Daniels Preserve at Spanish Creek

Land Management Plan

18500 Persimmon Ridge Road
Alva, FL 33920

Second Edition

Prepared by the Conservation Lands Section
Lee County Department of Parks and Recreation

Approved by the Lee County Board of County Commissioners: 09/20/2016

Acknowledgements

We would like to thank the following for their assistance in the development of this document: Cathy Olson, members of Management Sub-Committee of the Conservation Lands Acquisition and Stewardship Advisory Committee and other Lee County staff for carefully reviewing the Daniels Preserve at Spanish Creek Land Management Plan and providing constructive criticism; long-time residents James Daniels, Paul Furbay and Bryan Smith for providing their regional and local historical knowledge; and Mrs. Ruby Daniels for generously nominating her property to the C20/20 Program for long-term preservation and giving Land Stewardship staff her valuable time and historical knowledge regarding the property.

Hank Forehand
Laura Greeno

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List of Exhibits

List of Acronyms

ATV	all-terrain vehicle
BMAP	Basin Management Action Plan
C20/20	Conservation 20/20
CLASAC	Conservation Lands Acquisition and Stewardship Advisory Committee
CLDD	County Line Drainage District
DPSC	Daniels Preserve at Spanish Creek
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FFS	Florida Forest Service
FLEPPC	Florida Exotic Pest Plant Council
FLU	future land use
FNAI	Florida Natural Areas Inventory
FWC	Florida Fish and Wildlife Conservation Commission
IRC	Institute for Regional Conservation
LCDCD	Lee County Department of Community Development
LCNRD	Lee County Natural Resources Division
LCEC	Lee County Electric Coop
LCPR	Lee County Parks and Recreation
LSOM	Land Stewardship Operations Manual
LMP	Land Management Plan
LiDAR	Light Detecting and Ranging
MU	Management Unit
ORV	Off-road Vehicle
SFWMD	South Florida Water Management District
STRAP	Section-Township-Range-Area-Block.Lot (Parcel)
USACOE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service

Vision Statement

It is the vision of the Lee County Department of Parks and Recreation and the Conservation 20/20 Program to conserve, protect and restore Daniels Preserve at Spanish Creek to a productive, functional and viable ecosystem. The primary management objectives for Daniels Preserve at Spanish Creek will be hydrologic improvements along Spanish Creek, restoring/prolonging the hydroperiod within wetland ecosystems, and enhancing the borrow ponds to become more natural systems with better wildlife habitat and to integrate with other hydrologic components of the Preserve. Maintaining the upland ecosystems and removing invasive exotic plants and animals will become ultimate objectives for the management of this Preserve.

I. EXECUTIVE SUMMARY

Daniels Preserve at Spanish Creek (DPSC) is located in northeastern Lee County within Section 15 of Township 43, Range 27 East, within unincorporated Lee County, the Preserve STRAP is 15-43-27-00-00004.0000. The main trailhead entrance is located at 18500 Persimmon Ridge Road, Alva, Florida.

The 243 acre Preserve, nomination 260, was purchased through the Conservation 20/20 program in September 2005 for nearly $3.9 million. Mrs. Ruby Daniels, the former landowner, nominated it to the program in January 2004 so that it could be preserved. The Conservation 20/20 Program was established in 1996 after Lee County voters approved a referendum.

During the draft stages of the initial 2006 Land Stewardship Plan, the site was referred to as the Spanish Creek Preserve. The Daniels family suggested an alternate name for the property; Daniels Preserve at Spanish Creek. This name was provided to the CLASAC for consideration at their August 10, 2006 meeting. The CLASAC voted unanimously to rename the Preserve to honor the long-term Lee County residents who actively protected the local wildlife and natural areas in Lee County. The Lee County Board of County Commissioners approved the name change at their August 29, 2006 meeting. The idea for the Legacy program came about largely because of this Preserve and the Daniels family.

The Preserve is bordered on the west by Persimmon Ridge Road, on the south by North River Road, county land and private parcels to the east and private parcels to the north.

The natural elevations at DPSC range from 12 feet above sea level along the creek to 16 feet. There is one small peak that reaches 18 feet in the southeast corner of the Preserve that is a natural fluctuation in elevation.

There are nine soil types found at DPSC. A common relationship for all of these soil types is that their slopes range from 0-2%. All soil types are nearly level and poorly drained with rapid permeability at the surface. Covering one-third of the Preserve, Copeland Sandy Loam is the most common soil type, which is found in freshwater wetland areas containing cypress and other hardwood species within northern portions of the Preserve. Boca Fine Sand is found on approximately one-quarter of the Preserve and is present in the south Florida flatwoods type communities within southern portions of the Preserve.

DPSC is within the north-central portion of the South Florida Water Management District's (SFWMD) Lower West Coast Region (LWCR). DPSC falls within a subset of the combined LWCR and Lower East Coast Region, and within the 1,400 square-mile Caloosahatchee Basin (SFWMDa 2000). The Preserve lies within the Spanish Creek Watershed, which covers a surface area of approximately 1.5 square-miles.

Hydrological alterations have been made on and directly adjacent to DPSC that affect the natural sheet flow across the lands. Agriculture land management, roads and off-site canals have drastically altered the amount and timing of water entering the Preserve.

The Preserve contains fifteen plant communities including hydric hammock, mesic hammock, and mesic flatwoods. The seasonal headwaters of Spanish Creek are in the northern portion of the Preserve and the creek meanders through the Preserve for over one mile before reaching the lower branches of the creek and emptying into the Caloosahatchee River. DPSC is also home to variety of animal species including warblers, woodpeckers, feral hogs, squirrels, bears, snakes, and gopher tortoises.

Land use history for DPSC is similar to much of the land in Lee County. The headwaters of Spanish Creek were ditched and two borrow pits excavated for road fill were made on what is now the preserve. The land has since primarily been used for cattle grazing.

The goal of this land management plan is to identify the resources found on the Preserve and develop ways to protect those resources while implementing restoration activities to restore them to viable, functioning, natural systems. Staff will insure that the Preserves will be developed in accordance with Lee County Parks and Recreation's Land Stewardship Operations Manual (LSOM). Management units were created to divide DPSC into 7 units, each with a set of goals depending on its needs, strategies on how to accomplish the goals, timetables for completion, and standards for how accomplishment of the goals will be measured. This land management plan will be revised in ten years (2026).

II. INTRODUCTION

Daniels Preserve at Spanish Creek (DPSC) was acquired as a single parcel in September 2005 through Lee County's Conservation 20/20 (C20/20) Program for $3,891,040. It is approximately 243 acres located along North River Road in the Alva community in the northeastern corner of Lee County. The Preserve includes the headwaters of Spanish Creek and consists of 15 plant communities. The dominant plant communities are hydric hammock, mesic hammock and mesic flatwoods.

Historic aerials show human influences prior to the 1940s with the straightening and dredging of Spanish Creek. In 1944, the Daniels family acquired the property for $10 per acre from the Babcock family. They did not permit pine tree harvesting activities on their land, which has allowed the trees to mature into enormous, old growth slash pines. The property was mainly used for cattle grazing and portions of the Preserve were cleared for pasture in the 1950s. Surrounding land use changes have had the greatest influence on the Preserve, mainly by altering the historic water flow in the area. These alterations include land that was cleared for agriculture (mainly citrus), borrow pits and drainage canals that draw down the natural water levels in Spanish Creek and wetlands on site.

Land management challenges for the site include rehydrating the creek and wetlands on the Preserve, invasive exotic plant control, and regrading and planting the littoral zones of the borrow ponds to create foraging grounds for wading birds.

The primary focus of the projects that have been completed at DPSC include exotic plant control and hydrological restoration. In addition to exotic control, other completed projects include trash collection, posting of boundary signs, installation of new fencing, fire breaks, installing, marking, and maintaining 2 miles of designated hiking trails, a pedestrian walk through gate and a visitor kiosk.

Two hydrological restoration projects have been completed at DPSC. The first project installed a pumping station to pump water from the canal along the eastern boundary of the Preserve to the wetland located in the northeastern corner of the Preserve. In 2015, a hydrological restoration project was completed along the northern most borrow pit in the Preserve. The shoreline and littoral zone were regraded to create a gentler slope which allowed for the creation of a more natural littoral zone instead of a very steep drop off. Planning is currently underway with Lee County Department of Natural Reasources to complete a similar hydrological restoration project on the second borrow pit.

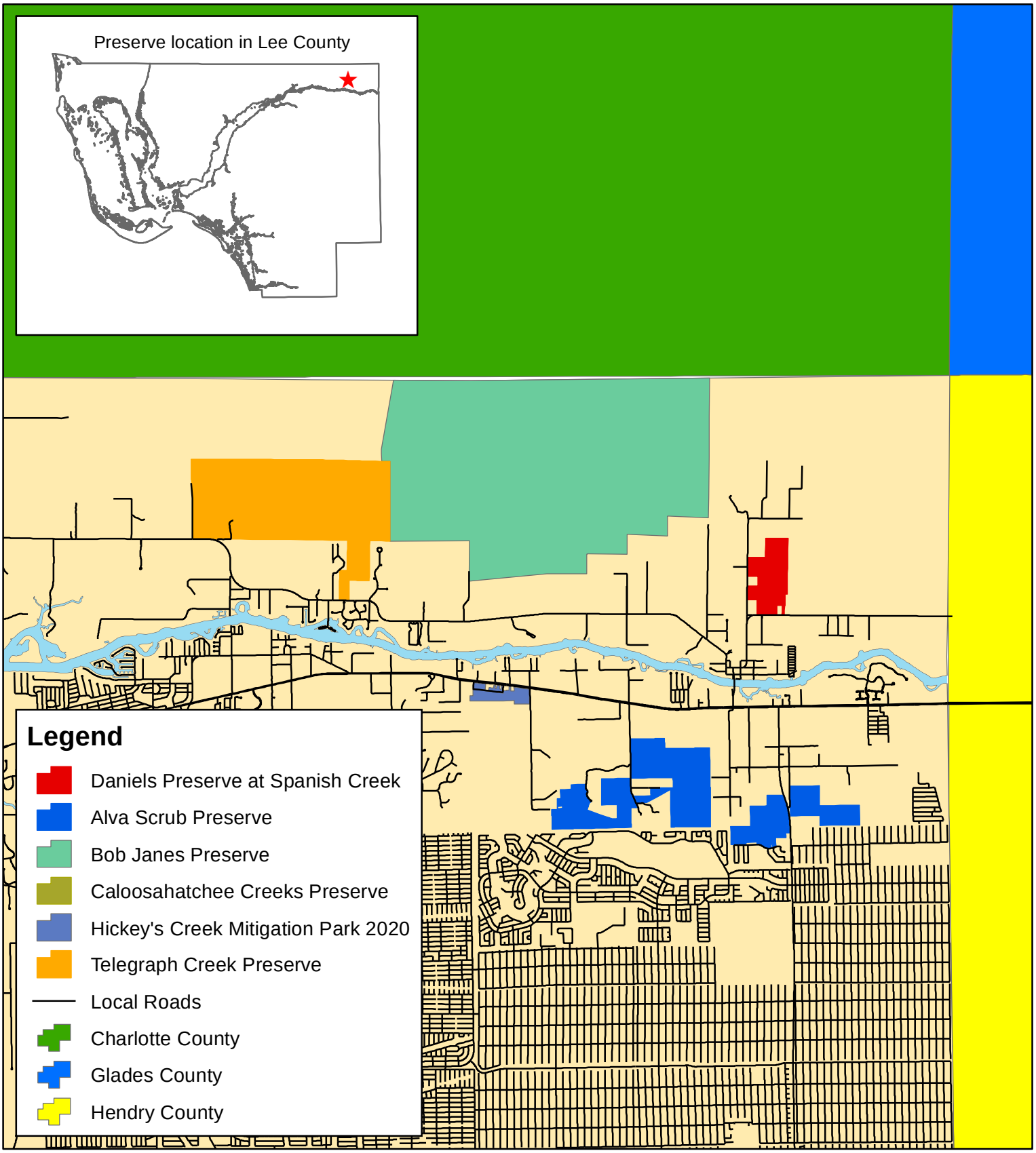
The purpose of this management plan is to define conservation goals for DPSC that will address the above concerns. It will serve as a guide for Lee County's Department of Parks and Recreation (LCPR) to use best management practices and adaptive management strategies to ensure proper stewardship and protection of the Preserve. It also serves as a reference guide because of the field studies and research of scientific literature and historic records conducted by C20/20 staff that help to explain the Preserve's ecosystem functions, its natural history and influences from human use.

III. LOCATION AND SITE DESCRIPTION

Daniels Preserve at Spanish Creek is located off of Persimmon Ridge Road, Alva, Florida in northeast Lee County within Section 15, Township 43 South, Range 27 East (Figure 1). The Preserve is located less than one mile north of Alva Elementary and Middle School and the Alva Community Center. It is approximately 243 acres that has historically been used by the Daniels family for cattle grazing, and is surrounded by rural residential, agricultural and conservation lands. The site is also approximately one mile north of the Caloosahatchee River and one mile southeast of Babcock Ranch.

The Preserve includes the headwaters of Spanish Creek and consists of 15 plant communities. The dominant plant communities are hydric hammock, mesic hammock and mesic flatwoods. Figure 2 identifies the boundaries of DPSC in a 2015 aerial photograph. The Preserve consists of STRAP 15-43-27-00-00004.0000.

Figure 1: Location Map



Daniels Preserve at Spanish Creek

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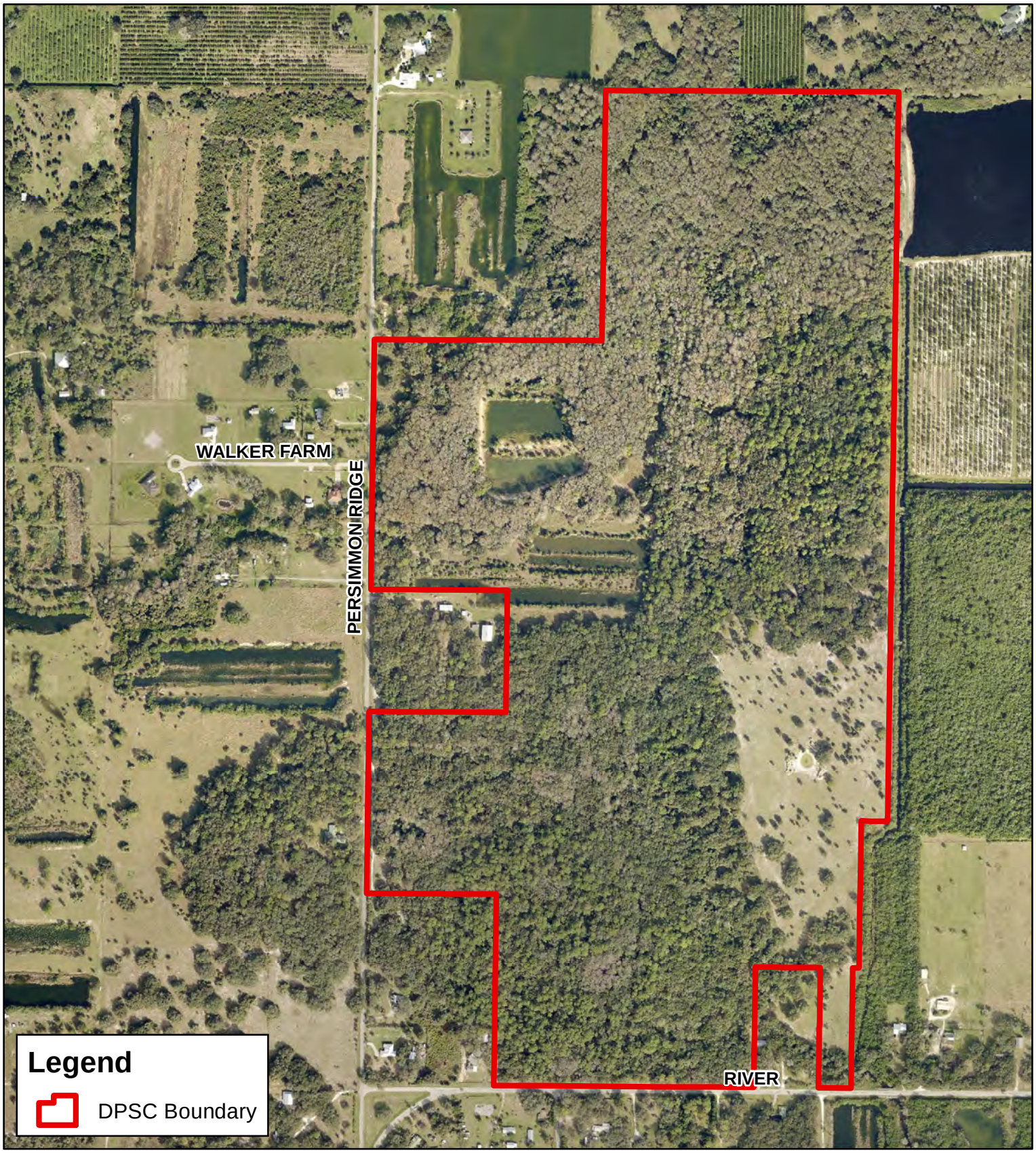
Miles

Figure_1_DPSC_location
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 2: 2016 Aerial



Daniels Preserve at Spanish Creek

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Figure_2_Aerial
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

IV. Natural Resources Description

A. Physical Resources

i. Climate

General information on the climate of southwest Florida is located in the Land Stewardship Operations Manual's (LSOM) Land Stewardship Plan Development and Supplemental Information section.

ii. Geology

Specific information on the geologic features such as physiographic regions, formations and maps can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

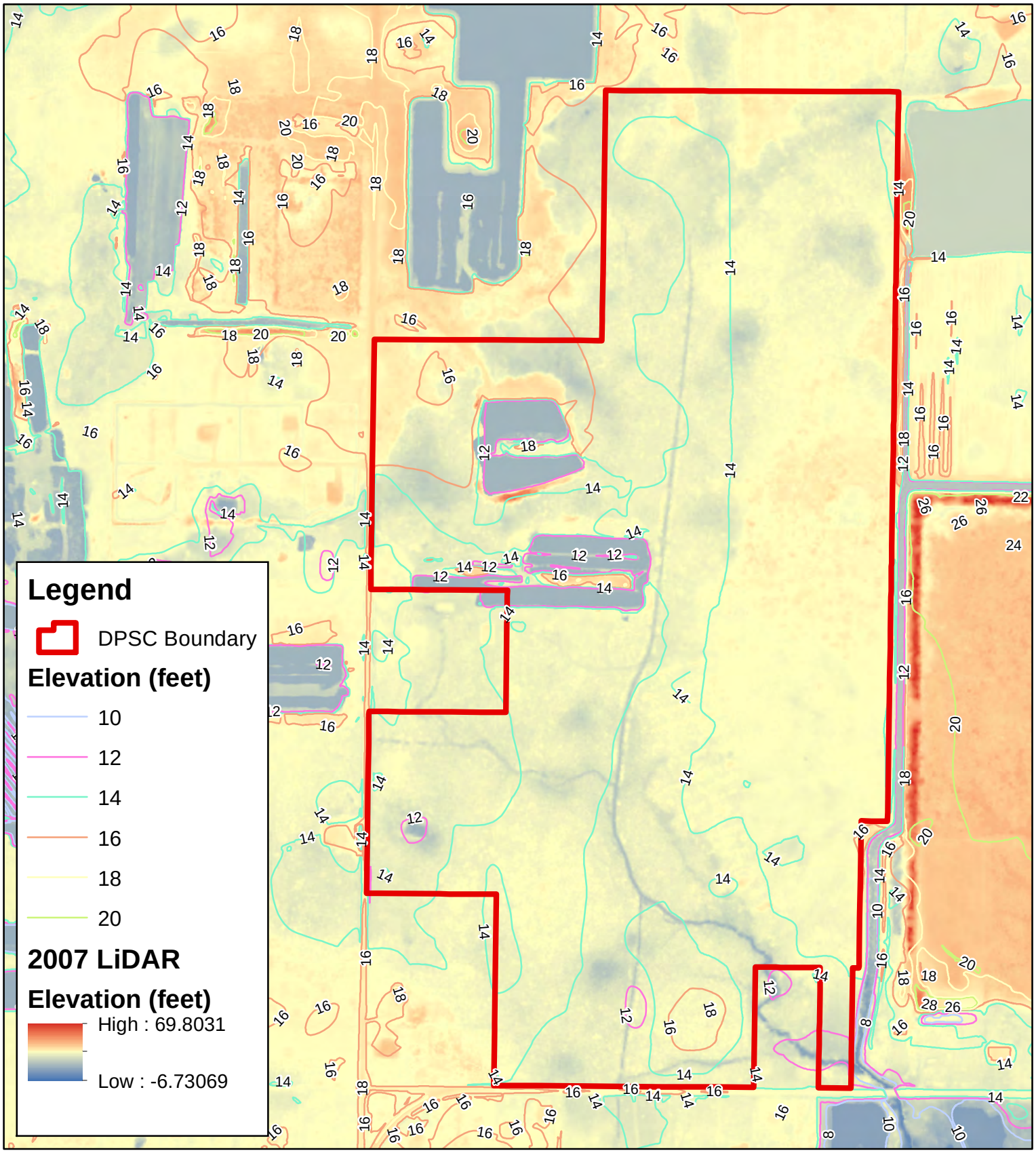
iii. Topography

Lee County is located within the Coastal Lowlands of Florida that extends around the coastal periphery of the state where elevations are generally below 100 feet above sea level (Stubbs 1940; Cooke 1945).

The natural elevations at DPSC range from 12 feet along Spanish Creek to 16 feet (Figure 3). Many of the changes in elevation are related to the borrow pits and the spoil piles. There is one small peak that reaches 18 feet in the southeast corner of the Preserve that is a natural fluctuation in elevation.

Since the last LiDAR survey of the Preserve (Figure 3, 2007), areas of higher elevation along the northern most borrow pit have been regraded to more closely match natural elevations.

Figure 3: LiDar Map



Daniels Preserve at Spanish Creek

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Figure_3_LiDar_Map
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This is not a survey.
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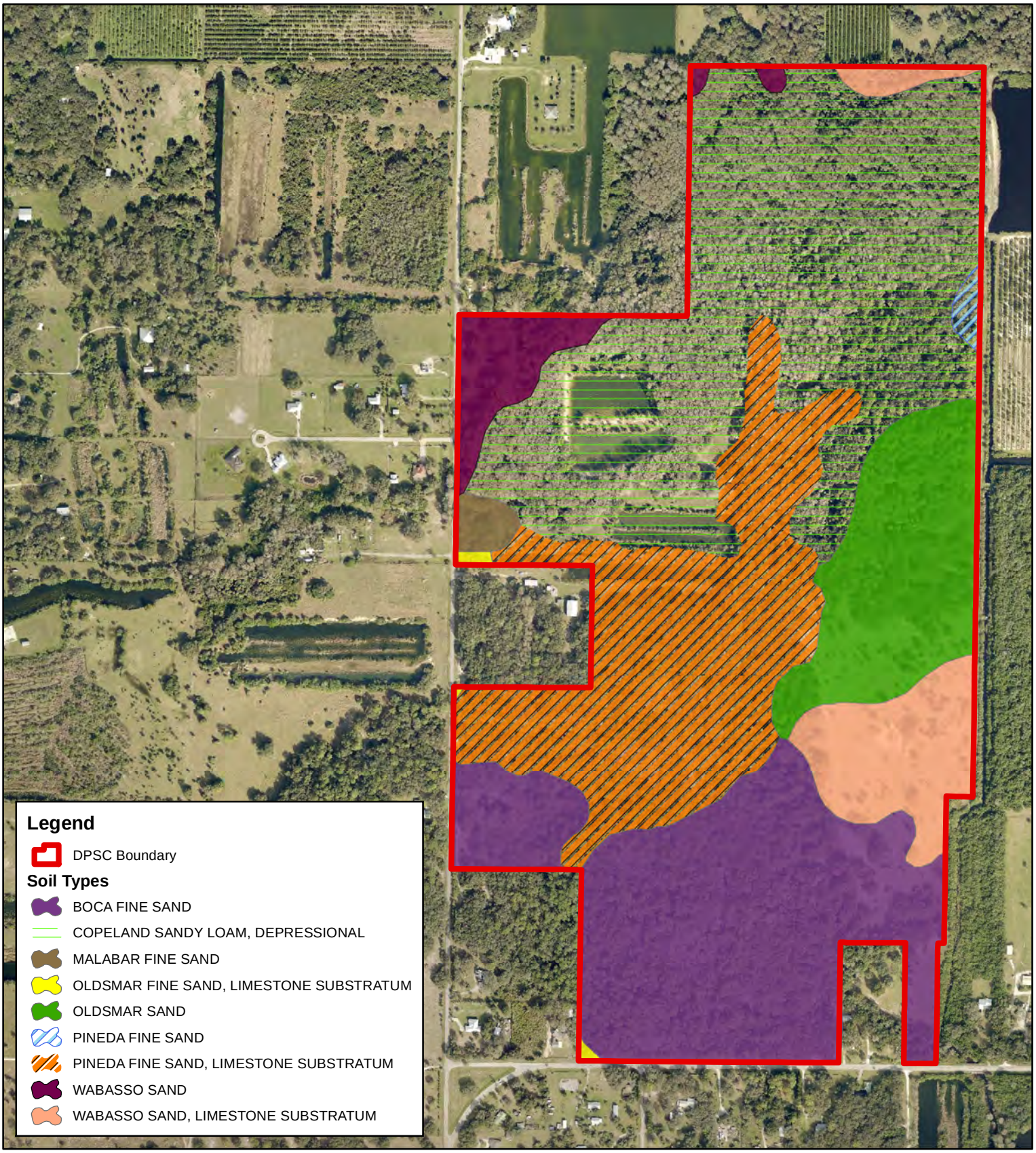
iv. Soils

There are nine different soil types found at DPSC (Figure 4 and Appendix A). A common relationship for all of these soil types is that their slopes range from 0-2%. Slope is the inclination of the land surface from the horizon and higher percentage indicate more fluxuations in the land surface. Essentially, DPSC is fundamentally level. Soils play an important role in dictating the location and types of recreation that the Preserve can provide. Refer to the LSOM's Land Stewardship Plan Development and Supplemental Information section for additional information on soil types and limitation.

Figure 4: Soils Map



CONSERVATION 20/20
LEE COUNTY Parks & Recreation

N W E S

Daniels Preserve at Spanish Creek

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Figure_4_Soils
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v. Hydrologic Components and Watershed

DPSC is within the north-central portion of the South Florida Water Management District's (SFWMD) Lower West Coast Region (LWCR). DPSC falls within a subset of the combined LWCR and Lower East Coast Region, within the 1,400 square-mile Caloosahatchee Basin (SFWMDa 2000). The Preserve also lies within the Spanish Creek Watershed (Figure 5), which covers a surface area of approximately 1.5 square-miles.

Agriculture and development on surrounding lands have greatly altered sheetflow across the Preserve. Historically, during the summer rainy season, water would flow from the north on undeveloped lands in Charlotte County and pass over the Preserve as one giant slow moving river a few inches deep, eventually leading into Spanish Creek and then into the Caloosahatchee River. Over the past 50 years, the surrounding lands have been developed, mainly into citrus groves and other agriculture lands, and the associated ditches, dikes, and roads have altered the natural flow of water.

The largest alteration to the area was a ditch created along the Charlotte and Lee County line by the County Line Drainage District (CLDD). This ditch was created to redirect surface water flow and divert it into areas being used for agriculture, mainly citrus groves. The land to the north and east of DPSC was developed with a series of ditches and canal that redirected the flow of water to the west into Cypress Creek and just to the east into the county line canal. All of these alterations have decreased aquifer recharge and increased storm water runoff into the river. These changes have also altered how the uplands, wetlands, and the estuary located further downstream function (SFWMDc 2005).

Borrow ponds (excavated pits) were also created during this time to produce fill for road building and to create water retention for irrigation of citrus groves. There are two complexes of borrow pits located on the western portion of the Preserve that total approximately 7 acres. These ponds were created in the early 1960s and provided fill for neighboring development and roads. These borrow ponds and the ones on adjacent lands draw down the natural ground water levels on the Preserve and the surrounding area.

Prior to 1944, the northern reaches of Spanish Creek were straightened and dredged to divert water to the south and off the property. The upper reaches of the creek stay dry during the winter season while a natural spring feeds the southern portions of the creek and supplies water year round (Figure 7). The CLDD installed a canal during the early 1990's that runs along the entire eastern border of the Preserve and draws water off of the site. The natural reaches of Spanish Creek meet this canal in the southeastern corner of the Preserve. Land Stewardship staff will work with Lee County Division of Natural Resources (LCDNR) and SFWMD to rehydrate the Preserve to mimic the historic hydrologic patterns.

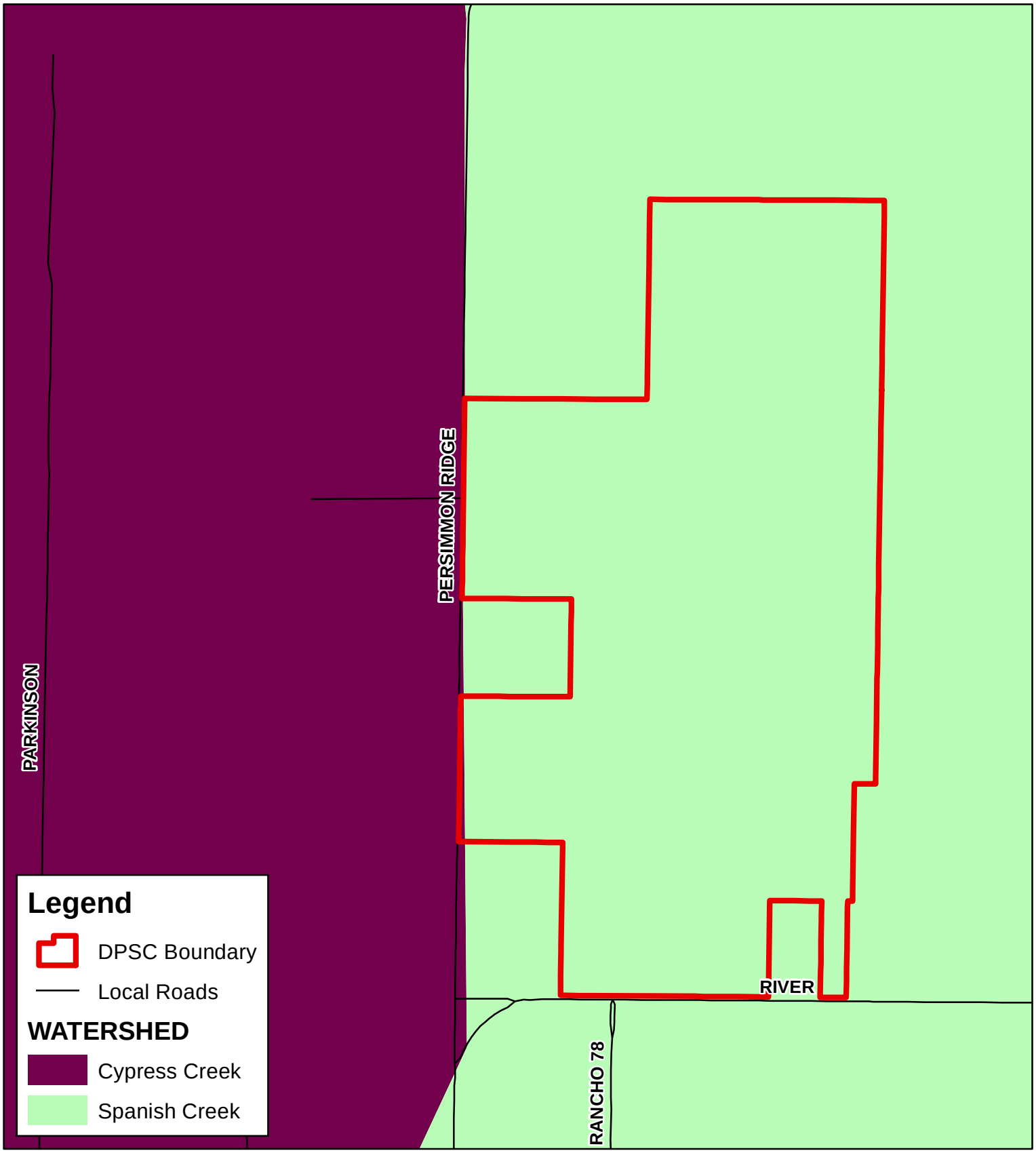
In 1974, the United States Fish and Wildlife Service (USFWS) directed its Office of Biological Services to conduct an inventory of the nation's wetlands. This National Wetlands Inventory (NWI) became operational in 1977, and subsequently classified in general accordance with the Classification of Wetlands and Deep Water Habitats of the United States (Cowardin et al. 1979). Figure 6 identifies 78 acres of palustrine forested wetlands at DPSC. Palustrine systems are all nontidal wetlands dominated by trees, shrubs, persistent emergents, and emergent mosses or lichens. These systems can also be found in wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5%. Forested wetlands are characterized by woody vegetation that is 6 meters (19 feet) tall or taller. These areas typically have an overstory of trees, an understory of young trees or shrubs and an herbaceous layer. The tree species that occur at Spanish Creek include primarily bald cypress (*Taxodium distichum*) with red maple (*Acer rubrum)* and the occasional pop ash (*Fraxinus caroliniana*).

In 2013 LCNRD staff obtained a limited development order permit in order to start restoration work on rehydrating Spanish Creek. The project was described as extracting excess water from the CLDD outfall ditch within the SFWMD property adjacent to DPSC. The flow is conveyed through underground pipes to the northeasterly corner of DPSC and discharged into a cypress system. This work was completed in 2014. A second part of this project completed in 2015 was contouring one of the borrow ponds (labeled A on Figure 6) to restore elevations to natural grade and slope the edge of the pond. Plantings were installed around the pond to stabilize soil and provide a seed source. Borrow pond B (Figure 6) will be re-contoured and planted in 2016.

Staff has also determined ditching in the southern portion of DPSC should be filled or plugged. Ditch “C” on Figure 6 drains water from the creek and impedes sheetflow across the site. Design and permitting will be explored and, if feasible, the ditch will be returned to natural grade.

Restoration projects on the Preserve will be carefully planned so as to enhance natural communities and to work with the public amenities that have been created. Hydrologic projects that negatively affect the natural communities, listed species, or public amenities including designated trails will not be undertaken.

