Alva Scrub Preserve

Land Stewardship Plan

3740 Goggin Road
Alva, FL 33920

Second Edition










Prepared by the Land Stewardship Section
Lee County Department of Parks and Recreation

Approved by the Lee County Board of County Commissioners: August 2010

CONSERVATION 20/20 LAND PROGRAM

Commission for Accreditation of Park and Recreation Agencies CAPRA ACCREDITED

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Acknowledgements

We would like to thank the following for their assistance in the development of this document: Roger Clark, Cathy Olson, and other Lee County staff for carefully reviewing the Alva Scrub Preserve (ASP) Land Stewardship Plan and providing constructive criticism; Steve Shattler and Ryan Crane with Florida Fish and Wildlife Conservation Commission for their help with scrub jay monitoring and information on mechanical treatment methodologies; Mike Weston with Florida Division of Forestry for assistance with thinning work; Kendal Hicks with United States Department of Agriculture Natural Resources Conservation Service for assistance with the WHIP grant for Parcel 195; and volunteer Barb Ross for all of her help with exotics removal and fence repair.

Laura Greeno
Laura Wewerka

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List of Exhibits

List of Acronyms

ASP	Alva Scrub Preserve
BCB	Big Cypress Basin
BCW	Bedman Creek Watershed
BOCC	Lee County Board of County Commissioners
C20/20	Conservation 20/20
CLASAC	Conservation Lands Acquisition and Stewardship Advisory Committee
DHR	Division of Historical Resources
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDNR	Florida Department of Natural Resources
FDOF	Florida Division of Forestry
FLEPPC	Florida Exotic Pest Plant Council
FLUCFCS	Florida Land Use Cover and Forms Classification System
FLU	future land use
FNAI	Florida Natural Areas Inventory
FWC	Florida Fish and Wildlife Conservation Commission
HCMP	Hickey's Creek Mitigation Park
HCW	Hickey's Creek Watershed
IRC	Institute for Regional Conservation
LCDCD	Lee County Department of Community Development
LCDNR	Lee County Division of Natural Resources
LCDP	Lee County Division of Planning
LCPR	Lee County Department of Parks and Recreation
LCSD	Lee County School District
LSOM	Land Stewardship Operations Manual
MU	Management Unit
NWI	National Wetlands Inventory
ORV	off-road vehicle
SFWMD	South Florida Water Management District
STRAP	Section-Township-Range-Area-Block.Lot (Parcel)
TSA	Tropical Soda Apple
USACOE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WHIP	Wildlife Habitat Improvement Program

Vision Statement

It is the vision of the land stewards in the Lee County Department of Parks and Recreation and the Conservation 20/20 Program to restore Alva Scrub Preserve to a productive, functional and viable ecosystem. Portions of the Preserve are home to families of Florida scrub jays, a State and Federally listed Threatened species. The primary stewardship objectives for the Preserve will be maintaining the existing habitat for scrub jays as well as enhancing disturbed upland ecosystems. Enhancements will include prescribed fire, plantings, pasture restoration and removal of invasive exotic plants and animals. The conservation objectives for the stewardship of this Preserve will be maintaining the fire dependant ecosystems with prescribed fire and removing invasive exotic plants and animals. A secondary goal is the enhancement of wetland habitats by restoring pastures to natural plant communities, reintroducing historic flowways where possible and removing invasive exotic plants. Ultimately, the objectives for the stewardship of Alva Scrub Preserve will improve and protect wildlife habitat in a rapidly growing portion of Lee County.

I. EXECUTIVE SUMMARY

Alva Scrub Preserve (ASP) is located in northeastern Lee County within Section 03, Township 44 South, Range 27 East; and Sections 32-35 Township 43 South, Range 27 East. The Preserve includes six Parcels, nominations 57, 127, 136, 195, 325 and 357 which were acquired between 2000 and 2008 through the Conservation 20/20 (C20/20) Program for just under $15 million. The C20/20 Program was established in 1996 after Lee County voters approved a referendum that increased property taxes by up to 0.5 mil for the purpose of purchasing and protecting environmentally sensitive lands.

The Preserve is approximately 846 acres in size. ASP lies south of State Road 80 extending from Bateman Road (western boundary) to the eastern side of Edwards Drive (eastern boundary) and is approximately 10 miles east of I-75 (Figure 1). Four of the Preserve's six parcels share a common boundary. Joel Boulevard and a sliver of privately owned land separate Parcel 325 from Parcel 195. Parcel 357 is bisected by Goggin Road. Approximately 0.25 miles of privately owned land separate Parcels 357 from 325. Portions of ASP have historically been used for agriculture (crops and cattle grazing) and as a site for outdoor recreation (camping, shooting, hunting and off-road activities). The surrounding land is primarily agriculture, single family residences and other conservation lands; however platted streets of undeveloped single family lots lie south of Parcels 195 and 325.

The Gulf of Mexico and Caribbean Sea affect the climate of Lee County and these factors influence ASP by creating mild, sub-tropical conditions. The average annual rainfall from 1992-2008 was 68.33 inches, slightly higher than the 60.72 average for the entire county during the same period. The majority of the rain falls between June and September. Natural trends and disturbances influencing plant communities and stewardship at ASP include hurricanes, flooding, wildfires, occasional freezes and the cycling of wet and dry seasons.

ASP lies on the boundary between the Caloosahatchee Valley and the Immokalee Rise physiographic regions. The Caloosahatchee Valley generally rises less than 15 feet in elevation. It is an ancient river valley filled with sands and shells from the Plio-Pleistocene age and is comprised of flatwoods and wet prairie with terraced landforms. The Immokalee Rise generally sits around 25 feet in elevation and like the Atlantic Coastal Ridge south of West Palm Beach, is a southerly extension of Pamlico marine sand invading the Distal Zone (the southern part) of the Florida Peninsula from the sand dominated Central Zone to the north. However, unlike the Atlantic Coastal Ridge, the Immokalee Rise shows little evidence of a Pamlico shoreline. It seems to have been built as a sub-marine shoal extending south from a mainland cape at the south end of the Desoto Plain much in the same way that the present off-shore shoal extends southward from Cape Romano.

Within the physiographic regions, the Preserve is located on the Tamiami Formation, which was created during the Pliocene Epoch between 5.3 and 1.8 million years ago. The Tamiami Formation contains a mix of fine to coarse-grained sand, sandy clay, fossiliferous sand and fossiliferous limestone. Phosphate is present throughout as are fossils, particularly barnacles, mollusks, corals, sea urchins, and smaller marine life.

Lee County is located within the Gulf Coastal Lowlands of Florida that extend around the coastal periphery of the state where elevations are generally below 100 feet. The elevations at ASP range from 7 to 26 feet above sea-level and elevations greater than 20 feet are associated with excavated fill placed around borrow pits and other man-made features.

There are fifteen different soil types found at ASP. The soils within the Preserve have all been identified as having severe limitations; either ponding, wetness or too sandy. Covering 16 percent of the Preserve, Oldsmar Sand is the most common soil type. Boca Fine Sand is the second most common soil type covering 15 percent, while the last thirteen soil types cover the remainder of the Preserve.

ASP is within the Big Cypress Basin of the South Florida Water Management District's Lower West Coast Region. The entire Preserve lies within the Southwest Caloosahatchee Watershed. ASP lies within the Bedman Creek and Hickey's Creek watersheds. Hydrological alterations have been made on and directly adjacent to ASP that affect the natural sheet flow across the lands. The existing ditches, borrow pits, canals and cattle wells all influence the water flow on the site by either interrupting sheet flow or holding water for extended periods in some areas, while excessively draining other areas.

ASP contains a combination of wetland and upland communities that serve as important habitat for a variety of wildlife. ASP consists of twenty distinguishable plant communities. Twenty-seven percent of ASP can be described as mesic flatwoods. An additional 13% of the Preserve is categorized as abandoned field which was formerly used for agriculture. Over 15% of the plant communities are designated as "disturbed", typically due to alterations in the fire regime and/or changes in the natural drainage patterns.

There are no public recreation amenities proposed for ASP other than a walk-through gate for hiking access onto part of Parcel 357. Public access is being limited due primarily to resource management activities required for management of listed species, active cattle leases, and accessibility issues. The proximity to other recreation facilities such as the Hickey's Creek Mitigation Park, Veteran's Park, Caloosahatchee Regional Park, and Alva Community Center provide a wide variety of activities and communities similar to those found at ASP.

The goal of this land stewardship plan is to identify Preserve resources, develop strategies to protect the resources and implement restoration activities to restore ASP to a productive, functional and viable ecosystem while ensuring that the Preserve will be managed in accordance with Lee County Parks and Recreation's Land Stewardship Operations Manual.

Restoration and stewardship activities at ASP will focus on maintaining ecosystems with prescribed fire, controlling invasive exotic plant and animal species, enhancing hydrologic features and wildlife habitat, and debris removal. The maintenance of habitat conditions conducive to the long-term viability of the federally listed Florida scrub jay is the focus of restoration and management activities across the site. A Management Action Plan outlines restoration and stewardship goals. This plan outlines these goals and strategies, explains how the goals will be accomplished, and provides a timetable for completion. This land stewardship plan will be revised in ten years (2020).

II. INTRODUCTION

The 846 acre Alva Scrub Preserve (ASP) was acquired between 2000 and 2008 through the Lee County Conservation 20/20 (C20/20) Program for $14,918,960. ASP was acquired as six parcels over a period of ten years. Three of the parcels were originally managed as part of Hickey's Creek Mitigation Park (HCMP), one parcel was named Alva Scrub Preserve, and two other parcels were purchased and originally named Alva Cypress Preserve. In 2009 C20/20 staff, with approval from The Conservation Lands Acquisition and Stewardship Advisory Committee (CLASAC), determined that it was more efficient to combine all six parcels into one Preserve. The STRAP (Section-Township-Range-Area-Block.Lot (Parcel)) numbers for Parcels 57, 127 and 136 were combined as were the two STRAP numbers for Parcel 325 in 2008 by C20/20 Staff in an effort to streamline paperwork and simplify databases. In the future, Parcel 357 will also have two of its three STRAP numbers combined. Since the boundary is split by a Section number, there will always be two STRAP numbers for this parcel.

The Preserve is approximately 846 acres in size and has historically been used for agriculture (crops and cattle grazing) and as a site for outdoor recreation (camping, shooting, hunting and off-road activities). The surrounding land is mostly agriculture, single family residences and other conservation lands; however platted streets of undeveloped single family lots lie south of Parcel 195 and Parcel 325. South of Parcel 357, lots in the Greenbriar area are separated from the Preserve boundary by a swale maintained by the East County Water Control District.

ASP contains a combination of wetland and upland communities that serve as important habitat for a variety of birds, mammals, reptiles and amphibians. ASP consists of twenty distinguishable plant communities. Twenty-seven percent of ASP can be described as mesic flatwoods. An additional 13% of the Preserve is

categorized as abandoned field formerly used for agriculture. Over 15% of the plant communities are designated as “disturbed”, typically due to alterations in the fire regime and/or changes in the natural drainage patterns.

Alteration to the historic hydrologic patterns and lack of a fire regime has altered the plant communities on ASP. Interior ditches and borrow pits, as well as the canals and ditching on adjacent lands have created drier conditions on some portions of the Preserve and wetter areas in other portions. All of these impacts have created disturbances that have encouraged the establishment of invasive exotic plants.

Land stewardship challenges for the Preserve include invasive exotic plant and animal control, prescribed fire in fire dependant plant communities, enhancing hydrologic functions and wildlife habitat, and boundary protection. Exotics are present throughout the site in both disturbed and non-disturbed areas. There are no public recreational amenities, other than a walk-through gate onto a portion of Parcel 357, proposed for this Preserve due primarily to its designation as a Category 4 Resource Protection & Restoration Preserve, difficult access and having several established recreation opportunities in close proximity to ASP.

The purpose of this stewardship plan is to define conservation goals for ASP 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 to ensure proper stewardship and protection of the Preserve. It also serves as a reference guide because of the extensive field studies and research of scientific literature and historic records conducted by C20/20 Staff that help to explain the Preserves ecosystem functions, its natural history and its influences from human use.

III. LOCATION AND SITE DESCRIPTION

ASP is located in northeastern Lee County within Section 03, Township 44 South, Range 27 East; and Sections 32-35, Township 43 South, Range 27 East. The Preserve includes six Parcels (57, 127, 136, 195, 325 and 357).

Parcel 57,127 and 136 are STRAP # 32-43-27-00-00004.0020. Parcel 136 is accessed via Witt’s End Road while Parcel 57 and 127 are accessed via Bateman Road. Parcel 195 is accessed via Edwards Drive and is STRAP # 35-43-27-00-00019.0010. Parcel 325 is accessed via Joel Boulevard and consists of STRAP # 34-43-27-00-00008.1000. Parcel 357 is accessed via Goggin Road and Langford Road and consists of STRAP # 32-43-27-00-00001.0200, 33-43-27-00-00001.0200, and 33-43-27-00-00001.0030.

The addresses for all five parcels have been assigned by the Lee County Property Appraiser’s office as “Access Undetermined.” Lee County Division of

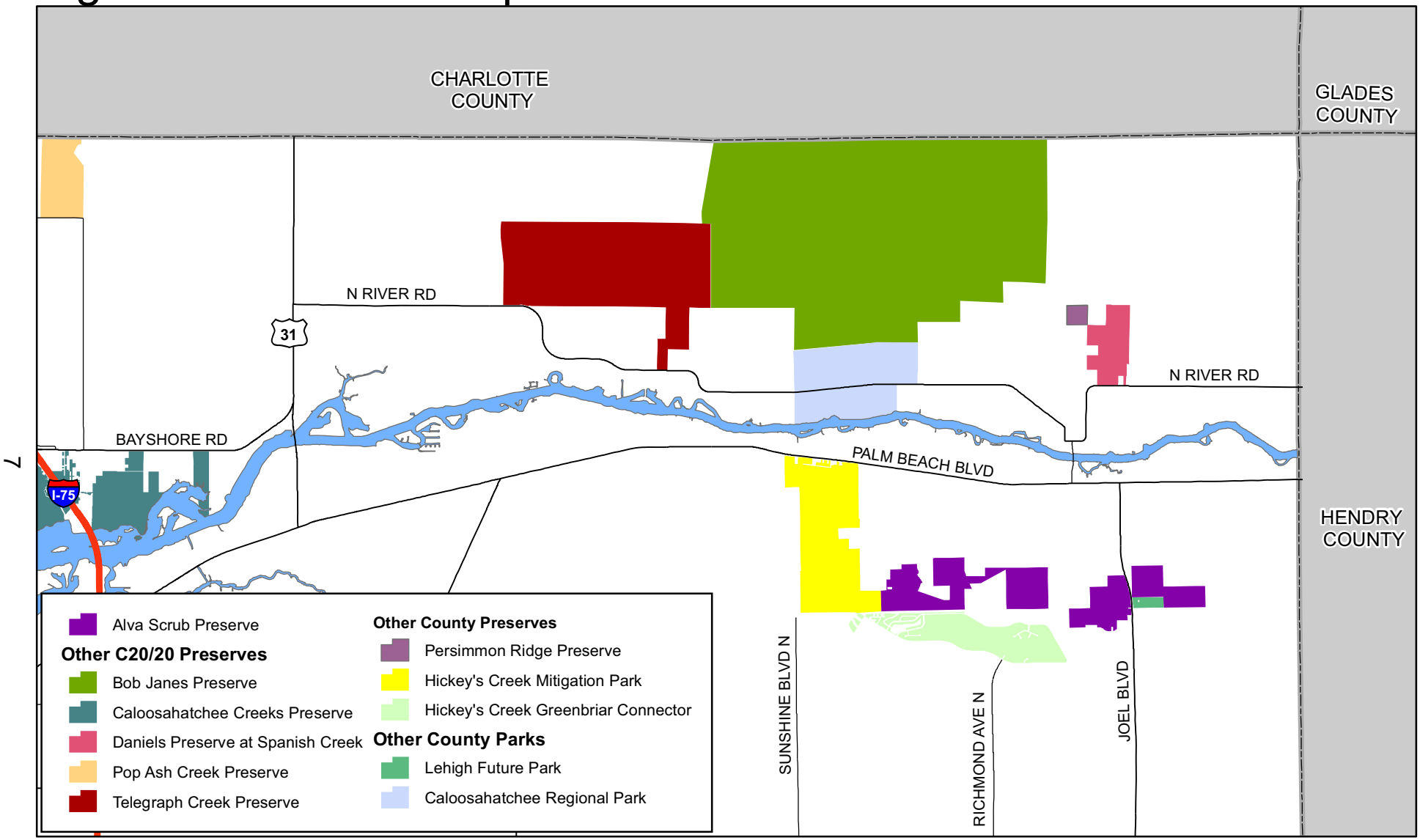
Public Safety (E-911 Program) will not assign an address to a parcel unless a structure will be placed on site.

ASP lies south of State Rd. 80 extending from Bateman Road (western boundary) to the eastern side of Edwards Drive (eastern boundary) and is approximately 10 miles east of I-75 (Figure 1). Four of the Preserve's six parcels share a common boundary. Joel Boulevard and a sliver of privately owned land separate Parcel 325 from Parcels 195, and 357 is bisected by Goggin Road. Approximately 0.25 miles of privately owned land separate Parcel 357 from Parcel 325.

The Preserve is approximately 846 acres in size and has historically been used for agriculture (crops and cattle grazing) and as a site for outdoor recreation (camping, shooting, hunting and off-road activities). The surrounding land is mostly agriculture, single family residences and other conservation lands; however platted streets of developed and undeveloped single family lots lie south of Parcel 195. Lots in the Greenbriar area south of Parcel 357 are separated from the Preserve boundary by a swale maintained by the East County Water Control District.

The Preserve consists of twenty plant communities, a mosaic of both human-altered and natural plant communities; dominant areas are mesic flatwoods, abandoned field and strand swamp. Over fifteen percent of the Preserve is classified as disturbed land, mainly due to alterations in the natural fire regime and/or changes in the natural drainage patterns. Figure 2 identifies the boundaries of ASP in a 2009 aerial photograph.

Figure 1: Location Map



Alva Scrub Preserve

0 0.5 1 2 3 Miles

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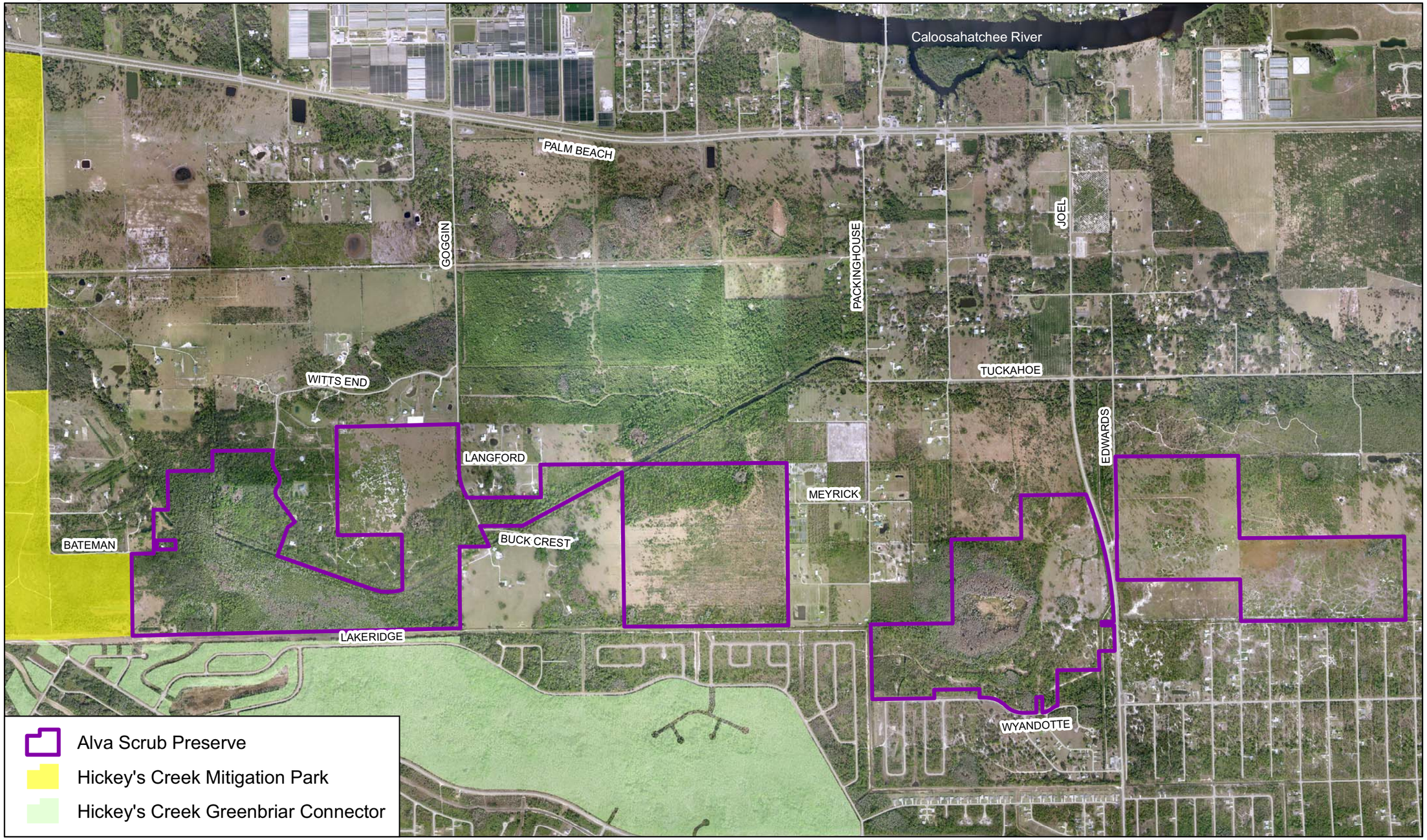
Map Prepared on: 10/28/2009
by lgreeno@leegov.com

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

Figure 2: 2009 Aerial Map



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Alva Scrub Preserve

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IV. Natural Resources Description

A. Physical Resources

i. Climate

Southwest Florida has a humid, sub-tropical climate due to its maritime influence from the Caribbean Sea and the Gulf of Mexico. The Bermuda high-pressure cell prevents convective clouds from building into thunderstorms in the fall and winter and as the Bermuda High weakens in late spring, thunderstorms occur regularly. Superimposed on the pattern of daily showers and thunderstorms is precipitation resulting from large-scale circulation systems such as tropical storms and hurricanes.

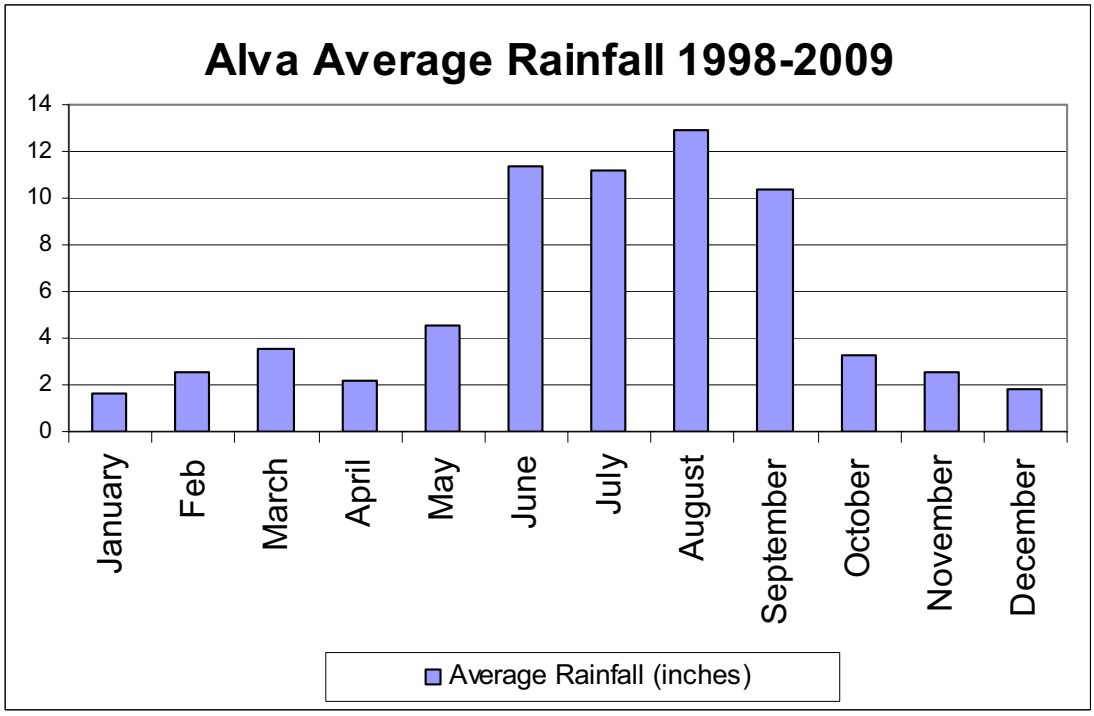
In late fall, winter, and early spring, weather systems (fronts) from the northeastern United States sweep over the area. These fronts can bring significant swings in temperature and humidity, causing the weather to oscillate between maritime tropical and continental winter weather.

Temperate climate influences are exerted as well, with infrequent but significant freezes occurring in December and January (FCC 2005). These freezes occasionally damage the vegetation and prevent some of the more cold sensitive tropical plants from becoming established. Cold fronts regularly push cool, sometimes moist weather from the southeastern U.S. to southwest Florida during the winter. These cold fronts also encourage migratory birds to utilize the Preserve as either a stop-off point on a longer voyage, or as a winter roosting and feeding area. Table 1 shows the average high and low temperatures for Fort Myers, Florida compiled by the Southeast Regional Climate Center from 1892 to 2008.

Table 1: Average High/Low Temperatures for Ft. Myers, FL (1892-2008)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High temperature (°F)	74.4	75.8	79.7	84.0	88.1	89.9	90.5	90.8	89.2	85.0	79.5	75.4
Low temperature (°F)	53.8	54.8	58.5	62.3	67.3	72.0	73.7	74.1	73.4	68.2	60.4	55.3

The graph below depicts rainfall data collected by Lee County Division of Natural Resources (LCDNR) on a daily basis from the Alva Fire Department, located near the corner of Palm Beach Boulevard and Styles Road, between 1 and 2 miles northeast of the Preserve (depending on the site). The average annual rainfall from 1998-2009 was 68.33 inches, significantly higher than the 60.72 average for all LCDNR's rain gauges.

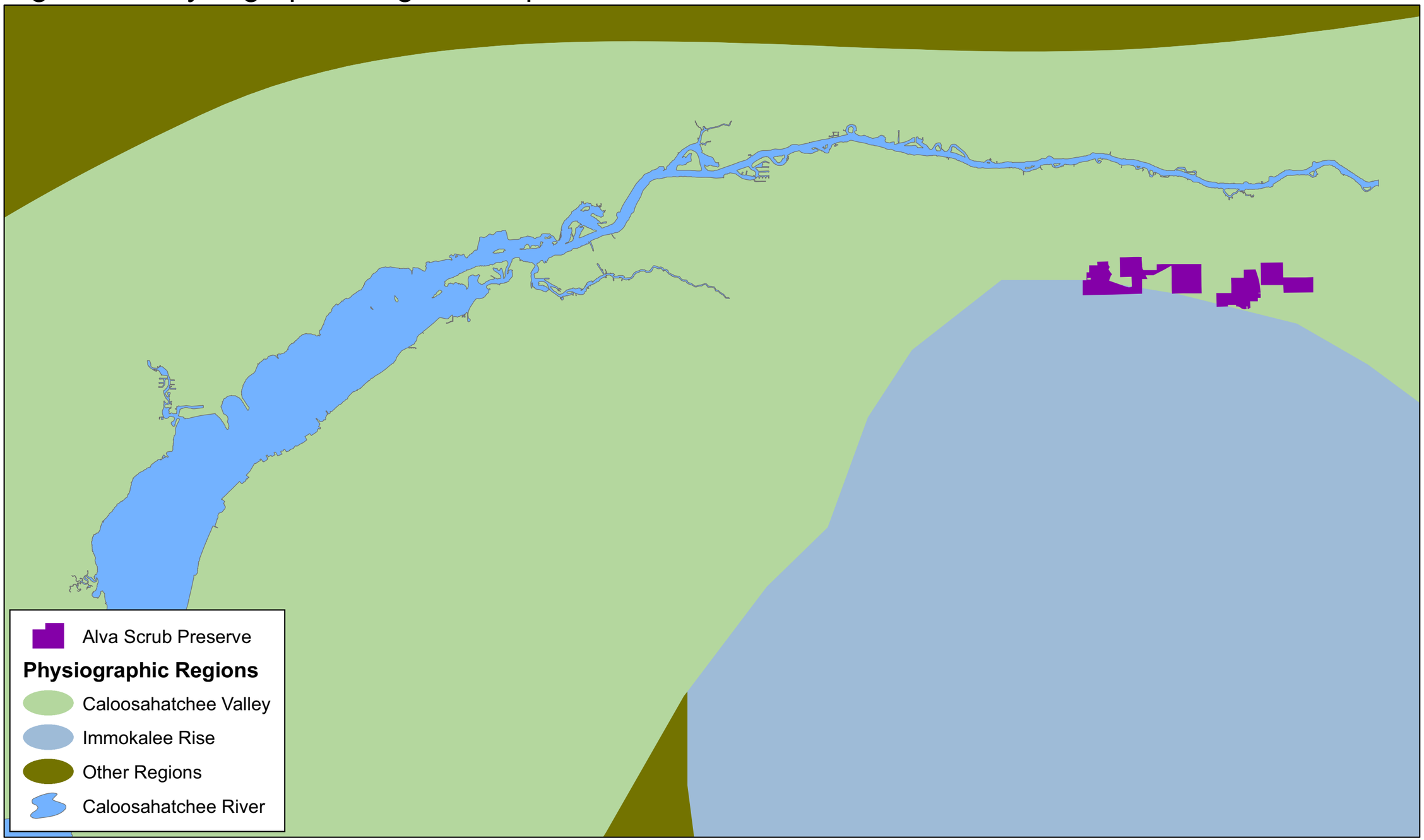


ii. Geology

ASP lies on the boundary between the Caloosahatchee Valley and the Immokalee Rise physiographic regions (Figure 3). The Caloosahatchee Valley is an ancient river valley filled with sands and shells from the Plio-Pleistocene age and is comprised of flatwoods and wet prairie with terraced landforms. It rises less than 15 feet in elevation (SWFRPC 2005). The Immokalee Rise generally sits around 25 feet in elevation and like the Atlantic Coastal Ridge south of West Palm Beach, is a southerly extension of Pamlico marine sand invading the Distal Zone (the southern part) of the Florida Peninsula from the sand dominated Central Zone to the north. However, unlike the Atlantic Coastal Ridge, the Immokalee Rise shows little evidence of a Pamlico shoreline. It seems to have been built as a sub-marine shoal extending south from a mainland cape at the south end of the Desoto Plain much in the same way that the present off-shore shoal extends southward from Cape Romano (White 1970).

Within the physiographic regions, the Preserve is located on the Tamiami Formation, which was created during the Pliocene Epoch between 5.3 and 1.8 million years ago. The Tamiami Formation contains a mix of fine to coarse-grained sand, sandy clay, fossiliferous sand and fossiliferous limestone. Phosphate is present throughout as are fossils, particularly barnacles, mollusks, corals, sea urchins, and smaller marine life.

Figure 3: Physiographic Regions Map



CONSERVATION 20/20 LAND PROGRAM

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Alva Scrub Preserve

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Map Prepared on: 09/09/2009
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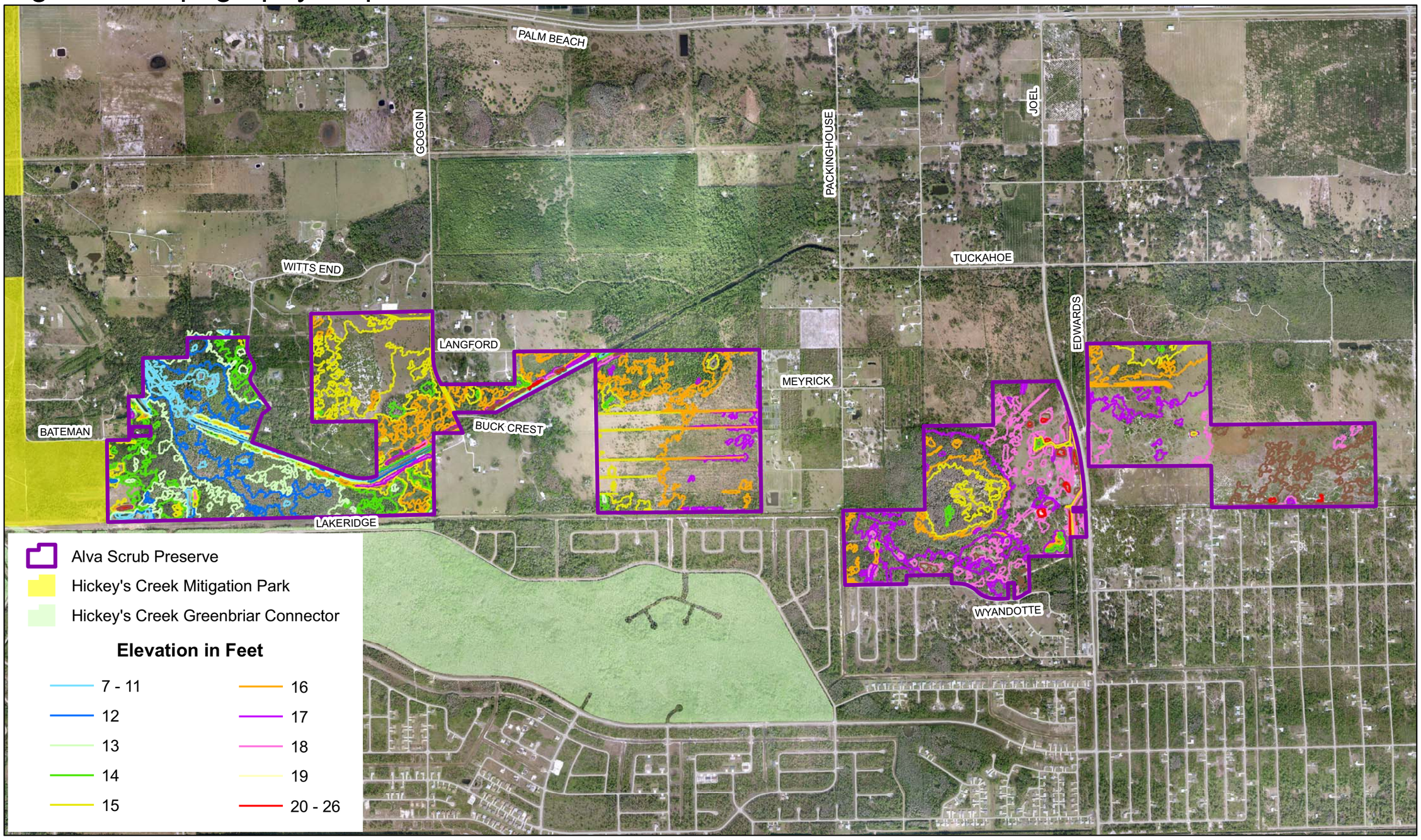
iii. Topography

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

Elevations range from 7 to 26 feet at ASP (Figure 4). Generally, the elevation increases from west to east. The lowest elevations (7-11 feet) are primarily associated with Hickey's Creek, its associated wetlands and excavated canal and borrow pits. The average elevations of the rest of the preserve tend to increase from 12 feet on the western most side to 19 feet on the eastern most side, with lower areas associated with wetlands. The highest elevations (20-26 feet) are associated with man-made disturbances. Figure 5 is a digital elevation model map which provides a more detailed visual of topographic changes and land alterations.

Figure 4: Topography Map



CONSERVATION 20/20 LAND PROGRAM

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Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 1.25 1.5 Miles

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Map Prepared on: 09/09/2009
by lwewerka@leegov.com

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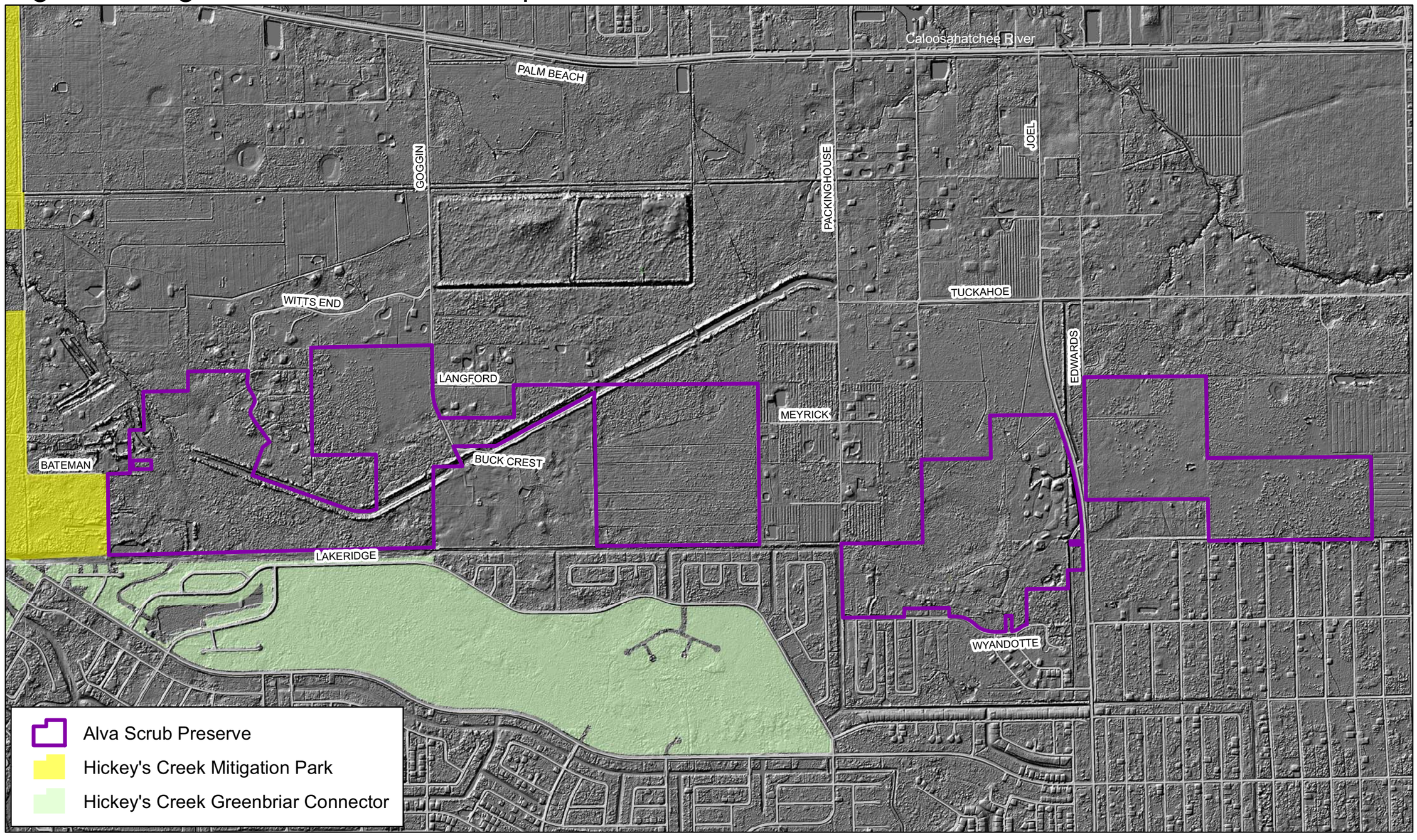
Figure 5: Digital Elevation Model Map



CONSERVATION 20/20 LAND PROGRAM

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Alva Scrub Preserve

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Map Prepared on: 4/1/2010
by lgreeno@leegov.com

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iv. Soils

The Soil Survey of Lee County, Florida (Henderson 1984) was designed for a diverse group of clients to be able to comprehend soil behavior, physical and chemical properties, land use limitations, potential impacts, and protection of the environment. The soils maps are based on vegetation and landscapes as interpreted from aerial photos, along with fieldwork. Major fieldwork conducted for the Lee County Soil Survey was completed in 1981. Accuracy of soil mapping is often around 70 to 80%, with a typical 3-acre mapping limit (WMI 2005).

Based on these classifications, fifteen different soil types are found at ASP. A common relationship for all of these soil types is that they are poorly drained with slopes ranging from 0-2%. Slope is "the inclination of the land surface from the horizon." Essentially, it has been established that ASP is fundamentally level. An additional similarity is that all the soils have limitations that affect their suitability for recreational development. The soils within the Preserve have all been identified as having severe limitations. Severe means "that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures." These limitations are one of several reasons why public use amenities will be limited to an informal primitive trail in limited portions of ASP (Parcel 325).

Figure 6 shows the location of these soils. For simplification in determining the possible saturation, the soils are coded in the maps. Upland soils are indicated with blue dots. Matlacha Gravelly Fine Sand, Limestone Substratum is the only "upland" soil. This soil is formed as a result of mining in areas with underlying limestone. Soils that sometimes contain wetlands (20-40%) are indicated with white dots and those that often have wetlands (75-95%) have black hatch marks. The wettest soils, typically found in depressions, are a solid color.

Table 2 summarizes the characteristics of the Preserve's soils. These characteristics have been organized in the table to quickly provide land stewards with pertinent soils information for understanding restrictions and/or results regarding future habitat restoration and probable recreational plan limitations and expenses. The descriptions below explain the soil characteristics found in the table.

<u>Habitats (Range Sites):</u>

Based on the Soil Survey of Lee County, there are eight generalized range site categories in the county and three are found on ASP. Man-made areas are not included in range site categories. These categories are not Florida Natural Areas Inventory (FNAI) designations and may not correspond with the vegetation that is currently present on site. The ranges identified on the Preserve are:

- South Florida Flatwoods - Nearly level areas with scattered to numerous pine trees (*Pinus elliottii* var*. densa*), saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), and other woody plants.
- Slough - Open grassland where nearly level areas act as broad natural drainage courses in the flatwoods. Potential plant community is dominated by maidencane (*Panicum hemitomon*) and bluestems (*Andropogon spp.*).
- Freshwater marshes and ponds - Open grassland marshes or ponds (depressions) with the potential to produce significant amounts of various grasses, sedges, and rushes. Water fluctuates throughout the year. The areas at ASP where soil types are designated as marshes or ponds have a cover type of cypress or mixed cypress/pine. Standing water occurs during the wet season.

Wetland Classification:

Wetland classifications are used to identify locations that may retain water for an indeterminate amount of time.

- 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.

Hydrologic Group:

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms. The hydrologic categories at ASP are:

- B - Soils having a moderate infiltration rate (low to moderate runoff potential) when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well-drained soils that have moderately fine texture to moderately coarse texture. Moderate rate of water transmission.
- C - Soils having a slow infiltration rate (moderate to high runoff potential) when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. Slow rate of water transmission.
- D - Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist mainly of clays that have a high shrink-well potential, soils that have a permanent high water table, soils that a have a

clay pan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. Very slow rate of water transmission.

