists of protected wildlife species considered to be under possible threat of extinction. These listed species are categorized as Endangered, Threatened or Species of Special Concern. The Sherman's fox squirrel (*Sciurus niger shermani*), Florida sandhill crane (*Grus canadensis pratensis*), wood stork (*Mycteria americana*), Southeastern American kestrel (*Falco sparverius paulus*), white ibis (*Eudocimus albus*) and bald eagle (*Haliaeetus leucocephalus*), all listed species, have been observed on the property.

The Sherman's fox squirrel is State listed as a Species of Special Concern. Typical habitats are sandhills, pine flatwoods, and pastures and other open habitats with scattered pines and oaks. Although present in several conservation areas, Sherman's fox squirrel has been eliminated from much of its former habitat as a result of conversion to pine plantation, row crops or development.

In addition to the Sherman's fox squirrel, there are several listed species of birds that have been observed on the property including the Florida sandhill crane, Southeastern American kestrel, bald eagle, white ibis, and wood stork. Many are threatened primarily by loss of habitat. Habitat availability will become more of a concern as Florida continues to lose open rangeland and native prairie to development and more intensive agricultural uses. The Florida sandhill crane and Southeastern American kestrel are listed as Threatened species by the State while the Bald Eagle was recently delisted by the Federal government and the State of Florida. The white ibis is State listed as a Species of Special Concern while the wood stork is State and Federally listed as an Endangered species.

Listed Species (Flora)

A complete survey of flora species has not yet been conducted on this property. No listed flora species have been observed to date.

Goal: Maintain and protect listed species.

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

Actions:

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

RESOURCE MANAGEMENT

Restoration

This property will be managed in such a manner as to promote conditions favoring the natural and historical aspects of the property. As evidenced by historical aerial photographs, the type of vegetative cover that characterized the property prior to the 1930's is very different to that of present day. These differences are attributed to cultural and management activities including changes in the natural drainage patterns brought about by the installation of major canals, ditches, and berms, and agricultural pursuits such as the conversion of pasture and the grazing of cattle. Figure 14 refers to some of these changes throughout the property.

Besides the wetland areas located along the lakeshore and on the east side of the property, few natural communities exist on the property. Soil maps and historical aerials indicate that forested wetland areas flourished west of the main ditch that traverses through the property; while areas east of the ditch contained upland communities such as xeric oak hammock and mesic flatwoods. Due to the altered drainage and conversion to pasture, some historic wetland areas appear to have lost much of their hydric soil qualities and may have succeeded into drier habitats. Hydrological alterations may be irreversible, changing future restoration goals. Some areas that were historically forested wetlands may be restored to a different natural community such as a wet or mesic flatwoods. Current pasture areas and hydrological alterations will require extensive restoration activities to rehabilitate the site to natural communities.

Goal: Maintain and restore native natural communities (including control of exotic species).

Strategy: Develop and implement a detailed restoration plan for the property.

Actions:

- Investigate the hydrological alterations existing on and adjacent to the property and develop a way to collect hydrological information.
- Investigate pasture restoration resources and techniques that can be used on the property.
- Develop and implement planting plans of areas that will and will not require pasture or hydrological restoration.
- Develop projected costs for restoration evaluation and implementation.

Forest and Fire Management

Forest and fire management activities are critically important and integrally linked. It is crucial to understand that the planning and application of forest and fire management activities must be coordinated to achieve restoration and management goals. Both fire management activities and forest management activities can be useful tools in promoting natural community diversity and reducing potentially hazardous fuel loads.

Forest Management

Slash pine may be harvested from the small basin swamp on the east side of the property as part of a future restoration plan. Over several decades, these slash pines have invaded the wetland area due to the hydrologic disturbances and the exclusion of periodic fire on the property. There is no other timber on the property that would require harvesting for habitat enhancement. However, there is a need for extensive restoration activities, including the replanting of canopy species, on both upland and wetland areas. These replanting areas will be addressed in more detail in future operational plans.

Fire Management

The overall forest management program for the property will include the use of prescribed fire. Prescribed fire is the preferred management technique to be employed for habitat maintenance and restoration on the property.

Utilizing prescribed fire within Eagles Roost will benefit ecosystems that have evolved under the influences of this natural process in Florida. The Orange County Environmental Protection Division is responsible for protecting the rich biological diversity of its natural lands by actively managing it. It is widely recognized that prescribed fire, applied in established frequencies specific to each ecosystem, is an important land management tool to promote biodiversity through the reintroduction of fire to dependant ecosystems. Prescribed fire also has the added benefit of lowering and maintaining fuel loads, thus mitigating the behavior and effects of wildfires that start in or outside of the property.

Natural communities within Eagles Roost will be evaluated to determine any constraints upon the use of prescribed burning posed by natural site conditions and adjacent land uses. When necessary, other methods, including mowing and herbicide will be utilized in place of prescribed burning. These alternative strategies will be emphasized in areas where fire cannot be applied at all or when the required prescribed burning weather conditions are defined within such a narrow parameter that they are infrequently met. In the short term, prescribed fire may be used in lieu of mowing activities and/or in conjunction with restoration activities.

Goal: Maintain and restore native natural communities.

Strategy: Develop a prescribed fire management program on Eagles Roost.

Actions:

- Create a fire management plan that includes management unit/subunit maps and corresponding fuel load information.
- Implement a wildfire policy.
- Develop cooperation with other agencies.
- Implement a fire line installation standard operating procedure (SOP).
- Implement a fire line maintenance schedule.
- Develop and implement a standard burn prescription.

PUBLIC ACCESS AND USE

Access

Adequate access is a necessity for land management activities. Law enforcement patrol, prescribed burning activities, restoration activities, and fire suppression are but a few of the activities that benefit from improved road access. There are currently two gates off of the southern corners of the property, as well as a main access gate off of the end of Clapp Simms Duda Road. This main access gate is part of the Back to Nature, Inc. leased property as of 2007. The two southern gates are in poor condition and may need replaced if they become the main access for the property.

Internal access to some areas of the property is limited by weather. Throughout the property, low areas become very wet and high areas become excessively dry depending on the season. The main north/south ditch running through the property, and wet areas along the middle of the property, may obstruct internal access from the southern gates to northern parts of the property. Access to the northern parts of the property through the Back to Nature, Inc. leased area is being addressed through the site plan for Back to Nature.

A road and trail system has been developed with road improvements that will facilitate the movement of vehicles, as well as heavy equipment for restoration and maintenance purposes. Additional road and trail improvements could include the following widening and leveling current roads, installing culverts or low water crossings, dirt filling existing ditches, or capping soft roads with shell, rock or clay. A Parking area for the site has been constructed by Back to Nature for all users of the property.

Goal: Provide access to all areas of the property.

Strategy: Continue to develop a road and trail plan that addresses access issues and includes maintenance plans with associated costs.

Actions:

- Address access issues for access to the northern parts of the property.
- Develop a road/trail construction and maintenance plan with associated costs.
- Address access issues during the development of restoration plans.
- Address the southern access gates for maintenance or replacement.
- Address future parking areas.

Recreation

Recreational opportunities are essential to establish for all Green PLACE properties. Public uses for all Green PLACE properties are broken down into 3 categories: Primary, Secondary and Prohibited. These categories were developed in conjunction with Green PLACE AD Hoc Advisory Committee and subsequently approved by the Orange County Board of County Commissioners. Due to the nature of the habitats and their quality, primary and some secondary uses are planned at this stage to be allowed to occur on the

property. In the future, EPD will evaluate the site to determine if any additional secondary uses would be compatible on the property. The approved Property Uses is attached as Appendix A.

Goal: Provide recreational opportunities for the public.

Strategy: Develop a trail system that allows access to the various habitats.

Actions:

- Delineate proposed trail system utilizing GIS and the most current aerials.
- Ground truth proposed multi-trail layout.
- Build trail and other associated amenities.
- Restore or replace existing dock structure on Lake Hart.

Environmental Education

Environmental education is essential to a successful land acquisition and management program. Educating the public on the benefits of a land acquisition program will enhance your public support base for future bond issues. Secondly, educating the public on the types of land management activities that need to be performed, such as prescribed fire and timber harvesting, will lessen negative feedback from the public when these activities are conducted. Lastly, a good educational program will increase the public's knowledge of the diverse plant and animal species that occur in Florida and give them a better understanding of the uniqueness and beauty of Florida's various ecosystems.

In addition, Back to Nature will be able to provide educational support for the property and the Green PLACE program. This education can be in many forms such as:

- Providing Green PLACE brochures and educational signage for the public promoting Green PLACE's recreational activities and land management goals.
- Providing environmental education as it relates to the Eagles Roost property.
- Providing public events that attract the public to the property that promote its location and opportunities for passive recreation.

Goal: Develop an educational program specific to the Eagles Roost property.

Strategy: Develop a Docent program that can be utilized for all properties. Develop a land management presentation that can be that can be customized to the specific needs of each property.

Actions:

- Develop an interpretative trail for Eagles Roost.
- Coordinate with Back To Nature, Inc. on the development and implementation of educational opportunities.
- Provide educational opportunities to the surrounding private landowners on the specific land management activities that are proposed for the property.

Security

Adequate security is essential for all Green PLACE properties. Security in the form of fences and authorized access points will reduce the incidence of trespassing on Green PLACE properties and minimize the damage to the property from unauthorized activities. In addition, securing the boundaries will reduce the County's liability.

The relocation of Back to Nature, Inc. to Eagles Roost is also expected to help with security issues by providing additional presence and support to the property.

Goal: Identify authorized public access points.

Strategy: Develop a general security Standard Operation Procedure (SOP) for all Green PLACE properties.

Actions:

- Maintain the fencing along the property boundaries.
- Coordinate with Orange County Sheriff's Department to patrol property.
- Post signage that identifies authorized access points for the property and authorized uses that are allowed on the property.
- Develop a SOP for patrolling the property to identify and correct security issues on a timely basis.
- Coordinate with Back to Nature, Inc. regarding security issues.

IMPLEMENTATION TIMELINE

| ACTION | TIMELINE |
|--------|----------|
|--------|----------|

Strategy: Restore or improve the hydrology and topography to its original state on Eagles Roost Preserve.

| | |
|---|------------|
| Explore TMDL (Total Maximum Daily Load) levels for Lake Hart | Short-term |
| Investigate the possibilities on how the TMDL levels might be used to decrease water quality impairments | On-going |
| Investigate the movement of surface water through the property | Short-term |
| Investigate the possibility of restoring the natural communities and topography back to historic conditions | Long-term |
| Collect hydrological information on the property to assist in future restoration efforts | Short-term |
| Plan and implement hydrological restoration efforts | Long-term |

Strategy: Eradicate or control to a manageable level exotic invasive and nuisance species.

| | |
|--|------------|
| Develop a methodology and work plan to accomplish the identification of exotic plant and animal species | Short-term |
| GPS the location of identified exotic species within and/or adjacent to the property | On-going |
| Control and eradication efforts of newly occurring or re-occurring populations of these undesirable species may include, but are not limited to, mechanical and chemical procedures with priority being given to Category I pest plants listed by FLEPPC | On-going |
| Routinely monitor the management area for new or re-occurrence of exotic invasive and nuisance species | On-going |
| Educate neighboring property owners and the public regarding the planting of undesirable plants or non-native plants as listed by FLEPPC | On-going |

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

| | |
|--|------------|
| Develop a methodology and work plan to accomplish the survey for and identification of designated plant and animal species | On-going |
| Plot the location of identified designated species within and/or adjacent to the property for use in the implementation, or re-distribution, of amenities or site improvements | Short-term |
| Periodically update these baseline survey data to determine possible changes in designated species distribution or density | Short-term |

| | |
|---|----------|
| Implement habitat enhancement and restoration activities for listed species (i.e., removal of exotic/nuisance species, restoration of ecosystem function, prescribed fire). | On-going |
| Establish periodic monitoring of habitat suitability (where indices are available for a given species), species population levels, diversity levels, and exotic/nuisance species, as a means of evaluating the success of management strategies | On-going |

Strategy: Develop and implement a detailed restoration plan for the property.

| | |
|---|------------|
| Investigate hydrological alterations existing on and adjacent to the property and develop a way to collect hydrological information | Long-term |
| Investigate pasture restoration resources and techniques that can be used on the property | Short-term |
| Develop and implement planting plans of areas that will and will not require a pasture or hydrologic restoration | Short-term |
| Develop projected costs for restoration evaluation and implementation | Ongoing |

Strategy: Develop a prescribed fire management program for Eagles Roost Preserve

| | |
|--|------------|
| Create a fire management plan that includes management unit/subunit maps and corresponding fuel load information | Immediate |
| Implement a wildfire policy | Immediate |
| Develop coordination with other agencies | On-going |
| Implement a fire line installation standard operating procedure (SOP) | Short-term |
| Implement a fire line installation maintenance schedule | Short-term |
| Develop and implement a standard burn prescription | Short-term |

Strategy: Develop a road and trail plan that addresses access issues and includes maintenance plans with associated costs

| | |
|--|------------|
| Address access issues for the property | Immediate |
| Develop a road and trail construction and maintenance plan with associated costs | Immediate |
| Address access issues during the development of restoration plans | Long-term |
| Address the southern access gates for maintenance or replacement | Short-term |
| Address future parking areas | Long-term |

Strategy: Develop a trail system that allows access to the various habitats

| | |
|--|-----------|
| Delineate proposed trail system utilizing GIS and the most current aerials | Long-term |
| Ground truth proposed multi-trail layout | Long-term |
| Build trail and other associated amenities | Long-term |
| Restore or replace existing dock structure on Lake Hart | Long-term |

Strategy: Develop a Docent program that can be utilized for all properties. Develop a land management presentation that can be that can be customized to the specific needs of each property.

| | |
|--|------------|
| Develop an interpretive trail for Eagles Roost | Long-term |
| Coordinate with Back To Nature, Inc. on the development and implementation of an educational program | Short-term |
| Presentation to Eagle Creek HOA and surrounding private landowners on the specific land management activities that are proposed for the property | Short-term |

Strategy: Develop a general security Standard Operation Procedure (SOP) for all Green PLACE properties.

| | |
|---|------------|
| Maintain the fencing along the property boundaries | On-going |
| Coordinate with the Orange County Sheriff's Department to patrol property | On-going |
| Post signage that identifies authorized access points for the property and authorized uses that are allowed on the property | Short-term |
| Develop a SOP for patrolling the property to identify and correct security issues on a timely basis | Immediate |
| Coordinate with Back to Nature, Inc. regarding security issues. | Long-term |

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Appendix A
Resolution approving Property Uses for Green PLACE properties



Interoffice Memorandum
COMMUNITY AND ENVIRONMENTAL SERVICES DEPARTMENT

APPROVED
BY ORANGE COUNTY BOARD
OF COUNTY COMMISSIONERS
APR 17 2007 *KJ/BW*

AGENDA ITEM

April 5, 2007

TO: Mayor Richard T. Crotty
-AND-
Board of County Commissioners

FROM: Lori Cunniff, Manager
Environmental Protection Division *Lori Cunniff*

SUBJECT: April 17, 2007, Consent Item
Approval of the Green PLACE Ad Hoc Advisory Committee Recommendation
for Property Uses on Green PLACE Properties

During the Board of County Commissioners' meeting on July 11, 2006, the Board directed the Environmental Protection Division (EPD) to work with the Green PLACE Ad Hoc Advisory Committee (Committee) to develop a list of appropriate and inappropriate uses on Green PLACE properties. The Orange County Parks and Recreation Division also provided input to the Committee on the subject matter. The Committee discussed the appropriate and inappropriate uses for Green PLACE properties during several meetings. The Committee approved the attached recommended list of property uses at its October 18, 2006 meeting.

The recommended list identifies primary, secondary and prohibited uses. The primary uses would be allowed on all Green PLACE properties. Secondary uses would be allowed on a case-by-case and site-specific basis depending on the environmental characteristics of the particular Green PLACE property and the compatibility of the proposed secondary use. The prohibited uses would not be allowed on any Green PLACE Properties. The Environmental Protection Manager, sitting as the Environmental Protection Officer (EPO), and the Committee would evaluate any proposed uses not identified on the recommended list on a case-by-case basis, with final approval by the Board.

ACTION REQUESTED: Approval of the Green PLACE Ad Hoc Advisory Committee recommendations for Green PLACE property uses.

Attachment

- c: Ajit Lalchandani, County Administrator
Linda Weinberg, Deputy County Administrator
Melvin Pittman, Director, Community and Environmental Services Department
John T. Terwilliger, Director, Administrative Services Department
Joel D. Prinsell, Deputy County Attorney, Orange County Attorney's Office
George Hart, Deputy Director, Administrative Services Department
Anthony Cotter, Assistant County Attorney, Orange County Attorney's Office



Property Uses

Update 03/06/07

| Primary Uses | Secondary Uses | Prohibited Uses |
|----------------------------------|--|--|
| On-grade Hiking Trails | Multi-Use Trails | Skateboard/BMX |
| Educational Signage | Viewing Platforms | All-terrain Vehicles |
| Bird Watching | Equestrian | Motorized Boating |
| Wildlife Observation | Bicycling | RV Camping |
| Nature Interpretation | Tent Camping-Primitive/Designated | Target Practice/Shooting Sports |
| Photography | Cattle Grazing | School Sites |
| Habitat Preservation-Flora/Fauna | Canoeing/Launch | Ball fields |
| Ecosystem Services | Non-motorized Boating | Stormwater Ponds |
| Resource Management | Fishing | Institutional Uses |
| | Native Wildlife Recipient Sites | Paved Roads |
| | Research Areas | Bike Trails-Paved |
| | Wildlife Rehabilitation Centers | Cabins |
| | Support Facilities | Commemorative Areas |
| | Picnic Areas | Boat Ramps |
| | Nature Center | Jetties |
| | Bike Trails-Unpaved | Marinas/Slips |
| | Paddling Trails | Ropes Course |
| | Special Opportunity Hunting | Trail Blazing |
| | Geocaching/Orienteering | Exercise Trails |
| | Swimming/Snorkeling (not posted) | Motorcycle Trails |
| | Catwalks | Beach/Beach Area |
| | Wildlife Drives (limited to preexisting roads) | Windsurfing |
| | Boardwalks | Miniature Boat Racing |
| | Tubing | Spelunking |
| | Piers | SCUBA/Skin Diving |
| | | Feeding of Wildlife |
| | | Viewing Optics |
| | | Paintball |
| | | Toy Airplane/Kite Flying |
| | | Pet Recreation |
| | | Collection/Harvesting of Materials |
| | | Cell Phone and Telecommunications Towers |
| | | Electric Substations |
| | | Utility Facilities |
| | | |
| | | |

*Uses not identified by this chart shall be evaluated for compatibility by the EPO and the Green PLACE Committee with final approval from the Orange County Board of County Commissioners.

Appendix B
Warranty Deed

All of the above described property lying North of a calculated line being the approximate center of an existing road known as Duda Road and/or Clapp Sims Duda Road ("Duda Road "Description) as mentioned in Deed Book 649, Pages 124 thru 126 of the Public Records of Orange County, Florida, and East of a calculated line being the approximate center of a Drainage Canal Easement ("Drainage Easement" Description) previously described in Official Records Book 1667, Page 245 and 246, Public Records of Orange County, Florida, the Southerly, Easterly and Northerly boundary line of a less out mentioned in that description and the Northerly and Southerly extension of the aforementioned calculated line said calculated line with its Point of Beginning lying on the East line of Section 33 North of the Southeast corner of said Section 33 a distance of 1769.78 feet, its Point of Termination being its intersection with the Southerly extension of a calculated line being the approximate center of a Drainage Canal Easement described in Official Records Book 1667, Pages 245 and 246 of the Public Records of Orange County, Florida and mentioned later in this description.

DUDA ROAD DESCRIPTION

Run Westerly along the aforementioned line the following courses and distances. From the Point of Beginning, said point also being the point of curvature of a curve, concave Westerly, having a radius of 225.00 feet and a central angle of 90°58'45", a chord bearing of South 42°39'40" West; thence run Southerly and Westerly 357.27 feet along the arc of said curve to the point of tangency thereof; thence South 88°09'02" West, 168.42 feet, thence North 89°36'38" West, 399.30 feet; thence South 87°53'26" West, 337.45 feet to the point of curvature of a curve, concave Southerly, having a radius of 1000.00 feet and a central angle of 17°04'50"; thence run Southwesterly 298.11 feet along the arc of said curve to the point of tangency thereof; thence South 70°48'36" West 463.79 feet to the point of curvature of a curve, concave Northerly, having a radius of 1000.00 feet and a central angle of 16°08'58"; thence run Southwesterly 281.86 feet along the arc of said curve to the point of tangency thereof; thence South 86°57'34" West, 239.45 feet to its Point of Termination; and

DRAINAGE EASEMENT DESCRIPTION

Having as its Point of Beginning the Point of Termination of the previously described line; thence from said point run along the approximate centerline the following nine (9) courses and distances; (1) North 15 Degrees 07 Minutes 08 Seconds East, a distance of 812.62 feet; (2) North 00°40'52" West 2202.61 feet; (3) North 06°26'08" East, 254.24 feet; (4) North 01°52'52" West, 767.30 feet; (5) North 88°06'51" East, 115.00 feet; (6) North 01°52'54" West, 200.00 feet; (7) South 88°06'51" West, 110.00 feet; (8) North 01°52'52" West, 18.13 feet to the South line of said Section 28, also being the South line of Government Lot 4; (9) thence continue North 01°52'52" West, 801.37 feet to the North line of said Drainage Canal Easement; thence continue North 01°52'52" West 360.39 feet to a point of intersection with the Northerly line of Government Lot 4, said point also being the Point of Termination.

Parcel Identification Number: **33-34-31-0000-00013**

Subject to all reservations, covenants, conditions, restrictions and easements of record and to all applicable zoning ordinances and/or restrictions imposed by governmental authorities, if any.

To Have and to Hold, the same in fee simple forever.

And the grantor hereby covenants with said grantee that the grantor is lawfully seized of said land in fee simple; that the grantor has good right and lawful authority to sell and convey said land; that the grantor hereby fully warrants the title to said land and will defend the same against the lawful claims of all persons whomsoever; and that said land is free of all encumbrances except taxes accruing subsequent to December 31st of 2005.

In Witness Whereof, the said Grantor has caused this instrument to be executed in its name, the day and year first above written.

LAKE HART PROPERTIES, LLC, a Florida limited liability company

N. Scott Novell
By: N. Scott Novell, Managing Member

Signed, sealed and delivered in our presence:

Russell L. Corvino
Witness Signature

Print Name: Russell L. Corvino

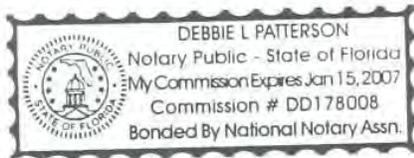
Ruby Fortson
Witness Signature

Print Name: Ruby Fortson

State of **Florida**

County of **Orange**

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED before me on **May 11, 2006**, by **N. Scott Novell, as Managing Member, on behalf of LAKE HART PROPERTIES, LLC, a Florida limited liability company** who is personally known to me or who has produced a valid drivers license as identification.



D. e. Patterson
NOTARY PUBLIC

Printed Name of Notary
My Commission Expires: _____

| | |
|---|--------------------------------|
| Supplemental Page HUD-1 Settlement Statement | File No. 2037-1110048 |
| First American Title Insurance Company Settlement Statement | Loan No. |
| | Settlement Date: 05/11/2006 |
| Borrower Name & Address: ORANGE COUNTY P.O. Box 1393, Orlando, FL 32802-1393 | |
| Seller Name & Address: LAKE HART PROPERTIES, LLC 1710 Lee Road Orlando, FL 32810 | |

| Section L. Settlement Charges continued | Paid From Borrower's Funds at Settlement | Paid From Seller's Funds at Settlement |
|--|---|---|
| 1108. Supplemental Summary | 22,950.00 | |
| a) Owner's Title Policy - First American Title Insurance Company | 22,950.00 | |
| 1201. Supplemental Summary | 27.00 | |
| a) Record Warranty Deed - Clerk of the Circuit Court | 27.00 | |
| 1203. Supplemental Summary | 59,500.00 | |
| a) State Documentary Transfer Tax - Clerk of the Circuit Court | | 59,500.00 |

| Section J. Summary of Borrower's Transaction continue | | |
|---|------------------|------------------|
| i. Gross Amount Due From Borrower | Borrower Charges | Borrower Credits |
| 200. Amounts Paid By Or In Behalf of Borrower | | |
| 201. Supplemental Summary | | 8,523,460.50 |
| a) Closing Costs | | 8,523,460.50 |

| The following Section is restated from the Settlement Statement Page 1 | | | |
|--|--------------|--|--------------|
| 300. Cash At Settlement From/To Borrower | | 600. Cash At Settlement To/From Seller | |
| 301. Gross amount due from Borrower (line 120) | 8,523,452.00 | 601. Gross Amount due to Seller (line 420) | 8,500,000.00 |
| 302. Less amounts paid by/for Borrower (line 220) | 8,523,460.50 | 601. Less reductions in amounts due to Seller (line 520) | 3,088,045.35 |
| 303. Cash (From) (X To) Borrower | 8.50 | 603. Cash (X To) (From) Seller | 5,411,954.65 |

I have carefully reviewed the HUD-1 Settlement Statement and to the best of my knowledge and belief, it is a true and accurate statement of all receipts and distributions made on my account or by me in this transaction. I further certify that I have received a copy of the HUD-1 Settlement Statement.

BUYER(S):

Orange County, a charter county and a political subdivision
of the State of Florida

Ann Caswell
By: _____

SELLER(S):

LAKE HART PROPERTIES, LLC, a Florida
limited liability company

N. Scott Novell
By: N. Scott Novell, Managing Member

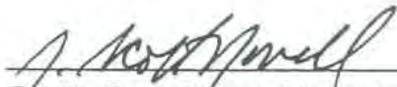
First American Title Insurance Company

By: D. E. Patterson
Debbie Patterson

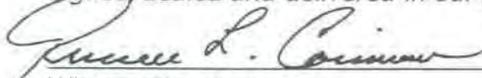
And the grantor hereby covenants with said grantee that the grantor is lawfully seized of said land in fee simple; that the grantor has good right and lawful authority to sell and convey said land; that the grantor hereby fully warrants the title to said land and will defend the same against the lawful claims of all persons whomsoever; and that said land is free of all encumbrances except taxes accruing subsequent to December 31st of 2005.

In Witness Whereof, the said Grantor has caused this instrument to be executed in its name, the day and year first above written.

LAKE HART PROPERTIES, LLC, a Florida limited liability company


By: N. Scott Novell, Managing Member

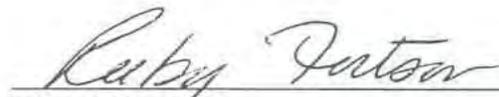
Signed, sealed and delivered in our presence:


Witness Signature

Print Name: Russell L. Corriveau

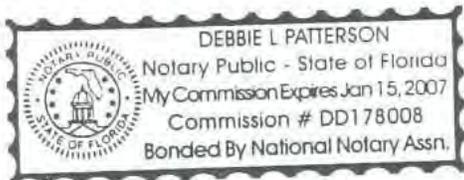
State of **Florida**

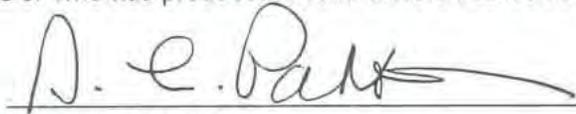
County of **Orange**


Witness Signature

Print Name: Ruby FONTSON

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED before me on **May 11, 2006**, by **N. Scott Novell, as Managing Member, on behalf of LAKE HART PROPERTIES, LLC, a Florida limited liability company** who is personally known to me or who has produced a valid drivers license as identification.




NOTARY PUBLIC

Printed Name of Notary _____
My Commission Expires: _____

Appendix C
Back To Nature Lease

ORANGE COUNTY, FLORIDA

AND

BACK TO NATURE WILDLIFE, INC.

LEASE AGREEMENT

THIS LEASE AGREEMENT, is entered into by and between Orange County, a charter county and political subdivision of the State of Florida, whose address is P.O. Box 1393, Orlando, Florida 32802-1393 ("Lessor") and Back to Nature Wildlife, Inc., a Florida non-profit corporation, whose principal address is 18515 East Colonial Drive, Orlando, Florida 32820 ("Lessee"), and is based on the following premises:

WITNESSETH:

1. *Premises.* Lessor, in consideration of the payments to it by Lessee of the rents herein contained, which receipt is hereby acknowledged, does hereby lease to the Lessee the property located as described and shown on Exhibit "A" ("Leased Premises"). The Leased Premises contains approximately 20 acres of usable area. Lessee accepts the Leased Premises "As is".

2. *Term.* The initial term of this Lease shall commence at a time mutually agreed by the parties, to be evidenced by execution of a "Certificate of Commencement," and shall expire at midnight on the fifteenth anniversary of the execution of the Certificate Of Commencement by Orange County ("Lease Term"). Authority is hereby delegated to the Manager of the Orange County Real Estate Management Division to determine the proper date and execute the Certificate of Commencement on behalf of Lessor. The term "Lease Term" shall include the term of all renewals of this Agreement. Lessee may renew this lease upon its expiration for four consecutive terms of up to 5 years each by providing written notice to Lessor 120 days prior to the expiration of the initial term of this Agreement and each renewal period. Decisions pertaining to such renewal shall be at Lessor's sole option, provided that Lessee not be in default of any of the terms or conditions of this Lease at the time of such renewal.

3. *Rent.* As rent for the use and occupancy of the Leased Premised during the Lease Term, Lessee shall pay to Lessor in lawful money of the United States of America the sum of \$10 per year for the term of the lease, payable in full for the entire term on or before the first day of occupancy.

(a) In addition to rent as described above, Lessee shall pay all sales, use, or rental taxes applicable to the Leased Premises or to the leasehold. Said taxes to be paid with the rent described above and any stamp tax or other documentary tax assessed upon or measured by this leasing transaction, and on any document to which Lessee or Lessor is a party for the purpose of creating or transferring a leasehold interest or estate in the Leased Premises. Lessee shall pay before delinquency all ad valorem and non-ad valorem taxes and assessments, if any, whether general or special and all tangible or intangible personal property taxes and assessments of any kind or nature and any and all taxes and other charges which may be levied by any governmental authority against the property, Lessee's leasehold interest in the Leased Premises, or Lessee's leasehold improvements to or personal property located on the Leased Premises, in the event the Leased Premises are subject to same.

(b) This Lease shall be deemed to be "absolute net" without cost or expense to Lessor of any nature whatsoever relating to any facilities placed thereon, including, without limitation, those relating to taxes, if any, insurance, repair, maintenance, use, care or operation.

(c) Any and all sums of money or charges required to be paid to Lessor by Lessee under this Lease other than the rent shall be considered "Additional Rent," whether or not the same is specifically so designated and Lessor shall have the same rights to enforce due and timely payable by Lessee of all Additional Rent as are available to Lessor with regards to rent.