Figure 5: Watershed Map



Daniels Preserve at Spanish Creek

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Figure_5_Watershed_Map
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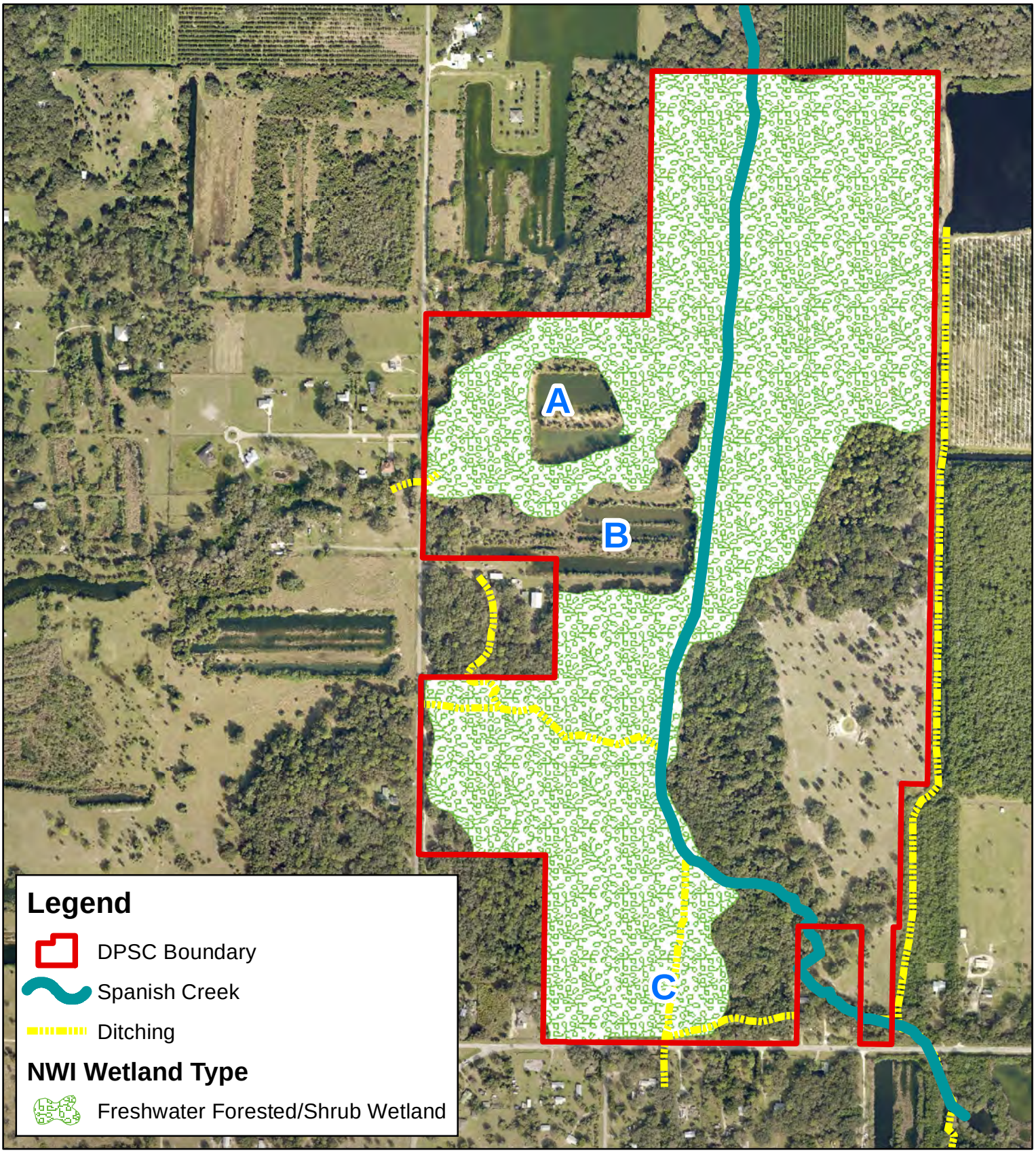
Figure 6: Hydrologic Features Map



Daniels Preserve at Spanish Creek

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B. Biological Resources

i. Ecosystem Function

Daniels Preserve at Spanish Creek protects a substantial portion of Spanish Creek's natural stream bed. The seasonal headwaters of Spanish Creek are in the northern portion of the Preserve and the creek meanders through the Preserve for over a mile before reaching the lower branches of the creek and emptying into the Caloosahatchee River.

The Preserve is home to variety of bird species including warblers, vireos, and woodpeckers. Although a portion of the southeastern area is categorized as an unimproved pasture, this dry and sandy area is transforming into what resembles a scrub-like community containing dwarf wax myrtle (*Myrica cerifera*), shiny blueberry (*Vaccinium myrsinites*), threeawn/wiregrass (*Aristida spp*.), netted paw-paw (*Asimina reticulata*) and narrowleaf silkgrass (*Pityopsis graminifolia*). This portion of the Preserve is home to many gopher tortoises (*Gopherus polyphemus*). The majority of the remaining land contains a mix of south Florida slash pine (*Pinus elliottii* var. *densa*), live oak (*Quercus virginiana*) and bald cypress.

Less than 10% of DPSC contains cypress-dominated wetlands. Healthy cypress communities capable of sustainable reproduction occur in depressions with a hydroperiod of approximately 250-290 days and maximum water levels of one to two feet above sea level (Duever et al. 1986). A lower hydroperiod with lower water level ranges has been known to produce smaller cypress while the upper ranges produce trees that are generally larger. There is some debate in the scientific community whether these two extremes represent two species of cypress, pond cypress (*Taxodium ascendens*) the smaller and bald cypress the large or whether they represent the same species growing differently under different conditions.

The cypress trees mainly occur in either domes within the Preserve's western region or in wetland forested mixed communities in the northern region. Typically, the cypress domes, or heads, are depressions in which the largest cypress trees occur in the center and get progressively smaller from the center. Water in the domes only drains through the water table. The conditions for growth are much better in the center as opposed to the edges due to more organic soils and longer hydroperiods. In the areas where the water is too deep for cypress, treeless ponds occur within the domes, supporting a variety of plants and wildlife. Two of the Preserve's larger cypress-dominated areas have been considerably impacted by human activities when they were converted into borrow ponds. A joint project between Conservation 20/20 and LCNRD involves re-contouring the edges of the borrow ponds and planting native vegetation along the new shoreline.

Animals depend on the health and long-term viability of the cypress communities for nesting, breeding and feeding. The Florida cottonmouth (*Agkistrodon piscivorus conanti*) will climb upon mats of debris in the swamp ferns for sunning platforms.

Yellow-crowned night herons (*Nyctanassa violacea*) build their nests in the trees while white ibis (*Eudocimus albus*) and great egrets (*Ardea alba*) roost in the canopy. To sustain the health of the cypress communities, water quality and quantity must be protected and improved.

Pine flatwoods serve as important habitat for a variety of birds, small mammals, reptiles and amphibians, and some large mammals including white-tailed deer. During a severe flood, the flatwoods serve as a water storage area to help protect adjacent landowners from flooding (Tiner 1998). Typical management of pine flatwoods would include prescribed fires, but at DPSC fire has not been a management tool in the long history of the site. Many old growth slash pines across the site have low branches which would have normally been burned off in routine prescribed fires. These large low limbs would serve as ladders to bring heat and flame high into the old growth pines, if prescribed burning was introduced to the site at this time it would result in the death of many old growth pines. Also, the thick duff layer under these large pines would likely result in death. The plant communities across the preserve are intermingled with many areas of non-fire dependent communities and low pasture areas which decreases the likely hood of a catastrophic wildfire burning through the area. Instead of managing the flatwoods with prescribed fire staff will use mechanical methods and herbicides to decrease fuel loads by removing cabbage palms and mowing palmetto.

ii. Natural Plant Communities

DPSC consists of a variety of plant communities, the largest of which include hydric hammock, mesic hammock, and mesic flatwoods. DPSC's ecosystems have been dramatically impacted by internal modifications and surrounding land uses that have slowly changed the composition of the plant communities as a result of the drier conditions. A total of 15 plant communities make the Preserve of which 38% are recognized as jurisdictional wetlands.

Acreages and percentages of cover for each community are listed below. Descriptions of the plant communities and characteristic animals found within each community, as well as management suggestions can be found in the LSOM. The percent cover is slightly under 100% due to rounding off values. A complete list of plant species identified during site inspections of DPSC can be found in Appendix B. This list will be updated on a seasonal basis to identify plants in their inflorescence phase. Figure 7 shows the location of the plant communities found at DPSC which have been defined using the Guide to the Natural Communities of Florida (2010) prepared by Florida Natural Areas Inventory (FNAI).

Mesic Hammock – 44.3 acres, 18.27% coverage of DPSC

Mesic Hammock (Disturbed) – 2.2 acres, 0.91% coverage of DPSC

The disturbance to this community is caused by invasive exotic plants. Ceaser weed, guinea grass, cogongrass and air potato are the primary plants causing disturbance.

Prairie Mesic Hammock – 10.6 acres, 4.4% coverage of DPSC

Xeric Hammock – 1.9 acres, 0.8% coverage of DPSC

Mesic Flatwoods – 31 acres, 12.8% coverage of DPSC

Dome Swamp – 22.4 acres, 9.2% coverage of DPSC

Hydric Hammock – 56 acres, 23% coverage of DPSC

Hydric Hammock (Disturbed) – 2.4 acres, 1% coverage of DPSC

The disturbance to this community is caused by invasive exotic plants. Ceaser weed and cogongrass are the primary plants causing disturbance.

Blackwater Stream – 1 acres, 0.4% coverage of DPSC

Successional Harwood Forest – 20.6 acres, 8.5% coverage of DPSC

Bottomland Forest – 2.9 acres, 1.2% coverage of DPSC

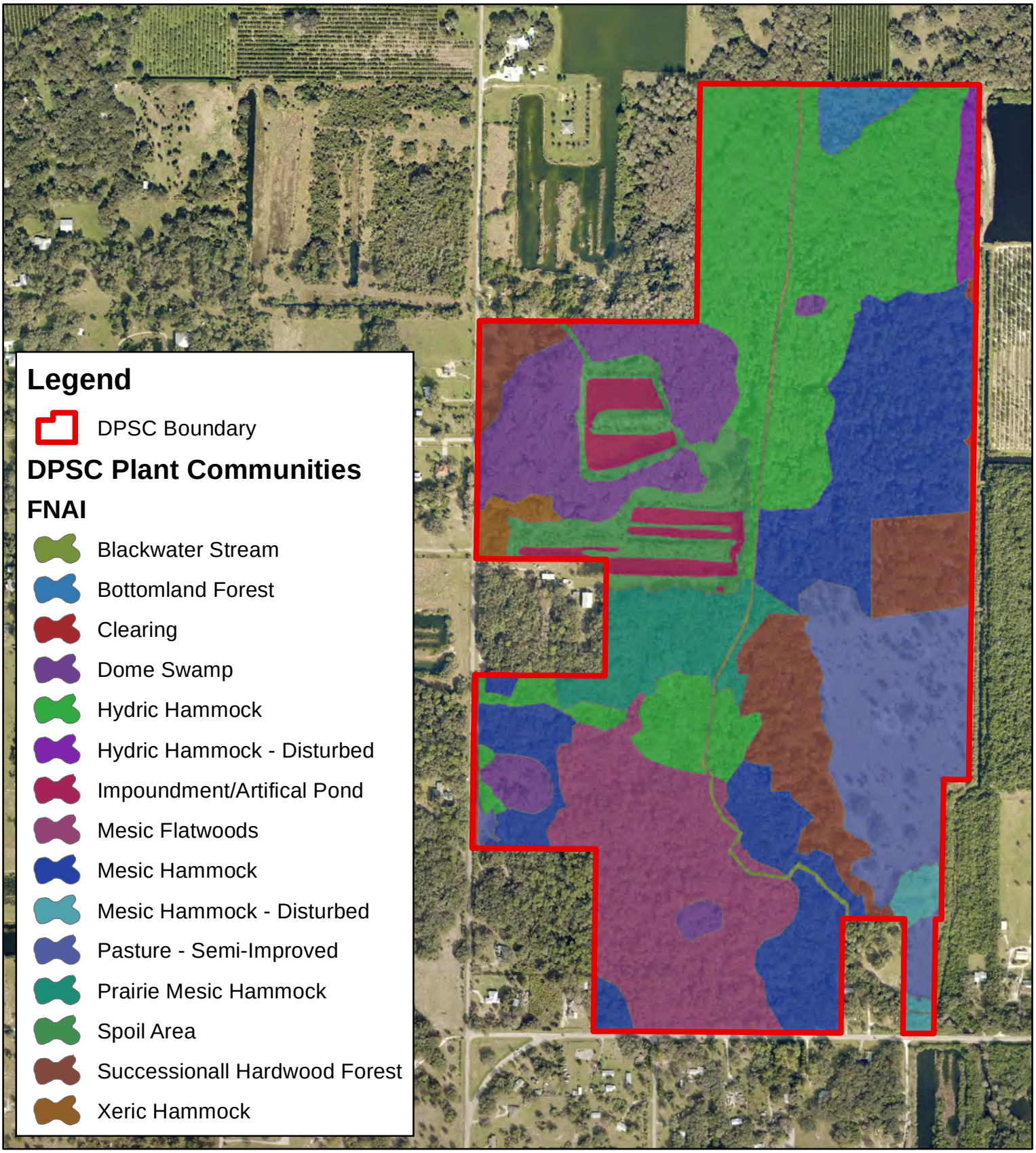
Semi-Improved Pasture – 26 acres, 10.7% coverage of DPSC

Impoundment/Artifical Pond – 7.3 acres, 3% coverage of DPSC

Clearing – 1.2 acres, 0.5% coverage of DPSC

Spoil Area – 13 acres, 5.3%

Figure 7: Natural Plant Communities Map



CONSERVATION 20/20
LEE COUNTY Parks & Recreation

N W E S

Daniels Preserve at Spanish Creek

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Feet

Figure_7_Natural_Plant_Map
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This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

iii. Fauna

DPSC provides a variety of habitats for wildlife including those that are state and federally listed. Seven exotic wildlife species have been documented at the Preserve. Appendix C has the complete list of wildlife documented on the Preserve at the time of writing this LM update; as recorded through staff field work and site inspections as well as the volunteers in Bird Patrol.

Management goals will focus on maintaining healthy, functioning ecosystem processes to provide optimal habitat for native wildlife (including listed species). Restoration of the disturbed areas and control of invasive exotic plants and animals will be critical components in providing the best possible habitat for native wildlife.

Additional general information about fauna on all C20/20 preserves can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

iv. Designated Species

There are a variety of designated animal and plant species found at DPSC. Although all native plant and animal species found on the Preserve have some protection due to the preservation of this property, certain species need additional attention. For stewardship and management purposes, all plants and animals listed by the USFWS, Florida Fish and Wildlife Conservation Commission (FWC), Florida Department of Agriculture and Consumer Services (FDACS), the Institute for Regional conservation (IRC) and FNAI will be given special consideration when considering recreation and hydrological projects. If additional listed species are documented on the Preserve in the future, they will be added to the lists in Appendices B or C.

The following are brief summaries of designated wildlife species and reasons for their decline. Unless stated otherwise, the reasons for the species' decline and the management recommendations, if available, were obtained from Hipes et al. (2001).

Wood Stork

Wood storks (*Mycteria americana*) are very sensitive to water levels in freshwater wetlands, as they require high concentrations of fish in fairly shallow water for foraging. Unnaturally high water levels during nesting seasons and extended droughts are both threats that wood storks face.

Management practices that will benefit these species include invasive exotic plant control in the numerous wetlands, and hydrological restoration projects along borrow pit shoreline. Feral animals will be trapped as quickly as feasible to protect storks and other wildlife.

Herons, Egrets, and Ibises

The little blue heron's (*Egretta caerulea*) and tricolored heron's (*Egretta tricolor)* decline are due to loss of freshwater wetlands and alteration of their natural hydroperiod. There is also some indication that pesticides and heavy metal contamination may affect this heron. Yellow-crowned (*Nyctanassa violacea*) and black-crowned (*Nycticorax nycticorax*) night heron populations have probably declined due to illegal shooting, disturbance at breeding colonies, and drainage of wetlands used for foraging. (Rodgers et al. 1996).

Like these herons, the great egret (*Ardea alba*) and snowy egret (*Egretta* thula) have been declining throughout their ranges since the 1950s. Scientists believe that the main reason for this decline is the loss and alteration of wetlands where they forage. Similar to the herons and egrets listed above, the white ibis and glossy ibis (*Plegadis falcinellus)* are declining throughout their range due to the reduction and degradation of wetlands and human disturbances to their rookeries.

The hydrological restoration projects on the borrow ponds at DPSC will benefit these species by enhancing and increasing foraging habitat.

Kites

Swallow-tailed kites (*Elanoides forficatus*) migrate to southwest Florida from South America in late February/early March for their nesting season that lasts through late July/early September. In the early 1900s, swallow-tailed kites were confirmed as nesting in 21 states; today they are only found in seven southeastern states including Florida. Loss of nesting sites through development and conversion to agriculture are the major threats to this species.

Swallow-tailed kites are seen regularly, but have not been spotted nesting at the Preserve. In the future, if it is discovered that they are nesting on the property the tree will be protected from disturbance and planned management activities that could disturb the nesting pair(s) will be postponed. Otherwise, planned restoration activities including hydrologic restoration, invasive exotic plant removal, mechanical understory reduction, and implementing regular prescribed fires will all benefit the species.

The Everglades snail kite (*Rostrhamus sociabilis plumbeus*), the subspecies of the snail kite found in the United States, is endangered because many of the marshlands that serve as its habitat have been drained for development which in turn has caused diminishing numbers of the kite's prey species, the apple snail (*Pomacea paludosa*). Success in locating apple snails is further obstructed by the introduction of exotic plants such as water lettuce, which hinders foraging. Apple snails have also suffered from agricultural runoff, eutrophication, pesticides and other pollutants. There were only 65 snail kites known to exist when the Endangered Species Act was passed in 1973. This species has managed a comeback resulting in a 1997 population of 995 birds.

Eagles and Hawks

Bald eagle (*Haliaeetus leucocephalus)* numbers have steadily increased in Florida after a low of 120 active nests in 1973, primarily caused by impacts from DDT and related pesticides. Still, loss of habitat and human disturbance due to development remains a primary concern for this species. Secondary poisoning of bald eagles from the consumption of lead shot in waterfowl contributed to the 1991 ban on lead shot for waterfowl hunting in the United States.

During the summer Cooper's hawks (*Accipeter cooperii)* breed across southern Canada southward to southern United States and into central Mexico. In the winter, they range throughout the United States and Mexico. They breed in deciduous, mixed, and coniferous forests, although documentation of breeding in south Florida is scant, and are becoming more common in suburban and urban areas.

"Declines of the Cooper's hawk in the late 1940s and 1950s were blamed on DDT and pesticide contamination. Populations started increasing in the late 1960s, but it is still listed as threatened or of special concern in a number of states. The Cooper's hawk appears to be adapting to breeding in urban areas, which may help increase populations" (CLOb 2003).

Woodpeckers

The hairy woodpecker (*Picoides villosus*) is a resident from central Alaska to Newfoundland, southward to Florida and Central America, but can also be found in the Bahamas. They are found in mature woods, small woodlots, wooded parks, and residential areas with large trees. Hairy woodpeckers build their nest in cavities of trees or dead branches and do not put additional materials in the cavity. They are considered common and widespread, but may be declining in some areas. (CLOd 2003).

Snags will be left standing across the Preserve for woodpecker forage and nesting opportunities.

American Alligator

American alligators (*Alligator mississippiensis*) have recovered dramatically since the 1960s. There are now some populations large enough to support limited harvests. Pollution and destruction of wetlands are currently the main threat to this species. Protecting wetlands from ditching, filling and pollution are the management recommendations for this species.

Gopher Tortoise

Gopher tortoises (*Gopherus polyphemus*) are in decline throughout their range due to loss and degradation of habitat. As a species dependant on dry, upland communities

much of their habitat has been lost to urban and residential development, agriculture, citrus groves, mining and pine plantations. Additional threats include a highly contagious respiratory disease and human consumption.

Exotic plant removal and mechanical brush reduction have and will continue to benefit this species. Before restoration activities that utilize heavy equipment take place in areas with high burrow concentrations, staff will provide operator burrow maps, or will mark off burrows. Staff will determine if burrows will be flagged and equipment operators will be advised to stay away from the burrows based on type of work being planned and time of year. High intensity chopping should be planned for winter months when gophers will be less active outside of the burrow.

Eastern Indigo Snake

The Eastern indigo snake *(Drymarchon couperi)* is a large, iridescent black snake with a red, coral, or white throat (record length, 8.6 feet). This species is found in a large spectrum of habitats throughout Florida and southern Georgia, and is often associated with gopher tortoise burrows. The Eastern indigo is federally listed as threatened throughout its range due to habitat loss, degradation and fragmentation. Although it is now illegal to possess this animal without the proper permits, the pet trade is another cause for decline of this species. The most common causes of mortality are human caused, either by people afraid of snakes or accidental highway mortality. The indigo snake utilizes a home range of approximately 125-250 acres, and the males are territorial during the breeding season. The indigo snake feeds diurnally on fish, frogs, toads, lizards, snakes, small turtles, birds, and small mammals, which are often around the edge of wetlands. The eastern indigo snake breeds from November through April, then lays 5-10 eggs in May or June (USFWS 1982).

Eastern Diamondback Rattlesnake

Although not an officially listed species, the eastern diamondback rattlesnake (*Crotalus adamanteus*) is commonly thought to be in decline throughout its range. Scientists believe that it requires 10,000 acres or more to sustain long-term viable populations. Additional threats to this species include indiscriminate killing because of fear, as well as for trade and being hit by cars.

Public education about the ecological value of this and other species of snakes will help to protect them from visitors to the Preserve and from adjacent landowners.

Florida Bonneted Bat

Although not yet documented at DPSC, the Florida bonneted bat (*Eumops floridanus*) is another designated species for which staff will need to be prepared to manage for. This bat is state-designated threatened, and a federally listed species. Staff will be monitoring for this species and if documented on-site, roost areas will be protected during management activities.

Plant Species

In addition to designated wildlife, this Preserve may provide habitat for plant species listed by the IRC or FDACS. The following are brief summaries of the FDACS designated plant species explaining reasons for their decline and typical communities where they are located.

Royal Fern

The Royal fern (*Osmunda regalis var. spectabilis*) is listed as Commercially Exploited by FDACS. This plant is distributed throughout Florida and can be found in wet flatwoods, basin and dome swamp communities.

Long Strap Fern

Long strap fern (Campyloneurum phyllitidis) is a perennial, wetland fern. It grows in hammocks, either as an epiphyte or on rocks.

Cardinal and Giant Airplants

Endangered cardinal airplants (*Tillandsia fasciculata var. densispica*) and giant airplants (*Tillandsia utriculata*) are found in hammocks, cypress swamps and pinelands. Threats to this species include illegal collecting, habitat destruction and the exotic Mexican bromeliad weevil (*Metamasius callizana*) (Save 2004).

Currently, scientists are researching biological control agents for the exotic Mexican bromeliad weevil. Staff will keep current with the research developments and work with scientists in the future if the United States Department of Agriculture (USDA) is in need of release sites.

Florida Butterfly Orchid

Although locally abundant (Brown 2002), the Florida butterfly orchid (*Encyclia tampensis*) is designated as Commercially Exploited by the FDACS. A plant that is designated as “Commercially Exploited” is considered to be threatened by commercial use.

Needleroot Airplant Orchid

Needleroot airplant orchid (*Harrisella porrecta*) is also known as leafless harrisella and a local common name of “jingle bell orchid,” because the fruits hang in little clusters (Brown 2002). It is listed by FNAI as G4/S1 (Critically imperiled in Florida because of extreme rarity) and by FDACS as Threatened. General habitats found in include hardwood hammocks, sloughs, cypress domes, and old citrus groves.

When creating any trails, consideration will be made to avoid areas where these plants are growing. If the plants will be damaged during restoration activities, a permit will be obtained from FDACS to remove them before work commences. Plants growing on invasive exotic vegetation, to be destroyed, will be relocated on the site if economically feasible.

IRC, which is not a regulatory agency, also maintains a listing of threatened plant species. IRC's plant designation is either obtained from their book Rare Plants of South Florida: Their History, Conservation and Restoration, (Gann 2002) or internet website regionalconservation.org. Scientists working for this Institute have conducted a tremendous amount of field work and research documenting plants occurring in conservation areas throughout Florida's 10 southernmost counties. This initial floristic inventory allowed the IRC to rank plant species in order to indicate how rare/common these plants are in protected areas. Rare plants are defined as being either very rare and local throughout their range in south Florida (21-100 occurrences, or less than 10,000 individuals), or found locally in a restricted range. IRC only ranks those taxa as rare when there are fewer than 100,000 individuals.

Imperiled plants are those that are imperiled in south Florida because of rarity (6-20 occurrences, or less than 3,000 individuals) or because of vulnerability to extinction. This can be due to some natural or human factors. IRC only ranks taxa as imperiled if there are fewer than 10,000 individuals. Critically Imperiled plants are defined as being either extremely rare (5 or fewer occurrences, or fewer than 1,000 individuals), or extremely vulnerable to extinction from natural or human factors. IRC only ranks those taxa as critically imperiled with 10,000 or fewer individuals.

In their book, (Gann 2002), the authors provide an entire chapter of recommendations to help restore south Florida's rare plant diversity. Several of these recommendations, particularly those that protect plants on the Preserves and relate to stewardship practices, will be followed. More information on the specific techniques used will be discussed in the Management Action Plan. The following list highlights IRC recommendations that will be incorporated into the management of DPSC:

- Prohibit recreational activities such as off-road vehicle use to avoid impacts to rare plant populations.
- Prevent illegal poaching of rare plants.
- Prosecute poachers to the fullest extent of the law.
- Implement an ongoing exotic pest plant control program.
- Educate exotic plant control crews about the rare plants to ensure they avoid non-target damage.
- Control wild hogs, which can completely destroy the above ground vegetation and disturb all the soil in an area where they are feeding.
- Initiate prescribed fire regimes in communities that are fire adapted since fire as a management tool is extremely critical for the protection of many rare plants.
- Divide the site so the entire area is not burned during the same year will also help protect these communities.
- Ensure that management activities do not negatively impact rare plant populations.

v. Biological Diversity

General information on biological diversity and measures used to help promote biological diversity can be found in the LSOM's Land Management Plan Development and Supplemental Information section.

The integrity and diversity of the Preserve must be protected when and where possible. Where applicable and practical, Conservation Land staff will perform the following actions in this regard:

- Control of invasive, exotic vegetation followed by regular maintenance to provide more suitable habitat for native aquatic and terrestrial species.
- Control invasive exotic animal populations to reduce their impacts on the herbaceous plants, native animals, and soils.
- Maintain boundary signs to deter illegal access to the Preserve and protect fragile ecosystems. Continue to monitor the site for illegal off-road vehicle (ORV) use and install fencing or other barriers if necessary.
- Install and maintain "no berry picking" signs to inform palmetto pickers it is illegal to harvest them on the preserves.
- Where necessary, install perimeter fire breaks to protect resources on the Preserve and surrounding neighbors in the event of wildfires.
- Remove any debris and prevent future dumping within the boundary line.
- Conduct on-going species surveys to catalog and monitor the diversity that is present.
- Temporary closure of flooded trails to prevent soil disturbance and avoid plant damage.
- Reduce canopy cover in appropriate habitats to promote herbaceous plant diversity.
- Use adaptive management if monitoring of restoration techniques indicates a change may be necessary.
- Offer public access that allows people to enjoy the Preserve while protecting sensitive plant communities and wildlife needs.
- Enhance hydrologic conditions with the goal of restoring as close to historic hydroperiods as current surrounding land use allows while protecting current upland communities.
- Prevent and prosecute poaching and removal activities (e.g. palmetto berry harvesting, illegal hunting, pine cone/straw removal and orchid collection).

C. Cultural Resources

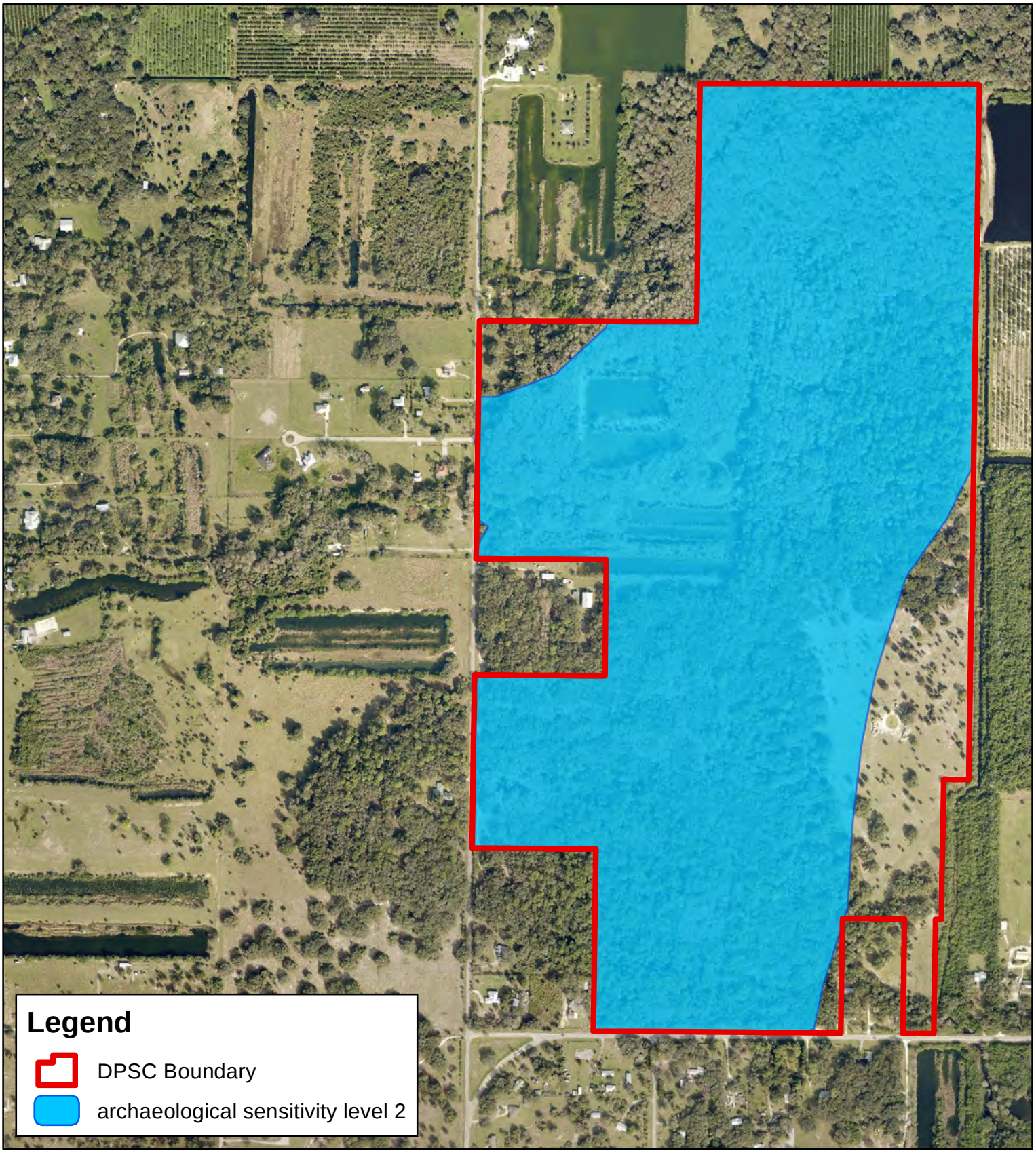
i. Archaeological Features

In 1987, Piper Archaeological Research, Inc. (PARI) conducted an archaeological site inventory of Lee County. They were able to identify an additional 53 sites increasing the total number of known archaeological sites in Lee County to 204. PARI created a site predictive model and archaeological sensitivity map for the county that highlighted potential areas likely to contain additional archaeological sites. Approximately ninety percent of Daniels Preserve at Spanish Creek lies within the study's "Sensitivity Level 2" area (Figure 8). The study defines this level as "areas that contain known archaeological sites that have not been assessed for significance and/or conform to the site predictive model in such a way that there is a high likelihood that unrecorded sites of potential significance are present. If these areas are to be impacted, then they should be subjected to a cultural resource assessment survey by a qualified professional archaeologist in order to 1) determine the presence of any archaeological sites in the impact area and/or 2) assess the significance of these sites" (Austin 1987).

Some soil disturbance occurred on DPSC with the creation of several large borrow pits, areas prepared for cattle grazing operations, construction of small ditches and berms, and modifications to a bridge over Spanish Creek constructed prior to acquisition. These disturbances have occurred throughout various regions of the site, including within the Sensitivity Level 2 areas. A professional archaeologist will be hired to conduct a survey of the area to be impacted if restoration projects require any major soil disturbance. If evidence of shell middens or other artifacts are found in the area, the Division of Historical Resources (DHR) will be immediately contacted and protection procedures will comply with the provision of Chapter 267, Florida Statutes, Sections 267.061 2(a) and (b). Collection of artifacts and/or any disturbance of the archaeological site will be prohibited unless prior authorization has been obtained from the DHR. Any potential site will be managed in coordination with recommendations from the DHR and, if necessary, the site will be kept confidential with periodic monitoring for impacts. If any significant archaeological resources are found and confidentiality is not found to be necessary, they may be incorporated into a public education program.

General information on archeological features in Lee County can be found in the LSOM.

Figure 8: Archaeological Map



CONSERVATION 20/20
LEE COUNTY Parks & Recreation

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Daniels Preserve at Spanish Creek

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Figure_8_Archaeological_Map
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

ii. Land Use History

Although not all elements of the land use history discussed below occurred on DPSC, modifications made on adjacent properties directly influence it. Historically, during the late nineteenth century until the 1930s, intense logging was common in the southern mixed forest in south Florida and virtually eliminated all virgin stands of slash pine. These logging activities did not occur in any areas of DPSC.

Historical activities were derived from aerial photographs taken between 1944 and 2015 (Figures 9-17) as well as speaking with several individuals including the former property owner and now current neighbor (Ruby Daniels), brother-in-law to former owner (James Daniels), cattle rancher and neighbor (Paul Furbay), local area resident (Bryan Smith) and/or the Phase I Environmental Site Assessment report (WRS 2005).

During the 1930s and 1940s, the locals cooled off and had fun swimming in a deep area of Spanish Creek (on DPSC) that was referred to as Lee's wash-hole. Persimmon Ridge Road and North River Road were dirt trails at that time, and the trail in the central part of the Preserve ran east to Ft. Denaud. Here, the locals gathered to socialize and unwind from the hard chores of the times, the Seminoles traded their goods and fiddlers played music as part of the entertainment. In addition, there was a turpentine still that operated on the west side of the road (Persimmon Ridge) for this region of the county, which had prisoners as part of the work force.

According to interpretations based on aerial photography dating back to 1944, there are not many land uses or impacts on the Preserve, except for several trails and the dredging/straightening of Spanish Creek in the midsection. Spoil piles are noted along both sides of the creek bed from this dredging. This work occurred during the 1930s, before the family took possession of the property and was reportedly performed by the Soil Conservation Service. In 1944, the Daniels family acquired the property for $10 per acre from the Babcock family. At one time the Daniels family owned approximately 1,000 acres in this region of the county. The family didn't permit pine tree harvesting activities on their land, which has allowed the trees to mature into enormous, old growth slash pine trees, enough of the cypress trees were logged from the property between 1944 and 1947 by Paul O'Bannon to eventually pay for the land. The interior walls of the old homestead still contain some of the logged cypress boards.

The Daniels and Babcock families ran their cattle operations in this expansive northeast area of the county, which was referred to as Cow Prairie Cypress. Cattle roamed through water depths that ranged from 3-18" during the rainy season.

Some notable differences on the 1953 aerial are that the pasture in the southeast was being treated or mowed and a ditch leading south to the road from the creek was being installed.

In association with cattle grazing operations, the 1958 photograph shows a square field that was cleared and known as MacDaniels Field. Other areas in the southeast were

cleared and windrows were created. The windrows contained the cleared vegetation and plowed up soils. A small northwest section along Persimmon Ridge Road was used for cattle grazing.

Many activities occurred during the 1960's, on and adjacent to DPSC. To the north, citrus groves (primarily Golden Groves) expanded to nearly 3,700 acres as people bought 10-acre strips to farm. Several northwest areas were excavated and mined for aggregates. On DPSC, most of these mined areas were dug in the center of or next to a large cypress head. A cow well was dug adjacent to the cleared pasture. A 400-acre parcel to the east (SFWMD) was used to receive spoil soils dredged from the Caloosahatchee River.

During the 1970s and 1980s, large watering holes (northeast of the Preserve) were created to be able to pump water to the expanding citrus grove operations. In a 1974 photograph, a canal was dug (running NE – SW) on the property in the southeast pasture area. It drained water from northeast areas through the Daniels property into the creek, then out to the river.

Another area near, but not directly connected to the DPSC, was reportedly used as an Alva dumpsite. This less than one acre satellite dump was operational during the late 1950's to early 1970's and is on disturbed property to the southeast of DPSC on the south side of North River Road, east of Spanish Creek. In addition, there was reportedly a cow dipping vat in this area.