Note that some of the soil types are shown as having dual hydrologic groups, such as B/D. A B/D listing means that under natural conditions the soil belongs to D, but by artificial methods the water table can be lowered sufficiently so that the soil fits in B. The Preserve has received an extensive level of hydrological alterations including agricultural berms and ditches which has affected the soil hydrology and behavior.

Surface and Subsurface Permeability:

Soil permeability is defined as "the quality of the soil that enables water to move downward through the profile." Permeability is measured as the number of inches per hour that water moves downward through the soil. The water table columns indicate the amount of time water may be present at specified depth ranges. Terms describing permeability at ASP are:

Moderate	0.6 – 2.0 inches
Moderately rapid	2.0 – 6.0 inches
Rapid	6.0 – 20 inches

Wildlife Habitat:

Soils affect the type, quality and quantity of food and cover for wildlife. Wildlife diversity and abundance are also influenced by distribution of food, cover, and water. Wildlife habitat may be created or improved by planting appropriate vegetation, maintaining existing plant communities and promoting the natural establishment of desired vegetation. The soils of Lee County occur in four different habitat types:

- Openland: Cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. Wildlife attracted includes northern bobwhite quail (*Colinus virginianus*), sandhill cranes (*Grus canadensis*), hawks, various birds, and rabbits.
- Woodland: Deciduous plants, coniferous plants, grasses, legumes, and wild herbaceous plants. Wildlife attracted includes wild turkeys (*Meleagris gallopavo*), thrushes, woodpeckers, squirrels, foxes, raccoons (*Procyon lotor)*, white-tailed deer (*Odocoileus virginianus*), snakes, frogs, and bobcats (*Lynx rufus*).
- Wetland: Open, marshy or swampy shallow water areas. Wildlife attracted includes ducks, ibis, egrets, herons, shorebirds, snakes, frogs, alligators (*Alligator mississippiensis*), and otters (*Lutra canadensis*).
- Rangeland: Shrubs and wild herbaceous plants. Wildlife attracted includes white-tailed deer, quail, Virginia opossums (*Didelphis virginiana*), and various birds.

The potential of the soil for wildlife habitat is rated as:

- Good - Easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected.
- Fair - Established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results.
- Poor - Limitations are severe as habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive.
- Very poor - Restrictions are very severe and unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.
- -- Soil was not rated.

Distance to Limestone:

The typical distance to limestone is an important factor when installing fencelines, monitoring wells or other structures.

Table 2: Alva Scrub Preserve Soil Attributes

Soil Type	Map Symbol	Parcel 57		Parcel 127		Parcel 136		Parcel 195		Parcel 325		Parcel 357		Total % of ASP	Total Acres
		Total Acres	% of Preserve	Total Acres	% of Preserve	Total Acres	% of Preserve	Total Acres	% of Preserve	Total Acres	% of Preserve	Total Acres	% of Preserve		
Boca Fine Sand	13	12.1	1%	--	--	2.4	<1%	15.2	1%	33.9	4%	64.9	8%	15%	128.5
Boca Fine Sand, Slough	74	--	--	--	--	--	--	11.1	1%	7.6	<1%	--	--	2%	18.7
Copeland Sandy Loam, Depressional	45	59.9	7%	3.7	<1%	1.2	<1%	--	--	11.6	1%	--	--	9%	76.4
Felda Fine Sand	12	--	--	6.4	<1%	3.4	<1%	--	--	--	--	--	--	1%	10.1
Hallandale Fine Sand	6	34.0	4%	11.3	1%	26.3	3%	--	--	--	--	24.5	3%	11%	96.1
Immokalee Sand	28	--	--	--	--	--	--	49.0	6%	63.7	8%	--	--	13%	112.7
Isles Fine Sand, Depressional	39	--	--	--	--	--	--	--	--	31.6	4%	--	--	4%	31.6
Malabar Fine Sand	34	--	--	--	--	--	--	41.1	5%	--	--	--	--	5%	41.1
Matlacha Gravelly Fine Sand, Limestone Substratum	18	10.7	1%	3.3	<1%	--	--	--	--	--	--	--	--	2%	13.9
Oldsmar Fine Sand, Limestone Substratum	33	--	--	--	--	--	--	18.6	2%	21.1	2%	96.0	11%	3%	24.8
Oldsmar Sand	50	3.1	<1%	--	--	--	--	--	--	--	--	21.7	2%	16%	135.7
Pineda Fine Sand, Depressional	73	--	--	--	--	--	--	--	--	8.4	1%	--	--	1%	8.4
Pineda Fine Sand, Limestone Substratum	77	--	--	--	--	--	--	.5	<1%	--	--	--	--	<1%	.5
Wabasso Sand	35	--	--	--	--	--	--	36.8	4%	--	--	--	--	4%	36.8
Wabasso Sand, Limestone Substratum	42	12.0	1%	--	--	3.4	<1%	--	--	18.3	2%	70.9	8%	12%	105.0

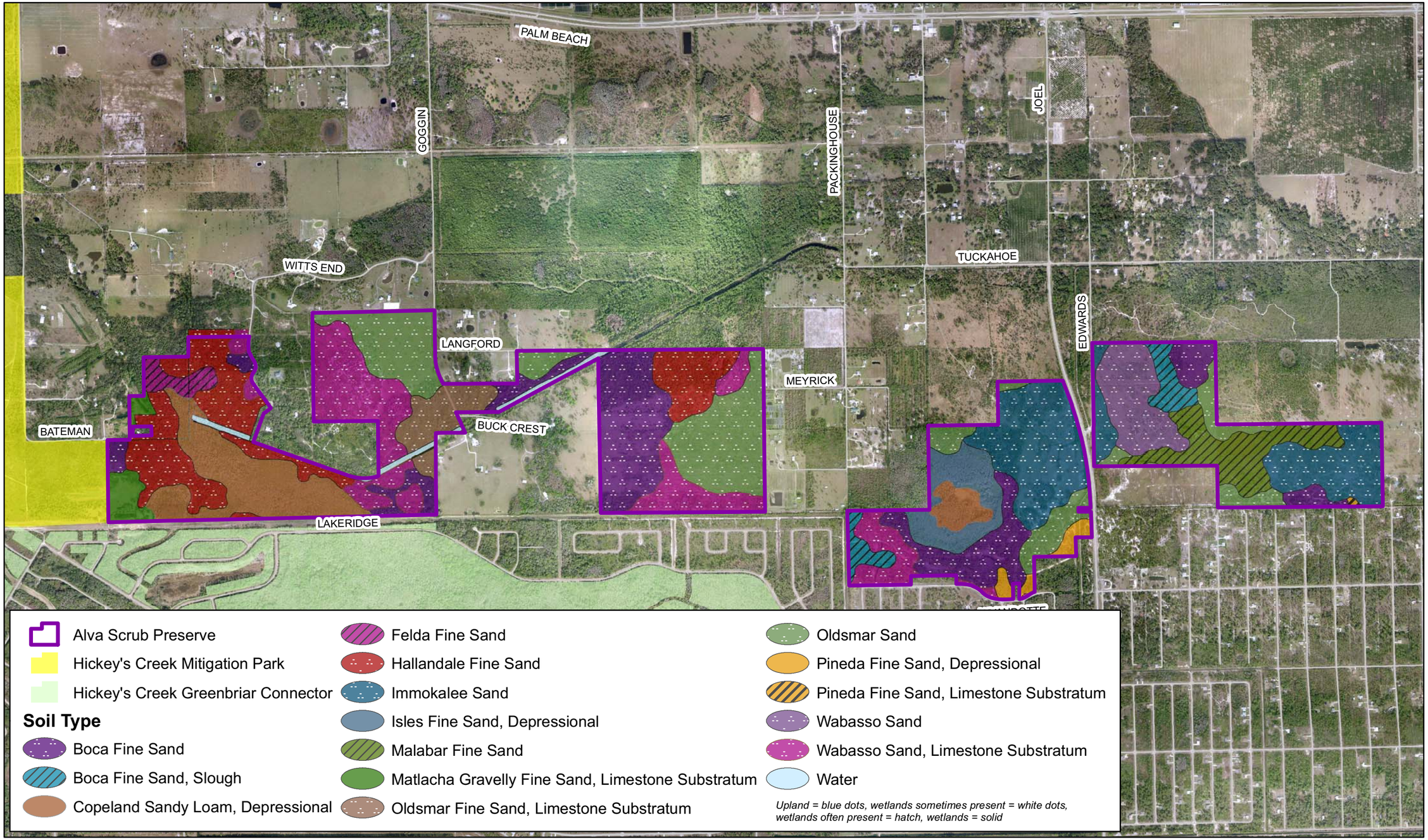
Note: Due to rounding up or down values, the total acres and percentages may not equal the total number of acres in the Preserve

Soil Type	Habitats (Range Site)	Wetland Class	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…				Depth to Limestone
									Openland	Woodland	Wetland	Rangeland	
Boca Fine Sand	south Florida flatwoods		B/D	rapid	rapid	2-4 months	6 months	1-3%	fair	poor	fair	good	30"
Boca Fine Sand, Slough	south Florida flatwoods	S	B/D	rapid	rapid	2-4 months	>4 months	1-3%	poor	very poor	fair	fair	38"
Copeland Sandy Loam, Depressional	freshwater marshes/ponds	P	D*	rapid		3-6 months	3-6 months	2-6%	very poor	very poor	good	--	28"
Felda Fine Sand	slough	S	B/D	rapid	rapid	2-4 months	~6 months	1-4%	fair	poor	fair	--	80"+
Hallandale Fine Sand	south Florida flatwoods		B/D	mod - mod rapid		1-3 months	7 months	2-5%	poor	poor	fair	poor	12"
Immokalee Sand	south Florida flatwoods		B/D	rapid	rapid	1-3 months	2-6 months	1-2%	poor	poor	poor	--	80"+
Isles Fine Sand, Depressional	freshwater marshes/ponds	P	D*	rapid	rapid	3-6 months	2-4 months	1-2%	very poor	very poor	good	--	47"
Malabar Fine Sand	slough	S	B/D	rapid	rapid	2-4 months	>6 months	1-2%	poor	poor	fair	--	80"+
Matlacha Gravelly Fine Sand, Limestone Substratum	manmade areas		C	mod – mod rapid			2-4 months	not estimated	--	--	--	--	48"
Oldsmar Sand	south Florida flatwoods		B/D	rapid	rapid	1-3 months	>6 months	1-2%	fair	fair	poor	--	80"+
Oldsmar Fine Sand, Limestone Substratum	cabbage palm flatwoods		B/D	rapid	rapid	2-4 months	>6 months	1-2%	fair	fair	poor	fair	60"
Pineda Fine Sand, Depressional	freshwater marshes/ponds	P	D*	rapid	rapid	3-6+ months	4-6 months	.5-6%	very poor	very poor	good	--	80"+
Pineda Fine Sand, Limestone Substratum	slough	S	B/D	rapid	rapid	2-4 months	4-6 months	1-2%	fair	poor	fair	--	52"
Wabasso Sand	south Florida flatwoods		B/D	rapid	rapid	2-4 months	>6 months	1-4%	poor	fair	poor	--	80"+
Wabasso Sand, Limestone Substratum	south Florida flatwoods		B/D	rapid	rapid	1-3 months	2-4 months	2-5%	poor	fair	poor	--	51"

Color Key

Upland
Wetlands sometimes Present – 20-40%
Wetlands often present – 75-95%
Wetlands very often present – 100%

Figure 6: Soils Map



CONSERVATION 20/20 LAND PROGRAM

N

Alva Scrub Preserve

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Alva Scrub\LSP_2010\ASP_soils.mxd

Map Prepared on: 09/09/2009
by lwewerka@leegov.com

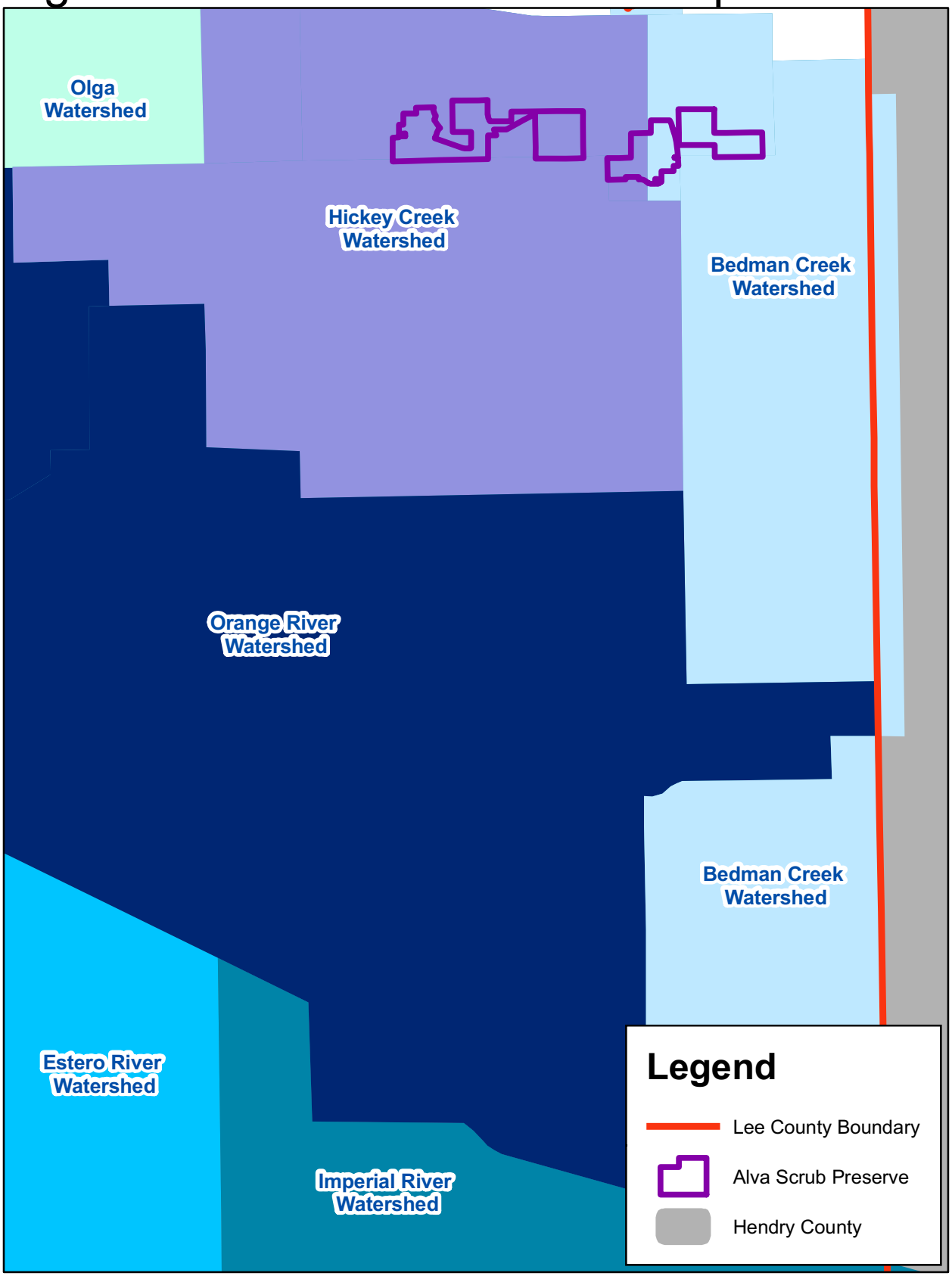
This is not a survey. Land Stewardship Staff has prepared this map for informational and planning purposes

v. Hydrologic Components and Watershed

ASP is within the Big Cypress Basin (BCB) of the South Florida Water Management District's (SFWMD) Lower West Coast Region. The BCB is further divided into 10 watersheds. The Preserve lies in the Southwest Caloosahatchee watershed which extends from the Caloosahatchee River, south to State Road 82 in east Lee County.

LCDNR divides Lee County into 48 different watersheds. They look at the county from a more refined scale than SFWMD since their area of monitoring and restoration is much smaller. ASP lies within the Bedman Creek (BCW) and Hickey Creek Watersheds (HCW) (Figure 7). The BCW is approximately 30 square miles and is partially in Hendry County. It originates at the Caloosahatchee River and consists of two rectangular portions, connected by a canal. This watershed is considered a recharge area for the sandstone aquifer which supplies drinking water to Lee County. The HCW is approximately 27.5 square miles, also originating at the Caloosahatchee River.

Figure 7: LCDNR Watershed Map



CONSERVATION 20/20 LAND PROGRAM

Alva Scrub Preserve

0 0.5 1 2 3 4 Miles

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Map Prepared on: 11\25\2009
by lwewerka@leegov.com

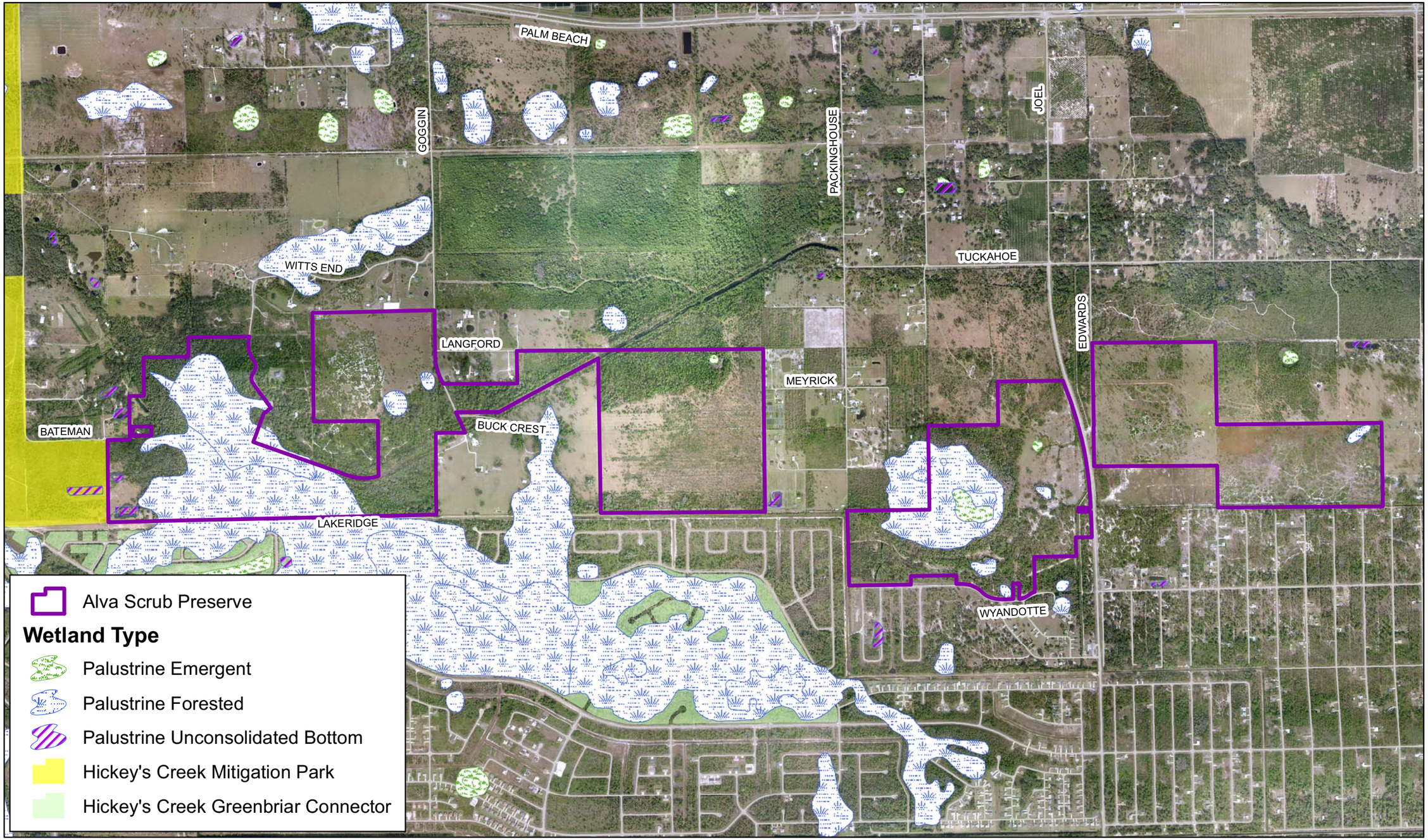
This is not a survey. Land Stewardship Staff has prepared this map for informational and planning purposes

Scaling down from watersheds to wetlands, the United States Fish and Wildlife Service (USFWS) directed its Office of Biological Services to conduct an inventory of the nation's wetlands in 1974. This National Wetlands Inventory (NWI) became operational in 1977. Wetlands were identified on the photography by vegetation, visible water features and geography, and subsequently classified in general accordance with the Classification of Wetlands and Deep Water Habitats of the United States (Cowardin et al. 1979).

Figure 8 identifies the variety of palustrine wetlands as identified by NWI. Palustrine systems are all non-tidal wetlands dominated by trees, shrubs, persistent emergent aquatic plants, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5%. The majority of the palustrine wetlands located on ASP are forested. Forested wetlands are characterized by woody vegetation that is 6 meters (19.6 feet) tall or taller. These areas typically have an overstory of trees, an understory of young trees or shrubs and an herbaceous layer. The dominant species that occurs in the palustrine forested wetlands at ASP is cypress (*Taxodium spp.*) and laurel oak (*Quercus laurifolia*). There is a small emergent wetland on Parcel 325 and two unconsolidated bottom wetlands on Parcel 57. Emergent wetlands are characterized by erect rooted, herbaceous hydrophytes, excluding mosses and lichens that are present for most of the growing season. A variety of grasses, sedges and other herbaceous plants such as alligator flag (*Thalia geniculata*), dotted smartweed (*Polygonum punctatum)* and sawgrass (*Cladium jamaicense*) are typically found in this wetland category at the Preserve. Unconsolidated bottom wetlands have less than 30% vegetative cover with a lack of large stable surfaces for plants and animal attachment. These wetlands at the Preserve are two of the borrow ponds from the dolomite mining on the Preserve.

In addition to the NWI wetlands, there are a variety of wetlands not detected including wet prairies, hydric hammocks, wet flatwoods, strand swamps and dome swamps. More information about these wetlands can be found in the Natural Plant Communities section.

Figure 8: National Wetland Inventory Map



CONSERVATION 20/20 LAND PROGRAM

Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 1.25 1.5 Miles

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Map Prepared on: 11\24\2009
by lwewerka@leegov.com

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

LCDNR installed a monitoring well near the entrance gate of Parcel 195 on June 24, 2005. This well monitors groundwater table levels. Data collected from it may be used in conjunction with this stewardship plan for future work at ASP.

The final hydrological component to ASP is the assortment of ditches, berms, canals, internal roads and cattle wells. These were primarily installed for agricultural and cattle operations and all influence the water flow on the site by both interrupting sheet flow and holding water for extended periods in some areas while excessively draining other areas. These unnatural features will be discussed more fully in the Internal Influences section of this plan.

B. Biological Resources

i. Ecosystem Function

ASP contains a diverse range of wetland and upland communities. Pine flatwoods serve as important habitat for a variety of birds, small mammals, reptiles and amphibians and some large mammals including white-tailed deer. Birds find shelter in scattered palmetto understory, while gopher tortoises forage in the grassy open areas. Oak toads (*Anaxyrus quercicus*) dig burrows in the sandy soil and hunt for spiders and insects.

Fire is an important element affecting the health of pine flatwoods. Florida has more thunderstorm days per year than anywhere else in the country and, in turn, one of the highest frequencies of lightning strikes of any region in the United States. Fire shapes ecosystem processes in the flatwoods including creation of soil conditions suitable for germination of seeds of some species, turnover of litter, humus and nutrients, reduction of competition from hardwoods and increasing the hardiness of some plant species (Myers and Ewel 1990). Fire will be a very useful management tool at ASP.

Mechanical thinning and rollerchopping of pine flatwoods is beneficial, especially in areas that have suffered fire suppression or have had hydrologic alterations to surrounding lands which in turn creates conditions favoring growth of pines over hardwood species. Without regular fire or mechanical work, pine flatwoods can become dense stands of palmetto and have tall weak pines which block sunlight from reaching the ground, further decreasing the coverage of native grasses and wildflowers that gopher tortoises, quail and many other species depend upon.

The abandoned fields provide open habitat for the American kestrel (*Falco sparvarius)* and Florida scrub jay to hunt for grasshoppers and other small prey. The sparseness of trees allows the scrub jay a field of view to watch for predators.

The hammock and mesic communities along with the wetland areas of ASP provide places for birds to feed and for fish and frogs to live and breed. Additionally, they improve water quality and recharge the aquifer. The seasonal changes in southwest Florida affect the hydrologic components at this Preserve. During the late spring and summer months, the rain begins to fall and the soils of the mesic and hydric communities become saturated and standing water sits on the site, slowly percolating down to the aquifer, or forming sheetflow and moving across the watershed. In the fall when the rains end, the water recedes but the soils often remain saturated less than a foot below the surface.

The strand and dome swamps provide excellent cover and foraging for warblers and other migratory song birds. Animals depend on the health and long-term viability of the cypress communities for nesting, breeding and feeding. The Florida cottonmouth (*Agkistrodon piscivorus conanti*) uses mats of debris in the swamp ferns as sunning platforms. Yellow-crowned night herons (*Nyctanassa violacea*) build their nests in the trees and 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.

ASP adjoins HCMP to the west and provides an east west connector of almost five miles, separated only by a half mile of private land between Parcels 357 and 325, Langford Road and Joel Blvd. This connector, with proper land management, will provide dispersal opportunities for the Federally listed Florida scrub jay, as well as a wide diversity of songbirds, mammals and reptiles.

ii. Natural Plant Communities

ASP consists of ninteen natural and altered plant communities; the majority of which consists of mesic flatwoods, abandoned fields, hydric hammocks and strand swamps. Over 11% of the plant communities are designated as "disturbed" typically due to alterations in the fire regime and/or changes in the natural drainage patterns. Approximately 32% of ASP has been categorized as various altered plant communities. Figure 9 shows the location of the plant communities found at ASP and Table 3 breaks down each community by parcel number. The plant communities are defined using the Guide to the Natural Communities of Florida (2009) prepared by FNAI.

The following are descriptions of the dominant plants and characteristic animals found within each community. A complete list of plant species identified during site inspections to ASP can be found in Appendix A. This list will be updated on a seasonal basis to identify plants in their inflorescence phase.

Mesic Flatwoods – 167.1 acres, 20% coverage at ASP

Synonyms for this plant community include pine flatwoods and pine savannahs. Mesic flatwoods occur on relatively flat, moderately to poorly drained soils.

Standing water is common for brief periods during the rainy season. Mesic flatwoods are characterized as having an open canopy with widely spaced pine trees and a dense ground cover of herbs and shrubs. The majority of the mesic flatwoods at the Preserve were thinned during 2009 with oversight from the Florida Division of Forestry (FDOF). Ideal ranges for natural areas of south Florida slash pine range from 40-50 with a range of 30-80 square feet of basal area which provides adequate sunlight for herbaceous plants and new pine recruitment as well as sufficient pine needles to carry fire (FDOF et. al 2008, Weston 2009). Mesic flatwoods at the Preserve average 30-40 basal area. Typical plants growing in these communities at ASP include south Florida slash pine, saw palmetto, coastal plain staggerbush (*Lyonia fruticosa*), and bottlebrush threeawn (*Aristida spiciformis*).

A few animals that have been documented utilizing mesic flatwoods at the Preserve include white-eyed vireo (*Vireo griseus*), red-bellied woodpecker (*Melanerpes carolinus*), eastern cottontail rabbit (*Sylvilagus floridanus*), and the Florida scrub jay.

The average fire return interval in mesic flatwoods is 3.2 years (FNAI 2009) with a historic maximum of ten years between burns. Without frequent fires mesic flatwoods will succeed into hardwood-dominated forests whose closed canopy will gradually eliminate the groundcover of herbs and shrubs. On the other hand, too frequent or too hot fires can eliminate pine recruitment and eventually transform the mesic flatwoods into dry prairie. Studies have shown that varying the season and interval between burns produces the most diversity of herbaceous ground cover plants (Robbins and Myers 1992).

Portions of the mesic flatwoods community within the Preserve contains exotic plant coverage of 0 – 25% consisting of Brazilian pepper (*Schinus terebinthifolius)* and melaleuca.

Mesic Flatwoods (Disturbed) – 59.1 acres, 7% coverage at ASP

According to aerial photographs, portions of the Preserve were cleared for agriculture in the 1950s and 1960s. The mesic flatwoods in these areas do not have the diversity of groundcover and other herbaceous plants. Typical species include south Florida slash pine, saw palmetto, muscadine (*Vitis rotundifolia*) and beautyberry (*Callicarpa americana*).

Abandoned Field – 108.0 acres, 13% coverage at ASP

This disturbed community is defined as early successional areas that were formerly used for agriculture. Restoration activities to smooth the furrows and remove the exotic grasses will need to occur before it can become a viable plant community. Plants found within this disrupted community at ASP include wax myrtle (*Myrica cerifera*), small live oaks (*Quercus virginiana*), netted pawpaw

(*Asimina reticulata*), bahiagrass (*Paspalum notatum var. saurae*), and muscadine.

Wildlife utilizing the abandoned field include bobwhite quail, Big Cypress fox squirrel (*Sciurus niger avicennia)* and cottontail rabbit.

The exotic plant cover in the abandoned cropland areas includes torpedo grass (*Panicum repens*) caesarweed (*Urena lobata)* and Brazilian pepper.

Strand Swamp – 82.0 acres, 10% coverage at ASP

Strand swamps are shallow, forested wetlands, typically linear in shape and dominated by bald cypress (*Taxodium distichum*) with an extensive variety of understory and herbaceous plants including pond apple (*Annona glabra*), laurel oak (*Quercus laurifolia*), myrsine (*Rapanea punctata*), royal fern (*Osmunda regalis* var. *spectabilis*) and sawgrass. Thick vines such as laurel greenbrier (*Smilax laurifolia*) and eastern poison ivy (*Toxicodendron radicans*) can make this a challenging community to walk through. Hydroperiods for this community range from 100-300 days and the water remains the deepest in the center of the channels. The plant diversity in this community is often a result of slight topographical changes, including the epiphytic nature of some plants to grow on the stumps and rotting logs of fallen trees. The remnant strand swamp communities at the Preserve were once part of a much bigger swamp system that included Greenbriar Swamp to the south which has now been cut off from its historic drainage by canals and platted roads.

Wildlife documented utilizing strand swamps at the Preserve include pileated woodpeckers (*Dryocopus pileatus*), yellow rat snakes (*Elaphe obsoleta quadrivittata*), and eastern gray squirrels (*Sciurus carolinensis*).

Exotic plant cover varies in this community from 0-75%, the primary invasive exotic plants being Brazilian pepper and small-leaf climbing fern (*Lygodium microphyllum)*

Strand Swamp (Disturbed) – 14.3 acres, 2% coverage at ASP

Three portions of Parcel 325 have been cut off from the rest of the community by interior jeep trails and ditches. Some of the plants remain, but the cypress trees do not show waterlines or other evidence of an extended hydroperiod. The most western portion was almost completely dominated by melaleuca (*Melaleuca quinquenervia*) until the spring of 2009 when they were removed. The scattered cypress trees in this area appear to be stunted.

Hydric Hammock Community – 90.3 acres, 11% coverage at ASP

Hydric hammock communities are a closed canopy community primarily consisting of oaks and palms with a scattered understory and moderate cover of herbaceous species. The primary canopy trees found at ASP include laurel oak and cabbage palm. Additional understory species include swamp bay (*Persea palustris*), wax myrtle, wild coffee (*Psychotria nervosa*), strangler fig (*Ficus aurea*) and numerous vines. The herbaceous cover includes a variety of flat sedges (*Cyperus spp.*), maiden ferns (*Thelypteris spp.*), and swamp fern (*Blechnum serrulatum).* Numerous epiphytes grow on the trees, including shoestring fern (*Vittaria lineata)* and the Florida state endangered hand fern (*Ophioglossum palmatum*). Like the strand swamp community, plant species found in this community vary depending on water levels, and although the hydroperiod may be short, soil moisture typically remains high during the year. Because of their generally saturated soils and the sparse herbaceous cover, hydric hammocks rarely burn. The hydric hammock community at ASP surrounds Hickey's Creek and the adjacent strand swamp community on the western side of the Preserve.

Wildlife documented in this community include gray catbirds (*Dumetella carolinensis*), Florida black bears (*Ursus americanus floridanus*) and brown thrasher (*Toxostoma rufum*).

Exotic plant cover varies in this community from 0-75%, the primary invasive exotic plants are Brazilian pepper, small-leaf climbing fern and Caesar's weed. An additional concern is the tremendous damage to the understory caused by feral hogs (*Sus scrofa*).

Scrubby Flatwoods – 83.5 acres, 10% coverage of ASP

The scrubby flatwoods at ASP are found on the eastern side of Parcels 195 and 325. Scrubby flatwoods are characterized by an open canopy of widely scattered south Florida slash pine trees with a sparse, shrubby understory of scrub oaks, myrtle oak (*Quercus* myrtifolia), Chapman's oak (*Quercus* chapmanii), running oak (*Quercus elliottii*) as well as understory plants including pennyroyal (*Piloblephis rigida*), gopher apple (*Licania michauxii*) and shiny blueberry (*Vaccinium myrsinites*). There are small bare sand openings lacking vegetation thoughout this community. The white sandy soil found here is typically several feet deep and drains rapidly. These areas usually do not flood even under extremely wet conditions. Naturally occurring fire returns every 5-15 years. This longer return interval is due to the lack of ground vegetation and abundance of non-combustible scrub-oak leaf litter that is present.

Animals seen in this community include gopher tortoises, Florida scrub jays, northern cardinals (*Cardinalis cardinalis*), and bobwhite quail.

Exotic cover in this community is typically <10% and includes Brazilian pepper, seedling melaleuca and Caesarweed.

Scrubby Flatwoods (Disturbed) – 5.9 acres, 1% coverage at ASP

According to aerial photographs, portions of the Preserve were cleared for agriculture in the 1950s and 1960s. The mesic flatwoods in these areas do not have the diversity of groundcover and other herbaceous plants. Typical species include south Florida slash pine, saw palmetto, muscadine and beautyberry.

Pasture- Semi-improved – 72.2 acres, 9% coverage of ASP

This disturbed plant community is characterized by a mix of planted forage grasses and native groundcover and typically has some native trees and shrubs. These areas at ASP include south Florida slash pine, saw palmetto, muhly and other native grasses in addition to the non-native bahia grass and Bermuda grass (*Cynodon dactylon*).

Mesic Hammock Community – 54.5 acres, 6% coverage at ASP

Mesic hammock communities are another closed canopy community with live oaks and cabbage palms (*Sabal palmetto*) in the overstory, saw palmetto, American beauty berry, hog plum (*Ximenia americana*) and wild coffee in the understory. Herbaceous plants include woodsgrass (*Oplismenus hirtellus*), witchgrasses (*Dichanthelium spp.*) and bracken fern (*Pteridium aquilinum*). Epiyphytes are a characteristic feature of mesic hammocks and include shoestring fern, golden polypody (*Phlebodium aureum*), resurrection fern (*Pleopeltis polypodioides*) and bromeliads (*Tillandsia spp.*). Unlike hydric hammocks, mesic hammocks soils tend to be well-drained but the heavy canopy cover and leaf litter keep the soils moist and fire is uncommon. Mesic hammock communities at ASP are most common on the western portion of the Preserve.

Wildlife documented in this community include American redstarts (*Setophaga ruticilla*), brown thrashers and eastern gray squirrels.

Exotic plant cover varies in this community from 0-50%, the primary invasive exotic plants being Brazilian pepper, Caesar's weed, rosary pea (*Abrus precatorius*), guava (*Psidium guajava*) and tropical soda apple (*Solanum viarum*). Feral hogs have also caused considerable damage to this community at ASP.

Cultural Hardwood Forest – 46.0 acres, 5% coverage at ASP

This disturbed community resembles hammock communities. They are created from pine flatwoods that have been invaded by oaks due to lengthy fire

suppression or from cleared fields that have succeeded back into forests. Restoration to a more natural community requires mechanical tree removal, reintroduction of fire and, sometimes, seeding or planting of herbaceous species. Plants noted include south Florida slash pines, saw palmetto, live oak and cabbage palms. Cultural Hardwood Forests are found on Parcels 325 and 357.

Pasture - Improved – 24.8 acres, 3% coverage at ASP

Unlike the semi-improved pasture, this disturbed plant community is composed of forage grasses with minimal native groundcover and has evidence of current or recent grazing. Bermuda and Bahaiagrass are the most abundant species, but several weedy natives are typically found including dogfennel (*Eupatorium capillifolium*) and rustweed (*Polypremum procumbens).* The majority of the pasture in Parcel 325 falls within this description.

Dome Swamp (Disturbed) – 11.7 acres, 1% coverage at ASP

Parcels 195, 325 and 357 contain whole or remnant elements of dome swamp communities. Dome swamps are characterized as shallow, forested, usually circular depressions that generally present a domed profile because larger trees growing in the center and smaller trees growing on the periphery. Typical plants found in these communities at the Preserve include cypress, pond apple in the overstory, common buttonbush (*Cephalanthus occidentalis*), wax myrtle and myrsine in the mid story and herbaceous plants including golden polypody, Virginia chain fern (*Woodwardia virginica*), resurrection fern, orchids (Orchidaceae), and bromeliads (Bromeliaceae). The typical hydroperiod for dome swamps is 180 to 270 days per year and fire is an important component for maintaining healthy species composition. Without fire, the dominant canopy can succeed to hardwoods. The fire frequency varies from 3-5 years on the edge and 100-150 years in the center. All of the dome swamps at ASP have been compromised due to hydrologic alterations, fire suppression and logging practices in the 1940s and 50s. Returning fire to these systems may result in high mortality due to the decades buildup of peat.

Typical animals include white ibis, common yellowthroat and several species of treefrogs (*Hyla spp.*).

Exotics coverage in this community ranges from 25-50% and includes melaleuca, Brazilian pepper, guava, valamuerto (*Senna pendula* var. *glabrata*), rosary pea and Caesar weed. Some of the dome swamps are also heavily impacted by feral hog activity.

Wet Prairie – 9.3 acres, 1% coverage of ASP

Wet prairies are described as a treeless plain with a ground cover of grasses and herbs including a wide variety of sedges (*Rhynchospora spp., Scleria spp.,* as well as beaksedge, fringed yellow stargrass (*Hypoxis juncea*), pale

meadowbeauty (*Rhexia mariana*), and blue maidencane (*Amphicarpum muhlenbergianum*). This community occurs on relatively flat, poorly drained low areas and soil typically consists of sands with a clay or organic component. Wet prairies are fire dependant communities with some species dependent on fire to stimulate reproduction. Typically these areas burn every 2-3 years and become invaded with wax myrtle and other trees and shrubs during longer fire intervals. These larger plant species eventually reduce the hydroperiod through evapotranspiration and increased biomass as well as shade out the groundcovers. Wet prairie communities can be found on Parcels 325 and 195.

Wet prairie communities are extremely important in providing breeding and foraging habitat for a variety of wildlife. Animals documented utilizing this community at ASP include Wilson's snipe (*Gallinago delicata*), eastern narrowmouth toad (*Gastrophryne carolinensis*) and Florida box turtle (*Terrapene carolina bauri*).

Exotic plant cover, primarily torpedo grass, varies in this community from 0-50%.

Impoundment/Artificial Pond – 5.6 acres, 1% coverage of ASP

This disturbed plant community includes water retention ponds, cattle ponds, and borrow pits. There are four borrow pits located on the western portion of ASP that were created in the 1950s and 60s for mining dolomite. Cattle ponds were dug on Parcel 325 in the 1970s and 2000s and on Parcel 195 between 1986 and 1998. Vegetation growing in the ponds includes waterlily (*Nymphaea spp.*) and knotted spikerush (*Eleocharis interstincta*) and the berms surrounding the ponds have Brazilian pepper, live oak and cabbage palms.

Exotic Monoculture – 4.6 acres, 1% coverage of ASP

FNAI defines this disturbed community as a stand of invasive exotic plants that have eliminated, or nearly eliminated native vegetation. The exotic monocultures at ASP consist primarily of Brazilian pepper.

Canal/Ditch – 4.3 acres, <1% coverage of ASP

These artificial drainages occur on the western-most tracts (Hickeys Creek Canal) as well as a smaller ditch on Parcel 325. Plant species include broadleaf cattail (*Typha latifolia*), torpedo grass, maidencane and spadderdock (*Nuphar advena*).

Wet Flatwoods (Disturbed) – 3.1 acres, <1% coverage of ASP

The disturbed wet flatwoods community is found on Parcel 325. This community occurs on relatively flat, poorly drained terrain where water frequently stands on the surface for one or more months of the year. This community has an

overstory of scattered south Florida slash pines and an understory of herbaceous hydrophytic species including St. John's-wort (*Hypericum spp.*), blue maidencane, yellow-eyed grass (*Xyris spp.*) and beaksedges. This type of flatwoods can be distinguished from mesic and scrubby flatwoods by the absence or low levels of saw palmetto and low-growing oaks. Many plants here are under the stress of water saturation during the wet season and under the stress of dehydration during the dry season. The ideal burn return in south Florida is every four years. Without regular fire shrubs and hardwoods can dominate.

Animals documented utilizing this plant community include red-shouldered hawk (*Buteo lineatus*), blue-gray gnatcatcher (*Polioptila caerulea*), and Florida cricket frog (*Acris gryllus dorsalis*).

Until 2009, this community was heavily infested with melaleuca when a grant provided funds for a contractor to come in and remove the melaleuca. Currently, this community is still being categorized as "disturbed" because of the heavy slash of melaleuca and minimal groundcover species.

Blackwater Stream – 0.6 acres, <1% coverage of ASP

Hickey's Creek, located on the northwest corner of the Preserve, is characterized by FNAI as a blackwater stream. On the Preserve, this creek is a winding, shallow waterway with occasional deep pools. After leaving the Preserve boundary it gradually widens into a larger waterbody, eventually draining in the Caloosahatchee River. Blackwater streams are the most widely distributed and numerous riverine systems in the southeast Coastal Plain. They are created from broad areas that collect rainfall that is slowly discharged into the stream. The water is tea-colored from the tannins and organic matter collected during this upstream drainage. Plants growing within the creek include smartweed and creeping primrosewillow (*Ludwigia repens*). The vegetation growing along the creek banks includes Carolina willow and Florida bully (*Sideroxylon reclinatum*).

A few animals that have been documented utilizing the stream and bank vegetation include green treefrogs (*Hyla cinerea*) and Carolina wrens (*Thryothorus ludovicianus*).

Exotic plant coverage varies between 10-25% for the majority of the creek bank and consists of Brazilian pepper.