4. *Insurance.* Lessee shall maintain "all-risk" property insurance, including furniture, fixtures and equipment, together with the value of any tenant improvements made to the Leased Premises, for the full replacement value of such property now upon or hereafter placed upon the Leased Premises. Lessee shall procure and maintain at its expense throughout the term of this Lease, the following insurance policy(s):

- (a) General liability insurance in an amount not less than:
 - i. \$300,000.00 for the first year of the lease;
 - ii. \$400,000.00 for the second year of the lease;
 - iii. \$500,000.00 for the third year of the lease;
 - iv. \$600,000.00 for the fourth year of the lease;
 - v. \$700,000.00 for the fifth year of the lease;
 - vi. \$800,000.00 for the sixth year of the lease;
 - vii. \$900,000.00 for the seventh year of the lease; and
 - viii. \$1,000,000.00 for the eighth year of the lease and each year thereafter.

The general liability insurance shall cover the Lessee, Lessor and any others designated by Lessor against liability for injury and/or death of any persons or persons and for damage to personal property occasioned by or arising out of any construction, condition, use or occupancy of the Leased Premises. Lessor, in its sole discretion may reduce the required amount of general liability insurance set forth in this paragraph 4.(a) upon demonstration by Lessee that Lessee has used its best efforts to comply with this paragraph, but is unable to obtain the required amount. Authority is hereby delegated to

the Manager of the Real Estate Management Division to approve any reduction in the general liability amount. An approval of a reduction in the amount of general liability insurance shall be in writing and signed by both Lessee and the Manager of the Orange County Risk Management Division. Any reduction in the amount of general liability insurance shall only be effective for one year. However, Lessee may seek reductions each year, subject to the terms of this paragraph and review by the Manager of the Orange County Risk Management Division, or successor subdivision of Orange County.

(b) Fire/casualty and extended coverage insurance in an amount not less than the full replacement value of Lessee's furniture, equipment, supplies and any other property owned, leased, held or possessed by it.

(c) Said general liability policies referenced in subparagraphs 4.(a) and 4.(b) shall carry the name of the Lessee as the named insured and Lessor as additionally insured as their respective interest may appear and Lessee shall provide Lessor with a certificate of insurance prior to the Lease commencement date and shall exhibit receipts showing payment of premiums on request from Lessor. Such policy shall further provide that the insurer shall not cancel, alter or allow expiration or other termination thereof without at least thirty (30) days prior written notice from such insurer to Lessor.

(d) Workers' compensation coverage for its employees with statutory workers' compensation limits, and no less than \$100,000 for employers' liability. Said coverage shall include a waiver of subrogation in favor of Orange County and its officers, employees and agents. If exempt, documentation of said exemption must be submitted.

5. *Use of Premises.* Lessee may use the Leased Premises as a wildlife rehabilitation center facility, for the purpose of providing care and raising of wildlife and educational programs about wildlife to the public. Lessee shall be permitted to construct a building providing administrative offices, wildlife rehabilitation services, and educational facilities, subject to local zoning and building codes, regulations, and permit requirements. Lessee shall be permitted to construct parking and stormwater management facilities, subject to all applicable state, water management district, and county laws, ordinances, rules and regulations. County shall be listed as an additional insured on all construction contracts Lessee enters into with contractors or subcontractors regarding aforementioned improvements to the Leased Premises. Furthermore, Lessee shall be permitted to construct cages for the confinement, rehabilitation, and exhibition of wildlife, subject to all applicable federal, state and local laws, ordinances, rules and regulations.

6. *Utilities.* Lessee agrees to pay all utility charges for the Leased Premises. Such charges will include electrical, water, sewer, fire/life safety protection service, gross receipt taxes or any other cost that the local utility company may add to its monthly utility bill during the duration of this Lease. In no event shall Lessor be liable for an interruption or failure in the supply of any such utility services to the Leased Premises.

7. *Care of Premises.* Lessee, at its sole cost and expense, shall maintain the Leased Premises and all improvements, operations, and systems thereon and appurtenances thereto in a good, safe condition and repair in accordance with good business practice and industry

standards. Lessee, at its sole cost and expense, shall be responsible for all costs of the maintenance, operations, system repair, natural landscaping and janitorial services. Lessor shall not be obligated or required to make or conduct any maintenance or repairs whatsoever to the Leased Premises. Lessee shall not commit or suffer to be committed any waste upon the Leased Premises, commit or permit the maintenance or commission of any nuisance upon the Leased Premises, or otherwise materially impair the value of the Leased Premises.

8. *Disclaimer of Liability.* LESSEE CERTIFIES THAT LESSEE HAS INSPECTED THE LEASED PREMISES AND, SUBJECT TO THE PROVISIONS OF THIS LEASE, ACCEPTS SAME "AS IS", IN ITS EXISTING CONDITION, AS OF THE EFFECTIVE DATE OF THIS LEASE, TOGETHER WITH ALL DEFECTS, LATENT OR PATENT, IF ANY. LESSEE FURTHER ACKNOWLEDGES THAT, EXCEPT AS SET FORTH IN THIS LEASE, LESSOR HAS MADE NO WARRANTIES OR REPRESENTATIONS OF ANY NATURE WHATSOEVER REGARDING THE LEASED PREMISES, INCLUDING, WITHOUT LIMITATION, ANY RELATING TO THE PHYSICAL CONDITION OF THE LEASED PREMISES OR ANY IMPROVEMENTS LOCATED THEREIN, OR THE SUITABILITY OF THE LEASED PREMISES OR IMPROVEMENTS FOR LESSEE'S INTENDED USE OF THE LEASED PREMISES.

9. *Interruption of Service.* Lessor does not warrant that any services to be provided by Lessor, or any third party, will be free from interruption due to causes beyond Lessor's reasonable control. In the event of temporary interruption of services or unavoidable delays in the making of repairs by a third party, the same shall not be deemed an eviction or disturbance of Lessee's use and possession of the Leased Premises nor render Lessor liable to Lessee for damages. Unavoidable delays shall be deemed to include delays in the performance of any of the obligations of this Lease resulting from acts of God, strikes, lockouts or other disturbances; acts of civil disobedience; orders of any kind of the government of the State of Florida or the United States of America or any of their departments, agencies or officials, or any civil or military authority, or any other act not within the control of the party whose performance is interfered with, and which, by reasonable diligence, such party is unable to prevent.

10. *Compliance with Laws and Regulations.* Lessee shall comply with all Federal, State, County and City laws, ordinances, rules and regulations affecting or respecting the use or occupancy of the Leased Premises by the Lessee or the business at any time thereon transacted by the Lessee, and Lessee shall comply with all reasonable rules which may be hereafter adopted by Lessor for the protection, welfare and orderly management of the Leased Premises and its lessees or occupants. This Lease Agreement shall not be construed as a waiver by the Lessor of any of its regulatory authority.

11. *Warranty of Quiet Enjoyment.* Lessee, upon keeping and performing the covenants of this Lease to be performed by Lessee, shall peacefully and quietly hold, occupy, and enjoy said premises during said term without any let, hindrance or molestation by Lessor or any persons lawfully claiming under Lessor.

12. *Eminent Domain.* If the whole or any part of the property of which the Leased Premises is a part, shall be taken by any public authority under the power of eminent domain, so

that the Lessee cannot continue to operate its wildlife rehabilitation facility in the Leased Premises, then the term of this Lease shall cease as of the day possession is taken by such public authority. The amount awarded for any taking under the power of eminent domain shall belong solely to and be solely the property of the Lessor.

13. *Waiver.* No waiver of any of the covenants and agreements herein contained or of any breach thereof shall be taken to constitute a waiver of any other subsequent breach of such covenants and agreements or to justify or authorize the non-observance at any time of the same or of any other Covenants and agreements hereof.

14. *Notices.* All notices required under this Lease to be given to Lessee may be given to it at:

Back To Nature Wildlife, Inc.
18515 East Colonial Drive
Orlando, Florida 32820

or at such other place as Lessee may designate in writing.

Any such notice to be given to Lessor under this Lease shall be given to

Orange County Board of County Commissioners
c/o Manager / Real Estate Management Division
Post Office Box 1393
Orlando, Florida 32802-1393

With a copy to:

Orange County Environmental Protection Division
Post Office Box 1393
Orlando, Florida 32802-1393
Attn.: Manager

And

Orange County Attorney
Post Office Box 1393
Orlando, Florida 32802-1393

or at such other place as Lessor may designate in writing.

All notices shall be in writing and shall be sent by certified mail, postage prepaid or by personal delivery.

15. *Fixtures and Alterations.*

(a) Lessee shall not, without Lessor's prior written consent, construct any facilities, attach any fixtures in or to the Leased Premises or change, alter or make additions to the Leased Premises, nor attach or affix any article hereto, nor permit any annoying sound device, overload any floor, or deface the Leased Premises. Such prior written consent shall not be unreasonably withheld.

(b) Lessee shall obtain the necessary permits and approvals from all governmental authorities having jurisdiction over the Leased Premises. Lessee shall comply with all applicable laws, ordinances, requirements, orders, directions, rules and regulations of the federal, state, Lessor and municipal governments and of all other governmental authorities having jurisdiction over the Leased Premises.

(c) Lessee hereby represents and warrants to the Lessor that all alterations and improvements will be performed in a good and workmanlike manner and in accordance with the terms, provisions and conditions of this Lease and all applicable governmental requirements.

(d) Lessor shall have the right to inspect construction of any alterations or improvements at all times during normal working hours (but Lessor shall not thereby assume any responsibility for the proper performance of the alterations in accordance with the terms of this Lease, nor any liability arising from the improper performance thereof)

(e) Upon completion of any alteration in excess of \$10,000, Lessee shall deliver to Lessor: (i) statements setting forth the names of all contractors and subcontractors and final lien waivers from such contractors and subcontractors; and (ii) certified and sealed as-built plans for such alterations.

(f) Lessee shall indemnify, defend and hold harmless Lessor from and against any and all claims arising out of any alterations performed pursuant to the provisions of this Section 15, and this subparagraph shall survive the termination of this Lease.

(g) IN ACCORDANCE WITH CHAPTER 713.10, FLORIDA STATUTES, LESSEE CONVENANTS AND AGREES THAT NOTHING CONTAINED IN THIS LEASE SHALL BE CONSTRUED AS CONSENT BY LESSOR TO SUBJECT THE ESTATE OF LESSOR TO LIABILITY UNDER THE CONSTRUCTION LIEN LAW OF THE STATE OF FLORIDA, IT BEING EXPRESSLY UNDERSTOOD THAT LESSOR'S ESTATE SHALL NOT BE SUBJECT TO SUCH LIABILITY. Lessee shall notify any and all parties or entities performing work or providing materials relating to any alterations, improvements, or modifications made by Lessee of this provision of this Lease. Lessee shall file a notice reasonably satisfactory to Lessor in the Public Records of Orange County, Florida stating that Lessor's interest shall not be subject to liens for improvements made by Lessee. In the event that a construction lien is recorded against the Leased Premises or other of Lessor's property in connection with any work performed by or on behalf of Lessee, Lessee shall satisfy such claim, or transfer same to security, within thirty (30) days from notice of such recording. In the event that Lessee fails to satisfy or transfer such claim within said 30-day period, Lessor may do so and thereafter charge Lessee, and Lessee shall promptly pay to Lessor upon demand, as Additional Rent, all reasonable costs

incurred by Lessor in connection with the satisfaction or transfer of such claim, including attorney's fees.

(h) Lessee, at its sole expense, shall remove its facilities and modifications and restore the Leased Premises to its original condition upon Lessee vacating the Leased Premises unless Lessor notifies Lessee that Lessee is not required to remove its facilities and modifications. If however, Lessee elects to remove its facilities and modifications upon vacating the Leased Premises, then Lessee, at its expense shall restore the Leased Premises to its original condition, ordinary wear and tear excepted.

16. *Redelivery of Premises.* Lessee shall, on the expiration of this Lease, deliver the Leased Premises in as good order and condition as it now is or may be put by Lessor, reasonable use and ordinary wear and tear thereof and damage by fire or other unavoidable casualty, condemnation or appropriation excepted, and Lessee shall promptly surrender all keys to the Leased Premises to Lessor.

17. *Access to Leased Premises.*

(a) Lessee shall have unlimited access to the Leased Premises. Lessor, however, shall have no liability to Lessee, its employees, agents, invitees or licensees for losses due to theft or burglary, unless caused by the negligent acts or omissions of the Lessor or its authorized agent, or for damages done by unauthorized persons on the Leased Premises and neither shall Lessor be required to insure against any such losses.

(b) Lessee shall be responsible for the maintenance of the Leased Premises for the duration of this Lease Agreement. Further, Lessee shall be responsible for the security of the Leased Premises for the duration of this Lease Agreement. However, should Lessor elect to provide any security for the Leased Premises, Lessee shall cooperate fully in Lessor's efforts to maintain security within the Leased Premises and shall follow all regulations promulgated by Lessor with respect thereto.

(c) Lessor retains a right of ingress and egress over the Leased Premises for the purpose of accessing adjacent property under the Lessor's ownership or control. Lessee acknowledges that the public shall have the right to use parking facilities on the Leased Premises without charge. Lessee acknowledges that it shall allow the public to access, without charge, adjacent lands owned or controlled by Lessor during the Lessee's hours of operation. Lessor and Lessee agree that the rights given or retained in this paragraph shall not interfere with the Lessee's use and enjoyment of the Leased Premises.

18. *Signs.* Lessee shall not install or locate signs on the Leased Premises without first securing Lessor's written consent, which shall not be unreasonably withheld. Any signs installed by Lessee with Lessor's permission shall be maintained in good repair and shall be removed and any building or grounds damage therefrom restored by Lessee at Lessee's expense.

19. *Indemnification.* To the fullest extent permitted by Florida Statute section 768.28, each party to this agreement shall be solely responsible for all claims, including but not limited to, suits, actions, legal or administrative proceedings, claims, demands, damages, liabilities,

interest, attorney's fees, costs and expenses of whatsoever kind or nature, arising out of its acts, errors and omissions in connection with this Lease Agreement, or the acts, errors and omissions of anyone acting under its direction, control, or on its behalf; and accordingly, each party shall, defend, indemnify and hold harmless the other party, its agents, employees and officers, at all times from and against any and all liability, loss or expense arising from said claims to the extent allowed by law. However, nothing contained herein shall constitute a waiver by Lessor of its sovereign immunity or the provision of Section 768.28, Florida Statutes (2006).

20. *Assignment and Subletting.* Lessee may not assign or encumber its interest in this Lease or in the Leased Premises, or sublease all or any part of the Leased Premises, to any other entity to occupy or use all or any part of the Leased Premises without Lessor's prior approval.

21. *Lessor's Right of Entry.* Lessor and/or Lessor's authorized representative shall, upon at least forty-eight (48) hours notice to Lessee or Lessee's authorized representative, have the right to enter the Leased Premises for any of the following purposes: to determine whether the Leased Premises are in good condition and whether Lessee is complying with its obligation under this Lease; or, to serve, post or keep posted any notices required or allowed under the provisions of this Lease or, to make repairs to the Leased Premises. Lessor shall have the right to waive such notice requirement in an emergency situation. Lessor shall not be liable in any manner for any inconvenience, disturbance, nuisance or other damage arising out of Lessor's entry on the Leased Premises, except damage resulting from the acts or omissions of Lessor or its authorized representatives.

22. *Cleanliness of Premises.* Lessee will not improperly or unlawfully store, handle, release, or dispose of any refuse, trash or hazardous materials or contaminants in the Leased Premises or in or around the building of which the Leased Premises form a part. Lessee shall immediately *notify* Lessor and appropriate governmental agencies and authorities having jurisdiction if a release of such materials occurs, and shall take complete corrective action to clean and remove the material and restore the premises in compliance with procedures established by such authorities, and shall provide appropriate evidence of compliance.

23. *Holdover.* If the Lessee remains in the Leased Premises beyond the expiration or earlier termination of the Lease Term, the tenancy may be extended for 3 months on a month to month basis under the same terms and conditions of this Lease at the rental rate in effect during the last 30 days of the Lease Term.

24. *Radon Gas - Notice to Prospective Tenant.* Radon is a naturally occurring radioactive gas that, when it has accumulated in a building in sufficient quantities, may present health risks to persons who are exposed to it over time. Levels of radon that exceed federal and state guidelines have been found in buildings in Florida. Additional information regarding radon and radon testing may be obtained from your county public health unit, pursuant to Section 404.056(8), Florida Statutes.

25. *Mold - Notice to prospective Tenant.* Lessee agrees to hold Lessor harmless in the event any mold contaminants are discovered on the property. Lessee understands mold is a naturally occurring microbe and that mold should pose no health threat unless concentrated in

high levels in a living environment. The Lessor agrees that in the event that Lessor discovers mold like contamination, this condition will be reported to the Lessee.

26. *Governing Law.* The Laws of the State of Florida shall govern the validity, performance and enforcement of this Lease. Any litigation brought to enforce any of the terms or provisions of this lease shall be tried in the Circuit Court of the Ninth Judicial Circuit, in and for Orange County.

27. *No Consent to Sue.* The provisions, terms, or conditions of this Lease shall not be construed as a consent of the State of Florida to be sued because of said lease hold.

28. *Severability.* If any clause or provision of this Lease is illegal, invalid or unenforceable under present or future laws, the remainder of this Lease shall not be affected thereby, and in lieu of each clause or provision of this Lease which is illegal, invalid or unenforceable, there shall be added as a part of this Lease a clause or provision as nearly identical to the said clause or provision as may be legal, valid and enforceable.

29. *Recording.* This Lease may not be recorded.

30. *Entire Agreement.* This Lease document and its Exhibit "A" constitute the entire agreement between the parties and supersedes all prior agreements, oral or written. No waiver, modification, additions or addenda to this Lease Agreement shall be valid unless in writing and signed by both the Lessor and the Lessee.

31. *Deliverables.* Education being one of the main goals of Lessee, Lessee, in partnership with the Orange County Public Schools, agrees to create programs, field trips and volunteer opportunities for students. Further, Lessee agrees that the Leased Premises will contain educational components, installed at Lessee's sole expense, regarding the various wildlife species, as well as to environmental concerns regarding the animals. Lessee agrees to host a minimum of 10 educational events, workshops or presentations per year on issues relating to wildlife, including wildlife ecology. Additionally, Lessee commits to keep this facility open to the public on a regular basis, closing only for major holidays. The Lessee may not exceed 25 non-native animals on site for educational purposes. All requirements of the Florida Fish & Wildlife Conservation Commission (FFWCC) and the Department of Agriculture shall be met. Lessor, in its sole discretion, may require more stringent standards for the confinement of wildlife on the Leased Premises than required by state or federal authorities. These educational and animal maintenance requirements must be documented in an annual report submitted to the Orange County Environmental Protection Division. The first report is due one year after the date of this lease, and annually thereafter.

32. *Governmental Authority.* Nothing in this Lease shall be construed to waive or limit any governmental authority Lessor has as a political subdivision of the State of Florida to regulate Lessee or its operations. Lessor's agreements under this Lease are made in a proprietary capacity as owner of the Leased Premises, rather than in a governmental capacity, and such agreements shall not be construed as limiting, prohibiting or eliminating the obligation of the parties to comply with all rules, regulations, ordinances, statutes and laws applicable to such

party, nor alter or impair Lessor's governmental functions, including, without limitation, Lessor's right to exercise its regulatory authority over the development and operation of the Leased Premises, nor as enabling, permitting, or creating any cause of action or claim arising out of the exercise of Lessor's governmental authority.

33. *Termination.* Lessee reserves the right to terminate this Lease without cause, at any time prior to its expiration by the giving of no less than thirty (30) days prior written notice to Lessor of its intent to terminate.

34. *Default.* Time is of the essence in the performance of this Lease, and Lessee will be deemed in default if Lessee fails to pay rent for ten (10) days after payment is due or if Lessee fails to observe any of Lessee's agreements or conditions under this lease (other than payment of rent) for thirty (30) days after demand for performance by Lessor.

35. *Remedies.* If Lessee defaults, Lessor may exercise the following remedies in addition to all other remedies provided by law: (i) terminate this Lease, (ii) recover reasonable attorneys' fees and costs incurred by Lessor for any action or proceeding to collect on or enforce this lease, or to secure any rights due Lessor under this Lease.

THIS SPACE INTENTIONALLY LEFT BLANK

IN WITNESS WHEREOF, Lessor and Lessee have hereunto executed this Lease as of the day and year last written below.

LESSOR
ORANGE COUNTY, FLORIDA
By: Board of County Commissioners

Richard T. Crotty
Orange County Mayor

Date: _____

ATTEST: Martha O. Haynie, County Comptroller
As Clerk of the Board of County Commissioners

By: Deputy Clerk

LESSEE,
Back to Nature Wildlife, Inc.
A Florida non-profit corporation

Witness

Witness

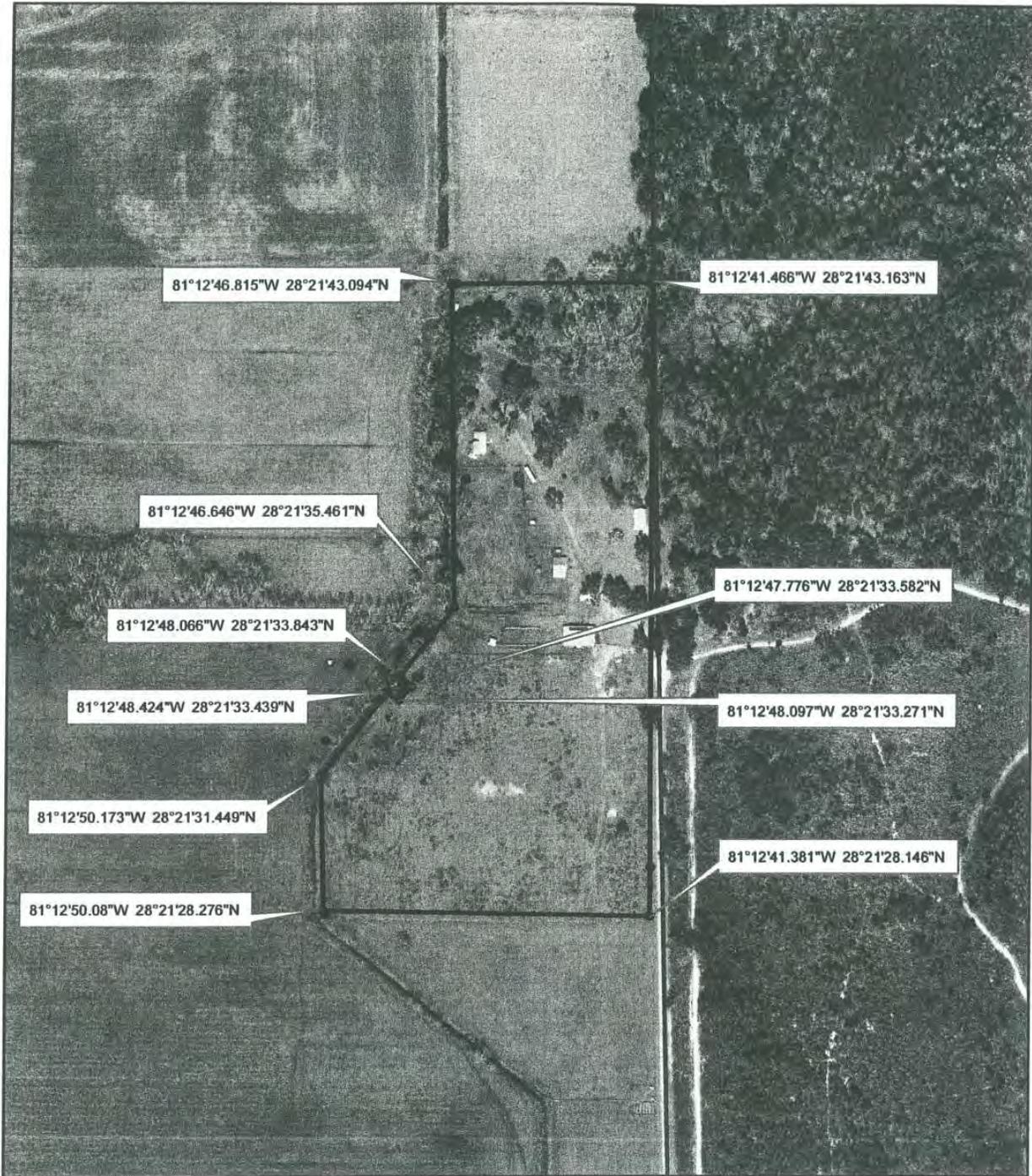
By: _____

Title _____

Date: _____

(SEAL)

Exhibit A - Lake Hart/Back To Nature Lease Area

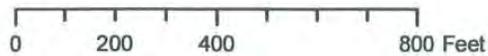


Property_Name

 Lake Hart

• Lease Area Boundary Points

 BTN Lease Area



Appendix D
Archaeological, Architectural and Historical Survey

SURVEY NO.* 2158

**SURVEY LOG SHEET
FLORIDA MASTER SITE FILE**

Plotted?* Y/N

Version 1.3: 10/89
 TITLE An Archaeological, Architectural, and Historical Survey of The Lake Hart Development Property
 AUTHOR(S) J. Raymond Williams, Lyle C. Tarp, Terrance L. Simpson
 ARCHAEOLOGIST/HISTORIAN Williams, Tarp, Simpson
 AFFILIATION USF
 PUB. DATE 12/89 TOTAL NUMBER OF PAGES IN REPORT 31
 PUBLICATION INFO N.P. produced by USF
 KEY WORDS/PHRASES DESCRIBING SURVEY (max of 30 columns each)
Lake Hart Development Property, Orange County

CORPORATION, GOVERNMENT UNIT, OR PERSON SPONSORING SURVEY
 NAME Davis and Associates
 ADDRESS Orlando, FL

DESCRIPTION OF SURVEY: NUMBER OF DISTINCT AREAS SURVEYED 1
 MONTH/YEAR DATES FOR FIELD WORK: START 10/89 THRU 11/89
 TOTAL AREA 7000 ha/ac IF CORRIDOR: WIDTH m/ft LENGTH km/mi
 TYPE OF SURVEY (Use as many as apply): archaeological underwater
 architectural other
 OTHER TYPE(S): Historical

METHODS EMPLOYED (Use as many as apply): unknown archival
 pedestrian shovel test test excav. posthole
 extensive excav. auger survey coring local informat
 remote sensing windshield surf. exposrs probing
 OTHER METHODS _____
 SCOPE/INTENSITY/PROCEDURES _____

SITES Significance discussed? Y N Circle NR-elig/signif site nos:
 PREVIOUSLY RECORDED SITES : COUNT 10 LIST 80R 311

NEWLY RECORDED SITES : COUNT 113 LIST 80R 2174-2184, 2185, 2208

COUNTIES: Orange
 USGS MAP(S) Pine Castle, St Cloud, Narcoosee, Narcoosee NW

TOWNSHIP/RANGE (list all township/range combinations eg, 04S/29E)
24S/31E
 REMARKS (Use reverse if needed): _____

**OUTLINE OR HIGHLIGHT SURVEY AREA ON FDOT COUNTY HWY. MAP.
 ATTACH OR PHOTOCOPY ONTO BACK OF FORM.**

* For use of Fla. Master Site File only: Div of Historical Resources/R.A. Gray Bldg/500 S. Bronough St/Tallahassee, FL 32399-0250

FMSF NOTE TO IMAGE VIEWER

Some material contained in the corresponding paper manuscript has not been scanned.

Check material affected:

Blueprints

Map

Site Forms

Other, specify _____

This material can be viewed at the Florida Master Site File.

2158

AN ARCHAEOLOGICAL, ARCHITECTURAL, AND
HISTORICAL SURVEY OF THE

**LAKE HART
DEVELOPMENT PROPERTY**

ORANGE COUNTY, FLORIDA

Conducted for

Davis & Associates

Orlando, Florida

J. Raymond Williams
Lyle C. Torp
Terrance L. Simpson

December, 1989

*Loose site forms
in processing box
2/28/89
12/31/89*

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INTRODUCTION

This report details an archaeological, architectural, and historical survey of the approximately 7000 acre Lake Hart Development in sections 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 28, 29, 30, 32 and 33 of Township 24 South, Range 31 East in southern Orange County, Florida (Figures 1 and 2).

The Florida Master Site File listed five sites on or partially on the property, one of which was considered significant and avoidance had been recommended. These sites were found during an archaeological survey of a railroad corridor which runs through the Lake Hart Development property (Daniel and de la Fuente 1981). The Florida Division of Historical Resources (DHR) suggested that this Lake Hart study be conducted since the major portion of the property had never been subjected to a comprehensive, systematic professional archaeological, architectural, or historical survey and because

Data from environmentally similar areas in Central Florida indicate that prehistoric archaeological and historical sites, especially the former, are likely to occur in those portions of the property with red hatching. These locales have been identified on the basis of known site distribution for this region of Florida. However, because of environmental change, the unpredictability of special use sites such as burial mounds, cemeteries, quarries and other site types, it is possible that sites may be found in unidentified locales which are not indicated in the red hatched areas [Figure 3], but which the survey archaeologists may investigate at their own discretion (Percy 1989).

Research of nineteenth century documents indicates that most of the property consisted of marsh and swamp prior to drainage in the late nineteenth and early twentieth centuries. Although this does not preclude the presence of prehistoric sites as suggested in the above quote, the major emphasis on subsurface testing occurred in the higher elevations on the property.

In addition to subsurface testing, the entire tract was surveyed, and sandy exposures were examined for cultural material which might be lying on the surface. Because much of the property is improved pasture lands and citrus groves, there were few exposed areas to examine. However, since archaeological sites do not always have surface expression (even when there are exposed surfaces to view), subsurface testing was necessary in addition to a walk-over reconnaissance.

Fieldwork began on October 27 and was completed on November 4. The architectural survey was conducted on November 7. The authors were assisted in the field by Lee Hutchinson-Neff, Margaret Goetze, John Darsey, Sylvia Layman and Laura Clifford, all graduate students in archaeology at the University of South Florida. Mr. Richard Estabrook performed the lithic analysis,

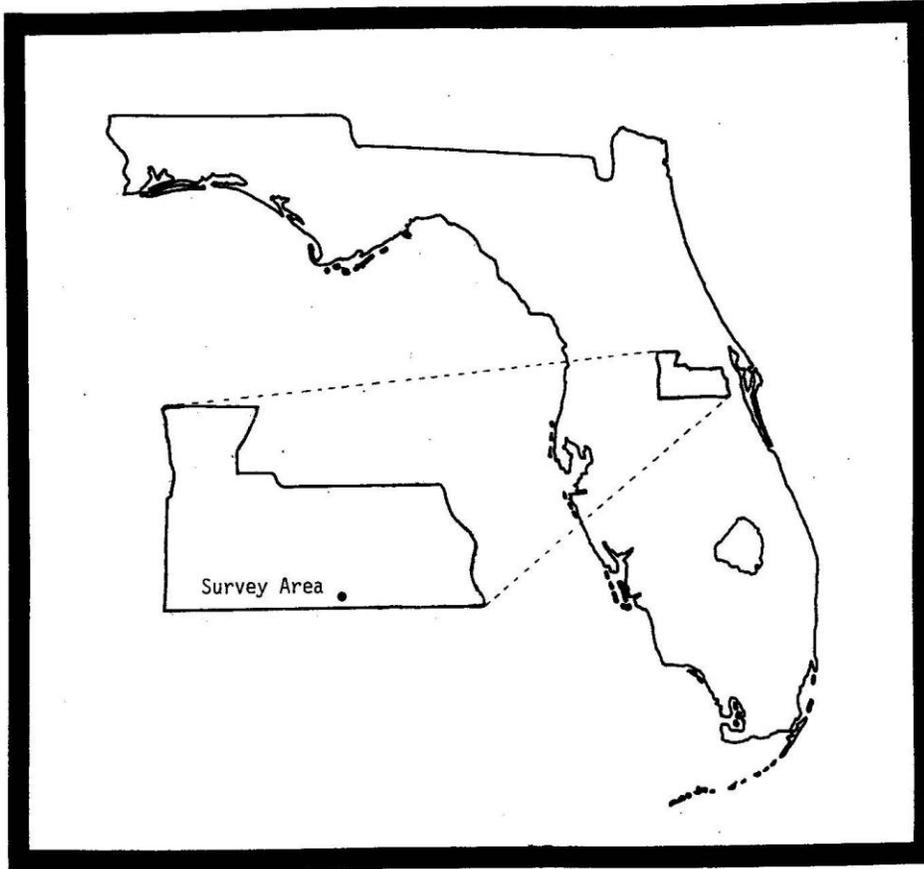


Figure 1. General Area of the Lake Hart Property.