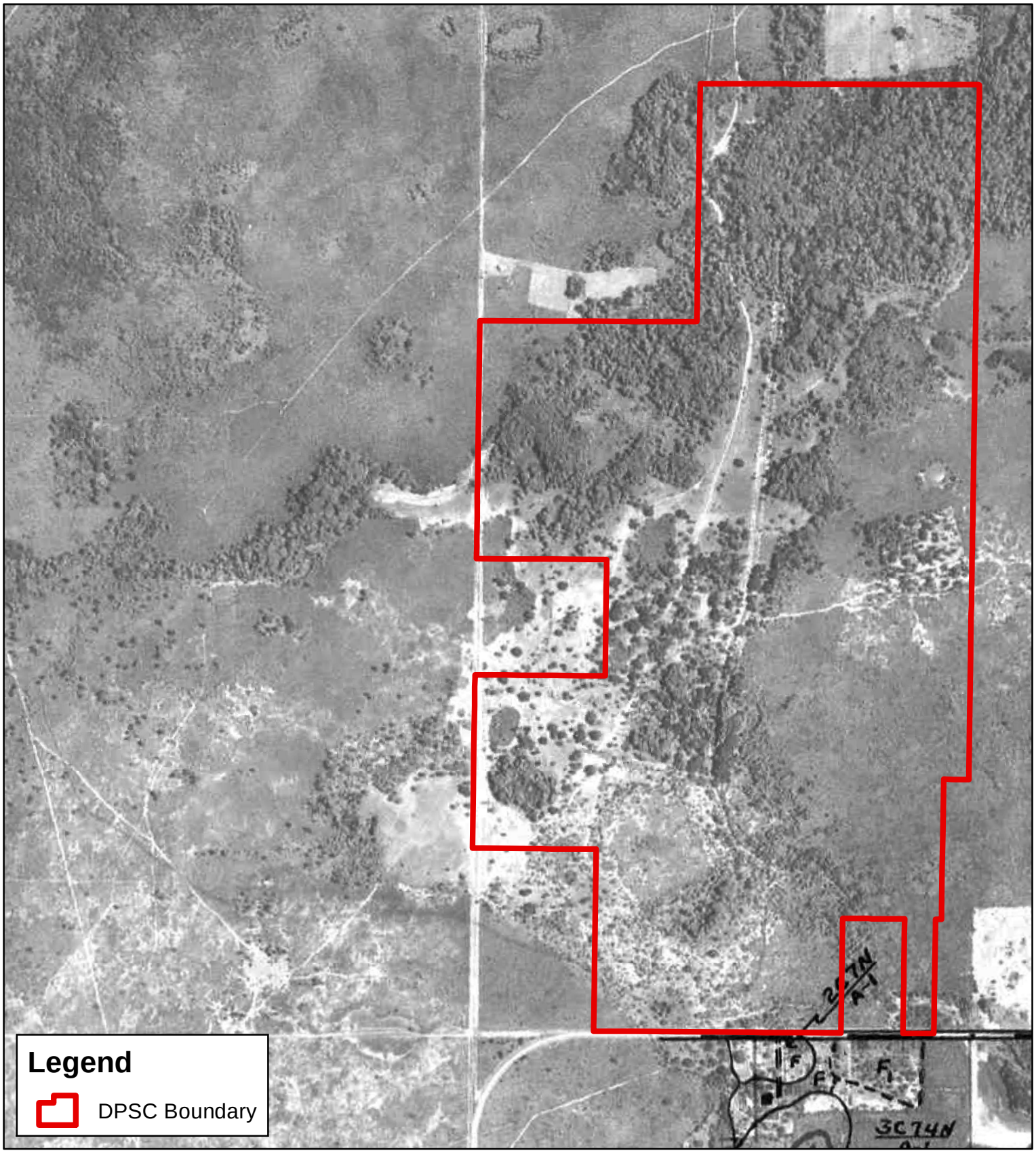
During the late 1980s to early 1990s, there was a land exchange between the Daniels family, Lee County and the CLDD. The CLDD purchased 5 acres from Lee County and exchanged 2.3 acres with the Daniels family. Reportedly the SFWMD and CLDD wanted to make a more direct route for water to drain from the land and out to the Caloosahatchee River. This land exchange provided CLDD with the necessary land to construct the new drainage canal along the eastern boundary of the Preserve. The exchanged parcels are located in what is now the southeastern area of the Preserve. The CLDD contracted a company to build the wooden bridge over the newly exchanged piece of land to allow the Daniels family continued access to their property over Spanish Creek. Consequently, the District removed the smaller NE-SW canal that ran across the Daniels property. Additional activities adjacent to DPSC include single-family homes being constructed along northern, western and southern out parcels bordering the property.

Since the Conservation 20/20 Program purchased the property, Hurricane Wilma passed through in October 2005 knocking over several large oak trees and damaging a small section of fencing. During the summer of 2006, the cattle rancher repaired the damaged fence and moved cattle into the pastures to graze.

With the exception of the construction of a few single family homes adjacent to the Preserve very little has changed since 2006. In 2014 a pump station, utility poles and overhead electrical wires and a discharge structure were installed as part of a

hydrologic restoration project which is described in detail in the Hydrological Components and Watershed section of this plan.

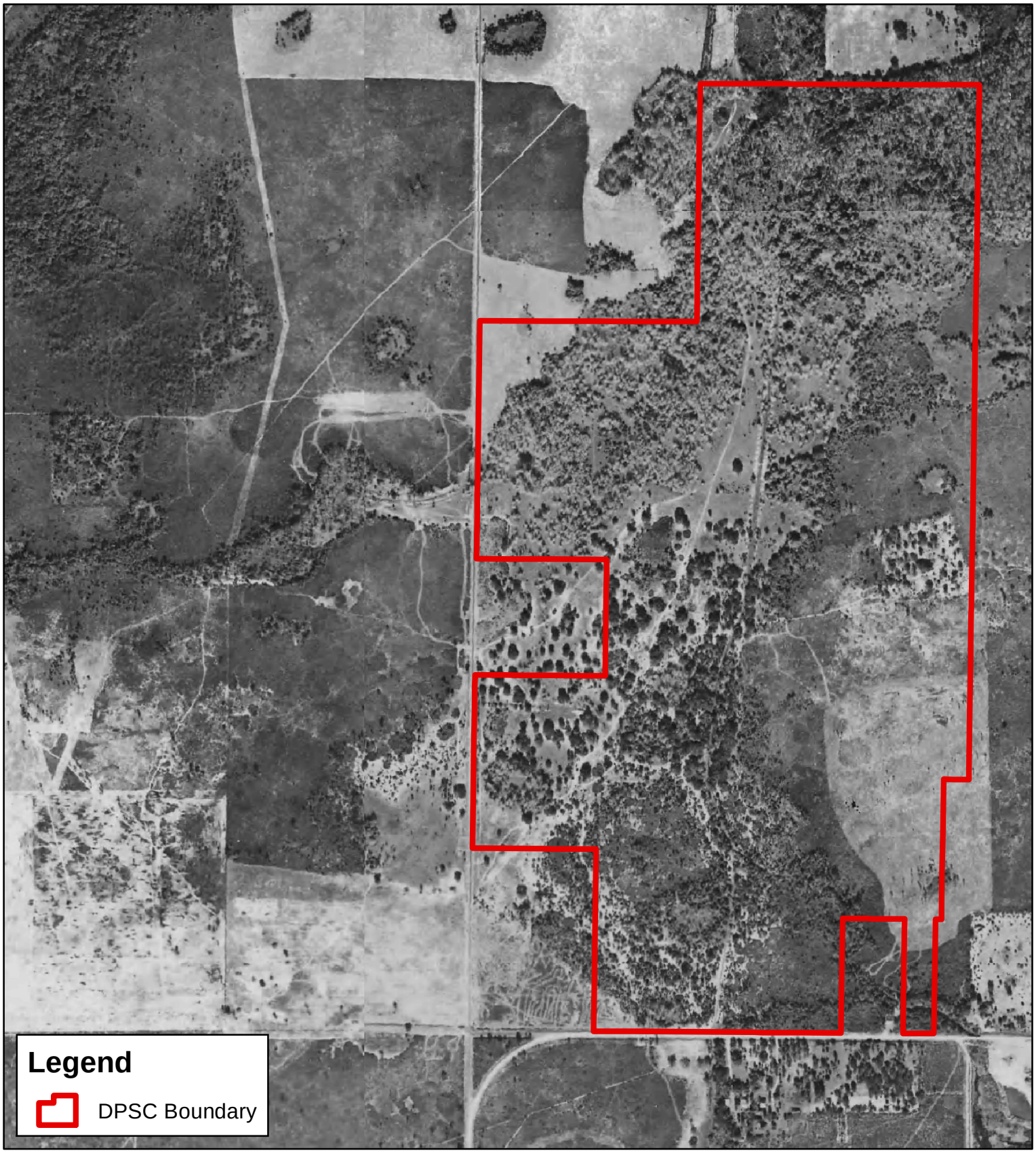
Figure 9: 1944 Aerial



Daniels Preserve at Spanish Creek

Figure_9_1944
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 10: 1953 Aerial



Daniels Preserve at Spanish Creek

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Figure_10_1953
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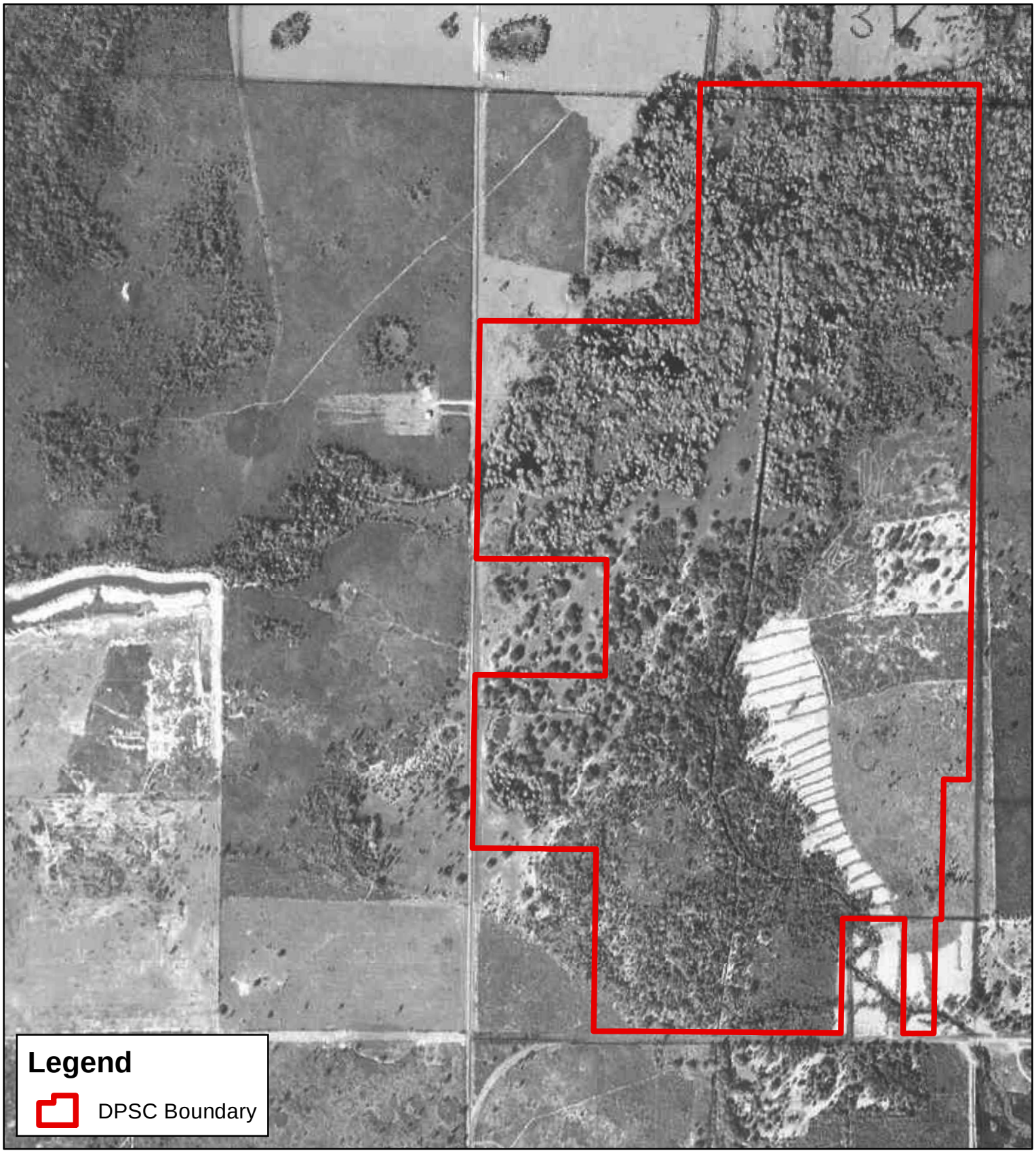
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 11: 1958 Aerial



Daniels Preserve at Spanish Creek

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Figure_11_1958
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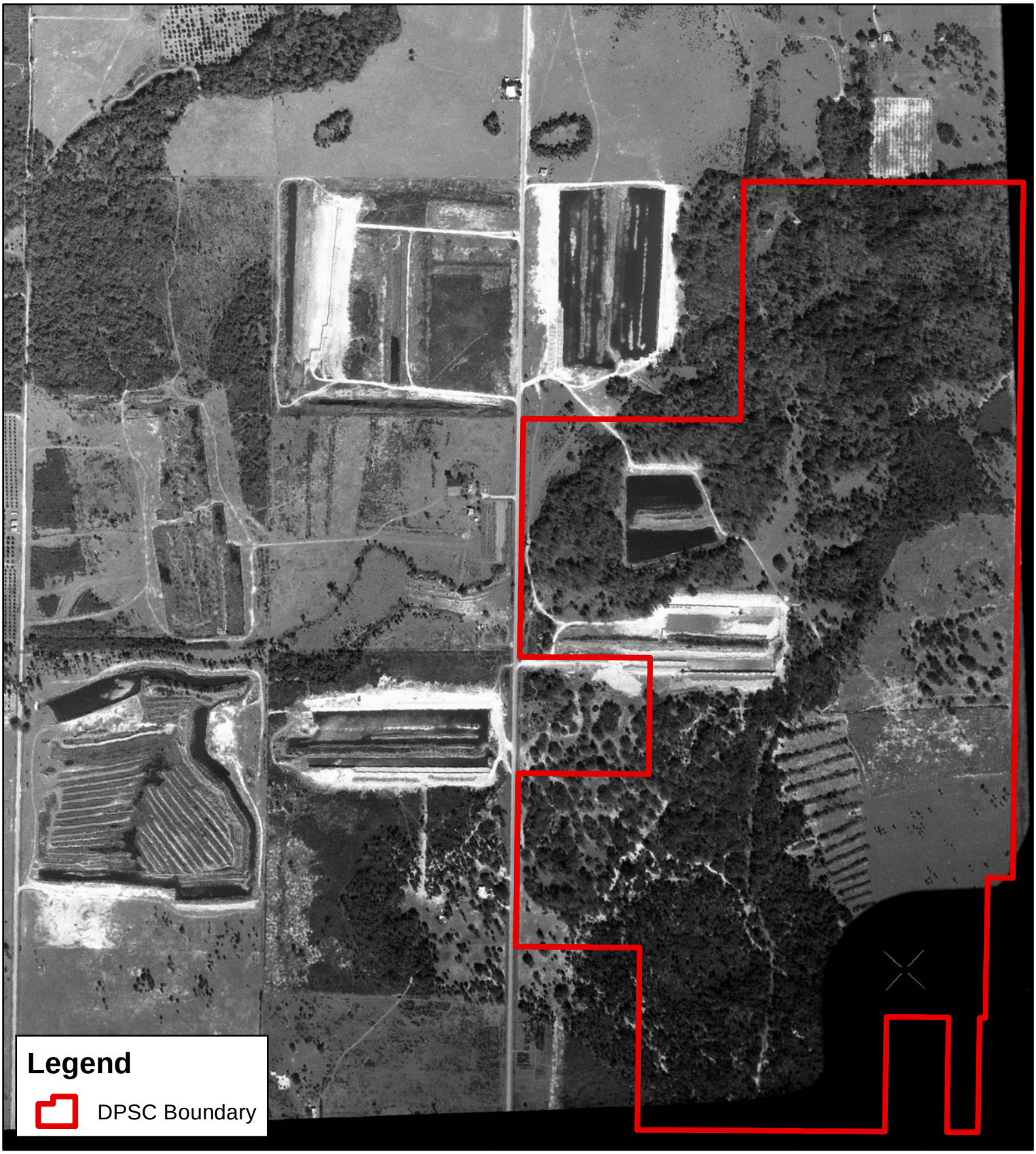
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 12: 1968 Aerial



Daniels Preserve at Spanish Creek

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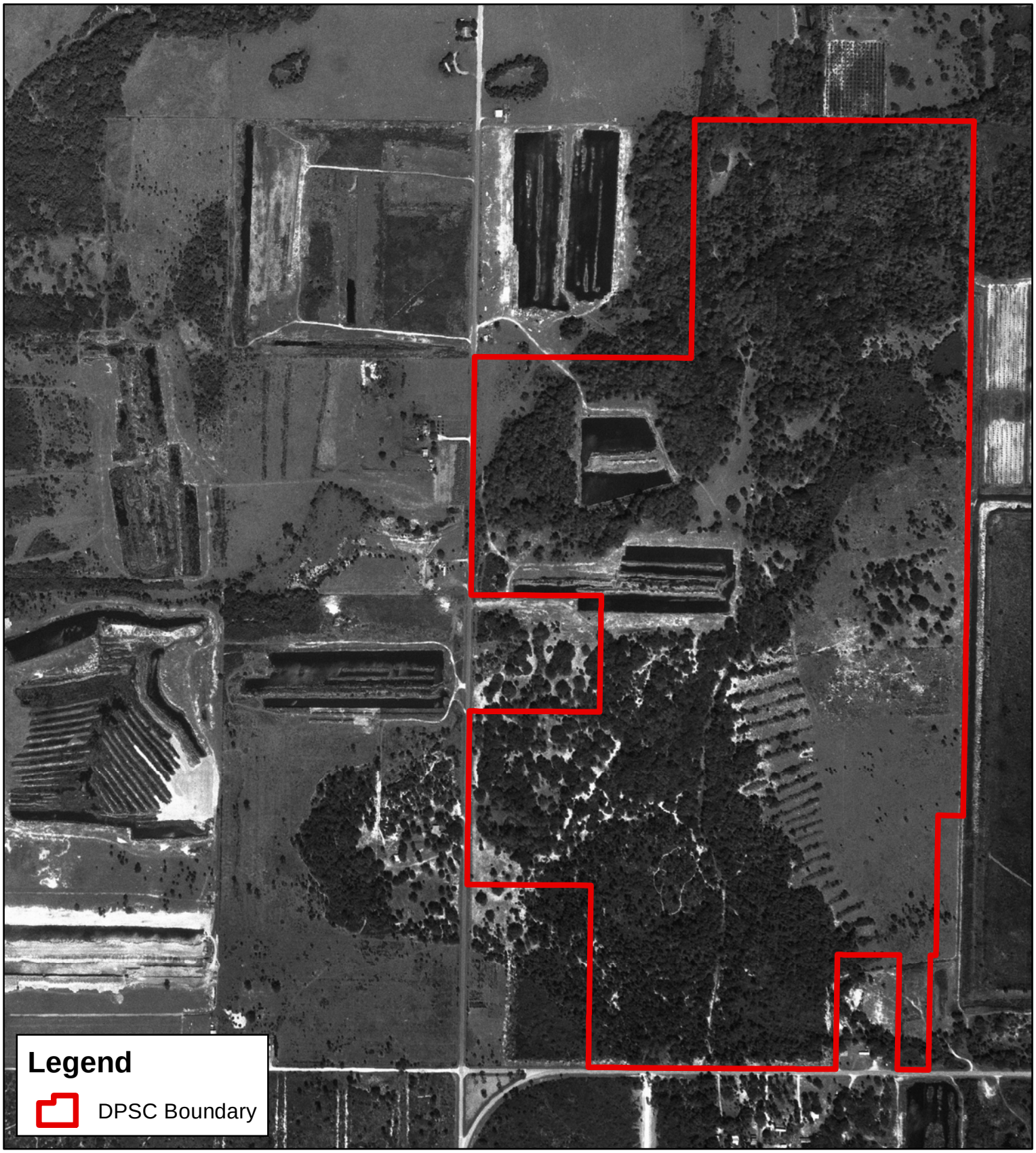
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 13: 1972 Aerial



Daniels Preserve at Spanish Creek

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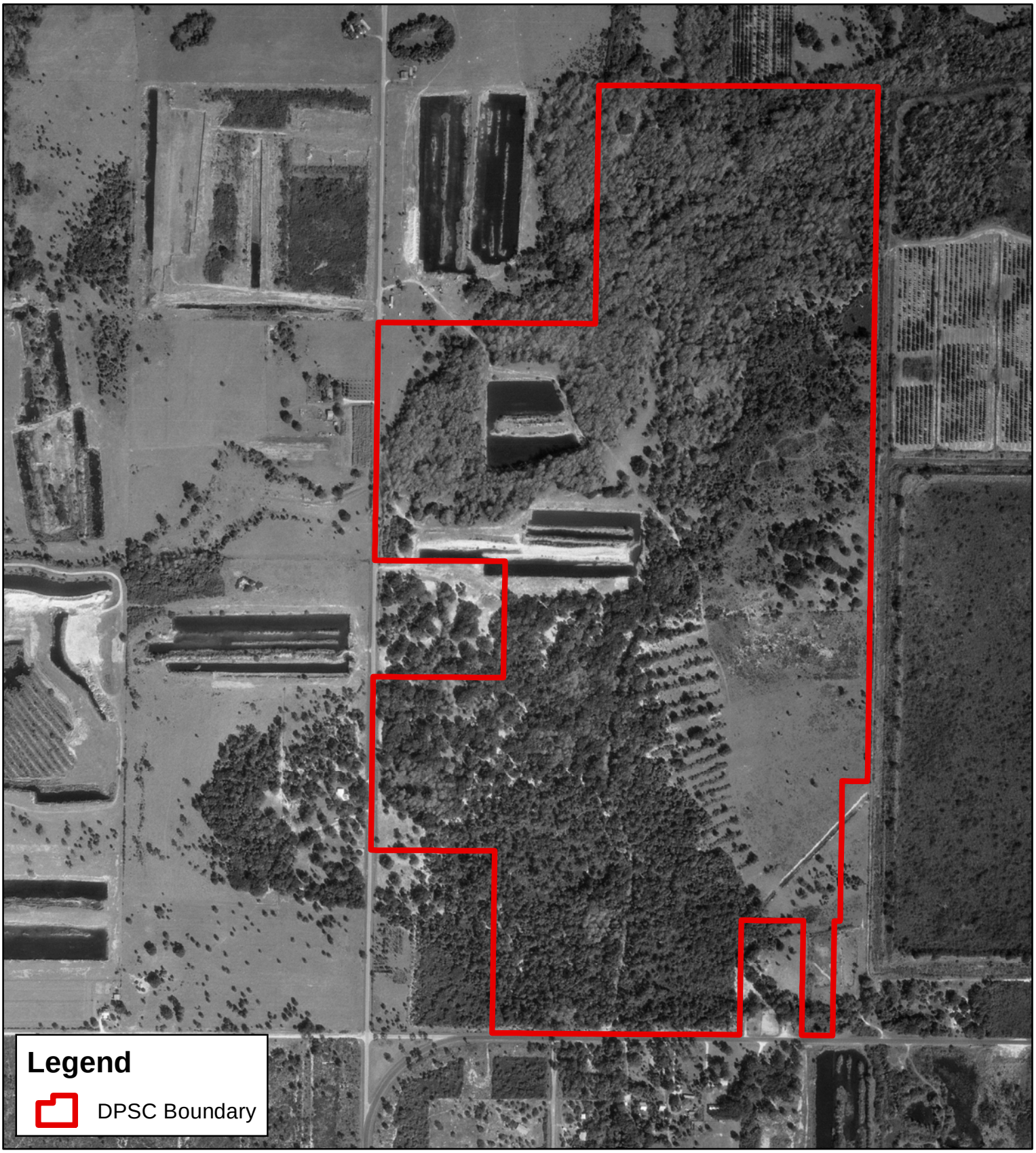
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 14: 1976 Aerial



Daniels Preserve at Spanish Creek

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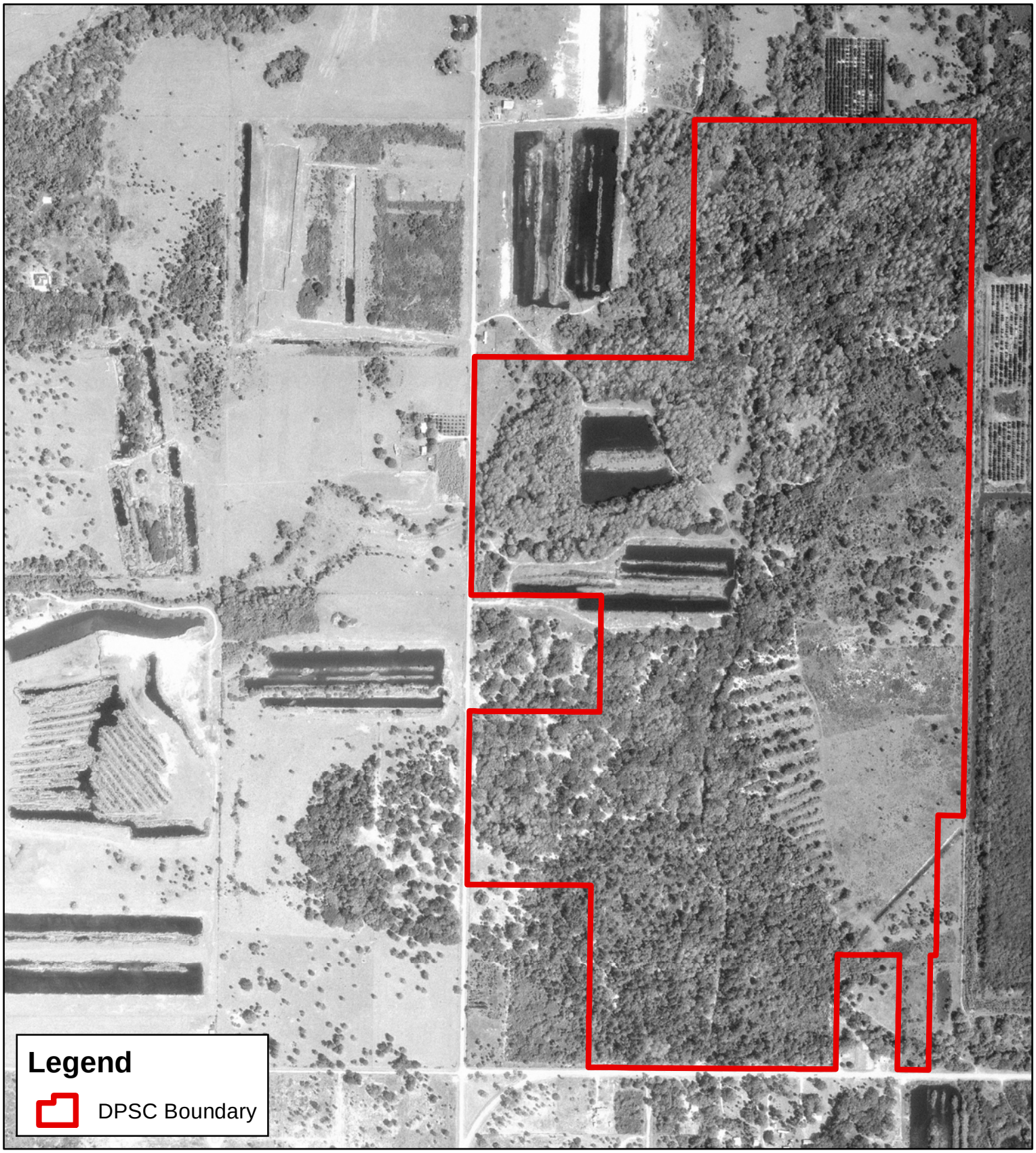
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 15: 1979 Aerial



Daniels Preserve at Spanish Creek

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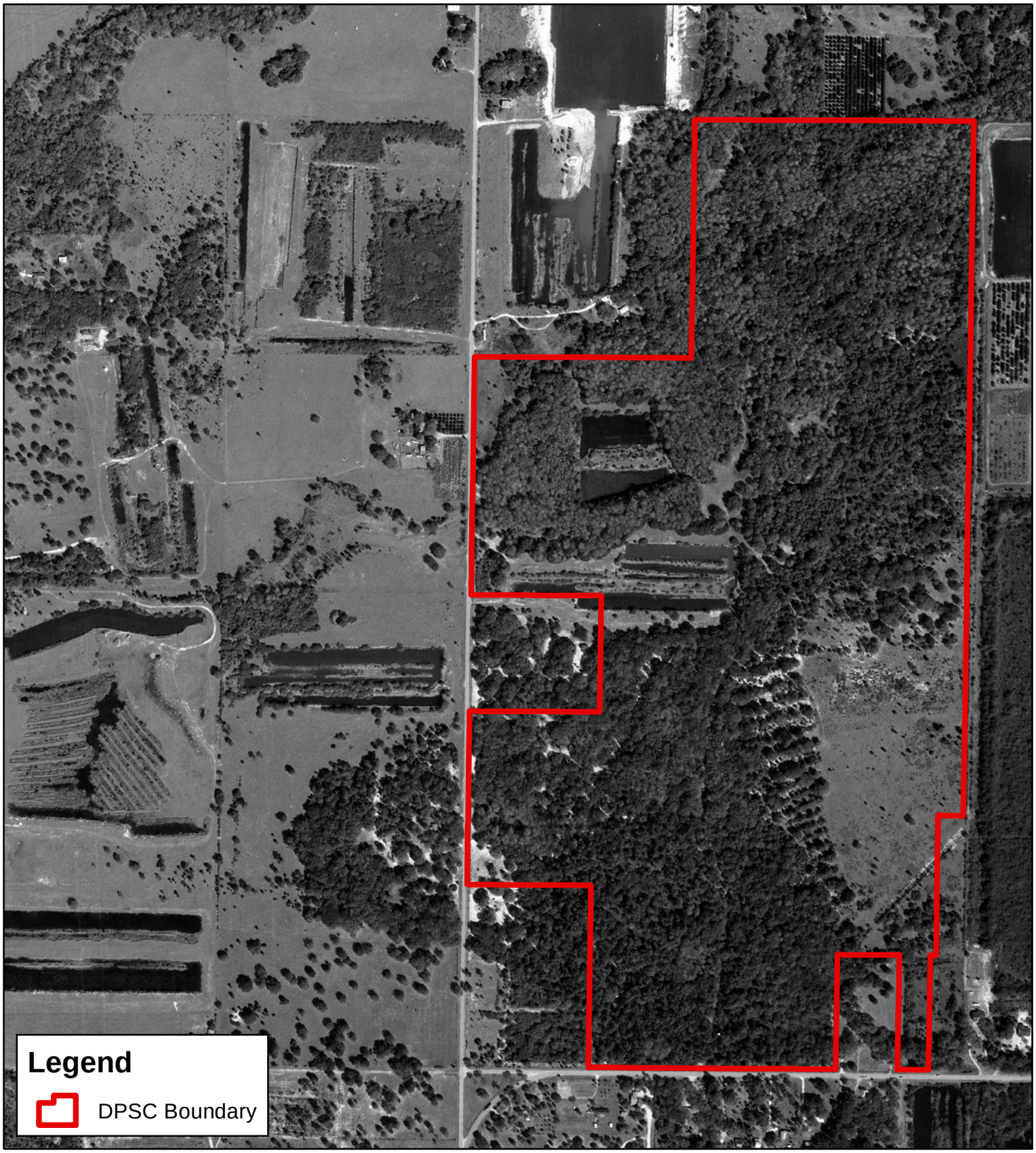
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 16: 1986 Aerial



Daniels Preserve at Spanish Creek

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Figure_16_1986
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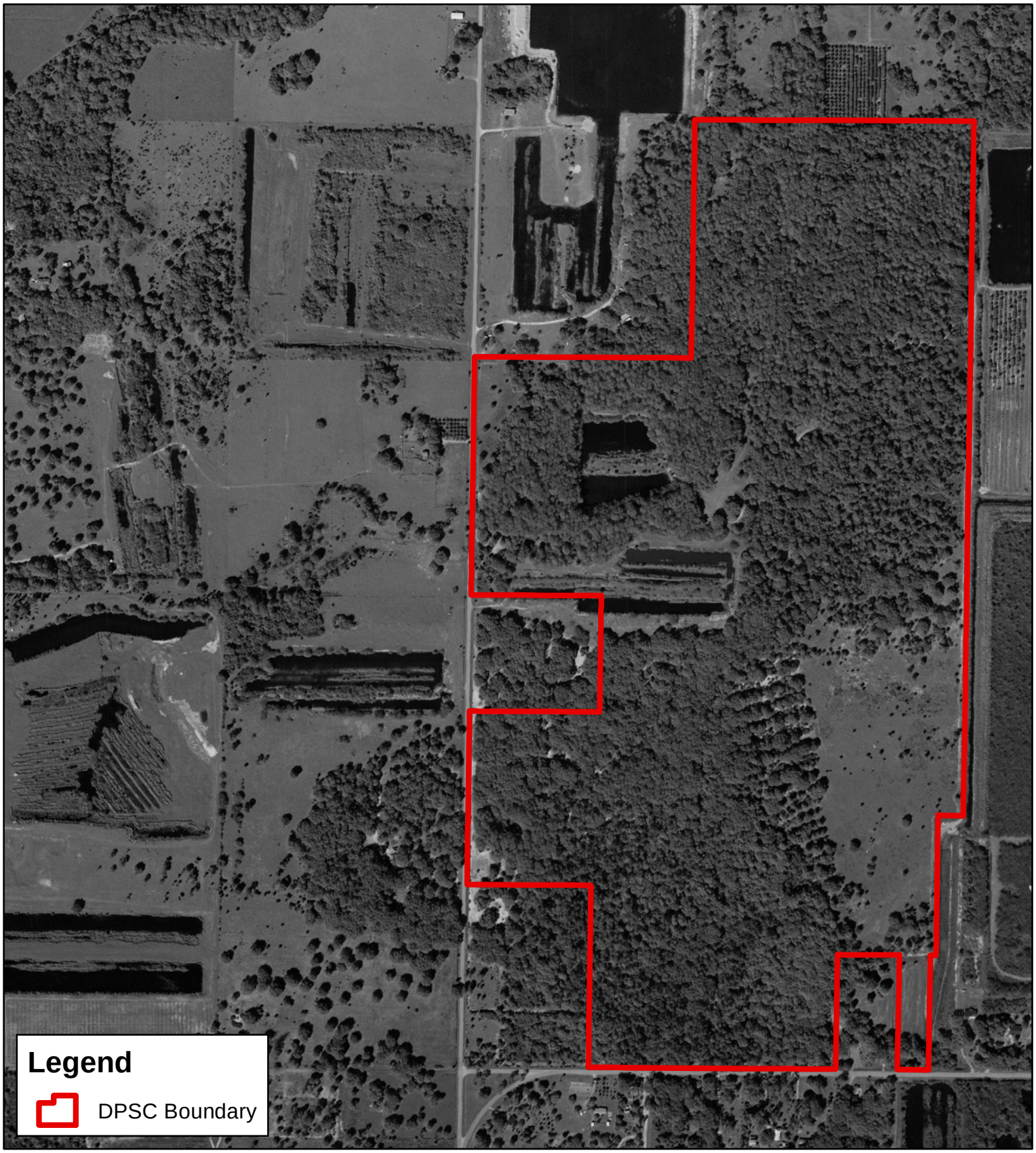
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 17: 1990 Aerial