Road – 0.3 acres, <1% coverage of ASP

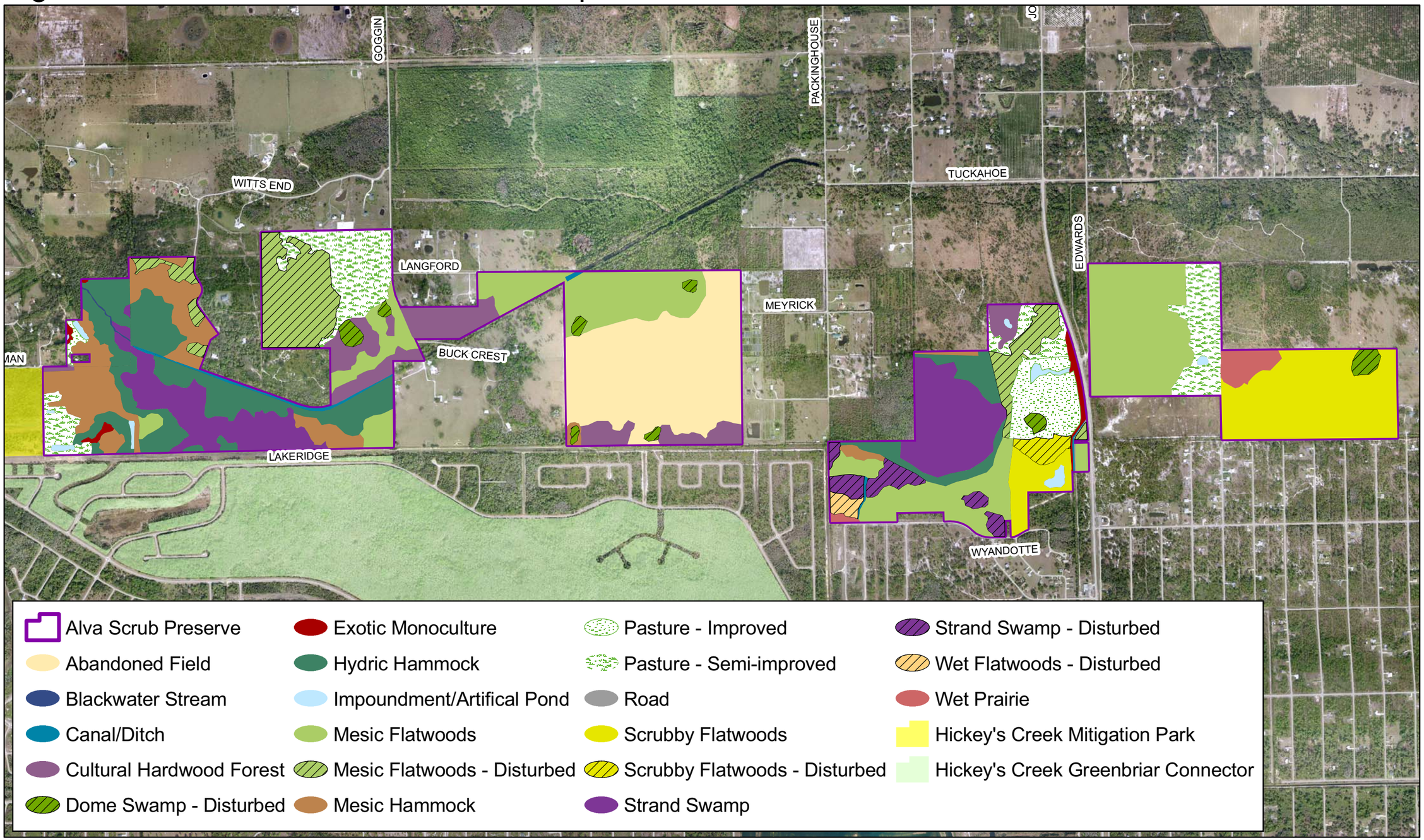
Parcel 127 has a short, dirt road (and associated easement) leading to the outparcel. Parcel 325 has a well established dirt track from all-terrain vehicle (ATV) riders driving parallel to Joel Boulevard.

Table 3: Alva Scrub Preserve Plant Communities

Plant Community	Parcel 57		Parcel 127		Parcel 136		Parcel 195		Parcel 325		Parcel 357		Total Acres	Total % of ASP
	Total Acres	% of ASP	Total Acres	% of ASP	Total Acres	% of ASP	Total Acres	% of ASP	Total Acres	% of ASP	Total Acres	% of ASP		
Abandoned Field	--	--	--	--	--	--	--	--	--	--	108	13%	108.0	13%
Blackwater Stream	--	--	0.6	<1%	--	--	--	--	--	--	--	--	0.6	<1%
Canal/Ditch	2.9	<1%	--	--	0.2	<1%	--	--	0.9	<1%	0.4	<1%	4.3	<1%
Cultural Hardwood Forest	0.6	<1%	0.1	<1%	--	--	--	--	4.9	1%	40.4	5%	46.0	5%
Dome Swamp - Disturbed	--	--	--	--	--	--	3.2	<1%	1.6	<1%	6.8	1%	11.7	1%
Exotic Monoculture	1.1	<1%	0.5	<1%	--	--	--	--	3.1	<1%	--	--	4.6	1%
Hydric Hammock	45.7	5%	14.0	2%	13.2	2%	--	--	17.5	2%	--	--	90.3	11%
Impoundment/Artificial Pond	1.3	<1%	0.7	<1%	--	--	0.4	<1%	3.2	<1%	--	--	5.6	1%
Mesic Flatwoods	7.4	<1%	--	--	--	--	65.4	8%	35.7	4%	58.6	7%	167.1	20%
Mesic Flatwoods Disturbed	--	--	--	--	6.9	1%	--	--	14.7	2%	37.5	4%	59.1	7%
Mesic Hammock	27.3	3%	5.3	1%	11.9	2%	--	--	3.0	<1%	0.9	<1%	54.5	6%
Pasture - Improved	--	--	1.4	<1%	--	--	--	--	23.4	3%	--	--	24.8	3%
Pasture – Semi-improved	8.7	1%			--	--	24.5	3%	7.8	1%	31.2	4%	72.2	9%
Road	--	--	.04	<1%	--	--	--	--	.3	<1%	--	--	0.3	<1%
Scrubby Flatwoods	--	--	--	--	--	--	70.2	8%	13.3	2%	--	--	83.5	10%
Scrubby Flatwoods - Disturbed	--	--	--	--	--	--	--	--	5.9	<1%	--	--	5.9	1%
Strand Swamp	37.2	4%	2.2	<1%	--	--	--	--	42.5	5%	--	--	82.0	10%
Strand Swamp – Disturbed	--	--	--	--	--	--	--	--	14.3	2%	--	--	14.3	2%
Wet Flatwoods – Disturbed	--	--	--	--	--	--	--	--	3.1	<1%	--	--	3.1	<1%
Wet Prairie	--	--	--	--	--	--	8.3	1%	0.9	<1%	--	--	9.3	1%

Note: Due to rounding up or down values, the total acres and percentages may not equal the total number of acres in the Preserve

Figure 9: Natural Plant Communities Map



CONSERVATION 20/20 LAND PROGRAM

N

Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 1.25 Miles

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Map Prepared on: 04/14/2009
by lwewerka@leegov.com

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

iii. Fauna

ASP has a high diversity of fauna including numerous state and federally listed wildlife. Appendix B has the complete list of wildlife seen on the Preserve as recorded through staff field work and site inspections and the Lee County Bird Patrol volunteer program.

Bird species observed include Cooper's hawk (*Accipiter cooperii*), Florida sandhill crane *(Grus canadensis pratensis),* wood stork (*Mycteria americana*) and several herons. In 2010 ASP Parcel 195 contains two Florida scrub jay families. A variety of reptiles such as the Florida box turtle, eastern coachwhip snake (*Masticophis flagellum flagellum*) and the five-lined skink (*Eumeces fasciatus*) have been observed along with several different species of mammals including Florida black bear, Big Cypress fox squirrel and bobcat.

Habitat restoration work at ASP will benefit bobwhite quail, turkey, rabbits, and a variety of reptiles and amphibians. These animals, in turn, are prey species for larger predators such as panther and bear which may travel across ASP as part of their larger territories.

Nine exotic wildlife species have been documented at the Preserve (Table 4), three of which have been introduced as biological control insects. Of highest concern is the feral hog because of its ability to uproot native vegetation and disturb the natural landscape.

Table 4: Exotic Wildlife at Alva Scrub Preserve

Scientific Name	**Common Name**
Dasypus novemcinctus	nine-banded armadillo
Sus scrofa	feral hog
Streptopelia decaocto	Eurasian collared-dove
Anolis sagrei	brown anole
Eleutherodactylus planirostris planirostris	greenhouse frog
Osteopilus septentrionalis	Cuban treefrog
Boreioglycaspis melaleucae	melaleuca psyllid*
Diabrotica undecimpunctata	tropical soda apple leaf beetle*
Oxyops vitiosa	melaleuca weevil*

*bio-control insect

Stewardship at the Preserve will focus on providing optimal habitat for native wildlife. Restoration of the disturbed areas, control of invasive exotic plants and application of prescribed fire will be critical restoration components to provide improved habitat for wildlife. ASP is part of a countywide site inspection program for all C20/20 preserves. A copy of the site inspection form is available in the

Land Stewardship Operations Manual (LSOM). These inspections allow staff to monitor for any impacts and/or changes to each preserve and include lists of all animal sightings and new plant species that are found. If, during these inspections, staff finds FNAI listed species, they will be reported using the appropriate forms.

iv. Designated Species

There are a variety of designated animal and plant species (Table 5) found at ASP. 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 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.

Typically, designated species will benefit from proper stewardship of the biological communities in which they occur. However, some species may require additional measures to ensure their protection. Practices likely to benefit wildlife and plants at the Preserve include exotic plant control, protecting and restoring water resources, prescribed fire, trash removal, wildlife monitoring, feral and exotic animal control, rollerchopping, pine tree thinning, restricting construction of maintenance trails in certain areas and enforcement of no littering, no weapons and no motorized vehicles regulations.

Table 5: Listed Species Found at ASP and Their Designated Status

Scientific Name	Common Name	USFWS	FWC	FNAI	FDACS	IRC	Occurrence
BIRDS							
Ardea alba	great egret			G5/S4			confirmed
Egretta caerulea	little blue heron		SSC	G5/S4			confirmed
Egretta thula	snowy egret		SSC	G5/S3			confirmed
Egretta tricolor	tricolored heron		SSC	G5/S4			confirmed
Eudocimus albus	white ibis		SSC	G5/S4			confirmed
Plegadis falcinellus	glossy ibis			G5/S3			confirmed
Mycteria americana	wood stork	E	E	G4/S2			confirmed
Elanoides forficatus	swallow-tailed kite			G5/S2			confirmed
Rostrhamus sociabilis	snail kite	E	E	G4G5T3Q/S2			confirmed
Accipiter cooperii	Cooper's hawk			G5/S3			confirmed
Haliaeetus leucocephalus	bald eagle	T	T	G4/S3			confirmed
Caracara cheriway	crested caracara	T	T	G5/S2			expected
Falco columbarius	merlin			G5/S2			confirmed
Grus canadensis pratensis	Florida sandhill crane		T	G5/T2T3/S2S3			confirmed
Picoides villosus	hairy woodpecker			G5/S3			confirmed
Aphelocoma coerulescens	Florida scrub-jay	T	T	G2/S2			confirmed
REPTILES							
Gopherus polyphemus	gopher tortoise	T		G3/S3			confirmed
MAMMALS							
Sciurus niger avicennia	Big Cypress fox squirrel		T	G5T2/S2			confirmed
Puma concolor coryi	Florida panther	E	E	G5T1/S1			confirmed
Ursus americana floridanus	Florida black bear		T				confirmed

Table 5: Listed Species Found at ASP and Their Designated Status

Scientific Name	Common Name	USFWS	FWC	FNAI	FDACS	IRC	Occurrence
PLANTS							
Ferns and their allies							
Woodwardia virginica	Virginia chain fern					R	confirmed
Osmunda regalis	royal fern				CE	R	confirmed
Thelypteris interrupta	hottentot fern					R	confirmed
Vittaria lineate	shoestring fern						confirmed
Monocots							
Sagittaria graminea	grassy arrowhead					R	confirmed
Tillandsia balbisiana	northern needleleaf				T		confirmed
Tillandsia fasciculata var. densispica	stiff-leaved wild pine, cardinal airplant				E		confirmed
Tillandsia utriculata	giant airplant				E		confirmed
Cyperus retrorsus	pinebarren flatsedge					R	confirmed
Fimbristylis puberula	hairy fimbry					I	confirmed
Fuirena scirpoidea	southern umbrellasedge					R	confirmed
Rhynchospora fascicularis	fascicled beaksedge					R	confirmed
Rhynchospora filifolia	threadleaf beaksedge					I	confirmed
Rhynchospora microcarpa	southern beaksedge					R	confirmed
Rhynchospora pusilla	fairy beaksedge					CI	confirmed
Rhynchospora rariflora	fewflower beaksedge					CI	confirmed
Rhynchospora tracyi	Tracy's beaksedge					R	confirmed
Eriocaulon compressum	flattened pipewort					R	confirmed
Eriocaulon decangulare	tenangle pipewort					R	confirmed
Lachnocaulon anceps	whitehead bogbutton					R	confirmed
Syngonanthus flavidulus	yellow hatpins					R	confirmed
Hypoxis juncea	fringed yellow stargrass					R	confirmed
Iris hexagona	Dixie iris					I	confirmed
Habenaria quinqueseta	longhorn false reinorchid					R	confirmed

Table 5: Listed Species Found at ASP and Their Designated Status

Scientific Name	Common Name	USFWS	FWC	FNAI	FDACS	IRC	Occurrence
Andropogon glomeratus var. glaucopis	purple bluestem					R	confirmed
Andropogon virginicus var. glaucus	chalky bluestem					R	confirmed
Andropogon virginicus	broomsedge bluestem					I	confirmed
Aristida spiciformis	bottlebrush threeawn					R	confirmed
Dichanthelium commutatum	variable witchgrass					R	confirmed
Dichanthelium erectifolium	erectleaf witchgrass					R	confirmed
Kyllinga odorata	fragrant spikesedge					I	confirmed
Paspalum monostachyum	gulfdune paspalum					R	confirmed
Paspalum praecox	Early paspalum					I	confirmed
Sacciolepis striata	American cupscale					R	confirmed
Smilax bona-nox	saw greenbrier					R	confirmed
Smilax tamnoides	bristly greenbrier					I	confirmed
Xyris ambigua	Coastalplain yelloweyed grass					R	confirmed
Dicots							
Viburnum obovatum	Walter's viburnum					I	confirmed
Asclepias tuberose	butterflyweed					R	confirmed
Carphephorus corymbosus	Florida paintbrush					R	confirmed
Cirsium nuttallii	Nuttall's thistle					I	confirmed
Elephantopus elatus	tall elephantsfoot					R	confirmed
Eupatorium leptophyllum	falsefennel					R	confirmed
Rudbeckia hirta	Blackeyed Susan					R	confirmed
Eupatorium mohrii	Mohr's thoroughwort					R	confirmed
Pseudognaphalium obtusifolium	sweet everlasting					R	confirmed
Symphyotrichum carolinianus	climbing aster					R	confirmed
Campsis radicans	trumpet creeper					CI	confirmed
Lobelia feayana	bay lobelia					I	confirmed
Hypericum crux-andreae	St. Peter'swort					CI	confirmed

Table 5: Listed Species Found at ASP and Their Designated Status

Scientific Name	Common Name	USFWS	FWC	FNAI	FDACS	IRC	Occurrence
Hypericum brachyphyllum	coastalplain St. John's-wort					R	confirmed
Hypericum mutilum	dwarf St. John's-wort					I	confirmed
Hypericum myrtifolium	myrtleleaf St. John's-wort					CI	confirmed
Diospyros virginiana	common persimmon					R	confirmed
Bejaria recemosa	tarflower					R	confirmed
Stillingia aquatica	corkwood					R	confirmed
Chamaecrista nictitans	sensitive pea					CI	confirmed
Galactia elliottii	Elliott's milkpea					R	confirmed
Mimosa strigillosa	powderpuff					I	confirmed
Quercus elliottii	running oak					R	confirmed
Sabatia grandiflora	largeflower rosegentian					R	confirmed
Proserpinaca palustris	marsh mermaidweed					R	confirmed
Proserpinaca pectinata	combleaf mermaidweed					R	confirmed
Hydrolea corymbosa	skyflower					R	confirmed
Pinguicula pumila	small butterwort					R	confirmed
Utricularia foliosa	leafy bladderwort					R	confirmed
Utricularia subulata	zigzag bladderwort					R	confirmed
Linum medium	stiff yellow flax					R	confirmed
Lythrum alatum	winged loosestrife					R	confirmed
Melochia spicata	bretonica peluda					I	confirmed
Rhexia mariana	pale meadowbeauty					R	confirmed
Nymphaea elegans	tropical royalblue waterlily					I	confirmed
Ludwigia erecta	yerba de jicotea					I	confirmed
Ludwigia maritime	seaside primrosewillow					R	confirmed
Agalinis fasciculate	beach false foxglove					R	confirmed
Polygala lutea	orange milkwort					I	confirmed
Polygala nana	candyroot					R	confirmed
Polygala rugelii	yellow milkwort					I	confirmed
Polygonum hydropiperoides	swamp smartweed					R	confirmed
Berchemia scandens	rattan vine					I	confirmed

Table 5: Listed Species Found at ASP and Their Designated Status

Scientific Name	Common Name	USFWS	FWC	FNAI	FDACS	IRC	Occurrence
Rubus cuneifolius	sand blackberry					I	confirmed
Saururus cernuus	lizard's tail					R	confirmed
Diodia virginiana	Virginia buttonweed					R	confirmed
Sideroxylon reclinatum	Florida bully					R	confirmed
Solanum capsicoides	soda apple					I	confirmed
Lindernia grandiflora	Savannah false pimpernel					I	confirmed
Viola lanceolata	bog white violet					I	confirmed

Key

USFWS - U.S. Fish and Wildlife Service

FWC - Florida Fish and Wildlife Conservation Commission

FDACS - Florida Department of Agriculture and Consumer Services
- **E** – Endangered
- **T** – Threatened
- **CE** - Commercially Exploited
- **SSC -** Species of Special Concern

IRC - The Institute for Regional Conservation
- **CI** - Critically Imperiled
- **I** – Imperiled
- **R** – Rare

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** - Demonstrateably secure

Wildlife Species

The following is a brief summary of each designated wildlife species explaining why they are in decline. Unless stated otherwise, the reasons for the species decline and the management recommendations, if available, were obtained from Hipes et al. (2001).

Herons, Storks and Ibis

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. Like these herons, the great egret and snowy egret 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 is declining throughout their range due to the reduction and degradation of wetlands and human disturbances to their rookeries.

Wood storks 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.

Yellow-crowned night heron "populations have probably declined due to illegal shooting, disturbance at breeding colonies, and drainage of wetlands used for foraging. In Florida, the destruction and alteration of more than half of the wetlands, due to the phenomenal increase in population has caused a substantial decline in ardeids. Wetlands have been filled and or impacted by housing developments, agriculture, human activity (i.e. sports, recreation) and the infrastructure that supports these activities" (Rodgers et al. 1996).

These species have been documented on ASP but no rookeries or large colonies exist on-site. ASP's small wetland areas provide opportunistic feeding and resting areas for the occasional viewing of these species.

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.

The Everglades snail kite (*Rostrhamus sociabilis plumbeus*), the subspecies of the snail kite 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.

Swallow-tailed kites are often seen soaring over ASP and occasionally feeding, but no nests have been identified. In 2008 a snail kite was seen over several weeks on Parcel 57.

Cooper's Hawk

During the summer Cooper's hawks 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" (CLOa 2003).

Cooper's hawk are occasionally observed perched, hunting and flying over open areas of ASP.

Bald Eagle

Bald eagle (*Haliaeetus leucocephalus)* numbers have steadily increased in Florida after a low of 120 active nests in 1973. Still, loss of habitat and human disturbance due to development is a primary concern for this species. Currently there are no eagle nests on ASP but eagles have been seen perched in trees and have been observed flying over the Preserve during nesting season.

Crested Caracara

The crested caracara's range has contracted and become more fragmented because their habitat is threatened primarily by residential development and conversion to more intensive agricultural (e.g., citrus) uses. The crested caracara's large habitat requirements makes land acquisition and/or development of incentives (e.g., cooperative agreements, conservation easements, tax breaks) for private landowners to maintain their ranch lands for their long-term security an important task. Crested caracaras are present on adjacent lands and the open pasture and cabbage palm habitat of ASP is typical of caracara habitat, but none have been confirmed on the Preserve.

Merlin
"The merlin (*Falco columbarius*) does not build a nest, but instead takes over old nests of other raptors or crows. It sometimes nests on top of domed magpie nests rather than in the nest cavity." In northern North America they breed in open country from open coniferous woodland to prairie, occasionally in adjacent suburbs. Merlins "winter in open woodland, grasslands, open cultivated fields, marshes, estuaries, and seacoasts." In Florida, merlin's are considered non-breeding winter residents (CLOb 2003).

Merlin have been seen utilizing the open areas of ASP for hunting and perching in late fall and winter.

Florida Sandhill Crane
Florida sandhill cranes and the migratory greater sandhill crane are indistinguishable from each other. Threats to Florida sandhill cranes include loss and degradation of wetlands, fire suppression, free ranging dogs and cats and entanglement in fencing (Rodgers et al. 1996).

No crane nesting has been documented, but occasionally cranes are seen foraging in the hydric portions of ASP.

Hairy Woodpecker
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 a dead branchs and do not put additional materials in the cavity. They are considered "common and widespread, but may be declining in some areas. The hairy woodpecker is attracted to the heavy blows a pileated woodpecker makes when it is excavating a tree. The hairy forages in close association with the larger woodpecker, pecking in the deep excavations and taking insects that the pileated missed" (CLOc 2003).

Hairy woodpeckers, including fledglings, are commonly seen at ASP.

Florida Scrub-jay
The Florida scrub jay is endemic to Florida and is in decline throughout their range due to loss and degradation of habitat. This species is dependent upon oak species for a large portion of their diet. Additional threats include feral/free roaming cats and land alterations that affect more than 1/3 of an established territory of a jay family. Regular burning, mechanical reduction of palmetto, and annual monitoring will be important components of managing for scrub jays on ASP.

Two families of scrub jay reside on ASP and other birds have been documented in close proximity. Appendix C contains information on banding of local jays conducted in conjunction with Archibold Biological Station From 2004-2007.

Gopher Tortoise
Gopher tortoises 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 plantation development or conversion. Additional threats include a highly contagious respiratory disease and human consumption.

Active gopher tortoise burrows are scattered across ASP and gophers from adjacent properties are often seen crossing under fences to forage on ASP.

Big Cypress Fox Squirrel
The Big Cypress fox squirrel is in decline throughout its range primarily due to loss and degradation of habitat. Although the number of this sub-species of fox squirrel in Florida is unknown, “based on the amount of known habitat loss, fox squirrel populations have undoubtedly declined by at least 85% from pre settlement levels” (Humphrey 1992). Much of the fox squirrel’s pine-oak forest has been converted to pine plantations, agriculture and development. Additionally, regular burn regimes of 2-5 years during the growing season (April-July) are critical to maintain their habitat with an open canopy with minimal understory. Exotic plant removal/control and the implementation of regular prescribed burning will improve the habitat for this species.

C20/20 staff has witnessed fox squirrels crossing Joel Boulevard from adjacent properties onto ASP as well as crossing from Parcel 195 to Parcel 325.

Florida Panther
The Florida panther is extirpated from most of its historic range in the southeastern United States, but exists in small populations in south Florida. The Florida panther's decline is due mainly to loss, fragmentation, and degradation of habitat. Other habitat related threats include inbreeding, insufficient numbers of large prey, disease, and mercury and other environmental contaminants. Institutional constraints and negative public perception also threaten the future survival of the Florida panther. The large cats require extensive areas of mostly forested communities. Large wetlands that are generally inaccessible to humans are important for diurnal refuge. They will tolerate improved areas in a mosaic of natural communities.

The presence of Florida panthers has been confirmed through plaster casts of tracks on Parcel 57 and on HCMP by Land Stewardship staff in 2007. Between July 1998 and March 1999, FWC telemetry data from radio-instrumented panthers documented the presence of panther #28, #65 and #74 in the

Greenbriar Swamp and HCMP which included Parcel 57. To protect the Florida panther, management activities include preservation of the mosaic of habitat across the Preserve. This includes control of exotic plants and restoring a fire regime to the flatwoods.

Florida Black Bear
The Florida black bear faces numerous challenges including poaching, roadkill mortality, low reproductive rate and most importantly loss of habitat to timber harvesting, development and other uses. "Long-term conservation of the Florida black bear is dependent upon preservation of large contiguous woodlands." Scientists with FWC have found the average home range for female black bears is almost 7,000 acres and males average over 42,000 acres (Humphrey 1992).

ASP is not large enough to support black bears, but may be an excellent foraging site, or portion of a larger home range for black bears. The Preserve will also serve as a safe corridor for travel throughout a larger conservation area. Scientists have found that large scale winter burning reduces the diversity of food available to bears as compared to growing season burns (Humphrey 1992). Prescribed burns conducted in the late spring would not only be beneficial to bears, but also to several other species listed above. In 2007 and again in fall of 2009 black bear tracks have been confirmed on the Preserve. A resident at the inholding surrounded by Parcel 127 photographed a young bear eating at a bird feeder in 2007 and tracks were identified in fall of 2009 on the southern most fireline of HCMP, directly adjacent to Parcel 57 indicating the bear came from Parcel 57 onto HCMP across the fence.

Plant Species

In addition to designated wildlife, ASP provides habitat for several listed plant species listed by the IRC and two species that are listed by FDACS. The following is a brief summary of the FDACS designated plant species explaining why they are in decline, typical communities where they are located and management recommendations.

Royal Fern
Royal fern 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 of the Preserve.

Northern Needleleaf
The northern needleleaf (*Tillandsia balbisiana*) is another Threatened species listed by FDACS that is occasionally found in a variety of communities including pinelands, hammocks and mangroves. It has been documented in several areas of the Preserve. Threats to this species include the exotic Mexican bromeliad weevil (*Metamasius callizana*) and habitat destruction (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 it is determined that the weevils are affecting epiphytes and the United States Department of Agriculture (USDA) is in need of release sites.

Cardinal and Giant Airplants

Cardinal airplants (*Tillandsia fasciculata var. densispica*) and giant airplants (*Tillandsia utriculata*) are found in hammocks, cypress swamps and pinelands at ASP. Both airplants are listed by FDACS as endangered. Scattered plants have been documented in several portions of the Preserve. Threats to these plants include illegal collecting, habitat destruction and the Mexican bromeliad weevil (Save 2004). Now listed as Endangered, they were once considered common before the arrival of the weevil in Florida in the late 1980s.

The majority of the designated plant species (see Table 5) were provided by IRC, which is not a regulatory agency. IRC's designation was either obtained from their book Rare Plants of South Florida: Their History, Conservation and Restoration , (Gann 2002) or Internet website (http://www.regionalconservation.org/ircs/database/search/QuickSearch.asp). Scientists working for this Institute have conducted a tremendous amount of field work and research documenting plants occurring in conservation areas in the 10 southernmost counties of Florida. This initial floristic inventory allowed the IRC to rank plant species to indicate how rare/common these plants are in protected areas. At ASP, a number of Rare, Imperiled, and Critically Imperiled plants occur. Rare plants are defined as being either very rare and local throughout its 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 with 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 due to some natural or human factor. IRC only ranks those taxa as imperiled that have fewer than 10,000 individuals. Critically Imperiled plants are defined as being either extreme rarity (5 or fewer occurrences, or fewer than 1,000 individuals), or because of extreme vulnerability to extinction due to some natural or human factor. 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 Preserve and relate to stewardship practices, will be followed. More information on the specifics techniques used will be discussed in the Management Action Plan. The following list highlights those recommendations by IRC that will be incorporated into the management of ASP:

- 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.
- Trap 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.

If additional listed species are documented on the Preserve, they will be added to the lists in Appendices A or B.

v. Biological Diversity

The plant communities at ASP range from hydric hammock to scrubby flatwoods. Much of the land is disturbed to some extent from previous agricultural uses, historical recreational impacts and hydrologic alteration due to construction of extensive drainage canals adjacent to ASP. It is likely that biodiversity levels will increase after stewardship activities have been put into practice (i.e. invasive exotic plant removal, tree thinning, fuel reduction, brush reduction and prescribed fire).

The connection to HCMP provides greater opportunity for mammals with home ranges larger than the acreage of ASP. It also creates a corridor for scrub jay travel. ASP Parcel 195 contains two resident families of scrub jays, and HCMP contains several families. With proper management, ASP has potential to host more families of jays, including those currently residing on undeveloped single family lots in Lehigh Acres.

The Florida scrub jay is present in Lee County in very limited numbers. Many historically documented territories no longer exist, mainly due to development and lack of proper management of land that was once occupied by jays. Due to their scarcity in Lee County, C20/20 staff will focus efforts on ASP to improve habitat specifically for the jay. These efforts, in turn, will benefit a wide variety of other species.

The seasonally wet areas of ASP provide conditions conducive to amphibian reproduction. Oak toads, eastern narrowmouth toads, barking (*Hyla gratiosa*) and squirrel treefrogs (*Hyla squirella*) spend more time in surrounding uplands, utilizing the wetlands strictly for breeding (Jensen 2003). Additionally, barking treefrogs and oak toads breed almost exclusively in seasonal wetlands. Because of the short hydroperiod, larger predatory fish like Florida largemouth bass (*Micropterus salmoides floridanus*) and bluegill (*Lepomis macrochirus*) are unable to become established and feed on the developing tadpoles. As these temporary wetlands slowly dry, the fish, tadpoles and aquatic invertebrates become quite concentrated, providing an excellent food source for the water birds that utilize the Preserve.

Many species of animals not only inhabit, but also frequently visit the Preserve. Currently 301 plant species (45 exotic) and 126 animal species (9 exotic) have been documented at the Preserve. Seventeen of the 45 exotic plant species (38%) are on the Florida Exotic Pest Plant Council's 2009 List of Invasive Plant Species (FLEPPC 2009).

The integrity and diversity of ASP must be protected when and where possible. Land Stewardship staff will perform the following actions in this regard:

- Control of invasive exotic vegetation followed by annual maintenance to provide more suitable habitat for native aquatic and terrestrial species.
- Maintain boundaries with fencing and signs to eliminate illegal access to the Preserve and protect fragile ecosystems.
- Implement a prescribed fire program to closely mimic the natural fire regimes for different plant communities to increase plant diversity and ensure the canopies remain open.
- Where necessary, install perimeter fire breaks to protect resources on the Preserve and surrounding neighbors.
- Remove any debris and prevent future dumping on-site.
- Control invasive exotic animal populations to reduce their impacts on the herbaceous plants, native animals and soils.
- Conduct on-going species surveys utilizing volunteers and staff to catalog and monitor the diversity that is present.
- Use adaptive management if monitoring of restoration techniques indicates a change may be necessary.

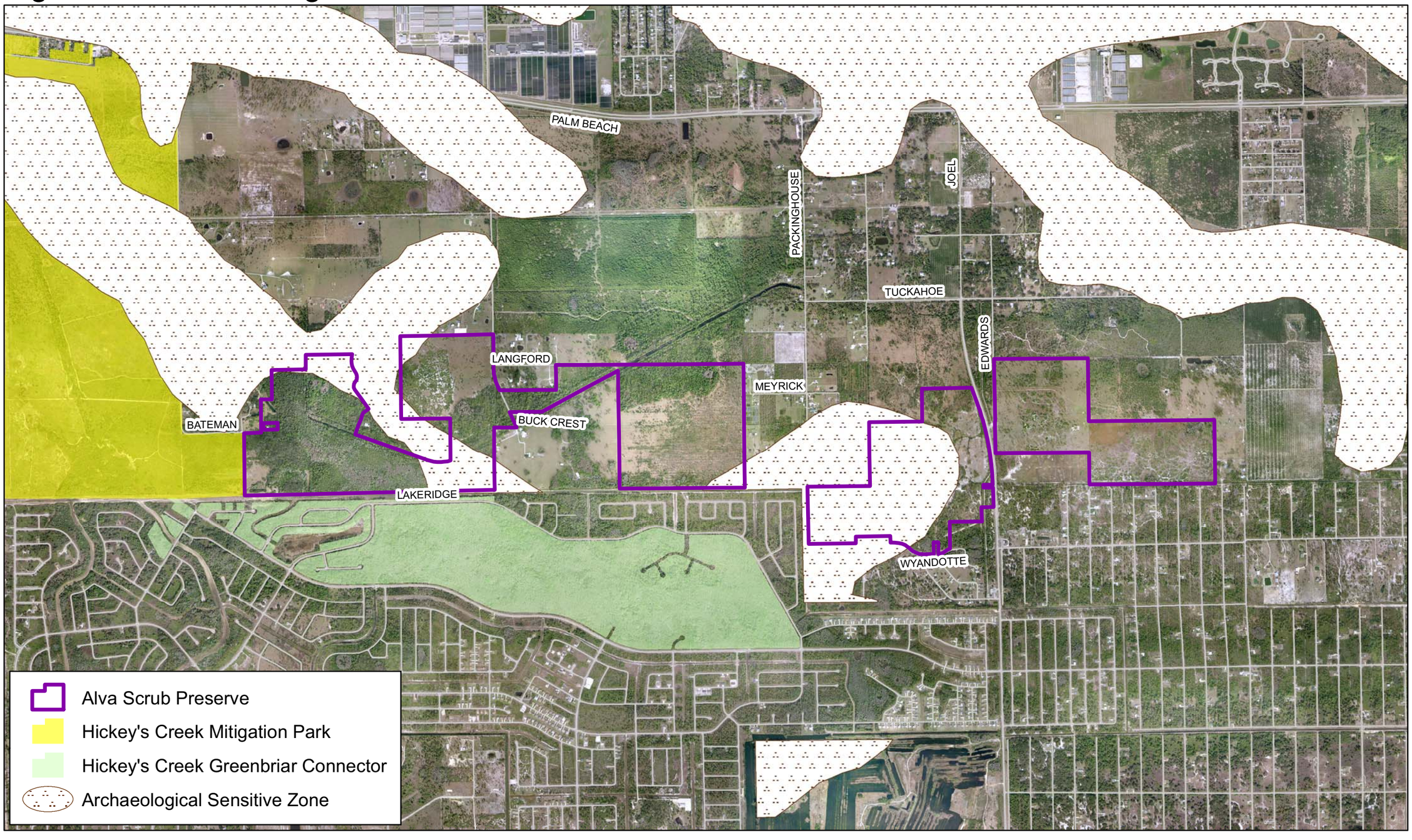
C. Cultural Resources

i. Archaeological Features

In 1987, Piper Archaeological Research, Inc. conducted an archaeological site inventory of Lee County. They were able to identify 53 sites, increasing the total number of known archaeological sites in Lee County to 204. They also created a site predictive model and archaeological sensitivity map for the county that highlighted areas likely to contain additional archaeological sites. Portions of ASP are located within an area designated as archaeological sensitivity level 2 (Figure 10). 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 by development activities, then they should be subjected to a cultural resource assessment survey by a qualified professional archaeologist in order to determine the presence of any archaeological sites in the impact area and/or assess the significance of these sites" (Austin 1987).

If any restoration projects within these boundaries require major soil disturbance (for example, excavation of soil), a professional archaeologist will be hired to conduct a survey of the area to be impacted. If evidence of artifacts are found in the area during restoration activities, staff will follow the Division of Historical Resources (DHR) "Best Management Practices: An Owner's Guide to Protecting Archeological Sites" (http://www.flheritage.com/archeology/education/culturalmgmt/Handbook.pdf) and immediately DHR will be contacted. Staff will also work with DHR to designate the Preserve as a State Archeological Landmark Zone under Section 267.11. This would extend protection of the site and allow for protection procedures under 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 Department of State, DHR. The site will be managed in coordination with recommendations of 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 will be incorporated into the public educational program.

Figure 10: Archaeological Resources



CONSERVATION 20/20 LAND PROGRAM

Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 1.25 1.5 Miles

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Map Prepared on: 02\26\2010
by lwewerka@leegov.com

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ii. Land Use History

Although not all elements of the land use history discussed below occurred across ASP, modifications made on adjacent properties can directly influence the Preserve. From the late nineteenth century until the 1960's, intense logging of slash pine virtually eliminated all virgin stands of the southern mixed forest in south Florida. These activities likely reduced slash pine densities throughout the Preserve and explain the lack of old growth pine trees found on the site.

According to interpretations based on aerial photography dating back to 1944 (Figure 11), land uses included agricultural activities such as grazing, logging and vegetable farming. The 1944 aerial photograph shows a very different picture of the Preserve with several easily identifiable depressional marshes and scattered trees on Parcel 195. The Hickey's Creek canal was dug to its present day path prior to the 1944 aerials. Parcels 57, 127 and 136 show the connection of wetland systems from Greenbriar Swamp across to Hickey's Creek. The 1944 aerial shows no borrow pits or excavations other than a canal across the northwest corner of Parcel 195 connecting to the large cypress dome on Parcel 325.

The stumps from the previously logged slash pines were removed from many properties in the region during the 1950s and 1970s. This activity, referred to as "stumping", was conducted to extract turpentine from the wood. Stumping created depressions in the soil, which in turn created a microhabitat where soil moisture is higher for longer periods than adjacent habitats, allowing different plant species to occur. The 1953 aerial photographs show evidence of this process along the southern boundary properties of Parcel 195 and a large portion of Parcel 357.

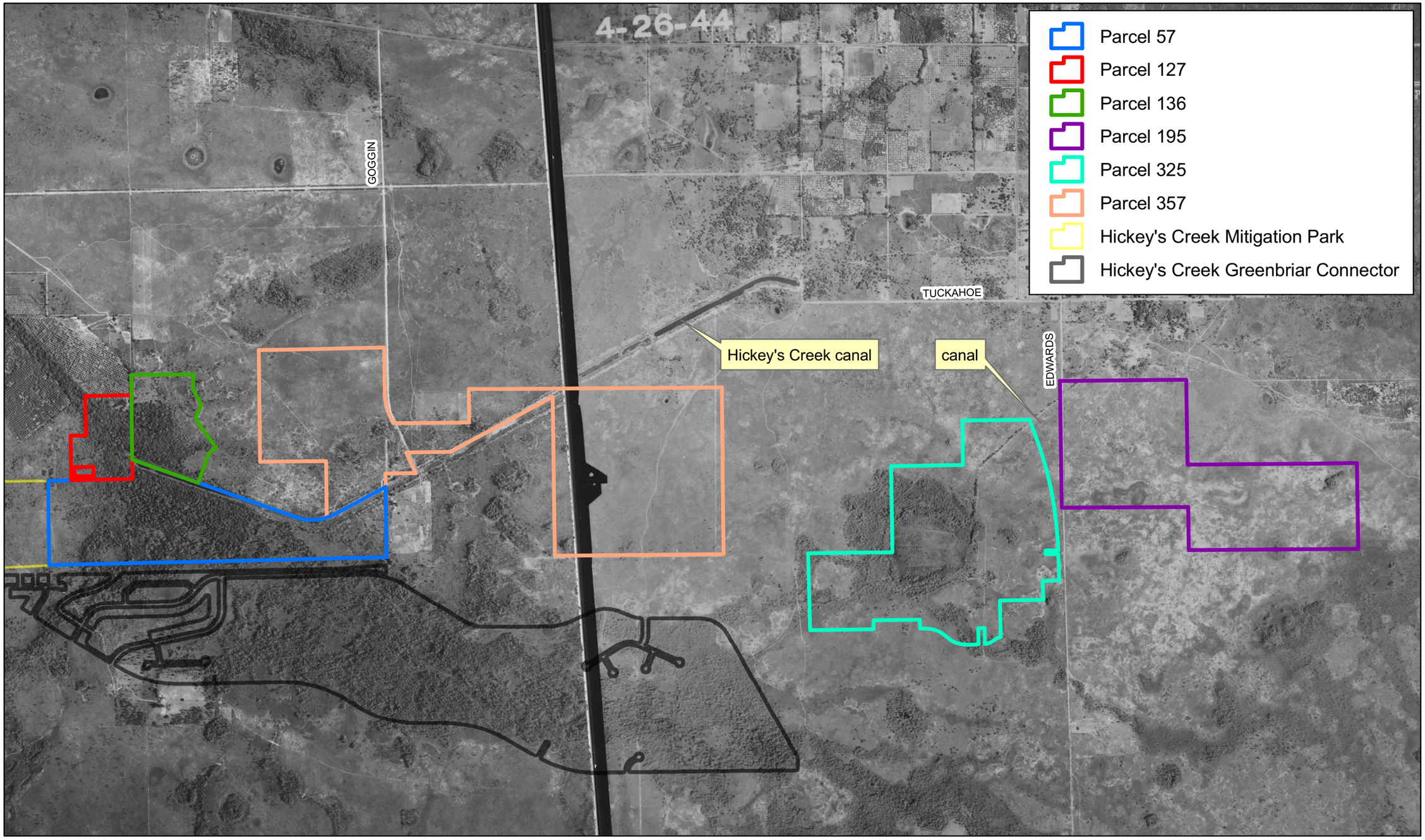
ASP remained relatively unchanged until 1958. Borrow pits resulting from an attempt to mine dolomite appear in the far southwest corner of ASP and on adjacent land along the western boundary. Structures, possibly related to cattle operations are visible on Parcel 325. On Parcel 195 scars of possible logging roads appear. The present day platted roads of Lehigh south of 195 have been cleared and additional canal systems, including the Mike Canal have been completed (Figure 12).

The 1968 aerials show more clearing in the western portion of Parcel 57 related to the dolomite mining operation, along with additional borrow pits on adjacent land and one more on Parcel 57. A north-south canal now exists on the eastern side of Parcel 325. Edwards Drive has also been constructed. Parcel 357 underwent wide scale land alteration due to farming. Over three-quarters of this parcel was furrowed and disked. Ditches were also installed to drain wetlands and provide irrigation. A new network of trails, likely associated with the agricultural endeavors, also appear. (Figure 13).

By 1976 the agricultural fields on Parcel 357 appear to no longer be in production (Figure 14). No woody vegetation is growing on the former agricultural areas. The borrow pits and associated mining operations have stopped on Parcel 57 and cleared areas are becoming re-vegetated. The lands south of Parcel 57 have cleared areas associated with the present day East County Water Control District drainage swales. Land clearing, ditching and borrow pit creation has occurred on Parcel 325 and the Love Canal has been cleared along the western boundary of 325. The platted roads south of Parcel 325 have been cleared and some extend onto the western portion of Parcel 325. A large borrow pit, just south of the current entrance gate has been excavated and ditching connects smaller wetlands in the north and south of the eastern portion of Parcel 325. Earth movement work also created the present day “rolling hills” on 325. The north-south canal on the eastern edge of Parcel 325 has been altered to follow the boundary and the current orientation of Joel Blvd. had been constructed. Parcel 195 is becoming more heavily covered with dense areas of pines.

By 1986 many of the cleared areas of Parcel 325 have become re-vegetated. The areas formerly cleared remain visible and comprise the existing trails staff utilizes for management activities today. By 2002 wax myrtle, Brazilian pepper and other woody shrubs along with south Florida slash pine have begun dominating the former crop lands on the eastern portion of Parcel 357. Between 2002 and 2005 two borrow pits were excavated on the southeast corner of Parcel 325. Parcels 57,127 and 136 show no obvious changes other than a pole barn on the 1986 aerial which was subsequentially torn down after acquisition. In 2005, a house is visible on the out parcel surrounded by this portion of ASP.