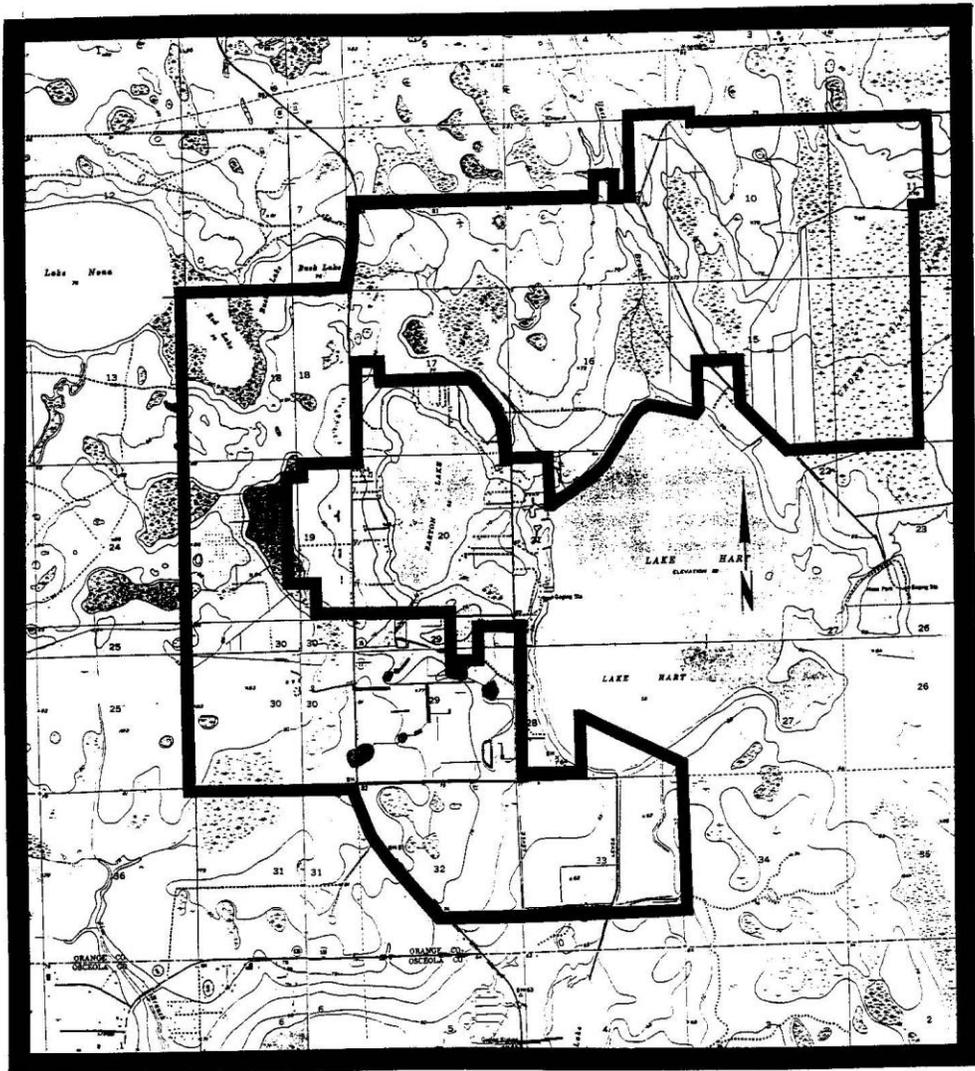


Figure 2. The Lake Hart Property Delineated on the Narcoossee, Narcoossee NW, Pine Castle and St. Cloud North U.S.G.S. Quadrangle Maps.

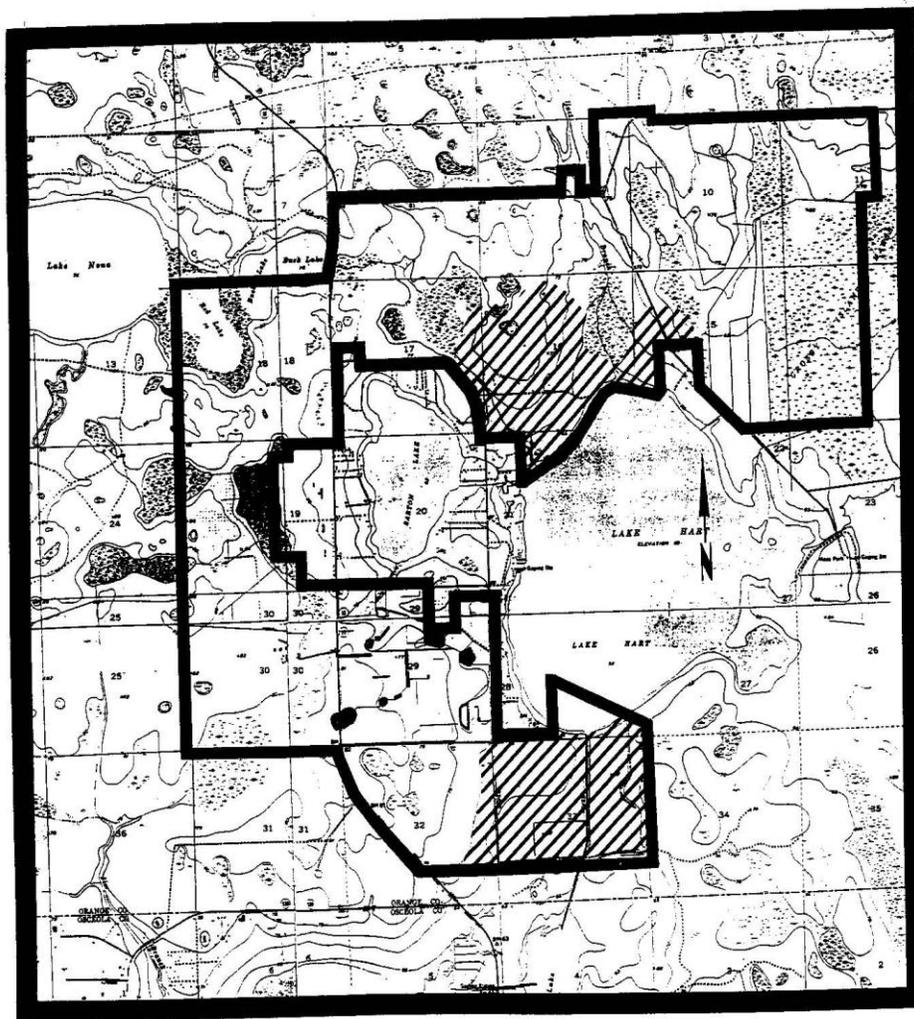


Figure 3. Sensitive Areas Delineated by the Florida Division of Historical Resources.

Dr. Roger Grange examined the historic material, and Rebecca Spain Schwarz (M. Architecture) conducted the architectural survey.

This report describes the field methodology, summarizes the information on previous archaeological surveys, the information on known sites and excavation projects in the vicinity, and presents a summary of the prehistory of central Florida. It also discusses the historical setting and historic use of the property and its environmental setting. An architectural assessment of the standing structures was also undertaken. Within the context of these report sections, there is a discussion of site expectations, and why it was thought that there might be archaeological or historical sites on the property.

A total of 196 test pits were dug during the field work. A more detailed description of the activities associated with the field portion of this project is located in the Methodology section of this report.

The Lake Hart survey located three new prehistoric sites and examined five previously reported prehistoric sites. Standing structures were assessed, and eight were recorded (Figure 5). Completed Florida Master Site File forms for the prehistoric sites and the standing structures are included in the Appendix.

It is our belief that none of the standing structures is historically or architecturally significant. Two of the newly discovered prehistoric sites produced only scant material and the other was located on a low ridge which had been leveled. There is no subsurface evidence indicating that the latter site (8-Or-2182) has any integrity remaining. We agree with the DHR that the previously recorded site 8-Or-391 may be significant and should be either avoided or examined further if preservation is not possible.

Except in the area of site 8-Or-391, it is the conclusion of the authors that the Lake Hart Development will have no impact on any significant cultural resources; such is our recommendation to the DHR.

We would like to thank Ms. Paula Bary of Davis & Associates for providing us with information, aerial maps, and other documents. We would also like to thank Mr. Robert Ayers, the ranch foreman, and particularly Mr. Buster Bradshaw, the property owner, for their cooperation and assistance. Mr. Bradshaw kindly gave his time and provided us information on sites and history.

PREHISTORIC REVIEW

A summation of prehistory may be created by the division of time into a sequence of culture-periods, outlining the cultural histories of various groups through prehistory into the historic era.

The Lake Hart Development area is part of the Eastern and Central Lake District, which is included in the East Florida culture area because of the similarity in cultures, particularly from Orange and Lake counties (Milanich and Fairbanks 1980). The boundaries are somewhat vague, both temporally and spatially, though the East Florida culture area basically extends from south of Cape Canaveral to the Saint Marys River, contains the coast, the lagoon system, and the drainage of the St. Johns River. Orange and Lake counties, a region of many lakes and prairies, may thus be included in this culture area (Milanich and Fairbanks 1980).

The earliest known cultural manifestation in the Americas is the Paleo-Indian Period, dating from the time of human arrival into North America at about 12,000 years ago, and possibly as far back as 15,000 years ago (Milanich and Fairbanks 1980). The climate was cooler and drier than the present, and the sea level was as much as 35 meters lower (Milanich and Fairbanks 1980). These populations existed primarily by gathering wild plant foods and hunting small mammals, although they also hunted large, now-extinct mammals (megafauna) of the late Pleistocene such as the mammoth (Milanich and Fairbanks 1980). Archeological evidence suggests that these groups inhabited riverine areas and spring sites, although much of this is based on a limited amount of data, often out of context. The current knowledge of late Pleistocene environment and topography limit the ability to predict the location of these types of sites. While there have been no excavations of Paleo-Indian sites in Orange County, the Nalcrest site in Polk County has produced evidence from this time period in the form of microlithic tools from Lake Weohyakapa, which date from about 10,000 to 7,000 years ago (Bullen and Bielman 1973).

The Archaic Period dates from 8,500 to 4,000 years ago. In general, the beginning of the Archaic Period is marked by environmental changes, and the resulting changes in subsistence activities that arose as the topography changed and as the climate became more similar to that of today. By about 6,500 years ago, modern vegetational patterns and climate became well-established - hammocks of broad-leafed mesic trees, pine forests on areas of higher elevation, and cypress in lower, wetter areas (Watts 1971). Subsistence strategies revolved around seasonal migrations, as groups exploited both coastal and interior resources during specific times of the year. The Zellwood site, on the shores of Lake Apopka in Orange County has produced evidence of an Early Archaic component (Dreves 1974).

Approximately 4,000 years ago the Orange Period began, and is marked by the production of some of the earliest pottery in North America. These fiber-tempered wares marked a shift toward a more sedentary life-style, and a more intensive exploitation of shellfish and hunting on the coast during the winter months, with movement into the St. Johns River Valley during the warmer summer months. There are at least four recognized sites in the Central Florida lake district: the Alexander Springs Midden, the Silver Glen Spring site, the Astor Midden, and the St. Francis Midden, all in Lake County.

The Transitional Period, starting at about 3,500 years ago, marks the end of the purely hunting and gathering lifeway that had characterized the Archaic and Orange periods. The St. Johns cultural groups inhabited the Central Lake region from that time until A.D. 1565, the time of European contact. This period may be divided into two sub-periods: St. Johns I and St. Johns II (Milanich and Fairbanks 1980). Although the basic settlement patterns of the Orange Period continued through the St. Johns Period, one notable trend during this period was a population shift into the northern part of the river valley, possibly due to the need for more arable lands (Milanich and Fairbanks 1980). Burial mounds were constructed during this time.

The St. Johns II sub-period was marked by population growth. While hunting and gathering remained important, there was an increasing dependence on cultivated food sources, including maize, beans, and squash. With this intensification of horticulture, social and political complexity increased, as did ceremonialism. By A.D. 1300, ceremonial centers were being constructed - a trait of the Mississippian cultural groups. These centers included platform mounds and ceremonial mounds. While it is difficult to prove by the direct evidence, there appears to be contact with other complex cultures in South Florida.

By A.D. 1565 there is evidence of a good deal of contact with the Spanish military and missionaries, which altered the traditional life-styles of the Native American groups. By the end of the seventeenth century, these aboriginal groups were virtually extinct. In the early eighteenth century, groups of Creek Indians moved into Florida to escape the political and population pressures of the expanding American frontier. These groups became known as the Seminoles.

HISTORIC BACKGROUND

To determine if any significant historical buildings, sites, people, or events were associated with the survey property, a review of historic documents was conducted. Primary and secondary sources were used, including topographical maps, township plat maps, tract books, original surveyor's field notes, newspaper clippings, and written histories from several libraries.

European activity began in Florida with Spanish explorations in 1513. There is no historical evidence to indicate that the Lake Hart tract was included in these early explorations or of contact during the period of English control (1763-1784), although the English actively traded with the Indians in the St. Johns River Valley (Weisman 1989). There is evidence of Spanish activity in the Kissimmee area during the second part of the Spanish control of Florida (1784-1821), but nothing associated directly with the Lake Hart property.

Florida came under United States control in 1821, and became a U.S. territory in 1822. Orange County was originally part of a large entity known as Mosquito County, which was established on December 24, 1824, and covered much of central Florida. The name "Mosquito" was not thought to be appropriate, and on January 30, 1845, two months after Florida was admitted to statehood, the name was changed to Orange County in honor of its most famous product of the time (USDA 1960). Over time, successive portions of the county were taken to form part or all of other counties until its present boundaries were solidified in 1913 (Blackman 1927).

Seminole Indians were active in Orange County area before it came under U.S. control. The Seminole Wars resulted in the building of ten forts in the original Orange County to control Indian activity. The Armed Occupation Bill was passed in 1840 during the Second Seminole War, and by 1842 the area was opened for homesteading. Land in the area was used predominantly for cattle and citrus production, and though the citrus industry was damaged by freezes of 1835, 1894-95, 1899, and more modern ones, it still survives. This area was the home of the "crackers" - cowboys named for the sound their whips made when they were snapping them to drive the cattle. Cattle and produce were the main items shipped on boats through the canal and river systems that stretched from coast to coast.

The Lake Hart property was first surveyed in 1844 by B. F. Whitner, and in 1848 by F. R. Loring. Their descriptions of the property indicate that it was mostly swamp and bog land, with some 3rd rate pine, black jack, and sawgrass (State of Florida: Surveyor's Field Notes 1844, 1848). The field notes and the 1848 Plat Map show a trail running through Sections 1, 2, 3, 8, 9, 17, 18, and 19 (State of Florida: Plat Map and Field Notes 1848). This trail was probably on slightly higher ground, and appears to now be the bed of a modern railroad track. Due to the swampy

nature of the property, there was little activity until drainage projects removed much of the water in 1883. However, there was a loss of information when all but two books of Orange County records prior to 1869 were lost in a courthouse fire (Federal Writers 1936). Survey maps of the surrounding townships show the same topography. Township 24 S, Range 32 E, to the east of the property, was swamp and ponds when surveyed in 1848; to the south, Townships 25S, Range 31 E and 25 S, Range 30 E, surveyed in 1848, were swamp, ponds, marsh, and Lake Tohopekaliga; to the west in Township 24 S, Range 30 E, also surveyed in 1848, were a small lake, ponds, swamps, and some prairie with a trail transversing the township north and south near the center; and to the north, Townships 23 S, Range 31 E and 23 S, Range 30 E, surveyed in 1843, were mostly swamp and bay gaul, with a hammock in Section 20 of T23S, R31E, and Lake Conway at the west border of T23S, R30E (State of Florida: Plat Maps 1843 and 1848).

A basic knowledge of the large scale drainage projects in the area is necessary in order to understand the history of the Lake Hart property. Although isolated hammocks and higher ridges existed, a large part of this central Florida area was underwater for at least a part of the year. Most of the early maps of Florida show most all of the interior 25 million acres as swamp and marsh, all of which was known as the Everglades until this term was reserved for the area to the south of Lake Okeechobee (Aldus and Cody 1987). Immediately to the southwest of Lake Hart are Lake Tohopekaliga and East Lake Tohopekaliga which, according to Crow originally formed

...one large body of water, the two lakes being joined by a wide stream of water which was four to ten feet deep, in the bottom of which were several feet of muck. It was impossible for any one to cross here except in boats, so the Indians found this an ideal retreat as they could climb to their lookout in the tall oak trees on the edge of the marsh and very easily discern the approach of an enemy (1987:46).

The level of Lake Tohopekaliga and East Lake Tohopekaliga dropped by eight feet when a large drainage canal was opened (Osceola County 1987).

The State of Florida launched aggressive plans for drainage and land reclamation projects in the middle 1800s. Unfortunately, most of the state projects were inefficient and expensive, and in 1881, Florida found itself in dire need of almost a million dollars. In order to raise money, the state sold four million acres of mostly swampy and wet land to Hamilton Disston for 25 cents an acre, with the understanding that Disston would drain the land to make it suitable for farming. The payment by Disston cleared the state's debt, and the burst of railroad construction that followed opened Florida for further expansion (Hanna 1941). Kissimmee became a railhead for the tracks that soon crossed Florida linking the east and west coasts.

On October 6, 1881, all of Township 24 South, Range 31 East was sold to Hamilton Disston, except for the SW 1/4 of the SW 1/4 of Section 4, which had been sold on May 11, 1881 to Nat Poyntz; the SW 1/4 of the NW 1/4 of Section 13, which had been sold on February 15, 1869, to Mary C. Mizell; Section 16, which was a section held by the School Act of Congress (1845), and later sold to Blair Burwell on May 11, 1885; and the NW 1/4 of the SW 1/4 of Section 20, which had been sold on May 11, 1881, to Clement Sullivan (State of Florida: Tract Book:pp. 238-239).

Disston was vigorous in dredging both drainage canals and boat transportation canals. He dug a transportation system from the St. Johns River, down the Kissimmee River, through Lake Okeechobee, and down the Caloosahatchee River to the Gulf of Mexico. While steamboats predated Disston's arrival in the area, the 1880s were the pinnacle of steamboat traffic along the Kissimmee River and its area waterways (Aldus and Cody 1987). Disston was especially interested in the Kissimmee vicinity around Lake Tohopekaliga, where he experimented with the growing of rice, sugar cane, fruits, and vegetables, as well as raising cattle (Hanna 1941). The panic of 1893 caused great financial problems for the Disston enterprises. Disston died in 1896, before he could effect a rescue of his properties, and all were sold in foreclosure.

Nat Poyntz was a leading merchant and banker in Orlando, Florida in the late 1800s, but does not appear to have any significant association with the survey tract property (Blackman 1927). There were several Mizell families active in Orange County. The 1870 U.S. Census records show a Mary C. Myzell as the 66 year old wife of farmer David Myzell - the 1860 and the 1870 census records show the spelling to be Mizell. None of the other names appear in the census records from 1830 to 1880 (U.S. Census Records). There are several Hart families, but none appear to have any direct connections to Lake Hart.

The document review failed to reveal any historically significant activities or sites in the survey area. There are structures on the land, though none appear to have any significant historic associations or significant features. Most of the structures were moved onto the property in the 1950s. The only trail noted on the plat map of the township is unnamed and no details were recorded by the surveyors who plotted it (State of Florida: Plat Map and Field Notes 1848). This trail is now overlain by a modern railroad, surveyed by Daniel and de la Fuente (1981) prior to construction.

ENVIRONMENTAL SETTING

The functional use of an archaeological site is based upon the resources available. Several environmental and geographical factors, such as climate, geology, topography, relative elevation, and soils are important when considering where archaeological sites are most likely to be located. These variables influence what types of resources are available for exploitation by the people living in the area, and, thus effect the subsistence, settlement, and land use patterns.

The subtropical climate of this area of Florida is characterized by warm, humid summers and mild winters, although freezing temperatures can be expected several times during the winter (USDA 1979). Average rainfall is 53 inches, and is unevenly distributed with 57 percent falling between June and September. Summer thunderstorms form in large numbers, vary widely in size and intensity, and are usually associated with intense lightning activity. The heavy rains associated with these storms can often cause damage (USDA 1979).

The area can be divided into four general regions based on physiography: the Lake Wales Ridge, the Osceola Plain, the Okeechobee Plain, and the Eastern Valley. The survey tract lies in the Osceola Plain physiographic zone (Puri and Vernon 1964: Figure 6), which is the largest physiographic region. Elevations range from 25 to 90 feet above sea level in this region. The survey tract lies in the 60 to 85 foot range. Vegetation consists mainly of pine and palmetto flatwoods with numerous lakes and a few areas of grassy sloughs and poorly defined drainageways. Soils are predominantly nearly level, wet, and sandy. Large areas of this region are used for range and improved pasture.

Soil types associated with the Lake Hart survey area are the somewhat poorly drained soils (Leon - Immokalee - Pomello - St. Johns) and the very poorly drained organic soils (Everglades - Brighton - Pamlico) (USDA 1960). The survey tract lies in a drainage area around Lake Hart and there is a large bog in the eastern half of Section 14, which has been commercially mined in recent times. Vegetation in the survey area is mostly citrus groves and improved pasture, with low-lying cypress wetlands, grassy marshes, and areas of pine wood flatlands. The water level in the organic soils around Lake Hart is controlled through the use of water-control structures placed in the canals (USDA 1960).

Prehistoric sites dating back 12,000 years can be expected anywhere in Florida. Site types, site locations, tool kits, and subsistence patterns change in response to environmental fluctuations. The environment in which these Paleo-Indian and Early Archaic peoples lived was different from that of today. Daniel and Wisenbaker (1981, 1987) provide a good discussion of the relationship between paleoenvironmental conditions and settlement and subsistence patterns of aboriginal people in

central and west Florida. The sea level was as much as 35 meters lower than today, and the lower sea level altered the salinity in both the coastal area and the inland water table, which in turn had repercussions in the floral and faunal communities. The sea level also affected underground flow and artesian springs in the inland areas. It is probable that these environmental changes at the end of the last glaciation are related to the extinction of the Pleistocene megafauna. Paleontological data suggest that between 14,000 and 5,000 years ago Florida was covered with an upland vegetation of oak scrub and prairie, reflecting a drier environment (Watts 1975). After about 5000 B.C. southern pine forests replaced the oak savannahs, and along the coast extensive swamps and marshes developed (Carbone 1983). This floral and faunal complex has continued to the present. Thus, both past and present environmental conditions must be taken into consideration when examining an area for archaeological resources.

U. S. Government Surveyors B. F. Whitner and F. R. Loring surveyed Township 24 South, Range 31 East in 1843 and 1848 respectively. Both described the property as mostly swamp and bog land, with some 3rd rate pine, black jack, and saw grass (State of Florida: Field Notes 1843, 1848; Plat Map 1848). Plat maps of the townships to the north (T23S, R31E and T23S, R30E), south (T25S, R31E and T25S, R30E), east (T24S, R32E), and west (T24S, R30E) of the survey tract (T24S, R31E) show basically the same type of environment (State of Florida: Plat Maps 1843, 1848). These early notes and maps give a good indication of what the land may have been like for several thousand years prior to the large scale drainage projects of the late 1800s.

A comparison of the old maps to the 1953 U.S.G.S. quadrangle maps (photo revised between 1970 and 1987) show similarities in features over one hundred years later. Major changes are modern roads and highways (SR 15); the railroad track in the northwest part of the tract; the dredging of ponds to form Lake Barton and Red Lake; the drainage canals, with the resultant increase in drier land; and, the clearing of land for pastures, ponds, and groves.

ARCHAEOLOGICAL BACKGROUND AND SURVEY STRATEGY

Reports of other archaeological and historical surveys near the Lucas Lakes property and Florida Master Site File forms for previously recorded archaeological sites within a three mile radius of the property were reviewed at the Florida Division of Historical Resources in Tallahassee. Conducting a review before beginning field work is a necessary step for the archaeologist, in that a more informed set of expectations regarding type and location of sites may be generated. Using these expectations, a survey model can be constructed to guide the field methodology.

A review of the literature found only one survey report on properties within the three miles of the Lake Hart tract. The survey for the Curtis H. Stanton Energy Center Railroad corridor recorded seven sites, five of which were on, or partially on, the Lake Hart tract (Daniel and de la Fuente 1981). Other surveys in a wider area, such as the Lucas Lakes Survey (Williams et al 1989), were referenced to provide further background information. The survey for the Martin Marietta Aerospace Electronic Optical Test Site reported finding two sites (Austin and Ballo 1986). A survey performed for the Orlando airport found no sites (Browning 1977).

Of the seven sites found by the Daniel and de la Fuente survey, most are "surface scatters." Only one was recommended for preservation. The seven sites are:

- 8-Or-385: 1 St. Johns sherd. No preservation recommended.
- 8-Or-386: 2 flakes; 1 worked Busycon shell. No preservation recommended.
- 8-Or-387: 1 St. Johns plain sherd. No preservation recommended.
- 8-Or-388: 1 St. Johns sherd. No preservation recommended.
- 8-Or-389: 1 flint "chunk." No preservation recommended.
- 8-Or-390: 1 St. Johns sherd. No preservation recommended.
- 8-Or-391: 28 St. Johns plain and 1 St. Johns check stamped sherds; 1 projectile point fragment; 4 flakes. Avoidance recommended.

Since sites had been previously found on the Lake Hart tract, there was a relatively high probability of locating other prehistoric sites on a significant portion of the Lake Hart property.

Based on background research, communication with the landowner, and the general consensus of the authors, a site survey strategy was created to test high probability areas of the survey tract for both prehistoric and historic resources. Work in the larger prehistoric cultural area, known collectively as the East and Central Cultural Region of Florida, has revealed a variety of prehistoric sites. A list of such site types includes shell middens, habitation sites, burial mounds, lithic scatters, and special use sites. Reports indicate that prehistoric sites are found on relatively elevated, well-drained land in close

proximity to potable water (Daniel and de la Fuente 1981; Carr and Werndli 1978; Clausen 1983). Also, paleoenvironmental data suggest that between 14,000 and 5,000 years ago Florida was covered with upland vegetation of oak scrub and prairie, reflecting a drier environment (Watts 1975). Under those paleoenvironmental conditions the Lake Hart property may have been a suitable habitat for Paleo-Indian and Early Archaic Period Indians.

The above criteria were used to determine the high probability areas of the survey tract. The DHR had previously delineated approximately 900 acres they considered as "likely to contain prehistoric sites" (Percy 1989) (Figure 3). Documents, such as nineteenth century plat maps, original surveyor's field notes, and tract books were also examined to determine if any early historic period structures or sites existed which would require testing. An additional emphasis was placed on the testing and assessment of the previously recorded sites on the tract. Also, an architectural historian examined all of the older structures on the property, most of which were moved there in the 1950s.

Survey strategy thus concentrated on well-drained soils and areas of relatively high elevations, testing high probability areas for prehistoric habitation and resource exploitation and areas known to have been occupied or used during the historic period. Results of the testing are detailed in the Survey and Test Results sections of this report.

METHODOLOGY

Archaeological fieldwork for the Lake Hart project was conducted over a period of six days by a crew of six to seven persons. A total of 196 test units were dug on the property, which encompasses approximately 7,000 acres.

The DHR delineated areas totaling approximately 900 acres which were considered archaeologically sensitive (Figure 3). Fieldwork was concentrated in those areas, but all locations within the 7,000 acre tract thought to be good possibilities of site loci were either checked by surface reconnaissance or field testing. The margins of wetlands and slightly elevated areas next to wet areas were the primary locations of tests. Much of the property was probably under water, or at least too wet to be habitable, prior to the draining of the area by Hamilton Disston's dredging and canal building projects in the last quarter of the nineteenth century. Recognizing that humans may have lived in the area during the late Pleistocene, when the sea level was lower and the land higher and drier, we could not ignore the wet areas; however, the major emphasis was directed at areas of higher elevation.

Test units were 50 X 50 cm square, ranged from 43 to 117 cm in depth, and averaged over 100 cm deep. They were dug at systematic intervals of 10 to 100 m in some areas, while other locations were subjected to judgmental testing where the test pits were dug in a random pattern in areas where we thought there was a good chance of finding sites. The test locations were plotted on aerial photographs (1:300) which are on file at the University of South Florida, Tampa, as are the field notes and other project related information. Because the property is large, a map indicating the locations of the tests will not be included in this report.

Photographs were taken of different field activities.

All soil was screened through a 1/4 inch screen. Observations regarding soil stratigraphy, soil condition, pit depth, surrounding environment and vegetation, and general observations on the test unit and the artifacts recovered were recorded. All of the test pits were backfilled when completed.

Much of the land consists of improved pasture and citrus groves. Thus, the upper 30 cm has probably been disturbed throughout most of the property. There were few exposed areas conducive to surface reconnaissance.

After excavation, all cultural materials were washed, catalogued and analyzed. These artifacts, except for the four projectile points on loan from the property owner, are curated at the Archaeology Laboratory at the University of South Florida. A discussion of these artifacts can be found in the Survey and Test Results section of this report.

We began our survey in the southeast corner of the property in Section 33. Except for the southern quarter, this entire section was within the "hatched" zone the DHR considered to be most sensitive in terms of locating prehistoric or historic sites. We dug 46 tests in north-south transect lines at 25, 50 and 100 m intervals. The eastern one-half of the section consists mainly of peat and has been extensively drained - there was evidence of terra cotta drainage pipes in some test pits. Two prehistoric sites were found, but were represented by only one flake each. These sites (8-Or-2183 and 8-Or-2184) (Figure 4) are discussed in the Survey and Test Results--Prehistoric section of this report. We were told of a burial mound in Section 33, and although it is off the Lake Hart property, a Florida Master Site File form was completed for the site and submitted to the DHR.

A small area in the southern half of the southeast quarter of Section 28 was included in the DHR's hatched area which borders Lake Hart on the south. Five tests were dug with negative results.