Daniels Preserve at Spanish Creek

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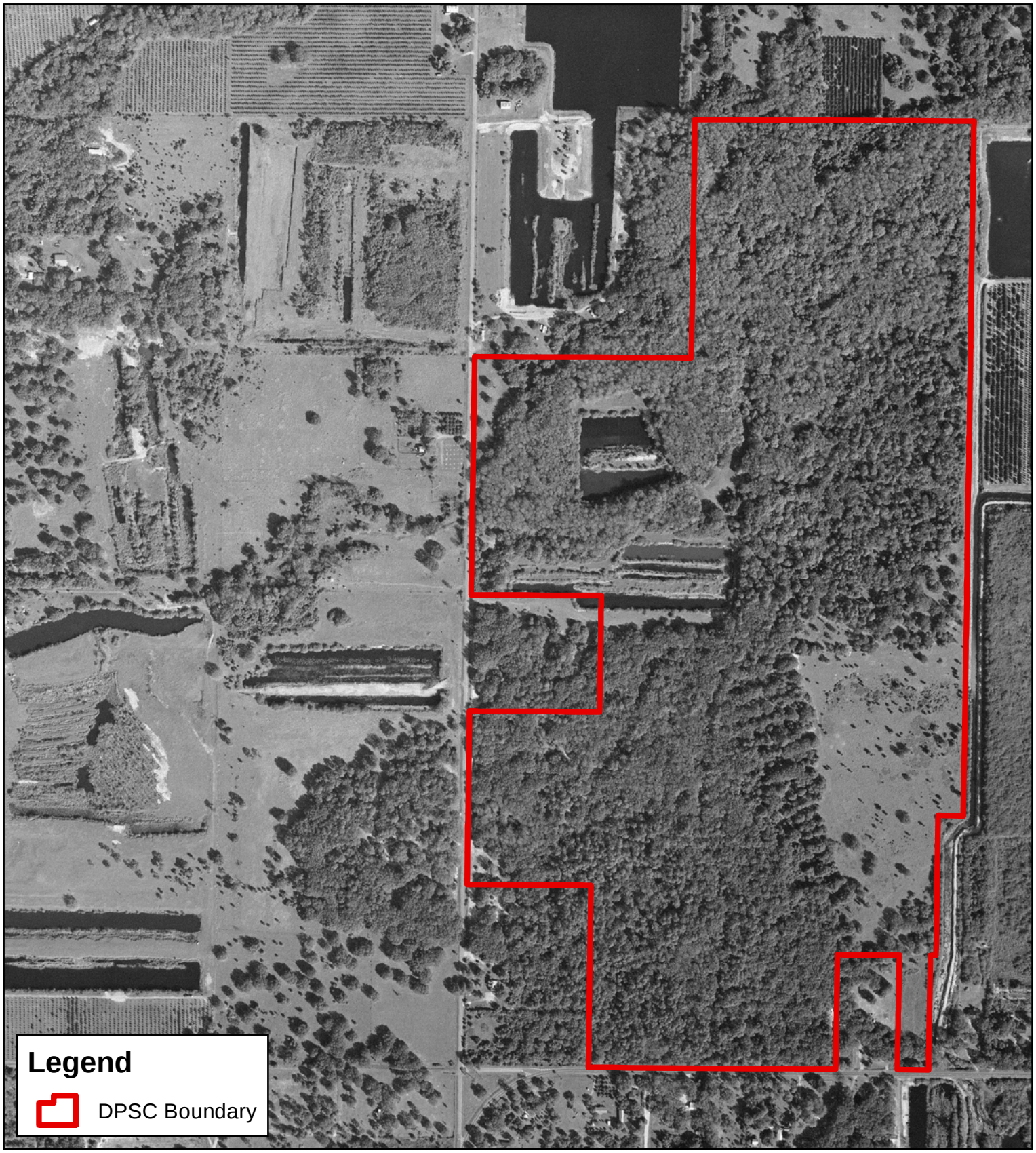
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 18: 1996 Aerial



Daniels Preserve at Spanish Creek

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Figure_18_1996
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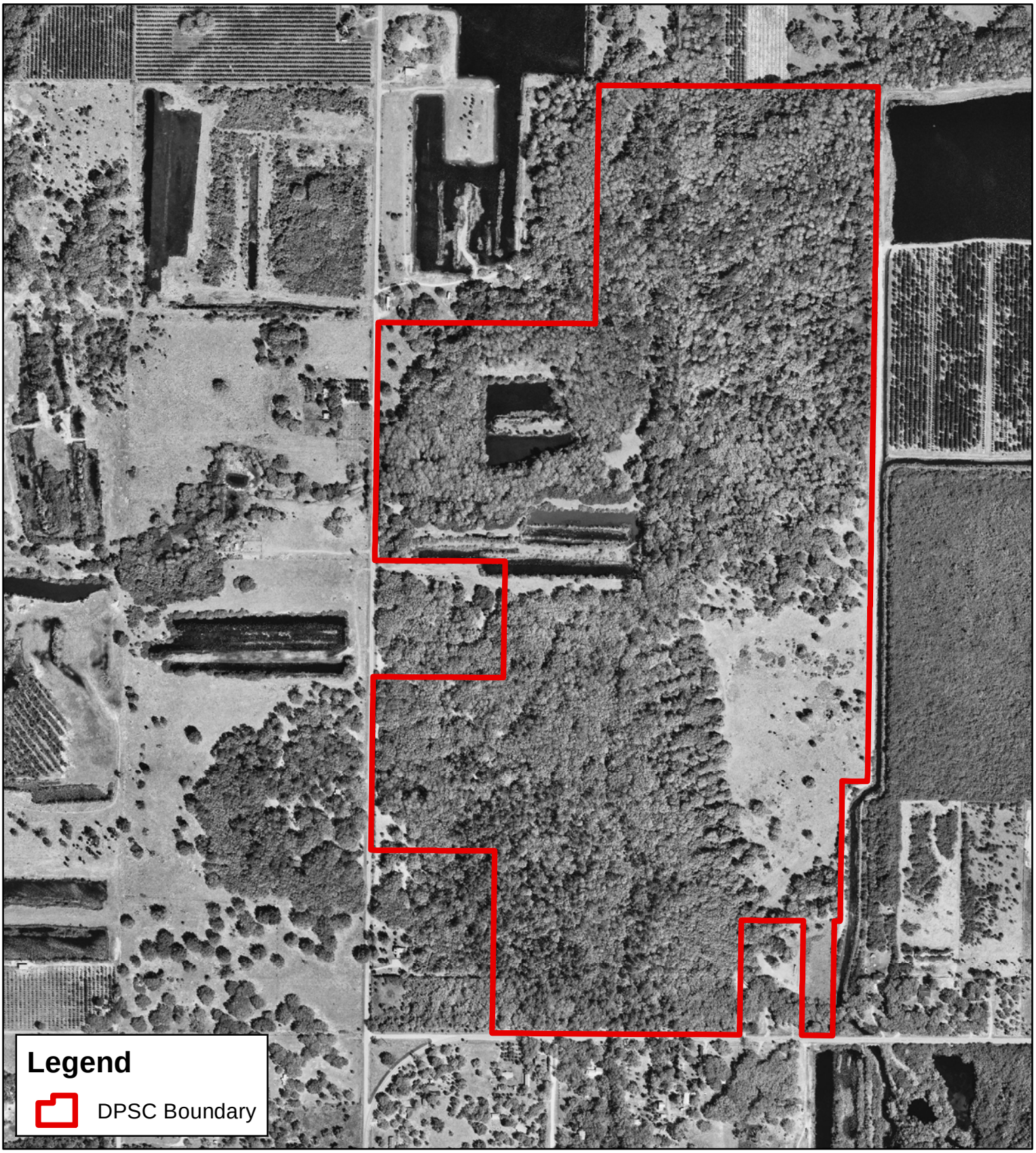
Figure 19: 1998 Aerial



Daniels Preserve at Spanish Creek

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Figure_19_1998
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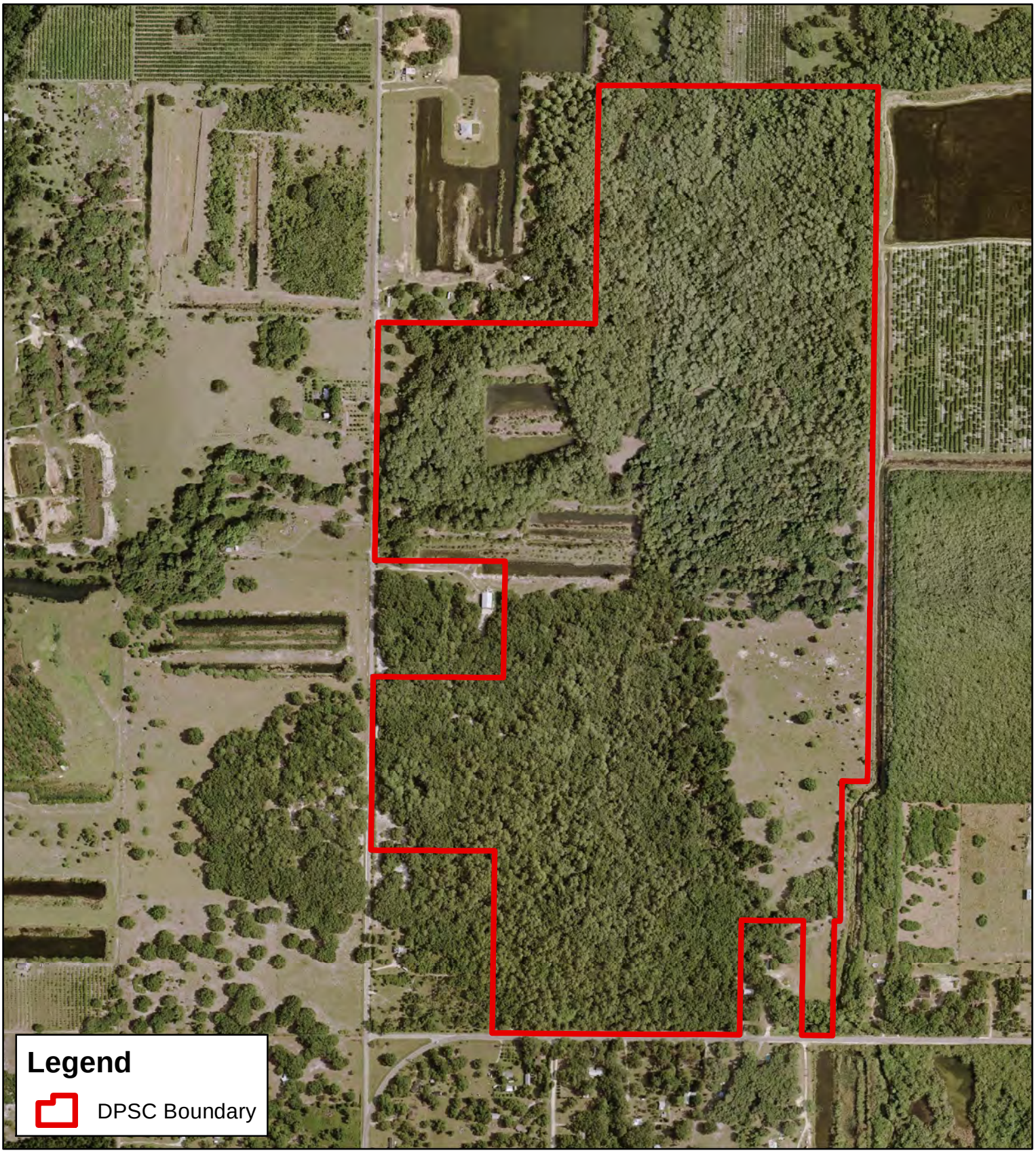
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 20: 2002 Aerial



Daniels Preserve at Spanish Creek

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Figure_20_2002
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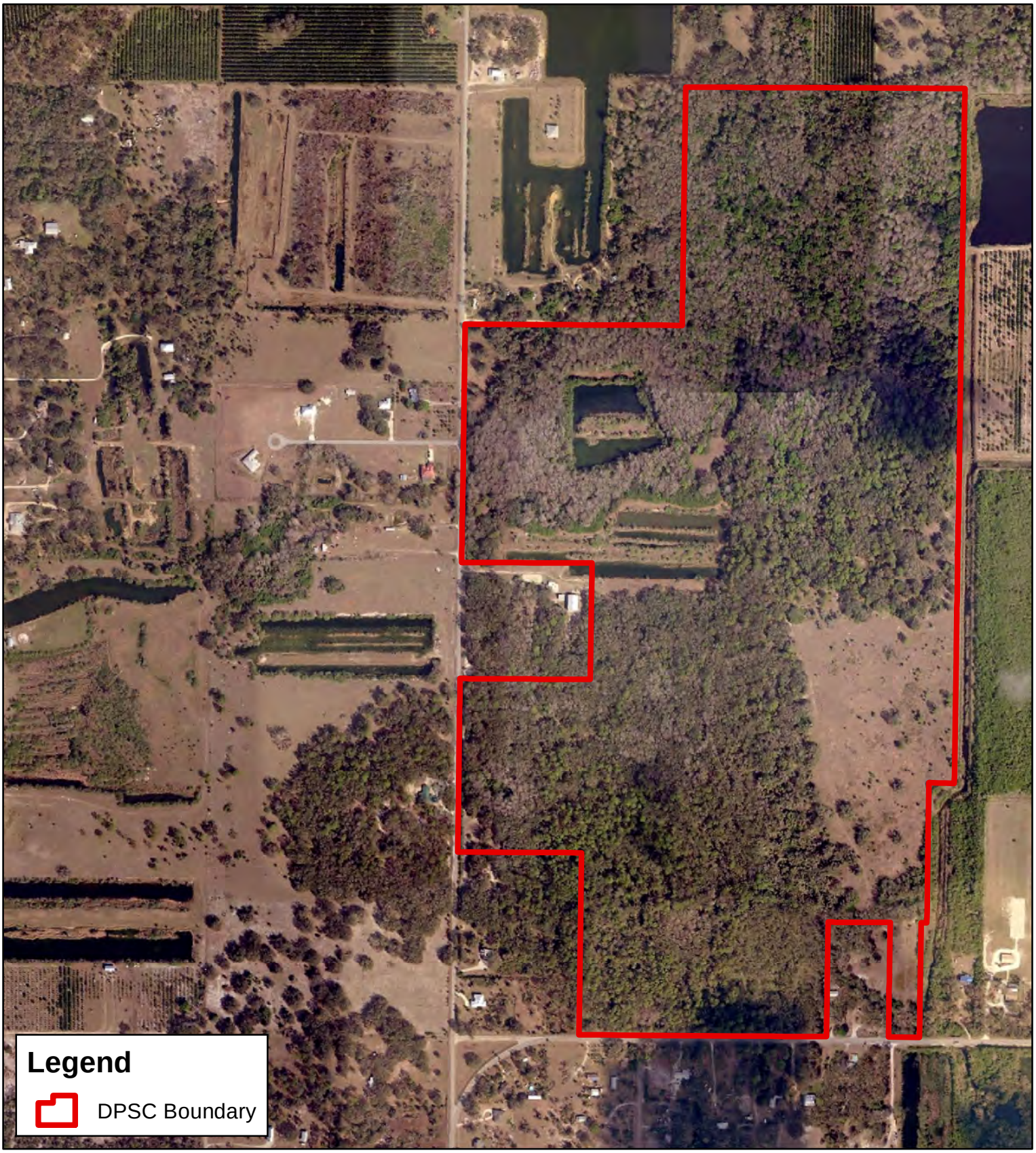
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 21: 2006 Aerial



Daniels Preserve at Spanish Creek

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Figure_21_2006
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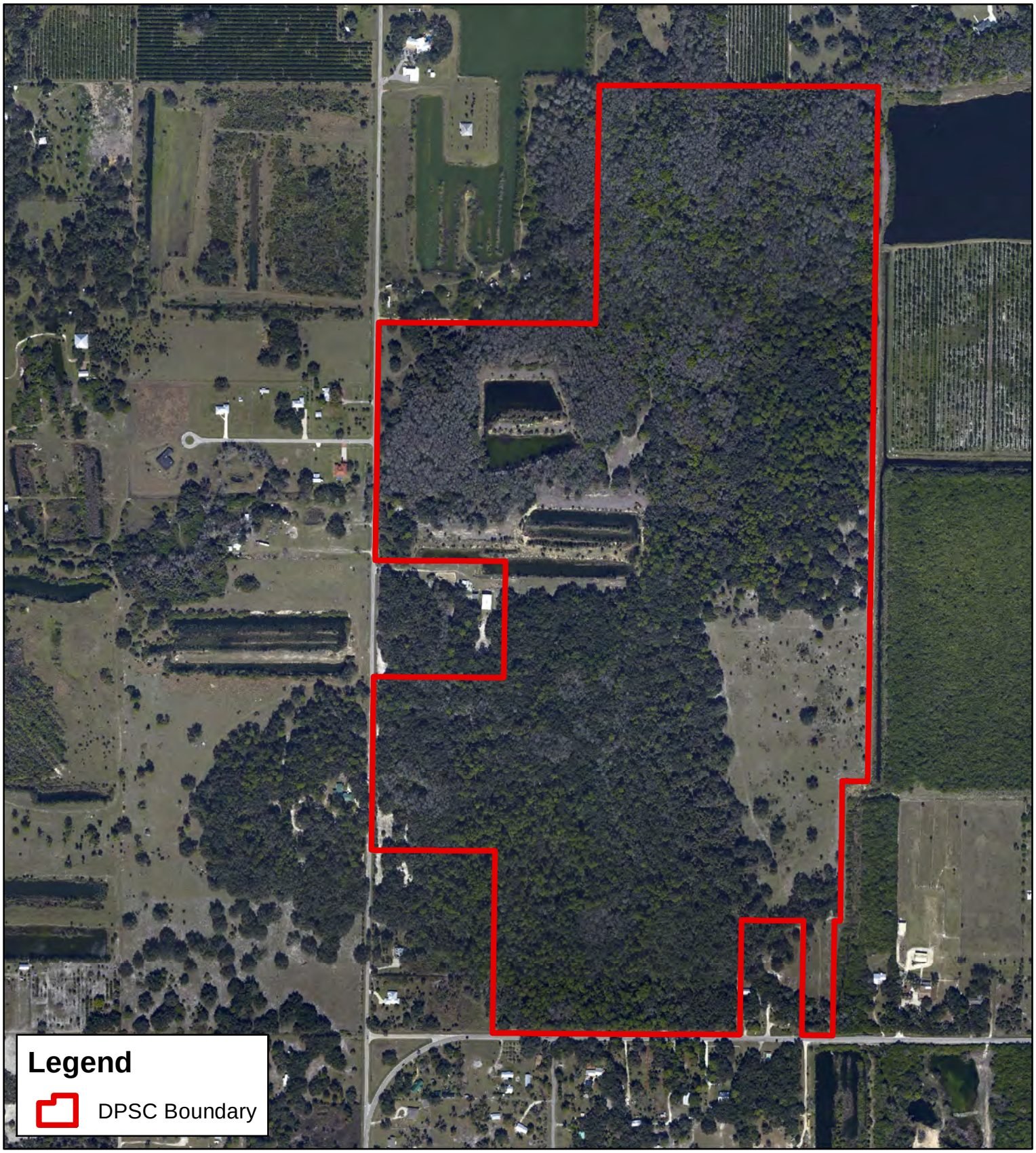
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 22: 2008 Aerial



Daniels Preserve at Spanish Creek

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Figure_22_2008
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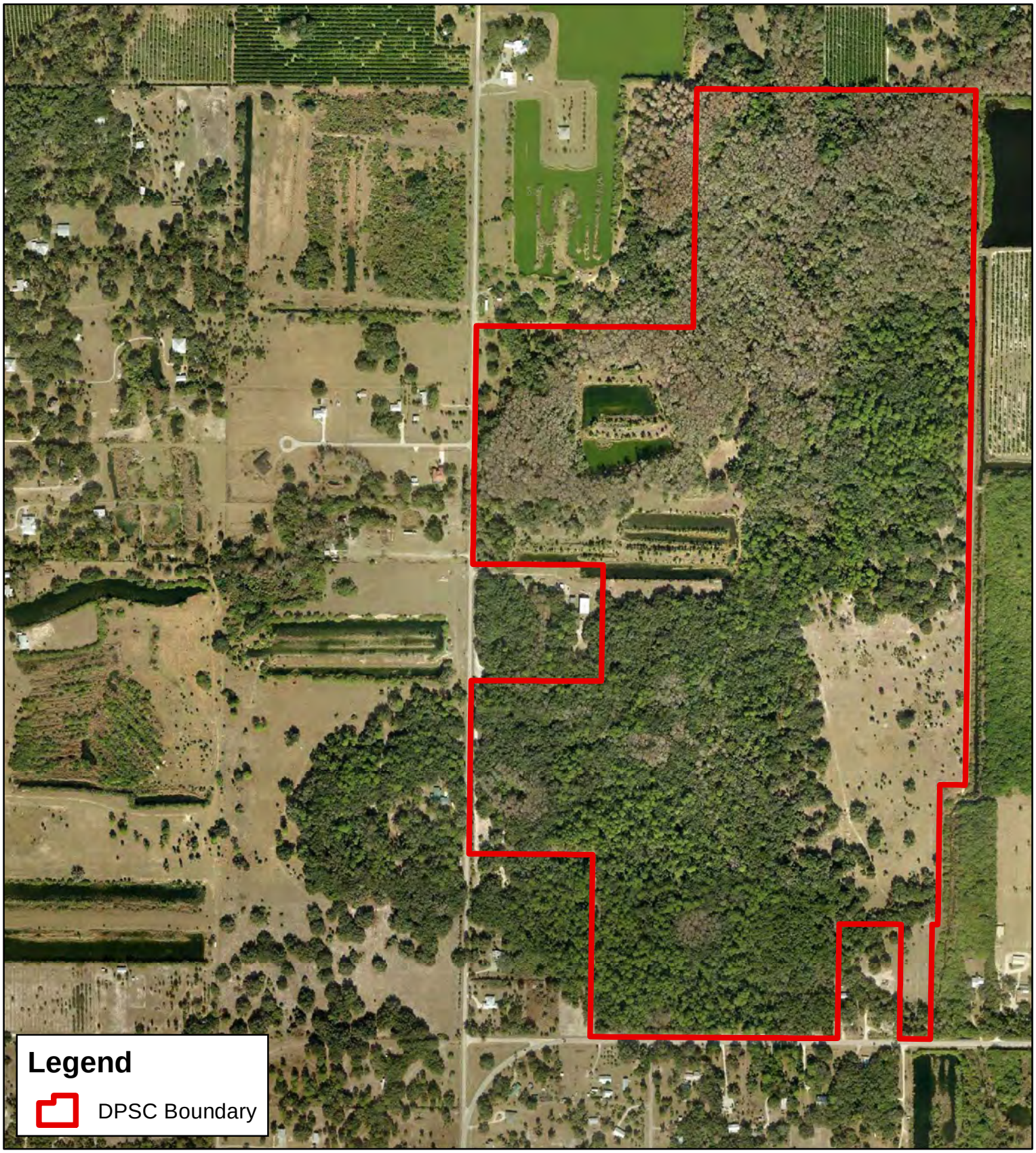
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 23: 2011 Aerial



Daniels Preserve at Spanish Creek

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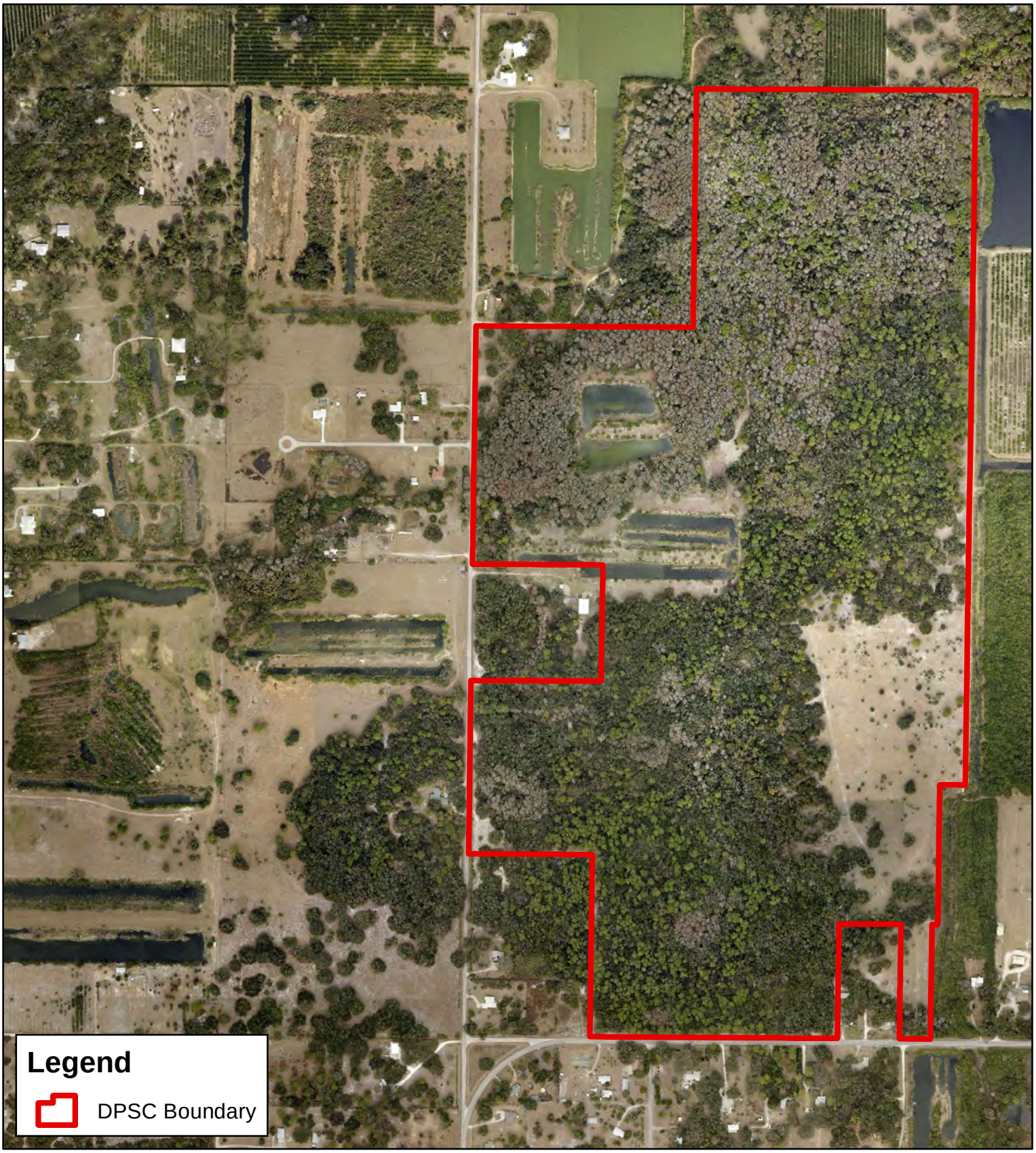
Figure_23_2011
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 24: 2012 Aerial



Daniels Preserve at Spanish Creek

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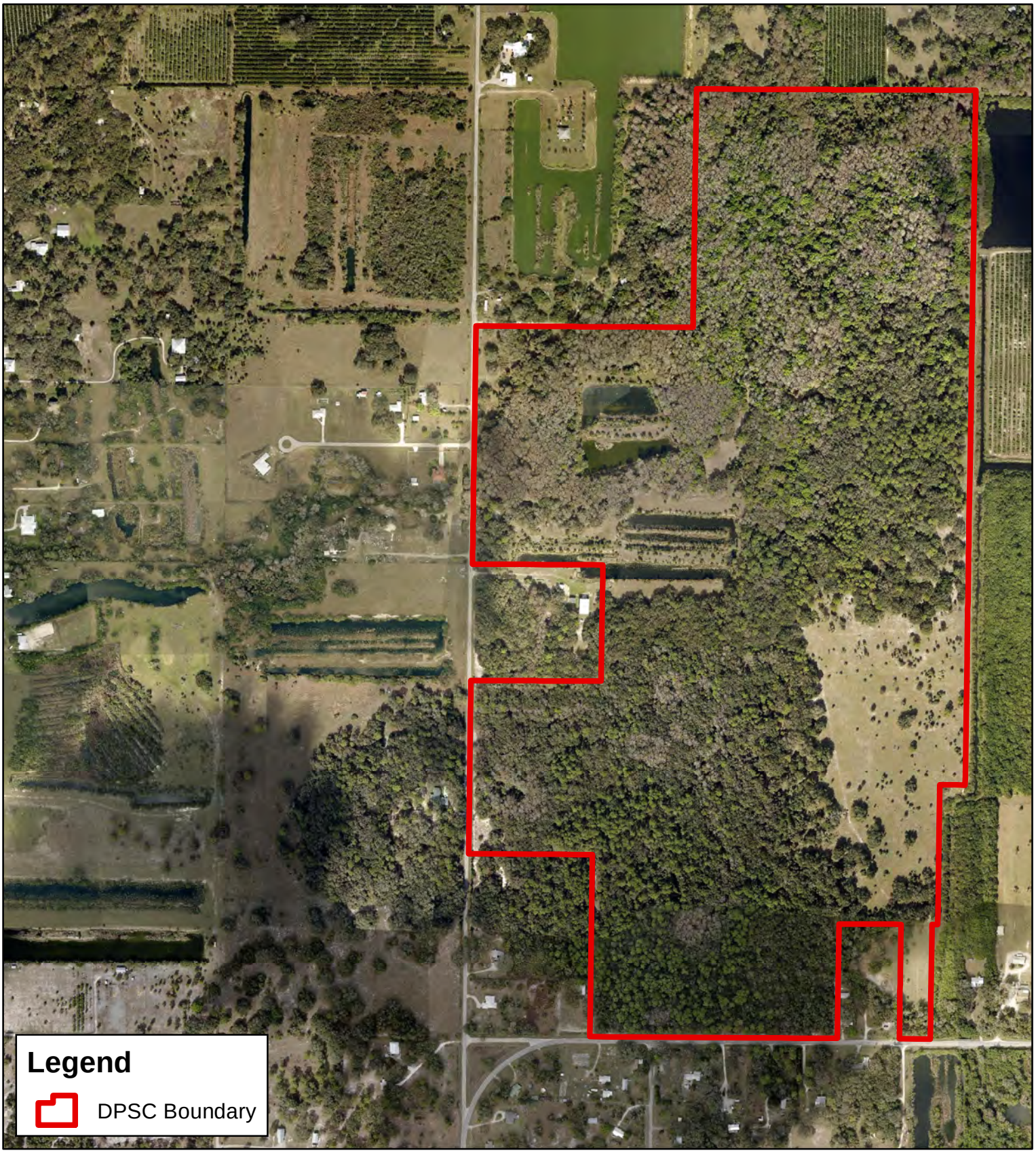
Figure_24_2012
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 25: 2013 Aerial



Daniels Preserve at Spanish Creek

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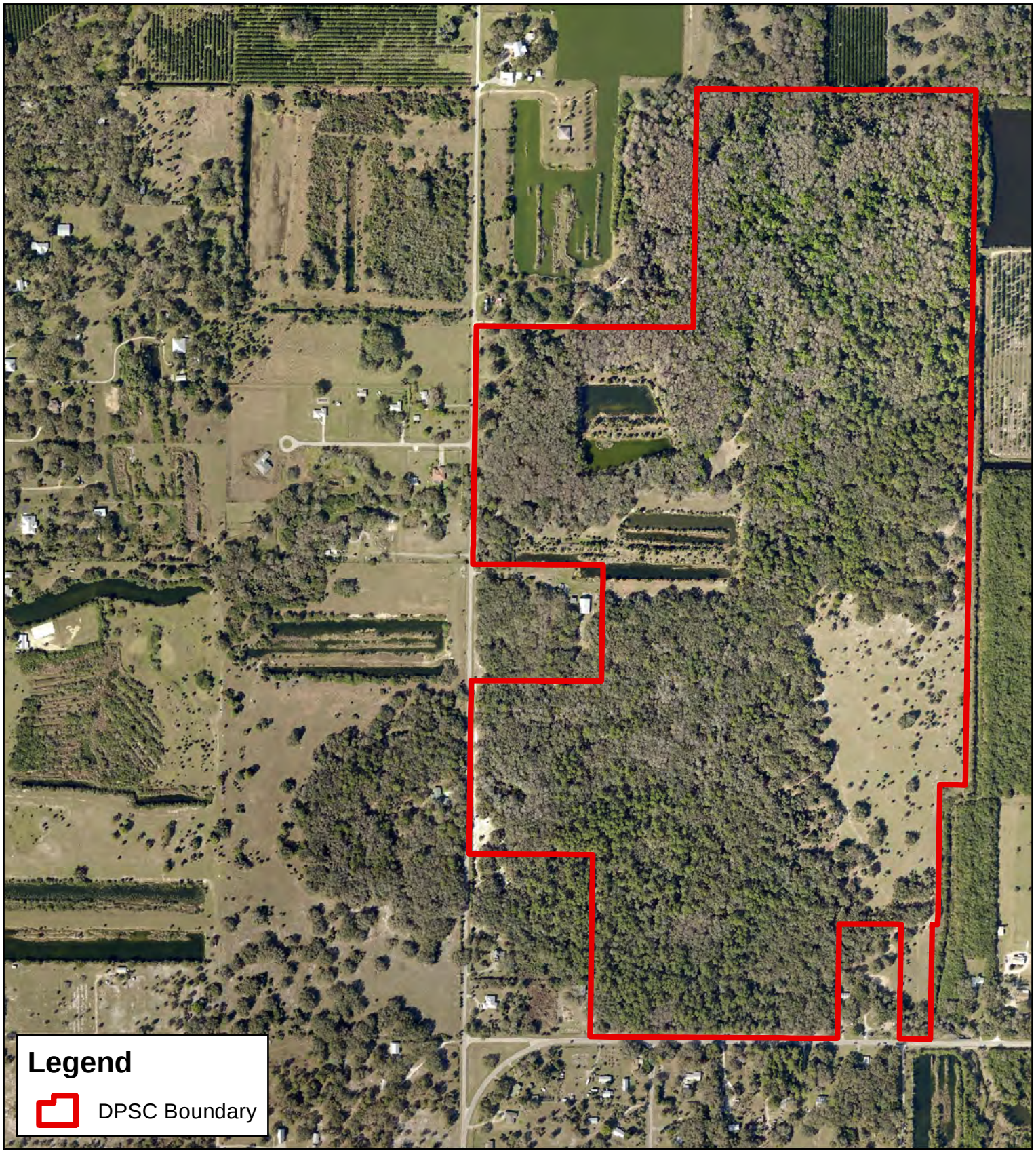
Figure_25_2013
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 26: 2014 Aerial



Daniels Preserve at Spanish Creek

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Figure_26_2014
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

iii. Public Interest

DPSC was purchased for its environmentally sensitive lands, potential to provide water quality enhancements, storage potential for floodwaters and flood protection in Alva.

Staff has installed a public access walk-through gate and a hiking trail at the main entrance along Persimmon Ridge Road. The Preserve receives moderate use as people visit the site for hiking, birding and fishing.

Information concerning this and all C20/20 preserves can be found on the website along with copies of their associated stewardship plans when available (www.conservation2020.org). Staff may mail newsletters to neighbors when activities are scheduled to take place that the Preserve.

V. FACTORS INFLUENCING MANAGEMENT

A. Natural Trends and Disturbances

Natural trends and disturbances influencing native communities and stewardship at DPSC include hurricanes, wildfire, occasional freezes and the cycling wet and dry seasons. Implementation of the Management Action Plan will take all of these factors and their influence on projects at the DPSC into consideration. For example, a tropical storm or hurricane could damage large amounts of vegetation. It may be necessary to remove or mulch downed vegetation following a hurricane if the debris increases the chance of negative impacts to wildlife habitat or public safety from a wildfire.

Wildfires caused by lightning strikes are a natural occurrence in Florida. The Florida Forest Service (FFS) – Caloosahatchee District has been provided a map of the Preserve showing the locations of gates, firebreaks, and management units. The FFS will utilize existing firebreaks to contain wildfires at DPSC whenever possible. No new firebreaks, such as plow lines, will be created unless there is potential for the wildfire to harm property outside the DPSC boundary.

Management (invasive exotic plant control, prescribed burning, etc.) of DPSC is influenced by seasonal hydroperiods. The use of heavy equipment will be limited to the dry season for the majority of the site.

B. Internal Influences

Several human influences have impacted DPSC. Many of these influences can be attributed to off-site road construction projects, various hydrological manipulation efforts, or cattle ranching operations. See Figure 27 for approximate location of some of these features.

Hydrological impacts include the channelization of Spanish Creek and excavation of several ditches, which drain water from the site. The remaining spoil piles from these efforts are staggered intermittently along the ditches (borrow areas) and creek.

Many invasive exotic plants disrupted the natural systems and impacted the native species on the Preserve. Brazilian pepper patches were adjacent to fences, roads, dredged ditches, and mined areas (borrow ponds) whereas caesarweed was and continues to be scattered throughout all plant communities, most likely spread by cattle and hogs. Initial exotic plant removal efforts and follow-up maintenance has greatly enhanced the natural plant communities and wildlife habitats. Scattered citrus trees have become established throughout many areas of the Preserve as a result of wildlife dispersing the seeds from the nearby citrus groves. Multiple invasive exotic treatments have been conducted on DPSC since acquisition and the coverage of invasive exotic plants is less than 10% of the site today.