Figure 11: 1944 Aerial



CONSERVATION 20/20 LAND PROGRAM

N

Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 1.25 1.5 Miles

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Map Prepared on: 10/17/2009
by lgreeno@leegov.com

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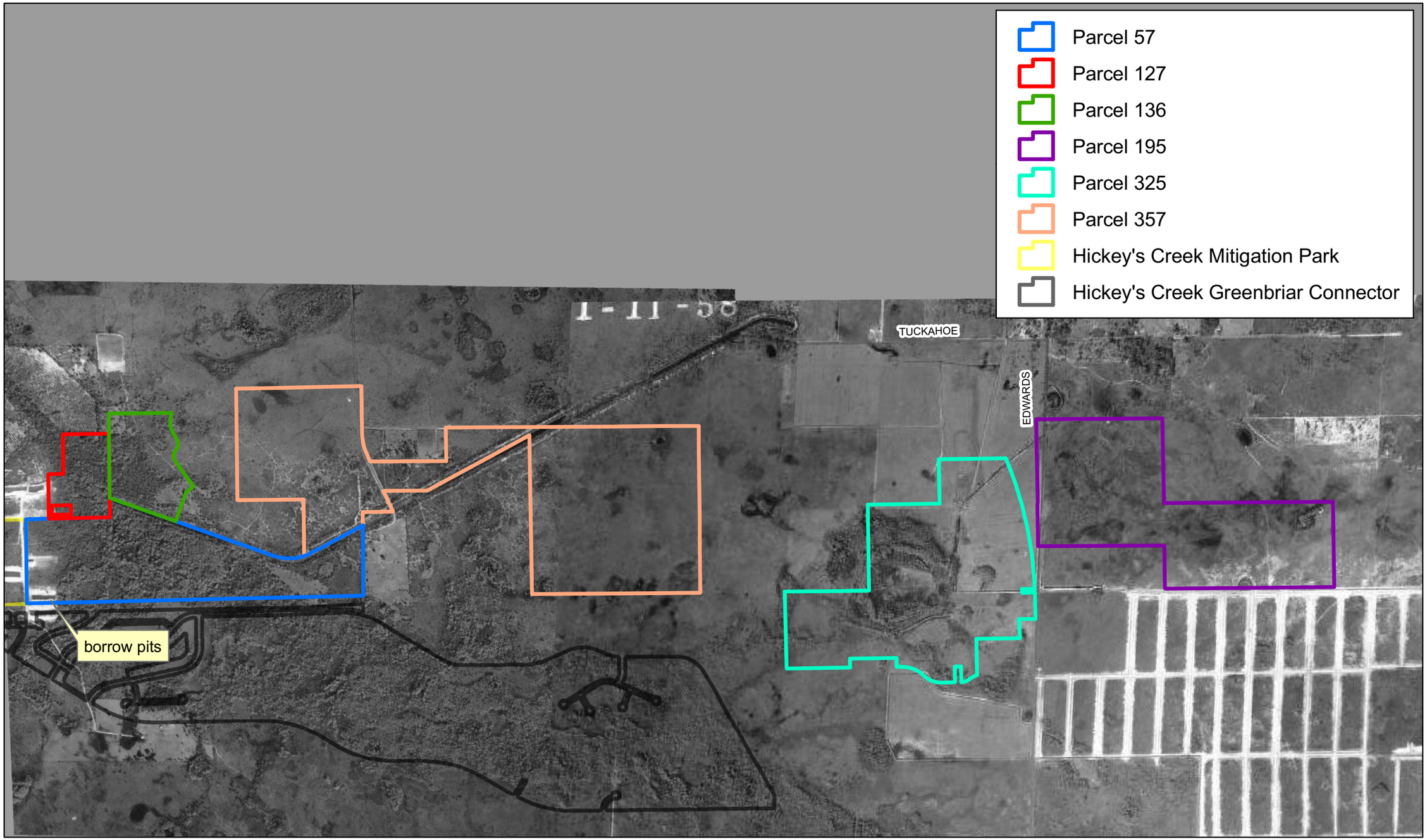
Figure 12: 1958 Aerial



CONSERVATION 20/20 LAND PROGRAM

Alva Scrub Preserve

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Alva Scrub\LSP_2010\ASP_1958.mxd

Map Prepared on: 1/28/2010
by lgreeno@leegov.com

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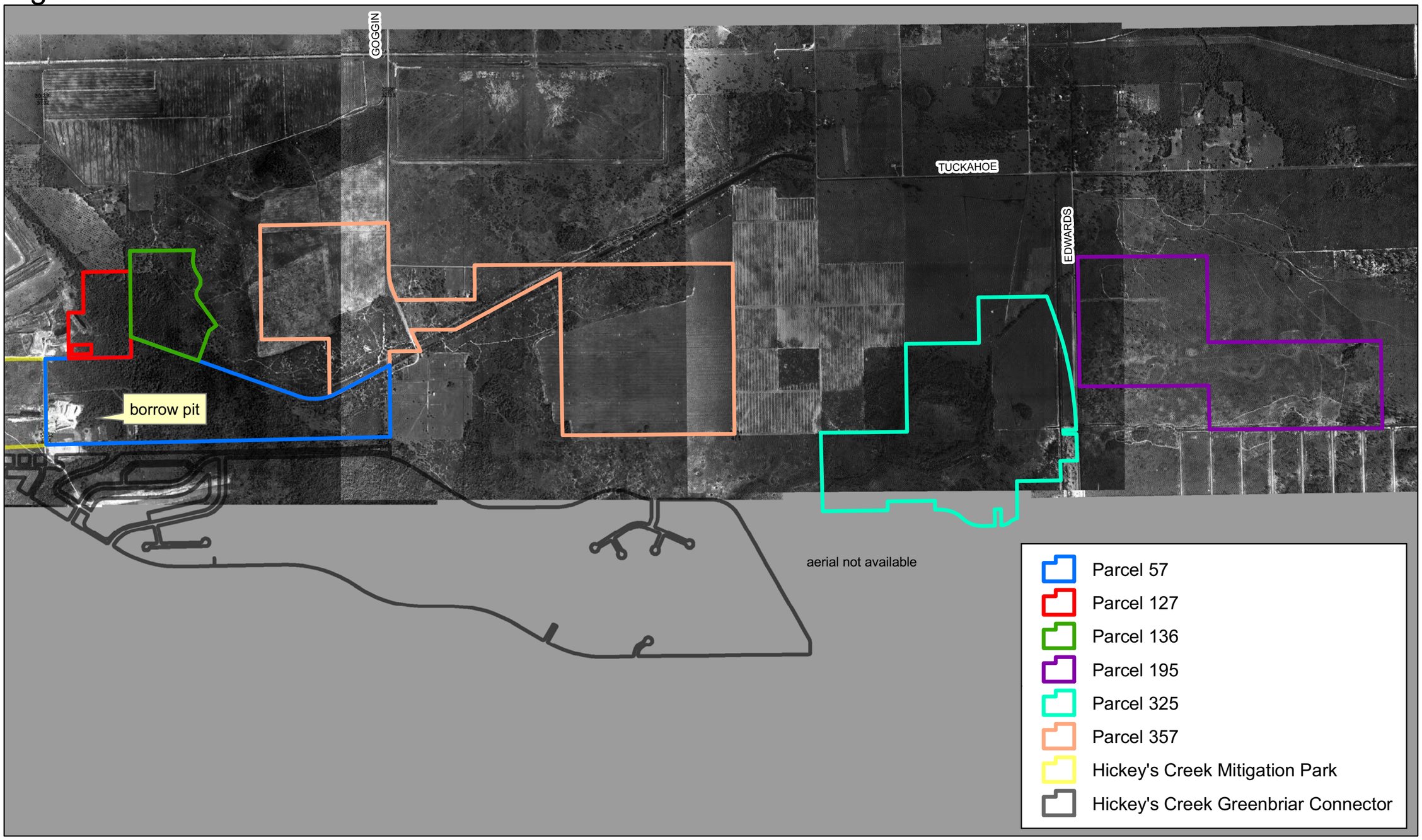
Figure 13: 1968 Aerial



CONSERVATION 20/20 LAND PROGRAM

N

Alva Scrub Preserve

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Map Prepared on: 2/26/2010
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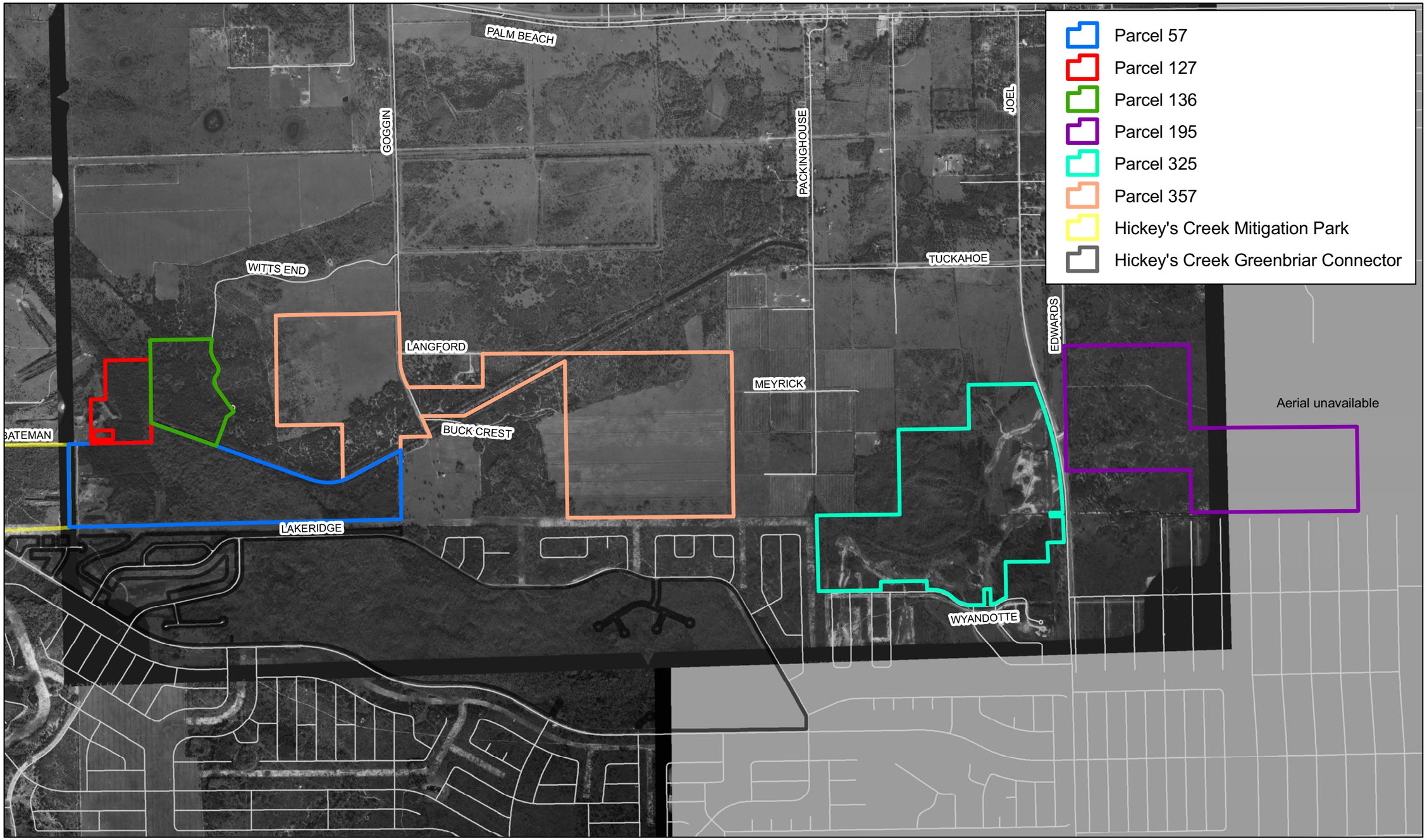
Figure 14: 1976 Historical Aerial



CONSERVATION 20/20 LAND PROGRAM

60

Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 1.25 1.5 Miles

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Map Prepared on: 10/28/2009
by lgreeno@leegov.com

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iii. Public Interest

ASP was purchased for the preservation of environmentally sensitive lands, its high probability for listed species, and as a connector between HCMP and the initial ASP Parcel 195. The goal is to provide conditions conducive to scrub jay dispersal from HCMP to Parcel 195.

Public requests for access into the Preserve have been minimal. A few neighbors near Parcel 195 walk on the site occasionally. One neighbor near Parcel 357 requested to ride his horse on the site as part of the trails locals have historically ridden in the area, but with the installation of our fence, limited acreage, proximity to other facilities which offer equestrian trails and conflicts with large scale restoration planned for the site, horse trails are not feasible on this Preserve. A walk-through gate was installed on Parcel 357 off of Goggin Road to provide pedestrian access to the site.

Publicly available information concerning this and all C20/20 preserves can be found on the web site along with copies of their associated stewardship plans when available (www.conservation2020.org). In the summer of 2008, a newsletter providing an update on current and future restoration activities was mailed to residents within .25 miles of Parcels 195 and 325. After the mailing, staff received requests for updates from a few citizens, and they will be updated with future restoration news as it occurs. Staff may mail additional newsletters when activities are scheduled to take place that the Preserve "neighbors" may be interested in learning about.

V. FACTORS INFLUENCING MANAGEMENT

A. Natural Trends and Disturbances

Natural trends and disturbances influencing native communities and stewardship at ASP may include hurricanes, flooding, wildfires, occasional freezes and the cycling of wet and dry seasons. Implementation of the Management Action Plan will take all of these factors and their influence on projects at ASP 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 natural occurrences in Florida. FDOF – Caloosahatchee District - and LCPR staff are developing a wildland firefighting protocol for County preserves. This agreement between FDOF and the county will help to minimize impacts to the Preserve from the utilization of bulldozers, plows and other emergency firefighting equipment creating dozer lines to stop the fires. A Fire Management Plan has been completed for Lee County owned conservation lands to help decrease the impact of catastrophic wildfires on the

preserves and neighboring lands. The FDOF has received a copy of this plan and will continue to receive updated maps of newly acquired parcels showing the locations of gates, firebreaks, management units and water sources. Once new perimeter firebreaks have been created for ASP, it will not be necessary for FDOF to create additional plow lines to protect property outside the Preserve boundary, except in the case of an extreme wildfire event. Land Stewardship staff will lead periodic site visits for FDOF staff in order to familiarize them with ASP and current management efforts. Fire lines on the perimeter of the Preserve, as well as those created once burn units are established, will be kept clear of debris and disked or mowed a minimum of once a year during the onset of the dry (wildfire) season.

Stewardship (invasive exotic plant control, prescribed burning, etc.) of ASP is influenced by seasonal flooding. The LSOM's exotic plant prescription form will be used to define the conditions for control activities. Care shall be taken to prevent herbicide from running off during a typical summer thunderstorm so as not to affect non-target plants. Only herbicides approved for aquatic application will be used for treatment of vegetation in standing water or where flooding may occur. The use of heavy equipment will be limited to the dry season for the majority of the site. The timing of prescribed burns will also be influenced by seasonal rain, weather, wind patterns and the goals of the burn.

B. Internal Influences

Several anthropogenic influences have impacted ASP. Many of these influences can be attributed to historic agricultural and mining operations. See Figure 15 for approximate location of some of these features.

The Preserve has been altered hydrologically by construction of internal ditching, agricultural disking, excavation of cow wells and invasion by Brazilian pepper and other exotic vegetation. ASP also has old ATV trails, Jeep trails, and FDOF plow lines which were installed to fight a wildfire on Parcel 195 prior to acquisition by the C20/20 program. These alterations influence the water flow on the site by both interrupting sheet flow and holding water for extended periods in some areas while excessively draining other areas.

Prior to C20/20's purchase of Parcel 195, limpograss (*Hemarthria altissima*) was planted on approximately 25 acres. This grass was bailed and sold as hay, and has since been listed as a Florida Exotic Pest Plant Council (FLEPPC) Category II invasive exotic. This grass has spread from the initial planting site and has invaded adjacent plant communities.

Other remnants of agricultural activities include cow wells, cow pens and interior barbed wire fences on Parcels 195 and 325. These will be kept until C20/20 staff chooses to terminate cattle leases. Eventually interior fencing that is no longer needed will be removed since it can become hazardous for stewardship activities

such as prescribed burning, brush reduction and exotic plant removal with heavy equipment.

Invasive exotic plants disrupt the natural systems and impact the native species on the Preserve. Brazilian pepper and Old World climbing fern are the most prevalent exotic species within the Preserve. C20/20 staff takes note of any new invasions of this plant and attempts to spray it with the appropriate herbicide by the next quarterly site inspection.

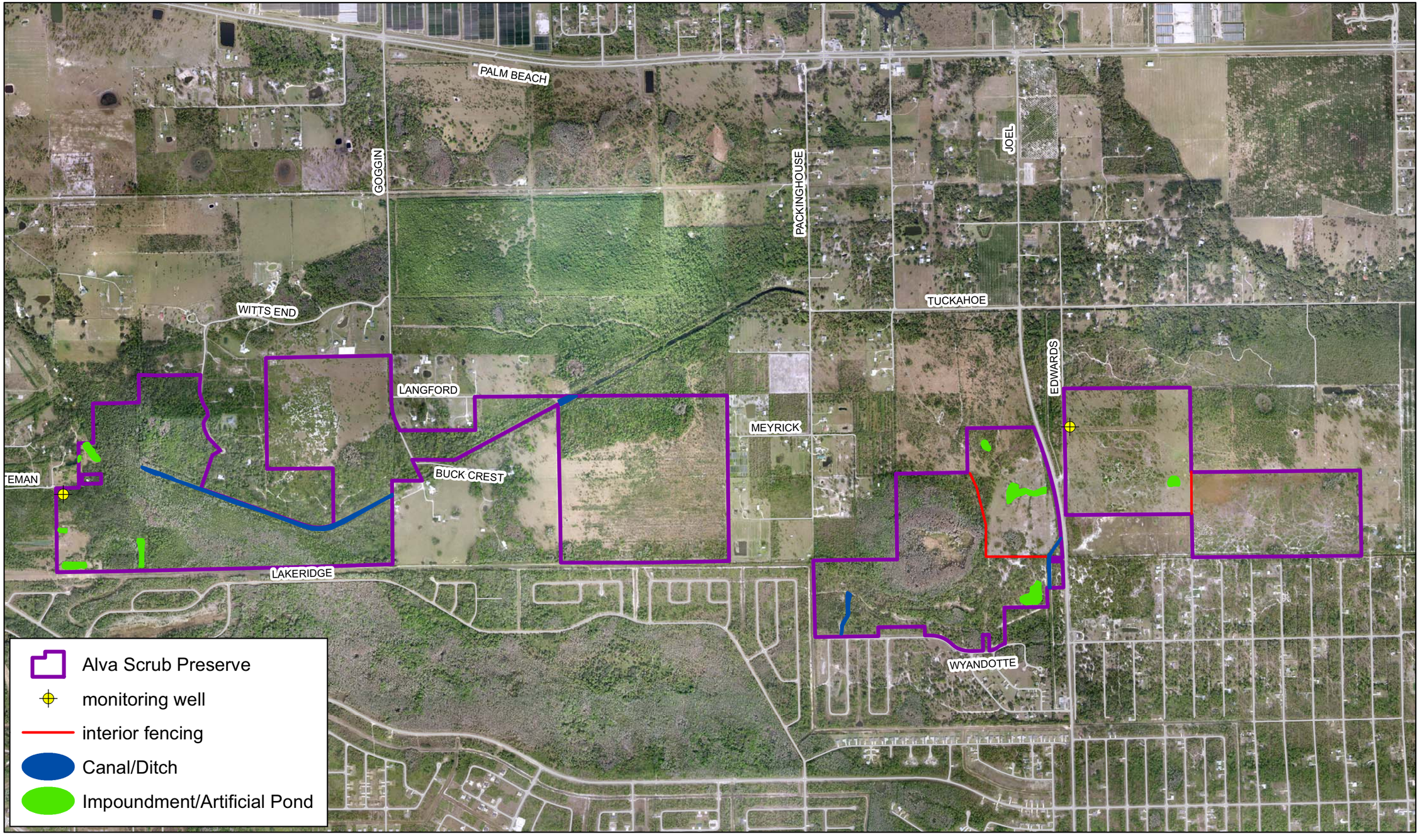
Absence of fire within areas of the Preserve has had noticeable impact on the natural fire dependant communities. In several areas, pine flatwoods have become mixed with hardwoods and other non-fire tolerant species. Also, palmetto has flourished to the extent of overshadowing other understory shrubbery. Within some areas of pine flatwoods, lack of fire has allowed smaller pines to become predominant and increased slash pine density to an unhealthly level. Some of the hydric communities are experiencing encroachment from wax myrtles and other shrubs. Vegetation reduction measures will need to be implemented to reestablish healthier pine flatwoods and hydric communities and to reintroduce a fire regime. A prescribed fire management program will be implemented in all management units that contain fire dependent communities. This will aid conservation measures by inhibiting exotic plant regrowth and return an essential fire regime for fire dependent plants and animals for long-term sustainability. Implementing an appropriate fire regime within the landscape will help prevent the sometimes devastating effects of wildfires and possibly avoid the need for FDOF to intervene with bulldozers and plows.

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

Scheduling of mechanical work and prescribed burning around the nesting season and territorial boundaries for Florida scrub jays must be considered. Bobwhite quail nest between April and September and work should be scheduled to not impact all potential quail habitat at ASP.

A final internal influence are the monitoring well installed on Parcels 57 and 195. Restoration activities using heavy equipment, mowing and prescribed fires could damage this equipment. LCDNR installed this groundwater table level monitoring well near the entrance gates of Parcel 195 and Parcel 57.

Figure 15: Internal Influences



CONSERVATION 20/20 LAND PROGRAM

Alva Scrub Preserve

0 0.375 0.75 1.5 Miles

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Map Prepared on: 02/26/2010
by lgreeno@leegov.com

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C. External Influences

There are a variety of external influences that affect ASP (Figure 16). ASP is located on the boundary between two planning communities (Alva and Lehigh Acres) designated by the Lee County Board of County Commissioners (BOCC) and discussed in the Lee Plan (LCDCD 2009). These two communities represent two very different types of growth and future development. The majority of the Preserve lies within the Alva Planning Community whose mission is to "Preserve and protect its unique historical, rural, agricultural and small town flavor". Alva is the oldest settlement in Lee County and its residents seek to maintain the rural character. The Lehigh Acres Planning Community was platted in 1954 without providing adequate roads, and land set aside for businesses, open space and other non-residential uses. ASP will support the goals of the Alva planning community by continuing cattle ranching in some portions and allowing enjoyment through a primitive trail system without building extensive infrastructure. At the same time, the Preserve will benefit the Lehigh Acres Planning Community by providing some much needed green space.

The Preserve's proximity to HCMP and the Greenbriar Connector conservation lands is a positive external influence and provides additional habitat, foraging, and nesting opportunities for many plant and animal species including state listed Florida black bears as well as federally endangered Florida panthers and federally threatened Florida scrub jays.

In 2008 the "Lehigh Future Park", adjacent to Parcel 195, was purchased by the BOCC and LCPR using park impact fees. It has been suggested model radio airplanes may be allowed as a temporary use on the site. C20/20 Staff will be involved in the plans for the site and take into consideration any impacts which may adversely affect the federally listed Florida scrub jays residing on ASP. The plans will be limited to the park site and will not be allowed in the air space above ASP. Appendix D contains FWC and USFWS comments pertaining to the proposed model airplane project and its impact on ASP's resident scrub jays.

In 2007 the Lee County School District (LCSD) purchased 102 acres north of parcel 325. At this time, no specific plans have been finalized as to what may be built or when it could occur. If the property becomes a school, C20/20 Staff will work with LCSD Staff on the potential of using portions of the Preserve for low-impact environmental education activities.
The majority of the land south of the Preserve is platted into subdivisions. The steady growth in single family residential building in Lehigh Acres will likely bring potential issues of illegal horticultural waste dumping, increased trash and demand for greater access to the site. With the encroachment of development, conducting ecological prescribed burns will become more of a challenge. At the same time, FDOF has designated the area south of the Preserve and including the southern portion of Parcel 325 as a Wildfire Risk Zone. For this reason, it is critical that the management of this Preserve includes efforts to reduce fuel

loads, establish and maintain firelines and conduct prescribed burns to minimize the risk of having a wildfire endanger the surrounding areas. At the same time, these management activities will help protect the Preserve's natural resources from being destroyed by a wildfire.

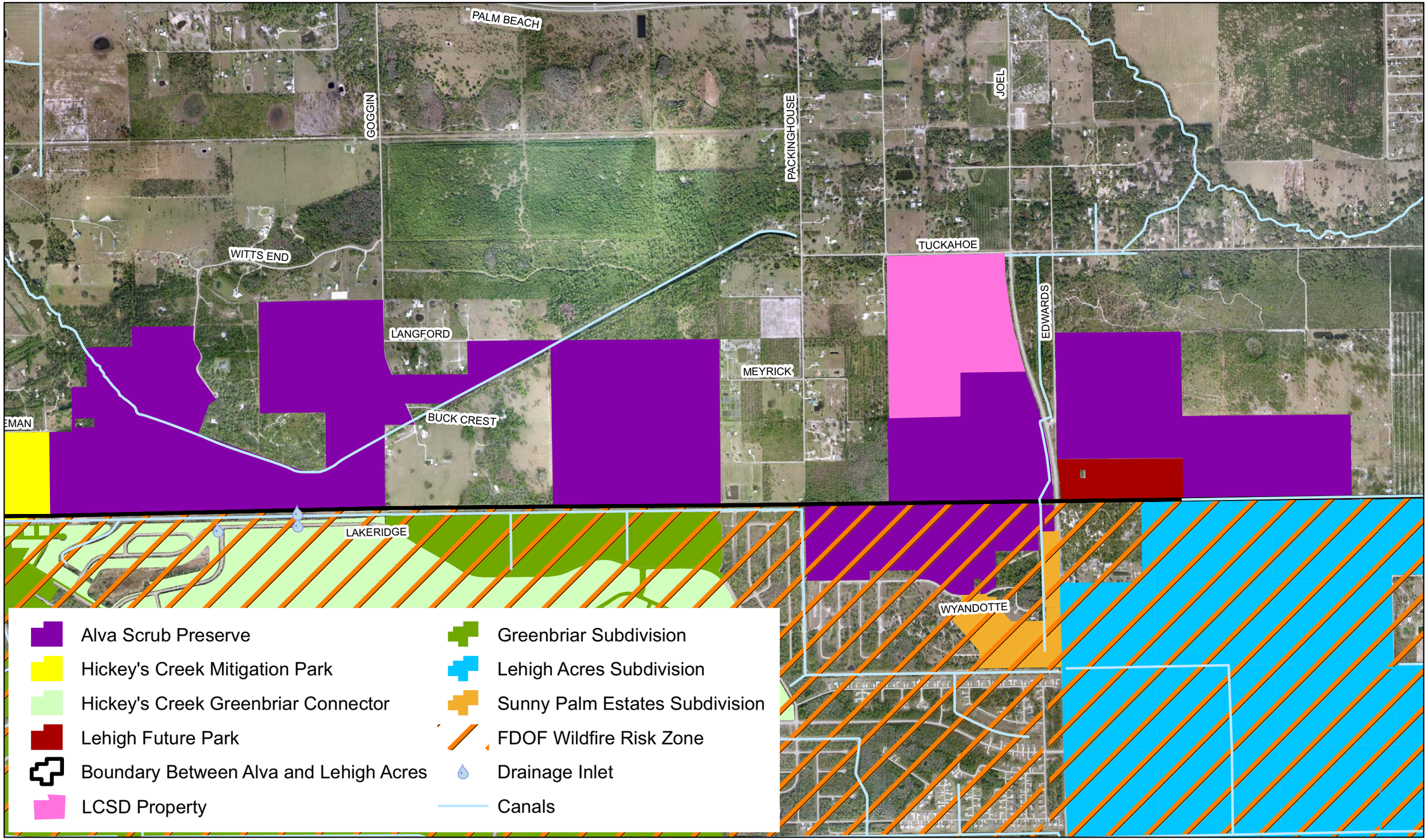
In May 2007, ASP was suggested as a potential hurricane debris staging area. In June 2007, the CLASAC Management Subcommittee discussed this proposal and determined ASP was not suitable for a hurricane debris staging area due to the presence of scrub jays and the risk of distributing invasive exotic seed sources onto the Preserve. A memo explaining this decision to solid waste is located in Appendix E.

Another external influence consists of the network of drainage canals, ditches, and swales surrounding and, in some cases, entering the Preserve. These man-made features affect the historic sheet flow and/or remove/impede water from recharging the wetland ecosystem by quickly channeling water off-site. There is one drainage inlet located on Parcel 57 that connects to the Greenbriar Swamp, managed by the East County Water Control District.

Although not in the ten year plan for road projects, it is feasible in the future that Joel Boulevard will be widened to four lanes and pose a future impact to the Preserve. If road widening is proposed, C20/20 staff will be involved in meetings to provide input to lessen impacts to ASP and wildlife in the area.

A final possible external influence is the recent clearing of property to the north of Parcel 195 for agriculture. Staff will monitor the portion of the Preserve adjacent to this area to look for any adverse impacts.

Figure 16: External Influences Map



CONSERVATION 20/20 LAND PROGRAM

Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 1.25 1.5 Miles

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Map Prepared on: 11/25/2009
by lwewerka@leegov.com

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D. Legal Obligations and Constraints

i. Permitting

Land stewardship activities at ASP may involve obtaining permits from regulatory agencies. Any proposed hydrologic improvements to the site may require obtaining permits from the Florida Department of Environmental Protection (FDEP), the U.S. Army Corps of Engineers (USACOE) and SFWMD. Hydrological and/or habitat restoration projects requiring heavy equipment or tree removal will require notification to the Lee County Department of Community Development (LCDCD). Burn authorization from the FDOF is required for all prescribed burns conducted on ASP. Permits for continued scrub jay banding will be coordinated with the FWC biologist at HCMP.

In the summer of 2009, C20/20 Staff was approached by the City of Cape Coral regarding the possibility of doing off-site mitigation for scrub jays as part of their Festival Park project. ASP Parcels 325 and 357 are being evaluated as potential recipients for the mitigation work. Since this project still requires permitting and approval by the USFWS the proposal will not be approved in time to be included in this edition of the LSP. If this site is deemed appropriate, C20/20 Staff will work closely with Cape Coral staff to ensure that mitigation efforts follow the Goals and Strategies in this Land Stewardship Plan.

ii. Other Legal Constraints

There are three active cattle leases on ASP (Appendix F). As a consideration of the License for Cattle Grazing, this lease may be terminated with a 30-day written notice to the Licensee or canceled upon 48 hours verbal notice if cattle are not kept within the confines of the leased area. All ASP cattle leases are on a one year term and are set to expire during the month of September to simplify coordination between the parties. Cattle may be used for brush management on any of the ASP parcels.

In September of 2008 the BOCC signed a resolution for acceptance of a Wildlife Habitat Improvement Program grant (WHIP) totaling reimbursement of $14,684 for restoration work on Parcel 195. The Conservation Program Contract is included in Appendix G. This grant expires in 2018 and demonstrates a long-term commitment to maintain the site in a suitable condition for the federally listed Florida scrub jay.

Currently, C20/20 Staff is working with the USFWS and the City of Cape Coral to commit portions of Parcels 325 and 357 for mitigation for the take of 2 or 3 scrub jay families for a public project in the City. Upon approval of the mitigation project, those portions of the Preserve will be placed under a conservation easement and be required to adhere to management work described in the

mitigation permits. A formal agreement between Lee County and Cape Coral will be entered into and included in the Appendix at the writing of the next edition of this LSP.

At time of purchase, deed restrictions were placed on Parcel 127. A copy of the deed restrictions can be found in Appendix H. No horse or equine uses, excavation, removal of trees, or construction of buildings or other structures on or above ground are permitted.

There are several easements on or directly adjacent to the Preserve (Figure 17). Information on easements was gathered from surveys, where available or from various county GIS data layers and verified when possible through the Lee County Clerk of Courts Official Records.

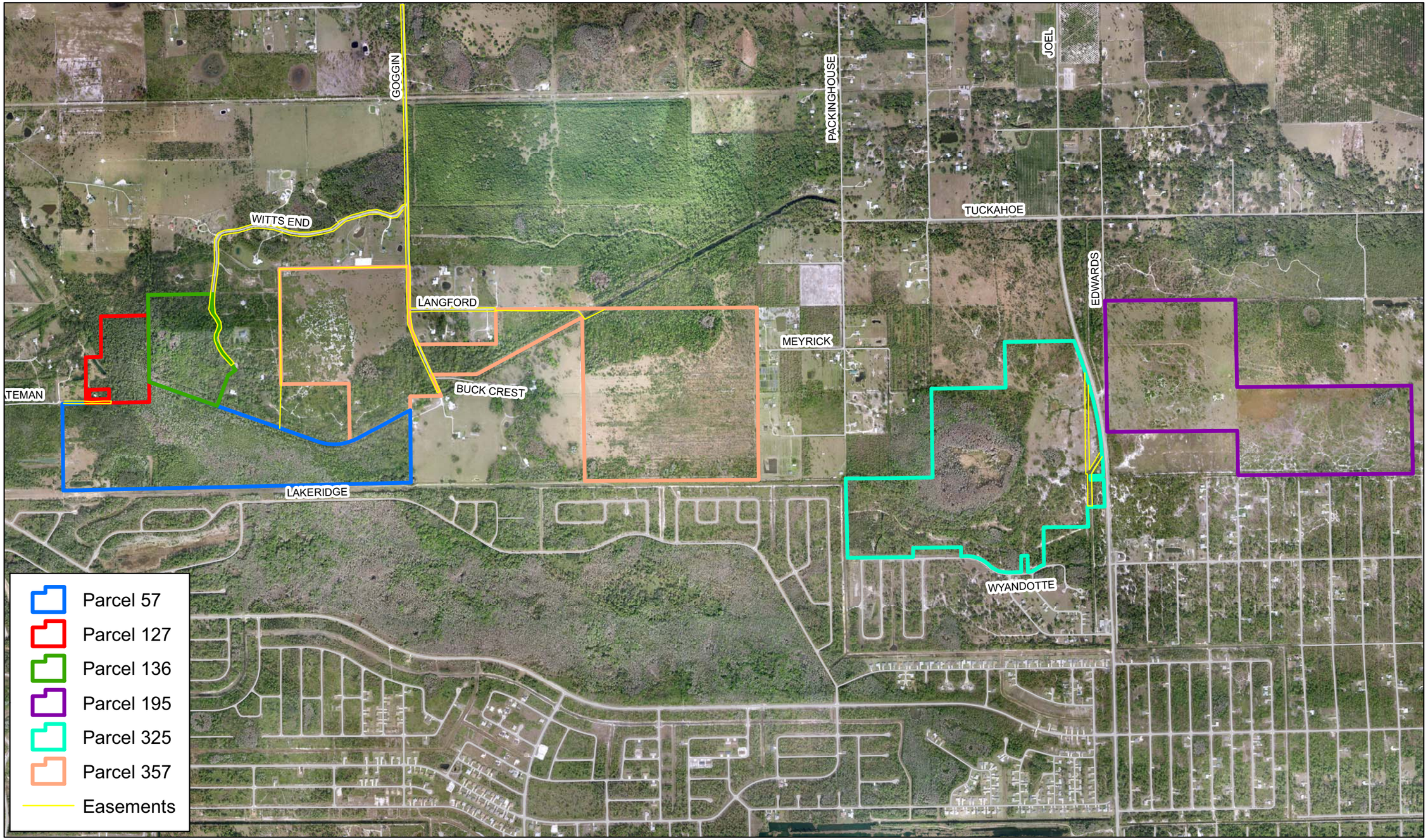
Currently no legal access exists for the portion of Parcel 357 east of Goggin Road. Staff is utilizing a neighbor's property to access the parcel. Work will be done to obtain an official easement agreement with the neighbor, or to utilize the existing 20' ingress egress easement recorded between Bobby Little and Virginia Little Gorff Woodward, the owner of land to the north of the Preserve. This easement runs from the entrance gate off of Langford Road along the north fenceline, across the canal and continues along the southern edge of the canal to the north fenceline of Parcel 357. Directly adjacent to the north and west property boundary of the portion of Parcel 357 west of Goggin Road is a drainage easement which drains into the Hickey's Creek canal.

Parcel 325 contains DOT drainage canal right of way on the southern half of the eastern boundary. The easement is a 60' swath with a canal and maintenance access. C20/20 Staff has recommended surplus of the acreage to the east of this canal and if this is approved, the new property boundary for Parcel 325 would be west of the DOT easement.

A 20' ingress egress easement connects from Bateman Road east to provide access to the outparcel on Parcel 127. This outparcel contains a residence and is surrounded by Parcel 127.

Parcel 136 has a 60' roadway easement for Witt's End Road along its eastern boundary. Lee County GIS data shows an easement separating Parcel 127 and 136. C2020 Staff asked County Lands to research this easement (Appendix I) and officially this equestrian access easement was shifted to another privately owned lot outside of the Preserve boundary. This research also investigated an easement shown to exist on the western edge of Parcel 57. This easement does not exist according to the Title Examiner hired to research these easements.

Figure 17: Easement Map



CONSERVATION 20/20 LAND PROGRAM

N

Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 1.25 Miles

M:\GISLAYERS\Projects\Parks_Rec\C2020\Alva Scrub\LSP_2010\ASP_easements.mxd

Map Prepared on: 12/21/2009
by lgreeno@leegov.com

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

iii. Relationship to Other Plans

The Lee Plan, Lee County's comprehensive plan, is designed to depict Lee County as it will appear in the year 2020. Several themes have been identified as having "great importance as Lee County approaches the planning horizon" (LCDCD 2009). 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 can be found on the Internet at: http://www3.leegov.com/dcd/Leeplan/Leeplan.pdf. The three chapters that affect the management of ASP are **Chapter II – Future Land Use, Chapter IV – Community Facilities and Services and Chapter VII – Conservation and Coastal Management.**

Chapter II, Policy 1.4.6 states that Conservation Lands includes uplands and wetlands that are owned and used for long range conservation purposes. Upland and wetland conservation lands will be shown as separate categories on the FLUM. Upland conservation lands will be subject to the provisions of this policy. Wetland conservation lands will be subject to the provisions of both the Wetlands category described in Objective 1.5 and the Conservation Lands category described in this policy. The most stringent provisions of either category will apply to wetland conservation lands. Conservation lands will include all public lands required to be used for conservation purposes by some type of legal mechanism such as statutory requirements, funding and/or grant conditions, and mitigation preserve areas required for land development approvals. Conservation Lands may include such uses as wildlife preserves; wetland and upland mitigation areas and banks; natural resource based parks; ancillary uses for environmental research and education, historic and cultural preservation, and natural resource based parks (such as signage, parking facilities, caretaker quarters, interpretive kiosks, research centers, and quarters and other associated support services); and water conservation lands such as aquifer recharge areas, flow ways, flood prone areas, and well fields. 2020 lands designated as conservation are also subject to more stringent use provisions of the 2020 Program or the 2020 ordinances. (Added by Ordinance No. 98-09, Amended by Ordinance No. 02-02)

Chapter VII, Objective 104.1: ENVIRONMENTALLY CRITICAL AREAS provides that within the coastal planning area, the county will manage and

regulate, on an ongoing basis, environmentally critical areas to conserve and enhance their natural functions. Environmentally critical areas include wetlands (as defined in Goal 114) and Rare and Unique upland habitats. Rare and Unique upland habitats include, but are not limited to: sand scrub (320); coastal scrub (322); those pine flatwoods (411) which can be categorized as "mature" due to the absence of severe impacts caused by logging, drainage, and exotic infestation; slash pine/midstory oak (412); tropical hardwood (426); live oak hammock (427); and cabbage palm hammock (428). The numbered references are to the Florida Land Use Cover and Forms Classification System (FLUCFCS) Level III (FDOT, 1985). (See also Policy 113.1.4.) The digitization of the 1989 baseline coastal vegetation mapping (including wetlands and rare and unique uplands, as defined above) will be completed by 1996. (Amended by Ordinance No. 94-30, 00-22)

Chapter VII, Goal 107: RESOURCE PROTECTION provides to manage the county's wetland and upland ecosystems so as to maintain and enhance native habitats, floral and faunal species diversity, water quality, and natural surface water characteristics. **Objective 107.1: RESOURCE MANAGEMENT PLAN** provides the county will continue to implement a resource management program that ensures the long-term protection and enhancement of the natural upland and wetland habitats through the retention of interconnected, functioning, and maintainable hydroecological systems where the remaining wetlands and uplands function as a productive unit resembling the original landscape. (Amended by Ordinance No. 94-30, 00-22) Under Policy 107.1.1.4e the county (or other appropriate agency) will prepare a management plan for each acquired site for the long-term maintenance and enhancement of its health and environmental integrity.

Chapter VII, Objective 107.3: WILDLIFE provides the county will maintain and enhance the fish and wildlife diversity and distribution within Lee County for the benefit of a balanced ecological system. (Amended by Ordinance No. 94-30) Policy 107.3.1: encourages upland preservation in and around preserved wetlands to provide habitat diversity, enhance edge effect, and promote wildlife conservation. Initiating a prescribed fire regime and removing invasive exotics will follow this policy.

Chapter VII, Objective 107.4: ENDANGERED AND THREATENED SPECIES IN GENERAL provides Lee County will continue to protect habitats of endangered and threatened species and species of special concern in order to maintain or enhance existing population numbers and distributions of listed species. Policy 107.4.1 states to identify, inventory, and protect flora and fauna indicated as endangered, threatened, or species of special concern in the "Official Lists of Endangered and Potentially Endangered Fauna and Flora of Florida," Florida Fish and Wildlife Conservation Commission (FWC), as periodically updated. Lee County's Protected Species regulations will be

enforced to protect habitat of those listed species found in Lee County that are vulnerable to development.

Chapter VII, Objective 107.8: GOPHER TORTOISES provides that the county will protect gopher tortoises through the enforcement of the protected species regulations and by operating and maintaining, in coordination with the FWC, the Hickey's Creek Mitigation Park. (Amended by Ordinance No. 94-30) **Policy 107.8.1** provides that the county policy is to protect gopher tortoise burrows wherever they are found. However, if unavoidable conflicts make on-site protection infeasible, then off-site relocation may be provided in accordance with FWC requirements. (Amended by Ordinance No. 94-30)

Chapter VII, Objective 77.10, Policies 77.10.1 and 77.10.2 WOOD STORK provides that Land Stewardship staff will continue to document wood stork utilization of the Preserve and ensure that the ASP management plan follows United States Fish and Wildlife Service's (USFWS) "Habitat Management Guidelines for the Wood Stork in the Southeast Region."