Section 32 was tested next. The property owner, Mr. Bradshaw, and his foreman, Mr. Ayers, directed us to a prehistoric site. A considerable amount of surface material was found scattered over an area approximately 50 by 50 m. We dug 21 test pits in the area where the surface artifacts were found, but recovered cultural material in only one of these tests. The surface material and four projectile points from the site loaned to us by Mr. Bradshaw are discussed in the Survey and Test Results--Prehistoric section of this report. The site has been designated number 8-Or-2182 (Figure 4).

Section 29 was the next to be examined. Although none of it was within the DHR delineated sensitive area, 15 test pits were dug along what appeared to be a slightly elevated area adjacent to a cypress pond. No cultural materials were found in any of these units.

In Section 30, we dug six test pits along two large cypress swamps. The area was low and nothing was found. We then examined a higher area around a cypress pond in the northwest quarter of the southwest quarter of Section 19. Here we dug nine tests, again with negative results. We also tested a previously recorded site (8-Or-389) in the northwest quarter of the section, found during the survey of the railroad corridor. This site was originally recorded on the basis of one piece of stone (Daniel and de la Fuente 1981). Nothing was found in our tests.

In Section 18, to the north, we found areas of well-drained soils next to an area known as Red Lake which covers most of the northwest one half of the section. Two sites previously recorded by Daniel and de la Fuente (1981) were located here: 8-Or-387 and 8-Or-388. We tested these sites as well as other locations in the area, digging a total of 17 test units. Nothing was found on the surface or in the test pits. These two sites were originally

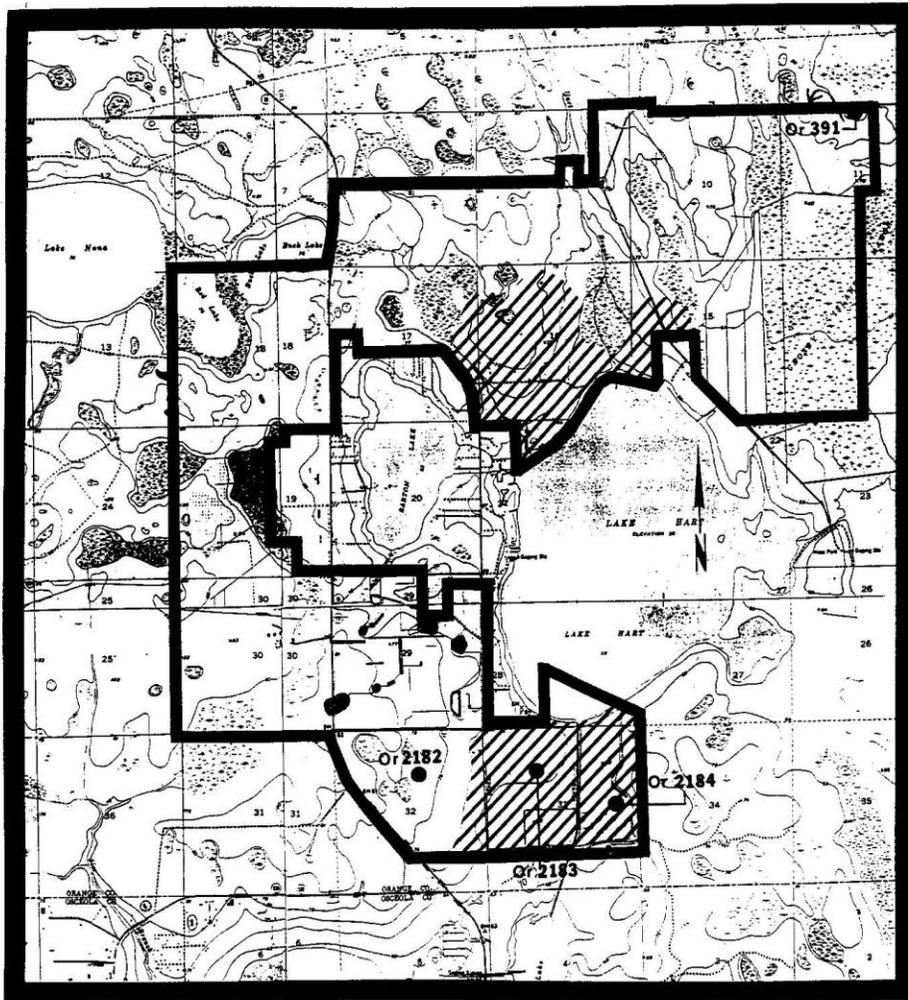


Figure 4. Prehistoric Site Locations.

reported on the basis of one St. Johns Plain pottery sherd being found at each site.

A previously recorded site (8-Or-386) was also located where the railroad crosses SR 15 in the extreme northeastern part of Section 18 and the extreme northwestern part of Section 17. We tested this area, digging 12 test pits with negative results.

To the north in Section 8 we dug six test pits in a slightly higher area near the juncture of SR 15 and Moss Park Road. No cultural materials were found in the tests.

In Section 16, to the east we dug nine tests on three sides of a citrus grove which is not part of the survey tract, and six test pits long a slightly elevated ridge running north-south, slightly west of the center of the section. Nothing was found. From there we moved south to Lake Hart and dug seven test units along the edge of the lake, and then moved approximately 200 m north of the lake where we dug six tests in the area surrounding an abandoned corral. Again, no cultural materials were found in the tests.

To the south of Section 16 in Section 21, we dug three tests along the edge of Lake Hart in what appeared to be a slightly elevated area. It was wet, and no artifacts were found. Only a very small portion of this section was within the study area.

Section 9, to the north of Section 16, did not contain any promising locations, and no testing was done within the survey tract in that section. We did check the area by pedestrian reconnaissance for surface artifacts and features.

Next, we moved to the east to Section 15. Most of this section is low and wet. We dug nine test pits in the northwest corner, to the south of the railroad corridor, in a higher area near 8-Or-385, another previously recorded site found during the railroad corridor survey. Daniel and de la Fuente (1981) reported this site on the basis of finding one St. Johns Plain ceramic sherd. Nothing was found in our tests. Section 10, to the north, was not tested as it appeared to have no likely site locations. We did walk throughout the area however, to locate anything of significance. Nothing was found.

Lastly, we looked at Sections 11 and 14 in the northeastern area of the Lake Hart tract. The western half of Section 14, the only portion of the section within the survey tract, consisted of muck, and was not tested, though we dug 25 tests in two different locations in Section 11. Six of these were in a slightly elevated area in the southwest quarter of the section where a mobile home is located. Nothing was found in any of these tests. The other 19 tests were located in the north central portion of Section 11 where site 8-Or-391 is located. This site was also found during Daniel and de la Fuente's (1981) survey of the railroad corridor (Figure 4). The site was reported to be located along the line which separates Sections 2 and 11. Daniel

and de la Fuente had its position incorrectly marked on their Florida Master Site File form. Instead of being located in the NE 1/4 of the NW 1/4 of the NW 1/4 of Section 11, it is in the NE 1/4 of the NE 1/4 of the NW 1/4 of the Section. Section 2 is not part of the Lake Hart development area, and thus was not checked. Daniel and de la Fuente (1981) suggested to the DHR that the site was significant and the DHR agreed. They found 28 St. Johns Plain pottery sherds, one St. Johns check stamped pottery sherd, four chert flakes and one projectile point fragment. Our task was to delineate the site's boundaries within the Lake Hart Development property and to obtain further information on the site. We found some surface material in a disturbed area near a recently dredged pond and some artifacts in our test pits. More detailed information on these are reported in the Survey and Test Results--Prehistoric section of this report, and an updated Florida Master Site File Form is included in the Appendix.

In summary, the property is low and ranges from poorly to very poorly drained soils. We dug systematically-placed test pits in some areas which looked most promising and did non-systematic (judgmental) testing in others. Three previously unrecorded prehistoric sites were found. No sites from the historic era were located.

The architectural survey of the property located eight structures to record. This survey was done by Ms. Rebecca Spain Schwarz, and information on that aspect of the Lake Hart archaeological, architectural, and historical study can be found in the Survey Results--Architectural and Historical section of this report.

SURVEY AND TEST RESULTS--PREHISTORIC

Three prehistoric sites were located and several known sites were re-examined (Figure 4). Lithic analysis enabled us to trace the source of the stone to different quarry clusters. These quarry clusters have been geographically delineated by Upchurch through the identification of small particles in the stone (Upchurch et al. 1981). Knowledge of chert origin can aid in assessing procurement strategies and other economic, social, and technological activities. Projectile point types and ceramics also enable us to date sites more precisely.

One of the three previously unrecorded sites (8-Or-2183) consists of a single silicified limestone non-decortication flake found at a depth of 70 cm in test LS-9. The flake was black due to a high pyrite content. As a result of lithic analysis, it was determined to have its source in the upper Withlachochee quarry cluster. The site is in the NW quarter of Section 33 (Figure 4). Four test pits were dug in cardinal directions from test pit LS-9 with negative results. There seems to be no major activity associated with this artifact.

The second site (8-Or-2184) also consisted of one artifact, found at a depth of 65 cm in test pit MJ-2. It is a piece of possibly thermally altered shatter. The quarry cluster of origin could not be determined. This site is in the NE quarter of Section 33 (see Figure 4). Four other tests were dug within 10 m of test pit MJ-2, and nothing was found. Again, the artifact seems to be an isolated find with no discernible major activity in association.

The third site (8-Or-2182) (Figure 4) was reported by Mr. Buster Bradshaw, the property owner. At this site, located in a cleared grove with good sandy surface exposure, we collected the following material from the surface:

- 28 thermally altered small silicified coral thinning flakes.
- 39 silicified limestone flakes, the origin of which is the Upper Withlachochee quarry cluster area.
- 5 pieces of silicified limestone shatter from the Upper Withlachochee quarry cluster area.
- 5 pieces of thermally altered silicified limestone shatter, 2 from the Upper Withlachochee quarry cluster and 3 from an unknown quarry cluster area.
- 4 biface fragments, 2 of them medial margins and 2 of them hafted bases, all from the Upper Withlachochee quarry cluster.
- 1 piece of thermally altered silicified coral shatter.
- 1 silicified limestone flake, Crystal River Formation, Upper Withlachochee or Lake Panasoffkee quarry cluster.
- 1 cortex covered chunk, Crystal River formation, Upper Withlachochee or Lake Panasoffkee quarry cluster.

Twenty-one test pits were dug at the site but only one produced cultural material - test pit MJ-45 produced one silicified coral thermally altered flake and a silicified limestone flake, both in the upper 15 cm of the test. The silicified limestone flake is Crystal River Formation material from the Lake Panasoffkee quarry cluster area.

In addition, Mr. Bradshaw gave us four projectile points previously found at the site. These can be described as follows:

- 1) A Florida Archaic Stemmed point, thermally altered silicified coral, measuring 4.68 cm long, 3.61 cm wide, and 0.79 cm thick. The edge exhibited crushing/blunting indicating use against a hard material.
- 2) A Columbia type projectile point. It was made of silicified limestone and was not thermally altered. It measured 8.07 cm long, 3.12 cm wide, and 0.75 cm thick.
- 3) An O'Leno type projectile point. It measured 5.57 cm long, 3.20 cm wide, and 0.72 cm thick. There was no thermal alteration, and it was made of silicified limestone.
- 4) A Florida Archaic Stemmed point, thermally altered and made of silicified limestone. It measured 6.05 cm long, 3.55 cm wide, and 1.02 cm thick. The stone is from the Upper Withlatchoochee quarry cluster. This specimen was made from a small blank/large flake. The original dorsal flake scars and remnant bulb of percussion can still be identified.

In addition, the ranch foreman, Mr. Robert Ayers, stated that other projectile points had been collected at the site, but had been removed from the property by ranch hands.

With the exception of site 8-Or-²²⁰⁸~~391~~, no cultural materials were found at the previously reported sites on the survey tract (it should be remembered that most of these were reported on the basis of finding one stone flake or one pottery sherd). At 8-Or-²²⁰⁸~~391~~ we found two St. Johns Plain pottery sherds and three pieces of lithic material on the surface. One of the pieces of stone was a thermally altered silicified coral flake, another was a large piece of Crystal River Formation silicified limestone from the Upper Withlatchoochee quarry cluster, and the third was a piece of Crystal River Formation silicified limestone shatter from the Lake Panasoffkee quarry cluster. Only two of the 19 test pits dug at 8-Or-391 produced artifacts. Test LT-20 contained one fiber tempered sherd found at a depth of 45 cm and test pit LT-22 produced four well-made plain sand tempered body sherds at depths of 40 and 50 cm.

SUMMARY:

The single artifacts (flakes) found at sites 8-Or-2183 and 8-Or-2184 may represent individual or single episodes of tool maintenance. The relative scarcity of cultural materials found at these sites indicates they were not areas of concentrated activity.

We believe site 8-Or-2182 is destroyed. The site was apparently located on a low ridge which was leveled some time ago for agricultural use. Only one of the 21 test pits produced cultural material, and the stratigraphy of that test pit indicated that the upper 75 cm or more of the original sand had been removed. The hard pan, which should have been located at 100+ cm, was encountered at around 25 cm in most of these tests.

This site probably would have been both unusual and significant, containing a considerable amount of waste material (flakes), as well as finished tools. Although no date can be suggested from the waste flakes, one of the Florida Archaic Stemmed points could date to the Middle or Late Archaic Periods (5000-2000 B.C.). The other Florida Archaic Stemmed point resembles those representative of the Middle Archaic. The Columbia projectile point probably dates to the St. Johns IB or IIA Periods, or A.D. 500-1300, and the O'Leno point to the same time. We suggest that the site may have been used by several groups over a long period of time. No ceramics were found, possibly indicating that the site function did not include ceramic use, or that the site dates prior to the ceramic period. The Columbia and O'Leno points indicate otherwise, however, and the best explanation may be that ceramics exist on the site, but have not been found.

The majority of the stone artifacts at the site consist of small, non-decortication flakes indicating late stage manufacture of new tools or maintenance and refurbishing of existing stone tools.

The two flakes found in test pit MJ-45 were most likely very close to the surface given the fact that none of the other tests had any subsurface material. The size of the site is difficult to project, though the material is scattered over an area approximately 50 by 50 meters. In its original context the depth would probably not have been more than 75 cm.

As the site was destroyed when the land was leveled it is the authors' belief that it is not significant due to the loss of site integrity.

The previously reported site 8-Or-391 was considered significant by the DHR. We attempted to delineate site boundaries and obtain additional cultural material. Only two of the 19 test pits produced artifacts, although some surface material was found. The area has been cleared for pasture, and we believe that the site's integrity has been damaged, though probably not destroyed. Cultural material was found to at least a depth of 50, cm and the site seems to be extensive, covering as much as 100 X 100 meters in area. It is the authors' opinion that the site should be preserved. If that is not possible, however, at least limited excavation should be conducted prior to destruction.

SURVEY RESULTS--ARCHITECTURAL AND HISTORICAL

Of the twenty-one structures located on the Lake Hart Development tract, only eight, along with their dependency structures, were recorded on Florida Master Site File forms (Figure 5). The only ones constructed prior to 1949 which remain in their original locations, are the barn and two tenant houses located at the end of Clapp-Sims-Duda Road in Section 33. According to Mr. Bradshaw, these existed at the time his family purchased the property between the mid-1940s and mid-1950s. The barn (8-Or-2174) was probably constructed in the early 1940s using concrete block for the lower half of the walls and wood drop siding on the upper half. Each tenant house (8-Or-2175 and 8-Or-2176) appears to be the result of the joining of two simple wood frame vernacular gabled houses together with new infill construction between them. One tenant house is currently occupied; the other has deteriorated and is presently vacant. Three vehicle sheds were built nearby in the 1970s using salvaged materials.

Immediately north of Clapp-Sims-Duda Road in Section 33 is a house which was moved to this location in the 1950s or 1960s from the family's grove site in Clermont, Florida. Although the original construction date is unknown, it probably dates back to the 1930s or 1940s. This wood frame vernacular house is now vacant and is currently being renovated; windows have been replaced, porches added, and new roofing installed. A wood shed is located to the east. The house was given the Florida Master Site File number 8-Or-2177.

Three other structures, located off Kirby Smith Road in Section 16 were also probably built before 1949. One wood frame vernacular tenant house (8-Or-2179), now vacant, was also moved from Clermont in the 1950s. Another tenant house (8-Or-2178), also moved from Clermont, is currently used to store hay. This four room rectangular, gabled structure is constructed of wood frame and drop siding on the west half and concrete block on the east half. A deteriorating wood barn (8-Or-2180), date of construction unknown, with vertical board siding, remains near a contemporary wood frame residence built in the early to mid-1960s. Another deteriorating structure, located at the edge of one of the pastures, is composed of concrete block on the east half and wood frame on the west half. Construction date and original use are also unknown for this site, numbered 8-Or-2182.

The Twin Pines Horse Stables (Section 30), located on the west side of Narcoossee Road (SR 15) were first constructed in the early 1960s. The east building, a concrete block stable, was built in 1960. Three other stables and a "hot walker" were built in 1961.

More detailed information and photographs regarding the eight structures constructed prior to 1949 is included in the Florida Master Site File forms in the Appendix. Additional photographs were taken of the Twin Pines Horse Stables and the vehicle storage sheds at the end of Clapp-Sims-Duda Road. These are

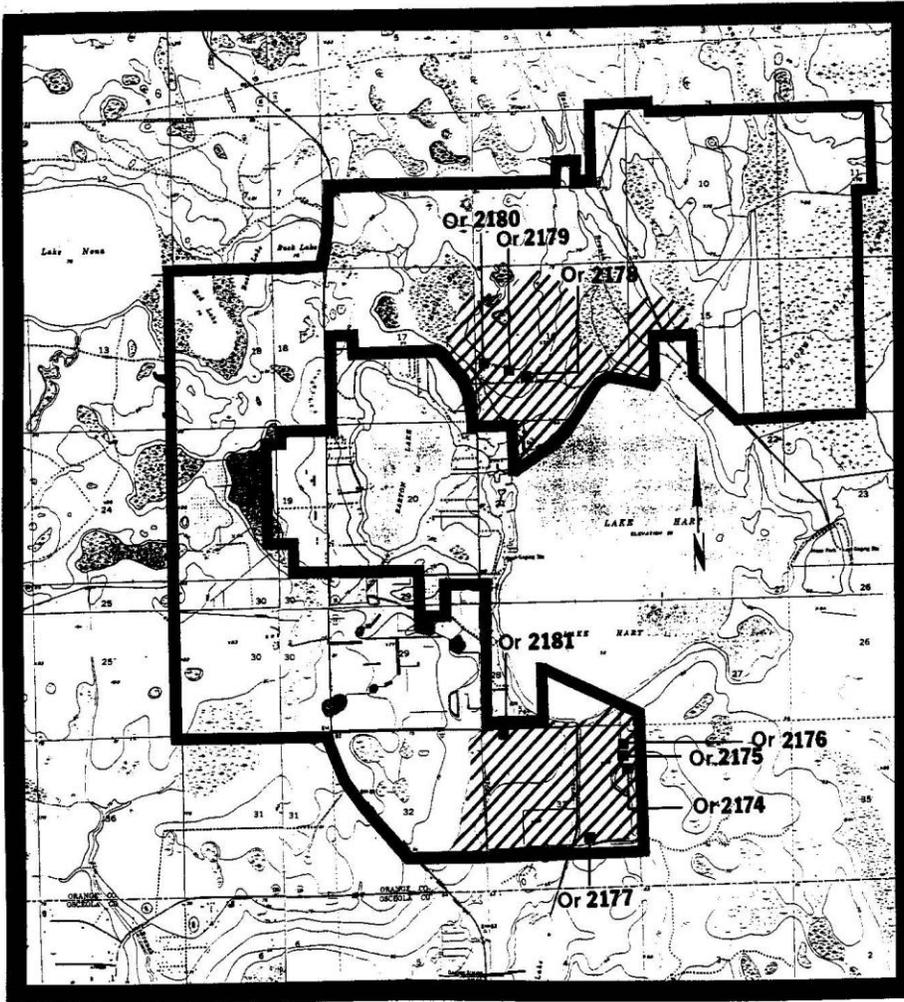


Figure 5. Historic Structure Locations.

provided as general reference for the Florida Division of Historical Resources and are not included in this report.

Most of the buildings constructed prior to 1949 are deteriorating or have been altered considerably from their original configuration. With the exception of the two structures constructed half of concrete block and half of wood frame, all are typical examples of rural residences, barns, and sheds found throughout Florida. None appear significant or eligible for listing on the National Register of Historic Places.

SUMMARY AND RECOMMENDATIONS

The approximately 7,000 acre Lake Hart property was subjected to a general surface reconnaissance and 196 test pits were dug in appropriate areas in an attempt to find evidence of prehistoric or historic period occupation or utilization.

The DHR delineated approximately 900 acres as being sensitive in terms of the likelihood of finding prehistoric and historic sites. Using their guidelines and a survey strategy of our own based on information about the location of known sites in the area, past environmental circumstances, soils, elevation, and water, we concentrated our subsurface tests in areas most likely to have evidence of aboriginal use or occupation. Mr. Bradshaw also provided information on the location of one unrecorded site.

We found three unrecorded prehistoric sites and re-examined five previously recorded ones, one of which was considered significant by the DHR.

The three new sites are:

8-Or-2182 (Bradshaw site) - 84 pieces of stone were collected on the surface and analyzed as to the presence or absence of thermal alteration, quarry cluster, and usewear. In addition, Mr. Bradshaw loaned us four projectile points found at the site. The points suggest a date of from the Middle Archaic to St. Johns IIA (5000 B.C. to A.D. 1300). Nineteen subsurface test pits produced only two flakes in the upper level of one test pit. No ceramics were found. The site's integrity was destroyed when the low ridge on which it was located was leveled some time ago, and thus, we do not believe that it is significant in terms of National Register of Historic Places criteria.

8-Or-2183 - This site consists of only one flake. Additional tests dug within 10 m of where the flake was found produced negative results. We do not believe the site is significant.

8-Or-2184 - This site also produced only one flake. Four additional tests dug within 10 m of the flake produced no results. We do not believe the site is significant.

In addition we examined four areas where previously recorded sites are located (8-Or-386, 8-Or-387, 8-Or-388, and 8-Or-389) and found nothing. These sites were located in the early 1980s when an archaeological and historical survey was conducted along a railroad corridor which now runs through the northwest corner of the Lake Hart property. Daniel and de la Fuente (1981), the survey archaeologists, did not believe the sites to be significant, and we agree with their assessment.

Lastly, we checked 8-Or-391, which was considered significant by Daniel and de la Fuente (1981), and for which the DHR recommended avoidance. We dug 21 test pits, two of which produced cultural materials, and collected some material on the surface. Although the site has been disturbed by clearing and fill to a depth of approximately 30 cm, we agree that the site meets the criteria for listing on the National Register of Historic Places, and should be preserved. Should preservation not be possible, the site should be examined more intensively. Although some integrity was lost during the earlier clearing and filling, the cultural materials indicate that the site could contribute important information to the prehistory of the area. No stone tools have been recovered, but the ceramics indicate that the site was used either continuously or intermittently from the Orange to the St. Johns IIC periods, from approximately 2000 B.C. to the mid 1500s A.D.

The architectural and historical survey included the assessment of 21 standing structures on the property. Only eight of these structures were built prior to 1949, and five of those were moved onto the property in the 1950s and 1960s. Florida Master Site File forms were completed for these eight sites. The three structures built on the property consist of a barn and two tenant houses. We do not believe any of these are historically or architecturally significant, and none meets the criteria for listing on the National Register of Historic Places.

In summary, the data obtained from this survey, testing, and research has contributed to our knowledge of the early history and prehistory of the state and the area, but we believe that, with the exception of site 8-Or-391, further archaeological, architectural, and historical research would produce little or no additional significant information.

It is the authors' recommendation that site 8-Or-391 should be avoided, but that the rest of the planned Lake Hart Development can proceed without any impact to any significant archaeological, architectural, or historical resources.

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 1843 Plat Map of Township 23S, Range 31E
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 1848 Plat Map of Township 24S, Range 30E
 1848 Plat Map of Township 24S, Range 31E
 1848 Plat Map of Township 24S, Range 32E
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Appendix E

Master Species List

Flora

| | |
|---------------------------------|----------------------------|
| <i>Acer rubrum</i> | Red Maple |
| <i>Asclepias curassavica</i> | Scarlet Milkweed |
| <i>Carex albolutescens</i> | Greenwhite Sedge |
| <i>Carex leptalea</i> | Bristly-stalked Sedge |
| <i>Cinnamomum camphora</i> | Camphor Tree |
| <i>Cirsium horridulum</i> | Purple Thistle |
| <i>Dioscorea bulbifera</i> | Air Potato |
| <i>Eupatorium capillifolium</i> | Dogfennel |
| <i>Fumaria officinalis</i> | Drug Fumintory, Earthsmoke |
| <i>Galium tinctorium</i> | Stiff Marsh Bedstraw |
| <i>Imperata cylindrica</i> | Cogon Grass |
| <i>Juncus effusus</i> | Soft Rush |
| <i>Lantana camara</i> | Lantana, Shrub Verbena |
| <i>Linaria canadensis</i> | Blue Toadflax |
| <i>Melinis repens</i> | Natal grass |
| <i>Nyssa sylvatica</i> | Blackgum |
| <i>Paspalum notatum</i> | Bahiagrass |
| <i>Paspalum urvillei</i> | Vaseygrass |
| <i>Passiflora incarnate</i> | Passion Flower Vine |
| <i>Philadelphus inodorus</i> | Summer Dogwood |
| <i>Phyla nodiflora</i> | Frog-fruit |
| <i>Psidium cattleianum</i> | Strawberry Guava |
| <i>Ricinus communis</i> | Castorbean |
| <i>Sagittaria latifolia</i> | Duck Potato |
| <i>Sapium sebiferum</i> | Chinese Tallow |
| <i>Senecio glabellus</i> | Butterweed |
| <i>Solanum viarum</i> | Tropical Soda Apple |
| <i>Sporobolus indicus</i> | Smutgrass |
| <i>Stenotaphrum secundatum</i> | St. Augustinegrass |
| <i>Syngonium podophyllum</i> | Arrowhead Vine |
| <i>Taxodium distichum</i> | Bald Cypress |
| <i>Tillisandia usneoides</i> | Spanish moss |
| <i>Urena lobata</i> | Cesar Weed |
| <i>Xanthosoma sagittifolium</i> | Elephant Ear |

Fauna

| | |
|---------------------------------|-----------------------|
| <i>Aix sponsa</i> | Wood Duck |
| <i>Cardinalis cardinalis</i> | Northern Cardinal |
| <i>Cathartes aura</i> | Turkey Vulture |
| <i>Coragyps atratus</i> | Black Vulture |
| <i>Dendroica palmarum</i> | Palm Warbler |
| <i>Dryocopus pileatus</i> | Pileated Woodpecker |
| <i>Eudocimus albus</i> | White Ibis |
| <i>Falco sparverius</i> | American Kestrel |
| <i>Grus canadensis</i> | Sandhill Crane |
| <i>Haliaeetus leucocephalus</i> | Bald Eagle |
| <i>Meleagris gallopavo</i> | Wild Turkey |
| <i>Mycteria americana</i> | Wood Stork |
| <i>Nephila clavipes</i> | Golden Silk Orbweaver |
| <i>Odocoileus virginianus</i> | White-tailed Deer |
| <i>Sciurus niger shermani</i> | Shermans Fox Squirrel |
| <i>Turdus migratorius</i> | American Robin |

Appendix C
Canal C-29A Conservation Easement



SECTION 33
TWP. 24 S., RGE. 31 E.

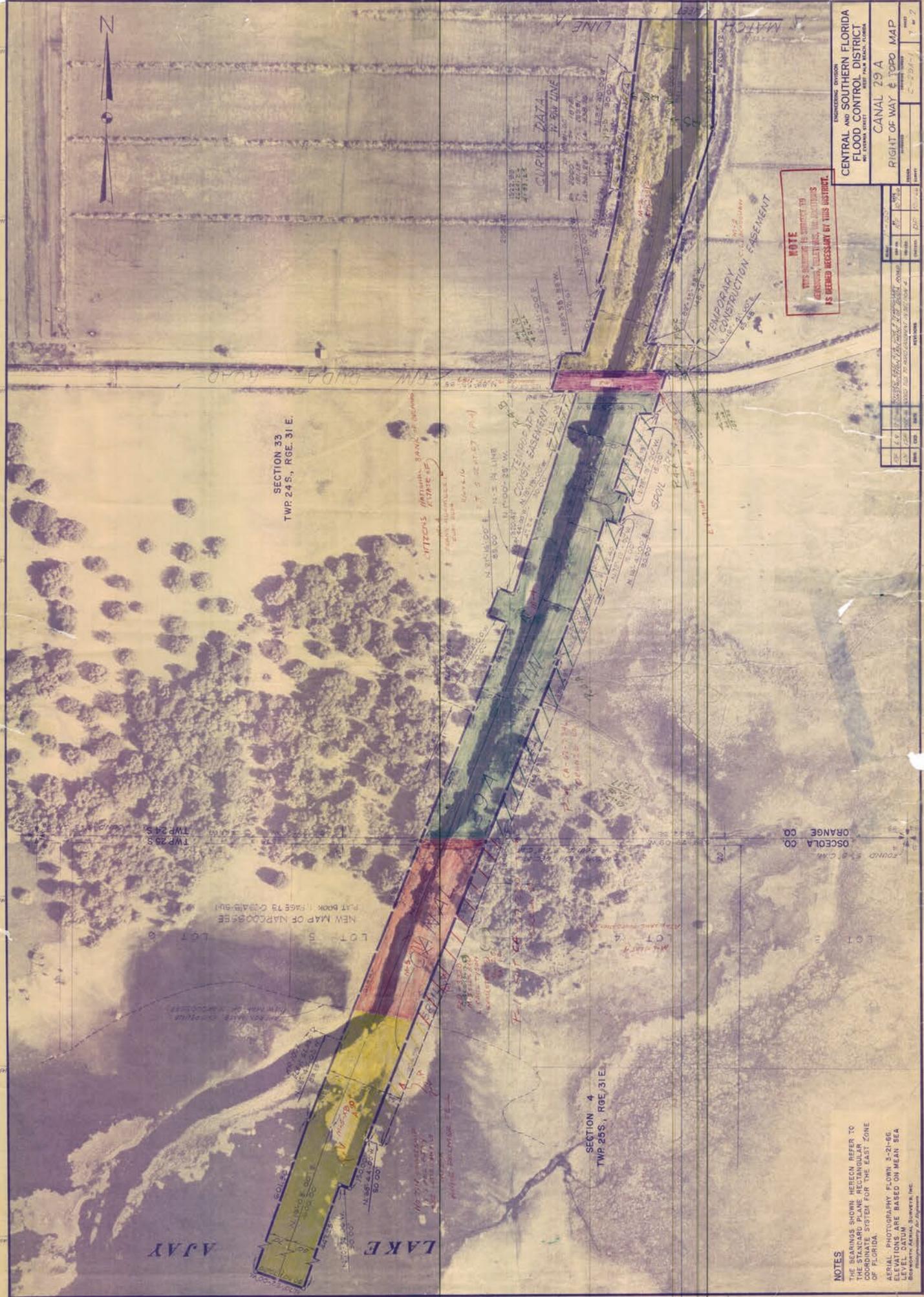
SECTION 4
TWP. 25 S., RGE. 31 E.