One unique location of pine flatwoods has gigantic specimens of old growth slash pine trees that, due to the lack of fire, have become overgrown with hardwoods and a thick layer of duff (pine needles). Vegetation reduction measures will need to be implemented to reestablish a healthier pine flatwoods community, primarily focusing on removal of cabbage palms to decrease fuel loads to minimize the likelihood of a wildfire starting on the site.

Exotic animals can have a detrimental effect on native species. For example, feral hogs consume ground-nesting bird eggs and disturb soil and sensitive vegetation during rutting activities, which provide optimal substrate for invasive exotic plant growth. Exotic snails, fish, and amphibians can compete with native fauna for habitat and food. A range of removal methods will be considered for problematic invasive exotic animals found on the Preserve.

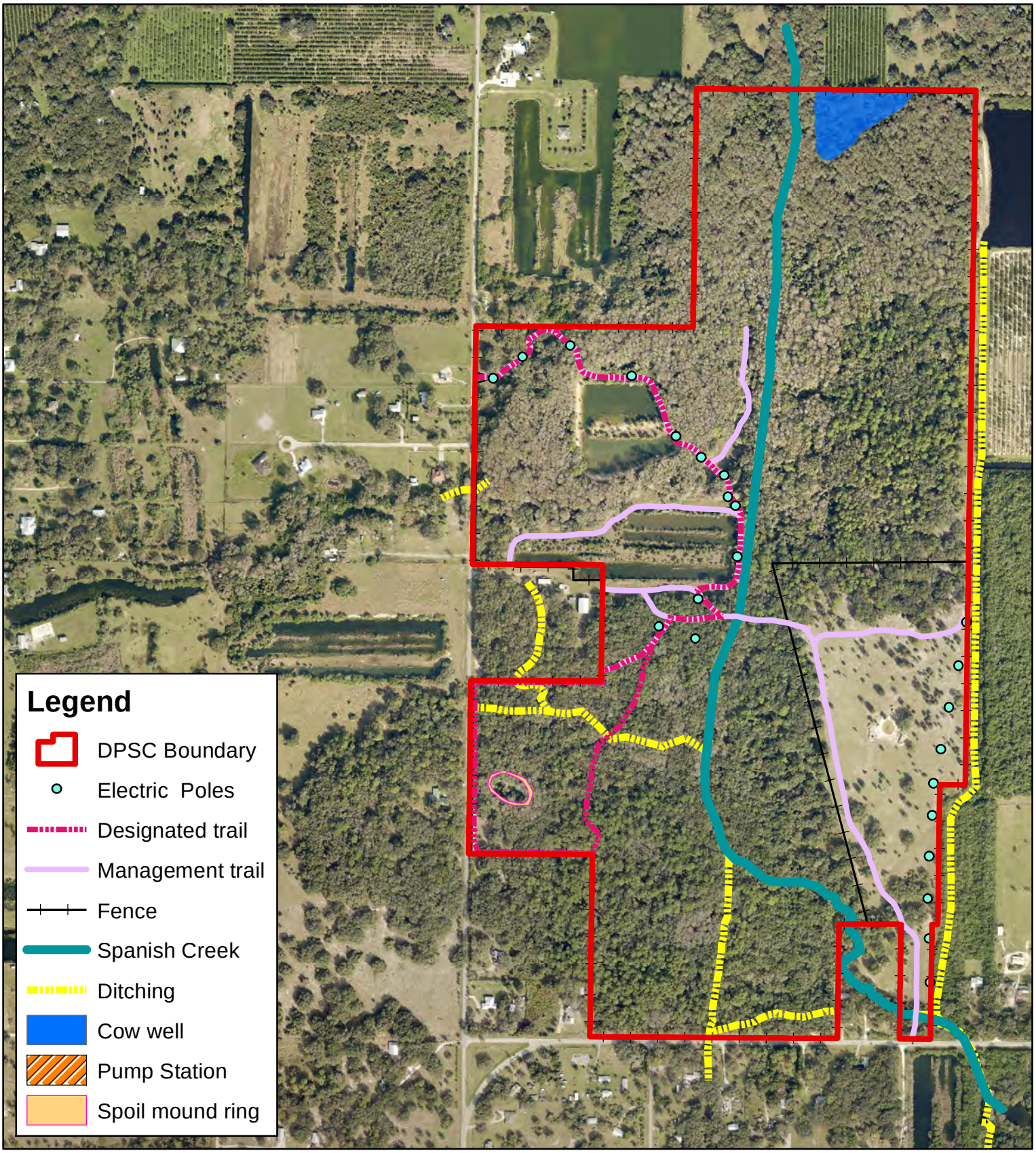
The Preserve's legal access point is located off North River Road. During the late 1980s, in connection with the installation of a canal project for the CLDD, a 50-ton capacity wooden bridge was installed over Spanish Creek to allow the property owner continued access. Staff worked with engineers to ensure the bridge was safe for vehicle use and an inspection schedule and weight restriction limit were established.

Several internal influences are directly related to cattle grazing operations. Windrows (filled with dirt and supporting mature vegetation) remain from when an area was cleared for grazing operations during the 1950's. The cow well that was dug at that

time was filled and a new cow well was dug in recent times. Cattle were once allowed to graze throughout DPSC, but interior fencing installed in 2015 limit the cattle to the pasture area in the southeast corner of the site. Once cattle operations end, all of the interior fencing and gate will be removed.

Lastly, a joint project with LCNRD resulted in addition of infrastructure related to hydrologic restoration work. A pump house with chain link fencing around it, a discharge structure and power poles and electrical line are located along the eastern edge of DPSC.

Figure 27: Internal Influences Map



Daniels Preserve at Spanish Creek

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Figure_27_Internal
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

C. External Influences

DPSC is located within the Alva Community, an area designated by the Lee County Board of County Commissioners as one of the 22 planning communities designed to capture the unique character of this area of the county. The Alva Community is predominantly designated as rural, open lands, or density reduction/ groundwater resource. Residents satisfy most of their commercial needs by traveling to more urbanized communities to the west and south. This community is expected to remain largely rural and agricultural through 2020 and "the Alva Community will also strive to protect its historic resources" (Lee County 2004).

Two local roads and utility power lines run along the west (Persimmon Ridge Road) and south (North River Road) boundaries of the Preserve. During the acquisition phase of DPSC, it was noted that there was a potential for North River Road to be expanded into a four-lane road in the future. According to Lee County Department of Transportation (LDOT) staff, there are no current major road improvement projects planned for this area through 2030. If development in the "four corners area" increases the timeframe may be moved up.

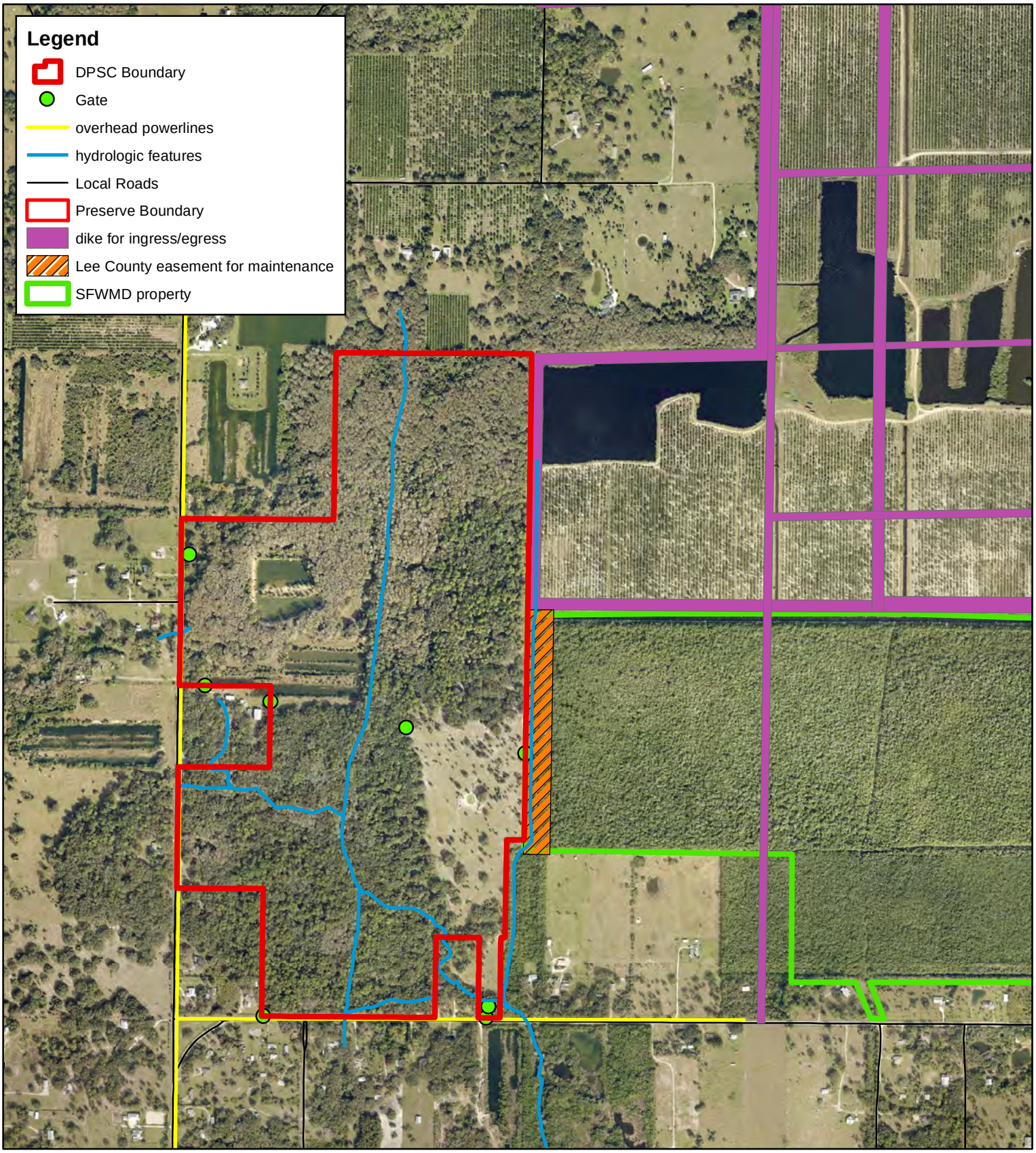
For North River Road, the MPO 2040 plan shows four bridge replacements and a shared use path in the ten year Financially Feasible Plan: Bicycle and Pedestrian Element. The bridge replacements are at Millers Gulley, Spanish Creek, Cypress Creek, and Fitchers Creek. All four bridge replacements are anticipated as a need approximately in the year 2030. Due to limited right-of-way on North River Road, it is possible that some accommodation of the bridge replacements or multipurpose/shared use path may be needed in the DPSC area; this work will be subject to further internal discussion and departmental coordination.

To the north and northeast, the expansive agricultural operations and local infrastructure affect the region's hydrologic features and introduces non-native plants (citrus). The most northern locations of the Preserve have the highest density of wild citrus growing in areas that are still regarded as wetlands. The year-round flow of Spanish Creek no longer occurs due to canal and borrow pond construction north and east of the Preserve. The most significant external influence is the CLDD canal that runs along the eastern boundary of the Preserve. The canal and associated berm (grassy road) prohibit the historic hydrological flow from reaching the Preserve. During field work for the writing of the initial management plan, staff noted an approximate 4-5 foot difference in elevation between the Preserve (in the northeast) and the grassy road, which acted as a dam.

The eastern edge of DPSC is bordered by 2 easements. One easement is for ingress/egress on the dike system associated with the grove operation. The second easement was granted to Lee County by SFWMD for maintenance/use of the canal as part of the LCNRD restoration project.

Single family residential homes are scattered along the boundary. Residential areas sometimes contribute to introduction of non-native vegetation from yard cuttings being dumped over fences or seed transport by animals or wind.

Figure 28: External Influences Map



Daniels Preserve at Spanish Creek

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Figure_28_External
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

D. Legal Obligations and Constraints

i. Permitting

Land stewardship activities at DPSC may involve obtaining permits from regulatory agencies. Hydrologic improvements will likely require obtaining permits from the Florida Department of Environmental Protection (FDEP), the U.S. Army Corps of Engineers (USACOE) and SFWMD. Hydrological and habitat restoration projects requiring heavy equipment or tree removal will require notification to the Lee County Department of Community Development (LCDCD). Burn authorization from FFS is required for all prescribed burns conducted on DPSC.

ii. Other Legal Constraints

There is an approximately 25 foot road right of way easement on the western boundary of the Preserve along Persimmon Ridge Road. The Preserve boundary goes almost to the edge of pavement and includes this right of way. The existing fence line falls in this right of way along with an overhead electric line. Figure 29 shows location of easements at DPSC.

In September 2005, a year long cattle lease was drafted and has been renewed every year (Appendix D). The original lease was for the entire Preserve until 2015, after the first phase of hydrological restoration on the northern borrow pit. The cattle lease has since been revised and restricted to the pasture in the southeast corner of the Preserve, which is approximately 35 acres. As a consideration of the License for Cattle Grazing, this lease may be terminated with a 30-day written notice to the Licensee. At this Preserve, the Licensee is the former landowner whom has been very respectful to prevent harmful environmental impacts by limiting the number of cattle, limiting the cattle herd duration onsite, and maintaining fence lines. Conservation Lands staff recommends that the lease continue on a yearly basis with the above 30-day consideration. All Lee County cattle leases expire each September to simplify coordination between the parties.

iii. Relationship to Other Plans

The Lee Plan, Lee County's comprehensive plan, is written to depict Lee County as it will appear in the year 2030. Several themes have been identified as having "great importance as Lee County approaches the planning horizon" (LCDCD 2011). These themes are:

- The growth patterns of the county will continue to be dictated by the Future Land Use map.
- The continued protection of the county's natural resource base.
- The diversification of the county's traditional economic base.

- The expansion of cultural, educational and recreational opportunities.

- A significant expansion in the county's physical and social infrastructure.

The entire Lee Plan is found on the Internet at: http://www.leegov.com/gov/dept/dcd/Planning/Documents/LeePlan/Leeplan.pdf. The sections of the Lee Plan which may pertain to Conservation 20/20 Preserves have been identified in the LSOM.

In September 2005, SFWMD issued a statement of work to develop the Four Corners Watershed Plan. This would evaluate the issues in the area that relate to water supply, flood protection, water quality and natural systems of the area. The Four Corners Watershed is the area east of SR 31, south of CR 74, north of the Caloosahatchee River and west of SR 29. This is the area in the northeast portion of Lee County where Lee, Charlotte, Glades and Hendry County meet. Spanish Creek and Daniels Preserve at Spanish Creek fall within this watershed. SFWMD staff recognizes that the water management problems they are dealing with today are due to the disruption of the historic flow ways. These disruptions can be minimized by restoring the historic surface flow patterns as much as possible (SFWMDc 2005). The objectives of this plan are to:

- Mitigate flooding issues in Cypress Creek.

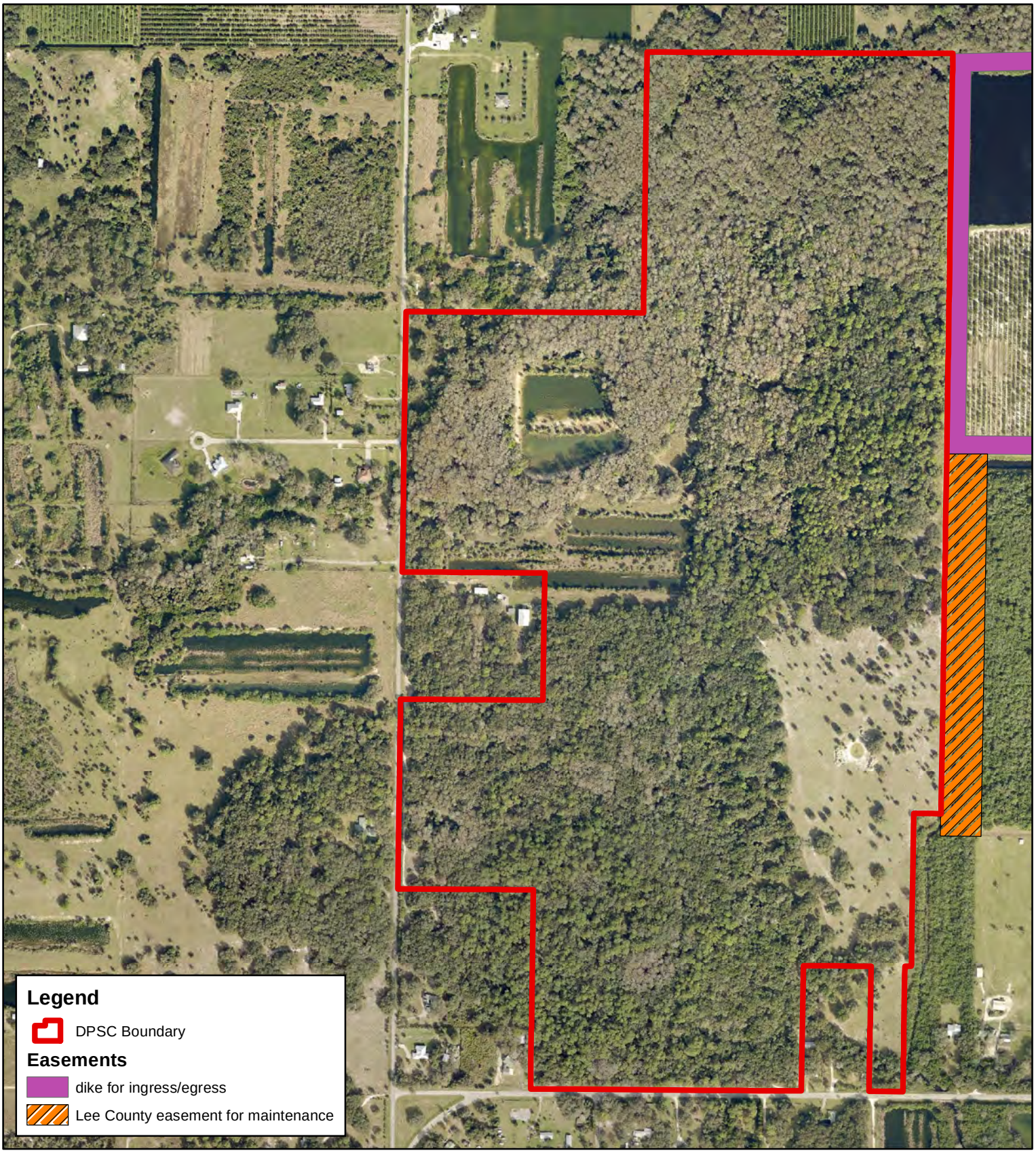
- Mitigate flooding issues in the area east of the county line ditch.

- Restore environmental flows in Spanish Creek.

- Maintain existing flows and water levels in the wetlands along Jacks Branch north of the project area.

LCNR has a budgeted Spanish Creek Restoration Capital Improvement Project (CIP) in the Lee County portions of the Four Corners area. These plans include rehydrating the area and diverting water from the north into Spanish Creek, including northeastern areas of Daniels Preserve at Spanish Creek. The plans also include possibly using two county owned parcels, 10 acres each, on the south side of North River Road to improve water quality to the Caloosahatchee River. Land Stewardship staff will work with LCNR staff to coordinate work in this area.

Figure 29: Easements Map



Daniels Preserve at Spanish Creek

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Figure_29_Easements
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This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

E. Management Constraints

The principle stewardship constraints for DPSC include limited funding, exotic plant control, the brief dry season and access to the Preserve. Although C20/20 has funding allocated each year by the Lee County Board of County Commissioners (BoCC), efforts to obtain additional funding through grants and/or monies budgeted for mitigation of public infrastructure projects will be pursued to supplement the operations budget to meet the restoration goals in a timely manner.

There may be funding assistance available from the LCNRD and the SFWMD to continue water flow restoration projects on the Preserve. Rehydrating the Preserve will be one step in the control of invasive exotic plants. The alterations of water flow and ownership rights of adjacent land owners for water use complicate the restoration process. Quality of water brought onto DPSC from adjacent lands could increase nutrient loads entering Spanish Creek and ultimately the Caloosahatchee River. These concerns will need to be addressed as part of any rehydration planning.

When restoration activities which could be dangerous to visitors are in progress, signs will be installed at designated entrance gates to warn the public that the area is temporarily closed. Restoration projects on the Preserve will be carefully planned so as to enhance natural communities and to work with the public amenities that have been created. Hydrologic projects that negatively affect the natural communities, listed species or public amenities including designated trails, will not be undertaken.

Prescribed fire will not be a management tool on this preserve. With this in mind staff will need to monitor density and height of palmetto in the pine areas and regularly thin cabbage palm stands.

F. Public Access and Resource-Based Recreation

Before acquisition by Lee County, there was minimal recreational activity at DPSC. The Preserve was utilized for cattle and agriculture and the associated fencing prevented the general public from entering.

The diverse communities and location of DPSC make it an outstanding opportunity for resource-based recreation. Hiking, fishing, bird watching, nature photography and nature study are some of the opportunities available at the Preserve.

The main parking entrance to DPSC has a trailhead area with a walk-through entrance and an informational kiosk on Persimmon Ridge Road. Two ponds in the northeast section of the preserve are available for fishing and approximately two miles of marked hiking trails exist. Additionally, the Preserves firebreaks are also available for hiking. Conservation Lands staff researched the possibility of allowing on-leash dog walking on the Preserve. There are several criteria which staff has determined would not make on-

leash dog walking compatible with the protection of the natural resources on DPSC. These include:

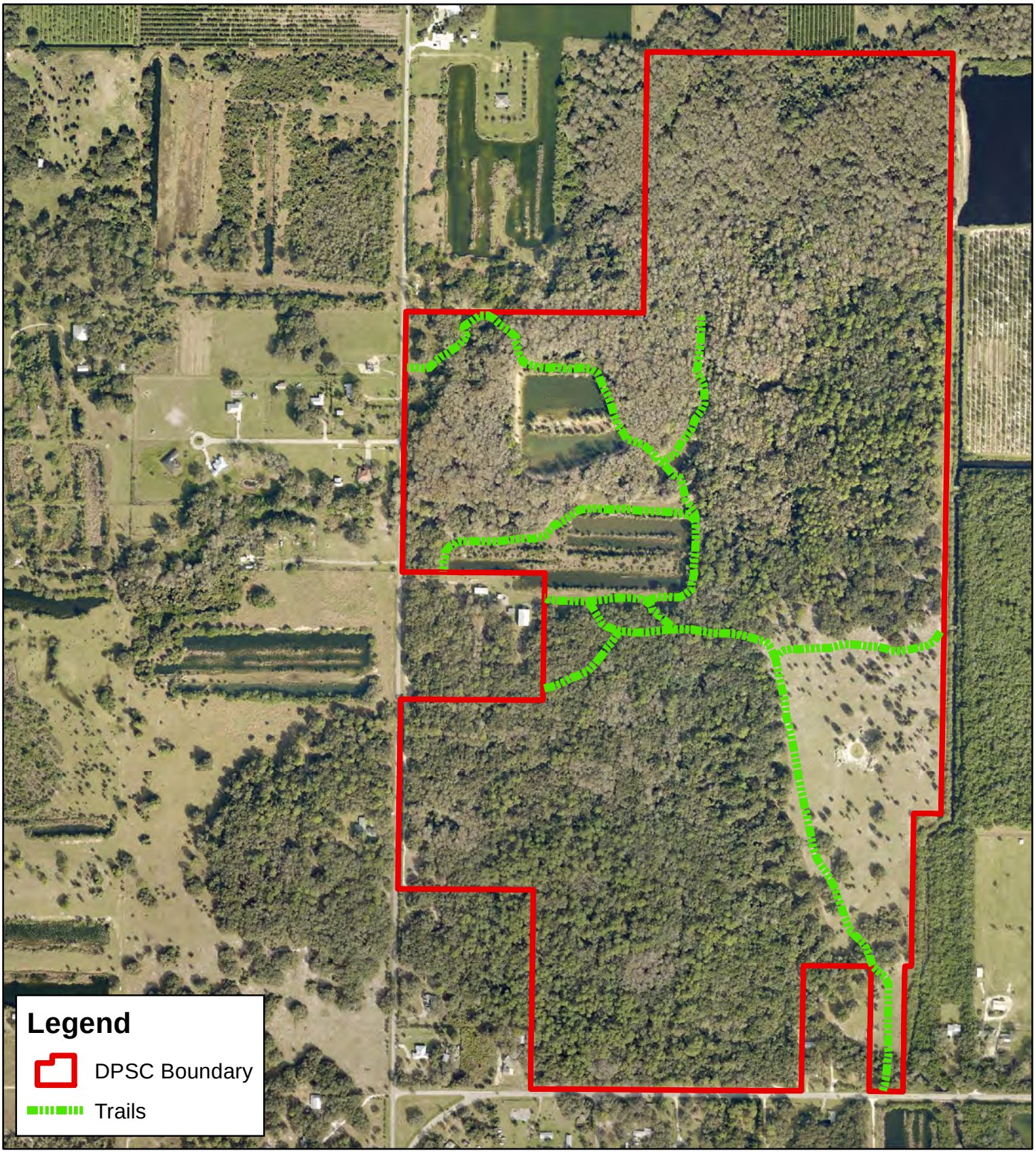
- ✓ Have a large population of waterbirds or shorebirds
- ✓ Have large herpetofauna populations
- ✓ Have active gopher tortoise colonies
- ✓ Consist mainly of wetlands
- ✓ Have minimal staff or no volunteer presence

Due to these factors leashed dog/pet walking will not be allowed at DPSC.

Periodically, small portions of the trail may have standing water throughout the wet season, but the trail may remain open for visitors to make the effort if they choose. The entire Preserve will be closed during hydrological restoration activities along the borrow pits due to the movement heavy equipment along the trails. A kiosk at the entrance to the Preserve will alert visitors of any current or upcoming trail closures.

Trail markers are constructed of metal posts with colored tape wrapped at the top. The metal markers are meant to survive a wildfire, are relatively easy to install, and stand out for easy following by trail users. Unfortunately trail markers often get vandalized, but staff tries to keep the designated trails properly marked; Figure 30 shows the current trail system.

Figure 30: Current Trail Map



Daniels Preserve at Spanish Creek

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Figure_30_Trails
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

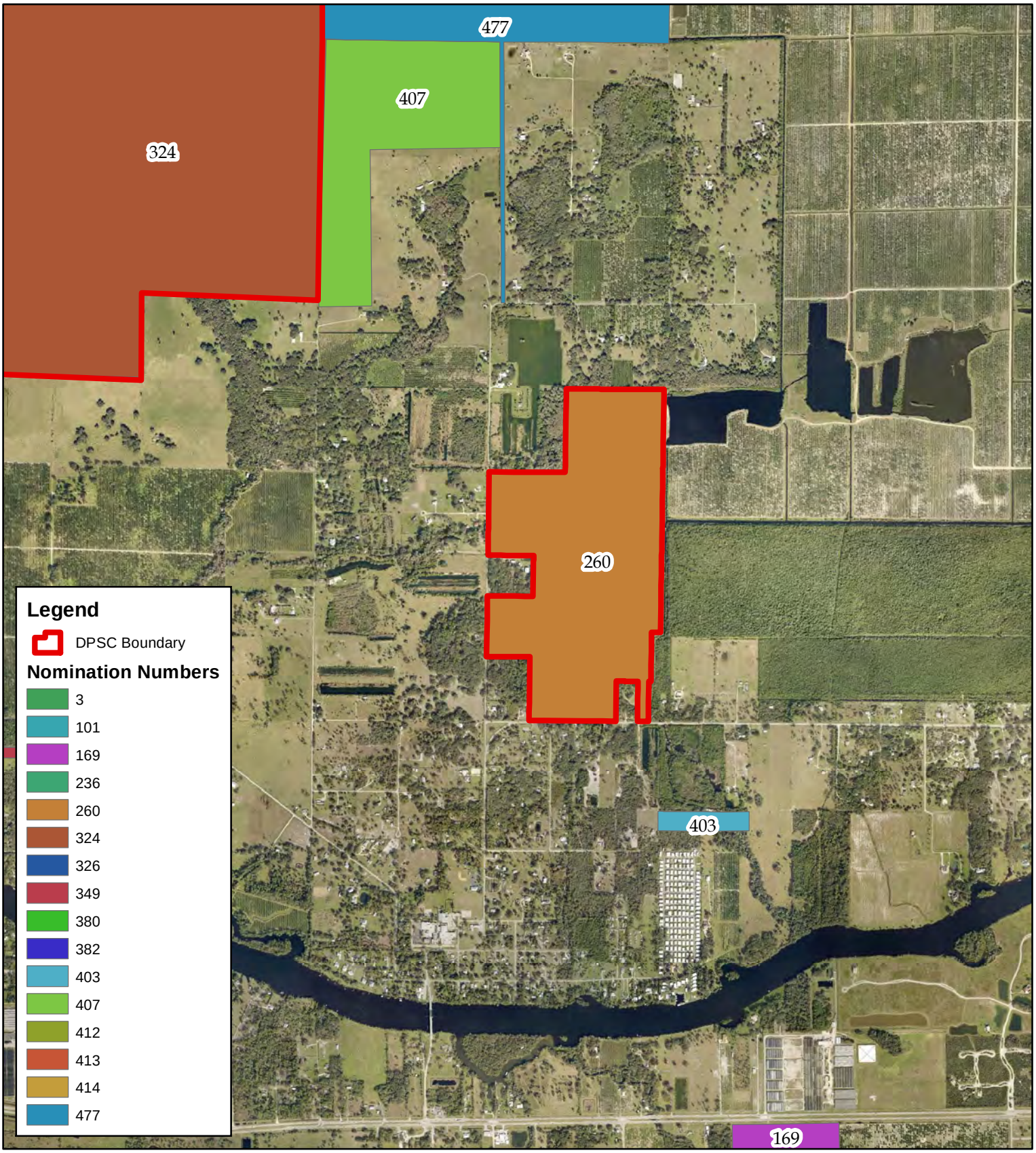
G. Acquisition

DPSC, nomination 260, was purchased through the C20/20 program in September 2005 for $3,891,040 (Figure 31). It was nominated to the program in January 2004 by Mrs. Ruby Daniels, the former landowner. The headwaters of Spanish Creek are in the northern portion of the Preserve and the site contains nearly 100 acres of relatively undisturbed mixed hardwood wetlands. The Preserve lies within the limits of LCNR and SFWMD's restoration project for the Four Corners area and also in the area for the regional study for the Comprehensive Everglades Restoration Plan. This property was an important addition to the program because it provides storage for floodwaters and helps improve water quality that flows into the Caloosahatchee River.

The STRAP number for this 243.19-acre parcel is 15-43-27-00-00004.0000 (Figure 32).The future land use for the Preserve are "Conservation Lands - Upland" and "Conservation Lands - Wetlands" (Figure 33). The Preserve is currently zoned "Environmentally Critical" and is surrounded by lands zoned "Agriculture" (Figure 34).

The Daniels family requested that the county reconsider the Preserve name and suggested Daniels Preserve at Spanish Creek. This name was provided to the CLASAC for consideration at their August 10, 2006 meeting. The CLASAC voted unanimously to rename the Preserve to honor the long-term Lee County residents who actively protected the wildlife and natural areas in Lee County. The idea for the Legacy program came largely because of this Preserve and the Daniels family.