Chapter VII, Objective 77.11, Policies 77.11.1, 77.11.4 and **77.11.6 FLORIDA PANTHER AND BLACK BEAR** provides that Land Stewardship staff will maintain and update data on sightings and habitat for the black bear and Florida panther. Staff will continue to support expansion of land acquisition for areas connecting the nearby Hickey's Creek Mitigation Park to the Greenbriar Swamp, and north towards Babcock Ranch. Where appropriate, ASP's habitat restoration projects will include plant species that provide forage for the prey of the Florida panther and forage for the black bear due presence of these species in the area of the Preserve.

Chapter VII, Objective 84.1 WETLANDS provides that Land Stewardship staff is directed to protect and conserve the natural function of wetlands and wetland systems through the enforcement of the county's wetland protection regulations and the goals, objectives, and policies in this plan. "Wetlands" include all of those lands, whether shown on the Future Land Use Map or not, that are identified as wetlands in accordance with F.S. 373.019(17) through the use of the unified state delineation methodology described in FAC Chapter 17-340, as ratified and amended by F.S. 373.4211 (Amended by Ordinance No. 94-30, 00-22).

E. Management Constraints

The principle stewardship constraints for ASP include limited funding, the brief dry season and increasing urbanization pressures. Although C20/20 has a management fund, it is inadequate to fulfill the restoration activities for this and the other preserves. 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.

Approximately 26% of ASP is wetland communities. Stewardship activities will be conducted in the dry season when possible and if access is necessary for stewardship activities when water levels are high, vehicles such as an ATV may be used; otherwise staff will travel on foot.

Urbanization pressures increasingly affect stewardship activities and boundary security. Fire management is a vital tool used to keep fuel loads down, to ensure biological diversity, and to maintain functional habitat value for wildlife. Smoke management will be one of the greatest factors in planning prescribed fires. Prescribed fire parameters become more restrictive with expanding residential and commercial development and increased traffic on nearby roadways. In particular, State Road 80 and Joel Boulevard are smoke sensitive areas that will need to be considered. In the future, the land north of Parcel 325 may have a school or other educational facility which will create another smoke sensitive area. Boundary security is a constant challenge and regular patrols are conducted by C20/20 Staff as well as other agency personnel to maintain secure fence lines and gates.

F. Public Access and Resource-Based Recreation

In accordance with the LSOM, ASP is classified as a Category 4 Resource Protection & Restoration Preserve. As with all designated Category 4 preserves, "if there is a public interest, staff may provide guided field trips when there are no safety concerns and it is compatible with protecting the animals and plant communities found at the specific preserve." Many issues are taken into consideration in determining resource based activities at C20/20 preserves, including but not limited to, acreage of the site, viable access, presence of similar facilities nearby, plant communities present, listed species utilization, and hydrologic components. Restoration activities over the next several years as well as access issues and staffing availability will not be conducive to organized recreation on the Preserve.

The majority of the historic "recreation" that occurred at ASP was from unlawful trespassers and local residents. In decades past, portions of the Preserve were utilized for cattle ranching and the associated fencing prevented most of the general public from entering these areas. On Parcels 325 and 357 heavy ATV usage occurred and fences have been periodically cut along old trails. The Parks and Recreation Ordinance, 06-26 (http://www.lee-county.com/ordinances/PDF/2006/06-26.pdf) prohibits this activity. In fall of 2009 staff installed cabling through sections of fenceline and the ATV usage has greatly diminished.

In an effort to offer public access at ASP while maintaining cattle as a management tool and conducting restoration activities, we have installed a walk-

through gate on Parcel 357 off of Goggin Road. This gate provides access for local residents to bird watch or hike on this portion of the Preserve. In the future, Parcel 325 may also receive a walk through gate to allow access for hikers and bird watchers once large scale restoration projects are completed.

At time of purchase, deed restrictions were placed on Parcel 127. A copy of the deed restrictions can be found in Appendix H. No horse or equine uses, excavation, removal of trees, or construction of buildings or other structures on or above ground are permitted.

Restoration activities are prioritized over public recreation at this time, particularly since resource based recreational opportunities including equestrian trails, mountain biking trails, wildlife viewing opportunities including viewing of Florida scrub jays and nature photography can be found within a 15 minute drive from ASP. Public facilities, parking areas and marked hiking trails or boardwalks are not planned for this site due to the proximity of HCMP, Caloosahatchee Regional Park, Alva Community Center, Harn's Marsh, West Marsh and Veteran's Park. Daniel's Preserve at Spanish Creek another nearby C20/20 Preserve will offer marked hiking trails and a parking area. Equestrian trails will be considered at Buckingham Trails Preserve, another nearby C20/20 Preserve. A parcel directly south of Parcel 195 is slated to be a future park managed by LCPR but will not connect onto ASP due to the presence of a cattle lease and management activities.

The Alva Community Guiding Statement references the possibility of walking and bicycle connectivity from the Franklin Locks south through the Greenbriar Preserve and to Lehigh's future linear park system. When this connectivity is constructed, Alva Scrub Preserve will provide bicycle racks at the pedestrian walk-through gate off of Goggin Road. The Lee County Greenways Multi-purpose Recreational Trails Master Plan which was adopted in May of 2007 shows possible linkages involving portions of Alva Scrub Preserve. When interagency agreements and other legal issues are agreed upon on adjacent lands, C2020 staff will re-examine the feasibility of providing an extension of primitive at grade hiking trails.

Recreational amenities will be reexamined during the next revision of this plan (2020). The opportunities for trails and any other public use facilities will be determined based on the soil types, listed species utilization and hydrologic components at the Preserve.

G. Acquisition

ASP was acquired as six parcels over a period of ten years, through the C20/20 Program for a total cost of almost 15 million dollars (Figure 18 and Table 6). Initially, Parcels 57, 127, and 136 were managed as part of HCMP. In 2007 stewardship of these parcels was transferred to C20/20 Staff because the

funding for the staff at HCMP is in a separate trust fund and not intended for use in other conservation areas. Previously, these three parcels were referred to as "south HCMP". Parcel 195 was named "Alva Scrub Preserve" and when Parcel 325 was purchased it was named "Alva Cypress Preserve". Parcel 357 was combined with Parcel 325 until 2009 when C20/20 Staff, with approval from CLASAC, determined that it was more efficient to combine all six parcels into one Preserve. The STRAP numbers for Parcels 57, 127 and 136 were combined as were the two STRAP numbers for Parcel 325 in 2008 by C20/20 Staff in an effort to streamline paperwork and simplify databases. In the future, Parcel 357 will also have 2 of its 3 STRAP numbers combined. Since the boundary is split by a Section number, there will always be two STRAP numbers for this parcel.

Table 6: Alva Scrub Preserve Acquisition Information

Parcel #	Acres	C20/20 Acquisition $	Date Acquired	STRAP#
57	132.3	$423,360.00	4/30/99	32-43-27-00-00001.0060
127	24.72	$54,000.00	12/7/00	
136	38.2	$371,000.00	11/9/00	
195	170.6	$700,000.00	7/18/02	35-43-27-00-00019.0010
325	196.3	$7,128,600.00	7/31/07	34-43-27-00-00008.1000
357	283.8	$6,242,000.00	7/2/08	32-43-27-00-00001.0020
				33-43-27-00-00001.0200
				33-43-27-00-00001.0030
TOTALS	**845.92**	**$14,918,960.00**		

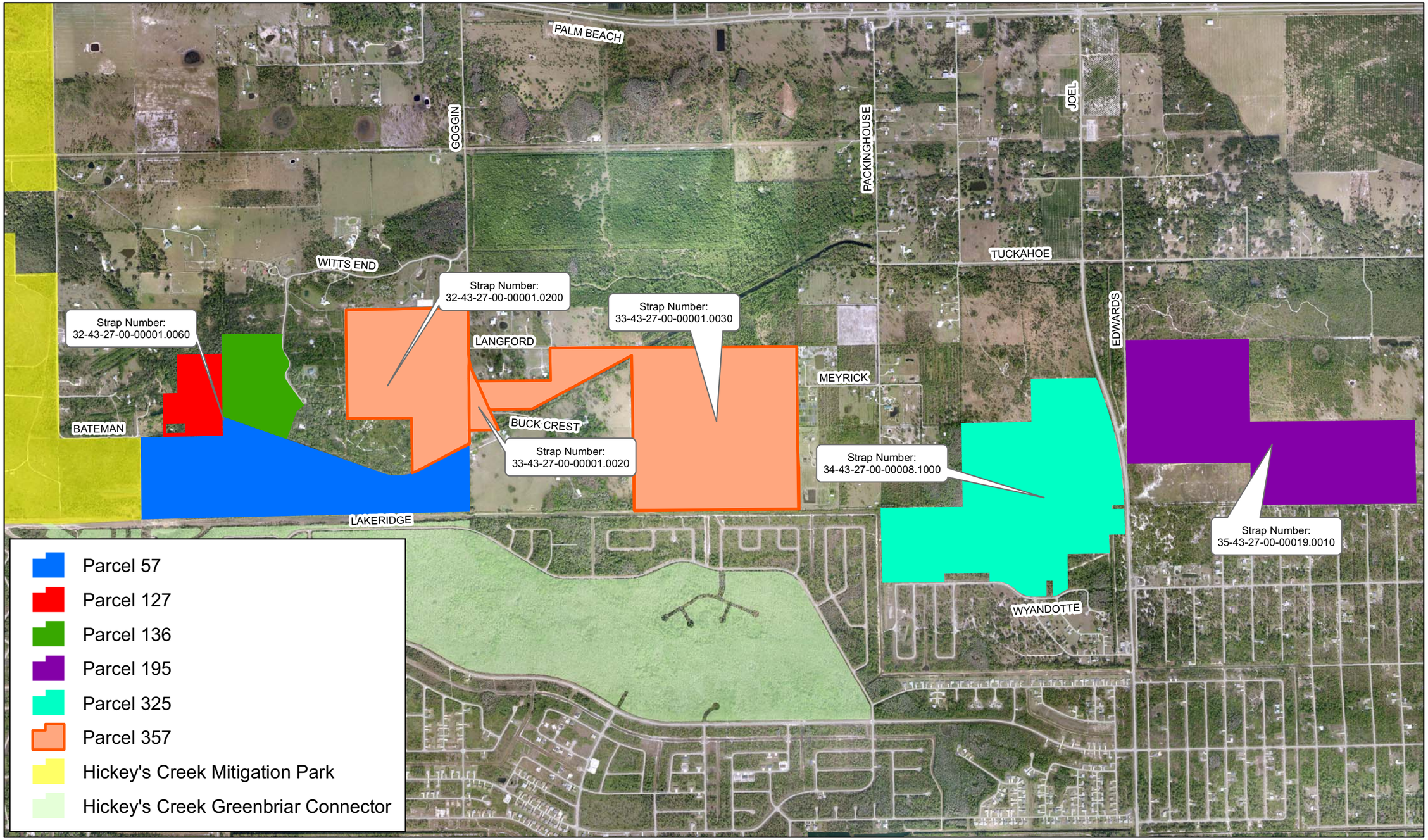
Several other properties near ASP were also nominated to the program (Figure 19). A total of eleven nominations were withdrawn from the program by the land owners or their representatives. CLASAC did not forward nominations 150 or 169 to secondary review because the asking price was higher than staff's estimated market value analysis of other similar properties in the area as well as the high level of disturbance at both sites. As of the fall of 2008, County Lands Staff and CLASAC, under the direction of the BOCC, began to prioritize incoming nominations. This was due to the decrease in incoming tax funds to the C20/20 Program and the dramatic increase of nominations to the program as a result of the severe decline in the real estate market. For this reason, nomination 163 is classified as "On Hold". It is currently on the "B List". At this time, there are several nominations that have potentially encumbered the funds entering the program for the next two years. Once the nominations on this list have either been acquired or withdrawn from consideration, secondary reviews and possible acquisition will focus on the "A List", followed by the "B List".

The Preserve has five future land use (FLU) categories shown on Figure 20. Parcels 57, 127, 136 and 195 have already been changed to “Conservation Lands Upland” and “Conservation Lands Wetland”. Parcel 357 is categorized as “Rural” and Staff will coordinate with Lee County Division of Planning (LCDP) to change the FLU to “Conservation Lands.” Parcel 325 is categorized as “Rural”, “Wetlands” and “Urban Community”.

At this time, C20/20 Staff is not recommending changing the FLU on the entire Parcel 325. We will explore the possibility of creating a separate STRAP for the 3.25 acres and having the balance of Parcel 325 changed. When this portion of ASP was purchased, C20/20 Staff decided to explore the option to surplus approximately 3.65 acres of the parcel. This portion of the Preserve is completely separated from the rest of the parcel by a large canal, is further divided by an out parcel, and is highly disturbed by illegal off road vehicle (ORV) activity (Figure 21). These combinations of factors, as well as the impracticality for using this area for public access are the basis for this decision. Once the acreage is surplussed or a decision is made to not surplus, the FLU will be changed to Conservation Land.

Currently, the majority of ASP is zoned as Agriculture (Figure 22). Parcel 325 also has portions that are zoned Commercial, Multi-Family and Single-Family/Duplex. Land Stewardship staff will coordinate with LCDP to change the zoning to Environmentally Critical of all but Parcel 325. Staff will change the zoning on Parcel 325 if a separate STRAP is pursued for the 3.25 acre possible surplus area, or if the 3.25 acres is sold.

Figure 18: Acquisition Map



CONSERVATION 20/20 LAND PROGRAM

N

Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 1.25 1.5 Miles

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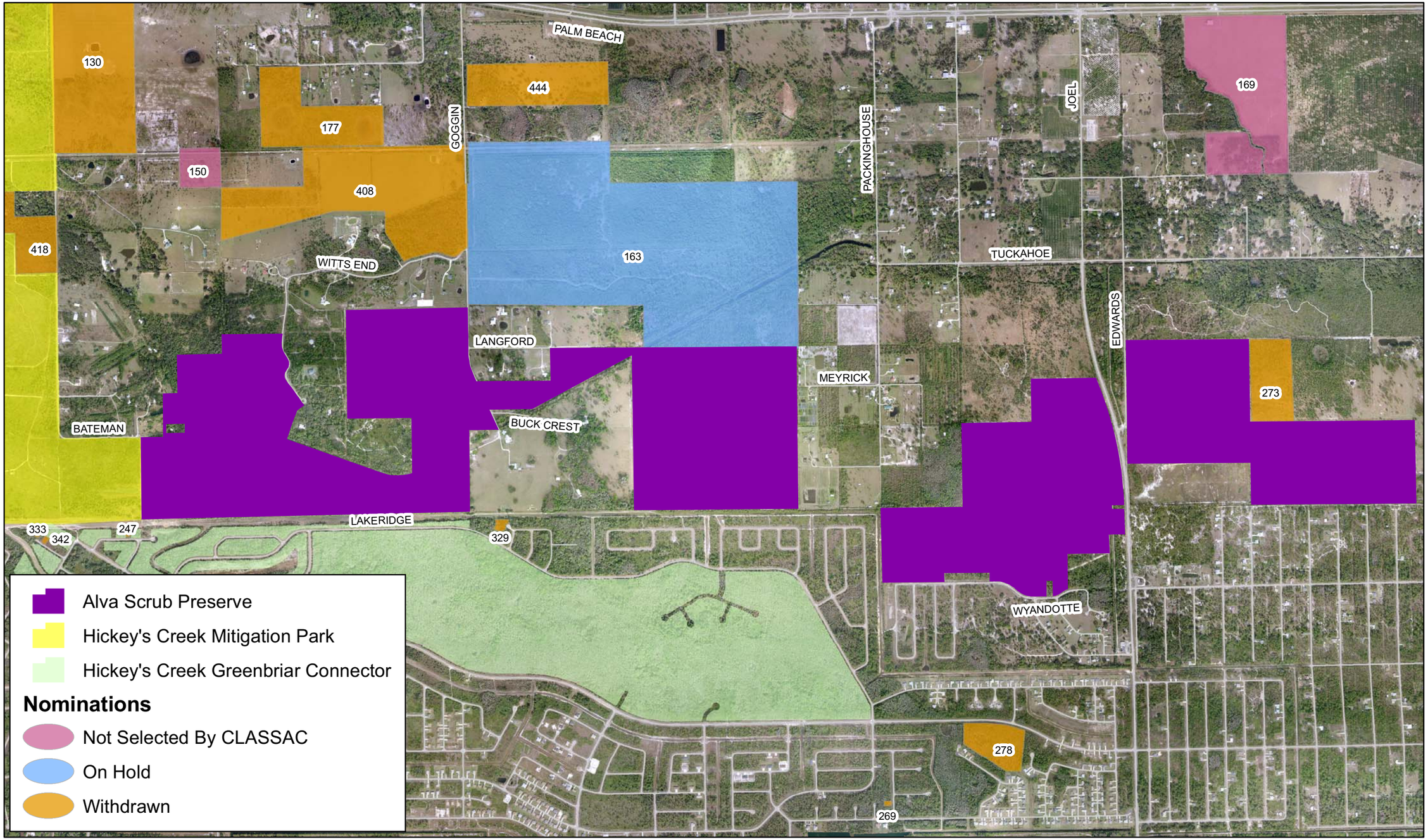
Alva Scrub\LSP_2010\ASP_acquisition.mxd

Map Prepared on: 10/12/2009
by lwewerka@leegov.com

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

Figure 19: Nominations Map



CONSERVATION 20/20 LAND PROGRAM

N

Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 1.25 1.5 Miles

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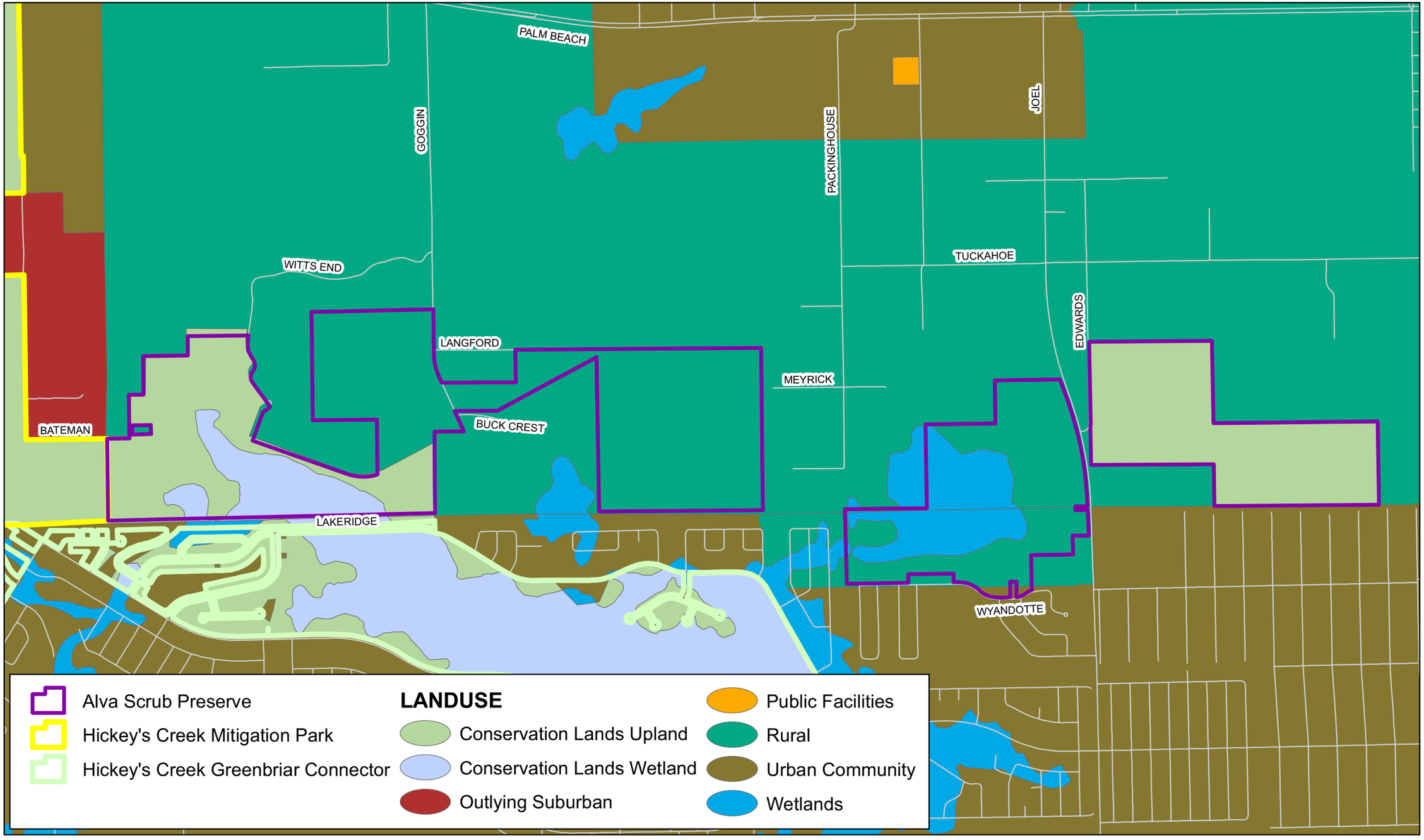
Map Prepared on: 10/15/2009
by lwewerka@leegov.com

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

Figure 20: Future Land Use Map



CONSERVATION 20/20 LAND PROGRAM

N

Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 1.25 1.5 Miles

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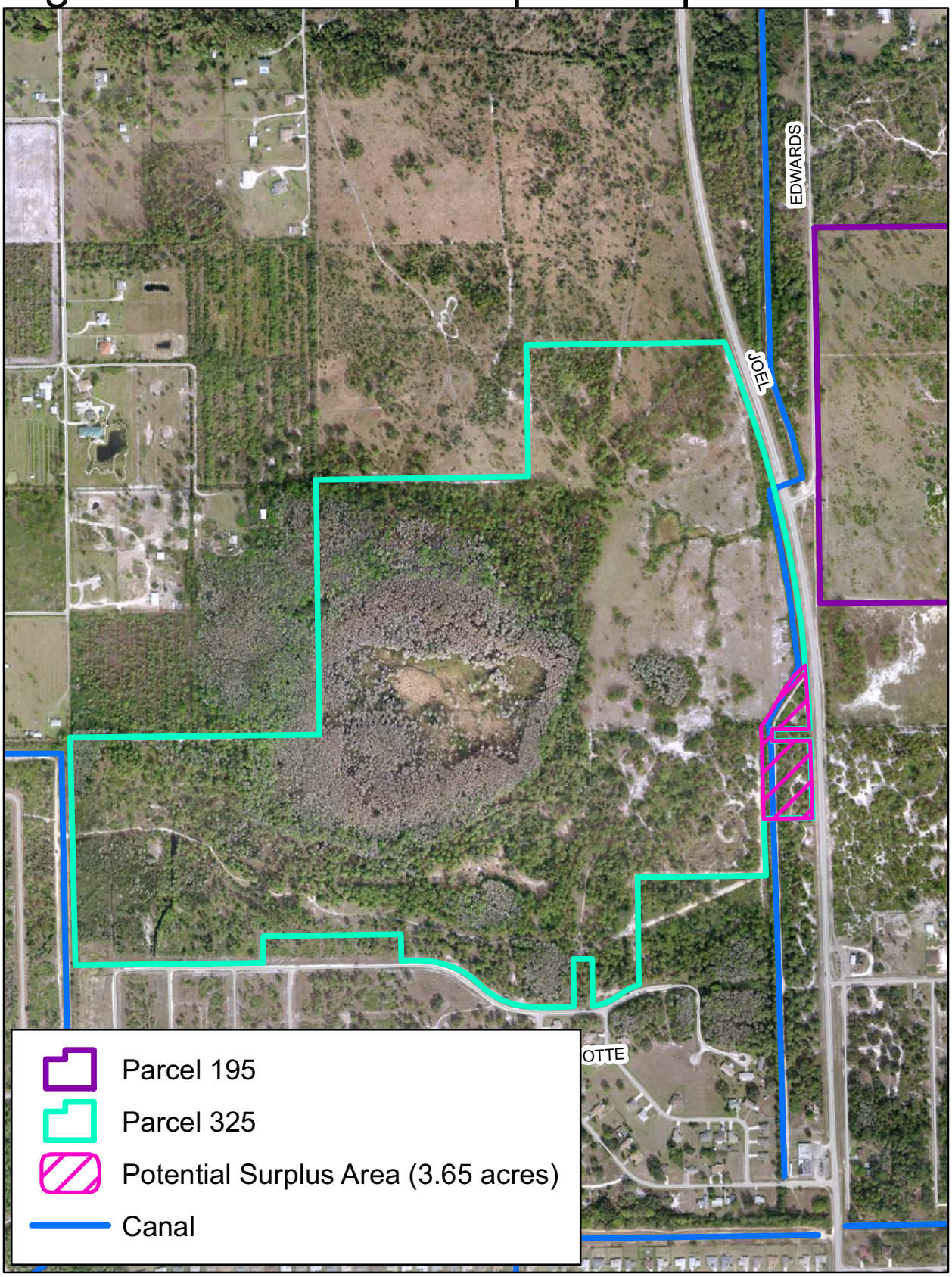
Map Prepared on: 10/15/2009
by lwewerka@leegov.com

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

Figure 21: Potential Surplus Map



CONSERVATION 20/20 LAND PROGRAM

Alva Scrub Preserve

0 0.125 0.25 Miles

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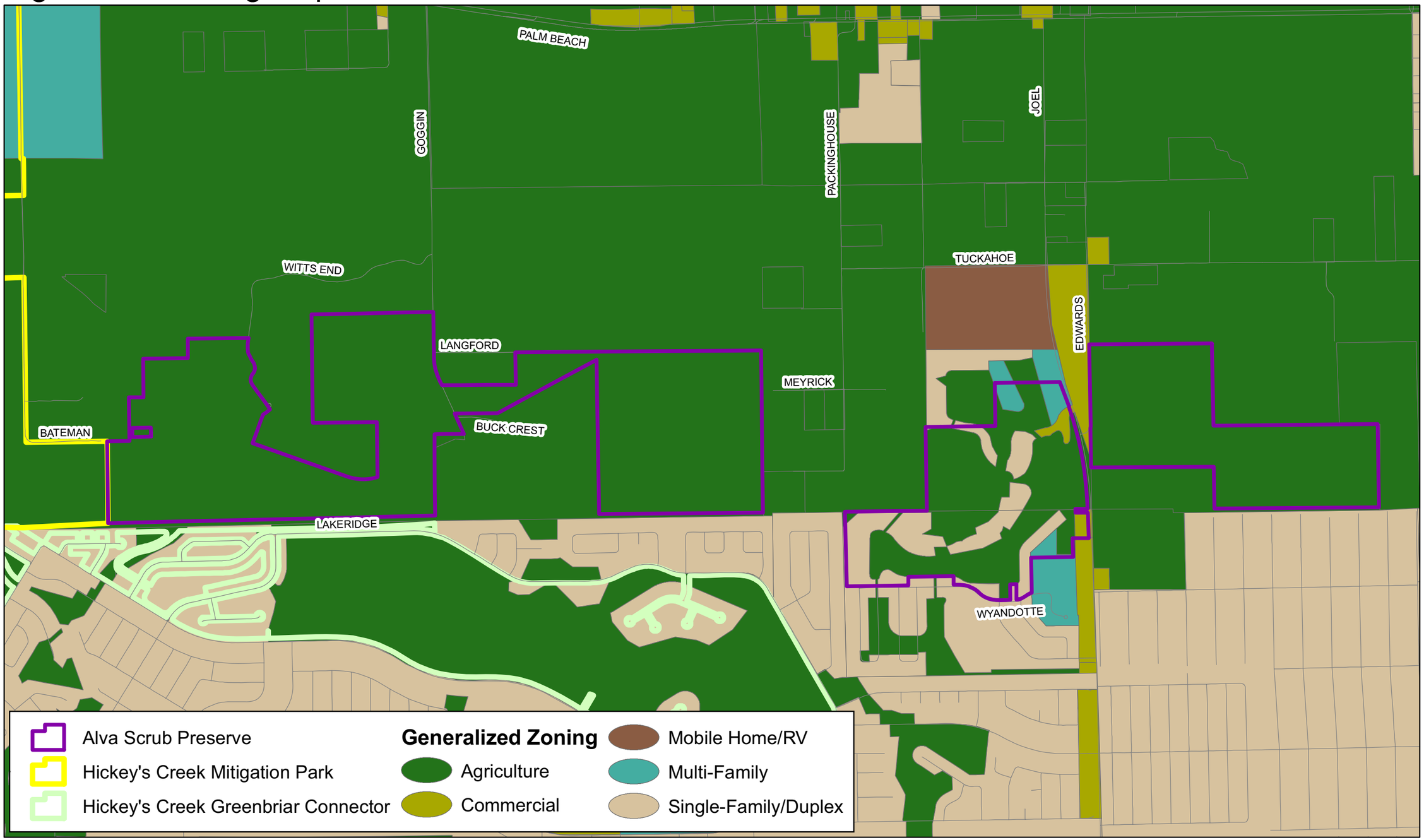
Map Prepared on: 10/15/2009
by lwewerka@leegov.com

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

Figure 22: Zoning Map



CONSERVATION 20/20 LAND PROGRAM

Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 1.25 1.5 Miles

M:GISLAYERS\Projects\Parks_Rec\C2020\Alva Scrub\LSP_2010\ASP_xx.mxd

Map Prepared on: 10/25/2009
by lgreeno@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

ASP has been divided into 14 management units to better organize and achieve management goals. Figure 23 delineates the management units (MU) that were created based on existing trails, roads, ditches, berms and plant communities. Acreage has been rounded to the nearest whole acre.

Prescribed burn units may be shifted from year to year and do not match management units due to presence of scrub jays and the recommendation that no more than 1/3 of their territory be altered in any one year.

In 2008 C20/20 staff was awarded a WHIP grant which reimburses the cost of specific management activities. The 2008 funding was specific to improving habitat for the federally listed Florida scrub jay and pertains to Parcel 195 only. At the time of writing this LSP, C20/20 Staff is involved in discussions with City of Cape Coral staff pertaining to utilizing MU 325-1 and 4, along with MU 357 1, 2 and 3 for scrub jay mitigation. This project is described in further detail in the Management Action Plan section.

- MU 1 (198 acres) consists of Parcels 57, 127 and 136. These parcels are represented by one MU due to their similarity of exotics coverage, lack of easy access for equipment, hydric conditions and lack of fire dependent communities. This MU abuts HCMP on the western boundary.

  Work in this MU will focus on invasive exotics treatment. Lygodium is scattered throughout the MU, thick patches of old growth Brazilian pepper will likely require treatment by contractors. The pasture within this MU could potentially be restored, but C20/20 Staff recommends leaving it as an open area due to the heavy disturbance of soil from past land uses in this area. In its current condition the pasture area serves as a forage site for gopher tortoises and small mammals.

- MU 195-1 (23 acres) is located in the northwestern part Parcel 195. This unit is grazed mesic flatwoods with low palmetto, scattered pines and wax myrtle. The Brazilian pepper in this unit is scattered new growth and of minimal coverage. Other exotics present include caesarweed, occasional new shoots of old world climbing fern along the fenceline, and a small patch of cogon grass (*Imperata cylindrica*). This unit has an active cattle lease. Cattle grazing will continue in this unit as a stewardship technique for pasture.

Approximately 2 acres of high palmetto and young cabbage palm were rollerchopped in August 2007 to reduce the risk of fire reaching the crowns of pines in the eastern portion of this MU. In 2008 this MU underwent pine tree thinning to reduce pine basal area by 40-60% to encourage generation of seedlings and open the area for scrub jay utilization. A copy of the MOU with FDOF can be found in Appendix J. In February 2010 this unit had its first prescribed burn.

WHIP grant required work in this unit includes rollerchopping of palmetto, prescribed burning and treatment of exotics with the goal of less than 5% coverage of FLEPPC listed invasive exotic species, low palmetto with scattered tall clumps (for jay nesting) and open sandy areas.

- MU 195-2 (22 acres) consists of semi-improved pasture, cattle pens and a dug cow well. Staff has treated Brazilian pepper and tropical soda apple (TSA) in this MU and will continue to focus on treatment of scattered resprouts and new invasive exotics as they occur. This unit has an active cattle lease. Cattle grazing will continue in this unit as a management technique for pasture.

  WHIP grant required work includes prescribed burning and planting of 10 acres of scrub jay forage species. Treatment of FLEPPC listed invasive exotic species to a level of <5% coverage is also required.

- MU 195-3 (45 acres) is mesic flatwoods similar to MU 195- 1. It is bordered to the south by a LCPR owned parcel of land that is currently undeveloped but slated for a future community park. Staff has treated Brazilian pepper and TSA in this MU and will continue to focus on treatment of scattered resprouts and new invasive exotics as they occur. This unit has an active cattle lease. Cattle grazing will continue in this unit as a stewardship technique for pasture.

  In 2008 this MU underwent pine tree thinning to reduce pine basal area by 40-60% to encourage generation of seedlings and open the area for scrub jay utilization.

  WHIP grant required work in this unit includes rollerchopping of palmetto, prescribed burning and treatment of exotics with the goal of less than 5% coverage of FLEPPC listed invasive exotic species, low palmetto with scattered tall clumps (for jay nesting) and open sandy areas.

- MU 195-4 (43 acres) is located in the eastern part of Parcel 195. MU 4 contains a wet prairie and scrubby flatwoods. Exotic plant species include scattered young melaleuca and Brazilian pepper.

Black turpentine beetles had infected the pines after Hurricane Jeanne hit the Preserve in 2004. In 2008 this MU underwent pine tree thinning to reduce pine basal area by 40-60% to encourage generation of seedlings and open the area for scrub jay utilization in conjunction with removal of beetle infected trees.

WHIP grant required work in this unit includes rollerchopping of palmetto, prescribed burning and treatment of exotics with the goal of less than 5% coverage of FLEPPC listed invasive exotic species, low palmetto with scattered tall clumps (for jay nesting) and open sandy areas.

- MU 195-5 (39 acres) is the easternmost side of the Preserve. This unit contains a small disturbed dome swamp with cypress and scattered young melaleuca. The dome swamp is surrounded by higher and drier scrubby flatwoods.

  WHIP grant required work in this unit includes rollerchopping of palmetto and scrubby vegetation, prescribed burning and treatment of exotics with the goal of less than 5% coverage of FLEPPC listed invasive exotic species, low palmetto with scattered tall clumps (for jay nesting) and open sandy areas.

  Several staff workdays have been conducted to cut all large melaleuca and staff is treating resprouts and seedlings as they appear. Patches of Brazilian pepper line the southern fenceline. This unit underwent pine tree thinning in 2008. In December of 2009 an excavator was used to remove pine stumps and cabbage palms to create a fire break along the southern fence.

- MU 325-1 (56 acres) consists mainly of improved pasture, disturbed systems and impoundment/artificial ponds. The openness of the pasture in this MU will serve as an area for scrub jays to travel. This unit has an active cattle lease. Cattle grazing will continue in this unit as a management technique for pasture.

  In April 2009 pines in this unit were thinned to a canopy cover of less than 50%. Due to lack of fire and hydrologic alterations to the site, pines grew in a dense stand in the northern 1/3 of the unit and in a stand on the western MU boundary.

  Management activities for this MU will involve mechanical reduction of the understory and selective thinning of hardwoods in the cultural hardwood forest, prescribed burning and exotics removal/treatment. Herbicide work will focus on treating Brazilian pepper which is scattered across the site, most densely around the artificial pond and cypress areas. This MU is part of the proposal for City of Cape Coral scrub jay mitigation.

- MU 325-2 (60 acres) consists of a cypress dominated strand swamp surrounded by oak dominated hydric hammock. Old world climbing fern and Brazilian pepper were the major invasive exotic plants. Grant funding allowed an initial treatment to be completed in the summer of 2009. Staff will pursue further funding sources for re-treatments or conduct staff/volunteer workdays.

  In April of 2009 pine tree thinning was conducted in this unit to decrease pine encroachment into the cypress. In the event of a wildfire, the density of the pines along the outer edges of the strand swamp could have caused high cypress mortality and in dry conditions could have caused a muck fire. By removing pines, lower intensity flames will reach the cypress in times of prescribed burning as well as during wildfires, thereby decreasing potential destruction of the cypress.

  Management activities for this MU will involve mechanical reduction of palmetto understory and hardwoods encroaching on the cypress system, prescribed burning and exotics removal/treatment. Due to the alteration of surrounding private property and roadways, hydrologic restoration for the strand swamp is not feasible unless a regional opportunity arises.

- MU 325-3 (28 acres) consists of disturbed communities. A ditch bisects the lower half of the MU. This MU contained the highest coverage of invasive exotics until forestry mowing and hand crew cutting and treating of melaleuca and Brazilian pepper was conducted in the summer of 2009 through grant funding. Staff will pursue further funding sources for re-treatments or conduct staff/volunteer workdays. Prescribed burning will be important in this unit to ensure the younger pines receive a steady fire regime and that encroachment of hardwoods into the wet prairie system and strand swamp is minimized.

- MU 325-4 (52 acres) consists of a wide variety of invasive exotics including Caesarweed, Durban crowfootgrass (*Dactyloctenium aegyptium*), torpedo grass and napier grass. This unit has suffered from lack of fire, hydrologic alterations and past ATV usage. These influences have created a mix of overgrown oaks, young pines and highly disturbed vegetation communities which are in transition.

  In April 2009 pines in this unit were thinned to a canopy cover of less than 50%. This allowed more sunlight to reach the ground and encouraged the growth of native grasses in some areas. Opening the canopy allowed large patches of caesarweed to sprout from the latent seed source and will require herbicide treatment.

With open sandy areas and scrubby flatwoods plant species as the basis, this unit will be mechanically managed to expand the scrubby flatwoods component. Herbicide applications, disking and burning will be utilized to manage invasive exotic grasses. This MU is part of the proposal for the City of Cape Coral scrub jay mitigation.

- MU 357-1 (84 acres) is primarily overgrown mesic flatwoods with a cultural hardwood forest on the west side. This unit underwent pine thinning in April 2009. The cultural hardwood forest contains mature live and laurel oaks mixed in with a wide variety of exotics including Brazilian pepper, earleaf acacia (*Acacia auriculiformis*), woman's tongue (*Albizia lebbeck*) and rosary pea. A large patch of cogon grass carries across the north fenceline from neighboring property and has spread through palmetto resulting in scattered small patches throughout the unit north of the canal. This unit has an active cattle lease. Cattle grazing will continue in this unit as a stewardship technique for pasture grasses.

  In April 2009 pines in this unit were thinned to a canopy cover of less than 50%. Fire breaks were installed at this time and perimeter fencing was installed in areas which were not formerly fenced.

  FLEPPC listed invasives are dense in this unit and contracted work is recommended. Mechanical reduction of the understory and prescribed burning will also be management tools utilized in this unit.

  C20/20 staff will explore the feasibility of removing or regrading the berm of spoil from the digging of the Hickey's Creek canal. This berm is located on the north side of the canal and spans just over ¼ mile.

- MU 357-2 (101 acres) consists of abandoned field with a strip of cultural hardwood forest and 2 small dome swamps in the very southern portion. Invasive exotic vegetation is scattered across this MU and consists of Brazilian pepper, Old World climbing fern and caesarweed. In August 2009 staff installed a cow well in the center of this MU. This unit has an active cattle lease. Cattle grazing will continue in this unit as a stewardship technique for pasture grasses.

  Rollerchopping the understory, removal of large oaks and overgrown myrtle, herbiciding of exotics and prescribed burning are planned for this unit. This MU is part of the proposal for City of Cape Coral scrub jay mitigation.

- MU 357-3 (69 acres) contains an unusual area that C20/20 Staff is currently labeling a pasture- semi-improved. This is the closest FNAI description to match the current conditions of the eastern half of this MU. The western half is a disturbed mesic flatwoods which lacks the diversity

of groundcover and other herbaceous plants typical of this community. Brazilian pepper is scattered in low density across this MU, along with some Caesarweed and small areas of cogon grass.

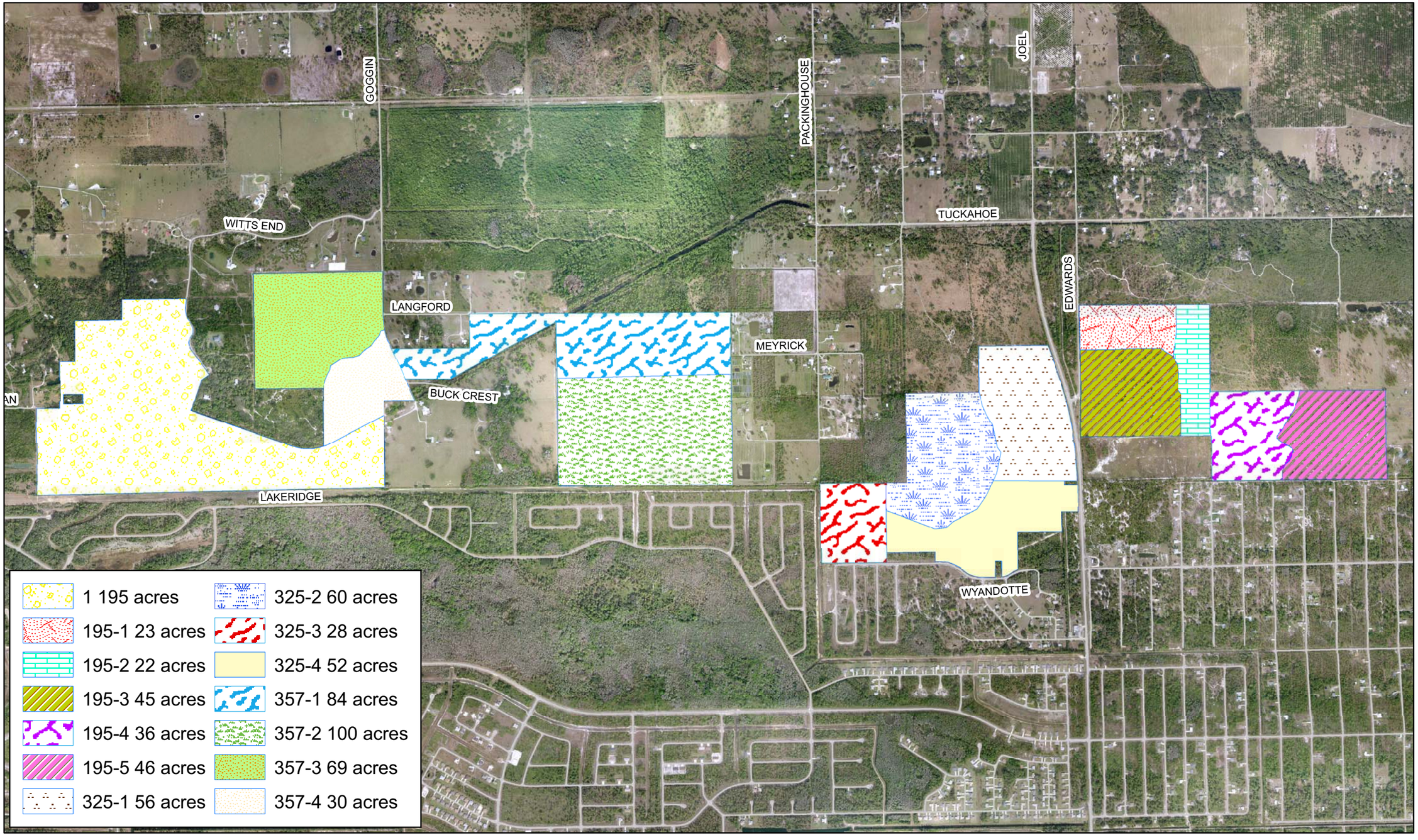
Disking and burning of the semi-improved pasture is planned to correct alterations made to it through past agricultural practices and in turn create a drier plant community. Rollerchopping, thinning of large oaks and seasonally rotated prescribed burns will be conducted in this MU.