NOTE
THIS SURVEY IS SUBJECT TO
REVISIONS, FIELD DATA, AND CONDITIONS
AS DEEMED NECESSARY BY THIS DISTRICT.

ENGINEERING DIVISION
CENTRAL AND SOUTHERN FLORIDA
FLOOD CONTROL DISTRICT
NO. 10000, SUIT 1000
CANAL 79 A
RIGHT OF WAY & TOPO. MAP

| NO. | DATE | BY | REVISION |
|-----|---------|-----------|----------|
| 1 | 10/1/58 | J. H. ... | ... |
| 2 | 10/1/58 | J. H. ... | ... |
| 3 | 10/1/58 | J. H. ... | ... |
| 4 | 10/1/58 | J. H. ... | ... |
| 5 | 10/1/58 | J. H. ... | ... |
| 6 | 10/1/58 | J. H. ... | ... |
| 7 | 10/1/58 | J. H. ... | ... |
| 8 | 10/1/58 | J. H. ... | ... |
| 9 | 10/1/58 | J. H. ... | ... |
| 10 | 10/1/58 | J. H. ... | ... |

NOTES
THE BEARINGS SHOWN HEREON REFER TO
THE STANDARD PLANE RECTANGULAR
COORDINATE SYSTEM FOR THE EAST ZONE
OF FLORIDA.
AERIAL PHOTOGRAPHY - FLOWN 3-21-56.
ELEVATIONS ARE BASED ON MEAN SEA
LEVEL.
BOSCHERT AERIAL SURVEY, INC.
Boschert Aerial Survey, Inc.



CENTRAL AND SOUTHERN FLORIDA FLOOD

CONTROL DISTRICT

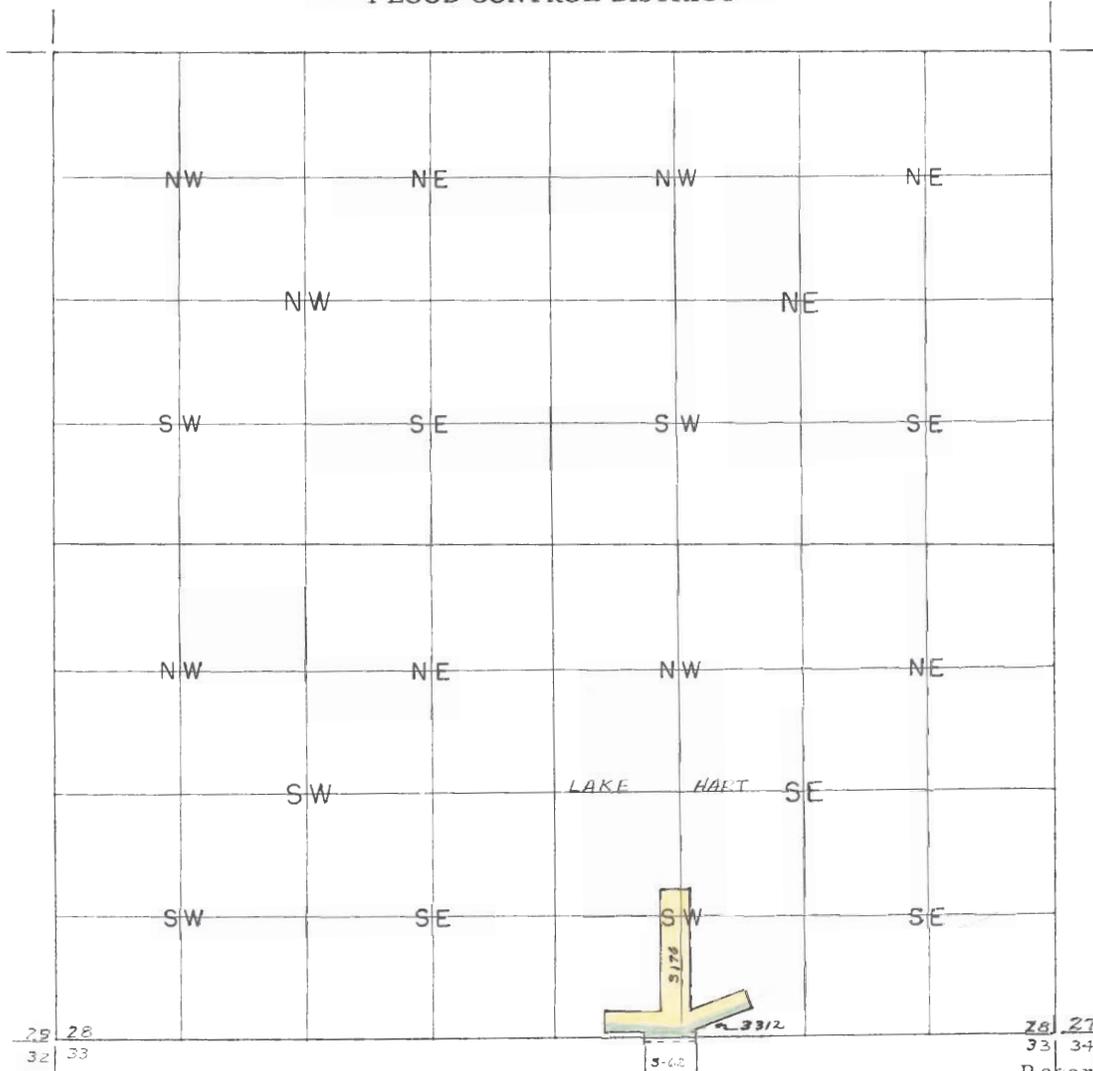
LAND DEPARTMENT
LAND ACQUISITION RECORD

COLOR LEGEND

Pencil Number

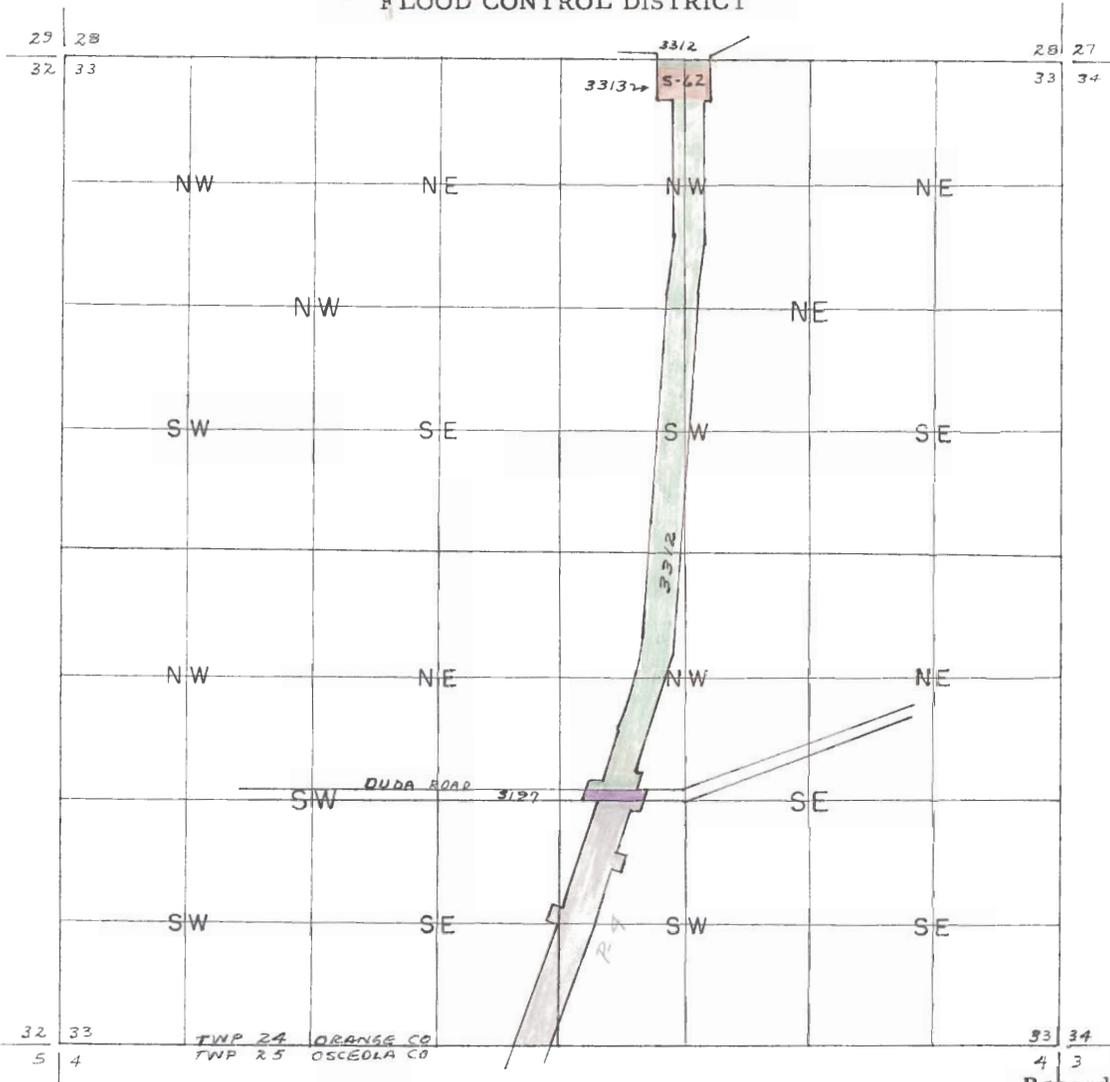
| | |
|----------------|--|
| 817 | T.I.I.F. Fee Lands - <u>Surface Easement</u> |
| 817 | T.I.I.F. Fee Lands - <u>Deed</u> |
| 862 | T.I.I.F. Murphy Lands - <u>Surface Easement</u> |
| 845 | State School Board - <u>Surface Easement</u> |
| 845 | Board of State Institutions - <u>Dedication</u> |
| 864 | Everglades Drainage District and County - <u>Deed</u> |
| 866 | Everglades Drainage District - <u>Deed</u> |
| 866 | Everglades Drainage District (Murphy Exchange) - <u>Deed</u> |
| 844 | County - <u>Deed</u> |
| //// | Sub-Drainage District - <u>Deed</u> (Hatchover Basic Color) |
| 819 | Condemnation - <u>Final Decree</u> |
| 863 | Deed from Individual - <u>Absolute</u> |
| 863 | Deed from Individual - <u>ABSOLUTE</u> With Reservations |
| 868 | Individual Easement |
| 868 | Easement - State Road Department |
| 817 | T.I.I.F. - Rights in Reservations |
| 845 | State School Board - Rights in Reservations |

CENTRAL AND SOUTHERN FLOOD CONTROL DISTRICT



| Grantor | Description | F. C. D. | Inst. | Date | Book-Page |
|---|-------------|----------|-----------|---------|-----------|
| TIIF (Deed No. 24407) | | 3176 | R/W Esmt. | 12/1/66 | 1600-751 |
| <p>All that part of the lake bottom lands of Lake Hart in Sec. 28-24-31, Orange County, lying within bndrs. of fol. spec. desc. land: From a 5"x5" concrete monument marking the SW cor. of GL 4 of sd. Sec. 28, bear S. 89°26'54" E. along the S. / of sd. Sec. 28, a dis. of 484.15' to the pob; Th., cont S. 89°36'54" E. along sd. S. /, a dis. of 280.03'; Th., N. 0°19'00" W. a dis. of 24.21'; Th., N. 69°30'00" E. a dis. of 315.82'; Th., N. 20°30'00" W. a dis. of 130.00'; Th., S. 69°30'00" W. a dis. of 300.00'; Th., N. 0°19'00" W. a dis. of 651.33'; Th., S. 89°41'00" W. a dis. of 160.00'; Th., S. 0°19'00" E. a dis. of 650.00'; Th., due W. a dis. of 300.00'; Th., due S. a dis. of 115.00'; Th., due E. a dis. of 210.64'; Th., S. 0°19'00" E. a dis. of 34.30' to the pob.</p> | | | | | |
| C. E. Bradshaw, a/k/a Charles E. Bradshaw, et ux | | 3312 | ED | 8/24/67 | 1667-245 |
| <p>All that part of GL 4, Sec. 28-24-31, Orange County, lying S'ly of Lake Hart & within bndries. of fol. spec. desc. land: From a 5x5 concrete monument marking SW cor. of sd. GL 4, bear S. 89°26'54" E. along S. / of sd. Sec. 28, also being S. / of sd. GL 4, a dis. of 484.15' to pob; Th., cont. S. 89°26'54" E. along sd. S. /, a dis. of 280.03'; Th., N. 0°19'00" W. a dis. of 24.21'; Th., N. 69°30'00" E. a dis. of 315.82'; Th., N. 20°30'00" W. a dis. of 130.00'; Th., S. 69°30'00" W. a dis. of 300.00'; Th., N. 0°19'00" W. a dis. of 651.35'; Th., S. 89°41'00" W. a dis. of 160.00'; Th., S. 0°19'00" E. a dis. of 650.00'; Th., W. a dis. of 300.00'; Th. S. a dis. of 115.00'; Th., E. a dis. of 210.64'; Th., S. 0°19'00" E. a dis. of 34.30' to the pob.</p> | | | | | |

CENTRAL AND SOUTHERN FLORIDA
FLOOD CONTROL DISTRICT



| Grantor | Description | F. C. D. | Inst. | Date | Recorded Book-Page |
|---------|-------------|----------|-------|------|--------------------|
|---------|-------------|----------|-------|------|--------------------|

| | | | | | |
|------------------|--|------|----|---------|----------|
| County of Orange | | 3197 | ED | 3/20/67 | 1620-778 |
|------------------|--|------|----|---------|----------|

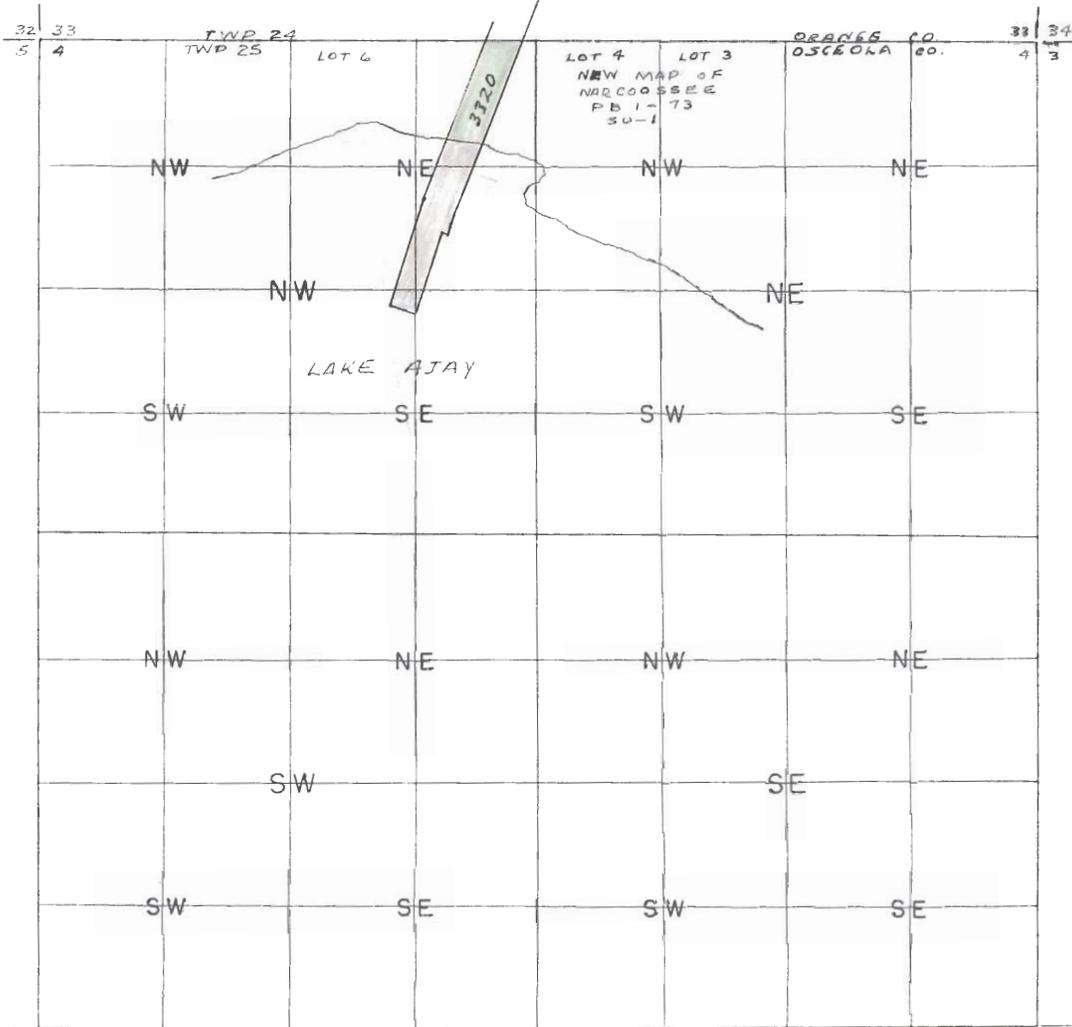
A parcel of land in SE $\frac{1}{4}$ of Sec. 33-24-31, Orange Co., lying within R/W for that certain rd., locally known as Duda Rd.; sd. parcel of land being more spec. desc. as fol.: From a 5x5 concrete monument marking SW cor. of SE $\frac{1}{4}$ of sd. Sec. 33, bear N. 1°00'25" W., along W. / of SE $\frac{1}{4}$ of sd. Sec. 33, a dis. of 1,320.42' to the intersec. thereof with S'ly R/W / of sd. Duda Rd.; Th., S. 89°55'38" E., along sd. S'ly R/W /, a dis. of 125.69' to pob; Th., cont. S. 89°55'38" E., along sd. S'ly R/W /, a dis. of 323.50'; Th., N. 16°41'00" E., a dis. of 62.61' to the intersec. thereof with the N'ly R/W / of sd. Duda Rd.; Th., N. 89°55'38" W., along sd. N'ly R/W /, a dis. of 323.50'; Th., S. 16°41'00" W., a dis. of 62.61' to the pob.

Citizens National Bank of Orlando, Ancillary Admin., fee 3473 OT 9/5/67
 CTA, of Estate of Frank A. Adamucci

P-4: A parcel of land in that part of S $\frac{1}{2}$ of Sec. 33-24-31, lying S'ly of R/W for that certain rd. locally known as Duda Rd.; sd. parcel being more spec. desc. as fol.: From a 5x5 concrete monument marking the SE cor. of SW $\frac{1}{4}$ of sd. Sec. 33, bear S. 89°53'26" W. along S. / of sd. Sec. 33, a dis. of 73.17' to pob; Th., cont. S. 89°53'26" W. along sd. S. /, a dis. of 193.30'; Th., N. 21°16'00" E. a dis. of 682.31'; Th., N. 68°44'00" W. a dis. of 60.00'; Th., N. 21°16'00" E. a dis. of 85.00'; Th., S. 68°44'00" E. a dis. of 47.04'; Th., N. 16°41'00" E. a dis. of 627.47' to intersec. thereof with S. R/W / of sd. Duda Rd.; Th., S. 89°55'38" E. along sd. S. R/W /, a dis. of 245.23'; Th., S. 16°41'00" W. a dis. of 65.00'; Th., N. 89°55'38" W. a dis. of 46.96'; Th., S. 16°41'00" W. a dis. of 237.23'; Th., S. 73°19'00" E. a dis. of 45.00'; Th., S. 16°41'00" W. a dis. of 90.00'; Th., N. 73°19'00" West, a dis. of 45.00'; Th., S. 16°41'00" W. a dis. of 200.00'; Th., S. 21°16'00" W. a dis. of 230.00'; Th., S. 68°44'00" E. a dis. of 10.00'; Th., S. 21°16'00" W. a dis. of 573.65' to pob.

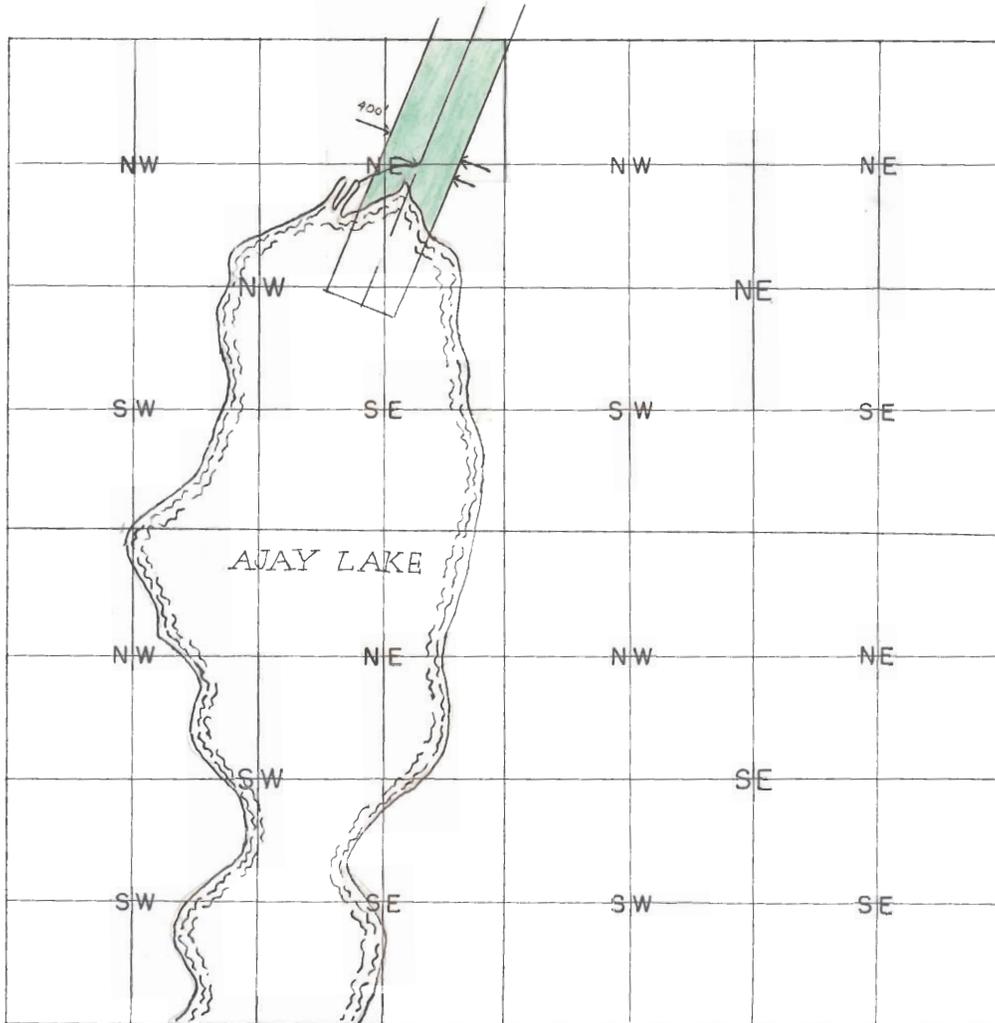
| Grantor | Description | F.C.D. # | Instrument | Date | Recorded Book-Page |
|--|-------------|----------|------------|---------|--------------------|
| C. E. Bradshaw, a/k/a Charles E. Bradshaw, et ux | | 3312 | ED | 8/24/67 | 1667-245 |
| <p>A parcel of land in that part of $W\frac{1}{2}$ of $E\frac{1}{2}$ of Sec. 33-24-31, Orange County, lying N'ly of the R/W for that certain rd. locally known as Duda Rd.; sd. parcel being more spec. desc. as fol.: From a 5x5 concrete monument marking the NW cor. of the $NE\frac{1}{4}$ of sd. Sec. 33, bear S. 89°26'54" E. along the N. / of sd. Sec. 33, a dis. of 484.15'; Th., S. 0°19'00" E. a dis. of 220.70'; Th., N. 89°41'00" E., a dis. of 80.00' to the pob; Th., S. 0°19'00" E. a dis. of 761.11'; Th., S. 8°00'00" W. a dis. of 253.34'; Th., S. 0°53'00" W. a dis. of 1373.54'; Th., S. 6°20'00" W. a dis. of 120.00'; Th., S. 89°00'00" W. a dis. of 45.00'; Th., S. 6°20'00" W. a dis. of 65.00'; Th., N. 89°00'00" E. a dis. of 45.00'; Th., S. 6°20'00" W. a dis. of 808.31' to the poc of a curve to the right, having a C/A of 10°21'00" & a radius of 1875'; Th., SW'ly along the arc of sd. curve, a dis. of 338.70' to the end of sd. curve; Th., S. 73°19'00" E. a dis. of 20.00'; Th., S. 16°41'00" W. a dis. of 205.00'; Th., N. 89°55'38" W. a dis. of 62.61'; Th., S. 16°41'00" W. a dis. of 54.08' to the intersec. thereof with the N'ly R/W / of sd. Duda Rd.; Th., S. 89°55'38" E. along sd. N'ly R/W /, a dis. of 276.54'; Th., N. 16°41'00" E. a dis. of 83.48'; Th., N. 89°55'38" W. a dis. of 41.74'; Th., N. 16°41'00" E. a dis. of 67±.48'; Th., N. 0°53'00" E. a dis. of 2209.12'; Th., N. 8°00'00" E. a dis. of 255.13'; Th., N. 0°19'00" W. a dis. of 773.47'; Th., S. 89°41'00" W. a dis. of 170.00' to pob. ALSO, a parcel of land in $W\frac{1}{2}$ of $NE\frac{1}{4}$ of sd. Sec. 33, sd. parcel being more spec. desc. as fol.: from a 5x5 concrete monument marking the NW cor. of the $NE\frac{1}{4}$ of sd. Sec. 33, bear S. 89°26'54" E. along N. / of sd. Sec. 33, a dis. of 484.15' to the pob; Th., cont. S. 89°26'54" E. along sd. N. /, a dis. of 280.03'; Th., S. 0°19'00" E. a dis. of 16.46'; Th., S. 89°41'00" W. a dis. of 280.00'; Th., N. 0°19'00" W. a dis. of 20.70' to the pob.</p> | | | | | |
| C. E. Bradshaw, a/k/a Charles E. Bradshaw, et ux | | 3313 | WD | 8/24/67 | 1667-248 |
| <p>A parcel of land in $W\frac{1}{2}$ of $NE\frac{1}{4}$ of Sec. 33-24-31, Orange County, more spec. desc. as fol.: From 5x5 concrete monument marking NW cor. of $NE\frac{1}{4}$ of sd. Sec. 33, bear S. 89°26'54" E. along N. / of sd. Sec. 33, a dis. of 484.15'; Th., S. 0°19'00" E. a dis. of 20.70' to the pob; Th., cont. S. 0°19'00" E. a dis. of 200.00'; Th., N. 89°41'00" E. a dis. of 280.00'; Th., N. 0°19'00" W. a dis. of 200.00'; Th., S. 89°41'00" W. a dis. of 280.00' to pob.</p> | | | | | |
| Glen G. Henson et al | <i>Fee</i> | 3473 | FJ | 4/15/69 | 1827-307 |
| P-4, Same as OT above. | | | | | |

CENTRAL AND SOUTHERN FLOOD CONTROL DISTRICT



| Grantor | Description | F.C.D. | Inst. | Date | Recorded Book-Page | |
|--|-------------------|------------|-------|----------|--------------------|--------|
| L. Carl Tyson, a/k/a Lawrence | Carl Tyson, et ux | 3320 | ED | 7/10/67 | 166-453 | |
| <p>All that part of Lot 5 & all that part of that certain 20' rd. or st. lying N'ly of & adjacent to sd Lot 5, Sec. 4-25-31, New Map of Narcoossee, PB: 1-73, Osceola County, lying within bndries. of fol. spec. desc. land: From a 5x5 concrete monument marking NE cor. of NW$\frac{1}{4}$ of sd. Sec. 4, bear S. 89°53'26" W. along N. / of sd. Sec. 4, also being N. / of sd. New Map of Narcoossee, a dis. of 73.17' to pob; Th., cont. S. 89°53'26" W. along sd. /, a dis. of 193.30'; Th., S. 21°16'00" W. a dis. of 889.39'; Th., S. 19°08'00" W. a dis. of 601.30'; Th., S. 70°52'00" E. a dis. of 150.00'; Th., N. 19°08'00" E. a dis. of 447.95'; Th., S. 70°52'00" E. a dis. of 30.00'; Th., N. 19°08'00" E. a dis. of 150.00'; Th., N. 21°16'00" E. a dis. of 956.50' to the pob.</p> | | | | | | |
| Anne Palmer Fell & E. Nelson | Fell | CA #67-220 | 3674 | PE OT | 8/18/67 5/28/70 | 303-29 |
| <p>P-2: All that part of Lake Ajay in Sec. 4-25-31, lying within bndries. of fol. desc. land: From a 5x5 concrete monument marking the NE cor. of NW$\frac{1}{4}$ of sd. Sec. 4, bear S. 89°53'26" W. along N. / of sd. Sec. 4, a dis. of 73.17' to pob; Th., cont. S. 89°53'26" W. along sd. /, a dis. of 193.30'; Th., S. 21°16'00" W. a dis. of 889.39'; Th., S. 19°08'00" W. a dis. of 601.30'; Th., S. 70°52'00" E. a dis. of 150.00'; Th., N. 19°08'00" E. a dis. of 447.95'; Th., S. 70°52'00" E. a dis. of 30.00'; Th., N. 19°08'00" E. a dis. of 150.00'; Th., N. 21°16'00" E. a dis. of 956.50' to the pob.</p> | | | | | | |

CENTRAL AND SOUTHERN FLORIDA
FLOOD CONTROL DISTRICT



| Grantor | Description | F.C.D. | Inst. | Date | Recorded Book-Page |
|---|-------------|--------|-------|--------|--------------------|
| Ajay Lake Properties, Inc., a Fla. corp. | | 1378 | ED | 7-1-57 | 12-84 |
| <p>Strip of land 400' wide extending through all of Lot 5, New Map of Narcoossee, S/D in Sec. 4-25-31, PB 1-73 & 74, Osceola County, Fla., & extending through reclaimed lake bottom lands lying between S'y boundary of sd. Lot 5 & waters of Ajay Lake: Sd. 400' strip of land lying 200' on each side of ϕ of proposed improvement to Lake Hart-Ajay Lake Canal. Sd. ϕ to follow as near as possible ϕ of existing channel of Lake Hart-Ajay Lake Canal & S'y extention thereof into open waters of Ajay Lake.</p> | | | | | |

Post NEW DEEDS TO NEW PAGE

Orange Co FL 1999-0221134
052199 11:40:50am
OR Bk 5756 Pg 1316
Rec 33.00 DSC .70

THIS INSTRUMENT WAS PREPARED BY
AND SHOULD BE RETURNED TO:

★ William A. Beckett, Esquire
Lowndes, Drosdick, Doster, Kantor
Reed, Professional Association
215 North Eola Drive
Post Office Box 2809
Orlando, Florida 32802-2809

DEED OF CONSERVATION EASEMENT

THIS DEED OF CONSERVATION EASEMENT is given this 10th day of May, 1999, by GCB ASSOCIATES, LTD., a Florida limited partnership, 5840-C, South Semoran Boulevard, Orlando, Florida 32822 ("Grantor") to the SOUTH FLORIDA WATER MANAGEMENT DISTRICT ("Grantee"). As used herein, the term Grantor shall include any and all heirs, 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 assignee of Grantee.