Figure 31: Acquisitions and Nominations Map



Daniels Preserve at Spanish Creek

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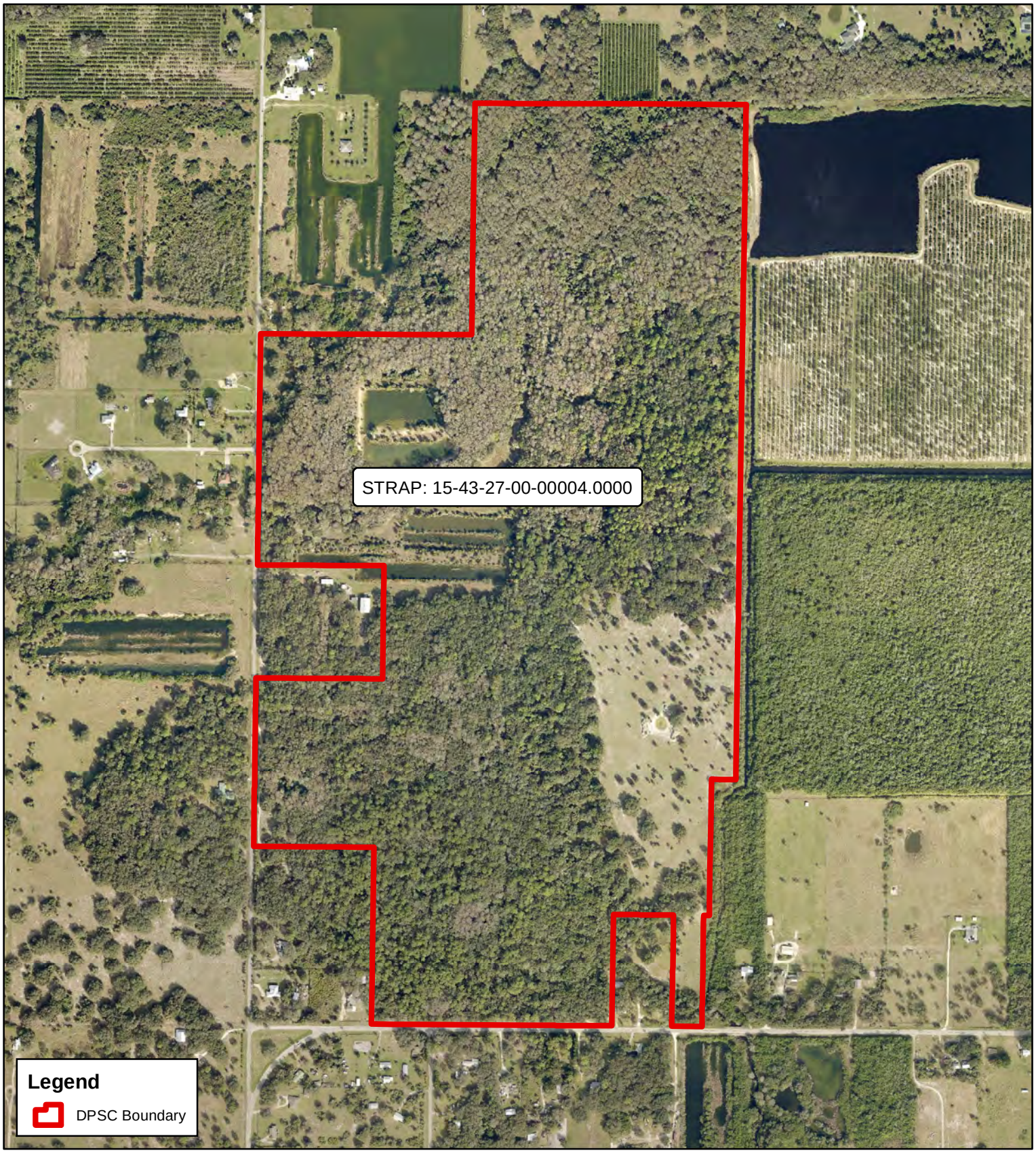
Figure_31_Aquisitions_Nominations
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 32: STRAP Map



Daniels Preserve at Spanish Creek

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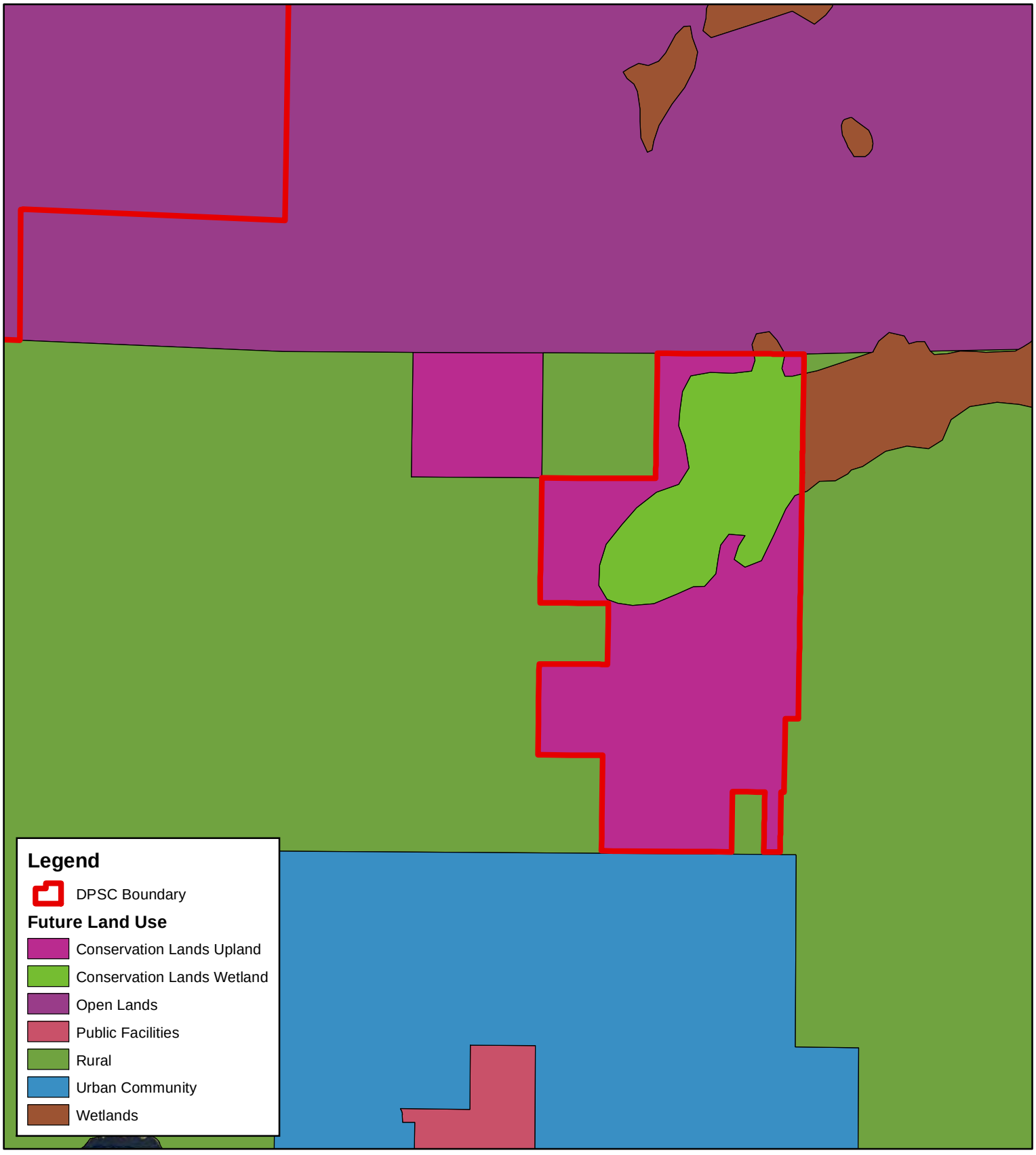
Figure_32_STRAP
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 33: Future Land Use Map



CONSERVATION 20/20
LEE COUNTY Parks & Recreation

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Daniels Preserve at Spanish Creek

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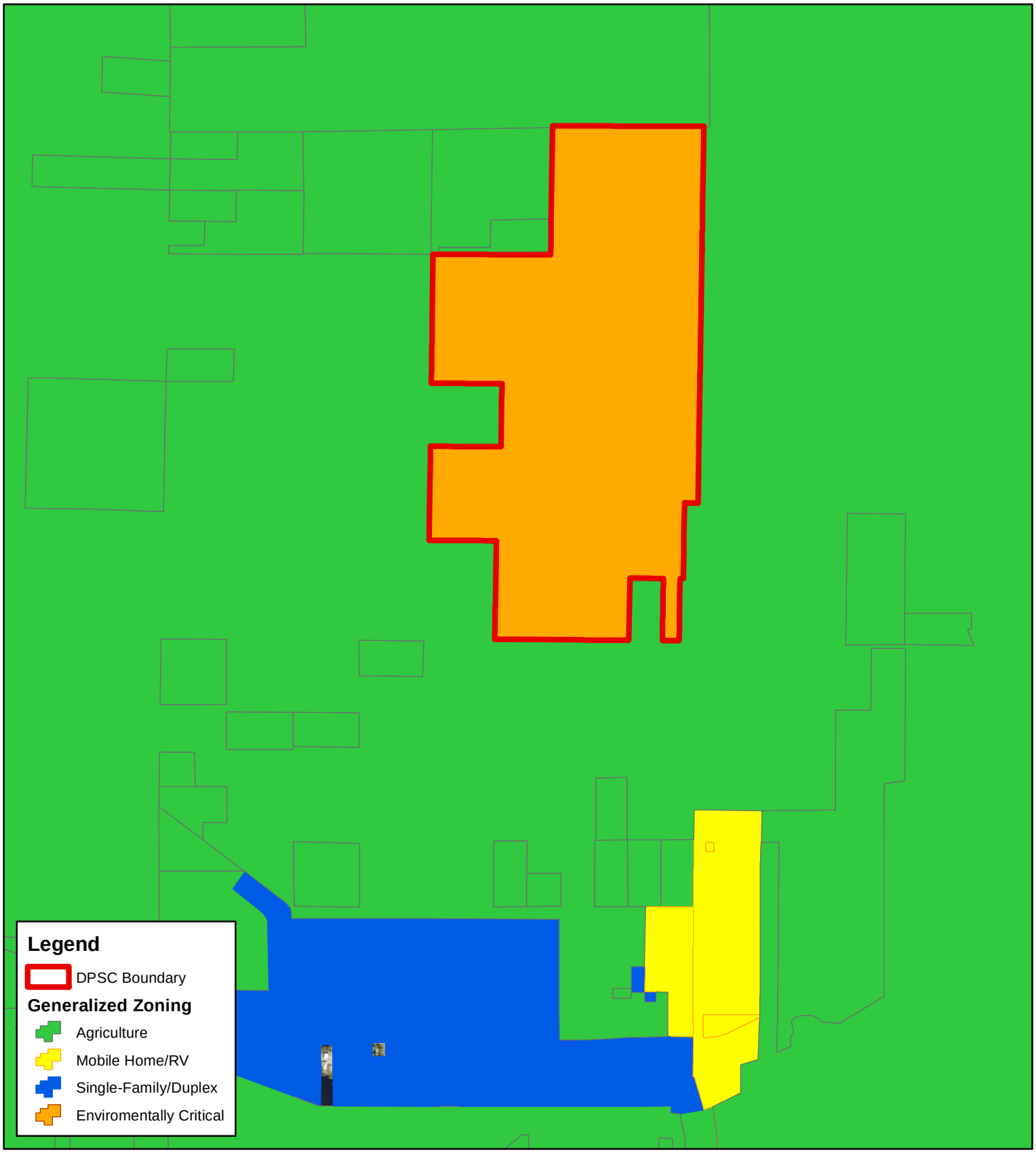
Figure_33_FLU
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

Figure 34: Zoning Map



Daniels Preserve at Spanish Creek

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Figure_34_Zoning
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

VI. MANAGEMENT ACTION PLAN

A. Management Unit Descriptions

DPSC has been divided into seven (7) management units (MU) to better organize and achieve management goals. Figure 27 delineates the MUs that were created based on existing trails, the creek and plant communities.

- Management Unit 1 – 52.1 acres
  Management Unit 1 is located in the northern section of the Preserve. It is bordered by the property boundary on the west, north, and east sides and south by MU 2 & 3. The majority of this unit is hydric hammock with Spanish Creek running through the center. The northwestern part of the unit contains some disturbed areas that were once used as a trail. This unit has the structure which is being used to rehydrate the wetland by pumping water from the canal.

  Management activities will focus on exotic plant control, brush reduction and rehydration efforts, and fence/fire break maintance.

- Management Unit 2 – 46.1 acres
  Management Unit 2 is located in the northwest corner. It is bordered to the north by the property boundary, the west by Persimmon Ridge Road, the south by a section of the outparcels northern property line and MU 4 and the east by a portion of Spanish Creek and cypress plant community. Nearly half of the unit is disturbed land that was once grazed and excavated for aggregates. Spoil soils, berms, piles, and borrow ponds affect the hydrological flow of the area. The other half consists mainly of cypress and upland scrub, pine and hardwoods.

  Exotic plant species present include caesarweed, tropical soda apple (*Solanum viarum*), and air potato (*Dioscorea bulbifera*). Management activities will focus on exotic plant control, brush reduction, hydrological restoration projects, public access, and fence/fire break maintance.

- Management Unit 3 – 34.1 acres
  Management Unit 3 is located in the eastern central part of the Preserve. This unit is bordered to the north by MU 1, to the east by the property boundary and drainage canal, to the south by MUs 5 and 6 and to the west by Spanish Creek and a portion of MU 1. This unit contains mesic hammock, successional hardwood forest, and small sections of the creek and pasture.

  The primary exotic plant species present include caesarweed (*Urena lobata*), and Guinea grass (*Panicum maximum*). Management activities will focus on exotic control, brush control, fence/fire break maintance, and enhancement of gopher tortoise habitat.

- Management Unit 4 – 23.4 acres
  Management Unit 4 is located in a western part of the Preserve. This unit is bordered to the north by MU 2, to the west by Persimmon Ridge Road, to the south by MU 7 and east by Spanish Creek. This unit primarily contains prairie mesic hammock, mesic hammock, and hydric hammock.

  The primary exotic plant species present include caesarweed and Guinea grass. A portion of the hiking trail system is in this unit. Management activities will focus on exotic control, brush reduction, hydrological restoration, and fence/fire break maintance.

- Management Unit 5 – 20.1 acres
  Management Unit 5 is located in the central part of the Preserve. This unit is bordered to the north by MU 3, to the east by MU 6, to the south by the property boundary, and to the west along a large section of Spanish Creek. This unit contains successional hardwood forest, pasture, mesic hammock, mesic flatwoods, and nearly ½ mile of the creek bed.

  Exotic plant species present include Guinea grass, caesarweed, and air potato. Management activities will focus on exotic plant control and brush reduction.

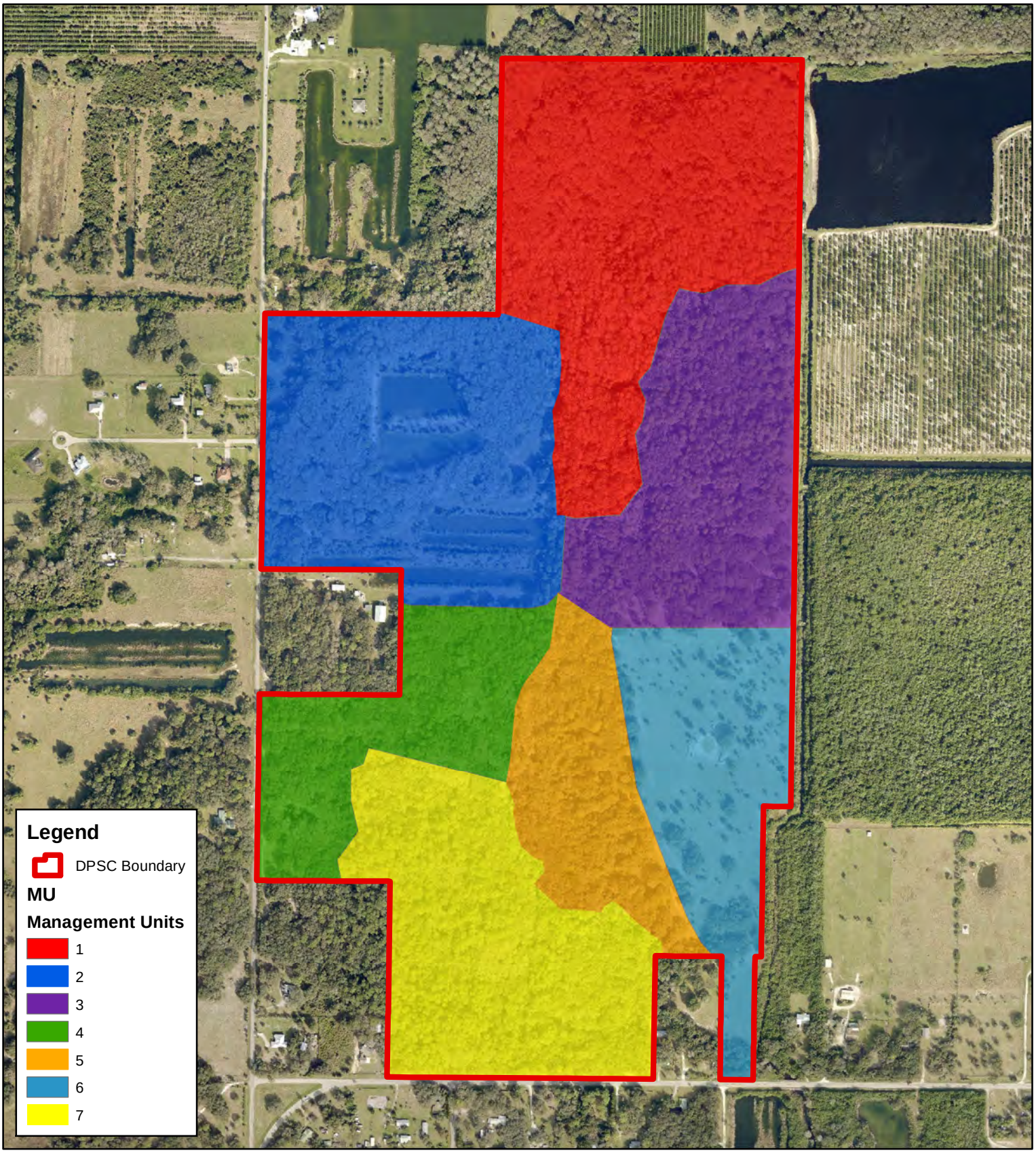
- Management Unit 6 – 27.4 acres
  Management Unit 6 is located in the southeastern area of the Preserve. This unit is bordered to the north by MU 3, to the east by the property boundary and a drainage canal, to the south by North River Road, and to the west by MU 5. This unit contains pasture, disturbed mesic hammock, and a small section of the creek that dissects this unit at the south end.

  The primary exotic plant species present include caesarweed, cogongrass (*Imperata cylindrical*), bahia (*Paspalum notatum var. saurae*), tropical soda apple, and Guinea grass. Management activities will focus on exotic control, habitat enhancement for gopher tortoises, and fence/fire break maintance.

- Management Unit 7 – 40.0 acres
  Management Unit 7 is located in the southwestern portion of the Preserve. This unit is bordered to the north by MUs 4 & 5 and a portion of the creek, to the east and west by the property boundary, and to the south by North River Road. This unit contains mesic flatwoods, and mesic hammock.

  The primary exotic plant species present is caesarweed. Management activities will focus on exotic control, brush control, and fence/fire break maintance.

Figure 34: Management Unit Map



CONSERVATION 20/20
LEE COUNTY Parks & Recreation

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Daniels Preserve at Spanish Creek

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Figure_35_MU
Created by bforehand@leegov.com
This is not a survey.
Land Stewardship staff has prepared this map for informational and planning purposes.

B. Goals and Strategies

The primary management objectives for DPSC are natural community improvements, continued treatment of invasive exotic plants and mechanical brush reduction. Work will be prioritized in order of importance and ease of accomplishment, and include the following tasks.

Natural Resource Management

- ✓ Exotic plant control/maintenance
- ✓ Mechanical brush reduction
- ✓ Monitor and protect listed species
- ✓ Exotic and feral animal removal

Overall Protection

- ✓ Install/maintain fire breaks
- ✓ Boundary fence maintenance
- ✓ Boundary sign maintenance
- ✓ Change zoning
- ✓ Prevent dumping

Volunteers

- ✓ Assist volunteer group(s)

The following is a description of how each of these goals will be carried out, the success criteria used to measure accomplishment of each goal and a projected timetable outlining which units each activity will take place in and when.

Natural Resource Management

Exotic plant control and maintenance

The most current Florida Exotic Pest Plant Council's List of Invasive Species will be consulted in determining the invasive exotic plants to be controlled in each management unit. The goal is to remove/control these exotic species, followed with treatments of resprouts and new seedlings as needed. This goal will bring the entire Preserve to a maintenance level, defined as less than 5% invasive exotic plant coverage. DPSC is currently at maintenance level for invasive exotic plant coverage. This site will require annual treatments to prevent establishment of exotics from adjacent seed sources and neighbor dumping of vegetation onto the Preserve.

Prior to each invasive exotic plant control project at DPSC performed by contractors, a Prescription Form (located in the LSOM) will be filled out by the contractor(s), then reviewed and approved by the C20/20 staff. Final project information will be entered into the GIS database as time allows.

Mechanical brush reduction

Hydrological alteration and lack of fire allows sabal palms (*Sabal palmetto*) and saw palmetto (*Serenoa repens*) to become thick and high. Mechanical work will reduce vegetation density and height which in turn will reduce fuel loads across the site and encourage plant diversity. Mechanical work may also be conducted to decrease grapevine (*Vitis rotundifolia*) coverage along the pasture edge. Grapevine can shade out groundcover plants and can be an impediment to gopher tortoise (*Gopherus polyphemus*) movement.

Monitor and protect listed species

There are several listed species that have been documented on the Preserve including gopher tortoise, wood stork, and giant airplant (*Tillandsia fasciculata*). These species will benefit from exotic plant control, hydrologic restoration and mechanical brush reduction activities. During stewardship activities, efforts will be made to minimize negative impacts to listed species.

DPSC is part of a countywide tri-annual site inspection program conducted for all C20/20 preserves. The site inspection spreadsheet is available on the LCPR's computer server ("S" drive). These inspections allow staff to monitor for impacts and/or changes to each preserve and includes lists of all animal sightings and plant species that are found. If during these inspections, staff finds FNAI listed species not previously documented, they will be reported using the appropriate forms.

Exotic and feral animal removal

C20/20 staff is primarily concerned with the feral hog (*Sus scrofa*). Multiple management statagies will be used to control the feral hog population including trapping and guided hunts.

This Preserve, like other C20/20 preserves, does not contain nor will it support feral cat colonies. FWC's Feral and Free Ranging Cats policy is *"To protect native wildlife from predation, disease, and other impacts presented by feral and free-ranging cats"* (FWC 2003). Any feral cats will be trapped and taken to Lee County Animal Services. C20/20 staff will continue to work with the Animal Services staff to prevent establishment of feral cat colonies adjacent to preserves.

Overall Protection

Install/maintain fire breaks

Perimeter fire breaks have been installed and are maintained annually by staff.

Boundary fence installation and interior fence removal

The perimeter of the Preserve is fenced to prevent activities such as dumping and the illegal use of motorized vehicles.

Boundary sign maintenance

Boundary signs have been installed every 500 feet along the entire perimeter boundary to further protect the Preserve. C20/20 rangers and staff will check for boundary signs during their patrols and replace missing ones as needed.

Change Zoning categories

Staff will coordinate with Lee County Community Development staff to change the zoning category for DPSC. The zoning designation will be changed to "Environmentally Critical" from "Agriculture".

Prevent dumping

During tri-annual site inspections, any smaller objects that are encountered will be removed. C20/20 rangers will also assist with removing small items when they are on patrol at the Preserve.

Volunteers

Assist volunteer group(s)

The LSOM identifies the Land Stewardship Volunteer Program's mission statement as:

> *To aid in the management and preservation of Lee County resource-based public parks and preserves and to provide volunteers with rewarding experiences in nature.*

The Lee County Bird Patrol volunteer group perform bird monitoring surveys at DPSC on a monthly basis.

If there is interest from the community to form a volunteer group, staff will work with them to assist with the many diverse stewardship activities that will be associated with this Preserve, such as wildlife monitoring and other land stewardship projects.

The following "Prioritized Projected Timetable for Implementation" is based on obtaining necessary funding for numerous land stewardship projects. Implementation of these goals may be delayed due to changes in staff, extreme weather conditions, or a change in priorities on properties managed by Lee County.

C. Management Work to Date

The primary focus of the projects that have been completed at DPSC is exotic plant control and hydrological restoration. When this site was purchased it had a considerable number of exotic plant species. After the initial treatments were completed regular maintenance treatments of all FLEPPC listed category I and II invasive exotic plants have been completed by both contractors and staff. In addition to exotic control, other projects implemented include trash collection, posting boundary signs, installing new fencing, installing fire breaks, installing designated hiking trails, and installing a visitor kiosk.

Two hydrological restoration projects occurred at DPSC. The first project completed in 2014, installed a pumping station to pump water from the canal along the eastern boundary of the Preserve to the wetland located in the northeastern corner of the Preserve. The water is pumped year round and discharged via a discharge structure. This project helps rehydrate the wetland which was impacted by the creation of canals to the north and east of the Preserve. The project will also help reduce nutrients flowing into the Caloosahatchee River by filtering the water through the natural wetland system.

In 2015, a hydrological restoration project was completed along the northern most borrow pit in the Preserve. The shoreline and littoral zone were graded to create a gentler slope which allowed for the creation of a more natural littoral zone instead of a very steep drop off. After grading, the littoral zone was planted with a variety of native emergent plant species which create habitat for wading birds, fish, reptiles and amphibians. Planning is currently underway with LCNRD to complete a similar hydrological restoration project on the second borrow pit.

VII. PROJECTED TIMETABLE FOR IMPLEMENTATION

Management Activity	Oct-16	Jan-17	April-17	July-17	Oct-17	Jan-18	April-18	July-18	Oct-18	Jan-19	April-19	July-19	Oct-19	Jan-20	April-20	July-20	Oct-20	Jan-21	April-21	July-21	2022 or later
Natural Resource Management																					
Mechanical tree and brush reduction																					
Mechanical brush reduction- cabbage palms	X																				
Mechanical brush reduction- palmetto		X																			
Exotic plant control/maintenance																					
Follow-up treatments			X								X								X		→
Habitat restoration																					
Hydrologic Restoration																					
Maintenance (On-going/Annual)																					
Exotic animal removal	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Perimeter fire break mow		X				X				X				X				X			X
Overall Protection																					
Trash removal	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Prevent dumping	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Boundary sign maintenance	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Change Zoning category								X													
Volunteers																					
Assist volunteer group	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→

VIII. FINANCIAL CONSIDERATIONS

The Conservation 20/20 Program is funded by the county's general fund in accordance with ordinance 13-09 (as amended). This annual allocation funds restoration, maintenance of the preserves and C20/20 staff costs. Funds not used in the annual allocation will roll over to the following year for maintenance and restoration.

Other possible funding for exotic plant treatment and restoration projects may be requested through grants from agencies such as SFWMD, FDEP, FWC, and USFWS or include additional mitigation opportunities. Projected costs and funding sources are listed in Appendix F.

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X. APPENDICES

Appendix A: Soils Chart

Appendix B: Plant Species List

Appendix C: Wildlife Species List

Appendix D: Annual Cattle Lease for 2014-2015

Appendix E: Legal Description

Appendix F: Expended and Projected Costs and Funding Sources

Appendix G: Bridge Inspection

Appendix A: DPSC Soils Chart

Appendix A: Soils Attributes

					Physical Attributes							*Biological Attributes*				
Soil Types	Map Symbol	Total Acres	% of Preserve	Habitats (Range Site)	Wetland Class (1)	Hydrologic Group (2)	Surface Permeability	Subsurface Permeability	Water Table within 10" of surface	Water Table below 10-40" of surface	% Organic Matter	Potential as habitat for wildlife in-- Openland	Woodland	Wetland	Rangeland	Limitations for Recreational Paths/Trails
Boca Fine Sand	13	56.8	23.42	south Florida flatwoods		B/D	rapid	rapid	2-4 months	6 months	1-3%	fair	poor	fair	good	Severe: wetness, too sandy
Copeland Sandy Loam, Depressional	45	80.7	33.28	fresh water marshes/ponds	P	D *	rapid		3-6 months (ponded)	3-6 months	2-6%	very poor	very poor	good	--	Severe: ponding
Malabar Fine Sand	34	1.7	0.70	sloughs	S	B/D	rapid	rapid	2-4 months	> 6 months	1-2%	poor	poor	fair	--	Severe: wetness, too sandy
Oldsmar Sand	33	24.3	10.02	south Florida flatwoods		B/D	rapid	rapid	1-3 months	> 6 months	1-2%	fair	fair	poor	--	Severe: wetness, too sandy
Oldsmar Fine Sand, limestone substratum	50	0.5	0.21	cabbage palm flatwoods		B/D	rapid	rapid	2-4 months	> 6 months	1-2%	fair	fair	poor	fair	Severe: wetness, too sandy
Pineda Fine Sand, limestone substratum	26	48.5	20.00	sloughs	S	B/D	rapid	rapid	2-4 months	> 6 months	.5-6%	fair	poor	fair	--	Severe: wetness, too sandy
St. Augustine Sand, organic substratum	25	1.1	0.45	**		B	rapid	rapid	--	2-4 months	1-3%	very poor	very poor	poor	--	Severe: too sandy
Wabasso Sand	35	7.1	2.93	south Florida flatwoods		B/D	rapid	rapid	2-4 months	> 6 months	1-4%	poor	fair	poor	--	Severe: wetness, too sandy
Wabasso Sand, limestone substrate	42	15	6.19	south Florida flatwoods		B/D	rapid	rapid	1-3 months	2-4 months	2-5%	poor	fair	poor	--	Severe: wetness, too sandy

Color Key:

Dry
Wet
Wetter
Wettest

** - Soils do not support rangeland vegetation suitable for grazing

(1) S - Slough (sheet flow): A broad nearly level, poorly defined drainage way that is subject to sheet-flow during the rainy season.
P - Ponding: Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

(2) * Water table is above the surface of soil
B - Soils having a moderate infiltration rate (low to moderate runoff potential) when thoroughly wet.
D - Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet.

Appendix B: Plant Species List

Appendix B: Plant Sightings at Daniels Preserve at Spanish Creek

Scientific and Common names from this list were obtained from Wunderlin 2003.

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI
Family: Blechnaceae (mid-sorus fern)						
Blechnum serrulatum	swamp fern	Native				
Family: Nephrolepidaceae (sword fern)						
Nephrolepis exaltata	wild Boston fern	Native				
Family: Osmundaceae (royal fern)						
Osmunda regalis var. *spectabilis*	royal fern	Native		CE	R	
Family: Polypodiaceae (polypody)						
Campyloneurum phyllitidis	long strap fern	Native			R	
Phlebodium aureum	golden polypody	Native				
Pleopeltis polypodioides	resurrection fern	Native				
Family: Psilotaceae (whisk-fern)						
Psilotum nudum	whisk-fern	Native				
Family: Pteridaceae (brake fern)						
Acrostichum danaeifolium	giant leather fern	Native				
Pteris vittata	Chinese ladder brake fern	Exotic	II			
Family: Selaginellaceae (curly-grass)						
Lygodium japonicum	Japanese climbing fern	Exotic	I			
Family: Thelypteridaceae (marsh						
Thelypteris dentata	downy maiden fern	Exotic				
Thelypteris kunthii	southern shield fern	Native				
Family: Vittariaceae (shoestring fern)						
Vittaria lineata	shoestring fern	Native				
Family: Cupressaceae (cedar)						
Juniperus virginiana	red cedar	Native				
Taxodium ascendens	pond cypress	Native				
Taxodium distichum	bald cypress	Native				
Family: Pinaceae (pine)						
Pinus elliottii var. *densa*	south Florida slash pine	Native				
Family: Amaryllidaceae (amaryllis)						
Crinum americanum	string-lily	Native				
Family: Arecaceae (palm)						
Sabal palmetto	cabbage palm	Native				
Serenoa repens	saw palmetto	Native				
Family: Bromeliaceae (pineapple)						
Tillandsia fasciculata var. *densispica*	cardinal airplant	Native		E		
Tillandsia recurvata	ball-moss	Native				
Tillandsia setacea	southern needleleaf	Native				
Tillandsia usneoides	Spanish-moss	Native				
Tillandsia utriculata	giant wild pine	Native		E		
Family: Commelinaceae (spiderwort)						
Commelina diffusa	common dayflower	Exotic				
Commelina erecta	whitemouth dayflower	Native				
Family: Cyperaceae (sedge)						
Eleocharis interstincta	knotted spikerush	Native				
Fimbristylis cymosa	hurricane grass	Native				
Rhynchospora colorata	starrush whitetop	Native				
Scirpus spp.	bulrush	Native				
Family: Hypoxidaceae (yellow stargrass)						
Hypoxis wrightii	bristleseed yellow stargrass	Native			I	
Family: Iridaceae (iris)						
Iris hexagona	prairie iris	Native			I	

Appendix B: Plant Sightings at Daniels Preserve at Spanish Creek

Scientific and Common names from this list were obtained from Wunderlin 2003.

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI
Family: Orchidaceae (orchid)						
Encyclia tampensis	Florida butterfly orchid	Native		CE		
Habenaria quinqueseta	longhorn false reinorchid	Native			R	
Harrisella porrecta	needleroot airplant orchid	Native		T	I	
Oeceoclades maculata	monk orchid	Exotic				
Sacoila lanceolata var. *lanceolata*	leafless beaked orchid	Native		T	I	
Family: Poaceae (grass)						
Andropogon glomeratus var. *pumilus*	common bushy bluestem	Native				
Aristida spp.	threeawn/wiregrass	Native				
Arundo donex	giant reed	Exotic				
Cenchrus spinifex	coastal sandbur	Native				
Dactyloctenium aegyptium	Durban crowfoot grass	Exotic				
Eustachys petraea	pinewoods fingergrass	Native				
Imperata cylindrica	cogon grass	Exotic	I			
Oplismenus hirtellus	woodsgrass	Native				
Panicum maximum	Guinea grass	Exotic	II			
Panicum repens	torpedo grass	Exotic	I			
Panicum rigidulum	redtop panicum	native				
Paspalum notatum var. *saurae*	bahia	Exotic				
Phragmites australis	common reed	Native			R	
Rhynchelytrum repens	rose natal grass	Exotic	I			
Setaria glauca	yellow foxtail	Native				
Sporobolus indicus	smutgrass	Exotic				
Family: Ruscaceae (butcher's broom)						
Sansevieria hyacinthoides	bowstring hemp	Exotic	II			
Family: Smilacaceae (smilax)						
Smilax auriculata	earleaf greenbriar	Native				
Smilax bona-nox	saw greenbrier	Native			R	
Smilax tamnoides	bristly greenbrier	Native			I	
Smilax laurifolia	bamboo vine	Native				
Family: Typhaceae (cattail)						
Typha latifolia	broadleaf cattail	Native			R	
Typha domingensis	southern cattail	Native				
Family: Acanthaceae (acanthus)						
Justicia brandegeana	shrimpplant	Exotic				
Family: Adoxaceae (moschatel)						
Viburnum obovatum	Walter's viburnum	Native			I	
Family: Amaranthaceae (amaranth)						
Iresine diffusa	Juba's bush	Native				
Family: Anacardiaceae (cashew)						
Rhus copallinum	winged sumac	Native				
Schinus terebinthifolius	Brazilian pepper	Exotic	I			
Toxicodendron radicans	poison ivy	Native				
Family: Annonaceae (custard-apple)						
Annona glarbra	pond apple	Native				
Asimina reticulata	netted pawpaw	Native				
Family: Apocynaceae (dogbane)						
Asclepias tuberosa	butterflyweed	Native			R	
Sarcostemma clausum	white twinevine	Native				
Family: Aquifoliaceae (holly)						
Ilex cassine	dahoon holly	Native				

Appendix B: Plant Sightings at Daniels Preserve at Spanish Creek

Scientific and Common names from this list were obtained from Wunderlin 2003.

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI
Ilex glabra	gallberry	Native				
Family: Araliaceae (ginseng)						
Centella asiatica	spadeleaf	Native				
Hydrocotyle spp.	marshpennywort	Native				
Family: Asteraceae (aster)						
Ageratina jucunda	hammock snakeroot	Native			I	
Ambrosia artemisiifolia	common ragweed	Native				
Baccharis halimifolia	saltbush, groundsel tree	Native				
Bidens alba	beggarticks	Native				
Carphephorus corymbosus	Florida paintbrush	Native			R	
Coreopsis floridana	Florida tickseed	Native			I	
Coreopsis leavenworthii	Leavenworth's tickseed	Native				
Elephantopus elatus	tall elephant's foot	Native			R	
Emilia sonchifolia	lilac tassleflower	Exotic				
Eupatorium capillifolium	dog fennel	Native				
Heterotheca subaxillaris	camphorweed	Native				
Mikania scandens	climbing hempvine	Native				
Packera glabella	butterweed	Native			R	
Pluchea rosea	rosy camphorweed	Native				
Pityopsis graminifolia	narrowleaf silkgrass	Native				
Tridax procumbens	coatbuttons	Exotic				
Family: Bignoniaceae (trumpet creeper)						
Campsis radicans	trumpet creeper	Native			CI	
Family: Cactaceae (cactus)						
Opuntia humifusa	prickly pear cactus	Native				
Family: Campanulaceae (bellflower)						
Lobelia homophylla	pineland lobelia	Native			CI	
Family: Caryophyllaceae (pink)						
Drymaria cordata	West Indian chickweed	Native				
Family: Celtidaceae (hackberry)						
Celtis laevigata	hackberry	Native				
Family: Clusiaceae (mangosteen)						
Hypericum hypericoides	St. Andrew's-cross	Native				
Family: Convolvulaceae (morning-glory)						
Merremia dissecta	noyau vine	Exotic				
Family: Cucurbitaceae (gourd)						
Momordica charantia	balsampear	Exotic	II			
Family: Droseraceae (sundew)						
Drosera spp.	sundew	Native				
Family: Ebonaceae (ebony)						
Diosporus virginiana	persimmon	Native			R	
Family: Ericaceae (heath)						
Lyonia fruticosa	coastalplain staggerbush	Native				
Vaccinium myrsinites	shiny blueberry	Native				
Family: Euphorbiaceae (spurge)						
Bischofia javanica	bishopwood	Exotic	I			
Phyllanthus urinaria	chamber bitter	Exotic				
Ricinus communis	castorbean	Exotic	II			
Family: Fabaceae (pea)						
Abrus precatorius	rosary pea	Exotic	I			
Centrosema virginianum	spurred butterfly pea	Native				

Appendix B: Plant Sightings at Daniels Preserve at Spanish Creek

Scientific and Common names from this list were obtained from Wunderlin 2003.

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI
Crotalaria spectabilis	showy rattlebox	Exotic				
Desmodium incanum	zarzabacoa comun, beggarweed	Exotic				
Erythrina herbacea	coral bean	Native				
Indigofera hirsuta	hairy indigo	Exotic				
Mimosa strigillosa	powderpuff	Native			I	
Senna ligustrina	privet wild sensitive plant	Native			R	
Family: Fagaceae (beech)						
Quercus laurifolia	laurel oak	Native				
Quercus virginiana	live oak	Native				
Family: Lamiaceae (mint)						
Callicarpa americana	American beautyberry	Native				
Family: Lauraceae (laurel)						
Cassytha filiformis	love vine	Native				
Persea palustris	swamp bay	Native				
Family: Loganaceae (logania)						
Mitreola petiolata	lax hornpod	Native				
Family: Magnoliaceae (magnolia)						
Magnolia grandiflora	southern magnolia	Native				
Family: Malvaceae (mallow)						
Melochia corchorifolia	chocolateweed	Exotic				
Sida acuta	common wireweed	Native				
Sida cordifolia	llima	Exotic				
Sida rhombifolia	Indian hemp	Native				
Urena lobata	caesarweed	Exotic	II			
Family: Moraceae (mulberry)						
Morus rubra	red mulberry	Native			R	
Ficus aurea	strangler fig	Native				
Family: Myricaceae (bayberry)						
Myrica cerifera	wax myrtle	Native				
Family: Myrsinaceae (myrsine)						
Rapanea punctata	myrsine	Native				
Family: Myrtaceae (myrtle)						
Eugenia uniflora	Surinam cherry	Exotic	I			
Syzygium cumini	Java plum	Exotic	I			
Psidium cattleianum	strawberry guava	Exotic	I			
Psidium guajava	guava	Exotic	I			
Family: Nymphaeaceae (waterlily)						
Nuphar advena	spatter dock	Native				
Family: Oleaceae (olive)						
Fraxinus caroliniana	pop ash	Native			R	
Family: Orobanchaceae (broomrape)						
Buchnera americana	American bluehearts	Native				
Family: Papaveraceae						
Argemone mexicana	Mexican pricklypoppy	Native				
Family: Passifloraceae						
Passiflora suberosa	corkystem passionflower	Native				
Family: Petiveriacea e (guinea hen weed)						
Rivina humilis	rouge plant	Native				
Family: Phytolaccaceae (pokeweed)						
Phytolacca americana	American pokeweed	Native				
Family: Proteaceae (protea)						

Appendix B: Plant Sightings at Daniels Preserve at Spanish Creek

Scientific and Common names from this list were obtained from Wunderlin 2003.