- MU 357-4 (30 acres) is a mesic unit with 2 disturbed dome swamps and areas of cultural hardwood forest. A few melaleuca and some Brazilian pepper, guava and Old World climbing fern are present in low density. Understory palmetto is overgrown and has grown into dense monocultures which reach into the lower branches of the live oaks.

  Rollerchopping has been conducted in the southeastern portion of this MU to decrease fuels adjacent to the private property. Firebreaks and fencing were installed in 2009.

  Rollerchopping and forestry mowing of understory vegetation will reduce fuel loads and decrease encroachment of palmetto into the cypress dominated dome swamps. Once fuel loads are reduced mechanically, prescribed burning will be initiated. Herbicide will be used to control the FLEPPC listed exotic vegetation.

Figure 23: Management Units Map



CONSERVATION 20/20 LAND PROGRAM

N

89

Alva Scrub Preserve

0 0.125 0.25 0.5 0.75 1 Miles

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Alva Scrub\LSP_2010\ASP_management.mxd

Map Prepared on: 12/21/2009
by lgreeno@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 ASP are habitat improvements for the Florida scrub jay, initiating prescribed burning and removal and continued treatment of invasive exotic plants to insure they are kept at a maintenance level. Additional stewardship activities at ASP will focus on the following and will be prioritized in order of importance and ease of accomplishment: Funding is currently not available to conduct all of these activities. Grants and/or monies budgeted to mitigate public infrastructure projects will be used to supplement the operations budget to meet our goals in a timely manner. Management activities with an * indicate activities that are required to be conducted on Parcel 195 through the WHIP grant.

Natural Resource Management

- ✓ Scrub jay habitat improvements
- ✓ Mechanical brush and tree reduction*
- ✓ Prescribed fire management*
- ✓ Exotic plant control/maintenance*
- ✓ Tree/shrub planting*
- ✓ Hydrologic and spoil restoration
- ✓ Monitor and protect listed species
- ✓ Monitor for turpentine beetles
- ✓ Exotic and feral animal removal

Outside Consultants

- ✓ Environmental/engineering

Overall Protection

- ✓ Investigate need to surplus 3.65 acres of Parcel 325
- ✓ Debris removal and prevention of dumping
- ✓ Boundary sign installation/maintenance
- ✓ Install/maintain boundary fences
- ✓ Maintain fire breaks*
- ✓ Assess cattle leases
- ✓ Change Zoning and Future Land Use categories
- ✓ Termination of Easements

Volunteers

- ✓ Assist Bird Patrol or other interested volunteer group

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

Natural Resource Management

Scrub jay habitat improvements

As mentioned in earlier sections, Lee County has received a WHIP grant on Parcel 195 for habitat improvement for scrub jays and the City of Cape Coral is pursuing a partnership with Lee County to allow for Florida scrub jay mitigation on MUs 325-1, 325-4, 357-1, 357-2 & 357-3. The overall goals for restoration will be to create and maintain habitat conditions favorable for expansion of scrub jay families across the Preserve by:

- Reduce vertical structure of vegetation so the majority of the height of shrub and tree cover is less than 10 feet high.
- Providing 2-3 pockets of scattered clumps of tall palmetto that will not be altered mechanically to provide nesting habitat for Florida scrub jays in each management unit.
- Planting scrub oaks and other forage species to enhance feeding opportunities.
- Create and maintain open, sandy areas for food caching by disking caching areas if naturally open areas become encroached upon.

If the City of Cape Coral scrub jay mitigation is not approved, other funding opportunities will be pursued to accomplish these goals.

FWC biologists will continue to assist with monitoring and band the ASP population of Florida scrub jays in conjunction with HCMP scrub jay banding contract work through Archbold Biological Station. The timing of banding activities will depend on FWC's schedule. If scrub jay mitigation is approved with the City of Cape Coral a more specific schedule will be set.

Mechanical tree and brush reduction

Healthy flatwoods are characterized by open, uneven-aged pine stands that allow a considerable amount of sunlight to reach the forest floor. The sunlight allows for a ground cover of a mixture of grasses, herbaceous plants, scattered low palmetto and dried pine needles that allow low intensity lightning ignited fires. Fire would burn through the dried grasses and needles to expose bare mineral soil. The bare ground, combined with the light shading from the scattered pines was ideal for the germination of pine trees, wiregrass and many other flatwoods plants.

Although pine tree thinning has been conducted where necessary at the Preserve, oaks have become the dominant canopy coverage in some portions of the Preserve due to lack of fire. The overgrown oaks will be removed from MU 325-4, 357-2 & 357-3. By opening the canopy, there will be more foraging and

nesting opportunities for Florida scrub jays, bobcats, bobwhite quail and gopher tortoises.

In addition to thinning oaks, saw palmettos need to be thinned or mowed in overgrown areas to achieve desired results and to prevent crown fires or intense fires from occurring. Portions of the Preserve have already been roller chopped to reduce the palmetto coverage. Additional chopping will need to be conducted in management units MU 325-4, 357-1, 357-2, 357-3 and 357-4.

As part of the WHIP grant, the palmetto in MU 195-1, 195-3, 195-4 and 195-5 will be rollerchopped with a goal of reducing the height of palmetto, while leaving scattered tall clumps for Florida scrub jay nesting. No more than 1/3 of their territory will be altered at one time.

Timing of mechanical shrub reduction will be considered on Parcel 195 to ensure that it does not impact the quail nesting season (April – September).

Prescribed fire management

Prescribed burning will be implemented to closely mimic the natural fire regimes for the different plant communities to increase plant diversity and insure the canopies remain open. The timing of prescribed burning will be influenced by seasonal rain and wind patterns, staff and equipment availability and listed species requirements.

Although not a listed species, a large population of bobwhite quail are also present on Parcel 195 and require an annual burn frequency. Annual burning will encourage the growth of forbs to provide food for quail and prevent the encroachment of wax myrtle and saw palmetto. Peak nesting season is mid-June and burning during this time should be avoided.

As part of the WHIP grant, MU 195-1, 195-2, 195-3, 195-4, 195-5 will be burned on a 2-4 year rotation, varying between growing and dry season burns. MU 195-5 has a very thick duff layer which causes concern for both smoke management to the neighborhood to the south and for possible large-scale tree mortality due to fire and heat damage to the from the root system. For this reason, prescribed burns in this MU will be conducted when the soil moisture is saturated so that only a small layer of duff will be burned off at one time. C20/20 staff will conduct several low-intensity burns over several years to reduce the duff layer.

Prescribed burning goals for MU 325-1 will focus on decreasing the hardwood and palmetto encroachment in the pasture area to benefit Big Cypress fox squirrels that have been seen in this unit. This unit will be placed on a 2-5 year rotation, varying between growing and dry season burns. This burning regime will also be beneficial for Florida scrub jays.

Prescribed burning goals for MU 325-3 and 357-4 will focus on preventing hardwoods from encroaching into wetland plant communities.

Prescribed burning goals for MU 325-4, 357-1, 357-3 will be to maintain the majority of the vegetation in this unit to a maximum height of 10 feet for the benefit of Florida scrub jays as well as reducing the coverage of native shrubs that can become invasive including saw palmetto, wax myrtle and fetterbush to less than 40%. Additionally, the tree canopy coverage of these communities will be maintained at a maximum of 50%.

Prescribed burn goals for all MUs with fire dependent communities will be to reduce the future wildfire threat to neighboring properties as well as the Preserve and to increase the diversity of herbaceous ground cover. This will be accomplished by following the recommended prescribed burn rotations listed in the Natural Plant Communities section with an effort to burn in a variety of seasons and under different climatic conditions.

The C20/20 Burn Team Coordinator has coordinated with the FDOF to finalize the C20/20-wide Fire Management Plan that will apply to all Preserves. If in the future prescribed fire cannot be utilized, then an on-going brush reduction plan should be implemented to maintain fuel load levels to a minimum in case of wildfires, as well as to maintain Florida scrub jay habitat. C20/20 staff will coordinate prescribed burn efforts at the Preserve with the managers of adjacent conservation lands and inform adjacent neighbors of imminent burn plans.

Exotic plant control/maintenance

The most current Florida Exotic Pest Plant Council's (FLEPPC) 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 by 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.

As of the writing of this plan, a large portion of ASP has undergone some invasive exotic plant treatment. However there is still extensive work to be conducted in MU 1, 325-4, 357-1, 357-2 and 357-4.

Prior to each invasive exotic plant control project at ASP, a Prescription Form (located in the LSOM) will be filled out by C20/20 Staff, reviewed by the contractor(s) and filed appropriately. All contractors involved in these projects will be required to fill out the Daily Report Control Form (located in the LSOM) and filed appropriately by staff.

In areas where invasive plants are sporadic and below 50% of the vegetation cover, hand removal will be utilized for control. Specific methodology will depend

on stem size, plant type and season, but generally the stem will be cut near the ground and the stump will be sprayed with appropriate herbicide, or a foliar application will be applied to the entire plant. Hand pulling will be utilized when possible with appropriate species in order to minimize herbicide use. Basal bark treatment may be used at some locations. Cut stems may be piled to facilitate future potential burning, chipping or removal from site. No replanting will be needed due to significant presence of native vegetation, the native seed bank and low density of invasive exotic plants.

In upland areas where the invasive exotic plant cover is >50%, a combination of hand crews and equipment, such as forestry mowers, will cut and mulch the woody plants and the stumps will be sprayed with an appropriate herbicide. Herbaceous species will be foliar sprayed. For wetland areas with invasive exotic plant cover >50% hand crews will be used to cut down and remove or treat the species in place. Tree debris that is removed will then either be pile burned or mulched in adjacent upland areas.

Several invasive exotic species of extreme concern have been identified on the Preserve that C20/20 Staff has prioritized for removal. Invasive grasses including cogon, guinea and torpedo are found in several management units of the Preserve. A combination of mowing, disking, burning and herbicide treatments will be used to treat these plants on an annual or semi annual basis. Of particular concern is the cogon grass in MU 357-1. This grass will be treated before any mechanical work occurs on this MU. Additionally, any equipment brought on site will be washed before it arrives to minimize introduction of new seed and spore sources and any equipment used at the Preserve on these species will be washed before being moved to another C20/20 Preserve. Lygodium will be scouted for during all activities and locations will be GPS'ed and treated with herbicide as soon as possible to decrease potential spread.

Tree/shrub planting

As part of the WHIP grant, 10 acres of MU 195-2 will be planted with Florida scrub jay forage species, including *Quercus sp.* with low growth forms that are suitable for the soil types found in this unit. The acorns produced by the oaks are a preferred food source for jays as well as turkeys and other wildlife species. Plantings of scrub jay forage and nesting plant species will also be installed in MU 325-4 and 357-2 if plants do not become established after other restoration work takes place.

Hydrologic and spoil area restoration

There is a ditch bisecting the lower half of MU 325-3 that is affecting the drainage on the western portion of this Parcel. C20/20 Staff will explore the possibility of filling all or portions of this ditch to prevent the drainage and improve wildlife habitat.

On MU 357-1 there is a ¼ mile berm associated with the Hickey's Creek canal that staff will explore the feasibility of removing or regrading. This canal also separates MU 1 and MU 357-4.

If resolving either of these issues becomes feasible, consultants will be hired to assist with the permitting and design of the projects.

Monitor and protect listed species

The Preserve will be managed in a manner that protects and enhances habitat for listed and other wildlife species that utilize or could potentially utilize the project site. As discussed in the Designated Species section, there are several listed species that have been documented utilizing the Preserve. For the most part, these species will benefit from restoration activities such as the removal of invasive exotic plants. During restoration activities, efforts will be made to minimize any negative impact to listed species. Specific examples of this will be using heavy equipment in the cooler months near gopher tortoise burrows when tortoises are less active and avoid listed plant species found on the Preserve.

In addition to the general protection listed above, any active gopher tortoise burrow will be mapped and protected during land stewardship activities that could damage the burrows. Prescribed burning, brush reduction, oak tree removal and pine tree thinning will provide improved forage opportunities for tortoises with burrows on adjacent lands. As adjacent lands are developed, tortoises may move onto ASP and establish burrows.

At the writing of this plan, Florida scrub jay families have territories in MU 195-3 and 195-4 and have been observed foraging in MU 195-5. When planning any management on Parcel 195, the location of the jays must be determined and work must not alter more than 1/3 of their territory. Additionally, open, sandy areas in this unit are utilized as caching areas by the jays. If vegetation begins to overtake these areas, they will be disked/tilled to maintain caching opportunities. Due to the likelihood of scrub jays moving into unoccupied areas of ASP, rudimentary jay surveys will be conducted prior to any mechanical work or prescribed burning. If jays are defending new territory or new families become established on site, modifications will be made to restoration plans to ensure no more than 1/3 of their territory is altered, burn units will be shifted and mapping of new territories will be conducted.

Big Cypress fox squirrels have been seen on MU 325-1, 195-1, 195-2 and 195-3. Prescribed burning and exotic plant removal will be used to maintain these areas with minimal understory and an open tree canopy.

ASP is part of a countywide quarterly site inspection program conducted for all C20/20 Preserves. These inspections allow staff to monitor for any impacts

and/or changes to each Preserve and include lists of all animal sightings and new plant species that are found. If, during these inspections, staff finds FNAI listed species, they will be reported using the appropriate forms.

Monitor for turpentine beetles

As mentioned in previous sections, black turpentine beetles were discovered on MU 195-4 in 2007. At this time, no additional infected trees have been noticed. Staff continues to monitor the area during regular site inspections and while conducting various stewardship activities. If more infected trees are found they will be felled and pile burned on this, or any other MU at the Preserve.

Exotic and feral animal removal

Nine exotic animal species have been recorded on ASP (see Fauna section). The exotic animal species C20/20 Staff is primarily concerned with is the feral hog. Currently, the only acceptable method of hog removal on C20/20 preserves is trapping. Removing all hogs is an unreasonable goal; therefore a control program will need to be continuous on a long-term basis. If practical, a methodology will be established and implemented against other unwanted exotic animal species. Fencing would need to be improved at ASP prior to initiating any hog trapping due to the presence of hogs on lands adjacent to the Preserve. At this time, hog activity is minimal on the Preserve.

Although melaleuca psyllids, melaleuca weevils and tropical soda apple leaf beetles are non-native animals, they are beneficial biological control agents targeting specific invasive plant species. Exotic amphibians and reptiles have been documented on ASP. Further research needs to be done to determine if it is necessary or feasible to control these animals (i.e. Cuban treefrog, brown anole) on the Preserve. Methodology will be determined at that time.

Although not noted at ASP, 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.

Outside Consultants

Environmental/engineering

If funding becomes available for hydrologic restoration and spoil area reclamation projects, an environmental consulting firm may be hired to work with C20/20 staff through the design and permitting process.

Overall Protection

Investigate need to surplus 3.65 acres of Parcel 325

As discussed in the Acquisition section, C20/20 Staff will explore the feasibility of surplussing 3.65 acres of Parcel 325. If it is decided to pursue the surplus route, C2020 staff will work with County Lands Staff, CLASAC and BOCC to surplus 3.65 acres of Parcel 325 that is separated from the bulk of the Preserve by a wide canal and further impacted by ORV use and an outparcel. If scrub jay mitigation funding is awarded, surplussing this portion of the Preserve will be reviewed to determine if there would be a negative impact to the species.

Debris removal and prevent dumping

Debris removal will be an ongoing project at ASP. During quarterly site inspections, small objects that are encountered will be removed as time allows. C20/20 Rangers will also assist with removing small items when they are on patrol at the Preserve. Large debris including car parts, bathtubs and other items have been removed from Parcels 57, 195 and 357 during workdays by staff. If necessary, additional debris clean-ups will be organized with the C20/20 Staff and volunteers. After prescribed burns detrimental debris will be removed if any is uncovered.

Boundary sign installation/maintenance

C20/20 Rangers or staff will check for boundary signs during the patrols and replace them immediately if possible or report the problem to the C20/20 Senior Supervisor and/or the Land Stewardship Coordinator overseeing the Preserve. Boundary signs will be placed every 200-300' along roadsides and 500' elsewhere. Old boundary signs with smaller text will be replaced with the updated signs. Signs informing that palmetto berry picking is illegal will be posted on the boundary in areas that have flatwoods communities.

Install/maintain boundary fences

Parcels 127 and 136 need additional boundary fencing installed on their northern and western boundaries due to encroachment issues. Portions of Parcels 195, Parcels 325 and 357 have cattle leases. Leasees are required to maintain fence lines and this provides an added layer of Preserve protection. All fences are checked as part of the quarterly site inspections and repairs will be made in a timely matter.

Maintain fire breaks

Perimeter and internal fire breaks are essential to reduce the potential damage to areas outside the Preserve from a wildfire or prescribed fire. When burning is

scheduled, interior fire lanes will be disked, then allowed to grow over with grasses after burning is completed. C20/20 staff will maintain exterior fire breaks on a yearly basis, prior to wildfire season, by either mowing or disking.

Assess cattle leases

Staff will evaluate the cattle leases during site inspections to determine if the cattle are having any negative affects on the natural plant communities, soils or water quality. If C20/20 Staff determines the cattle are negatively impacting the Preserve, staff will meet with the Leasee to determine methods to lessen the impacts of cattle and determine if the lease should be continued or terminated.

Change Zoning and Future Land Use categories

Staff will coordinate with LCDP staff to discuss the zoning and future land use categories for ASP. All parcels zoning will be changed to "Environmentally Critical" and future land use designations will be modified to either "Conservation Lands – Uplands" or Conservation Lands - Wetlands."

Termination of Easements

Where possible, Land Stewardship staff will seek to terminate the agreements for easements that unnecessarily intrude into the Preserve; specifically easements within Parcels 57 and 136.

Volunteers

Bird Patrol volunteers

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.*

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. Staff will also contact Lee County Bird Patrol to evaluate possibly expanding the monitoring to ASP.

The following "Prioritized Projected Timetable for Implementation" outlines the goals and strategies listed above. It 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.

VII. PROJECTED TIMETABLE FOR IMPLEMENTATION

Management Activity	May-10	Aug-10	Nov-10	Feb-11	May-11	Aug-11	Nov-11	Feb-12	May-12	Aug-12	Nov-12	Feb-13	May-13	Aug-13	Nov-13	Feb-14	May-14	Aug-14	Nov-14	2015 or later
Natural Resource Management																				
Mechanical tree and brush reduction																				
Reduce vertical structure of vegetation						357-2 357-3 325-4														357-2 357-3 325-4
Rollerchopping/forestry mowing of understory			195-3 195-5	357-3 357- 4 195-1 195-4			325-4 357-1 357-2													195-5
Disking- pasture and caching areas	357-3		195-1 195-3																	
Prescribed fire management																				
Conduct prescribed burning			195-2 195-3 325-1		195-5	325-3	357-1	195-2 325-4	357-2			195-2			195-1	195-4	325-1 357-1	195-5	195-2 325-3	
Exotic plant control/maintenance																				
Initial treatment						357-1	357-4	357-3				325-1 325-4							1	
Tree/shrub planting																				
Plant installation					195-2															
Hydrologic and spoil area restoration																				
Hydrologic Restoration - Other ditches, berms & canals															1 357-1 357-4 325-3					
Improvements on borrow pits, cattle wells, etc.											325-1 325-4									

Management Activity	May-10	Aug-10	Nov-10	Feb-11	May-11	Aug-11	Nov-11	Feb-12	May-12	Aug-12	Nov-12	Feb-13	May-13	Aug-13	Nov-13	Feb-14	May-14	Aug-14	Nov-14	2015 or later
Natural Resource Management																				
Monitoring																				
Listed species	195 357	195 357			195 357	195 357			195 357	195 357			195 357	195 357			195 357	195 357		
Turpentine beetles	195-4				195-4				195-4				195-4				195-4			
Maintenance (On-going/Annual)																				
Follow up exotic plant control	195-5 325-2 325-3	195-2	195-1 195-3 195-4		195-2 195-5 325-2	195-5 325-2 325-3	195-1 195-3 357-1	357-4	195-2 357-3							325-1 325-4				All
Exotic animal removal																				
Fire break mow/disk	All		All		All		All		All		All		All		All		All		All	
Evaluate cattle leases						195, 325, 357				195, 325, 357				195, 325, 357				195, 325, 357		
Outside Consultants																				
Environmental/Engineering														1 357-1 357-4 325-3						
Permitting														1 357-1 357-4 325-3				1		
Overall Protection																				
Surplus 3.65 acres of Parcel 325																				325
Terminate unnecessary easements					1															
Change Zoning or Land Use categories			All-except surplus acreage																	
Fence installation					1															

VIII. FINANCIAL CONSIDERATIONS

There is a management fund established in perpetuity for all C20/20 preserves. Monies from this fund primarily serve to meet the operational needs of the Management section of the C20/20 Program, but a certain amount of this fund will be set aside for planned restoration projects.

Proceeds from the 2009 pine tree thinning on Parcels 195, 325 and 357 raised $24,520.89. Parcel 195 has also received a WHIP grant in the amount of $14,684 for management activities to improve the habitat for Florida scrub jays documented on this portion of the Preserve. Additional funding may become available through the City of Cape Coral for Florida scrub jay mitigation.

Other possible funding for exotic plant removal and restoration projects may be requested through grants from agencies such as SFWMD, FDEP and USFWS or include additional mitigation opportunities. Expenditures to date and projected and costs and funding sources are listed in Appendix J.

IX. LITERATURE CITED

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X. APPENDICES

Appendix A: Plant Species List

Appendix B: Wildlife Species List

Appendix C: Scrub Jay Banding Data

Appendix D: FWC & USFWS Comments on Model Airplane Park

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Appendix A: Plant Species List

Appendix A: Plant Species List for Alva Scrub Preserve

Scientific and common names from this list were obtained from Wunderlin, 2003.

Scientific Name	Common Name	Native Status	FLEPPC	FDACS	IRC	FNAI
Family: Arthoniaceae (lichenized fungi)						
Cryptothecia rubrocincta	Christmas lichen	native				
Family: Blechnaceae (mid-worus fern)						
Blechnum serrulatum	swamp fern	native				
Woodwardia virginica	Virginia chain fern				R	
Family: Dennstaedtiaceae (cuplet fern)						
Pteridium aquilinum	bracken fern	native				
Family: Nephrolepidaceae (sword fern)						
Nephrolepis exaltata	sword fern	native				
Family: Osmundaceae (royal fern)						
Osmunda regalis	royal fern	native		CE	R	
Family: Polypodiaceae (polypody)						
Phlebodium aureum	golden polypody	native				
Pleopeltis polypodioides	resurrection fern	native				
Family: Psilotaceae (whisk-fern)						
Psilotum nudum	whisk-fern	native				
Family: Pteridaceae (brake fern)						
Pteris vittata	Chinese ladder brake	exotic	II			
Family: Schizaeaceae (curly-grass)						
Lygodium microphyllum	Old World climbing fern	exotic	I			
Family: Thelypteris (maiden fern)						
Thelypteris hispidula	hairy maiden fern	native				
Thelypteris interrupta	hottentot fern	native			R	
Family: Vittariaceae (shoestring fern)						
Vittaria lineata	shoestring fern	native				
Family: Cupressaceae (cedar)						
Taxodium ascendens	pond-cypress	native				
Family: Pinaceae (pine)						
Pinus elliottii var. *densa*	south Florida slash pine	native				
Family: Alismataceae (water plantain)						
Sagittaria graminea	grassy arrowhead	native		R		
Sagittaria latifolia	duck potato	native				
Family: Araceae (arum)						
Alocasia macrorrhizos	giant taro	exotic				
Epipremnum pinnatum	golden pothos	exotic	II			
Family: Arecaceae (palm)						
Sabal palmetto	cabbage palm	native				
Serenoa repens	saw palmetto	native				
Family: Bromeliaceae (pineapple)						
Tillandsia balbisiana	northern needleleaf	native		T		
Tillandsia fasciculata	cardinal airplant	native		E		
Tillandsia recurvata	ballmoss	native				
Tillandsia setacea	southern nettleleaf	native				
Tillandsia usneoides	Spanish moss	native				
Tillandsia utriculata	giant wild pine	native		E		
Family: Commelinaceae (spiderwort)						
Commelina diffusa var. *diffusa*	common dayflower	exotic				
Commelina erecta	whitemouth dayflower	native				
Murdannia spirata	Asiatic dewflower	exotic				

Appendix A: Plant Species List for Alva Scrub Preserve

Scientific and common names from this list were obtained from Wunderlin, 2003.

Scientific Name	Common Name	Native Status	FLEPPC	FDACS	IRC	FNAI
Family: Cyperaceae (sedge)						
Cladium jamaicense	Jamaica swamp sawgrass	native				
Cyperus croceus	Baldwin's flatsedge	native				
Cyperus esculentus	yellow nutgrass	exotic				
Cyperus haspan	haspan flatsedge	native				
Cyperus ligularis	swamp flatsedge	native				
Cyperus odoratus	fragrant flatsedge	native				
Cyperus retrorsus	pinebarren flatsedge	native				
Cyperus surinamensis	tropical flatsedge	native				
Eleocharis interstincta	knotted spikerush	native				
Eleocharis nigrescens	black spikerush	native				
Fimbristylis cymosa	hurricanegrass	native				
Fimbristylis puberula	hairy fimbry	native				
Fuirena pumila	dwarf umbrellasedge	native				
Fuirena scirpoidea	southern umbrellasedge	native			R	
Rhynchospora baldwinii	Baldwin's beaksedge	native			CI	
Rhynchospora colorata	starrush whitetop	native				
Rhynchospora corniculata	shortbristle horned beaksedge	native			I	
Rhynchospora fascicularis	fascicled beaksedge	native				
Rhynchospora fernaldii	Fernald's beaksedge	native				
Rhynchospora filifolia	threadleaf beaksedge	native			I	
Rhynchospora globularis	globe beaksedge	native			I	
Rhynchospora microcarpa	southern beaksedge	native			R	
Rhynchospora nitens	baldrush	native				
Rhynchospora pusilla	fairy beaksedge	native				
Rhynchospora rariflora	fewflower beaksedge	native			CI	
Rhynchospora tracyi	Tracy's beaksedge	native			R	
Scleria cilata	fringed nutrush	native				
Family: Dioscoraceae (yam)						
Dioscorea bulbifera	air-potato	exotic	I			
Family: Eriocaulaceae (pipewort)						
Eriocaulon compressum	flattened pipewort	native			R	
Eriocaulon decangulare	tenangle pipewort	native			R	
Eriocaulon ravenelii	Ravenel's pipewort	native				
Lachnocaulon beyrichianum	southern bogbutton	native				
Lachnocaulon anceps	whitehead bogbutton	native			R	
Syngonanthus flavidulus	yellow hatpins	native			R	
Family: Haemodoraceae (bloodwort)						
Lachnanthes caroliana	Carolina redroot	native				
Family: Hypoxidaceae (yellow stargrass)						
Hypoxis juncea	fringed yellow stargrass	native			R	
Family: Iridaceae (iris)						
Iris hexagona	dixie iris	native			I	
Family: Marantaceae (arrowroot)						
Thalia geniculata	alligatorflag	native				
Family: Orchidaceae (orchid)						
Habenaria quinqueseta	longhorn false reinorchid	native			R	
Oeceoclades maculata	monk orchid	exotic				

Appendix A: Plant Species List for Alva Scrub Preserve

Scientific and common names from this list were obtained from Wunderlin, 2003.

Scientific Name	Common Name	Native Status	FLEPPC	FDACS	IRC	FNAI
Family: Poaceae (grass)						
Andropogon glomeratus var. glaucopsis	purple bluestem	native			R	
Andropogon glomeratus var. pumilus	bushy bluestem	native				
Andropogon ternarius	splitbeard bluestem	native				
Andropogon virginicus var. glaucus	chalky bluestem	native			R	
Andropogon virginicus var. virginicus	broomsedge bluestem	native			I	
Aristida purpurascens	arrowfeather threeawn	native				
Aristida spiciformis	bottlebrush threeawn	native			R	
Aristida stricta	wiregrass	native				
Axonopus furcatus	big carpetgrass	native				
Axonopus fissifolius	common carpetgrass	native				
Bothrichloa ischaemum	yellow bluestem	native				
Cenchrus spinifex	coastal sandbur	native				
Cynodon dactylon	bermudagrass	exotic				
Dactyloctenium aegyptium	Durban crowfootgrass	exotic				
Dicanthelium commutatum	variable witchgrass	native			R	
Dicanthelium dichotomum	cypress witchgrass	native				
Dicanthelium erectifolium	erectleaf witchgrass	native			R	
Dichanthelium portoricense	hemlock witchgrass	native				
Eragrostis atrovirens	thalia lovegrass	native				
Eragrostis refracta	coastal lovegrass	native				
Eragrostis spectabilis	purple lovegrass	native				
Eustachys glauca	saltmarsh fingergrass	native				
Eustachys petraea	pinewoods fingergrass	native				
Hemarthria altissima	limpograss	exotic	II			
Heteropogon contortus	tanglehead	exotic				
Hymenachne amplexicaulis	trompetilla	exotic	I			
Imperata cylindrica	cogongrass	exotic	I			
Muhlenbergia capillaris var. capillaris	hairawn muhly	native				
Oplismenus hirtellus	woodsgrass	native				
Panicum anceps	beaked panicum	native				
Panicum hemitomon	maidencane	native				
Panicum maximum	guineagrass	exotic	II			
Panicum repens	torpedograss	exotic	I			
Panicum rigidulum	redtop panicum	native				
Paspalum conjugatum	hilograss	native				
Paspalum monostachyum	gulfdune paspalum	native			R	
Paspalum notatum	bahiagrass	exotic				
Paspalum praecox	early paspalum	native			I	
Rhynchelytrum repens	rose natalgrass	exotic	I			
Sacciolepis striata	American cupscale	native			R	
Setaria parviflora	knotroot foxtail	native				
Sorghastrum secundum	lopsided indiangrass	native				
Sporobolus indicus	smutgrass	exotic				
Stenotaphrum secundatum	St. Augustinegrass	native				
Tridens flavus	purpletop tridens	native				
Family: Pontederiaceae (pickerelweed)						
Pontederia cordata	pickerelweed	native				
Family: Ruscaceae (butcher's broom)						
Sansevieria hyacinthoides	bowstring hemp	exotic	II			

Appendix A: Plant Species List for Alva Scrub Preserve

Scientific and common names from this list were obtained from Wunderlin, 2003.

Scientific Name	Common Name	Native Status	FLEPPC	FDACS	IRC	FNAI
Family: Smilacaceae (smilax)						
Smilax auriculata	earleaf greenbrier	native				
Smilax bona-nox	saw greenbrier	native			R	
Smilax laurifolia	laurel greenbrier	native				
Smilax tamnoides	bristly greenbrier	native			I	
Family: Typhaceae (cattail)						
Typha domingensis	southern cattail	native				
Family: Xyridaceae (yelloweyed grass)						
Xyris ambigua	coastalplain yelloweyed grass	native			R	
Family: Acanthaceae (acanthus)						
Ruellia caroliniensis	Carolina wild petunia	native				
Ruellia tweediana	Mexican bluebell	exotic				
Blechum pyramidatum	Brown's blechum					
Family: Aceraceae (maple)						
Acer rubrum	red maple	native				
Family: Adoxaceae (moschatel)						
Viburnum obovatum	Walter's viburnum	native			I	
Family: Anacardiaceae (cashew)						
Rhus copallinum	winged sumac	native				
Schinus terebinthifolius	Brazilian pepper	exotic	I			
Toxicodendron radicans	eastern poison ivy	native				
Family: Annonaceae (custard-apple)						
Asimina reticulata	netted pawpaw	native				
Family: Apocynaceae (dogbane)						
Asclepias pedicellata	Savannah milkweed	native				
Asclepias tuberosa	butterflyweed	native			R	
Family: Aquifolicaeae (holly)						
Ilex cassine	dahoon holly	native				
Ilex glabra	gallberry	native				
Family: Araliaceae (ginseng)						
Centella asiatica	spadeleaf	native				
Hydrocotyle sp.	marshpennywort	native				
Family: Asteraceae (aster)						
Ambrosia artemisiifolia	common ragweed	native				
Baccharis halimifolia	groundsel tree	native				
Bidens alba	beggerticks	native				
Bigelowia nudata subsp. australis	pineland rayless goldenrod	native				
Carphephorus corymbosus	Florida paintbrush	native			R	
Chaptalia tomentosa	pineland daisy	native				
Cirsium horridulum	purple thistle	native				
Cirsium nuttallii	Nuttall's thistle	native			I	
Conoclinium coelestinum	blue mistflower	native				
Conyza canadensis var. *pusilla*	dwarf Canadian horseweed	native				
Coreopsis leavenworthii	Leavenworth's tickseed	native				
Eclipata prostrata	false daisy	native				
Elephantopus elatus	tall elephantsfoot	native			R	
Emilia fosbergii	Florida tasselflower	exotic				
Emilia sonchifolia	lilac tasselflower	exotic				
Erechtites hieraciifolius	fireweed	native				
Erigron ssp.	fleabane	native				

Appendix A: Plant Species List for Alva Scrub Preserve

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Scientific Name	Common Name	Native Status	FLEPPC	FDACS	IRC	FNAI
Eupatorium capillifolium	dogfennel	native				
Eupatorium leptophyllum	falsefennel	native			R	
Eupatorium mohrii	semaphore thoroughwort	native				
Euthamia caroliniana	slender flattop goldenrod	native				
Flaveria linearis	narrowleaf yellowtops	native				
Iva microcephala	piedmont marshelder	native				
Liatris chapmanii	Chapman's gayfeather	native				
Lygodesmia aphylla	rose-rush	native				
Mikania scandens	climbing hempvine	native				
Pityopsis graminifolia	narrowleaf silkgrass	native				
Pluchea odorata	sweetscent	native				
Pluchea rosea	rosy camphorweed	native				
Pterocaulon pycnostachyum	blackroot	native				
Rudbeckia hirta	blackeyed Susan	native			R	
Solidago fistulosa	pinebarren goldenrod	native				
Solidago odora var. *chapmanii*	Chapman's goldenrod	native				
Symphyotrichum carolinianum	climbing aster	native			R	
Tridax procumbens	coatbuttons	exotic				
Family: Bignoniaceae (trumpet creeper)						
Campsis radicans	trumpet creeper	native				
Family: Boraginaceae (borage)						
Heliotropium polyphyllum	pineland heliotrope	native				
Family: Campanulaceae (bellflower)						
Lobelia feayana	bay lobelia	native			I	
Family: Celtidaceae (hackberry)						
Celtis laevigata	hackberry	native				
Family: Clusiaceae (mangosteen)						
Hypericum crux-andreae	St. Peter's-wort	native			CI	
Hypericum brachyphyllum	coastalplain St. John's-wort	native			R	
Hypericum hypericoides	St. Andrew's-cross	native				
Hypericum mutilum	dwarf St. John's-wort	native			I	
Hypericum myrtifolium	myrtleleaf St. John's-wort	native			CI	
Hypericum reductum	Atlantic St. John's-wort	native				
Hypericum tetrapetalum	fourpetal St. John's-wort	native				
Family: Convolvulaceae (morning-glory)						
Evolvulus sericeus	silver dwarf morning-glory	native				
Ipomoea sagittata	saltmarsh morning-glory	native				
Family: Cucurbitaceae (gourd)						
Melothria pendula	creeping cucumber	native				
Momordica charantia	balsampear	exotic				
Family: Droseraceae (sundew)						
Drosera capillaris	pink sundew	native				
Family: Ebenaceae (ebony)						
Diospyros virginiana	common persimmon	native			R	
Family: Ericaceae (heath)						
Bejaria racemosa	tarflower	native			R	
Lyonia fruticosa	coastalplain staggerbush	native				
Lyonia lucida	fetterbush	native				
Vaccinium myrsinites	shiny blueberry	native				

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Scientific Name	Common Name	Native Status	FLEPPC	FDACS	IRC	FNAI
Family: Euphorbiaceae (spurge)						
Chamaesyce hirta	pillpod sandmat	native				
Cnidoscolus stimulosus	tread softly	native				
Euphorbia polyphylla	lesser Florida spurge	native				
Stillingia aquatica	corkwood	native			R	
Family: Fabaceae (pea)						
Abrus precatorius	rosary pea	exotic	I			
Chamaecrista fasciculata	partridge pea	native				
Chamaecrista nictitans	sensitive pea	native				
Crotalaria lanceolata	lanceleaf rattlebox	exotic				
Crotalaria spectabilis	showy rattlebox	exotic				
Galactia elliottii	Elliott's milkpea	native			R	
Macroptilium lathyroides	wild bushbean	native				
Mimosa strigillosa	powerpuff	native			I	
Stylosanthes biflora	sidebeak pencilflower	native				
Vigna luteola	hairypod cowpea	native				
Family: Fagaceae (beech)						
Quercus chapmanii	Chapman's oak	native				
Quercus elliottii	running oak	native				
Quercus laurifolia	laurel oak	native				
Quercus minima	dwarf live oak	native				
Quercus myrtifolia	myrtle oak	native				
Quercus virginiana	Virginia live oak	native				
Family: Haloragaceae (watermilfoil)						
Proserpinaca palustris	marsh mermaidweed	native			R	
Proserpinaca pectinata	combleaf mermaidweed	native				
Family: Hydroleaceae (false fiddleleaf)						
Hydrolea corymbosa	skyflower	native			R	
Family: Lamiaceae (mint)						
Callicarpa americana	American beautyberry	native				
Hyptis alata	musky mint	native				
Piloblephis rigida	wild pennyroyal	native				
Trichostema dichotomum	forked bluecurls	native				
Family: Lauraceae (laurel)						
Persea palustris	swamp bay	native				
Family: Linaceae (flax)						
Linum medium var. texanum	stiff yellow flax	native				
Family: Lentibulariaceae						
Utricularia cornuta	horned bladderwort	native				
Utricularia subulata	zigzag bladderwort					
Family: Loganiaceae (logania)						
Miterola petiolata	lax hornpod	native				
Family: Lythraceae (loosestrife)						
Cuphea carthagenensis	colombian waxweed	exotic				
Lythrum alatum	winged loosestrife	native				
Family: Malvaceae (mallow)						
Kosteletzkya virginica	Virginia saltmarsh mallow	native				
Melochia spicata	bretonica peluda	native			I	
Sida acuta	common wireweed	native				
Sida rhombifolia	Cuban jute	native				
Urena lobata	Caesarweed	exotic	II			

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Scientific and common names from this list were obtained from Wunderlin, 2003.

Scientific Name	Common Name	Native Status	FLEPPC	FDACS	IRC	FNAI
Family: Melastomataceae (melastome)						
Rhexia mariana	pale meadowbeauty	native			R	
Family: Moraceae (mulberry)						
Ficus aurea	strangler fig	native				
Morus rubra	red mulberry	native				
Family: Myricaceae (bayberry)						
Myrica cerifera	wax myrtle	native				
Family: Myrsinaceae (myrsine)						
Rapanea punctata	myrsine	native				
Family: Myrtaceae (myrtle)						
Eugenia uniflora	Surinam cherry	exotic				
Melaleuca quinquenervia	punk tree	exotic	I			
Psidium guajava	guava	exotic				
Syzygium cumini	Java plum	exotic				
Family: Nymphaeaceae (waterlily)						
Nuphar advena	spatterdock	native				
Family: Olacaceae (olax)						
Ximenia americana	hog plum	native				
Family: Oleaceae (olive)						
Frzxinus caroliniana	pop ash	native				
Family: Onagraceae (eveningprimrose)						
Gaura angustifolia	southern beeblossom	native				
Ludwigia erecta	yerba de jicotea	native			I	
Ludwigia maritima	seaside primrosewillow	native				
Ludwigia octovalvis	mexican primrosewillow	native				
Ludwigia peruviana	Peruvian primrosewillow	exotic				
Ludwigia repens	creeping primrosewillow	native				
Ludwigia suffruticosa	shrubby primrosewillow	native				
Family: Passifloraceae (passionflower)						
Passiflora suberosa	corkystem passionflower	native				
Family: Phyllanthaceae (leafflower)						
Phyllanthus tenellus	Mascarene Island leafflower	exotic				
Phyllanthus urinaria	chamber bitter	exotic				
Family: Phytolaccaceae (pokeweed)						
Phytolacca americana	American pokeweed	native				
Family: Polygalaceae (milkwort)						
Polygala grandiflora	showy milkwort	native				
Polygala lutea	orange milkwort	native			I	
Polygala nana	candyroot	native			R	
Polygala setacea	coastalplain milkwort	native				
Family: Polygonaceae (buckwheat)						
Polygonum glabrum	denseflower knotweed	native				
Polygonum hydropiperoides	swamp smartweed	native			R	
Family: Portulaceae (purslane)						
Portulaca pilosa	pink purslane	native				
Family: Rhamnaceae (buckthorn)						
Berchemia scandens	rattan vine	native			I	
Family: Rosaceae (rose)						
Rubus argutus	sawtooth blackberry	native				
Rubus cuneifolius	sand blackberry	native			I	

Appendix A: Plant Species List for Alva Scrub Preserve

Scientific and common names from this list were obtained from Wunderlin, 2003.

Scientific Name	Common Name	Native Status	FLEPPC	FDACS	IRC	FNAI
Family: Rubiaceae (madder)						
Cephalanthus occidentalis	common buttonbush	native				
Diodia virginiana	Virginia buttonweed	native			R	
Psychotria nervosa	wild coffee	native				
Psychotria sulzneri	shortleaf wild coffee	native				
Richardia brasiliensis	tropical Mexican clover	exotic				
Spermacoce assurgens	woodland false buttonweed	native				
Family: Rutaceae (citrus)						
Citrus spp .	citrus	exotic				
Family: Salicaceae (willow)						
Salix caroliniana	coastalplain willow	native				
Family: Sapindaceae (soapberry)						
Cupaniopsis anacardioides	carrotwood	exotic	I			
Saururus cernuus	lizard's tail	native			R	
Family: Sapotaceae (sapodilla)						
Sideroxylon reclinatum subsp. reclinatum	Florida bully	native			R	
Family: Solanaceae (nightshade)						
Physalis angulata	cutleaf groundcherry	native				
Physalis walteri	Walter's groundcherry	native				
Solanum americanum	American black nightshade	native				
Solanum capsicoides	soda apple	native			I	
Solanum torvum	turkeyberry	exotic				
Solanum viarum	tropical soda apple	exotic	I			
Family: Tetrachondraceae (tetrachondra)						
Polypremum procumbens	rustweed	native				
Family: Turneraceae (turnera)						
Piriqueta cistoides	pitted stripeseed	native				
Family: Ulmaceae (elm)						
Ulmus americana	American elm	native				
Family: Urticaceae (nettle)						
Boehmeria cylindrica	false nettle	native				
Family: Verbenaceae (vervain)						
Lantana camara	lantana	exotic	I			
Phyla nodiflora	turkey tangle fogfruit	native				
Family: Veronicaceae (speedwell)						
Bacopa caroliniana	lemon bacopa	native				
Bacopa monnieri	herb-of-grace	native				
Gratiola hispida	rough hedgehyssop	native				
Lindernia crustacea	Malaysian false pimpernet	exotic				
Lindernia grandiflora	Savannah false pimpernel	native			I	
Scoparia dulcis	sweetbroom	native				
Family: Violaceae (violet)						
Viola lanceolata	bog white violet	native			I	

Appendix A: Plant Species List for Alva Scrub Preserve

Scientific and common names from this list were obtained from Wunderlin, 2003.