WITNESSETH:

WHEREAS, the Grantor is the owner of certain lands situated in Orange County, Florida, and more specifically described in Exhibit A attached hereto and incorporated herein ("Property"); and

WHEREAS, the Grantor desires to construct World Gateway Phase 2 ("Project") at a site in Orange County, which is subject to the regulatory jurisdiction of South Florida Water Management District ("District"); and

WHEREAS, District Permit No. 48-00922-P[✓] ("Permit") authorizes certain activities which affect surface waters in or of the State of Florida; and

WHEREAS, this Permit requires that the Grantor preserve and/or mitigate wetlands under the District's jurisdiction; and

WHEREAS, the Grantor has developed and proposed as part of the Permit conditions a conservation tract and maintenance buffer involving preservation of certain wetland and/or upland systems on the Property; and

OR Bk 5756 Pg 1317
Orange Co FL 1999-0221134

WHEREAS, the Grantor, in consideration of the consent granted by the Permit, is agreeable to granting and securing to the Grantee a perpetual conservation easement as defined in Section 704.06, Florida Statutes (1995); over the Property.

NOW, THEREFORE, in consideration of the issuance of the Permit to construct and operate the permitted activity, and as an inducement to Grantee in issuing the Permit, together with other good and valuable consideration, the adequacy and receipt of which is hereby acknowledged, Grantor hereby grants, creates, and establishes a perpetual conservation easement for and in favor of the Grantee upon the Property which shall run with the land and be binding upon the Grantor, and shall remain in full force and effect forever.

The scope, nature, and character of this Conservation Easement shall be as follows:

1. It is the purpose of this Conservation Easement to retain land or water areas in their natural, vegetative, hydrologic, scenic, open, agricultural or wooded condition and to retain such areas as suitable habitat for fish, plants or wildlife. Those wetland and/or upland areas included in this Conservation Easement which are to be enhanced or created pursuant to the Permit shall be retained and maintained in the enhanced or created conditions required by the Permit.

To carry out this purpose, the following rights are conveyed to Grantee by this easement:

a. To enter upon the Property at reasonable times with any necessary equipment or vehicles to enforce the rights herein granted in a manner that will not unreasonably interfere with the use and quiet enjoyment of the Property by Grantor at the time of such entry; and

b. To enjoin any activity on or use of the Property that is inconsistent with this Conservation Easement and to enforce the restoration of such areas or features of the Property that may be damaged by any inconsistent activity or use.

2. Except for restoration, creation, enhancement, maintenance and monitoring activities, or surface water management improvements, which are permitted or required by the permit, the following activities are prohibited in or on the Property;

a. Construction or placing of buildings, roads, signs, billboards or other advertising, utilities, or other structures on or above the ground;

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;

c. Removal or destruction of trees, shrubs, or other vegetation, except for the removal of exotic vegetation in accordance with a District approved maintenance plan;

DR BK 5756 Pg 1318
Orange Co FL 1999-0221134

d. Excavation, dredging, or removal of loam, peat, gravel, soil, rock, or other material substance in such manner as to affect the surface;

e. Surface use except for purposes that permit the land or water area to remain in its natural condition;

f. 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 fencing;

g. Acts or uses detrimental to such aforementioned retention of land or water areas;

h. Acts or uses which are detrimental to the preservation of any features or aspects of the Property having historical or archaeological significance.

3. Grantor reserves all rights as owner of the Property, including the right to engage in uses of the Property that are not prohibited herein and which are not inconsistent with any District rule, criteria, permit and the intent and purposes of this Conservation Easement.

4. No right of access by the general public to any portion of the Property is conveyed by this Conservation Easement.

5. Grantee shall not be responsible for any costs or liabilities related to the operation, upkeep or maintenance of the Property.

6. Grantor shall pay any and all real property taxes and assessments levied by competent authority on the Property.

7. Any costs incurred in enforcing, judicially or otherwise, the terms, provisions and restrictions of this Conservation Easement shall be borne by and recoverable against the non-prevailing party in such proceedings.

OR BK 5756 Pg 1319
Orange Co FL 1999-0221134

8. Enforcement of the terms, provisions, restrictions of this Conservation 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.

9. Grantee will hold this Conservation Easement exclusively for conservation purposes. Grantee will not assign its rights and obligations under this Conservation Easement except to another organization qualified to hold such interests under the applicable state laws.

10. If any provision of this Conservation Easement or the application thereof to any person or circumstances is found to be invalid, the remainder of the provisions of this Conservation Easement shall not be affected thereby, as long as the purpose of the Conservation Easement is preserved.

11. Grantor shall insert the terms and restrictions of this Conservation Easement in any subsequent deed or other legal instrument by which Grantor divests itself of any interest in the Property.

12. All notices, consents, approvals 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-in-interest.

13. This Conservation Easement may be amended, altered, released or revoked only by written agreement between the parties hereto or their heirs, assigns or successors-in-interest, which shall be filed in the public records in Orange County.

TO HAVE AND TO HOLD unto Grantee forever. The covenants, terms, conditions, restrictions and purpose imposed with this Conservation 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 is lawfully seized of said property in fee simple; that the Property is free and clear of all encumbrances that are inconsistent with the terms of this Conservation Easement and all mortgages have been joined or subordinated; that Grantor has good right and lawful authority to convey this Conservation Easement; and that it hereby fully warrants and defends the title to the Conservation Easement hereby conveyed against the lawful claims of all persons whomsoever.

IN WITNESS WHEREOF, Grantor has hereunto set its authorized hand
this 10th day of May, 1999.

OR Bk 5756 Pg 1320
Orange Co FL 1999-0221134

Signed, sealed and delivered
in our presence as witnesses

GCB ASSOCIATES, LTD., a Florida limited
partnership

BY: SPARKNIGHT (U.S.), INC.
General Partner

ELIEN SANTIS
Print Name:

By: [Signature]
Print Name: Chien Ee Liew
Title: President

Print Name:

EXHIBIT "A"

OR BK 5756 Pg 1322
Orange Co FL 1999-0221134

LEGAL DESCRIPTION: (Mitigation Area)

Recorded - Martha O. Haynie

A portion of Section 33, Township 24 South, Range 31 East, Orange County, Florida, being described as follows:

Commence at the North 1/4 corner of said Section 33; thence run S 00°59'41" E. along the North - South center section line of said Section 33, a distance of 1,525.92 feet for a point of beginning; thence departing said North - South center section line run N. 89°59'53" E. 503.35 feet to the westerly line of Canal - 29A of Central and Southern Florida Flood Control District Easement, as recorded in Official Records Book 1667, Page 245, of the Public Records of Orange County, Florida; thence run along said westerly line the following courses and distances; S. 00°53'00" W. 1,084.72 feet; thence S. 06°20'00" W. 120.00 feet; thence S 89°00'00" W. 45.00 feet; thence S. 06°20'00" W. 65.00 feet; thence N. 89°00'00" E. 45.00 feet; thence S. 06°20'00" W. 808.31 feet to the point of curvature of a concave westerly and having a radius of 1,875.00 feet; thence run southerly along the arc of said curve 338.70 feet through a central angle of 10°21'00" to a point on said curve; thence run radially S. 73°19'00" E. 20.00 feet; thence S. 16°41'00" W. 205.00 feet; thence N. 89°55'38" W. 62.61 feet; thence S. 16°41'00" W. 63.06 feet to the northerly right-of-way line of Clapp-Simms-Duda Road (a 60.00 foot wide right-of-way as it is now established); thence departing the aforesaid westerly line of Canal - 29A, run S. 88°40'03" W. along said northerly right-of-way line 142.86 feet; thence N. 89°38'50" W. along said northerly right-of-way line 1,434.05 feet; thence departing said northerly right-of-way line run N. 00°53'00" E. 2,660.46 feet; thence N. 89°59'53" E. 1,346.67 feet to the point of beginning.



THIS INSTRUMENT WAS PREPARED BY
AND SHOULD BE RETURNED TO:

INSTR 20080114246
OR BK 09607 PG 1672 PGS=7
MARTHA O. HAYNIE, COMPTROLLER
ORANGE COUNTY, FL
02/22/2008 11:21:59 AM
REC FEE 61.00

William A. Beckett, Esquire
Lowndes, Drosdick, Doster, Kantor
& Reed, Professional Association
215 North Eola Drive
Post Office Box 2809
Orlando, Florida 32802-2809

DEED OF CONSERVATION EASEMENT

THIS DEED OF CONSERVATION EASEMENT is given this 17th day of August, 2007, by GCB ASSOCIATES, LTD., a Florida limited partnership, whose address is 5760 South Semoran Boulevard, Orlando, Florida 32822 ("Grantor"), to the SOUTH FLORIDA WATER MANAGEMENT DISTRICT ("Grantee"). As used herein, the term Grantor shall include any successor or assignee of the Grantor, and the term Grantee shall include any successor or assignee of Grantee.

WITNESSETH:

WHEREAS, Grantor is the owner of a portion of certain lands or an interest in certain lands situated in Orange County, Florida, which collectively comprise the entire property more specifically described in Exhibit "A" attached hereto and incorporated herein by reference ("Property"); and

WHEREAS, Grantor has constructed Phase I of the World Gateway Project ("Project") at a site in Orange County, which is subject to the regulatory jurisdiction of the South Florida Water Management District ("District"), the U.S. Army Corps of Engineers ("Corps") and the Department of the Army Permit No. 199406131; and

WHEREAS, District Surface Water Management or Wetland Resource Permit No. 48-00866-S and U.S. Army Corps of Engineers Permit No. 199406131(IP-ME) ("Permits") authorize activities which affect surface waters in or of the State of Florida; and

WHEREAS, these Permits require that Grantor preserve and/or mitigate wetlands under the District's jurisdiction; and

WHEREAS, Grantor has developed and proposed as part of the permit conditions a conservation tract and maintenance buffer involving preservation of certain wetland and/or upland systems on the Property; and

WHEREAS, the Grantor, in consideration of the consent granted by the Permits, is agreeable to granting and securing to the Grantee a perpetual conservation easement as defined in Section 704.06, Florida Statutes (2006), over the Property.

NOW, THEREFORE, in consideration of the issuance of the Permits to construct and operate the permitted activity, and as inducement to Grantee in issuing the Permit, together with other good and valuable consideration, the adequacy and receipt which is hereby acknowledged, Grantor hereby grants, creates, and establishes a perpetual conservation easement for the Grantee upon the Property, which shall run with the land and be binding upon the Grantor, its heirs, successors and assigns (hereinafter "Grantor") and shall remain in full force and effect forever.

The scope, nature, and character of this conservation easement shall be as follows:

1. It is the purpose of the conservation easement to retain land or water areas in their natural,

vegetative, hydrologic, scenic, open, agricultural or wooded condition and to retain such areas as suitable habitat for fish, plants or wildlife. Those wetlands and/or upland areas included in the conservation easement which are to be enhanced or created pursuant to the permit shall be retained and maintained in the enhanced or created conditions required by the permit.

To carry out this purpose, the following rights are conveyed to Grantee by this easement:

- a. Grantee and the Corps may enter upon the Property at reasonable times to enforce the rights herein granted in a manner that will not unreasonably interfere with the use and quiet enjoyment of the Property by Grantor at the time of such entry; and
 - b. To enjoin any activity on or use of the Property that is inconsistent with this conservation easement and to enforce the restoration of such areas or features of the Property that may be damaged by any inconsistent activity or use.
2. The following activities are prohibited in or on the Property;
- a. Construction or placing of buildings, roads, signs, billboards or other advertising, utilities, or other structures on or above the ground;
 - 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;
 - c. Removal or destruction of trees, shrubs, or other vegetation, except for the removal of exotic or nuisance vegetation in accordance with a District approved maintenance plan;
 - d. Excavation, dredging, or removal of loam, peat, gravel, soil, rock, or other material substance in such manner as to affect the surface;
 - e. Surface use except for purposes that permit the land or water area to remain predominantly in its natural condition;
 - f. 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 fencing;
 - g. Acts or uses detrimental to such aforementioned retention of land or water areas;
 - h. Acts or uses which are detrimental to the preservation of any features or aspects of the property having historical or archeological significance.
3. Grantor reserves all rights as owner of the Property, including the right to engage in uses of the Property that are not prohibited herein, and which are not inconsistent with any District rule, permit, criteria, or the intent and purposes of this conservation easement, and specifically including the right of Grantor and its successors and assigns to utilize the Property for, and grant additional easements for, drainage and retention in connection with the master stormwater system for Grantor's entire property described on Exhibit "B" attached hereto. Any such easements in addition to or in modification of the system approved by the Grantee on September 14, 1995 must be presented to the Corps for approval prior to implementation.
4. No right of access by the general public to any portion of the Property is conveyed by this conservation easement.

5. Grantor shall be responsible for any costs or liabilities related to the operation, upkeep and maintenance of the Property.

6. Grantor shall pay any and all real property taxes and assessments levied by competent authority on the Property.

7. Any costs incurred in enforcing, judicially or otherwise, the terms, provisions and restrictions of this conservation easement shall be borne by and recoverable against the non-prevailing party in such proceedings.

8. Enforcement of the terms and provisions of the conservation easement shall be at the reasonable discretion of Grantee and of the Corps, and any forbearance on behalf of Grantee or the Corps 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.

9. Grantee will hold this conservation easement exclusively for conservation purposes. Grantee will not assign its rights and obligations under this conservation easement except to another organization qualified to hold such interest under the applicable state laws. Notice of such assignment shall be provided to the Corps and the Corps must approve of the assignment.

10. If any provision of this conservation easement or the application thereof to any person or circumstances is found to be invalid, the remainder of the provisions of this conservation easement shall not be affected thereby, as long as the purpose of the conservation easement is preserved.

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

12. Notice of the terms, conditions, restrictions and purpose of this conservation easement shall be inserted by Grantor in any subsequent deed or other legal instrument by which Grantor divests itself of any interest in the Property, which notice may be by reference to this instrument. Any future holder of the Grantor's interest in the Property shall be notified in writing by Grantor of this conservation easement.

13. This conservation easement may be amended, altered, released or revoked only upon approval of the Corps by written agreement between the parties hereto or their heirs, assigns and successors-in-interest, which shall be filed in the public records in Orange County.

TO HAVE AND TO HOLD unto Grantee, its successors and assigns forever. The covenants, terms, conditions, restrictions and purpose imposed with this conservation easement shall not only be binding upon Grantor, but also its agents, heirs, successors and assigns, and shall continue as a servitude running in perpetuity with the Property.

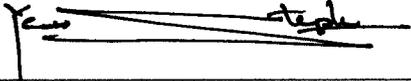
Grantor hereby covenants with said Grantee that Grantor is lawfully seized of said property in fee simple; that the Property is free and clear of all encumbrances that are inconsistent with the terms of this conservation easement and all mortgages have been joined or subordinated; that Grantor has good right and lawful authority to convey this conservation easement; and that it hereby fully warrants and defends the title to the conservation easement hereby conveyed against the lawful claims of all persons whomsoever.

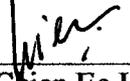
IN WITNESS WHEREOF, Grantor has hereunto set its authorized hand this ____ day of August, 2007.

Signed, sealed and delivered in our presence as witnesses

GCB ASSOCIATES, LTD., a Florida limited partnership

BY: SPARKNIGHT (U.S.), INC.
General Partner


Print Name: STEPHEN YEOW

By:  8/17/2007
Chien Ee Liew, President


Print Name: JAMES R SANDERS

5760 South Semoran Blvd.
Orlando, Florida 32822

STATE OF FLORIDA
COUNTY OF Orange

On this 17th day of August, 2007 before me, the undersigned notary public, personally appeared Chien Ee Liew, as President of SPARKNIGHT (U.S.), INC., General Partner of GCB ASSOCIATES, LTD., a Florida limited partnership, on behalf of the limited partnership, personally known to me to be the person who subscribed to the foregoing instrument and did not take an oath, and acknowledged that he executed the same on behalf of said partnership and that he was duly authorized to do so.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.


NOTARY PUBLIC, STATE OF FLORIDA



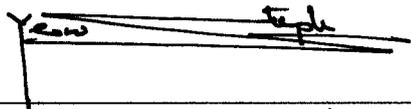
Printed Name of Notary _____
My Commission No. _____
My Commission Expires: _____

JOINDER AND CONSENT OF MORTGAGEES

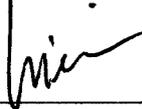
The undersigned, being the holders of that certain mortgage described below (the "Mortgage"), which Mortgage encumbers all or portions of the Property described in Exhibit "A" attached to this Deed of Conservation Easement, hereby join in and consent to the terms of this Deed of Conservation Easement and hereby subordinate the lien and encumbrance of the Mortgage to said Deed of Conservation Easement.

Signed, sealed and delivered
in the presence of:

SPARKNIGHT (U.S.), INC.



Printed Name: **STEPHEN YEOW**

By:  8/17/2007

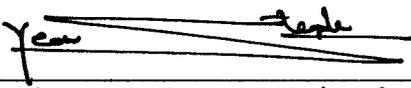
Chien Ee Liew
President



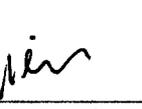
Printed Name: **JAMES R SANDERS**

(CORPORATE SEAL)

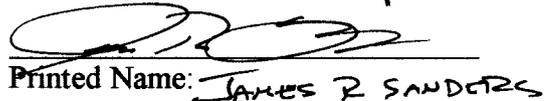
SPARKNIGHT, INC., a California corporation, f/k/a Asian Holdings, Inc., a California corporation.



Printed Name: **STEPHEN YEOW**

By:  8/17/2007

Chien Ee Liew
President



Printed Name: **JAMES R SANDERS**

(CORPORATE SEAL)

Mortgagees' Address: 5760 South Semoran Boulevard, Orlando, FL 32822

As to that certain Mortgage and Security Agreement dated August 17, 1981 and recorded August 18, 1981 in Official Records Book 3217, Page 637 of the Public Records of Orange County, Florida, as subsequently assigned, partially released and subordinated.

STATE OF FLORIDA
COUNTY OF Orange

On this 17th day of August, 2007 before me, the undersigned notary public, personally appeared Chien Ee Liew, as President of SPARKNIGHT (U.S.), INC., a Florida corporation and President of SPARKNIGHT, a California corporation, f/k/a Asian Holdings, Inc., a California corporation, on behalf of both corporations, personally known to me to be the person who subscribed to the foregoing instrument and did not take an oath, and acknowledged that he executed the same on behalf of said corporations and that he was duly authorized to do so.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.



Alice R. Quinones
NOTARY PUBLIC, STATE OF FLORIDA

Printed Name of Notary
My Commission No. _____
My Commission Expires: _____

EXHIBIT "A"

**WORLD GATEWAY
CONSERVATION EASEMENT PROPERTY**

That part of Section 33, Township 24 South, Range 28 East, Orange County, Florida, described as follows;

Commence at the Southwest corner of said Section 33; thence S89°38'34"E along the South line of the Southwest 1/4 of said Section 33 for a distance of 1529.52 feet to the POINT OF BEGINNING; thence leaving said South line N25°37'04"E, 24.73 feet; thence N13°45'06"W, 46.68 feet; thence N20°15'25"W, 103.06 feet; thence N32°17'47"W, 67.45 feet; thence N52°57'40"W, 137.87 feet; thence N66°16'57"W, 54.66 feet; thence N68°11'56"W, 89.62 feet; thence N78°16'49"W, 62.43 feet; thence N37°45'57"E, 29.47 feet; thence S72°12'04"W, 129.54 feet; thence N06°57'02"W, 68.53 feet; thence S78°29'57"W, 24.26 feet to the Easterly right-of-way line of International Drive South as shown on the Plat of WORLD GATEWAY, according to the plat thereof, as recorded in Plat Book 38, Pages 89 through 91, of the Public Records of Orange County, Florida: thence N18°28'17"E along said Easterly right-of-way line for a distance of 242.07 feet; thence leaving said Easterly right-of-way line run the following courses along the Southerly line of Parcel D2 and Tract A, WORLD GATEWAY PHASE 3, according to the plat thereof, as recorded in Plat Book 46, Pages 10 through 12, of the Public Records of Orange County, Florida, S71°31'43"E, 75.00 feet; thence S18°28'17"W, 45.45 feet; thence S77°12'55"E, 270.00 feet; thence N71°14'26"E, 439.48 feet to the Southerly right-of-way line of Satay Drive as shown on the aforesaid WORLD GATEWAY PHASE 3 Plat; thence S56°44'22"E along said Southerly right-of-way line for a distance of 28.26 feet; thence leaving said Southerly right-of-way line run following courses along the West line of Parcel B as shown on the aforesaid WORLD GATEWAY PHASE 3 PLAT: S00°53'31"W, 109.77 feet; thence S03°36'50"W, 111.13 feet; thence S00°04'02"W, 124.31 feet; thence S00°40'04"W, 125.95 feet; thence S01°06'36"W, 123.77 feet; thence S06°09'47"E, 55.68 feet to the South line of the Southwest 1/4 of said Section 33; thence N89°38'34"W along said South line, 315.85 feet to the POINT OF BEGINNING.

Containing 7.364 acres more or less and being subject to any rights-of-way, restrictions and easements of record.

EASEMENT DEED

THIS INSTRUMENT Made this 1st day of July 1957
by and between

AIJAY LAKE PROPERTIES, INC., a Florida corporation

of the first part, hereinafter referred to as the grantor, and CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT, a body corporate, created by the Acts of the Legislature of Florida, 1949, with its principal office in the Cosmos Building, West Palm Beach, Palm Beach County, Florida, of the second part, hereinafter referred to as the grantee.

WITNESSETH

That for and in consideration of the sum of One Dollar and other good and valuable considerations in hand paid by the grantee to the grantor, the receipt of which is hereby acknowledged, the grantor does hereby grant, bargain, sell and convey unto the grantee, CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT, its successors and assigns, the perpetual easement and right for and to the exclusive use and enjoyment of the following described lands situate in the County of Osceola State of Florida:

A strip of land 400 feet in width extending through all of Lot 5, New Map of Narcoossee, a subdivision in Section 4, Township 25 South, Range 31 West, according to the plat thereof as recorded in Plat Book 1, pages 73 and 74, Osceola County, Florida, public records; and extending through the reclaimed lake bottom lands lying between the southerly boundary of said Lot 5 and the waters of Ajay Lake: Said 400 foot strip of land lying and being 200 feet on each side of the centerline of the proposed improvement to Lake Hart-Ajay Lake Canal. Said centerline to follow as near as possible the centerline of the existing channel of Lake Hart-Ajay Lake Canal and the southerly extension thereof into the open waters of Ajay Lake.



for any and all purposes necessary, convenient, or incident to, or in connection with the construction, maintenance and operation of any project in the interest of flood control, reclamation, conservation, water storage and allied purposes now or that may hereafter be conducted by the grantee herein, its successors or assigns, in carrying out the purposes and intents of the Statutes of the State of Florida relating to CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT presently existing or that may be enacted in the future pertaining thereto; and does further grant, bargain, sell and convey unto the grantee herein, its successors and assigns, the full, complete and absolute title to all such interests as may be conveyed, devised or otherwise vested from said lands in connection with any of the purposes above mentioned. Any part of the whole of the easement and right herein granted may be assigned by the grantee for use for any public purposes.

The lands that are the subject of this easement may be used by grantor from the date hereof until 60 days after later notification from grantee of its intention to use the same within which time grantor shall completely vacate said lands at grantor's own expense and surrender possession thereof to grantee.

All the covenants and agreements herein contained shall extend to and be binding upon the parties hereto and their respective successors, administrators, personal representatives, heirs, successors and assigns.

Provided, however, that all that part of the above described easement and any spoil material excavated therefrom found to be in excess of final construction requirements and unnecessary for maintenance and operation, shall revert back to the then owner of the adjacent lands upon final completion of the works contemplated to be constructed on said easement, such reverter to be evidenced by a duly recorded instrument of the grantee, its successors or assigns.

Except as above provided, this easement does not grant or convey any easement, right, title or interest in or to any lands lying under the waters of Ajay Lake.

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894 - 12 PAGE 85

OFFICIAL RECORDS

TO HAVE AND TO HOLD the same together with all and singular the appurtenances thereto belonging or appertaining to the only proper use, benefit and behoof of the grantee herein, its successors and assigns, forever.

IN WITNESS WHEREOF this instrument deed has been executed by the grantor whose hand and seal is affixed hereto the date first above written.

ARMY LAKE PROPERTIES, INC.,
a Florida corporation

By: [Signature] (Seal)
President

Attest: [Signature] (Seal)
Treasurer

Signed, sealed and delivered in the presence of:

[Signature]
[Signature]

STATE OF Florida
COUNTY OF Osceola

I HEREBY CERTIFY, that on this day personally appeared before me Bl. Bronston and Joseph Bronston, President and Treasurer respectively, of ARMY LAKE PROPERTIES, INC., a Florida corporation

to me known to be the persons described in and who executed the foregoing Instrument Deed and they acknowledged before me that they executed the same for the purposes therein expressed, and the said instrument is the act and deed of said corporation.

~~Notary Public for the State of Florida~~

Witness my hand and official seal at Miami Beach, in the State and County aforesaid, this 12th day of July, 1957.

[Signature]
Notary Public

By Commission Expires:

FILED
1957 AUG 9 AM 9:08
GLENN RAY
CLERK CIRCUIT COURT
OSCEOLA COUNTY FLORIDA

6173
210
4
Filed in the office of the Clerk of the Circuit Court of Osceola County, Florida on the 8 day of August, 19 57 and recorded at 9:06 o'clock A. M. in Book 17 OF OFFICIAL RECORDS, PAGE 84
GLENN RAY, Clerk Circuit Court
By: [Signature] D. C.
Rec. Verified

001690

EASEMENT DEED

THIS INDENTURE, Made this 10th day of July, A.D. 1967, by and between L. CARL TYSON, also known as Lawrence Carl Tyson, and Alto Gary Tyson, his wife, of the first part, hereinafter referred to as the Grantor, and CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT, a body corporate, created by the Acts of the Legislature of Florida, 1949, with its principal office at 901 Evernia Street, and whose mailing address is P. O. Box 1671, West Palm Beach, of the County of Palm Beach, in the State of Florida, of the second part, hereinafter referred to as the Grantee,

WITNESSETH:

That for and in consideration of the sum of One Dollar and other good and valuable considerations in hand paid by the Grantee to the Grantor, the receipt of which is hereby acknowledged, the Grantor does hereby grant, bargain, sell and convey unto the Grantee, CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT, its successors and assigns, its perpetual ownership and right for and to the exclusive use and enjoyment of the following described lands situate in the County of Osceola, State of Florida:

All that part of Lot 5 and all that part of said section 20-foot road or street lying Northerly of and adjacent to said Lot 5 in Section 4, Township 25 South, Range 31 East, all as shown on the "New Map of Narcoossee," according to the plat thereof, as recorded in Plat Book 1, page 73, Osceola County, Florida, public records, lying within the boundaries of the following specifically described parcel of land:

From a 5' x 5' concrete monument marking the Northeast (NE) corner of the Northwest one-quarter (NW 1/4) of said Section 4, bear South 89°53'26" West, along the North line of said Section 4, also being the North line of said "New Map of Narcoossee," a distance of 73.17 feet to the point of beginning; thence, continue South 89°53'26" West, along said line, a distance of 198.30 feet; thence, South 21°16'00" West, a distance of 889.39 feet; thence, South 19°08'00" West, a distance of 607.30 feet; thence, South 76°52'30" East, a distance of 158.88 feet; thence, North 19°08'00" East, a distance of 447.95 feet; thence, South 76°52'30" East, a distance of 38.88 feet; thence, North 19°08'00" East, a distance of 158.88 feet; thence, North 21°16'00" East, a distance of 733.53 feet to the point of beginning; containing 7.48 acres more or less.

The bearings in the above description refer to the standard plane rectangular coordinate system for the East Zone of Florida.

for any and all purposes necessary, convenient, or incidental to, or in connection with

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the construction, maintenance and operation of any project in the interest of flood control, reclamation, conservation, water storage and allied purposes that now may be conducted by the Grantee herein, its successors or assigns, in carrying out the purposes and intents of the Statutes of the State of Florida relating to CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT presently existing pertaining thereto, and does further grant, bargain, sell and convey unto the Grantee herein, its successors and assigns, the full, complete, and absolute title to all such materials as may be excavated, dredged or otherwise removed from said lands in connection with any of the purposes above mentioned.

It is further understood that the Grantor and all other persons claiming by, through, or under Grantor, or either of them, their predecessors in title, or their heirs, assigns, or legal representatives by virtue of any deeds of conveyance shall have the right to install a bridge which shall extend over the canal joining Lake Hart and Ajoy Lake, and by which those portions of the Grantor's property separated by said canal may be connected. It is understood the grantor must obtain a Permit from the District, the purpose of which is to assure the planning and construction shall be of a good engineering design, and to assure that sufficient capacity is provided for canal discharge by the bridge.

The parties hereto acknowledge that so long as the lands contiguous to and lying both Easterly or Westerly of the easement herein granted are used for cattle grazing there is a need for a fence along the Easterly line or Westerly line of said easement. Grantee agrees to maintain, so long as it is necessary, an adequate fence running along the said Easterly line and said Westerly line. It is further agreed, if the fence maintained by the Grantee is adequate for the purposes heretofore mentioned, that Grantor will not construct any other fence along said Easterly line and said Westerly line. The parties hereto further agree, if the lands lying Easterly or Westerly of the easement are not being used for cattle grazing there shall be no fence along said lines unless the Grantor, at their option, desire such a fence, in which event it shall be the obligation of Grantor to construct and maintain such fence.

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Except as hereinabove set forth there shall be no fences in said easement area.

All the covenants and agreements herein contained shall extend to and be binding upon the parties hereto and their respective executors, administrators, personal representatives, heirs, successors and assigns.

TO HAVE AND TO HOLD the same together with all and singular the appurtenances thereunto belonging or in anywise incident or appertaining to the only proper use, benefit and behoof of the Grantee, its successors and assigns, forever.

IN WITNESS WHEREOF, this easement deed has been executed by the Grantor whose hand and seal is affixed hereto the date first above written.

L. Carl Tyson (SEAL) X
L. CARL TYSON, also known as
LAWRENCE CARL TYSON

Alto Gary Tyson (SEAL) X
ALTO GARY TYSON, his wife

Signed, Sealed and Delivered
in the presence of:

Andrew H. Atterbury
Alvin H. Atterbury

STATE OF *Florida*
COUNTY OF *Orange*

I HEREBY CERTIFY, that on this day personally appeared before me L. CARL TYSON, also known as LAWRENCE CARL TYSON and ALTO GARY TYSON, his wife, to me known to be the persons described in and who executed the foregoing Easement Deed and acknowledged before me that they executed the same for the purposes therein expressed.

WITNESS my hand and official seal at *Orlando* in the State and County aforesaid, this *10th* day of *July*, A. D., 1967.