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI
Grevillea robusta	silkoak	Exotic				
Family: Rhamnaceae (buckthorn)						
Berchemia scandens	rattan vine	Native			I	
Family: Rosaceae (rose)						
Rubus argutus	sawtooth blackberry	Native				
Rubus trivialis	southern dewberry	Native			R	
Family: Rubiaceae (madder)						
Psychotria nervosa	wild coffee	Native				
Psychotria sulzneri	shortleaf wild coffee	Native				
Richardia scabra	rough Mexican clover	Exotic				
Spermacoce verticillata	shrubby false buttonweed	Exotic				
Family: Rutaceae (citrus)						
Citrus x. aurantium	grapefruit	Exotic				
Citrus x. limon	lemon	Exotic				
Citrus sinensis	orange	Exotic				
Citrus retriculata	tangarine	Exotic				
Family: Salicaceae (willow)						
Salix caroliniana	coastalplain willow	Native				
Family: Sapindaceae (soapberry)						
Acer rubrum	red maple	Native				
Cupaniopsis anacardioides	carrotwood	Exotic	I			
Saururus cernuus	lizard's tail	Native			R	
Family: Solanaceae (nightshade)						
Solanum capsicoides	soda apple, cockroachberry	Native			I	
Solanum viarum	tropical soda apple	Exotic	I			
Family: Urticaceae (nettle)						
Parietaria floridana	Florida pellitory	Native				
Family: Verbenaceae (vervain)						
Lantana camara	lantana	Exotic	I			
Family: Vitaceae (grape)						
Parthenocissus quinquefolia	Virginia creeper	Native				
Vitis aestivalis	summer grape	Native			I	
Vitis shuttleworthii	calloose grape	Native			R	
Vitis rotundifolia	muscadine (wild grape vine)	Native				

Periphyton

Key

Florida EPPC Status

I = species that are invading and disrupting native plant communities

II = species that have shown a potential to disrupt native plant communities

FDACS (Florida Department of Agriculture and Consumer Services)

E = Endangered

T = Threatened

CE = Commercially Exploited

IRC (Institute for Regional Conservation)

CI = Critically Imperiled

I = Imperiled

R = Rare

Appendix B: Plant Sightings at Daniels Preserve at Spanish Creek

Scientific and Common names from this list were obtained from Wunderlin 2003.

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI

FNAI (Florida Natural Areas Inventory)

G= Global Status
T= Threatened
CE= Commercially Exploited

1= Critically imperiled because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerbility to extinction due to some natural or man-made factor.
2= Imperiled because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerbility to extinction due to some natural or man-made factor.
3= Either very rare and local throughout its range (21-200 occurences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
4= Apparently secure
5= Demonstrably secure

Appendix C: Wildlife Species List

Appendix C: Wildlife Species List for Daniels Preserve at Spanish Creek

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
MAMMALS				
Family: Didelphidae (opossums)				
Didelphis virginiana	Virginia opossum			
Family: Dasypodidae (armadillos)				
Dasypus novemcinctus	nine-banded armadillo *			
Family: Sciuridae (squirrels and their allies)				
Sciurus carolinensis	eastern gray squirrel			
Sciurus niger shermani	Sherman's fox squirrel	SSC		G5T3/S2
Family: Muridae (mice and rats)				
Peromyscus gossypinus	cotton mouse			
Family: Felidae (cats)				
Lynx rufus	bobcat			
Family: Canidae (wolves and foxes)				
Canis latrans	coyote			
Urocyon cinereoargenteus	common gray fox			
Family: Ursidae (bears)				
Ursus americanus floridanus	Florida black bear	T		G5T2/S2
Family: Procyonidae (raccoons)				
Procyon lotor	raccoon			
Family: Suidae (old world swine)				
Sus scrofa	feral hog *			
BIRDS				
Family: Anatidae (swans, geese and ducks)				
Subfamily: Anatinae				
Aix sponsa	wood duck			
Family: Odontophoridae (new world quails)				
Colinus virginianus	northern bobwhite			
Family: Phasianidae (pheasant, grouse, turkeys and their allies)				
Subfamily: Meleagridinae (turkeys)				
Meleagris gallopavo	wild turkey			
Family: Ciconiidae (storks)				
Mycteria americana	wood stork	E	E	G4/S2
Family: Anhingidae (anhingas)				
Anhinga anhinga	anhinga			
Family: Ardeidae (herons, egrets, bitterns)				
Ardea herodius	great blue heron			
Ardea alba	great egret			G5/S4
Egretta caerulea	little blue heron	SSC		G5/S4
Bubulcus ibis	cattle egret			
Family: Threskiornithidae (ibises and spoonbills)				
Subfamily: Threshiornithinae				
Eudocimus albus	white ibis	SSC		G5/S4
Family: Cathartidae (new world vultures)				
Coragyps atratus	black vulture			
Cathartes aura	turkey vulture			
Family: Pandionidae (ospreys)				
Pandion haliaetus	osprey			G5/S3S4

Appendix C: Wildlife Species List for Daniels Preserve at Spanish Creek

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Family: Accipitridae (hawks, kites, accipiters, harriers, eagles)				
Elanoides forficatus	swallow-tailed kite			G5/S2
Rostrhamus sociabilis Plumbeus	Everglades snail kite	E	E	G4G5T3Q/S2
Hailaeetus leucocephalus	bald eagle	T		G5/S3
Accipiter cooperii	Cooper's hawk			G5/S3
Buteo lineatus	red-shouldered hawk			
Family: Rallidae (coots and gallinules)				
Gallinula chloropus	common moorhen			
Family: Aramidae (limpkins)				
Aramus guarauna	limpkin	SSC		G5/S3
Family: Charadriidae (plovers)				
Subfamily: Charadriinae				
Charadrius vociferus	killdeer			
Family: Scolopacidae (sandpipers and phalaropes)				
Subfamily: Scolopacinae				
Gallinago delicata	Wilson's snipe			
Family: Columbidae (pigeons and doves)				
Zenaida asiatica	white-winged dove			
Zenaida macroura	mourning dove			
Columbina passerina	common ground-dove			
Family: Strigidae (true owls)				
Otus asio	eastern screech owl			
Strix varia	barred owl			
Family: Alcedinidae (kingfishers)				
Ceryle alcyon	belted kingfisher			
Family: Picidae (woodpeckers)				
Subfamily: Picinae				
Melanerpes carolinus	red-bellied woodpecker			
Picoides pubescens	downy woodpecker			
Dryocopus pileatus	pileated woodpecker			
Family: Falconidae (falcons)				
Subfamily: Caracarinae (caracaras)				
Caracara cheriway	crested caracara	T	T	G5/S2
Family: Tyrannidae (tyrant flycatchers)				
Subfamily: Fluvicolinae				
Sayornis phoebe	eastern phoebe			
Myiarchus crinicensis	great-crested flycatcher			
Family: Laniidae (shrikes)				
Lanius ludovicianus	loggerhead shrike			
Family: Vireonidae (vireos)				
Vireo griseus	white-eyed vireo			
Vireo solitarius	blue-headed vireo			
Family: Corvidae (crows, jays, etc.)				
Cyanocitta cristata	blue jay			
Corvus brachyrhyncos	American crow			
Corvus ossifragus	fish crow			
Family: Hirundinidae (swallows)				
Subfamily: Hirundinidae				
Tachycineta bicolor	tree swallow			
Family: Paridae (chickadees and titmice)				
Baeolophus bicolor	tufted titmouse			
Family: Troglodytidae (wrens)				
Thryothorus ludovicianus	Carolina wren			

Appendix C: Wildlife Species List for Daniels Preserve at Spanish Creek

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Family: Polioptilidae				
Polioptila caerulea	blue-gray gnatcatcher			
Family: Turdidae (thrushes)				
Turdus migratorius	American robin			
Family: Mimidae (mockingbirds and thrashers)				
Dumetella carolinensis	gray catbird			
Toxostoma rufum	brown thrasher			
Mimus polyglottos	northern mockingbird			
Family: Parulidae (wood-warblers)				
Seiurus aurocapillus	ovenbird			
Helmitheros vermivora	worm-eating warbler			
Mniotilta varia	black-and-white warbler			
Protonotaria citrea	prothonotary warbler			
Geothlypis tristis	common yellowthroat			
Parula americana	northern parula			
Dendroica palmarum	palm warbler			
Dendroica pinus	pine warbler			
Dendroica coronata	yellow-rumped warbler			
Dendroica dominica	yellow-throated warbler			
Dendroica discolor	prairie warbler			
Family: Emberizine (sparrows and their allies)				
Pipilo erythrophthalmus	eastern towhee			
Family: Cardinalidae (cardinals, some grosbeaks, new world buntings, etc.)				
Cardinalis cardinalis	northern cardinal			
Family: Icteridae (blackbirds, orioles, etc.)				
Agelaius phoeniceus	red-winged blackbird			
Quiscalus quiscula	common grackle			
Quiscalus major	boat-tailed grackle			
REPTILES				
Family: Alligatoridae (alligator and caiman)				
Alligator mississippiensis	American alligator	SSC		G5/S4
Family: Emydidae (box and water turtles)				
Terrapene carolina bauri	Florida box turtle			
Pseudemys peninsularis	peninsula cooter			
Family: Testudinidae (gopher tortoises)				
Gopherus polyphemus	gopher tortoise	T		G3/S3
Family: Polychridae (anoles)				
Anolis carolinensis	green anole			
Anolis sagrei	brown anole *			
Family: Colubridae (harmless egg-laying snakes)				
Cemophora coccinea coccinea	Florida scarlet snake			
Coluber constrictor priapus	southern black racer			
Drymarchon couperi	eastern indigo snake	T	T	G3/S3
Pantherophis guttatus	eastern corn snake (gray phase)			
Scotophis alleghaniensis	eastern rat snake			
Family: Elaphidae (coral snakes)				
Micrurus fulvius vulvius	eastern coral snake			

Appendix C: Wildlife Species List for Daniels Preserve at Spanish Creek

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
AMPHIBIANS				
Family: Eleutherodactylidae (free-toed frogs)				
Eleutherodactylus planirostris	greenhouse frog *			
Family: Hylidae (treefrogs and their allies)				
Hyla femoralis	pine woods treefrog			
Osteopilus septentrionalis	Cuban treefrog *			
Family: Ranidae (true frogs)				
Lithobates sphenocephalus sphenocephalus	Florida leopard frog			
FISHES				
Cyprinidae (minnows)				
Notemigonus crysoleucas	golden shiner			
Family: Fundulidae (topminnows and killifishes)				
Fundulus seminolis	Seminole killifish			
Fundulus chrysotus	golden topminnow			
Lucania goodei	bluefin killifish			
Family: Poeciliidae (livebearers)				
Gambusia spp.	mosquitofish			
Poecilia latipinna	sailfin molly			
Family: Centrarchidae (sunfishes and basses)				
Enneacanthus gloriosus	bluespotted sunfish			
Micropterus salmoides	largemouth bass			
Lepomis galosus	warmouth			
Lepomis punctatus	spotted sunfish			
Lepomis macrochirus	bluegill			
Lepomis microlophus	redear sunfish			
Family: Cichlidae (cichlids)				
Hemichromis letourneauxi	African jewelfish, jewel cichlid *			
Cichlasoma urophthalmus	Mayan cichlid*			
INSECTS				
Family: Acrididae (grasshoppers)				
Romalea microptera	eastern lubber grasshopper			
Family: Cerambycidae (longhorned beetles)				
Elaphidionoides villosus	southeastern gray twig pruner			
Family: Scarabaeidae (scarab beetles)				
Subfamily: Scarabaeinae (dung beetles)				
Trichiotinus lunulatus	scarab			
unknown	dung beetle			
Family: Papilionidae (swallowtails)				
Papilio cresphontes	giant swallowtail			
Family: Nymphalidae (brushfoots)				
Subfamily: Heliconiinae (longwings)				
Agraulis vanillae	gulf fritillary			
Heliconius charitonius	zebra longwing			
Subfamily: Nymphalinae (brushfoots)				
Anartia jatrophae	white peacock			
Subfamily: Limenitidinae (admirals)				
Limenitis archippus	viceroy			
Family: Hesperiidae (skippers)				
Subfamily: Pyrginae (open-winged skippers)				
Prygus oileus	tropical checkered skipper			
Family: Psychidae (bagworm moths)				
Thyridopteryx ephemeraeformis	bagworm			

Appendix C: Wildlife Species List for Daniels Preserve at Spanish Creek

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Family: Apidae (carpenter, digger, bumble and honey bees)				
Bombus spp.	bumble bee			
Family: Mutillidae (velvet ants)				
Dasymutilla occidentalis	velvet ant			
ARACHNIDS				
Family: Araneidae (orb weavers)				
Gasteracantha elipsoides	crablike spiny orb weaver			
Nephila clavipes	golden-silk spider			
Family: Glycyphagidae (mites)				
Marsupialichus brasiliensis	opposum den mite			
Family: Myobiidae (mites)				
Archemyobia inexpectata	opossum fur mite			
Family: Laelapidae (mites)				
Pseudoparasitus stigmaticus	predator mite			
Family: Atopomelidae (fur mites)				
Didelphilicus serrifer	marsupial fur mite			
Family: Trichodectidae (lice)				
Neotrichodectes osborni	spotted skunk chewing lice			
Stachiella octomaculatus	raccoon chewing lice			
Family: Pulicida (fleas)				
Ctenocephalides felis	cat flea			
Family: Rhopalopsyllidae (marsupial and rodent fleas)				
Polygenis gwyni	cotton rat flea *			
Family: Macronyssidae (mites)				
Ornithonyssus wernecki	marsupial mite			
Family: Ixodidae (hard ticks)				
Amblyomma auricularium	armadillo tick			
Dermacentor variabilis	American dog tick			
Ixodes cookei	eastern small mammal tick			
Ixodes scapularis	black-legged tick			
GASTROPODS				
Family: Ampullariidae (apple snails)				
Marisa cornuarietis	giant ram's horn snail *			
Pomacea canaliculata	channeled apple snail *			
BIVALVES				
Family: Corbiculidae				
Corbicula fluminea	Asian clam			

KEY:

FWC = Florida Fish & Wildlife Conservation Commission
FWS = U.S. Fish & Wildlife Service
E - Endangered
T - Threatened
SSC - Species of Special Concern

FNAI = Florida Natural Areas Inventory
G - Global rarity of the species
S - State rarity of the species
T - Subspecies of special population
1 - Critically imperiled
2 - Imperiled
3 - Rare, restricted or otherwise vulnerable to extinction
4 - Apparently secure
5 - Demonstratebly secure

*** = Non-native**

Appendix D: Annual Cattle Lease for 2014-2015

LICENSE AGREEMENT FOR CATTLE GRAZING

This AGREEMENT made this 16th day of Sept., 2014, by and between LEE COUNTY, a political subdivision and charter county of the State of Florida, whose address is P.O. Box 398, Fort Myers, Florida 33902-0398, ("Licensor"); and Ruby Daniels, an individual, whose address is 18100 Persimmon Ridge Rd., Alva, FL 33920, ("Licensee").

WHEREAS, Licensor is the owner of property situated in Lee County and depicted and described in attached Exhibit A; and

WHEREAS, Licensor, in consideration of the fees paid and the covenants and agreements set forth herein to be kept and performed by the Licensee, does hereby grant to the Licensee a license solely for the grazing of cattle on Licensor's lands as depicted/described in attached Exhibit B ("Licensed Property").

NOW, THEREFORE, in consideration of the covenants and conditions set forth below, the parties agree as follows:

1. Recitals. The above recitals are true and correct and incorporated herein as though fully set forth below.

2. License. Licensor hereby grants to Licensee a revocable, non-exclusive License to graze cattle on the property described in attached Exhibit B.

3. License Fee. Licensee agrees to pay Lee County $143.00 per year. Payment for each year is due in advance on or before September 15th. Payment may be provided to the Conservation 20/20 Supervisor for appropriate processing.

4. Term. This License begins on the date it is fully executed and ends September 30. The term of this license may be extended for one additional year, ending September 30, provided Licensor agrees.

5. Revocation, Expiration, Termination or Cancellation. Licensor may revoke the License at any time with 30 days written notice to Licensee. Upon termination of the License, Licensee must remove all cattle and return the property to Licensor in as good or better condition that when it was first licensed.

The parties understand and agree that this License Agreement may be canceled upon 48 hours' written notice to the Licensee, if any of the Licensee's cattle are not kept within the confines of the Licensed Property as described on Exhibit B. Cattle may be transferred between adjacent or adjoining property, provided the properties are both the subject of a cattle license held by or involving Licensee, but the cattle must remain within the confines of the perimeter fencing.

6. Use of Licensed Property.

a. *Cattle grazing.* Licensee understands and agrees the licensed property may only be used for cattle grazing and no other purpose.

Use of this License is limited to grazing of cattle owned by Licensee only. If Licensee uses or allows use of the Licensed Property to graze cattle owned by others, the County may terminate or revoke this License Agreement in accordance with paragraph 5 above.

The Licensee agrees to graze cattle in the Licensed area for at least 6 months out of the year provided the Licensed area is not being over-grazed and there is a sufficient water supply.

b. *Maximum number of cattle.* Licensee may not exceed 2 horses (for cattle operation) and 150 head of Cattle on the licensed property at any time.

c. *Land management activity.* Licensee must obtain written approval from the Conservation 20/20 Land Stewardship Supervisor prior to performing any land clearing, controlled burns, fertilizing, exotic removal, chopping, chemical spraying, or other land management activities.

d. *Hog removal.* In order to preserve the licensed property and its use for cattle grazing, Licensee may trap and remove feral hogs, at Licensee's sole cost and expense, in a manner complying with state and local laws and regulations.

e. *Public Use.* Licensee has a non-exclusive right to use the Licensed Property. Licensee may not prevent the entry of members of the public on the Licensed Property for purposes of maintenance of the preserve areas/property and recreational enjoyment by hikers.

f. *Best Management Practices.* Licensee is responsible for implementing and using the most current Best Management Practices (BMP) provided by Florida Department of Agriculture and Consumer Services. Lee County Extension Services holds classes regarding BMPs, please contact them for scheduling. Licensee must submit proof of attendance to the County upon request. Failure of Licensee to use BMPs is grounds for termination or non-renewal of a Lee County cattle License.

7. Fencing.

a. During the term of this License, Licensee must maintain all perimeter and interior fencing necessary to keep livestock within the licensed area as follows:

1. Along all road frontage the fencing must be, at minimum, a 5 strand barbed wire fence.

2. Along non-road frontage license boundaries the fencing must be, at minimum, a 4 strand barbed wire fence.

3. The fencing must be maintained in good repair and must effectively prevent cattle from roaming beyond the boundaries of the Licensed Property at all times during the term of this license.

b. At the end of the license period stated in this Agreement, Licensee must turn over the Licensed Property with the fencing in good repair. In the event the fencing is not in good repair, Lee County may take one or more of the following actions: repair the fencing and send an invoice for the repair costs to Licensee; refuse to License County property to Licensee (including any entity involving the Licensee) in the future; or, take any other action the County deems appropriate. Any structures or interior fencing constructed by the Licensee for cattle operations will need to be removed by the Licensee upon termination of the lease.

8. Survey monuments. All section corners, quarter corners, and other survey monuments lying in the premises will be properly flagged by the Licensor. Licensee agrees to bear any survey costs for resetting these monuments in the event they are disturbed by the Licensee in any way.

9. Indemnification. Licensee hereby indemnifies and releases the Licensor from any and all claims for damages to both persons and property as the result of the cattle grazing; and, holds Licensor harmless from all damages during the term of this Agreement to include all reasonable fees, costs and expenses incurred for litigation in any forum resulting from damage claimed by third parties as a result of the Licensee's use of the property described in Exhibit "B".

10. Insurance. Licensee must maintain Premises Liability Insurance coverage through the license term and provide proof of insurance to Lee County Parks and Recreation for the duration of the license. The policy must provide minimum limits of $1,000,000 (combined Single Limit of Bodily Injury and Property Damage). Lee County must be named as a Certificate Holder and Additional Insured on the insurance policy. (A copy of the insurance certificate is attached as Exhibit C.) The Licensee must, upon expiration of their insurance policy, send a copy of the renewed Certificate of Insurance to Lee County Parks and Recreation Department.

11. Personal property taxes. Licensee covenants and agrees to file an annual personal property tax return with the County of Lee, State of Florida, as required by law.

12. Assignment. This License is not assignable or otherwise transferable to any other party.

13. Notices. The contact information for the parties is as follows:

Lee County, Licensor
Director of Parks and Recreation
3410 Palm Beach Boulevard
Fort Myers, FL 33916
239-533-7275

Ruby Daniels, Licensee
18100 Persimmon Ridge Rd.
Alva, FL 33920
(239) 728-3292

14. Amendment. This is the entire agreement between the parties and may only be amended in a writing executed with the same formality.

15. Governing law. This Agreement will be construed in accordance with the laws of the state of Florida. Venue for any court proceedings is in Lee County.

16. Severability. In the event any portion or provisions of this License Agreement is deemed invalid, the remaining provisions will not be affected and will remain in full force and effect.

[Balance of page intentionally left blank]

Witness: Lee Waller

Print Name: Lee Waller

Witness: [illegible]

Print Name: Cathy Olson

Ruby Daniels, Licensee

By: Ruby Daniels

Witness: Kristie Valone

Print Name: Kristie Valone

Witness: Cynthia C. Mitare

Print Name: Cynthia C. Mitare

Lee County Parks and Recreation

By: [signature]

David W. Harner, II, Director

Approved as to form for the reliance of Lee County only:

By: [signature]

Lee County Attorney's Office

[The Board of County Commissioners delegated authority to the Director of Parks and Recreation to enter short term leases/licenses for cattle grazing on Conservation 2020 lands and other lands managed by Lee County pursuant to Bluesheet #19990807 adopted on August 17, 1999.]

EXHIBIT A

Site # 260 Spanish Creek Pres.

THE ABOVE DESCRIBED PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

A parcel of land lying within the East one-half of Section 15, Township 43 South, Range 27 East, Lee County, Florida being more particularly described as follows: Commence at the Northeast corner of said Section 15 as the Point of Beginning and run S00°52'50"W a distance of 2563.88 feet to the Southeast corner of the Northeast one-quarter of said Section 15; Thence S00°53'02"W, along the East line of the Southeast one-quarter of said Section 15, a distance of 1171.82 feet to the Northeast corner of a certain parcel of land described in Official Records Book 2121, Page 2509, Public Records of Lee County, Florida; Thence along the boundary of said Official Records Book 2121, Page 2509, the following courses and distances, N88°54'47"W a distance of 135.00 feet and S00°53'00"W a distance of 752.65 feet to the Southwest corner thereof; Thence N89°35'47"W, along the North line of the Southeast one-quarter of the Southeast one-quarter of the Southeast one-quarter of said Section 15, a distance of 31.36 feet to the Northeast corner of the Southeast one-quarter of the Southeast one-quarter of the West one-half of the East one-half of the Southeast one-quarter of the Southeast one-quarter of said Section 15; Thence S00°52'43"W, along the East line of the West one-half of the East one-half of the Southeast one-quarter of the Southeast one-quarter of said Section 15, a distance of 515.83 feet to the occupied and maintained right-of-way line for County Road No. 78 (said point being 25.00 feet North of the South line of the Southeast one-quarter of said Section 15); Thence N89°34'40"W, along said occupied and maintained right-of-way line (said right-of-way line being parallel with the South line of the Southeast one-quarter of said Section 15), a distance of 1,66.31 feet to a point on the West line of the West one-half of the East one-half of the Southeast one-quarter of the Southeast one-quarter of said Section 15; Thence N00°52'25"E a distance of 815.78 feet to the Northeast corner of the West one-half of the Southeast one-quarter of the Southeast one-quarter of the Southeast one-quarter of said Section 15 (also being the Northeast corner of a certain parcel of land described in Official Records Book 2573, Page 2172, Public Records of Lee County, Florida); Thence N89°35'47"W a distance of 332.73 feet to the Northwest corner of said Official Records Book 2573, Page 2172; Thence S00°51'49"W, along the West line of said Official Records Book 2573, Page 2172 (also being the West line of the Southeast one-quarter of the Southeast one-quarter of said Section 15), a distance of 615.67 feet to the occupied and maintained right-of-way line for County Road No. 78; Thence N89°34'40"W, along said occupied and maintained right-of-way line (said line being 25.00 feet North of, and parallel with, the South line of the Southeast one-quarter of said Section 15), a distance of 1330.46 feet to a point on the East line of the Southwest one-quarter of the Southeast one-quarter of said Section 15; Thence N00°49'23"E, along the East line of the Southwest one-quarter of the Southeast one-quarter of the Southeast one-quarter of said Section 15 (and the Northerly extension thereof), a distance of 978.73 feet; Thence N89°35'47"W, parallel with the North line of the Southwest one-quarter of the Southeast one-quarter of the Southeast one-quarter of said Section 15, a distance of 665.58 feet to a point on the West line of the Southwest one-quarter of the Southeast one-quarter of said Section 15; Thence N00°48'10"E, along the West line of the Southwest one-quarter of said Section 15, a distance of 931.56 feet; Thence S89°39'06"E, parallel with the North line of the Southeast one-quarter of said Section 15, a distance of 700.02 feet; Thence N00°48'10"E, parallel with the West line of the Southeast one-quarter of said Section 15, a distance of 525.02 feet to a point on the North line of the Southeast one-quarter of said Section 15; Thence N89°39'06"W a distance of 700.02 feet to the Northwest corner of the Southeast one-quarter of said Section 15; Thence N00°47'58"E, along the West line of the Northeast one-quarter of said Section 15, a distance of 1279.86 feet to the Northwest corner of the Southwest one-quarter of the Northeast one-quarter of said Section 15; Thence S89°41'46"E a distance of 1166.54 feet to the Southwest corner of the East one-half of the Northwest one-quarter of the East one-half of the Northwest one-quarter of the Northeast one-quarter of said Section 15; Thence N00°50'06"E a distance of 1280.77 feet to the Northwest corner of the East one-half of the East one-half of the Northwest one-quarter of the Northeast one-quarter of said Section 15; Thence S89°44'25"E, along the North line of the Northeast one-quarter of said Section 15, a distance of 1500.87 feet to the Point of Beginning.

Containing 243.19 acres.

Subject to right-of-way for Persimmon Ridge Road.

Subject to easements, restrictions, reservations and rights-of-way of record.

Daniels Preserve at Spanish Creek
Cattle Lease Map 243 Acres
Exhibit B

Cattle Lease Map

0 380 760 1,520 2,280 Feet

M:\GISLAYERS\Projects\Parks_Rec\C2020\Other2020Maps\Cattle_Leases.mxd

Map Prepared On: 09/08/10 by sfurnari@leegov.com

This is not a survey. Land Stewardship Staff has prepared this map for informational and planning purposes.

CERTIFICATE OF INSURANCE

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER.
THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES LISTED BELOW.

FLORIDA FARM BUREAU INSURANCE COMPANIES
P.O. BOX 147030
GAINESVILLE, FLORIDA 32614-7030

COMPANIES AFFORDING COVERAGES:

Company Letter A: **Florida Farm Bureau General Ins. Co.**

Company Letter B: **Florida Farm Bureau Casualty Ins. Co.**

NAME AND ADDRESS OF INSURED:

RUBY DANIELS

18100 PERSIMMON RIDGE RD
ALVA, FL 33920-3333

The policies of insurance listed below have been issued to the insured named above and are in force at this time. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

CO. LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	ALL LIMITS IN THOUSANDS	
A	**GENERAL LIABILITY:** [X] COMMERCIAL GENERAL LIABILITY (OCCURRENCE FORM) [ ] OWNER'S & CONTRACTOR'S PROTECTIVE [ ] FARMER'S PERSONAL LIABILITY	SGL 9517888 12	08/15/2013	08/15/2014	GENERAL AGGREGATE	$ 2,000
					PRODUCTS-COMPLETED OPERATIONS AGGREGATE	$ 0
					PERSONAL & ADVERTISING INJURY	$ 1,000
					EACH OCCURRENCE	$ 1,000
					FIRE DAMAGE (Any one fire)	$ 50
					MEDICAL EXPENSE (Any one person)	$ 5
	AUTOMOBILE LIABILITY: [ ] ANY AUTO [ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS [ ] HIRED AUTOS [ ] NON-OWNED AUTOS				COMBINED SINGLE LIMIT	$
					BODILY INJURY (Per Person)	$
					BODILY INJURY (Per Accident)	$
					PROPERTY DAMAGE	$
	EXCESS LIABILITY: [ ] UMBRELLA FORM [ ] OTHER THAN UMBRELLA FORM				EACH OCCURRENCE $	AGGREGATE $
	EMPLOYERS LIABILITY: [ ] FARM EMPLOYER'S LIABILITY [ ] FARM EMPLOYEE'S MEDICAL					$ (Each Occurrence) / $ (Each Employee)
	OTHER:					$

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES:
SEE FORM CG 20 11 11 85
CATTLE OPERATION

CANCELLATION: Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail 10 days written notice to the below named certificate holder, but failure to mail such notice shall impose no obligation or liability of any kind upon the company.

NAME AND ADDRESS OF CERTIFICATE HOLDER:
LEE COUNTY PARKS AND RECREATIONS
3410 PALM BEACH BLVD
FORT MYERS FL 33916-3736

County Code 26-0 Date Issued 06/14/2013

Serviced by HENDRY County Farm Bureau

CHAD D MCWATERS, INC, CLU, CAS
AUTHORIZED REPRESENTATIVE

W17 93-7-692 (Rev. 5/93)

LICENSE AGREEMENT FOR CATTLE GRAZING

This AGREEMENT made this 30 day of Sept, 2015, by and between LEE COUNTY, a political subdivision and charter county of the State of Florida, whose address is P.O. Box 398, Fort Myers, Florida 33902-0398, (Licensor); and Ruby Daniels, an individual, whose address is 1800 Persimmon Ridge Road, Alva, FL 33920, (Licensee).

WHEREAS, Licensor is the owner of property situated in Lee County and depicted and described in attached Exhibit A; and

WHEREAS, Licensor, in consideration of the fees paid and the covenants and agreements set forth herein to be kept and performed by the Licensee, does hereby grant to the Licensee a license solely for the grazing of cattle on Licensors lands as depicted/described in attached Exhibit B (Licensed Property).

NOW, THEREFORE, in consideration of the covenants and conditions set forth below, the parties agree as follows:

1. Recitals. The above recitals are true and correct and incorporated herein as though fully set forth below.

2. License. Licensor hereby grants to Licensee a revocable, non-exclusive License to graze cattle on the property described in attached Exhibit B.

3. License Fee. Licensee agrees to pay Lee County $0 per year for each license term or portion thereof is due in advance or before September 15, 2015. Payment may be provided to the Conservation 20/20 Supervisor for appropriate processing.

4. Term. This License begins on the date it is fully executed and ends September 30, 2016. The term of this license may be extended for one additional year, beginning October 1, 2016 and ending September 30, 2017 upon mutual agreement of the parties. Licensee must request the extension by August 31, 2016.

5. Revocation, Expiration, Termination or Cancellation. Licensor may revoke the License at any time with 30 days written notice to Licensee. Upon termination of the License, Licensee must remove all cattle and return the property to Licensor in as good or better condition that when it was first licensed.

The parties understand and agree that this License Agreement may be canceled upon 48 hours written notice to the Licensee, if any of the Licensees cattle are not kept within the confines of the Licensed Property as described on Exhibit B. Cattle may be transferred between adjacent or adjoining property, provided the properties are both the

subject of a cattle license held by or involving Licensee, but the cattle must remain within the confines of the perimeter fencing.

6. Use of Licensed Property.

a. *Cattle grazing.* Licensee understands and agrees the licensed property may only be used for cattle grazing and no other purpose.

Use of this License is limited to grazing of cattle owned by Licensee only. If Licensee uses or allows use of the Licensed Property to graze cattle owned by others, the County may terminate or revoke this License Agreement in accordance with paragraph 5 above.

Licensee agrees to graze cattle in the licensed area provided the Licensed area is not being over-grazed and there is a sufficient water supply.

b. *Maximum number of cattle.* Licensee may not exceed 35 head of Cattle on the Licensed Property at any time.

c. *Land management activity.* Licensee must obtain written approval from the Conservation 20/20 Land Stewardship Supervisor prior to performing any land clearing, controlled burns, fertilizing, exotic removal, chopping, chemical spraying, or other land management activities.

d. *Hog removal.* In order to preserve the licensed property and its use for cattle grazing, Licensee may trap and remove feral hogs, at Licensees sole cost and expense, in a manner complying with state and local laws and regulations.

e. *Public Use.* Licensee has a non-exclusive right to use the Licensed Property. Licensee may not prevent the entry of members of the public on the Licensed Property for purposes of maintenance of the preserve areas/property and recreational enjoyment by hikers.

f. *Best Management Practices.* Licensee is responsible for implementing and using the most current Best Management Practices (BMP) provided by Florida Department of Agriculture and Consumer Services. Lee County Extension Services holds classes regarding BMPs, please contact them for scheduling. Failure of Licensee to use BMPs is grounds for termination or non-renewal of a Lee County cattle License.

7. Fencing.

a. During the term of this License, Licensee must maintain all perimeter and interior fencing necessary to keep livestock within the licensed area as follows:

1. Along all road frontage the fencing must be, at minimum, a 5 strand barbed wire fence.

2. Along non-road frontage license boundaries the fencing must be, at minimum, a 4 strand barbed wire fence.

3. The fencing must be maintained in good repair and must effectively prevent cattle from roaming beyond the boundaries of the Licensed Property at all times during the term of this license.

b. At the end of the license period stated in this Agreement, Licensee must turn over the Licensed Property with the fencing in good repair. In the event the fencing is not in good repair, Lee County may take one or more of the following actions: repair the fencing and send an invoice for the repair costs to Licensee; refuse to License County property to Licensee (including any entity involving the Licensee) in the future; or, take any other action the County deems appropriate.

8. Survey monuments. All section corners, quarter corners, and other survey monuments lying in the premises will be properly flagged by the Licensor. Licensee agrees to bear any survey costs for resetting these monuments in the event they are disturbed by the Licensee in any way.

9. Indemnification. Licensee hereby indemnifies and releases the Licensor from any and all claims for damages to both persons and property as the result of the cattle grazing; and, holds Licensor harmless from all damages during the term of this Agreement to include all reasonable fees, costs and expenses incurred for litigation in any forum resulting from damage claimed by third parties as a result of the Licensee's use of the property described in Exhibit "B".

10. Insurance. Licensee must maintain Premises Liability Insurance coverage through the license term and provide proof of insurance to Lee County Parks and Recreation for the duration of the license. The policy must provide minimum limits of $1,000,0000 (combined Single Limit of Bodily Injury and Property Damage). Lee County must be named as a Certificate Holder and Additional Insured on the insurance policy. (A copy of the insurance certificate is attached as Exhibit C.)

11. Personal property taxes. Licensee covenants and agrees to file an annual personal property tax return with the County of Lee, State of Florida, as required by law.

12. Assignment. This License is not assignable or otherwise transferable to any other party.

13. Notices. The contact information for the parties is as follows:

Lee County, Licensor
Director of Parks and Recreation
3410 Palm Beach Boulevard
Fort Myers, FL 33916
239-533-7275

Ruby Daniels, Licensee
18100 Persimmon Ridge Road
Alva, FL 33920
(239) 728-3292

14. Amendment. This is the entire agreement between the parties and may only be amended in a writing executed with the same formality.