Scientific Name	Common Name	Native Status	FLEPPC	FDACS	IRC	FNAI
Family: Vitaceae (grape)						
Ampelopsis arborea	peppervine	native				
Parthenocissus quinquefolia	Virginia creeper	native				
Vitis aestivalis	summer grape	native				
Vitis rotundifolia	muscadine	native				

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

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 B: Wildlife Species List

Appendix B: Wildlife List for Alva Scrub Preserve

		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 avicennia	Big Cypress fox squirrel	T		G5T2/S2
Family: Leporidae (rabbits and hares)				
Sylvilagus palustris	marsh rabbit			
Sylvilagus floridanus	eastern cottontail			
Family: Talpidae (moles)				
Scalopus aquaticus	eastern mole			
Family: Felidae (cats)				
Lynx rufus	bobcat			
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 (dabbling ducks)				
Anas fulvigula	mottled duck			
Family: Odontophoridae (new world quails)				
Colinus virginianus	northern bobwhite			
Family: Anhingidae (anhingas)				
Anhinga anhinga	anhinga			
Family: Ardeidae (herons, egrets, bitterns)				
Ardea herodius	great blue heron			
Ardea alba	great egret			G5/S4
Egretta thula	snowy egret	SSC		G5/S3
Egretta caerulea	little blue heron	SSC		G5/S4
Egretta tricolor	tricolored heron	SSC		G5/S4
Bubulcus ibis	cattle egret			
Family: Threskiornithidae (ibises and spoonbills)				
Eudocimus albus	white ibis	SSC		G5/S4
Plegadis falcinellus	glossy ibis			G5/S3
Family: Ciconiidae (storks)				
Mycteria americana	wood stork	E	E	G4/S2
Family: Cathartidae (new world vultures)				
Coragyps atratus	black vulture			
Cathartes aura	turkey vulture			
Family: Accipitridae (hawks, kites, accipiters, harriers, eagles)				
Subfamily: Elaninae and Milvinae (kites)				
Elanoides forficatus	swallow-tailed kite			G5/S2
Rostrhamus sociabilis	snail kite	E	E	G4G5T3Q/S2
Subfamily: Buteoninae (buzzard hawks and eagles)				
Hailaeetus leucocephalus	bald eagle	T		G5/S3
Subfamily: Circinae (harriers)				
Circus cyaneus	northern harrier			
Subfamily: Accipitrinae (bird hawks)				
Accipiter cooperii	Cooper's hawk			G5/S3

Appendix B: Wildlife List for Alva Scrub Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Subfamily: Buteoninae (buzzard hawks and eagles)				
Buteo lineatus	red-shouldered hawk			
Buteo jamaicensis	red-tailed hawk			
Family: Falconidae (falcons)				
Subfamily: Falconinae (falcons)				
Falco sparverius	American kestrel			
Falco columbarius	merlin			G5/S2
Family: Gruidae (cranes)				
Grus canadensis tabida	sandhill crane	T		G5/T2T3/S2S3
Family: Charadriidae (plovers)				
Charadrius vociferus	killdeer			
Family: Scolopacidae (sandpipers and phalaropes)				
Tringa solitaria	solitary sandpiper			
Gallinago delicata	Wilson's snipe			
Family: Columbidae (pigeons and doves)				
Streptopelia decaocto	Eurasian collared-dove *			
Zenaida macroura	mourning dove			
Columbina passerina	common ground-dove			
Family: Strigidae (true owls)				
Bubo virginianus	great horned owl			
Family: Caprimulgidae (goatsuckers)				
Chordeiles minor	common nighthawk			
Caprimulgus carolinensis	chuck-will's-widow			
Family: Alcedinidae (kingfishers)				
Ceryle alcyon	belted kingfisher			
Family: Picidae (woodpeckers)				
Melanerpes erythrocephalus	red-headed woodpecker			
Melanerpes carolinus	red-bellied woodpecker			
Sphyrapicus varius	yellow-bellied sapsucker			
Picoides pubescens	downy woodpecker			
Picoides villosus	hairy woodpecker			G5/S3
Colaptes auratus	northern flicker			
Dryocopus pileatus	pileated woodpecker			
Family: Tyrannidae (tyrant flycatchers)				
Sayornis phoebe	eastern phoebe			
Myiarchus crinicensis	great-crested flycatcher			
Family: Laniidae (shrikes)				
Lanius ludovicianus	loggerhead shrike			
Family: Vireonidae (vireos)				
Vireo griseus	white-eyed vireo			
Family: Corvidae (crows, jays, etc.)				
Cyanocitta cristata	blue jay			
Aphelocoma coerulescens	Florida scrub-jay	T	T	G2/S2
Corvus brachyrhyncos	American crow			
Corvus ossifragus	fish crow			
Family: Hirundinidae (swallows)				
Tachycineta bicolor	tree swallow			
Hirundo rustica	barn swallow			
Family: Parideae (chickadees and titmice)				
Baeolophus bicolor	tufted titmouse			
Family: Troglodytidae (wrens)				
Thryothorus ludovicianus	Carolina wren			
Troglodytes aedon	house wren			
Family: Sylvidae (gnatcatchers)				
Polioptila caerulea	blue-gray gnatcatcher			

Appendix B: Wildlife List for Alva Scrub Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Family: Turdidae (thrushes)				
Turdus migratorius	American robin			
Family: Mimidae (mockingbirds and thrashers)				
Dumetella carolinensis	gray catbird			
Mimus polyglottos	northern mockingbird			
Toxostoma rufum	brown thrasher			
Family: Parulidae (wood-warblers)				
Dendroica coronata	yellow-rumped warbler			
Dendroica pinus	pine warbler			
Dendroica palmarum	palm warbler			
Mniotilta varia	black-and-white warbler			
Geothlypis tristis	common yellowthroat			
Seiurus aurocapillus	ovenbird			
Setophaga ruticilla	American redstart			
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			
Sturnella magna	eastern meadowlark			
Quiscalus quiscula	common grackle			
Quiscalus major	boat-tailed grackle			
REPTILES				
Family: Emydidae (box and water turtles)				
Terrapene carolina bauri	Florida box turtle			
Family: Kinosternidae (musk and mud turtles)				
Kinosternon baurii	striped mud turtle			
Family: Testudinidae (gopher tortoises)				
Gopherus polyphemus	gopher tortoise	T		G3/S3
Family: Polychridae (anoles)				
Anolis carolinensis	green anole			
Anolis sagrei	brown anole *			
Family: Scincidae (skinks)				
Plestiodon fasciatus	five-lined skink			
Plestiodon inexpectatus	southeastern five-lined skink			
Family: Colubridae (harmless egg-laying snakes)				
Coluber constrictor priapus	southern black racer			
Masticophis flagellum flagllum	eastern coachwhip			
Scotophis alleghaniensis	eastern rat snake			
Family Natricidae (harmless live-bearing snakes)				
Thamnophis sauritus sackenii	peninsula ribbon snake			
AMPHIBIANS				
Family: Bufonidae (toads)				
Anaxyrus quercicus	oak toad			
Anaxyrus terrestris	southern toad			
Family: Eleutherodactylidae (free-toed frogs)				
Eleutherodactylus planirostris	greenhouse frog *			
Family: Hylidae (treefrogs and their allies)				
Acris gryllus dorsalis	Florida cricket frog			
Hyla cinerea	green treefrog			
Hyla femoralis	pine woods treefrog			
Hyla squirella	squirrel treefrog			
Osteopilus septentrionalis	Cuban treefrog *			
Pseudacris nigrita	chorus frog			

Appendix B: Wildlife List for Alva Scrub Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Family: Microhylidae (narrowmouth toads)				
Gastrophryne carolinensis	eastern narrowmouth toad			
Family: Ranidae (true frogs)				
Lithobates sphenocephalus sphenocephalus	Florida leopard frog			
INSECTS				
Family: Libellulidae (skimmer dragonflies)				
Tramea carolina	Carolina saddlebags			
Family: Acrididae (grasshoppers)				
Romalea microptera	eastern lubber grasshopper			
Family: Psyllidae (psyllids)				
Boreioglycaspis melaleucae	melaleuca psyllid *			
Family: Bibionidae (march flies)				
Plecia nearctica	love bug			
Family: Chrysomelidae (leaf beetles)				
Diabrotica undecimpunctata	tropical soda apple leaf beetle *			
Family: Curculionidae (true weevils)				
Oxyops vitiosa	melaleuca weevil *			
Family: Papilionidae (swallowtails)				
Eurytides marcellus	zebra swallowtail			
Papilio cresphontes	giant swallowtail			
Papilio glaucus	tiger swallowtail			
Family: Pieridae (whites and sulphurs)				
Subfamily: Coliadinae (sulphurs)				
Phoebis sennae	cloudless sulphur			
Nathalis iole	dainty sulphur			
Family: Nymphalidae (brushfoots)				
Subfamily: Heliconiinae (longwings)				
Agraulis vanillae	gulf fritillary			
Dryas julia	Julia			
Heliconius charitonius	zebra			
Subfamily: Nymphalinae (brushfoots)				
Phyciodes tharos	pearl crescent			
Junonia coenia	common buckeye			
Anartia jatrophae	white peacock			
Family: Mutillidae (velvet ants)				
Dasymutilla occidentalis	velvet ant			
ARACHNIDS				
Family: Araneidae (orb weavers)				
Argiope aurantia	black and yellow argiope			
Gasteracantha elipsoides	crablike spiny orb weaver			
Nephila clavipes	golden-silk spider			
Family: Oxyopidae (lynx spiders)				
Peucetia viridans	green lynx spider			

Appendix B: Wildlife List for Alva Scrub Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
GASTROPODS				
Family: Ampullariidae (apple snails)				
Pomaceae paludosa	Florida apple snail			

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 C: Scrub Jay Banding Data

LOCATION	LAT	LONG	USFWS BANDS	DATE	COLLECTOR	TERRITORY	GROUPSIZE
Hickey's Creek Mitigation Area	26.69223000	-81.65938000	1573-97332 SL-WW	26-Oct-04	Valligny, Crane	HickeySW	3
Hickey's Creek Mitigation Area	26.69223000	-81.65938000	1573-97333 SL-WR	26-Oct-04	Valligny, Crane	HickeySW	3
Hickey's Creek Mitigation Area	26.70569000	-81.66213000	1573-97460 SL-RG	13-Dec-04	Valligny, Crane	HickeyNW	2
Hickey's Creek Mitigation Area	26.70569000	-81.66213000	1573-97461 SL-RY	13-Dec-04	Valligny, Crane	HickeyNW	2
Hickey's Creek Mitigation Area	26.69223000	-81.65938000	1573-97462 SL-WB	13-Dec-04	Valligny, Crane	HickeySW	3
Lehigh Acres	26.64940000	-81.65654000	1573-97484 SL-LP	7-Jan-05	Valligny	DIXI	4
Lehigh Acres	26.64940000	-81.65654000	1573-97485 SL-FO	7-Jan-05	Valligny	DIXI	4
Lehigh Acres	26.64940000	-81.65654000	1573-97486 SL-AL	7-Jan-05	Valligny	DIXI	4
Lehigh Acres	26.64940000	-81.65654000	1573-97487 SL-HF	7-Jan-05	Valligny	DIXI	4
Alva Scrub	26.69060000	-81.59598000	1573-97714 SL-GW	23-Feb-05	Valligny, Crane	ALVW	2
Alva Scrub	26.69052000	-81.59381000	1573-97715 SL-PR	23-Feb-05	Valligny, Crane	ALVC	5
Alva Scrub	26.69052000	-81.59381000	1573-97716 SL-PG	23-Feb-05	Valligny, Crane	ALVC	5
Alva Scrub	26.69052000	-81.59381000	1573-97717 SL-PY	23-Feb-05	Valligny, Crane	ALVC	5
Alva Scrub	26.69052000	-81.59381000	1573-97718 SL-PB	23-Feb-05	Valligny, Crane	ALVC	5
Alva Scrub	26.69052000	-81.59381000	1573-97719 SL-PP	23-Feb-05	Valligny, Crane	ALVC	5
Hickey's Creek Mitigation Area	26.70608696	-81.66310555	1573-97460 SL-RG	9-Dec-05	Aldredge, Crane	HickeyNW	2
Hickey's Creek Mitigation Area	26.70606483	-81.66310404	1603-16902 SL-RB	9-Dec-05	Aldredge, Crane	HickeyNW	2
Hickey's Creek Mitigation Area			1603-16989 SL-YY	19-Jun-07	Aldredge, Crane	HickeySE	5
Hickey's Creek Mitigation Area			1603-16990 SL-YB	19-Jun-07	Aldredge, Crane	HickeySE	5
Hickey's Creek Mitigation Area			1603-16991 SL-YO	19-Jun-07	Aldredge, Crane	HickeySE	5
Hickey's Creek Mitigation Area			1603-16992 SL-YH	19-Jun-07	Aldredge, Crane	HickeySE	5
Hickey's Creek Mitigation Area			1603-16993 SL-WO	19-Jun-07	Aldredge, Crane	HickeySW	3
Hickey's Creek Mitigation Area			1603-16994 SL-RO	19-Jun-07	Aldredge, Crane	HickeyNW	3
Hickey's Creek Mitigation Area			1603-16995 SL-RR	19-Jun-07	Aldredge, Crane	HickeyNW	3

Appendix D: FWC & USFWS Comments on Model Airplane Park

May 21, 2008

Cathy Olson
Lee County Conservation 20/20 Senior Supervisor
Lee County Parks and Recreation
P.O. Box 398
Fort Myers, FL 33902-0398

Service Consultation Code: 41420-2008-TA-0397
Date Received: February 15, 2008
Project: Joel Road Property, Model Airplane Facility
Applicant: Lee County Parks and Recreation
County: Lee

Dear Ms. Olson:

The Service has reviewed your letter and supporting documents dated February 15, 2008, regarding the project referenced above. The site location is Latitude 26.687935° North and Longitude -81.596880° West.

Lee County Department of Parks and Recreation purchased a parcel in 2008 adjacent to a Conservation 20/20 preserve (Alva Preserve), which they plan to develop in the future as a park. County staff is considering the request of a group of hobbyists to be able to fly their remote controlled model airplanes on the new park site. Information submitted by Lee County indicates the proposed park site hosts two family groups of the federally threatened Florida scrub-jay (*Aphelocoma coerulescens*). Lee County Parks and Recreation has requested the Service's technical assistance in determining whether or not the proposed action of flying the planes will adversely affect the scrub-jay.

We have reviewed the information and maps submitted by Lee County and believe that the proposed action will not adversely affect the adjacent scrub-jay families. Unlike some bird species such as bald eagles (*Haliaeetus leucocephalus*), scrub-jays do not show adverse reactions to planes or human activities near their territories. Thus, we do not anticipate that the action of operating the model airplanes near the scrub-jay territories will result in any adverse impacts to those family groups.

Please note Service review of this project in no way implies compliance with other Federal, State, county, or municipal regulations. It is the Applicant's responsibility to ensure the project meets all applicable regulations. If modifications are made to the project, if additional information involving potential effects to listed species becomes available, if a new species is listed, or if designated critical habitat may be adversely affected by the project, additional coordination with this office may be necessary.

Thank you for your cooperation in the effort to conserve fish and wildlife resources. If you have any questions, please contact Mary Peterson at 772-562-3909, extension 327.

cc via email:
FWC, Punta Gorda, Florida (Stephanie Rousso)

LEE COUNTY
SOUTHWEST FLORIDA

BOARD OF COUNTY COMMISSIONERS

Bob Janes
District One

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County Manager

David M. Owen
County Attorney

Diana M. Parker
County Hearing Examiner

February 13, 2008

Mr. George Dennis
United States Fish and Wildlife Service
1339 20th Street
Vero Beach, FL 32960

Dear Mr. George Dennis:

Enclosed please find an aerial, and a description of a proposed use for a new park in Lee County, Florida. This parcel was purchased in 2008 by the Department of Lee County Parks and Recreation and will be developed in the future as a park. County staff has been approached by a group of hobbyists who would like to fly their remote controlled model airplanes on the new park site (please see the attached documentation).

A Conservation 20/20 preserve called Alva Scrub Preserve is directly adjacent to the north of the park site. Alva Scrub Preserve currently hosts two family groups of Florida Scrub-jays (*Aphelocoma coreulescens*). Their approximate territories are shown on the attached map.

The remote controlled airplane enthusiasts have agreed to minimize their potential impact on the Florida scrub-jays by shifting the proposed runway to the south to be farther from the Florida Scrub-jay territory and will agree not to fly their planes over Alva Scrub Preserve.

Please let me know whether formal consultation will be required or if the hobbyists may fly their planes on the Lee County Park site.

Thank you in advance for your assistance.

Cathy Olson
Lee County Conservation 20/20 Senior Supervisor
(230) 533-7455

S:C2020/preserves/ASP/correspondeacne/FSJs and RC flyers
C2020-08-05

cc: Stephanie Rousso, Wildlife biologist, FWC

Lee County Parks & Recreation
3410 Palm Beach Boulevard, Fort Myers, Florida 33916

239 533 7400

MEMORANDUM

February 1, 2008

To: Cathy Olson, Manager
2020 Program, Lee County Parks

From: Fred Johnson, Planning Manager
Lee County Parks

Re: Joel Road Property – Model Airplane Facility

As you will note in the attached graphic, the model airplane facility will concentrate all of its development in the south central portion of the property. Said development will consist of 1) a permeable runway of approximately 280 lineal feet by 80 feet with the long axis oriented east-west; 2) an access driveway; 3) a small parking area for about 20 cars; 4) a portable restroom; 5) and a small shelter of approximately 400 square feet. This development will be phased in the order presented here.

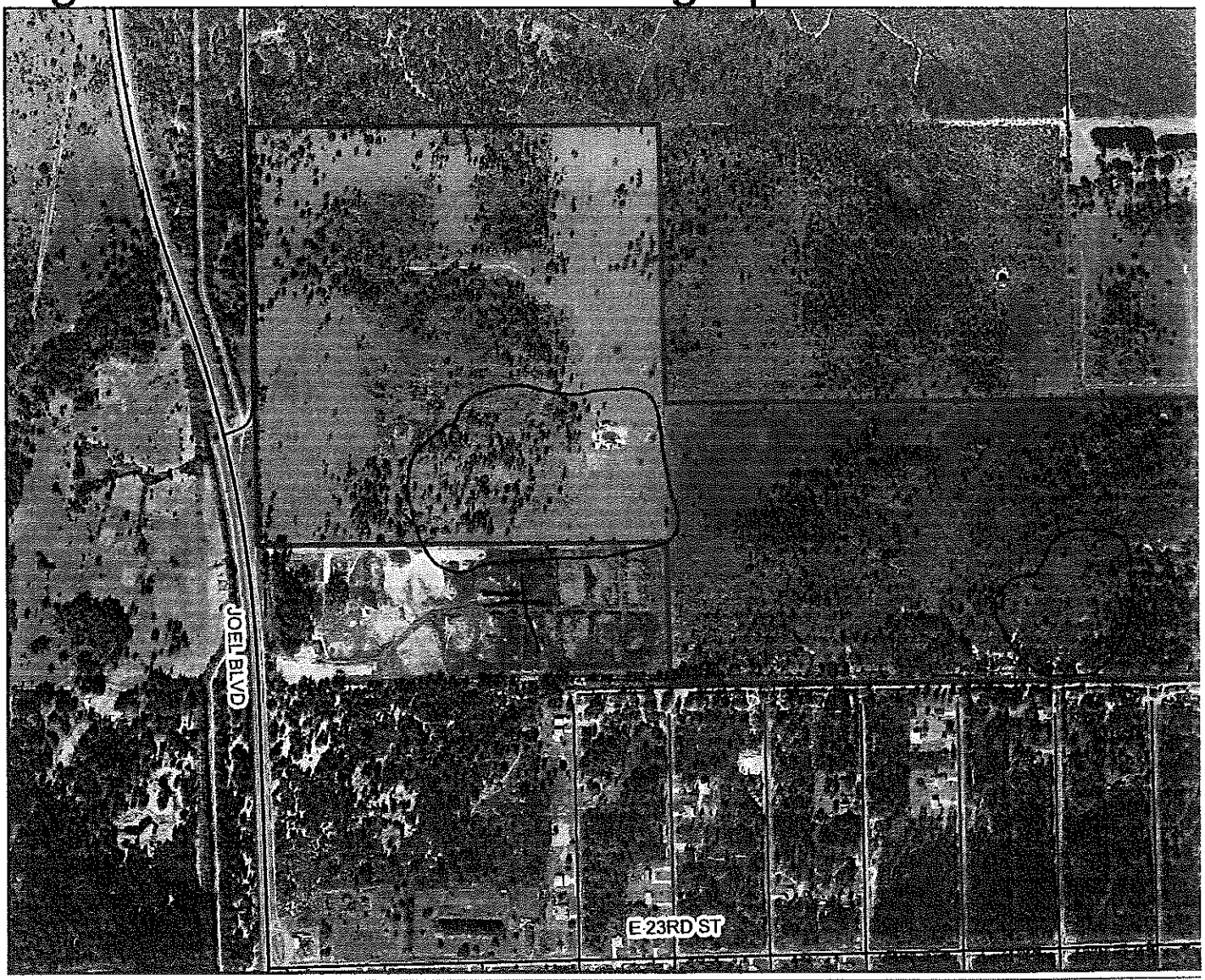
The model airplanes will have a fly zone which is based on a take-off to the east, a flat oval flight loop back to the west along the north side of the runway, and a landing from the west. The Academy of Model Aeronautics requires that an over-fly zone be included in the planning of the facility. This identifies an area where models might enter if a mishap should occur. From the graphic you will note that the over-fly zone is completely within the boundaries of the property.

The majority of the flights occur in the morning.

If you have any questions regarding this project, please do not hesitate to contact me.

Alva Scrub Preserve — shown in pink
FSJ territories shown in blue ink

Figure 2: 2005 Aerial Photograph



Sample plane

Calvert, Daniel J.

From: Olson, Cathy
Sent: Monday, July 14, 2008 9:31 AM
To: Calvert, Daniel J.; Johnson, Frederic W.
Cc: Greeno, Laura L.
Subject: FW: Scan

Fred and Dan,

Here is the FWC release for the remote control flyers (you already have the FWS release). Make sure you pay attention to the conditions: The southern runway alignment, no flying over Alva Scrub Preserve, and pay attention if the jays move (Laura will monitor that).

CO

Cathy Olson
Conservation 20/20 Senior Supervisor
Lee County Parks and Recreation
3410 Palm Beach Blvd.
Fort Myers, FL 33916
(239) 533-7455
fax: 239 485-2302
colson@leegov.com
www.leeparks.org

The Natural Place to Play...

Lee County Parks and Recreation is CAPRA accredited.

From: Rousso, Stephanie [mailto:Stephanie.Rousso@MyFWC.com]
Sent: Monday, July 14, 2008 8:28 AM
To: Olson, Cathy
Subject: RE: Scan

Yes, please let us know if anything changes or of course if anyone notices that the birds have moved offsite.

-Stephanie
941-916-4333;

From: Olson, Cathy [mailto:COlson@leegov.com]
Sent: Friday, July 11, 2008 3:10 PM
To: Rousso, Stephanie
Subject: FW: Scan

S:

So then is the FWC ok with the proposal so long as the run way is shifted to the south and that they don't fly over the preserve?

Thanks for your speedy efforts! Happy moving. ☺

CO

Cathy Olson
Conservation 20/20 Senior Supervisor
Lee County Parks and Recreation
3410 Palm Beach Blvd.
Fort Myers, FL 33916
(239) 533-7455
fax: 239 485-2302
colson@leegov.com
www.leeparks.org

The Natural Place to Play...

Lee County Parks and Recreation is CAPRA accredited.

From: Miller, Karl [mailto:Karl.Miller@MyFWC.com]
Sent: Friday, July 11, 2008 2:30 PM
To: Rousso, Stephanie
Cc: Olson, Cathy
Subject: RE: Scan

Hi Stephanie,
I don't have any concerns about this. I remember Cathy Olson consulted with me some time back on this. FLSJs are very tolerant to noise and human activity. I think the fact that the hobbyists have shifted the runway away from the preserve is reason enough to approve without any further ado.
Cheers,
Karl

From: Rousso, Stephanie
Sent: Friday, July 11, 2008 1:52 PM
To: Miller, Karl
Subject: FW: Scan

Hi Karl,
Hop all is well in G-ville. I'm trying to settle into J-ville but projects from the SW region keep popping up. The attached (very short- 2 pages + pictures) is a request for assistance. There is a family of jays in Alva Scrub preserve (sound familiar?) and some people want to fly model airplanes in the parcel adjacent to the preserve. Do you have any concerns- what about the noise from the planes during mating or nesting season? See attached what they want to do and a picture of the plane. If you already gave me comments on this, I forgot or they got lost in the shuffle. This request came just before I moved up here. Thanks for your input.
FYI- Lee County conservation 20/20 staff is asking.

-Stephanie
941-916-4333;

Appendix E: Memo to Solid Waste Regarding Hurricane Debris

Memorandum

To: William T. Newman, Operations Manager

From: Cathy Olson, Conservation 20/20 Senior Supervisor

Date: June 29, 2007

Subject: Temporary Debris Staging Area at Alva Scrub Preserve

Thank you for your memo dated May 30, 2007 regarding the potential use of Alva Scrub Preserve as a temporary staging area for hurricane debris. As you know, we have worked with you during past hurricane debris staging area projects (Deep Lagoon Preserve, Wild Turkey Strand Preserve and Yucca Pens Preserve).

I brought your letter regarding Alva Scrub Preserve and its potential use as a hurricane debris staging area to the June 25, 2007 Management Subcommittee meeting. The subcommittee members discussed the project in context with the natural resources on the Preserve. Florida scrub-jays (*Aphelocoma coerulescens*), a state and federally threatened species, gopher tortoise (*Gopherus polyphemus*), a state species of special concern, and rare plants occur on the Preserve. In addition, there is an active cattle lease on the property. The property has been brought to a maintenance state where less than 5% of the property contains non-native invasive species. Due to the environmentally sensitive nature of the Preserve and the existing cattle lease, the subcommittee and staff members feel that the site is not an appropriate site for hurricane debris staging since the debris could affect these listed species and seeds from exotic plants could be introduced onto the site.

Several nearby parcels are owned or are under acquisition consideration by the County. I would be happy to help you find a more suitable piece of land. Although not owned by the County at this point, nomination 325 may be suitable for your needs and not cause as many natural resource impacts. The Lee County School Board is also likely to purchase land north of nomination 325 which also may be a suitable hurricane debris staging area.

cc: Roger Clark, Land Stewardship Manager
Laura Greeno, Land Stewardship Coordinator

C2020-07-18

Olson/misc/hurricane debris

Appendix F: Cattle Leases

LICENSE FOR CATTLE GRAZING

This Agreement made this 12th day of August, 2009 by and between LEE COUNTY, a political subdivision and charter county of the State of Florida, c/o Director of Parks and Recreation, 3410 Palm Beach Boulevard, Fort Myers, FL 33916, telephone (239) 533-7275, hereinafter referred to as "Licensor," and Paul Meloy, an individual, whose address is 3101 Styles Rd., Alva, FL 33920, telephone (239) 728-2151, hereinafter referred to as "Licensee":

WITNESSETH

Licensor, in consideration of the fees paid, the covenants and agreements 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 described as follows, to wit:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF.

In further consideration of this Agreement, the parties agree as follows:

1. Licensee agrees to pay Licensor the total sum of $106.85, due by September 15th each year for the term of this license to use the described property solely for cattle grazing.

2. This License is not assignable to any other party.

3. This License shall extend for an initial term of 13 months , which at the expiration of such term may be renewable upon the concurrence of both parties for one additional year, and/or may be revocable by either party by giving the other party 30 days written notice to remove the cattle from the premises.

4. Licensee will not use the described lands for any other purpose other than cattle grazing.

5. Licensee will maintain the existing four strand barbed wire fence around the perimeter of the property with the exception of the road frontage. Road frontage fence will be maintained with five strand barbed wire during the term of this License. The fence shall remain the property of the Licensor.

6. Licensee agrees to keep the fence in an excellent state of repair at all times during the term of this Agreement.

7. It is mutually agreed that this Agreement may be canceled upon 48 hours written notice to the Licensee if any of Licensee's cattle are not kept within the confines of the property described in Exhibit "A."

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

9. 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 the resetting of these monuments in the event they are disturbed by the Licensee in any way.

10. 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 will hold Licensor harmless from all such damages during the term of this Agreement to include all reasonable fees, costs and expenses from any resulting litigation in any forum as the result of such damage as claimed or brought by third parties.

11. Licensee must obtain written approval from 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.

12. Licensee shall not exceed 200 head of Cattle at any time.

13. In the event License is revoked or cancelled by either party, no fees paid in accordance with Item No. 1 above are refundable.

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Signed and sealed the date above written.

LICENSEE

By: [redacted]
Title: [redacted]

STATE OF FLORIDA) ss:
COUNTY OF LEE)

The foregoing instrument was acknowledged before me this 10th day of August, 2009, by [redacted], an individual, who is personally known to me or has produced Driver License as identification and did (did not) take an oath.

Bonnie Peters
Notary Public

Bonnie Peters
(Print Name)
My commission expires:

BONNIE PETERS
MY COMMISSION # DD 804184
EXPIRES: November 8, 2012
Bonded Thru Notary Public Underwriters

LICENSOR
LEE COUNTY PARKS AND RECREATION

By: Barbara Mango
Director

STATE OF FLORIDA) ss:
COUNTY OF LEE)

The foregoing instrument was acknowledged before me this 13th day of August, 2009, by Barbara Mango, an individual, who is personally known to me or has produced _____ as identification and did (did not) take an oath.

Bonnie Peters
Notary Public

Bonnie Peters
(Print Name)
My commission expires:

BONNIE PETERS
MY COMMISSION # DD 804184
EXPIRES: November 8, 2012
Bonded Thru Notary Public Underwriters

Approved as to Form

By: _____
Lee County Attorney's Office

EXHIBIT "A"

2020 Site #195 Alva Scrub

The Northwest Quarter (NW 1/4) of the Southwest Quarter (SW 1/4);

The West Half (W 1/2) of the Northeast Quarter (NE 1/4) of the Southwest Quarter (SW 1/4);

The North Half (N 1/2) of the Southwest Quarter (SW 1/4) of the Southwest Quarter (SW 1/4);

The North Half (N 1/2) of the Southeast Quarter (SE 1/4) of the Southwest Quarter (SW 1/4);

The Southeast Quarter (SE 1/4) of the Southeast Quarter (SE 1/4) of the Southwest Quarter (SW 1/4);

The Southwest Quarter (SW 1/4) of the Southeast Quarter (SE 1/4); and

The West Half (W 1/2) of the Southeast Quarter (SE 1/4) of the Southeast Quarter (SE 1/4)

All in Section 35, Township 43 South, Range 27 East, Lee County, Florida.

LICENSE FOR CATTLE GRAZING

This Agreement made this 6 day of September, 2009 by and between LEE COUNTY, a political subdivision and charter county of the State of Florida, c/o Director of Parks and Recreation, 3410 Palm Beach Boulevard, Fort Myers, FL 33916, telephone (239) 533-7275, hereinafter referred to as "Licensor," and Elizabeth Conway, individual, whose address is 17951 Oak Creek Rd. Alva, FL 33920, telephone 239-633-1649, hereinafter referred to as "Licensee":

WITNESSETH

Licensor, in consideration of the fees paid, the covenants and agreements 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 described as follows, to wit:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF.

In further consideration of this Agreement, the parties agree as follows:

1. Licensee agrees to pay Licensor the total sum of $50.00, due by September 15th each year for the term of this license to use the described property solely for cattle grazing.

2. This License is not assignable to any other party.

3. This License shall extend for an initial term of 1 year(s), which at the expiration of such term may be renewable upon the concurrence of both parties for one additional year, and/or may be revocable by either party by giving the other party 30 days written notice to remove the cattle from the premises.

4. Licensee will not use the described lands for any other purpose other than cattle grazing.

5. Licensee will maintain the existing four strand barbed wire fence around the perimeter of the property with the exception of the road frontage. Road frontage fence will be maintained with five strand barbed wire during the term of this License. The fence shall remain the property of the Licensor.

6. Licensee agrees to keep the fence in an excellent state of repair at all times during the term of this Agreement.

7. It is mutually agreed that this Agreement may be canceled upon 48 hours written notice to the Licensee if any of Licensee's cattle are not kept within the confines of the property described in Exhibit "A."

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

9. 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 the resetting of these monuments in the event they are disturbed by the Licensee in any way.

10. 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 will hold Licensor harmless from all such damages during the term of this Agreement to include all reasonable fees, costs and expenses from any resulting litigation in any forum as the result of such damage as claimed or brought by third parties.

11. Licensee must obtain written approval from 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.

12. Licensee shall not exceed 25 head of Cattle at any time.

13. In the event License is revoked or cancelled by either party, no fees paid in accordance with Item No. 1 above are refundable.

(Balance of Page Intentionally Left Blank)

Signed and sealed the date above written.

LICENSEE

By: [redacted]
Title:

STATE OF FLORIDA) ss:
COUNTY OF LEE)

The foregoing instrument was acknowledged before me this 6 day of September, 2009, by [redacted], an individual, who is personally known to me or has produced Known by me as identification and did (did not) take an oath.

[redacted]
Notary Public

(Print Name)
My commission expires:

ZELLASTEEN CONWAY
Notary Public - State of Florida
My Comm. Expires Jul 23, 2013
Commission # DD 874090
Bonded Through National Notary Assn.

LICENSOR
LEE COUNTY PARKS AND RECREATION

By: _____
Director

STATE OF FLORIDA) ss:
COUNTY OF LEE)

The foregoing instrument was acknowledged before me this 14th day of Sept., 2009, by Dane W. Harman II, an individual, who is personally known to me or has produced _____ as identification and did (did not) take an oath.

Bonnie Peters
Notary Public
Bonnie Peters
(Print Name)
My commission expires:

BONNIE PETERS
MY COMMISSION # DD 804184
EXPIRES: November 8, 2012
Bonded Thru Notary Public Underwriters

Approved as to Form

By: _____
Lee County Attorney's Office

EXHIBIT A

Site #325
Alva Cypress

DESCRIPTION

A TRACT OR PARCEL OF LAND SITUATED IN THE STATE OF FLORIDA, COUNTY OF LEE, LYING IN SECTION 3, TOWNSHIP 44 SOUTH, RANGE 27 EAST AND IN SECTION 34, TOWNSHIP 43 SOUTH, RANGE 27 EAST, BEING FURTHER BOUNDED AND DESCRIBED AS FOLLOWS:

COMMENCING AT A NAIL AND DISK STAMPED PLS 2995 MARKING THE NORTHEAST CORNER OF SAID SECTION 3; THENCE S.89°21'00"W. FOR 50.01 FEET TO A CONCRETE POST ON THE WESTERLY RIGHT-OF-WAY LINE OF JOEL BOULEVARD (100 FEET WIDE) AND THE POINT OF BEGINNING, SAID POINT BEING ON A CURVE CONCAVE TO THE WEST HAVING A RADIUS OF 5879.58 FEET AND TO WHICH A RADIAL LINE BEARS N.88°05'12"E.; THENCE NORTHERLY ALONG THE ARC OF SAID CURVE AND SAID RIGHT-OF-WAY LINE THROUGH A CENTRAL ANGLE OF 09°00'27" FOR 892.89 FEET TO AN IRON ROD AT A POINT OF COMPOUND CURVE TO THE LEFT HAVING A RADIUS OF 5664.58 FEET AND TO WHICH A RADIAL LINE BEARS N.79°04'45"E.; THENCE NORTHERLY ALONG THE ARC OF SAID CURVE AND SAID RIGHT-OF-WAY LINE THROUGH A CENTRAL ANGLE OF 09°51'52" FOR 975.27 FEET TO AN IRON ROD; THENCE N.20°49'02"W. ALONG SAID WESTERLY RIGHT-OF-WAY LINE FOR 127.33 FEET TO AN IRON ROD AND THE BEGINNING OF CURVE TO THE RIGHT HAVING A RADIUS OF 5794.58 FEET AND TO WHICH A RADIAL LINE BEARS S.69°10'58"W.; THENCE NORTHERLY ALONG THE ARC OF SAID CURVE AND SAID RIGHT-OF-WAY LINE THROUGH A CENTRAL ANGLE OF 01°07'51" FOR 114.36' FEET TO AN IRON ROD, THENCE S89°05'33"W PARALLEL WITH AND 582.05 FEET SOUTH OF THE EAST-WEST QUARTER SECTION LINE FOR 1051.72' FEET TO AND IRON ROD; THENCE S00° 51'28"E PARALELL WITH THE NORTH-SOUTH QUARTER SECTION LINE FOR 695.00' FEET TO AN IRON ROD; THENCE S89°05'33"W PARALLEL WITH AND 1,277.05 FEET SOUTH OF THE EAST-WEST QUARTER SECTION LINE FOR 1125.51 FEET TO AN IRON ROD ON THE NORTH-SOUTH QUARTER SECTION LINE; THENCE S00°51'28"E ALONG SAID NORTH-SOUTH QUARTER SECTION LINE FOR 1349.91' FEET TO A CONCRETE POST AT THE QUARTER CORNER ON THE SOUTH LINE OF SAID SECTION 34 AND THE NORTH LINE OF SAID SECTION 3; THENCE S.89°20'56"W. ALONG THE COMMON LINE OF SAID SECTION 3, TOWNSHIP 44 SOUTH, RANGE 27 EAST AND SAID SECTION 34, TOWNSHIP 43 SOUTH, RANGE 27 EAST FOR 1323.67 FEET TO AN IRON ROD AT THE EASTERLY LINE OF GREENBRIAR SUBDIVISION, PLAT BOOK 27 PAGE 15, SAID PUBLIC RECORDS AND THE NORTHEAST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 3; THENCE S.01°26'20"E. ALONG THE EAST LINE OF SAID GREENBRIAR SUBDIVISION FOR 1206.20 FEET, PASSING THROUGH AN IRON ROD AT 404.28 FEET, TO AN IRON ROD; THENCE N.89°14'18"E. ALONG THE NORTHERLY LINE OF PROPOSED STILL HOLLOW SUBDIVISION FOR 995.88 FEET TO AN IRON ROD AT THE SOUTHWEST CORNER OF A PARCEL OF LAND RECORDED IN OFFICIAL RECORD BOOK 4233 PAGE 3131, SAID PUBLIC RECORDS; THENCE N.00°44'26"W. ALONG THE WESTERLY LINE OF SAID PARCEL FOR 140.11 FEET TO AN IRON ROD AT THE NORTHWEST CORNER OF SAID PARCEL; THENCE N.89°13'29"E. ALONG THE NORTHERLY LINE OF SAID PARCEL FOR 729.83 FEET TO AN IRON ROD AT THE NORTHEAST CORNER OF SAID PARCEL; THENCE S.00°44'26"E. ALONG THE EASTERLY LINE OF SAID PARCEL FOR 140.11 FEET TO AN IRON ROD AT THE SOUTHEAST CORNER OF SAID PARCEL; THENCE N.89°17'32"E. FOR 91.10 FEET TO AN IRON ROD AND THE BEGINNING OF A CURVE TO THE RIGHT HAVING A RADIUS OF 461.97 FEET AND TO WHICH A RADIAL LINE BEARS S.00°44'44"E.; THENCE EASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 44°58'45" FOR 362.66 FEET TO AN IRON ROD AT A POINT OF REVERSE CURVATURE OF A CURVE TO THE LEFT HAVING A RADIUS OF 401.97 FEET; THENCE EASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 45°02'05" FOR 315.95 FEET TO AN IRON ROD AT THE NORTHWEST CORNER OF SUNNY ACRES ESTATES, UNIT ONE, RECORDED IN PLAT BOOK 14, PAGE 82, SAID PUBLIC RECORDS; THENCE N.89°13'11"E. ALONG THE NORTHERLY LINE OF SAID SUNNY ACRES ESTATES AND THE NORTH RIGHT-OF-WAY LINE OF WYANDOTTE WAY (60 FEET WIDE) FOR 210.05 FEET TO AN IRON ROD AT THE SOUTHWEST CORNER OF A PARCEL OF LAND RECORDED IN OFFICIAL RECORDS BOOK 4048 PAGE 3942, SAID PUBLIC RECORDS; THENCE N.00°37'18"W. ALONG THE WESTERLY LINE OF SAID PARCEL FOR 249.81 FEET TO AN IRON ROD AT THE NORTHWEST CORNER OF SAID PARCEL; THENCE N.89°06'58"E. ALONG THE NORTH LINE OF SAID PARCEL FOR 99.97 FEET TO AN IRON ROD AT THE NORTHEAST CORNER OF SAID PARCEL; THENCE S.00°37'18"E. ALONG THE EAST LINE OF SAID PARCEL FOR 250.13 FEET TO AN IRON ROD AT THE SOUTHEAST CORNER OF SAID PARCEL AND A CURVE CONCAVE TO THE NORTHWEST HAVING A RADIUS OF 270.00 FEET AND TO WHICH A RADIAL LINE BEARS S.06°10'47"E.; THENCE EASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 32°00'40" FOR 150.85 FEET TO AN IRON ROD AT THE POINT OF REVERSE CURVATURE OF A CURVE TO THE RIGHT HAVING A RADIUS OF 330.00 FEET; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 21°01'23" FOR 121.08 FEET TO AN IRON ROD; THENCE N.00°43'09"W. ALONG THE WEST LINE OF A PARCEL RECORDED IN OFFICIAL RECORD BOOK 4579 PAGE 4154 AND A PARCEL OF LAND RECORDED IN OFFICIAL RECORD BOOK 3877 PAGE 0053, SAID PUBLIC RECORDS, FOR 569.57 FEET TO AN IRON ROD AT THE NORTHWEST CORNER OF SAID PARCEL RECORDED IN OFFICIAL RECORD BOOK 3877 PAGE 0053; THENCE N.89°16'38"E. ALONG THE NORTH LINE OF SAID PARCEL RECORDED IN OFFICIAL RECORD BOOK 3877 PAGE 0053 FOR 678.75 FEET TO AN IRON ROD ON THE WESTERLY LINE OF A DRAINAGE RIGHT-OF-WAY (60 FEET WIDE); THENCE N.02°11'14"W. ALONG THE WESTERLY LINE OF SAID DRAINAGE RIGHT-OF-WAY FOR 301.18 FEET TO AN IRON ROD; THENCE N.89°08'59"E. ALONG A WESTERLY PROLONGATION OF AND ALONG THE NORTH LINE OF LOT 40, SUNNY PALMS ESTATES, UNIT TWO, RECORDED IN PLAT BOOK 22 PAGE 108, SAID PUBLIC RECORDS, FOR 260.00 FEET TO AN IRON ROD ON THE WESTERLY LINE OF JOEL BOULEVARD (STATE ROAD 884); THENCE N.01°54'08"W. ALONG SAID WESTERLY RIGHT-OF-WAY LINE OF JOEL BOULEVARD FOR 412.06 FEET, PASSING THROUGH A CONCRETE MONUMENT AT 83.35 FEET, TO AN IRON ROD ON THE SOUTHERLY LINE OF A PARCEL OF LAND RECORDED IN OFFICIAL RECORD BOOK 919 PAGE 41, SAID PUBLIC RECORDS; THENCE S.89°21'00"W. ALONG THE SOUTHERLY LINE OF SAID PARCEL FOR 199.70 FEET TO AN IRON ROD AT THE SOUTHWEST CORNER OF SAID PARCEL; THENCE N.01°15'12"W. ALONG THE WESTERLY LINE OF SAID PARCEL FOR 60.00 FEET TO AN IRON ROD AT THE NORTHWEST CORNER OF SAID PARCEL; THENCE N.89°21'00"E. ALONG THE NORTHERLY LINE OF SAID PARCEL FOR 199.02 FEET TO THE POINT OF BEGINNING.