Andrew H. Atterbury
NOTARY PUBLIC
My Commission Expires:
Notary Public, State of Florida at Large
My Commission Expires Mar. 6, 1970
Issued by: American Pub. & County Co.



001225

IN THE CIRCUIT COURT OF THE NINTH
JUDICIAL CIRCUIT OF FLORIDA, IN AND
FOR OSCEOLA COUNTY

CIVIL ACTION NO. 67 - 220

CENTRAL AND SOUTHERN FLORIDA FLOOD
CONTROL DISTRICT, a public corporation,
Petitioner,
vs
ANNE PALMER WELLS, et al.,
Defendants.

FINAL JUDGMENT

This cause, coming on to be heard before the HONORABLE RICHARD H. COOPER,
and Milton G. Bell and eleven other jurors of the County of
Osceola, State of Florida, who being duly sworn according to law, and after having
heard the testimony produced before the, and heard the charges of the Court,
returned the following Verdict:

IN THE CIRCUIT COURT OF THE NINTH
JUDICIAL CIRCUIT OF FLORIDA, IN AND
FOR OCCOOLA COUNTY

CIVIL ACTION NO. 67 - 220

CENTRAL AND SOUTHERN FLORIDA FLOOD
CONTROL DISTRICT, a public corporation,)
Petitioner,)
vs)
ANNE PALMER FELL, et al.,)
Defendants.)

VERDICT

WE, the Jury, impaneled to try the above entitled cause with respect to the hereinafter described property, find as follows:

That an accurate description of said property and the estate therein appropriated by the Petitioner, CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT, the compensation to be made for said property and the estate therein, and the amount of such compensation to which the owners are entitled in instances where there were sufficient facts before the Court upon which to adjudicate the distribution of the proceeds, otherwise distribution to be determined by subsequent Order of the Court upon appropriate petition, is as follows:

The properties described hereinafter are the lands situate in Occoola County, Florida, and the bearings and coordinates in the following descriptions refer to the standard plane rectangular coordinate system for the East Zone of Florida.

All references to recordings refer to the public records of Occoola County, Florida, unless otherwise specified.

PARCEL NO. 2: (3X & 5-10)

PERPETUAL EASEMENT
See Schedule "B"

7.1 acres ±

All that part of Lake Ajay in Section 4, Township 25 South, Range 31 East, lying within the boundaries of the following specifically described parcel of land:

From a 5" x 5" concrete monument marking the Northeast (NE) corner of the Northeast one-quarter (NE $\frac{1}{4}$) of said Section 4, bear South 89°53'26" West, along the North line of said Section 4, a distance of 73.17 feet to the point of beginning;

Thence, continue South 89°53'26" West, along said line, a distance of 193.30 feet;
Thence, South 21°16'00" West, a distance of 889.39 feet;
Thence, South 19°08'00" West, a distance of 601.20 feet;
Thence, South 70°52'00" East, a distance of 150.00 feet;
Thence, North 19°08'00" East, a distance of 447.95 feet;
Thence, South 70°52'00" East, a distance of 30.00 feet;
Thence, North 19°08'00" East, a distance of 150.00 feet;
Thence, North 21°16'00" East, a distance of 956.50 feet to the point of beginning.

and also,

All that part of Lake Ajay in Section 4, Township 25 South, Range 31 East, lying within the boundaries of the following specifically described parcel of land:

Commence at a 3" x 3" concrete monument marking the intersection of the East right of way line of State Road No. 15 with the South line of Lot 12, of the New Map of Harcoosesa, according to the plat thereof as recorded in Plat Book 1, Page 73; the coordinates of said concrete monument are: X = 426,576.50 and Y = 1455,617.25;

Thence, bear North 0°14'00" East, along said East right of way line, a distance of 497.15 feet to the point of beginning;

Thence, continue North 0°14'00" East, along said East right of way line, a distance of 288.82 feet;
Thence, North 87°27'00" East, a distance of 40.05 feet;
Thence, South 8°14'00" West, along a line that is 40 feet Easterly of, parallel and as measured at right angles to the East right of way line of said State Road No. 15, a distance of 25.00 feet;
Thence, North 87°27'00" East, a distance of 559.82 feet;
Thence, South 2°33'00" East, a distance of 40.00 feet;
Thence, North 87°27'00" East, a distance of 793.86 feet;
Thence, South 2°33'00" East, a distance of 140.00 feet;
Thence, South 87°27'00" West, a distance of 1,362.43 feet;
Thence, South 8°14'00" West, along a line that is 40 feet Easterly of, parallel and as measured at right angles to the East right of way line of said State Road No. 15, a distance of 85.00 feet;
Thence, South 89°27'00" West, a distance of 40.00 feet to the point of beginning.

72.00

As the compensation to be made to ANNE PALMER FELL, and if married, _____ FELL, her husband, and E. NELSON FELL, and if married, _____ FELL, his wife.

3674

PARCEL NO. 2-A: (5-XA)

TEMPORARY EASEMENT
See Schedule "B"

1 acre ±

All that part of Lake Ajay in Section 4, Township 25 South, Range 31 East, lying within the boundaries of the following specifically described parcel of land:

From a 5" x 5" concrete monument marking the Northeast (NE) corner of the Northwest one-quarter (NW $\frac{1}{4}$) of said Section 4, bear South 8 $^{\circ}$ 53' 26" West, along the North line of said Section 4, a distance of 19.48 feet to the point of beginning;

Thence, continue South 89 $^{\circ}$ 53' 26" West, along said line, a distance of 53.69 feet;
Thence, South 21 $^{\circ}$ 16' 00" West, a distance of 956.50 feet;
Thence, South 68 $^{\circ}$ 44' 00" East, a distance of 50.00 feet;
Thence, North 21 $^{\circ}$ 16' 00" East, a distance of 976.07 feet to the point of beginning.

\$ 25.00 As the compensation to be made to ANNE PALMER FELL, and if married, _____ FELL, her husband, and E. NELSON FELL, and if married, _____ FELL, his wife.

PARCEL NO. 6: (9X Rev.)

FEED TITLE
See Schedule "F"

4.91 acres water

All that certain canal right of way as shown on the plats of "NEW EDEN ON THE LAKES, UNITS NO. 1, 2 and 3", being subdivisions in Sections 25 and 36, Township 25 South, Range 31 East, as recorded in Plat Book 1, Pages 128, 131 and 132; LESS, HOWEVER, that part of said canal right of way lying within the boundaries of the following specifically described parcel of land:

From a 4" x 4" concrete monument marking the Northeast (NE) corner of said New Eden On The Lakes, Unit No. 1, bear South 89 $^{\circ}$ 15' 49" West, along the North line of said New Eden On The Lakes, Unit No. 1, a distance of 270.26 feet to the Northwest corner of Lot 135 of said New Eden On The Lakes, Unit No. 1, and the point of beginning;

Thence, South 17 $^{\circ}$ 30' 45" West, along the Easterly right of way line of East Canal Street of said New Eden On The Lakes, Unit No. 1, a distance of 199.57 feet to the Southwest (SW) corner of Lot 128 of said New Eden On The Lakes, Unit No. 1;
Thence, North 77 $^{\circ}$ 29' 15" West, a distance of 178.08 feet;
Thence, North 12 $^{\circ}$ 38' 45" East, a distance of 33.87 feet to the intersection thereof with the Northerly right of way line of Fifth Avenue of said New Eden On The Lakes, Unit No. 1;
Thence, South 89 $^{\circ}$ 58' 10" East, along said Northerly right of way line, a distance of 23.56 feet to the Southeast (SE) corner of Lot 139 of said New Eden On The Lakes, Unit No. 1;
Thence, North 12 $^{\circ}$ 38' 45" East, along the Easterly right of way line of West Canal Street of said New Eden On The Lakes, Unit No. 1, a distance of 124.12 feet to the Northeast (NE) corner of Lot 136 of said New Eden On The Lakes, Unit No. 1;
Thence, North 89 $^{\circ}$ 15' 49" East, along the North line of said New Eden On The Lakes, Unit No. 1; a distance of 0.63 feet to the Southeast (SE) corner of Lot 32 of said New Eden On The Lakes, Unit No. 2; said corner being a distance of 156.61 feet from the point of beginning;
Thence, North 10 $^{\circ}$ 25' 05" West, along the Westerly right of way line of West Canal Street of said New Eden On The Lakes, Unit No. 2, a distance of 36.24 feet;
Thence, South 77 $^{\circ}$ 29' 15" East, a distance of 155.10 feet to the Southwest (SW) corner of Lot 21 of said New Eden On The Lakes, Unit No. 2;
Thence, North 89 $^{\circ}$ 15' 49" East, along the North line of said

New Eden On The Lakes, Unit No. 1, a distance of 0.63 feet to the point of beginning.

and also,

(9XA)

FEE TITLE
See Schedule "FF"

0.34 acre

All that part of that certain canal right of way as shown on the plats of "NEW EDEN ON THE LAKES, UNITS No. 1 AND 2", being subdivisions in Section 36, Township 25 South, Range 31 East, as recorded in Plat Book 1, pages 128 and 131, respectively, lying within the boundaries of the following specifically-described parcel of land:

From a 4" x 4" concrete monument marking the Northeast (NE) corner of said New Eden On The Lakes, Unit No. 1, bear South 89°15'49" West, along the North line of said New Eden On The Lakes, Unit No. 1, a distance of 270.26 feet to the Northwest corner of Lot 135 of said New Eden On The Lakes, Unit No. 1 and the point of beginning;

Thence, South 12°30'45" West, along the Easterly right of way line of East Canal Street of said New Eden On The Lakes, Unit No. 1, a distance of 199.57 feet to the Southwest (SW) corner of Lot 128 of said New Eden On The Lakes, Unit No. 1; Thence, North 77°29'15" West, a distance of 178.00 feet; Thence, North 12°30'45" East, a distance of 33.67 feet to the intersection thereof with the Northerly right of way line of Fifth Avenue of said New Eden On The Lakes, Unit No. 1; Thence, South 89°58'10" East, along said Northerly right of way line, a distance of 23.56 feet to the Southeast (SE) corner of Lot 139 of said New Eden On The Lakes, Unit No. 1; Thence, North 12°30'45" East, along the Westerly right of way line of West Canal Street of said New Eden On The Lakes, Unit No. 1, a distance of 124.12 feet to the Northeast (NE) corner of Lot 136 of said New Eden On The Lakes, Unit No. 1; Thence, North 89°15'49" East, along the North line of said New Eden On The Lakes, Unit No. 1, a distance of 0.63 feet to the Southeast (SE) corner of Lot 32 of said New Eden On The Lakes, Unit No. 2; said corner being a distance of 150.61 feet from the point of beginning; Thence, North 10°25'05" West, along the Westerly right of way line of West Canal Street of said New Eden On The Lakes, Unit No. 2, a distance of 36.24 feet; Thence, South 77°29'15" East, a distance of 155.10 feet to the Southwest (SW) corner of Lot 31 of said New Eden On The Lakes, Unit No. 2; Thence, North 89°15'49" East, along the North line of said New Eden On The Lakes, Unit No. 1, a distance of 0.63 feet to the point of beginning.

\$ 20.00

As the compensation to be made to THE SHELL NATIONAL BANK OF WINDSOR HAVEN, a U. S. Corporation, as Trustee.

EXHIBIT NO. 8: (10 Rev.)

FEE TITLE
See Schedule "H"

0.21 acre

Lots 128, 129 and 130, of "NEW EDEN ON THE LAKES, UNIT NO. 1", a subdivision in Section 36, Township 25 South, Range 31 East, according to the plat thereof, as recorded in Plat Book 1, Page 128.

\$ 1500.00

As the compensation to be made to the party or parties entitled thereto pursuant to subsequent Order of Court.

3674

PARCEL NO. 10: (16 Rev.)

FREE TITLE
See Schedule "J"

0.14 acre

Lots 133 and 134 of "NEW EDEN ON THE LAKES, UNIT NO. 1", a subdivision in Section 36, Township 25 South, Range 31 East, according to the plat thereof, as recorded in Plat Book 1, Page 128.

\$ 200.00 As the compensation to be made to the party or parties entitled thereto pursuant to subsequent Order of Court.

PARCEL NO. 15: (60-X)

FREE TITLE
See Schedule "G"

0.01 acre

The Easterly 23 feet of Lot 192 of "NEW EDEN ON THE LAKES, UNIT NO. 1", a subdivision in Section 36, Township 25 South, Range 31 East, according to the plat thereof, as recorded in Plat Book 1, Page 128; said Easterly 23 feet being measured at right angles to the East line of said Lot 192.

\$ 200.00 As the compensation to be made to the party or parties entitled thereto pursuant to subsequent Order of Court.

PARCEL NO. 16: (60)

FREE TITLE
See Schedule "F"

0.01 acre

The Easterly 23 feet of Lot 193, of "NEW EDEN ON THE LAKES, UNIT NO. 1", a subdivision in Section 36, Township 25 South, Range 31 East, according to the plat thereof, as recorded in Plat Book 1, Page 128; said Easterly 23 feet being measured at right angles to the East line of Lot 193.

\$ 275.00 As the compensation to be made to CECILIAE GUSTIN, widow of Lawrence E. Gustin.

PARCEL NO. 17: (63)

FREE TITLE
See Schedule "V"

0.01 acre

The Easterly 23 feet of Lot 194 of "NEW EDEN ON THE LAKES, UNIT NO. 1", a subdivision in Section 36, Township 25 South, Range 31 East, according to the plat thereof, as recorded in Plat Book 1, Page 128; said Easterly 23 feet being measured at right angles to the East line of Lot 194.

\$ 200.00 As the compensation to be made to the party or parties entitled thereto pursuant to subsequent Order of Court.

PARCEL NO. 19: (65)

FREE TITLE
See Schedule "G"

0.02 acre

The Easterly 23 feet of Lots 224 and 225, of "NEW EDEN ON THE LAKES, UNIT NO. 1", a subdivision in Section 36, Township 25 South, Range 31 East, according to the plat thereof, as recorded in Plat Book 1, Page 128; said Easterly 23 feet being measured at right angles to the East line of said Lots.

\$ 200.00 As the compensation to be made to the party or parties entitled thereto pursuant to subsequent Order of Court.

All that part of Section 2, Township 26 South, Range 31 East, lying easterly of the Lake Lixie to Coon Lake Canal, and within the boundaries of the following specifically described parcel of land:

From a one inch iron pipe marking the Northwest (NW) corner of said Section 2, bear North 89°38'11" East, along the North line of said Section 2, a distance of 1,787.47 feet to the point of beginning;

Thence, continue North 89°38'11" East, along said North line, a distance of 198.29 feet;
 Thence, South 29°31'00" West, a distance of 23.07 feet to the intersection thereof with the North line of Lot 1 of Pine Grove Park, a subdivision in said Section 2, according to the plat thereof, as recorded in Plat Book 1, Page 245;
 Thence, South 89°38'11" West, along said North line, a distance of 31.58 feet to the Northwest (NW) corner of said Lot 1;
 Thence, South 1°10'37" West, along the West line of Lots 1 and 2 of said subdivision, a distance of 67.73 feet;
 Thence, South 89°26'00" West, a distance of 13.09 feet;
 Thence, South 0°34'00" East, a distance of 130.00 feet to the intersection hereof with the Westerly extension of the South line of Lot 5 of said subdivision;
 Thence, South 89°26'00" West, along said Westerly extension, a distance of 6.00 feet;
 Thence, South 0°34'00" East, a distance of 751.98 feet to the intersection thereof with the Westerly extension of the South line of Lot 21 of said subdivision;
 Thence, North 86°17'57" East, along said Westerly extension, a distance of 6.24 feet to a 3" x 3" concrete monument marking the Southwest (SW) corner of said Lot 21;
 Thence, continue North 86°17'57" East, along the South line of Lots 21 and 22 of said subdivision, a distance of 57.87 feet;
 Thence, South 5°29'00" East, a distance of 352.36 feet;
 Thence, South 84°31'00" West, a distance of 10.00 feet;
 Thence, South 5°29'00" East, a distance of 400.00 feet;
 Thence, South 84°31'00" West, a distance of 130.00 feet;
 Thence, North 5°29'00" West, a distance of 400.00 feet;
 Thence, South 84°31'00" West, a distance of 10.00 feet;
 Thence, North 5°29'00" East, a distance of 317.36 feet to the intersection thereof with the South right of way line of State Road No. 534A;
 Thence, South 89°48'27" West, along said South right of way line a distance of 60.26 feet;
 Thence, North 5°29'00" West, a distance of 113.00 feet;
 Thence, North 89°26'00" East, a distance of 18.35 feet;
 Thence, North 0°34'00" West, a distance of 981.47 feet to the point of beginning.

LESS, HOWEVER, the right of way for Base Road.

LESS, ALSO, the 20 foot right of way for that certain unnamed road along the North line of said Section 2, as shown on the plat of said Pine Grove Park Subdivision.

- \$ 200.00 As the compensation to be made to SINKER LAND COMPANY OF FLORIDA, INC., an Ohio Corporation
- \$ 20.00 As the compensation to be made to ERNEST HULLISON and CAROLYN HULLISON, his wife, as to an undivided 1/2 interest and EARL COLLEMAN and VERA COLLEMAN, his wife, as to an undivided 1/2 interest. (Lots 1 to 5) of said PINE GROVE PARK Subdivision.
- \$ 20.00 As the compensation to be made to JENNIE PASCETT and CHARLEVE PASCETT, his wife. (Lot 6) of said PINE GROVE PARK Subdivision.

- As the compensation to be made to SARA GROSS, also known as Sara J. Gross, a widow. (Lot 7) of said FINE GROVE PARK Subdivision.
- As the compensation to be made to FRANKLIN L. PUFFERBAUGH and FRANCES M. PUFFERBAUGH, his wife. (Lots 8, 9, 10) of said FINE GROVE PARK Subdivision.
- 144.00 As the compensation to be made to BESSIE NELSON, a widow. (Lot 11) of said FINE GROVE PARK Subdivision.
- As the compensation to be made to JOSEPH J. LYONS and PEGGY SHIRVE LYONS, his wife. (Lot 12) of said FINE GROVE PARK Subdivision.
- 200.00 As the compensation to be made to JOHN E. MARTIN and DAISY M. MARTIN, his wife. (Lots 13 and 14) of said FINE GROVE PARK Subdivision.
- As the compensation to be made to BESSIE L. KRIGER. (Lots 15, 16, 17, 18 and 19) of said FINE GROVE PARK Subdivision.
- 400.00 As the compensation to be made to FLORA SCHULZ, a widow. (Lots 20, 21 and 22) of said FINE GROVE PARK Subdivision.

c-3^G PARCEL NO. 23: (41)

PERPETUAL EASEMENT
See Schedule "v"

Land 0.03 acre ±
Water 0.01 acre ±

All that part of Government Lot 4, Section 11, Township 26 South, Range 31 East, lying Southwesterly of the right of way of State Road No. 24 (U. S. Highway No. 441), South-easterly of the centerline of that certain canal between Alligator and Lake Lizzie and Northwesterly of the Southeasterly bank of said Canal.

\$ 75.00 As the compensation to be made to Cecil Brooks Robinson and Margaret Snow Robinson, his wife.

SO SAY WE ALL.

Dated, this the 16th day of February, A. D., 1970.

/s/ William G. Bell

As Foreman

WHEREFORE, IT IS ORDERED and ADJUDGED as follows:

1. That said parcels of property described in the said Verdict be and the same hereby are appropriated to the Petitioner, CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT, in Fee Title, Temporary Easement and Perpetual Easement, as set forth in the Petition for Condemnation, as Amended.

2. The Court being advised that the total amount now on deposit in the Registry of the Court for said parcels is sufficient to discharge the awards provided for by this Judgment to which the Defendants herein may be entitled, IT IS DIRECTED that the Clerk of the Court shall pay, as herein provided, from the Registry of the Court, the awards pertaining to said parcels involved in the above Verdict from deposits made for such parcels. Before the Clerk shall pay the amount provided by this Judgment for each of the parcels, he shall first determine and deduct therefrom, any payment previously made to claimants from the Registry of the Court.

3. Costs and expenses to which the Defendants may be entitled and attorneys' fees shall be determined by subsequent Order of this Court, and after such determination and Order, the Clerk of the Court is directed to make payment to the parties entitled thereto from the Registry of the Court.

4. That the Clerk of this Court be and he is authorized and directed to first pay from such awards all taxes and tax certificates unpaid and outstanding as of the 9th day of September, A. D., 1967, with respect to each such particular parcel of land described in said verdict, and he is thereupon authorized and directed to pay the respective balances of said awards allowed thereon to the parties entitled thereto where specifically named in the verdict, and where not specifically named, to such party or parties as may hereafter be determined by Order of this Court to be entitled thereto.

DONE and ORDERED in Chambers at Kissimmee, in the County of Jacsonia, State of Florida, this the 15th day of February, A. D., 1970.

/s/ Richard W. Cooper
Circuit Judge

STATE OF FLORIDA
COUNTY OF OSCEOLA

I, HARRIS G. DANIEL, Clerk of the Circuit Court in and for the Ninth Judicial Circuit, State of Florida, County of Osceola, DO HEREBY CERTIFY that the above and foregoing is a true and correct copy of the FINAL JUDGMENT. Re: Civil Action No. 270-67. Central and Southern Florida Flood Control District, etc., versus Anne Palmer Fell, et al.

as filed for record the 28th day of May, 19 70
and recorded in Official Record Book 203,
Page 29, among the public records of Osceola County,
Florida.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed
the seal of my office at Kissimmee, Florida, this the 24th day
of September A. D. 197 1.

(SEAL)

HARRIS G. DANIEL
Clerk of the Circuit Court of
Osceola County, Florida.

By A. J. R. R. R.
Deputy Clerk.

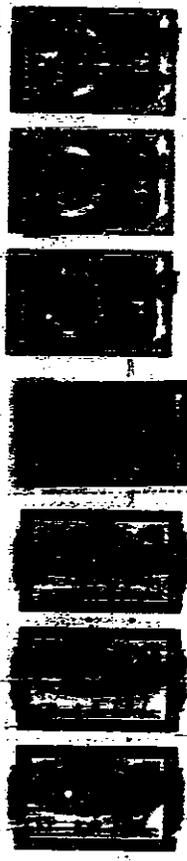
155454 RECORDED SEP 19 11 44 AM '67 U.R. 1667 PG 245 425

EASEMENT DEED

THIS INDENTURE, Made this the 24th day of August, A. D., 1967, by and between C. E. BRADSHAW, also known as CHARLES E. BRADSHAW, and LILLIAN D. BRADSHAW, his wife, of the County of Orange, in the State of Florida, of the first part, hereinafter referred to as the grantors, and CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT, a body corporate, created by the Acts of the Legislature of Florida, 1949, with its principal office at 901 Evernia Street, and whose mailing address is P. O. Box 1671, West Palm Beach, of the County of Palm Beach, in the State of Florida, of the second part, hereinafter referred to as the grantee.

WITNESSETH:

That for and in consideration of the sum of TEN DOLLARS (\$10.00), and other good and valuable considerations in hand paid by the grantee to the grantors, the receipt of which is hereby acknowledged, the grantors do hereby grant, bargain, sell and convey unto the grantee, CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT, its successors and assigns, the perpetual easement and right for and to the exclusive use and enjoyment of the following described lands situate in the County of Orange, State of Florida, to wit:



All that part of Government Lot 4 in Section 28, Township 24 South, Range 31 East, Orange County, Florida, lying Southerly of Lake Hart and within the boundaries of the following specifically described parcel of land:

From a 5" x 5" concrete monument marking the Southeast (SE) corner of said Government Lot 4, bear South 89° 26' 54" East, along the South line of said Section 28, also being the South line of said Government Lot 4, a distance of 484.15 feet to the point of beginning; Thence, continue South 89° 26' 54" East, along said South line, a distance of 280.03 feet; Thence, North 0° 19' 00" West, a distance of 24.21 feet; Thence, North 69° 30' 00" East, a distance of 315.82 feet; Thence, North 20° 30' 00" West, a distance of 130.00 feet; Thence, South 69° 30' 00" West, a distance of 300.00 feet; Thence, North 0° 19' 00" West, a distance of 651.35 feet; Thence, South 89° 41' 00" West, a distance of 160.00 feet; Thence, South 0° 19' 00" East, a distance of 650.00 feet; Thence, due West, a distance of 300.00 feet; Thence, due South, a distance of 115.00 feet; Thence, due East, a distance of 210.64 feet; Thence, South 0° 19' 00" East, a distance of 34.30 feet to the point of beginning; containing 2.4 acres, more or less.

A parcel of land in that part of the West one-half of the East one-half (W¹/₂ of E¹/₂) of Section 33, Township 24 South, Range 31 East, Orange County, Florida, lying Northerly of the right of way for that certain road locally known as Dada Road; said parcel of land being more specifically described as follows:

From a 5" x 5" concrete monument marking the Northwest (NW) corner of the Northeast one-quarter (NE¹/₄) of said Section 33, bear South 89° 26' 54" East, along the North line of said Section 33, a distance of 484.15 feet; Thence, South 0° 19' 00" East, a distance of 220.70 feet; Thence, North 89° 41' 00" East, a distance of 80.00 feet to the point of beginning; Thence, South 6° 15' 00" East, a distance of 761.11 feet; Thence, South 8° 00' 00" West, a distance of 253.34 feet; Thence, South 0° 53' 00" West, a distance of 1,373.54 feet; Thence, South 6° 20' 00" West, a distance of 120.00 feet; Thence, South 89° 00' 00" West, a distance of 45.00 feet; Thence, South 6° 20' 00" West, a distance of 45.00 feet; Thence, North 89° 00' 00" East, a distance of 45.00 feet; Thence, South 6° 20' 00" West, a distance of 809.31 feet to the point of curvature of a curve to the right, having a central angle of 10° 21' 00" and a radius of 1,875 feet; Thence, Southwesterly along the arc of said curve, a distance of 338.70 feet to the end of said curve;

3312

U.S. 1667 ^{PL} 246

Thence, South 73° 19' 00" East, a distance of 20.00 feet;
Thence, South 16° 41' 00" West, a distance of 203.00 feet;
Thence, North 89° 55' 38" West, a distance of 62.61 feet;
Thence, South 16° 41' 00" West, a distance of 54.08 feet
to the intersection thereof with the Northerly right of way
line of said Dada Road; Thence, South 89° 55' 38" East,
along said Northerly right of way line, a distance of 274.54
feet; Thence, North 16° 41' 00" East, a distance of 83.48
feet; Thence, North 89° 55' 38" West, a distance of 41.74
feet; Thence, North 16° 41' 00" East, a distance of 672.48
feet; Thence, North 0° 53' 00" East, a distance of 2,209.17
feet; Thence, North 8° 00' 00" East, a distance of 255.13
feet; Thence, North 0° 19' 00" West, a distance of 773.47
feet; Thence, South 89° 41' 00" West, a distance of 120.00
feet to the point of beginning.

ALSO, a parcel of land in the West one-half of the Northeast one-quarter (W $\frac{1}{2}$ of NE $\frac{1}{4}$) of said Section 33; said parcel of land being more specifically described as follows:

From a 5" x 5" concrete monument marking the Northwest (NW) corner of the Northeast one-quarter (NE $\frac{1}{4}$) of said Section 33, bear South 89° 26' 54" East, along the North line of said Section 33, a distance of 484.15 feet to the point of beginning; Thence, continue South 89° 26' 54" East, along said North line, a distance of 280.03 feet; Thence, South 0° 19' 00" East, a distance of 16.46 feet; Thence, South 89° 41' 00" West, a distance of 280.00 feet; Thence, North 0° 19' 00" West, a distance of 20.70 feet to the point of beginning; containing 17.08 acres.

The bearings in the above description refer to the standard plane rectangular coordinate system for the East Zone of Florida.

for any and all purposes necessary, convenient, or incident to, or in connection with, the construction, maintenance and operation of any project in the interest of flood control, reclamation, conservation, recreation, water storage and allied purposes now or that may hereafter be conducted by the grantee herein, its successors or assigns, in carrying out the purposes and intents of the Statutes of the State of Florida relating to CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT presently existing or that may be enacted in the future pertaining thereto, and does further grant, bargain, sell and convey unto the grantee herein, its successors and assigns, the full, complete, and absolute title to all such materials as may be excavated, dredged or otherwise removed from said lands in connection with any of the purposes above mentioned. Any part of the whole of the easement and right herein granted may be assigned by the grantee for use in connection with any of the purposes above mentioned.

All the covenants and agreements herein contained shall extend to and be binding upon the parties hereto and their respective executors, administrators, personal representatives, heirs, successors and assigns.

TO HAVE AND TO HOLD the same together with all and singular the appurtenances thereto belonging or in anywise incident or appertaining to the only proper use, benefit and behoof of the grantee, its successors and assigns, forever.

155455 RECORDED SEP 19 11 41 AM '67

G.R. 1667 R 248

325
W

WARRANTY DEED

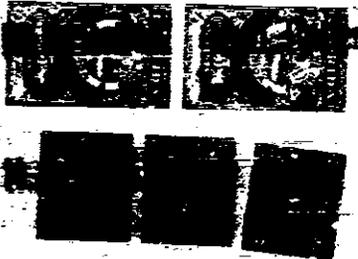
THIS INDENTURE, Made this the 24th day of August A. D., 1967, between C. E. BRADSHAW, also known as CHARLES E. BRADSHAW, and LILLIAN D. BRADSHAW, his wife, of the County of Orange in the State of Florida parties of the first part, and CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT, a body corporate, created by the Acts of the Florida Legislature of 1949, with its principal office in West Palm Beach, and whose Post Office Box is 1671, West Palm Beach, of the County of Palm Beach, in the State of Florida, party of the second part;

WITNESSETH: That the said parties of the first part, for and in consideration of the sum of TEN DOLLARS (\$10.00), and other good and valuable considerations to them in hand paid by the said party of the second part, the receipt whereof is hereby acknowledged, have granted, bargained and sold to the said party of the second part, its successors and assigns forever, the following described land, situate, lying and being in the County of Orange, State of Florida, to wit:

A parcel of land in the West one-half (1/2) of the Northeast one-quarter (NE 1/4) of Section 33, Township 24 South, Range 31 East, Orange County, Florida; said parcel of land being more specifically described as follows:

From a 5" x 5" concrete monument marking the Northwest (NW) corner of the Northeast one-quarter (NE 1/4) of said Section 33, bear South 89° 26' 54" East, along the North line of said Section 33, a distance of 484.15 feet; Thence, South 0° 19' 00" East, a distance of 20.70 feet to the point of beginning; Thence, continue South 0° 19' 00" East, a distance of 200.00 feet; Thence, North 82° 41' 00" East, a distance of 280.00 feet; Thence, North 0° 19' 00" West, a distance of 200.00 feet; Thence, South 59° 41' 00" West, a distance of 280.00 feet to the point of beginning; containing 1.29 acres.

The bearings in the above description refer to the standard plane rectangular coordinate system for the East Zone of Florida.



001192

81 1667 n 249

And the said parties of the first part do hereby fully warrant the title to said land, and will defend the same against the lawful claims of all persons who-soever.

IN WITNESS WHEREOF, the said parties of the first part have hereunto set their hands and seals the day and year first above written.