15. Governing law. This Agreement will be construed in accordance with the laws of the state of Florida. Venue for any court proceedings is in Lee County.

16. Severability. In the event any portion or provisions of this License Agreement is deemed invalid, the remaining provisions will not be affected and will remain in full force and effect.

[Balance of page intentionally left blank.]

Licensee: Ruby Daniels

Witness: Ronald A. Fraser

Print Name: Ronald A. Fraser

By: Ruby Daniels

Printed name: Ruby Daniels

Witness: [signature]

Print Name: Hank Forland

Witness: Kristie Valone

Print Name: Kristie Valone

Witness: Cynthia C. Mitar

Print Name: Cynthia C. Mitar

Lee County Parks and Recreation

By: Alise Flanjack

__ Dana Kasler, Director

X Alise Flanjack, Deputy Director

Approved as to form for the
Reliance of Lee County only:

By: [signature]

Lee County Attorney's Office

[The Board of County Commissioners delegated authority to the Director of Parks and Recreation to enter short term leases/licenses for cattle grazing on Conservation 2020 lands and other lands managed by Lee County pursuant to Bluesheet #19990807 adopted on August 17, 1999.]

EXHIBIT A

Site # 260 "Spanish Creek Pres.

THE ABOVE DESCRIBED PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

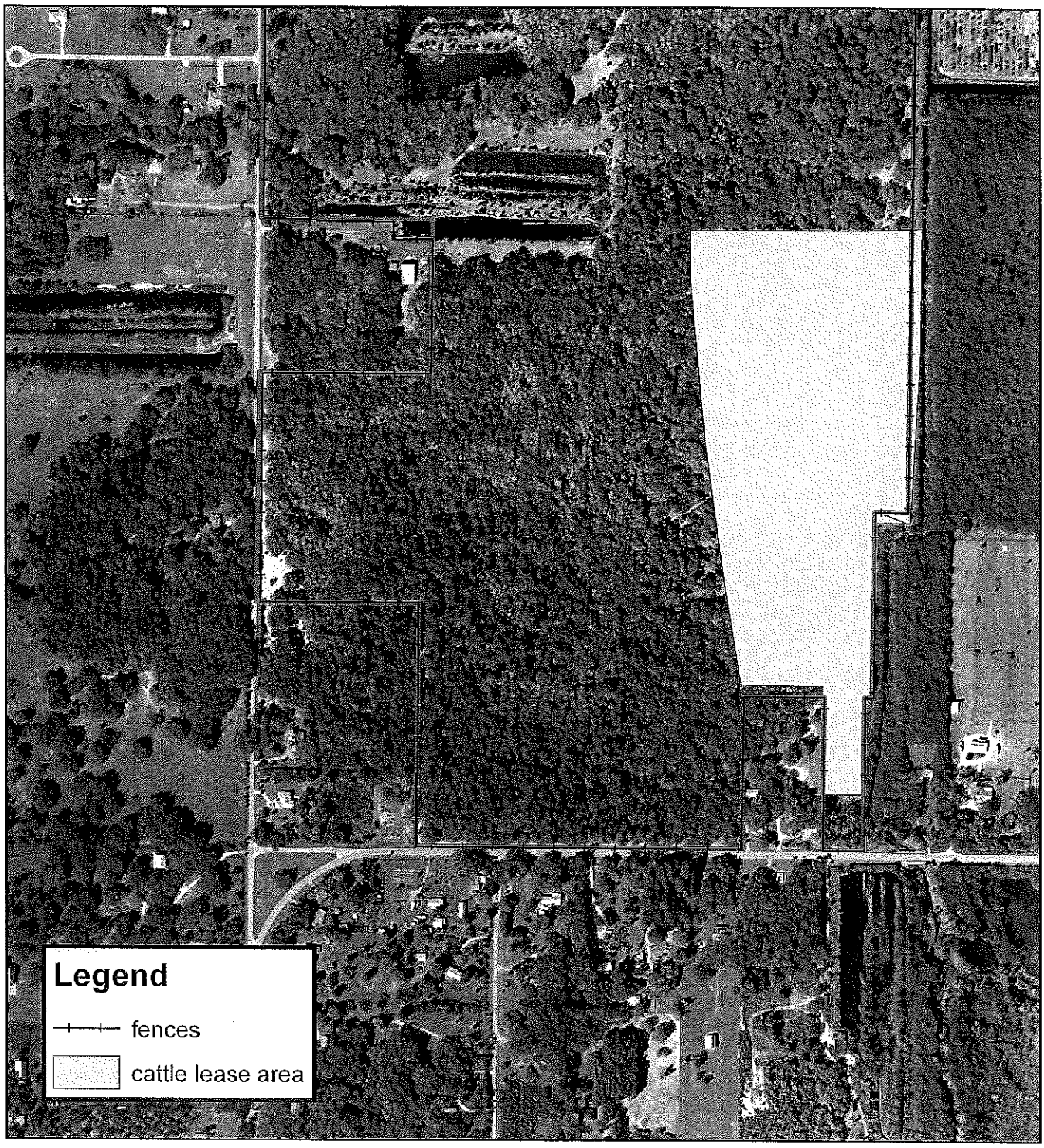
A parcel of land lying within the East one-half of Section 15, Township 43 South, Range 27 East, Lee County, Florida being more particularly described as follows: Commence at the Northeast corner of said Section 15 as the Point of Beginning and run S00°52'50"W a distance of 2563.88 feet to the Southeast corner of the Northeast one-quarter of said Section 15; Thence S00°53'02"W, along the East line of the Southeast one-quarter of said Section 15, a distance of 1171.62 feet to the Northeast corner of a certain parcel of land described in Official Records Book 2121, Page 2509, Public Records of Lee County, Florida; Thence along the boundary of said Official Records Book 2121, Page 2509, the following courses and distances, N86°54'47"W a distance of 135.00 feet and S00°53'00"W a distance of 752.65 feet to the Southwest corner thereof; Thence N89°35'47"W, along the North line of the Southeast one-quarter of the Southeast one-quarter of the Southeast one-quarter of said Section 15, a distance of 31.56 feet to the Northeast corner of the West one-half of the East one-half of the Southeast one-quarter of the Southeast one-quarter of said Section 15; Thence S00°52'43"W, along the East line of the West one-half of the East one-half of the Southeast one-quarter of the Southeast one-quarter of said Section 15, a distance of 615.83 feet to the occupied and maintained right-of-way line for County Road No. 78 (said point being 25.00 feet North of the South line of the Southeast one-quarter of said Section 15); Thence N89°34'40"W, along said occupied and maintained right-of-way line (said right-of-way line being parallel with the South line of the Southeast one-quarter of said Section 15), a distance of 165.31 feet to a point on the West line of the West one-half of the East one-half of the Southeast one-quarter of the Southeast one-quarter of said Section 15; Thence N00°52'25"E a distance of 615.78 feet to the Northeast corner of the West one-half of the Southeast one-quarter of the Southeast one-quarter of said Section 15 (also being the Northeast corner of a certain parcel of land described in Official Records Book 2573, Page 2172, Public Records of Lee County, Florida); Thence N89°35'47"W a distance of 332.73 feet to the Northwest corner of said Official Records Book 2573, Page 2172; Thence S00°51'49"W, along the West line of said Official Records Book 2573, Page 2172 (also being the West line of the Southeast one-quarter of the Southeast one-quarter of the Southeast one-quarter of said Section 15), a distance of 615.67 feet to the occupied and maintained right-of-way line for County Road No. 78; Thence N89°34'40"W, along said occupied and maintained right-of-way line (said line being 25.00 feet North of, and parallel with, the South line of the Southeast one-quarter of said Section 15), a distance of 1330.46 feet to a point on the East line of the Southwest one-quarter of the Southwest one-quarter of the Southeast one-quarter of said Section 15; Thence N00°48'23"E, along the East line of the Southwest one-quarter of the Southwest one-quarter of the Southeast one-quarter of said Section 15 (and the Northerly extension thereof), a distance of 978.73 feet; Thence N89°35'47"W, parallel with the North line of the Southwest one-quarter of the Southwest one-quarter of the Southeast one-quarter of said Section 15, a distance of 665.58 feet to a point on the West line of the Southwest one-quarter of said Section 15; Thence N00°48'10"E, along the West line of the Southwest one-quarter of said Section 15, a distance of 931.56 feet; Thence S89°39'06"E, parallel with the North line of the Southeast one-quarter of said Section 15, a distance of 700.02 feet; Thence N00°48'10"E, parallel with the West line of the Southeast one-quarter of said Section 15, a distance of 625.02 feet to a point on the North line of the Southeast one-quarter of said Section 15; Thence N89°39'06"W a distance of 700.02 feet to the Northwest corner of the Southeast one-quarter of said Section 15; Thence N00°47'56"E, along the West line of the Northeast one-quarter of said Section 15, a distance of 1279.86 feet to the Northwest corner of the Southwest one-quarter of the Northeast one-quarter of said Section 15; Thence S89°41'46"E a distance of 1166.54 feet to the Southwest corner of the East one-half of the East one-half of the Northwest one-quarter of the Northeast one-quarter of said Section 15; Thence N00°50'06"E a distance of 1280.77 feet to the Northwest corner of the East one-half of the East one-half of the Northwest one-quarter of the Northeast one-quarter of said Section 15; Thence S89°44'25"E, along the North line of the Northeast one-quarter of said Section 15, a distance of 1500.87 feet to the Point of Beginning.

Containing 24.3519 acres.

Subject to right-of-way for Persimmon Ridge Road,

Subject to easements, restrictions, reservations and rights-of-way of record.

Daniels Preserve at Spanish Creek Cattle Lease Map Site 260
Exhibit B 2015



N
W E
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0 0.075 0.15 0.3 Miles

CERTIFICATE OF INSURANCE

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER.
THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES LISTED BELOW.

FLORIDA FARM BUREAU INSURANCE COMPANIES
P.O. BOX 147030
GAINESVILLE, FLORIDA 32614-7030

NAME AND ADDRESS OF INSURED:
RUBY DANIELS

18100 PERSIMMON RIDGE RD
ALVA, FL 33920-3333

COMPANIES AFFORDING COVERAGES:

Company Letter A: **Florida Farm Bureau General Ins. Co.**

Company Letter B: **Florida Farm Bureau Casualty Ins. Co.**

The policies of insurance listed below have been issued to the insured named above and are in force at this time. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

CO. LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	ALL LIMITS IN THOUSANDS	
A	**GENERAL LIABILITY:** [X] COMMERCIAL GENERAL LIABILITY (OCCURRENCE FORM) [ ] OWNER'S & CONTRACTOR'S PROTECTIVE [ ] FARMER'S PERSONAL LIABILITY	SGL 9517888 14	08/15/2015	08/15/2016	GENERAL AGGREGATE PRODUCTS-COMPLETED OPERATIONS AGGREGATE PERSONAL & ADVERTISING INJURY EACH OCCURRENCE FIRE DAMAGE (Any one fire) MEDICAL EXPENSE (Any one person)	$ 2,000 $ 0 $ 1,000 $ 1,000 $ 50 $ 5
	AUTOMOBILE LIABILITY: [ ] ANY AUTO [ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS [ ] HIRED AUTOS [ ] NON-OWNED AUTOS				COMBINED SINGLE LIMIT BODILY INJURY (Per Person) BODILY INJURY (Per Accident) PROPERTY DAMAGE	$ $ $ $
	EXCESS LIABILITY: [ ] UMBRELLA FORM [ ] OTHER THAN UMBRELLA FORM				EACH OCCURRENCE $	AGGREGATE $
	EMPLOYERS LIABILITY: [ ] FARM EMPLOYER'S LIABILITY [ ] FARM EMPLOYEE'S MEDICAL					$ (Each Occurrence) $ (Each Employee)
	OTHER:					$

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES:
SEE FORM CG 20 11 11 85
CATTLE OPERATION

CANCELLATION: Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail 10 days written notice to the below named certificate holder, but failure to mail such notice shall impose no obligation or liability of any kind upon the company.

NAME AND ADDRESS OF CERTIFICATE HOLDER:
LEE COUNTY PARKS AND RECREATIONS
3410 PALM BEACH BLVD
FORT MYERS FL 33916-3736

County Code 26-0 Date Issued 06/16/2015

Serviced by HENDRY County Farm Bureau

CHAD D MCWATERS, INC, CLU, CAS
AUTHORIZED REPRESENTATIVE

W45 93-7-692 (Rev. 5/93)

Appendix E: Legal Description

DESCRIPTION:

The East half (E ½) of the Northeast Quarter (NE ¼); the Southwest Quarter (SW ¼) of the Northeast Quarter (NE ¼); the East half (E ½) of the East half (E ½) of the East half (E ½) of the Northwest Quarter (NW ¼) of the Northeast Quarter (NE ¼); and the Southeast Quarter (SE ¼), all lying in Section 15, Township 43 South, Range 27 East, Lee County, Florida.

LESS AND EXCEPT THE FOLLOWING PARCELS:

1. The South half (S ½) of the Southwest Quarter (SW ¼) of the Southwest Quarter (SW ¼) of the Southeast Quarter (SE ¼);

AND

2. The North 700 feet of the West 625 feet of the Southeast Quarter (SE ¼);

AND

3. Commencing at the South quarter corner of Section 15, Township 43 South, Range 27 East, Lee County, Florida and running North 00°22'25" East 320.03 feet to the point of beginning; thence continue North 00°22'23" East 220.00 feet; thence run South 89°59'32" East 250.00 feet; thence run South 00°22'25" West 220.00 feet; thence run North 89°59'32" West 250.00 feet to the point of beginning.

AND

4. A tract of land lying in the Southeast ¼ of Section 15, Township 43 South, Range 27 East, Lee County, Florida, being more particularly described as follows:
Commencing at the Southeast corner of said Section 15: thence North 00°11'01" East (basis for bearings is assumed) along the East line of said Section 15, a distance of 640.86 feet, to the Southeast corner of the Northeast ¼, Southeast ¼, Southeast ¼ of Section 15, and the Point of Beginning of the land herein described:
Thence continue North 00°11'18" East, along said East line, a distance of 751.04 feet; thence North 89° 36'22" West, a distance of 135.00 feet; thence South 00°11'18" West, a distance of 752.65 feet, to the South line of the Northeast ¼, Southeast ¼, Southeast ¼ of said Section 15; thence North 89°42'46" East, along the South line of said fraction, a distance of 135.00 feet to the Point of Beginning. (This legal description shown in deed recorded in O.R. Book 2121, Page 2508)

AND

5. The East half (E ½) of the East half (E ½) of the Southeast Quarter (SE ¼) of the Southeast Quarter (SE ¼) of the Southeast Quarter (SE ¼);

AND

6. The West half (W ½) of the Southeast Quarter (SE ¼) of the Southeast Quarter (SE ¼) of the Southeast Quarter (SE ¼).

THE ABOVE DESCRIBED PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

A parcel of land lying within the East one–half of Section 15, Township 43 South, Range 27 East, Lee County, Florida being more particularly described as follows: Commence at the Northeast corner of said Section 15 as the Point of Beginning and run S00°52'50"W a distance of 2563.88 feet to the Southeast corner of the Northeast one–quarter of said Section 15; Thence S00°53'02"W, along

THE ABOVE DESCRIBED PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

A parcel of land lying within the East one-half of Section 15, Township 43 South, Range 27 East, Lee County, Florida being more particularly described as follows: Commence at the Northeast corner of said Section 15 as the Point of Beginning and run S00°52'50"W a distance of 2563.88 feet to the Southeast corner of the Northeast one-quarter of said Section 15; Thence S00°53'02"W, along the East line of the Southeast one-quarter of said Section 15, a distance of 1171.62 feet to the Northeast corner of a certain parcel of land described in Official Records Book 2121, Page 2509, Public Records of Lee County, Florida; Thence along the boundary of said Official Records Book 2121, Page 2509, the following courses and distances, N88°54'47"W a distance of 135.00 feet and S00°53'00"W a distance of 752.65 feet to the Southwest corner thereof; Thence N89°35'47"W, along the North line of the Southeast one-quarter of the Southeast one-quarter of the Southeast one-quarter of said Section 15, a distance of 31.36 feet to the Northeast corner of the West one-half of the East one-half of the Southeast one-quarter of the Southeast one-quarter of the Southeast one-quarter of said Section 15; Thence S00°52'43"W, along the East line of the West one-half of the East one-half of the Southeast one-quarter of the Southeast one-quarter of the Southeast one-quarter of said Section 15, a distance of 615.83 feet to the occupied and maintained right-of-way line for County Road No. 78 (said point being 25.00 feet North of the South line of the Southeast one-quarter of said Section 15); Thence N89°34'40"W, along said occupied and maintained right-of-way line (said right-of-way line being parallel with the South line of the Southeast one-quarter of said Section 15), a distance of 166.31 feet to a point on the West line of the West one-half of the East one-half of the Southeast one-quarter of the Southeast one-quarter of the Southeast one-quarter of said Section 15; Thence N00°52'25"E a distance of 615.78 feet to the Northeast corner of the West one-half of the Southeast one-quarter of the Southeast one-quarter of the Southeast one-quarter of said Section 15 (also being the Northeast corner of a certain parcel of land described in Official Records Book 2573, Page 2172, Public Records of Lee County, Florida); Thence N89°35'47"W a distance of 332.73 feet to the Northwest corner of said Official Records Book 2573, Page 2172; Thence S00°51'49"W, along the West line of said Official Records Book 2573, Page 2172 (also being the West line of the Southeast one-quarter of the Southeast one-quarter of the Southeast one-quarter of said Section 15), a distance of 615.67 feet to the occupied and maintained right-of-way line for County Road No. 78; Thence N89°34'40"W, along said occupied and maintained right-of-way line (said line being 25.00 feet North of, and parallel with, the South line of the Southeast one-quarter of said Section 15), a distance of 1330.46 feet to a point on the East line of the Southwest one-quarter of the Southeast one-quarter of said Section 15; Thence N00°49'23"E, along the East line of the Southwest one-quarter of the Southwest one-quarter of the Southeast one-quarter of said Section 15 (and the Northerly extension thereof), a distance of 978.73 feet; Thence N89°35'47"W, parallel with the North line of the Southwest one-quarter of the Southwest one-quarter of the Southeast one-quarter of said Section 15, a distance of 665.58 feet to a point on the West line of the Southwest one-quarter of said Section 15; Thence N00°48'10"E, along the West line of the Southwest one-quarter of said Section 15, a distance of 931.56 feet; Thence S89°39'06"E, parallel with the North line of the Southeast one-quarter of said Section 15, a distance of 700.02 feet; Thence N00°48'10"E, parallel with the West line of the Southeast one-quarter of said Section 15, a distance of 625.02 feet to a point on the North line of the Southeast one-quarter of said Section 15; Thence N89°39'06"W a distance of 700.02 feet to the

on the West line of the Southwest one-quarter of said Section 15, a distance of 931.56 feet; Thence S89°39'06"E, parallel with the North line of the Southeast one-quarter of said Section 15, a distance of 700.02 feet; Thence N00°48'10"E, parallel with the West line of the Southeast one-quarter of said Section 15, a distance of 625.02 feet to a point on the North line of the Southeast one-quarter of said Section 15; Thence N89°39'06"W a distance of 700.02 feet to the Northwest corner of the Southeast one-quarter of said Section 15; Thence N00°47'58"E, along the West line of the Northeast one-quarter of said Section 15, a distance of 1279.86 feet to the Northwest corner of the Southwest one-quarter of the Northeast one-quarter of said Section 15; Thence S89°41'46"E a distance of 1166.54 feet to the Southwest corner of the East one-half of the East one-half of the East one-half of the Northwest one-quarter of the Northeast one-quarter of said Section 15; Thence N00°50'06"E a distance of 1280.77 feet to the Northwest corner of the East one-half of the East one-half of the East one-half of the Northwest one-quarter of the Northeast one-quarter of said Section 15; Thence S89°44'25"E, along the North line of the Northeast one-quarter of said Section 15, a distance of 1500.87 feet to the Point of Beginning.
Containing 243.19 acres.
Subject to right-of-way for Persimmon Ridge Road.
Subject to easements, restrictions, reservations and rights-of-way of record.

EGEND:

POC	= POINT OF COMMENCEMENT	IR	= IRON ROD
POB	= POINT OF BEGINNING	PRM	= PERMANENT REFERENCE MONUMENT
OR	= OFFICIAL RECORD BOOK	PCP	= PERMANENT CONTROL POINT
PB	= PLAT BOOK	LB	= LICENSED BUSINESS
PG	= PAGE	FD	= FOUND
R/W	= RIGHT-OF-WAY	/W	= WITH
C/L	= CENTER LINE	A/C	= AIR CONDITIONING
OHE	= OVERHEAD ELECTRIC LINE	COR	= CORNER
EOP	= EDGE OF PAVEMENT	S.R.	= STATE ROAD
CM	= CONCRETE MONUMENT	C.R.	= COUNTY ROAD

Appendix F: Expended and Projected Costs and Funding Sources

Appendix F - Expended and Projected Costs and Funding Sources

EXPENDED $

Public Amenities

Item	Funding Source	Costs
Trail markers	C20/20	$200
Maintenance supplies	C20/20	$626
Signage	C20/20	$164
Kiosk	Eagle Scout Project	$500
total		**$1,490**

Resource Enhancement and Protection

Item	Funding Source	Costs
Hog trapping	C20/20	$11,820
Exotic plant treatment	C20/20	$115,053
Borrow pond contoring and planting	LCNRD	$100,000
Wetland Restoration	LCNRD	$400,000
total		**$626,873**

Overall Protection

Item	Funding Source	Costs
Bridge inspection	LCNRD	$3,000
Fireline installation	C20/20	$14,166
Fence installation	C20/20	$33,205
Boundary signs	C20/20	$180
total		**$50,551**

TOTAL COST TO DATE	**$678,914**

PROJECTED $

Annual Public Amenities Maintenance

Item	Funding Source	Costs
Trail marker/sign replacement	C20/20	$50 per year
Maintenance supplies	C20/20	$50 per year
Trail maintenance mowing	C20/20	in house
total		**$100 per year**

Resource Enhancement and Protection

Item	Possible Funding Source	Costs
Borrow pond contour and planting	LCDNR, grants	to be determind
Ditch filling/plugging	LCDNR,C20/20, grants	to be determined
Mechanical brush reduction	C20/20	$31,000
Fire break maintenance	C20/20 in-house	$350 per year
Wetland restoration pump operation	LCNRD	$4,000 per year
total		**$35,350**

Overall Protection

Item	Possible Funding Source	Costs
Fence repairs/maintenance	C20/20 in-house	$50 per year
Boundary sign replacement	C20/20	$50
total		**$100**

Site Management and Maintenance

Item	Possible Funding Sources	Costs
Bridge inspection/maintenance	C20/20	
Exotic plant maintenance	C20/20	$16,000 per year
Rollerchopping	C20/20	in house
Trash removal	C20/20	$25 per year
Repairs from vandalism	C20/20	$25 per year
total		**$16,050**

Appendix G: Bridge Inspection

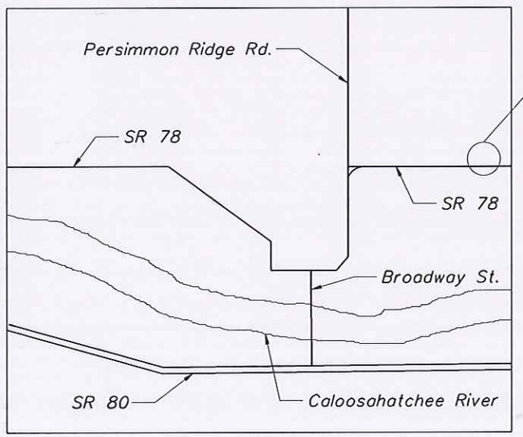
Load Rating Summary Details for Wood Bridges (Timber Deck Panels)

Table 1 - LRFR using Appendix A (LRFD)

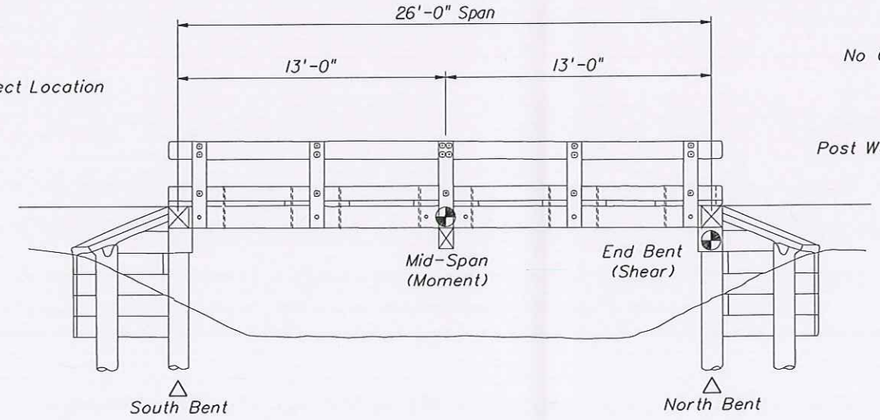
Level	Vehicle	Weight (tons)	Load Factors			Moment (Adjusted Stress Design Values)					Shear (Adjusted Stress Design Values)					Comments:
			LL	DC	DW	Wheel Load Fraction	Rating Factor	Axial Load Tons	Location	Dimension	Wheel Load Fraction	Rating Factor	Axial Load Tons	Location	Dimension	
Inventory (Strength)	HS20-44	36.0	1.75	1.25	1.50	1.52	0.683	16	Mid-Span	13.0'	1.52	0.992	16	Bent	0.0'	No Good
Inventory (Service)	HS20-44	36.0	1.0	1.0	1.0	1.52	1.118	16	Mid-Span	13.0'	N/A	N/A	N/A	N/A	N/A	For Information Only
Operating (Strength)	HS20-44	36.0	1.35	1.25	1.50	1.52	0.862	16	Mid-Span	13.0'	1.52	1.254	16	Bent	0.0'	No Good
Operating (Strength)	HS15-44	27.0	1.35	1.25	1.50	1.52	1.106	12	Mid-Span	13.0'	1.52	1.613	12	Bent	0.0'	Okay Post Weight
Operating (Strength)	SU4	35.0	1.35	1.25	1.50	1.52	0.652	9.35	Mid-Span	13.0'	1.52	0.905	9.35	Bent	0.0'	No Good
Operating (Strength)	C5	40.0	1.35	1.25	1.50	1.52	0.822	10	Mid-Span	13.0'	1.52	1.153	10	Bent	0.0'	No Good
Operating (Strength)	ST5	40.0	1.35	1.25	1.50	1.52	0.906	9	Mid-Span	13.0'	1.52	1.127	9	Bent	0.0'	No Good
Operating (Strength)	SU2	17.0	1.35	1.25	1.50	1.52	1.191	11	Mid-Span	13.0'	1.52	1.557	11	Bent	0.0'	Okay
Operating (Strength)	SU3	33.0	1.35	1.25	1.50	1.52	0.717	11	Mid-Span	13.0'	1.52	0.937	11	Bent	0.0'	No Good
Operating (Strength)	C3	28.0	1.35	1.25	1.50	1.52	1.088	11	Mid-Span	13.0'	1.52	1.49	11	Bent	0.0'	Okay
Operating (Strength)	C4	36.7	1.35	1.25	1.50	1.52	0.764	11	Mid-Span	13.0'	1.52	1.119	11	Bent	0.0'	No Good
Operating (Strength)	U80	80.0	1.35	1.25	1.50	1.52	0.481	18.5	Mid-Span	13.0'	1.52	0.593	18.5	Bent	0.0'	No Good
Operating (Strength)	L90	90.0	1.35	1.25	1.50	1.52	0.24	N/A	Mid-Span	13.0'	1.52	0.384	N/A	Bent	0.0'	No Good
Operating (Strength)	Special	26.3	1.35	1.25	1.50	1.52	1.022	N/A	Mid-Span	13.0'	1.52	1.63	N/A	Bent	0.0'	Note 3

General Notes:

1. This table is based on the requirements established in the January 2013 "Structures Manual".
2. Intent of this Load Rating is to check what construction vehicles can pass over the bridge.
3. Load Rating calculations for excavator and lowboy were performed using Caterpillar Hydraulic Excavator (Model: 318E) w/ a max. GVW of 20 tons and a 25 ton Capacity Lowboy that has a GVW of 5.8 tons.
4. Reference existing bridge plans.
5. Wood Design Values:
   Panels - Douglas Fir adjusted values
   Fb = 1427 psi
   Fv = 261 psi
   Cap - P.T. Values
   Fb = 1142 psi
   Fv = 294 psi
   Pile Cap - 15 tons



LOCATION MAP



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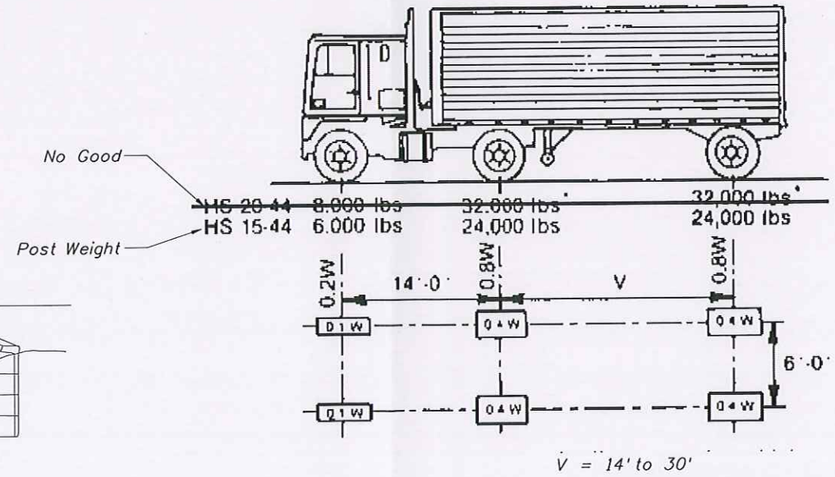
(RATING LOCATIONS)



V = 14' to 30'

Controlling Load Rating			
Limit State	Vehicle	Weight (Tons)	Rating Factor
Strength I (Inv.)	HS15-44	12	1.106

REVISIONS			REVISIONS				NAMES	DATES
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DRAWN BY	AGM	06-13
						CHECKED BY	VAZ	06-13
						DESIGNED BY	JGL	06-13
						CHECKED BY	VAZ	06-13
						APPROVED BY	VINCENT ZALIAUSKAS, P.E. REGISTERED PROFESSIONAL ENGINEER FLORIDA LICENCE NO. 60524	8.2.13

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LOGO: HighSpans ENGINEERING, INC.

LEE COUNTY NATURAL RESOURCES		
ROAD NO.	COUNTY	PROJECT ID
N/A	LEE	208538

SHEET TITLE: LRFR LOAD RATING SUMMARY

PROJECT NAME: SPANISH CREEK BRIDGE

SHEET NO. BI-01

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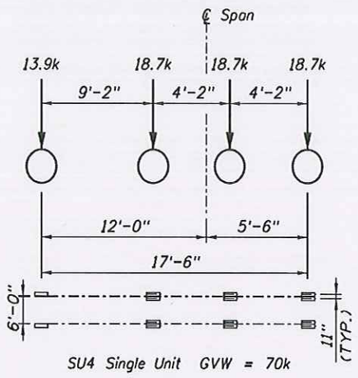
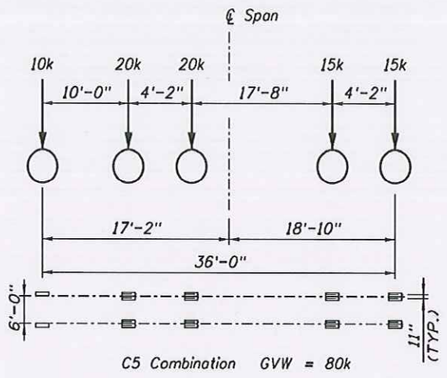


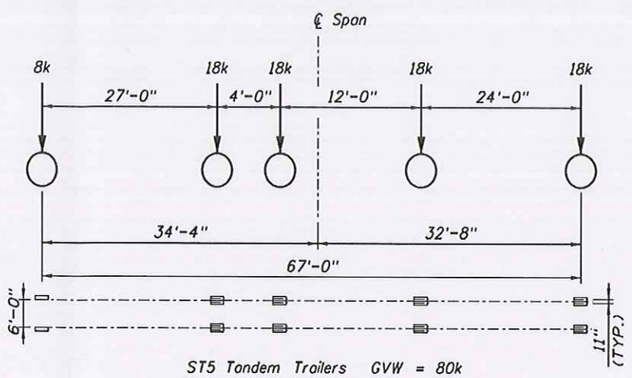
SU4 Single Unit GVW = 70k

NO GOOD



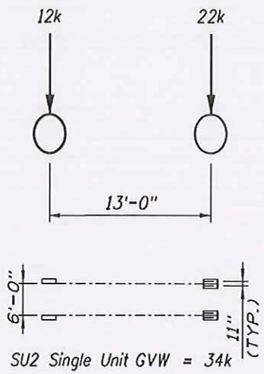
C5 Combination GVW = 80k

NO GOOD



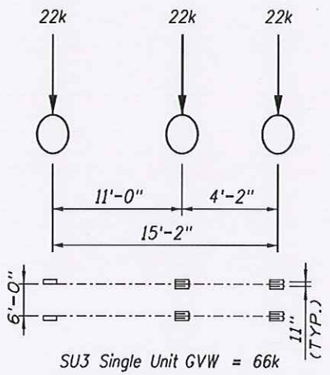
ST5 Tandem Trailers GVW = 80k

NO GOOD



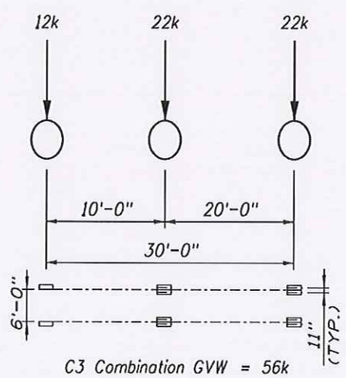
SU2 Single Unit GVW = 34k

OKAY



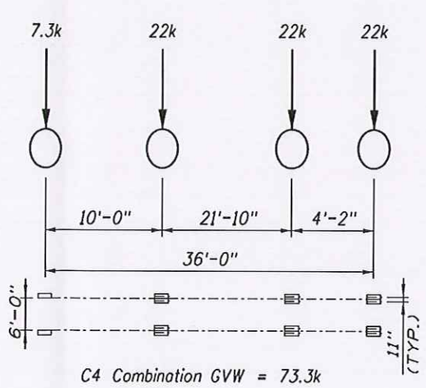
SU3 Single Unit GVW = 66k

NO GOOD



C3 Combination GVW = 56k

OKAY

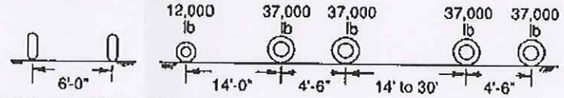


C4 Combination GVW = 73.3k

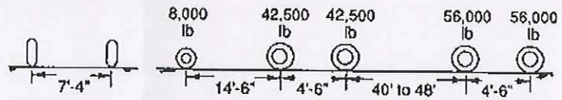
NO GOOD

NO GOOD

U80 truck – GVW = 80 tons
(Axle loads are shown)



U102 truck– GVW = 102.5 tons
(Axle loads are shown)



L90 tracked loader– GVW = 90 tons

NO GOOD

REVISIONS			REVISIONS		
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAMES	DATES
DRAWN BY	AGM	06-13
CHECKED BY	VAZ	06-13
DESIGNED BY	JGL	06-13
CHECKED BY	VAZ	06-13
APPROVED BY	VINCENT ZALIAUSKAS, P.E. REGISTERED PROFESSIONAL ENGINEER FLORIDA LICENSE NO. 60524	

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ENGINEERING, INC.

LEE COUNTY NATURAL RESOURCES		
ROAD NO.	COUNTY	PROJECT ID
N/A	LEE	208538

SHEET TITLE: LRFR LOAD RATING SUMMARY

PROJECT NAME: SPANISH CREEK BRIDGE

SHEET NO. B1-02

AMANZUR $DATE$ $TIME$ $FILE$