Signed, Sealed and Delivered in the presence of:

Richard W. Shank
Nancy J. Brady

(Seal)
C. E. Bradshaw (Seal)
C. E. BRADSHAW, also known as
CHARLES E. BRADSHAW
Lillian D. Bradshaw
LILLIAN D. BRADSHAW

STATE OF FLORIDA)
COUNTY OF ORANGE)

I HEREBY CERTIFY, that on this day personally appeared before me, an officer duly authorized to administer oaths and take acknowledgments, C. E. BRADSHAW, also known as CHARLES E. BRADSHAW, and LILLIAN D. BRADSHAW, his wife, to me well known and known to me to be the individuals described in and who executed the foregoing deed, and have acknowledged before me that they executed the same freely and voluntarily for the purposes therein expressed.

WITNESS my hand and official seal at Orlando in the State and County above mentioned, this the 24th day of August A.D. 1967

Richard W. Shank
Notary Public



RECORDED & RETURNED
Richard W. Shank Clerk of
Circuit Court, Orange Co., Fla.

My Commission Expires:
Notary Public, State of Florida at Large
My Commission Expires April 9, 1970
Issued by American Real Estate Co.

001193

Thence, continue South 89°33'20" West, along said South line, a distance of 193.36 feet;
 Thence, North 21°16'00" East, a distance of 682.31 feet;
 Thence, South 68°44'00" West, a distance of 60.00 feet;
 Thence, North 21°16'00" East, a distance of 85.00 feet;
 Thence, South 68°44'00" East, a distance of 47.94 feet;
 Thence, North 18°41'00" East, a distance of 677.47 feet to the intersection thereof with the South right of way line of said Dale Road;
 Thence, South 89°33'30" East, along said South right of way line, a distance of 245.23 feet;
 Thence, South 18°41'00" East, a distance of 65.00 feet;
 Thence, North 89°33'30" West, a distance of 66.96 feet;
 Thence, South 18°41'00" West, a distance of 257.73 feet;
 Thence, South 73°19'00" East, a distance of 45.76 feet;
 Thence, South 18°41'00" West, a distance of 90.00 feet;
 Thence, North 73°19'00" West, a distance of 45.00 feet;
 Thence, South 18°41'00" West, a distance of 200.00 feet;
 Thence, South 21°16'00" West, a distance of 130.00 feet;
 Thence, South 68°44'00" East, a distance of 21.00 feet;
 Thence, South 21°16'00" East, a distance of 379.66 feet to the point of beginning.

and also,

SECTION 22, T4N, R4E (4-8) **TRAILBLAZER ACQUISITION** 1.00 acre
 (See Exhibit "B")

A parcel of land is that part of the Southwest one-quarter (SW1/4) of Section 22, Township 24 North, Range 31 East, lying Southwesterly of the right of way line that certain and hereby known as Dale Road; said parcel of land being more specifically described as follows:

From a 5' x 5' concrete monument marking the Southwest (SW) corner of the Southwest one-quarter (SW1/4) of said Section 22, New South 1°30'19" East, along the West line of the Southwest one-quarter (SW1/4) of said Section 22, a distance of 1,280.42 feet to the intersection thereof with the Southwesterly right of way line of said Dale Road;
 Thence, South 89°33'30" East, along said Southwesterly right of way line, a distance of 466.15 feet;
 Thence, South 18°41'00" West, a distance of 65.00 feet to the point of beginning;
 Thence, South 89°33'30" West, a distance of 66.06 feet;
 Thence, South 18°41'00" West, a distance of 227.23 feet;
 Thence, South 73°19'00" East, a distance of 60.00 feet;
 Thence, South 18°41'00" East, a distance of 216.15 feet;
 Thence, North 73°19'00" West, a distance of 25.00 feet to the point of beginning.

Also, a parcel of land is that part of the South one-half (SH1/2) of said Section 22, lying Southwesterly of the right of way line of said Dale Road; said parcel of land being more specifically described as follows:

From a 5' x 5' concrete monument marking the Southwest (SW) corner of the Southwest one-quarter (SW1/4) of said Section 22, New South 1°30'19" East, along the South line of said Section 22, a distance of 60 feet to the point of beginning;
 Thence, continue South 89°33'20" West, along said South line, a distance of 25.00 feet;
 Thence, North 21°16'00" East, a distance of 200.00 feet;
 Thence, South 68°44'00" West, a distance of 20.00 feet;
 Thence, North 21°16'00" East, a distance of 200.00 feet;
 Thence, North 18°41'00" East, a distance of 700.00 feet;
 Thence, South 73°19'00" East, a distance of 60.00 feet;

00227

Thence, South 16°41'00" West, a distance of 282.46 feet;
Thence, South 21°16'00" West, a distance of 786.48 feet
to the point of beginning.

and also,

REVENUE, A.S. (4-A)

THOMAS HARRIS
(See Schedule "B")

0.13 acre

A parcel of land in that part of the Southeast one-quarter (200) of Section 14, Township 24 South, Range 21 East, lying Southeastly of the right of way for that road and locally known as Duke Road; said parcel of land being more specifically described as follows:

From a 5' x 5' concrete monument marking the Southwest (SW) corner of the Southeast one-quarter (200) of said Section 14, bear North 1°00'25" West, along the West line of the Southeast one-quarter (200) of said Section 14, a distance of 1,128.42 feet to the intersection thereof with the Southeastly right of way line of said Duke Road;
Thence, South 89°25'15" East, along said Southeastly right of way line, a distance of 172.45 feet to the point of beginning;

Thence, continue South 89°13'25" East, along said Southeastly right of way line, a distance of 21.11 feet;
Thence, South 14°02'00" West, a distance of 189.28 feet;
Thence, South 73°19'00" West, a distance of 25.00 feet;
Thence, South 12°41'00" East, a distance of 189.00 feet
to the point of beginning.

The bearings and distances in the above descriptions refer to the standard plane rectangular coordinate system for the East Zone of Florida.

IT IS HEREBY ORDERED and ADJUDGED that the parties shall be bound by each and every of the terms, covenants and conditions contained in the Subpoena and filed in this cause.

DONE and ORDERED in chambers, at Orlando, Orange County, Florida, this 14th day of April, A. D., 1969.

/s/ George Adams

CLERK OF COURT

RECORDED & RECORDED VERIFIED
HELEN M. KEENE, CLERK OF
CIRCUIT COURT, ORANGE CO., FLA.

STATE OF FLORIDA, COUNTY OF ORANGE: I HEREBY CERTIFY

that the above and foregoing is a true copy of the original filed in this office.

ROBERT B. BIRCH, Clerk Circuit Court

MAY 5 - 1969

Shirley Clarke

002276

QUIT CLAIM DEED

FOR 3269 PG 276

THIS INSTRUMENT, made this 18 day of January, 1982, between PATRICIA T. POITRAS and JAMES W. POITRAS, Trustees under Agreement dated January 2, 1951, amended May 10, 1962 and amended October 24, 1980, parties of the first part, and THE CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT, of the County of Palm Beach and the State of Florida, whose mailing address is 901 Evernia Street, West Palm Beach, Fl., 33401, party of the second part,

WITNESSETH: That the said parties of the first part, for and in consideration of the sum of Ten (\$10.00) Dollars, in hand paid by the said party of the second part, the receipt whereof is hereby acknowledged, have remised, released and quitclaimed, and by these presents do remise, release and quitclaim unto the said party of the second part all the right, title, interest claim and demand which the said parties of the first part has in and to the following described lot, piece or parcel of land, situate lying and being in the County of Orange, State of Florida, to wit:

45 A certain canal right-of-way described as:
From the Southeast corner of the Southwest 1/4 of Section 33, Township 24 South, Range 31 East, run North 89°48'50" West along the South line of said Southwest 1/4 a distance of 73.17 feet for Point of Beginning, Thence continue North 89°48'50" West along said South line a distance of 193.30 feet, Thence North 21°33'44" East a distance of 682.31 feet, Thence North 68°26'16" West a distance of 60.00 feet, Thence North 21°33'44" East a distance of 85.00 feet, Thence South 68°26'16" East a distance of 47.94 feet, Thence North 16°58'44" East a distance of 620.62 feet to the South right-of-way of Duda Road, Thence North 88°57'54" East along said South right-of-way a distance of 247.13 feet, Thence South 16°58'44" West a distance of 64.49 feet, thence North 89°37'54" West a distance of 46.96 feet, thence South 16°58'44" West a distance of 237.23 feet, thence South 73°01'16" East a distance of 45.00 feet, Thence South 16°58'44" West a distance of 90.00 feet, Thence North 73°01'16" West a distance of 45.00 feet, Thence South 16°58'44" West a distance of 200.00 feet, thence South 21°33'44" West a distance of 230.00 feet, thence South 68°26'16" East a distance of 10.00 feet, thence South 21°33'44" West a distance of 573.65 feet to Point of Beginning (containing 6.138 acres)

This Deed is given without consideration for the purpose of clearing title.

TO HAVE AND TO HOLD the same, together with all and singular the appurtenances thereunto belonging or in anywise appertaining, and all the estate, right, title, interest and claim whatsoever of the said parties of the first part, either in law or equity, to the only proper use, benefit and behoof of the said party of the second part.

Wherever used herein, the terms "party" or "parties" include all the parties to this instrument, both singular and plural, masculine or feminine, and the heirs, legal representatives, and assigns of individuals, and the successors and assigns of corporations.

IN WITNESS WHEREOF the parties of the first part have caused these presents to be executed in their names the day and year first above written.

Witnesses:

THE EDWARD J. POITRAS TRUST

By:

[Handwritten signatures of Patricia T. Poitras and James W. Poitras]

PATRICIA T. POITRAS, Trustee

JAMES W. POITRAS, Trustee

RECORDED & RECORD VERIFIED

County Comptroller, Orange Co., Fla.

Return to: T. Michael Woods, 322 E Pine St., Orlando, Fla. 32801

STATE OF MASSACHUSETTS
COUNTY OF MIDDLESEX

The foregoing instrument was acknowledged before me this 18 day of January, 1982, by PATRICIA T. POITRAS and JAMES W. POITRAS, as Trustees under Agreement dated January 2, 1951, amended May 10, 1962 and amended October 24, 1980, on behalf of said Trust Agreement.



(Imprint Seal)

Notary Public

My commission expires:

5/31/87

SCHEDULE A

DESCRIPTION:

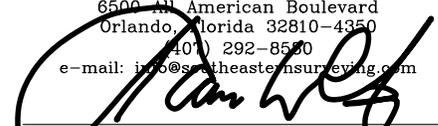
A portion of the lands described in Official Record Book 6158 Page 309, Public Records of Orange County, Florida, lying in Section 33, Township 24 South, Range 31 East, Orange County, Florida being more particularly described as follows:

Commence at the North Quarter corner of Section 33, Township 24 South, Range 31 East; thence South 00°59'44" East, a distance of 1526.39 feet along the East line of the Northwest Quarter of said Section 33 to the Northerly line and the Easterly extension thereof of the lands described in Official Records Book 5046, Page 3158, Public Records of Orange County, Florida; thence North 89°59'54" East, a distance of 503.03 feet along said Northerly line and the Easterly extension thereof to a point on the Easterly line of the lands described in Official Records Book 5046, Page 3158 also being the Westerly line of South Florida Water Management District Canal 29-A as recorded in Official Record Book 1667, Page 245, said point being the POINT OF BEGINNING; thence along the said Easterly and Westerly lines the following three (3) courses and distances: North 00°53'00" East, a distance of 288.82 feet; thence North 08°00'00" East, a distance of 253.34 feet; thence North 00°19'00" West, a distance of 761.11 feet to a point on the Southerly line of the lands described in Official Records Book 1667, Page 248, Public Records of Orange County, Florida; thence North 89°41'00" East, a distance of 84.98 feet along said Southerly line to the Easterly line of the lands described in Official Records Book 6158, Page 309, Public Records, Orange County, Florida; thence along said Easterly line the following two (2) courses and distances: South 00°19'00" East, a distance of 767.30 feet; thence South 04°15'21" West, a distance of 535.41 feet to the aforementioned Easterly line of the lands described in Official Records Book 5046, Page 3158; thence South 89°59'53" West, a distance of 84.99 feet along said Easterly line to the POINT OF BEGINNING.

Containing 2.64 acres, more or less.

SURVEYOR'S REPORT:

1. Bearings shown hereon are based on the East line of the Northwest Quarter of Section 33, Township 24 South, Range 31 East being South 00°59'44" East.
2. I hereby certify that the "Sketch of Description" of the above described property is true and correct to the best of my knowledge and belief as recently drawn under my direction and that it meets the Standards of Practice for Land Surveying Chapter 5J-17 requirements of Florida Administration Code.

| | | | |
|---|--|---|--|
| Sketch of Description FOR Orange County Environmental Protection Division | Date: July 16, 2018 CH | | Certification Number LB2108 49841400 |
| | Job Number: 49841 | Scale: 1" = 300' |  SOUTHEASTERN SURVEYING AND MAPPING CORPORATION 6500 N. American Boulevard Orlando, Florida 32810-4350 (407) 292-8500 e-mail: info@seasurveysurveying.com |
| | Chapter 5J-17, Florida Administrative Code requires that a legal description drawing bear the notation that THIS IS NOT A SURVEY. | | |
| | SHEET 1 OF 2 SEE SHEET 2 FOR SKETCH | | |
| | |  JAMES L. PETERSEN REGISTERED LAND SURVEYOR Number 4791 | |

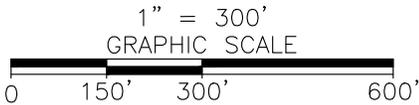
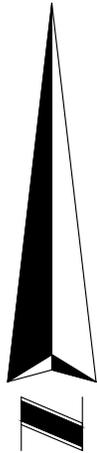
SKETCH OF DESCRIPTION
PARCEL 101

POINT OF COMMENCEMENT

N LINE OF NW 1/4 OF SEC 33-24-31

NORTH 1/4 CORNER OF SECTION 33-24-31

| LINE TABLE | | |
|------------|-------------|----------|
| LINE # | BEARING | LENGTH |
| L1 | S00°59'44"E | 1526.39' |
| L2 | N89°59'53"E | 503.03' |
| L3 | N00°53'00"E | 288.82' |
| L4 | N08°00'00"E | 253.34' |
| L5 | N00°19'00"W | 761.11' |
| L6 | N89°41'00"E | 84.98' |
| L7 | S00°19'00"E | 767.30' |
| L8 | S04°15'21"W | 535.41' |
| L9 | S89°59'53"W | 84.99' |



E LINE OF NW 1/4 OF SEC 33-24-31

L1

NOT PLATTED
ORB 6158
PAGE 309

NOT PLATTED
ORB 1667
PAGE 245

NOT PLATTED
ORB 1667
PAGE 248

S'LY LINE

NOT PLATTED

L5

L7

ELY LINE OF
ORB 5046
PAGE 3158
AND
W'LY LINE OF
ORB 1667
PG 245

CANAL 29-A
ORB 1667
PAGE 245

ELY LINE OF
ORB 6158
PAGE 309

L4

L8

POINT OF BEGINNING

N'LY LINE
ORB 5046
PAGE 3158

L2 W'LY LINE OF
CANAL-29A
ORB 1667 PAGE 245

E'LY LINE OF
ORB 5046
PAGE 3158

L3

L9

NOT PLATTED
ORB 5046
PAGE 3158

LEGEND AND ABBREVIATIONS:

- E'LY = EASTERLY
- W'LY = WESTERLY
- N'LY = NORTHERLY
- S'LY = SOUTHERLY
- ORB = OFFICIAL RECORDS BOOK
- SEC = SECTION



SOUTHEASTERN SURVEYING
AND MAPPING CORPORATION
6500 All American Boulevard
Orlando, Florida 32810-4350
(407) 292-8580

Certification Number LB2108
e-mail: info@southeasternsurveying.com

SCHEDULE A

DESCRIPTION:

A portion of the lands described in Official Record Book 5046 Page 3158, Public Records of Orange County, Florida, lying in Sections 28 and 33, Township 24 South, Range 31 East, Orange County, Florida being more particularly described as follows:

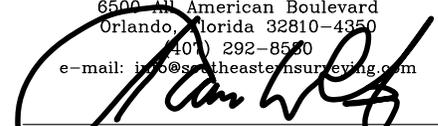
Commence at the North Quarter corner of Section 33, Township 24 South, Range 31 East; thence South 00°59'44" East, a distance of 1526.39 feet along the East line of the Northwest Quarter of said Section to the Northerly line of the lands described in Official Records Book 5046, Page 3158, Public Records of Orange County, Florida; thence North 89°59'53" East, a distance of 453.03 feet along said Northerly line to a point on the Westerly line of said lands, said point being the POINT OF BEGINNING; thence the following seven (7) courses and distances along said Westerly line: North 00°53'00" East, a distance of 292.70 feet; thence North 08°00'00" East, a distance of 252.81 feet; thence North 00°19'00" West, a distance of 707.47 feet; thence South 89°41'00" West, a distance of 80.00 feet; thence North 00°19'00" West, a distance of 255.27 feet; thence North 90°00'00" West, a distance of 210.92 feet; thence North 00°00'00" East, a distance of 50.00 feet to the Westerly extension of the Easterly line of said lands described in Official Records Book 5046, Page 3158 also being the Westerly line of South Florida Water Management District Canal 29-A as recorded in Official Record Book 1667, Page 245 and 248; thence along said extension and said Easterly and Westerly lines the following six (6) courses and distances: North 90°00'00" East, a distance of 260.64 feet; thence South 00°19'00" East, a distance of 255.00 feet; thence North 89°41'00" East, a distance of 80.00 feet; thence South 00°19'00" East, a distance of 761.11 feet; thence South 08°00'00" West, a distance of 253.34 feet; thence South 00°53'00" West, a distance of 288.82 feet to a point on said lines and the Easterly extension of the aforementioned Northerly line of the lands described in Official Records Book 5046, Page 3158, hereafter referred to as POINT A; thence departing said Easterly and Westerly lines, North 89°59'59" West, a distance of 50.01 feet along said Easterly extension to the POINT OF BEGINNING.

THENCE from said POINT A, departing said Westerly line of Canal 29-A, continue along said Easterly line of lands described in Official Records Book 5046, Page 3158, the following five (5) courses and distances: North 89°59'53" East, a distance of 110.00 feet; thence South 00°53'00" West, a distance of 1249.72 feet; thence South 06°20'00" West, a distance of 841.19 feet to a point of curvature of a curve concave Westerly, having a radius of 2000.00 feet and a central angle of 10°21'00"; thence Southerly along the arc of said curve a distance of 361.28 feet to a point of tangency; thence South 16°41'00" West, a distance of 227.75 feet to a point on the Northerly Right Of Way of Clapp Sims Duda as recorded in Official Records Book 649, Page 126, Public Records of Orange County, Florida; thence North 89°55'38" West, a distance of 172.18 feet to a point on the Westerly line of the aforementioned Canal 29-A; thence along said Westerly line the following eleven (11) courses and distances: North 16°41'00" East, a distance of 54.08 feet; thence South 89°55'38" East, a distance of 62.61 feet; thence North 16°41'00" East, a distance of 205.00 feet; thence North 73°19'00" West, a distance of 20.00 feet to a point on a non-tangent curve concave Westerly, having a radius of 1875.00 feet, a central angle of 10°21'00" and a chord bearing of North 11°30'30" East; thence from a tangent bearing North 16°41'00" East, Northerly a distance of 338.70 feet along the arc of said curve to a point of tangency; thence North 06°20'00" East, a distance of 808.31 feet; thence South 89°00'00" West, a distance of 45.00 feet; thence North 06°20'00" East, a distance of 65.00 feet; thence North 89°00'00" East, a distance of 45.00 feet; thence North 06°20'00" East, a distance of 120.00 feet; thence North 00°53'00" East, a distance of 1084.72 feet to POINT A.

Containing 9.43 acres, more or less.

SURVEYOR'S REPORT:

1. Bearings shown hereon are based on the East line of the Northwest Quarter Section 33, Township 24 South, Range 31 East being South 00°59'44" East.
2. I hereby certify that the "Sketch of Description" of the above described property is true and correct to the best of my knowledge and belief as recently drawn under my direction and that it meets the Standards of Practice for Land Surveying Chapter 5J-17 requirements of Florida Administration Code.

| | | | | | |
|---|---|---------------|--------|---|----------|
| Sketch of Description FOR Orange County Environmental Protection Division | Date: | July 16, 2018 | CH | Certification Number LB2108 | 49841398 |
| | Job Number: | 49841 | Scale: | 1" = 300' | |
| | Chapter 5J-17, Florida Administrative Code requires that a legal description drawing bear the notation that THIS IS NOT A SURVEY. | | | | |
| SHEET 1 OF 3 SEE SHEETS 2-3 FOR SKETCH | | | |  SOUTHEASTERN SURVEYING AND MAPPING CORPORATION 6500 N. American Boulevard Orlando, Florida 32810-4350 (407) 292-8500 e-mail: info@southeasternsurveying.com  JAMES L. PETERSEN REGISTERED LAND SURVEYOR Number 4791 | |

SKETCH OF DESCRIPTION
PARCEL 102

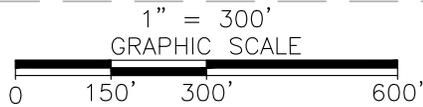
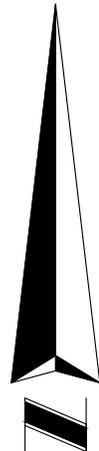
POINT OF COMMENCEMENT

N LINE OF NW 1/4 OF SEC 33-24-31

NORTH 1/4 CORNER OF SECTION 33-24-31

L1 E LINE OF NW 1/4 OF SEC 33-24-31

| LINE TABLE | | |
|------------|-------------|----------|
| LINE # | BEARING | LENGTH |
| L1 | S00°59'44"E | 1526.39' |
| L2 | N89°59'53"E | 453.03' |
| L3 | N00°53'00"E | 292.70' |
| L4 | N08°00'00"E | 252.81' |
| L5 | N00°19'00"W | 707.47' |
| L6 | S89°41'00"W | 80.00' |
| L7 | N00°19'00"W | 255.27' |
| L8 | N90°00'00"W | 210.92' |
| L9 | N00°00'00"E | 50.00' |
| L10 | N90°00'00"E | 260.64' |
| L11 | S00°19'00"E | 255.00' |
| L12 | N89°41'00"E | 80.00' |
| L13 | S00°19'00"E | 761.11' |
| L14 | S08°00'00"W | 253.34' |
| L15 | S00°53'00"W | 288.82' |
| L16 | N89°59'59"W | 50.01' |
| L17 | N89°59'53"E | 110.00' |
| L18 | S00°53'00"W | 1249.72' |
| L31 | N00°53'00"E | 1084.72' |

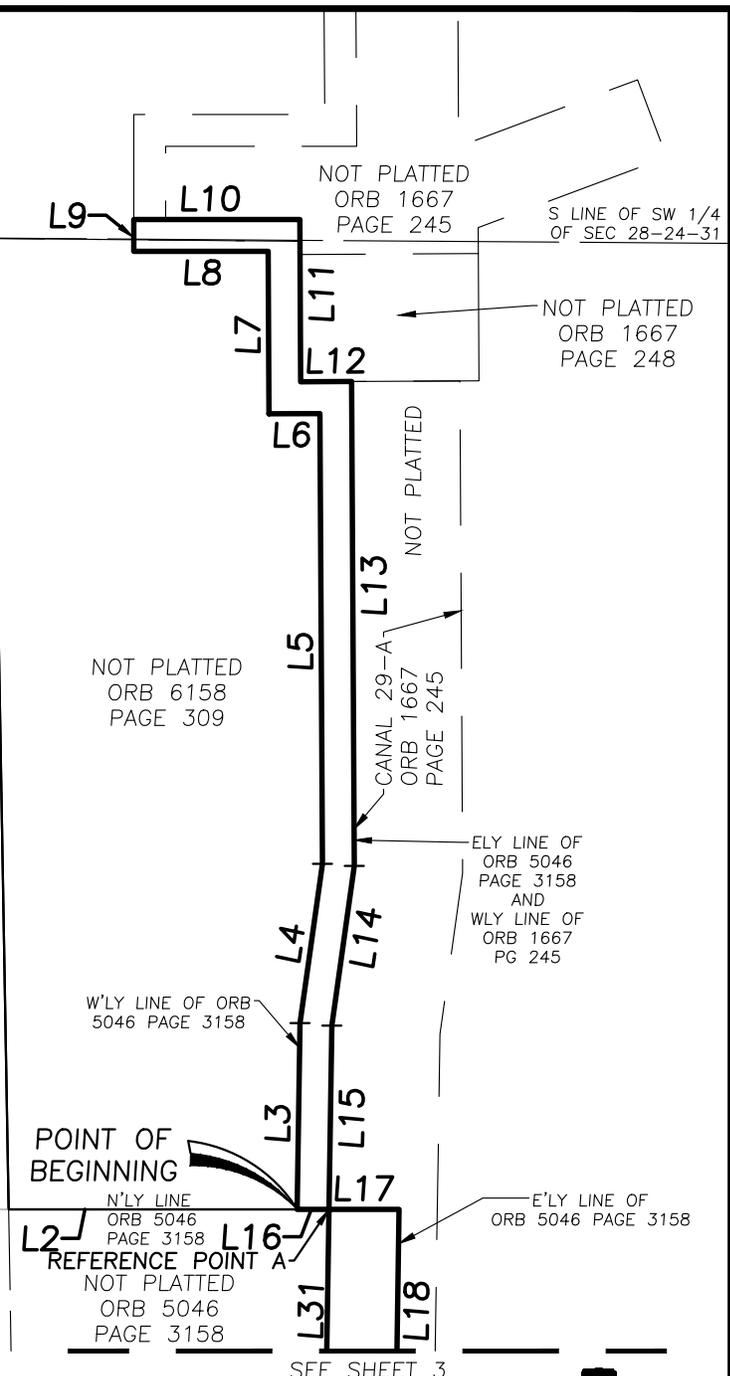


LEGEND AND ABBREVIATIONS:

- E'LY = EASTERLY
- W'LY = WESTERLY
- N'LY = NORTHERLY
- ORB = OFFICIAL RECORDS BOOK
- SEC = SECTION

Drawing No. 49841398
Job No. 49841
Date: JULY 16, 2018
SHEET 2 OF 3
See Sheet 1 for Description

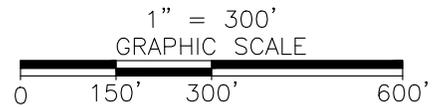
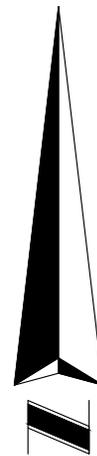
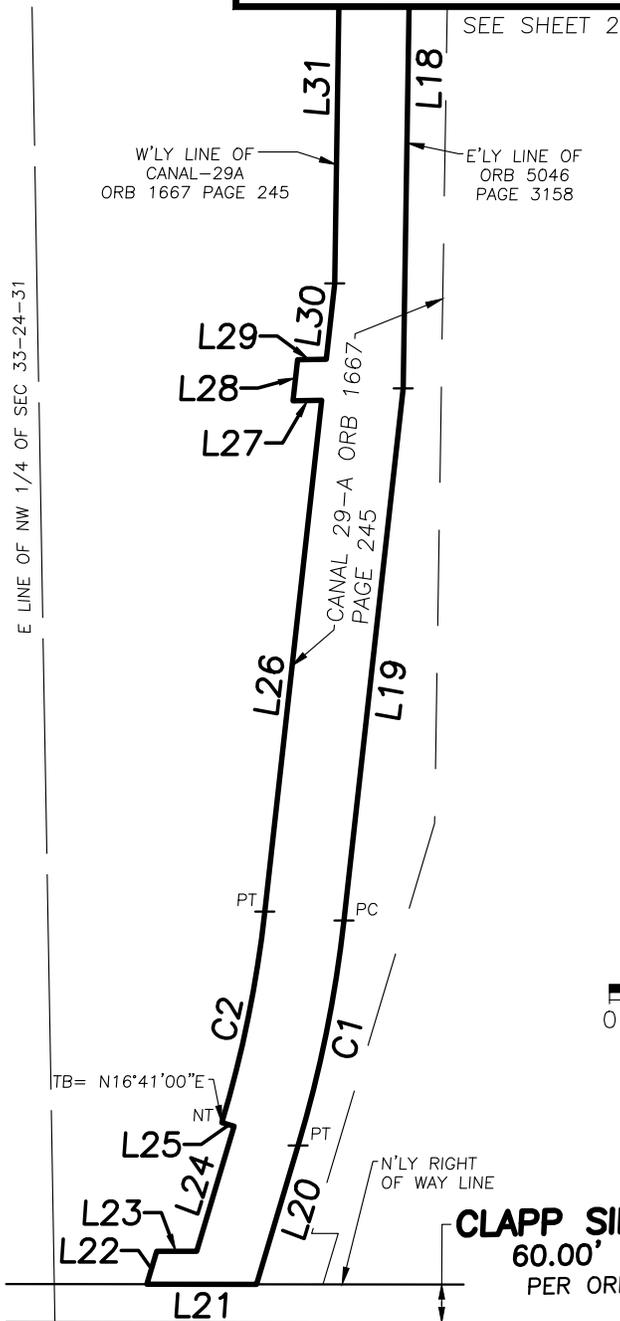
THIS IS NOT A SURVEY.
NOT VALID WITHOUT SHEET 1 THROUGH 3



SOUTHEASTERN SURVEYING AND MAPPING CORPORATION
6500 All American Boulevard
Orlando, Florida 32810-4350
(407) 292-8580

Certification Number LB2108
e-mail: info@southeasternsurveying.com

SKETCH OF DESCRIPTION
PARCEL 102



| LINE TABLE | | |
|------------|-------------|----------|
| LINE # | BEARING | LENGTH |
| L18 | S00°53'00"W | 1249.72' |
| L19 | S06°20'00"W | 841.19' |
| L20 | S16°41'00"W | 227.75' |
| L21 | N89°55'38"W | 172.18' |
| L22 | N16°41'00"E | 54.08' |
| L23 | S89°55'38"E | 62.61' |
| L24 | N16°41'00"E | 205.00' |
| L25 | N73°19'00"W | 20.00' |
| L26 | N06°20'00"E | 808.31' |
| L27 | S89°00'00"W | 45.00' |
| L28 | N06°20'00"E | 65.00' |
| L29 | N89°00'00"E | 45.00' |
| L30 | N06°20'00"E | 120.00' |
| L31 | N00°53'00"E | 1084.72' |

| CURVE TABLE | | | | | |
|-------------|----------|-----------|---------|---------------|----------------|
| CURVE # | RADIUS | DELTA | LENGTH | CHORD BEARING | CHORD DISTANCE |
| C1 | 2000.00' | 10°21'00" | 361.28' | S11°30'30"W | 360.79' |
| C2 | 1875.00' | 10°21'00" | 338.70' | N11°30'30"E | 338.24' |



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Drawing No. 49841398
Job No. 49841
Date: JULY 16, 2018
SHEET 3 OF 3
See Sheet 1 for Description

THIS IS NOT A SURVEY.
NOT VALID WITHOUT SHEET 1 THROUGH 3