BEARINGS ARE BASED ON NORTH AMERICAN DATUM OF 1983/1990, THE SOUTH LINE OF SECTION 34-43-27 AS BEARING S.89°21'00"W.

LICENSE FOR CATTLE GRAZING

This Agreement made this 1st day of Sept, 2009 by and between LEE COUNTY, a political subdivision and charter county of the State of Florida, c/o Director of Parks and Recreation, 3410 Palm Beach Boulevard, Fort Myers, FL 33916, telephone (239) 533-7275, hereinafter referred to as "Licensor," and Bobby Little, an individual, whose address is P.O. Box 37, Alva, FL 33920, telephone (239) 728-2319, hereinafter referred to as "Licensee":

WITNESSETH

Licensor, in consideration of the fees paid, the covenants and agreements 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 described as follows, to wit:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF.

In further consideration of this Agreement, the parties agree as follows:

1. Licensee agrees to pay Licensor the total sum of $124.50, due by September 15th each year for the term of this license to use the described property solely for cattle grazing.

2. This License is not assignable to any other party.

3. This License shall extend for an initial term of 1 year(s), which at the expiration of such term may be renewable upon the concurrence of both parties for one additional year, and/or may be revocable by either party by giving the other party 30 days written notice to remove the cattle from the premises.

4. Licensee will not use the described lands for any other purpose other than cattle grazing.

5. Licensee will maintain the existing four strand barbed wire fence around the perimeter of the property with the exception of the road frontage. Road frontage fence will be maintained with five strand barbed wire during the term of this License. The fence shall remain the property of the Licensor.

6. Licensee agrees to keep the fence in an excellent state of repair at all times during the term of this Agreement.

7. It is mutually agreed that this Agreement may be canceled upon 48 hours written notice to the Licensee if any of Licensee's cattle are not kept within the confines of the property described in Exhibit "A."

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

9. 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 the resetting of these monuments in the event they are disturbed by the Licensee in any way.

10. 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 will hold Licensor harmless from all such damages during the term of this Agreement to include all reasonable fees, costs and expenses from any resulting litigation in any forum as the result of such damage as claimed or brought by third parties.

11. Licensee must obtain written approval from 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.

12. Licensee shall not exceed 50 head of Cattle at any time.

13. In the event License is revoked or cancelled by either party, no fees paid in accordance with Item No. 1 above are refundable.

(Balance of Page Intentionally Left Blank)

Signed and sealed the date above written.

LICENSEE

[redacted]

By: [redacted]

Title: [redacted]

STATE OF FLORIDA) ss:
COUNTY OF LEE)

The foregoing instrument was acknowledged before me this 1 day of Sept 2009, by [redacted], an individual, who is personally known to me or has produced FLDL. as identification and did (did not) take an oath.

Julie Miller
Notary Public

Julie Miller
(Print Name)
My commission expires: 9-29-09

JULIE MILLER
Notary Public - State of Florida
My Commission Expires Sep 29, 2009
Commission # DD 436187

LICENSOR
LEE COUNTY PARKS AND RECREATION

By: D. W. H. II
Director

STATE OF FLORIDA) ss:
COUNTY OF LEE)

The foregoing instrument was acknowledged before me this 8TH day of Sept., 2009, by David W. Harmon II, an individual, who is personally known to me or has produced _____ as identification and did (did not) take an oath.

Bonnie Peters
Notary Public

Bonnie Peters
(Print Name)
My commission expires:

BONNIE PETERS
MY COMMISSION # DD 804184
EXPIRES: November 8, 2012
Bonded Thru Notary Public Underwriters

Approved as to Form

By: _____
Lee County Attorney's Office

Appendix G: WHIP Conservation Program Contract

US DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

NRCS-CPA-1202
OMB 0578-0013 Expires 9/30/09

CONSERVATION PROGRAM CONTRACT

Participant: LEE COUNTY BOARD OF COMMISSIONERS	**Program and Contract Number:** WHIP 7242090815P
County and State: LEE County, FL	**Subaccount:** WHIP FA State Wide - 2NDBatch
Watershed: Caloosahatchee	This agreement is effective on the date signed by the Natural Resources Conservation Service approving official and extends through **9/30/2018**

1. The undersigned participants enter into this contract with the Natural Resources Conservation Service (NRCS) to implement and or maintain specific conservation practices, as set forth in the Conservation Plan or Schedule of Operations (NRCS-CPA-1155), on the property as identified on the plan map. In consideration for the implementation and or maintenance of the practices, the NRCS will make payments to the participant(s) in the amount(s) described in the Schedule of Operations as outlined in the appendix.
2. This agreement is comprised of this Conservation Program Contract form NRCS-CPA-1202, NRCS-CPA-1202 Appendix; NRCS-CPA-1155 Conservation Plan or Schedule of Operations and plan map which are fully incorporated by reference into this document and are binding upon the participant(s). The NRCS-CPA-1155 may be modified (NRCS-CPA-1156) upon agreement of NRCS and the participant and becomes a part of the contract when signed by the NRCS approving official.
3. The participant(s) agree: A) to implement and maintain conservation practices identified on the plan map in compliance with the plan or schedule of operations (NRCS-CPA-1155) and in accordance with the standards, specifications, and other special program criteria obtained from the local field office of the NRCS; B) to forfeit further payments under this agreement and refund the United States, in amounts determined by NRCS, payments received hereunder upon NRCS determination that participant(s) have violated the material terms of this agreement or accept such payment adjustments as NRCS may deem appropriate if NRCS decides that the participant's violation does not warrant termination of the agreement; and C) to forfeit all rights to further payments under the agreement and refund to the United States, in amounts determined by NRCS, payments received hereunder if the subject land is transferred to a non-participant during the term of this agreement, unless the third party agrees to assume this agreement, and the NRCS consents to the modification.

4. CONTRACT PARTICIPANTS

Name, Address, Telephone LEE COUNTY BOARD OF COMMISSIONERS 3410 PALM BEACH BLVD FORT MYERS , FL 33916 (863) 338-3100	**SSN or TAX ID if applicable** *****0702
Signature Cynthia C. Nutan **Date** 07-24-08	**Payment Shares** 100.00%
Signature required for modifications ✓ Yes ☐ No	**Signature acceptable for payments** ✓ Yes ☐ No

5. CONTRACT OBLIGATIONS

2009	2010	2011	2012	2013	2014	2015	2016			Total
$150	$0	$9,955	$2,940	$0	$0	$868	$771			$14,684
										$14,684

6. NRCS APPROVING OFFICIALS

Application Approval **Date:** 7/22/2008	**Contract Obligation** **Date:**

RECEIVED
JUL 28 2008

7. ☐ Yes ☐ No **If applying for the EQIP and if the application includes irrigation practices, has the land been irrigated at least 2 of the last 5 years?**

8. **The land is (Check all that apply):**
   - ☐ **Private Land**
   - ☒ **Public Land (Federal, State, or Local Government)**
   - ☐ **Tribal, Alloted, Ceded or Indian Land**

RECEIVED
JUN 27 2008

9. **Certification of control of the land under the application:**
   - ☒ **Deed or other evidence of land ownership**
   - ☐ **Written lease agreement**
     Years of control are through
   - ☐ **Other agreement or legal conveyance**
     Years of control are through

10. ☐ Yes ☒ No **Is the land under this application enrolled in any other conservation program?**

On the farm identified above, the Applicant agrees to participate in the identified program if the offer is accepted by the NRCS. The undersigned person shall hereafter be referred to as the "Participant." The participant understands that starting a practice prior to contract approval causes the practice to be ineligible for program financial assistance. The participant will obtain the landowner's signature on the contract or provide written authorization to install structural practices.

The Participant agrees not to start any financially assisted practice or activity or engage the reimbursable services of a certified Technical Service Provider before a Contract is executed by CCC. The Participant may request, in writing, a waiver of this requirement for financially assisted practices by the NRCS State Conservationist.

All participants that certify eligibility as a Limited Resource Farmer or Rancher or Beginning Farmer will provide all records necessary to justify their claim as requested by a NRCS representative. It is the responsibility of the participant to provide accurate data to support all items addressed in this application at the request of NRCS. False certifications are subject to criminal and civil fraud statutes.

The Participant acknowledges that highly erodible land conservation/wetland conservation, adjusted gross income certifications, and member information for entities and joint operations are on file with the appropriate USDA Service Center Agency.

11. ☒ Yes ☐ No **I've read the appropriate program appendix.**

Applicant Signature Laura Ahrens Apitter C. Metaw	**Date** 6/12/08 06.26.08

PUBLIC BURDEN STATEMENT

In accordance with the Privacy Act of 1974 (5 USC 552a) and the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0578-0013. The time required to complete this information collection is estimated to average 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

NONDISCRIMINATION STATEMENT

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its program and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.)Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of Discrimination, write to USDA, Director, Office of Civil Rights, 1400Independence Avenue, SW., Washington, DC 20250-9410, or call (800) 795-3272 (voice) or (202)

7. ☐ Yes ☐ No **If applying for the EQIP and if the application includes irrigation practices, has the land been irrigated at least 2 of the last 5 years?**

8. **The land is (Check all that apply):**
   - ☐ **Private Land**
   - ☒ **Public Land (Federal, State, or Local Government)**
   - ☐ **Tribal, Alloted, Ceded or Indian Land**

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9. **Certification of control of the land under the application:**
   - ☒ **Deed or other evidence of land ownership**
   - ☐ **Written lease agreement**
     Years of control are through
   - ☐ **Other agreement or legal conveyance**
     Years of control are through

10. ☐ Yes ☒ No **Is the land under this application enrolled in any other conservation program?**

On the farm identified above, the Applicant agrees to participate in the identified program if the offer is accepted by the NRCS. The undersigned person shall hereafter be referred to as the "Participant." The participant understands that starting a practice prior to contract approval causes the practice to be ineligible for program financial assistance. The participant will obtain the landowner's signature on the contract or provide written authorization to install structural practices.

The Participant agrees not to start any financially assisted practice or activity or engage the reimbursable services of a certified Technical Service Provider before a Contract is executed by CCC. The Participant may request, in writing, a waiver of this requirement for financially assisted practices by the NRCS State Conservationist.

All participants that certify eligibility as a Limited Resource Farmer or Rancher or Beginning Farmer will provide all records necessary to justify their claim as requested by a NRCS representative. It is the responsibility of the participant to provide accurate data to support all items addressed in this application at the request of NRCS. False certifications are subject to criminal and civil fraud statutes.

The Participant acknowledges that highly erodible land conservation/wetland conservation, adjusted gross income certifications, and member information for entities and joint operations are on file with the appropriate USDA Service Center Agency.

11. ☒ Yes ☐ No **I've read the appropriate program appendix.**

Applicant Signature Laura Ahrens Aptter C. Metaw	**Date** 6/12/08 06.26.08

PUBLIC BURDEN STATEMENT

In accordance with the Privacy Act of 1974 (5 USC 552a) and the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0578-0013. The time required to complete this information collection is estimated to average 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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US DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PLAN OR SCHEDULE OF OPERATIONS

NRCS-CPA-1155
OMB 0578-0013 Expires 9/30/09

PARTICIPANT	COUNTY AND STATE	PROGRAM AND CONTRACT NUMBER	SUBACCOUNT
LEE COUNTY BOARD OF COMMISSIONERS	LEE County, FL	WHIP 7242090815P	WHIP FA State Wide - 2NDBatch

LAND UNITS OR LEGAL DESCRIPTION	WATERSHED	ACRES	EXPIRATION DATE
S35, T43, R27	Caloosahatchee	172	9/30/2018

Contract Item 1: BRUSH MANAGEMENT(314) **Practice Lifespan:** 10 years **Status:** Planned 2011

Mechanical treatment will be applied to Saw Palmetto and other shrub species that have become dominate within the flatwoods communities. The area will be chopped in order to reduce brush species and improve wildlife habitat.

Fields:
Tract: 628 Fields: 1, 3, 4, 5;

Contract Item	Planned Conservation Treatment	Planned Amount	Unit Cost	Cost Share Rate/Method	COMPLETION SCHEDULE AND ESTIMATED COST-SHARE OR PAYMENT BY YEAR									
					2009 $	2010 $	2011 $	2012 $	2013 $	2014 $	2015 $	2016 $		
1	BRUSH MANAGEMENT(314)	85 ac					4,208							
1a	314-Brush Management	85 Acre	$49.5000/ Acre	PR[1]			4,208							

Notes: [1]Payment rates define the unit cost rate of compensation to be received by the participant.

Contract Item 2: PRESCRIBED BURNING(338) **Practice Lifespan:** 5 years **Status:** Planned 2015

Fire will be used to control undesirable vegetation, enhance forage quality, and improve wildlife habitat. Florida Division of Forestry permits are required before burning. See the Prescribed Burning job sheet for information on burn frequency, recommended times to burn, and related information.

Fields:
Tract: 628 Fields: 1, 2, 3;

Contract Item	Planned Conservation Treatment	Planned Amount	Unit Cost	Cost Share Rate/Method	COMPLETION SCHEDULE AND ESTIMATED COST-SHARE OR PAYMENT BY YEAR									
					2009 $	2010 $	2011 $	2012 $	2013 $	2014 $	2015 $	2016 $		
2	PRESCRIBED BURNING(338)	89 ac									868			
2a	338 - Prescribed Burning	89 Acre	$9.7500/ Acre	PR[1]							868			

Notes: [1]Payment rates define the unit cost rate of compensation to be received by the participant.

US DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	**CONSERVATION PLAN OR SCHEDULE OF OPERATIONS**	NRCS-CPA-1155 OMB 0578-0013 Expires 9/30/09

PARTICIPANT	COUNTY AND STATE	PROGRAM AND CONTRACT NUMBER	SUBACCOUNT
LEE COUNTY BOARD OF COMMISSIONERS	LEE County, FL	WHIP 7242090815P	WHIP FA State Wide - 2NDBatch

LAND UNITS OR LEGAL DESCRIPTION	WATERSHED	ACRES	EXPIRATION DATE
S35, T43, R27	Caloosahatchee	172	9/30/2018

Contract Item 3: PRESCRIBED BURNING(338) **Practice Lifespan:** 5 years **Status:** Planned 2011

Fire will be used to control undesirable vegetation, enhance forage quality, and improve wildlife habitat. Florida Division of Forestry permits are required before burning. See the Prescribed Burning job sheet for information on burn frequency, recommended times to burn, and related information.

Fields:
Tract: 628 Fields: 1, 2, 3;

Contract Item	Planned Conservation Treatment	Planned Amount	Unit Cost	Cost Share Rate/Method	COMPLETION SCHEDULE AND ESTIMATED COST-SHARE OR PAYMENT BY YEAR									
					2009 $	2010 $	2011 $	2012 $	2013 $	2014 $	2015 $	2016 $		
3	PRESCRIBED BURNING(338)	89 ac					868							
3a	338 - Prescribed Burning	89 Acre	$9.7500/ Acre	PR[1]			868							

Notes: [1]Payment rates define the unit cost rate of compensation to be received by the participant.

Contract Item 4: PRESCRIBED BURNING(338) **Practice Lifespan:** 5 years **Status:** Planned 2016

Fire will be used to control undesirable vegetation, enhance forage quality, and improve wildlife habitat. Florida Division of Forestry permits are required before burning. See the Prescribed Burning job sheet for information on burn frequency, recommended times to burn, and related information.

Fields:
Tract: 628 Fields: 4, 5;

Contract Item	Planned Conservation Treatment	Planned Amount	Unit Cost	Cost Share Rate/Method	COMPLETION SCHEDULE AND ESTIMATED COST-SHARE OR PAYMENT BY YEAR									
					2009 $	2010 $	2011 $	2012 $	2013 $	2014 $	2015 $	2016 $		
4	PRESCRIBED BURNING(338)	79 ac										771		
4a	338 - Prescribed Burning	79 Acre	$9.7500/ Acre	PR[1]								771		

Notes: [1]Payment rates define the unit cost rate of compensation to be received by the participant.

Contract Item 5: PRESCRIBED BURNING(338) **Practice Lifespan:** 5 years **Status:** Planned 2012

Fire will be used to control undesirable vegetation, enhance forage quality, and improve wildlife habitat. Florida Division of Forestry permits are required before burning. See the Prescribed Burning job sheet for information on burn frequency, recommended times to burn, and related information.

Fields:
Tract: 628 Fields: 4, 5;

Contract Item	Planned Conservation Treatment	Planned Amount	Unit Cost	Cost Share Rate/Method	COMPLETION SCHEDULE AND ESTIMATED COST-SHARE OR PAYMENT BY YEAR									
					2009 $	2010 $	2011 $	2012 $	2013 $	2014 $	2015 $	2016 $		
5	PRESCRIBED BURNING(338)	79 ac						771						
5a	338 - Prescribed Burning	79 Acre	$9.7500/ Acre	PR[1]				771						

Notes: [1]Payment rates define the unit cost rate of compensation to be received by the participant.

CONSERVATION PLAN OR SCHEDULE OF OPERATIONS

NRCS-CPA-1155
OMB 0578-0013 Expires 9/30/09

PARTICIPANT	COUNTY AND STATE	PROGRAM AND CONTRACT NUMBER	SUBACCOUNT
LEE COUNTY BOARD OF COMMISSIONERS	LEE County, FL	WHIP 7242090815P	WHIP FA State Wide - 2NDBatch

LAND UNITS OR LEGAL DESCRIPTION	WATERSHED	ACRES	EXPIRATION DATE
S35, T43, R27	Caloosahatchee	172	9/30/2018

Contract Item 6: FIREBREAK(394) **Practice Lifespan:** 10 years **Status:** Planned 2011

Establish a strip of bare land or vegetation that resists fire for protection from wildfire and for control of prescribed burns.

Fields:
Tract: 628 Fields: 1, 2, 3;

Contract Item	Planned Conservation Treatment	Planned Amount	Unit Cost	Cost Share Rate/Method	COMPLETION SCHEDULE AND ESTIMATED COST-SHARE OR PAYMENT BY YEAR									
					2009 $	2010 $	2011 $	2012 $	2013 $	2014 $	2015 $	2016 $		
6	FIREBREAK(394)	11423 ft					229							
6a	394-Firebreak	11423 Lin.Ft	$0.0200/ Lin.Ft	PR[1]			229							

Notes: [1]Payment rates define the unit cost rate of compensation to be received by the participant.

Contract Item 7: FIREBREAK(394) **Practice Lifespan:** 10 years **Status:** Planned 2012

Establish a strip of bare land or vegetation that resists fire for protection from wildfire and for control of prescribed burns.

Fields:
Tract: 628 Fields: 4, 5;

Contract Item	Planned Conservation Treatment	Planned Amount	Unit Cost	Cost Share Rate/Method	COMPLETION SCHEDULE AND ESTIMATED COST-SHARE OR PAYMENT BY YEAR									
					2009 $	2010 $	2011 $	2012 $	2013 $	2014 $	2015 $	2016 $		
7	FIREBREAK(394)	8651 ft						174						
7a	394-Firebreak	8651 Lin.Ft	$0.0200/ Lin.Ft	PR[1]				174						

Notes: [1]Payment rates define the unit cost rate of compensation to be received by the participant.

Contract Item 8: TREE/SHRUB SITE PREPARATION(490) **Practice Lifespan:** 1 year **Status:** Planned 2012

Prepare land for establishing woody species by controlling weeds, removing slash and debris, or otherwise altering the site conditions to favor tree establishment by natural or artificial methods.

Fields:
Tract: 628 Fields: 2;

Contract Item	Planned Conservation Treatment	Planned Amount	Unit Cost	Cost Share Rate/Method	COMPLETION SCHEDULE AND ESTIMATED COST-SHARE OR PAYMENT BY YEAR									
					2009 $	2010 $	2011 $	2012 $	2013 $	2014 $	2015 $	2016 $		
8	TREE/SHRUB SITE PREPARATION(490)	10 ac						420						
8a	490-Medium Site Preparation (< 5" DBH)	10 Acre	$42.0000/ Acre	PR[1]				420						

Notes: [1]Payment rates define the unit cost rate of compensation to be received by the participant.

US DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PLAN OR SCHEDULE OF OPERATIONS

NRCS-CPA-1155
OMB 0578-0013 Expires 9/30/09

PARTICIPANT	COUNTY AND STATE	PROGRAM AND CONTRACT NUMBER	SUBACCOUNT
LEE COUNTY BOARD OF COMMISSIONERS	LEE County, FL	WHIP 7242090815P	WHIP FA State Wide - 2NDBatch

LAND UNITS OR LEGAL DESCRIPTION	WATERSHED	ACRES	EXPIRATION DATE
S35, T43, R27	Caloosahatchee	172	9/30/2018

Contract Item 9: PEST MANAGEMENT(595) **Practice Lifespan:** 1 year **Status:** Planned 2011

Pest populations will be managed using Integrated Pest Management (IPM) techniques. The procedures used will provide the desirable level of pest control while minimizing the potential for leaching or runoff. Guidelines in the Pest Management section will be followed.

Fields:
Tract: 628 Fields: 1, 3, 4, 5;

Contract Item	Planned Conservation Treatment	Planned Amount	Unit Cost	Cost Share Rate/Method	COMPLETION SCHEDULE AND ESTIMATED COST-SHARE OR PAYMENT BY YEAR									
					2009 $	2010 $	2011 $	2012 $	2013 $	2014 $	2015 $	2016 $		
9	PEST MANAGEMENT(595)	5 ac					4,650							
9a	595-Brazilian Pepper, Melaleuca, Australian Pine	5 Acre	$930.0000/ Acre	PR[1]			4,650							

Notes: [1]Payment rates define the unit cost rate of compensation to be received by the participant.

Contract Item 10: TREE/SHRUB ESTABLISHMENT(612) **Practice Lifespan:** 15 years **Status:** Planned 2012

This field(s) will be planted to trees and shrubs to establish cover for various wildlife species.

Fields:
Tract: 628 Fields: 2;

Contract Item	Planned Conservation Treatment	Planned Amount	Unit Cost	Cost Share Rate/Method	COMPLETION SCHEDULE AND ESTIMATED COST-SHARE OR PAYMENT BY YEAR									
					2009 $	2010 $	2011 $	2012 $	2013 $	2014 $	2015 $	2016 $		
10	TREE/SHRUB ESTABLISHMENT(612)	10 ac						1,575						
10a	612- Hardwoods and Shrubs	10 Acre	$157.5000/ Acre	PR[1]				1,575						

Notes: [1]Payment rates define the unit cost rate of compensation to be received by the participant.

US DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PLAN OR SCHEDULE OF OPERATIONS

NRCS-CPA-1155
OMB 0578-0013 Expires 9/30/09

PARTICIPANT	COUNTY AND STATE	PROGRAM AND CONTRACT NUMBER	SUBACCOUNT
LEE COUNTY BOARD OF COMMISSIONERS	LEE County, FL	WHIP 7242090815P	WHIP FA State Wide - 2NDBatch

LAND UNITS OR LEGAL DESCRIPTION	WATERSHED	ACRES	EXPIRATION DATE
S35, T43, R27	Caloosahatchee	172	9/30/2018

Contract Item 11: PEST MANAGEMENT(595) **Practice Lifespan:** 1 year **Status:** Planned 2009

Pest management shall be practiced. All label directions must be followed. Pesticides will only be applied as needed and when it is economically feasible to apply.

Fields:
Tract: 628 Fields: 3;

Contract Item	Planned Conservation Treatment	Planned Amount	Unit Cost	Cost Share Rate/Method	COMPLETION SCHEDULE AND ESTIMATED COST-SHARE OR PAYMENT BY YEAR									
					2009 $	2010 $	2011 $	2012 $	2013 $	2014 $	2015 $	2016 $		
11	PEST MANAGEMENT(595)	5 ac			150									
11a	595- Tropical Soda Apple/Oth.Nox.Pl	5 Acre	$30.0000/ Acre	PR[1]	150									

Notes: [1]Payment rates define the unit cost rate of compensation to be received by the participant.

US DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	**CONSERVATION PLAN OR SCHEDULE OF OPERATIONS**	NRCS-CPA-1155 OMB 0578-0013 Expires 9/30/09

PARTICIPANT	COUNTY AND STATE	PROGRAM AND CONTRACT NUMBER	SUBACCOUNT
LEE COUNTY BOARD OF COMMISSIONERS	LEE County, FL	WHIP 7242090815P	WHIP FA State Wide - 2NDBatch

LAND UNITS OR LEGAL DESCRIPTION	WATERSHED	ACRES	EXPIRATION DATE
S35, T43, R27	Caloosahatchee	172	9/30/2018

	Total Cost-Share or Payment by Year										Total Contract Payment
Year	2009	2010	2011	2012	2013	2014	2015	2016			
Amount($)	$150		$9,955	$2,940			$868	$771			**$14,684**

NOTES: A. All items numbers on form NRCS-CPA-1155 must be carried out as part of this contract to prevent violation.
B. When established, the conservation practices identified by the numbered items must be maintained by the participant at no cost to the government.
C. All cost share rates are based on average cost (AC) with the following exceptions:
AA = Actual cost not to exceed average cost; FR = Flat Rate; NC = Non cost-shared; AM = Actual cost not to exceed a specified maximum; PR = Payment rates.
D. By signing, the participant acknowledges receipt of this conservation plan including this form NRCS-CPA-1155 and agrees to comply with the terms and conditions here of.

Certification of Participants

Signature	Date	Signature	Date	Signature	Date
LEE COUNTY BOARD OF COMMISSIONERS					

Signatures of Reviewing Officials

NRCS Approving Official	**Reviewed by Conservation District Representative**
Signature:	**Signature:**
Date: 7/17/2008	**Date:**

PUBLIC BURDEN STATEMENT

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collections is 0578-0013. The time required to complete this information collection is estimated to average 45/0.75 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

PRIVACY ACT

The above statements are made in accordance with the Privacy Act of 1974 (5 U.S.C 522a). Furnishing this information is voluntary; however failure to furnish correct, complete information will result in the withholding or withdrawal of such technical or financial assistance. The information may be furnished to other USDA agencies, the Internal Revenue Service, the Department of Justice, or other state or federal law enforcement agencies, or in response to orders of a court, magistrate, or administrative tribunal.

USDA NON-DISCRIMINATION STATEMENT

"The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer."

Appendix H: Parcel 127 Deed Restrictions

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OR BK 03336 PG 3379
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CHARLIE GREEN CLERK OF COURT
LEE COUNTY
RECORDING FEE 19.50
DOC TAX PD(F.S.201.02) 378.00
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Prepared by and return to:
Russell P. Schropp, Esq.
Attorney at Law
HENDERSON, FRANKLIN, STARNES & HOLT, P.A.
1715 Monroe St. P. O. Box 280
Fort Myers, Florida 33902

File Number: **RPS JONES**
Will Call No.:

[Space Above This Line For Recording Data]

Warranty Deed

This Warranty Deed made this **1st** day of **December, 2000** between **Elizabeth S. Jones** whose post office address is **3705 W. San Rafael Street, Tampa, Florida 33629**, grantor, and **LEE COUNTY, a political subdivision of the State of Florida** whose post office address is **Post Office Box 398, Fort Myers, Florida 33902,** grantee:

(Whenever used herein the terms "grantor" and "grantee" include all the parties to this instrument and the heirs, legal representatives, and assigns of individuals, and the successors and assigns of corporations, trusts and trustees)

Witnesseth, that said grantor, for and in consideration of the sum of TEN AND NO/100 DOLLARS ($10.00) and other good and valuable considerations to said grantor in hand paid by said grantee, the receipt whereof is hereby acknowledged, has granted, bargained, and sold to the said grantee, and grantee's heirs and assigns forever, the following described land, situate, lying and being in **Lee County, Florida** to-wit:

See Exhibit "A" attached hereto.

Parcel Identification Number: 32-43-27-00-00004-003A and
32-43-27-00-00004.0020

Subject to Deed Restrictions attached as Exhibit "B" hereto.

Subject to taxes for 2001 and subsequent years; covenants, conditions, restrictions, easements, reservations and limitations of record, if any.

Together with all the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining.

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

And the grantor hereby covenants with said grantee that the grantor is lawfully seized of said land in fee simple; that the grantor has good right and lawful authority to sell and convey said land; that the grantor hereby fully warrants the title to said land and will defend the same against the lawful claims of all persons whomsoever; and that said land is free of all encumbrances, except taxes accruing subsequent to December 31, 2000.

In Witness Whereof, grantor has hereunto set grantor's hand and seal the day and year first above written.

Signed, sealed and delivered in our presence:

Witness Name: JAN M. BROOKS

Witness Name: CYNTHIA P. JOHNSON

Elizabeth S. Jones (Seal)
Elizabeth S. Jones

State of Florida
County of Hillsborough

The foregoing instrument was acknowledged before me this 6th day of December, 2000 by Elizabeth S. Jones, who [X] is personally known or [ ] has produced a driver's license as identification.

[Notary Seal]

E. C. JOHNSON
MY COMMISSION # CC 886629
EXPIRES: March 4, 2004
Bonded Thru Pichard Insurance Agency

Notary Public

Printed Name: Elmer C. Johnson

My Commission Expires: 03.04.04

E. C. JOHNSON
MY COMMISSION # CC 886629
EXPIRES: March 4, 2004
Bonded Thru Pichard Insurance Agency

Acquisition approved by the Lee County Board of Commissioners action on 10-3-2000 and accepted on behalf of the board by Paul R. Knight on 12-7-2000 in accordance with BS# 20000872

Exhibit "B"

Deed Restrictions

The above described property shall be subject to restrictions, reservations and easements of record. In addition, except for restoration, exotic vegetation removal, maintenance and monitoring activities, the following shall be specifically prohibited in, under or upon the property:

(A) construction or placing of buildings, roads, parking lots, signs, billboards or other advertising, utilities, microwave, radio or signal transmission towers, or other structures on or above the ground;

(B) dumping or placing of soil or other substance or material as landfill or dumping or placing of trash, waste, or unsightly or offensive materials;

(C) removal or destruction of trees, shrubs, plants or other vegetation, except for the removal of exotic or nuisance vegetation;

(D) excavation, dredging or removal of loam, peat, gravel, soil, rock or other material in such manner as to affect the surface;

(E) any activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation or fish, wildlife, and vegetation habitat preservation;

(F) no horse or equine uses, trails or the like shall be permitted on the property.

The grantee reserves all rights as owner of the property, including the right to engage in uses of the property that are not prohibited herein or are not inconsistent with the above listed restrictions. Use of the property by grantee shall be limited to scientific, ecological, or passive recreational purposes which involve foot traffic only, and which are not inconsistent with the restrictions listed above. No vehicles of any kinds, including but not limited to all-terrain vehicles (ATV's) or the like, shall be permitted on the property by the grantee, other than those of the grantee required for its maintenance, restoration and monitoring activities.

Appendix I: Easement Research Memo

Memorandum
from the
Division of County Lands

Date: March 17, 2010

To: Teresa L. Mann, SRWA
Property Acquisition Agent

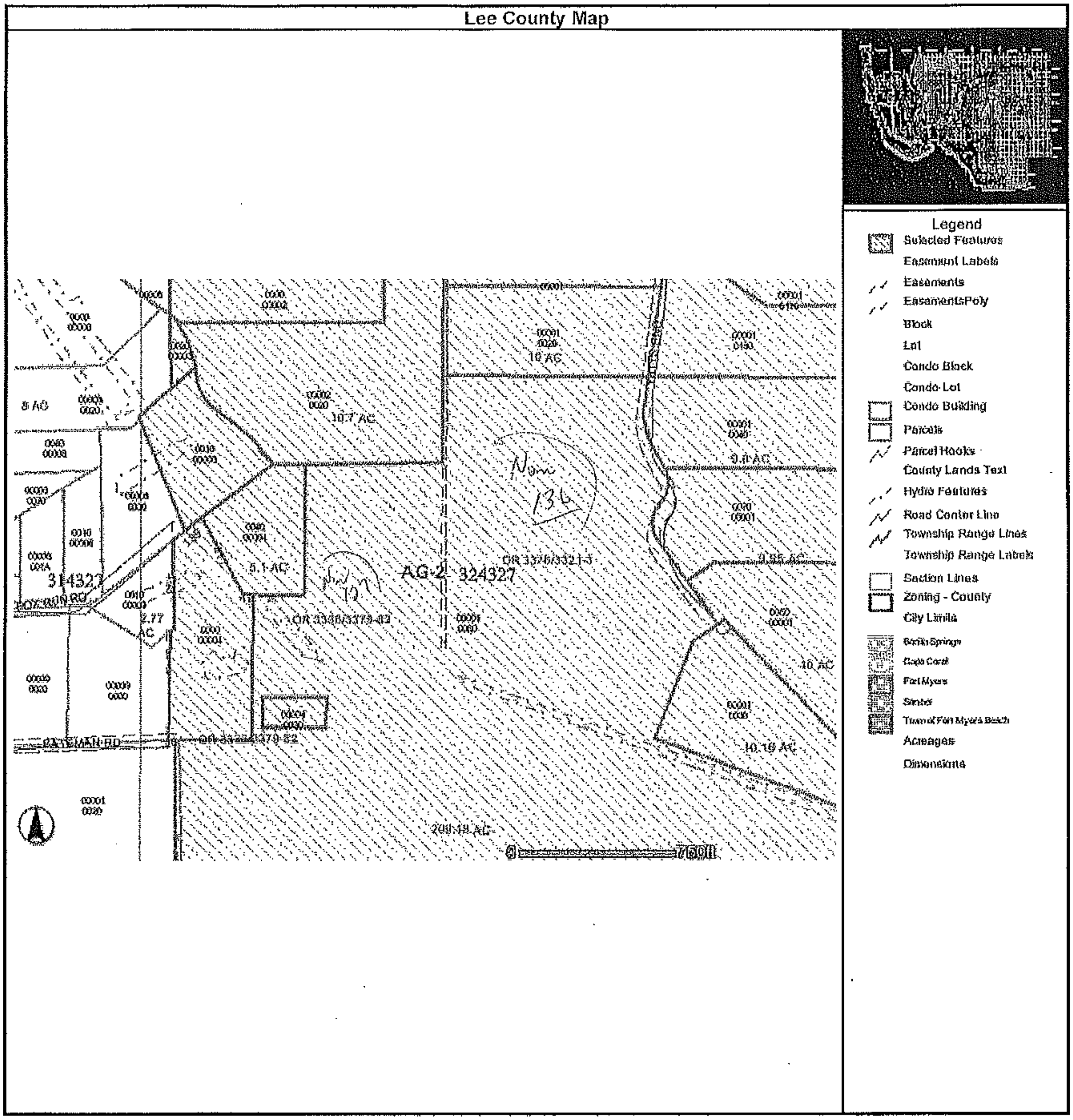
From: Bill Abramovich BA
Real Estate Title Examiner

SUBJECT: County Lands Nomination #57, 127 and 136

Search Request: Nomination 57 – Check for easement along west boundary; Nominations 127 and 136 – check for easement separating these two nominations.

NOTE (1) Nomination 57 – Examinations show no easement of record along west boundary.

NOTE (2): Nominations 127 and 136 – Examinations show an equestrian-pedestrian easement between the parcels, that is partially removed by Declaration recorded in Official Record Book 3327, Page 1274, Public Records of Lee County, Florida (see copy attached).


Lee County Map
Legend
Selected Features
Easement Labels
Easements
EasementsPoly
Block
Lot
Condo Block
Condo Lot
Condo Building
Parcels
Parcel Hooks
County Lands Text
Hydro Features
Road Center Line
Township Range Lines
Township Range Labels
Section Lines
Zoning - County
City Limits
Acreages
Dimensions
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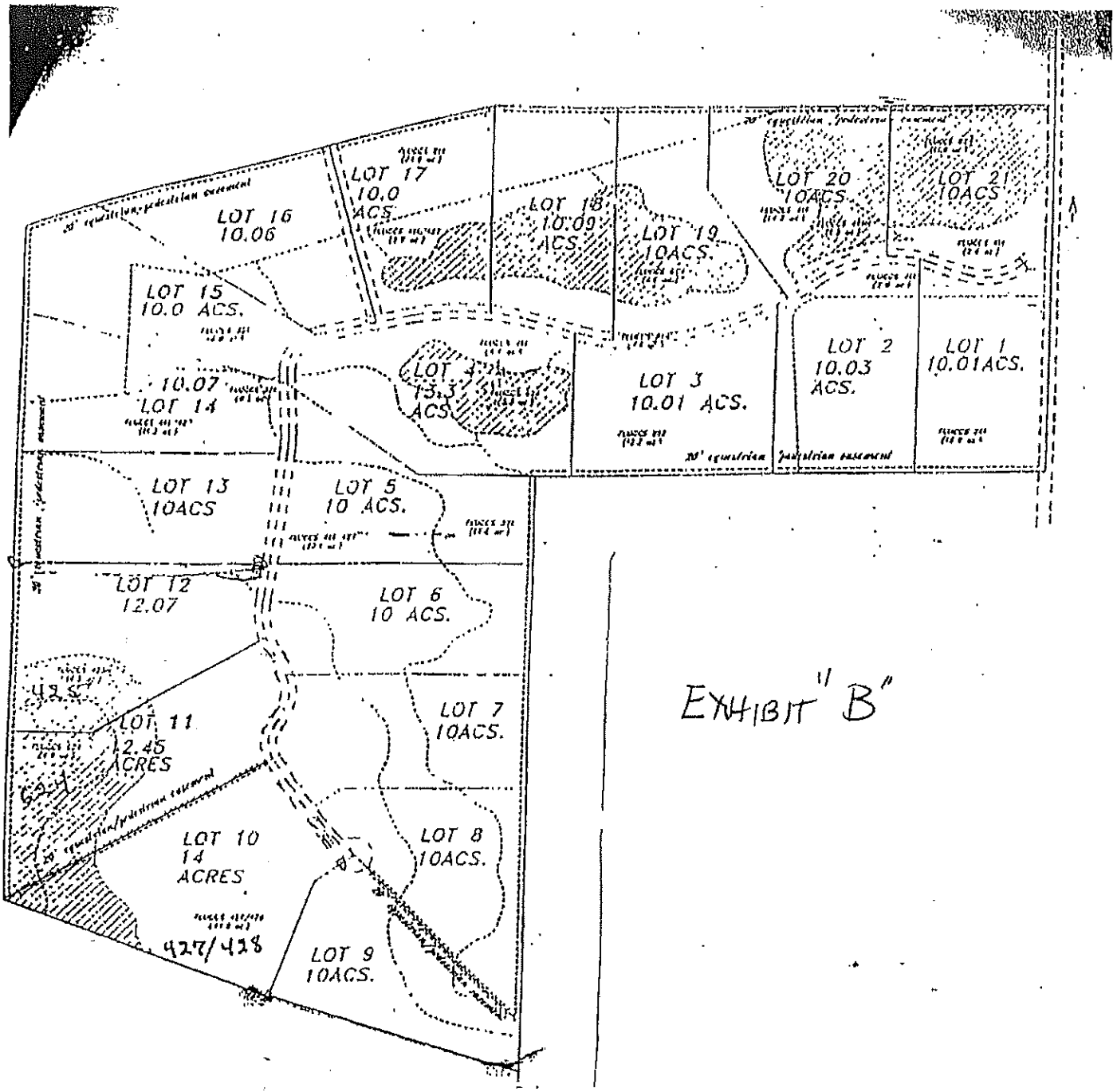
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EXHIBIT "B"

C1.00-R

This Instrument Prepared By:
Thomas E. Mooney, Attorney
1430 Royal Palm Square Blvd.
Suite 105
Fort Myers, Florida 33919

INSTR # 5002751
OR BK 03327 PG 1274
RECORDED 11/14/00 04:15 PM
CHARLIE GREEN CLERK OF COURT
LEE COUNTY
RECORDING FEE 51.00
DEPUTY CLERK C Keller

15X4

DECLARATION EXEMPTING PROPERTY

COMES NOW, **BOB LITTLE** ("Seller"), the owner of certain real property as described on attached Exhibit "A," and would show as follows:

WHEREAS, Lee County, a political subdivision of the State of Florida ("Buyer"), is desirous of purchasing from Seller a certain parcel of land, more particularly described on attached Exhibit "A," which parcel is included in lands comprising an unrecorded subdivision commonly known as "The Oaks of Alva" (see Exhibit "B"), and

WHEREAS, Buyer is purchasing subject property for the purpose of the Lee County Conservation 2020 Lands Program, and wishes to have certain assurances regarding the property, then

THEREFORE, the Seller warrants that the property being purchased shall be exempt from membership in any Homeowners' Association which may be formed in the future, and any fees, assessments, easements or land use restrictions thereof. The agreement of all present owners of lots located within the affected property is evidenced by their joinder on attached Consent forms.

IN WITNESS WHEREOF, the undersigned have placed their hands and seals this 8th day of Nov., 2000.

Witness Signature
NANCY E. RISNER
Witness Printed Name

Barbara M Dodson
Witness Signature
BARBARA M DODSON
Witness Printed Name

SELLER:
Bob Little
Bob Little

STATE OF FLORIDA
COUNTY OF LEE

The foregoing instrument was acknowledged before me this 8 day of Nov., 2000, by Bob Little, who is personally known to me or who provided _____ as identification.

Notary Public

NANCY E. RISNER
MY COMMISSION # CC 956087
EXPIRES: October 6, 2004
Bonded Thru Notary Public Underwriters

EXHIBIT A
1 of 9

SECTION B: EASEMENTS

The equestrian-pedestrian easement shall be removed from parcels 10 and 11 And be relocated to the Northerly line of parcel 12.

SECTION F: HOMEOWNERS ASSOCIATION

For purposes of preserving the sensitive nature of lands purchased by Lee County and included in Conservation 2020 program; Lee County shall be Exempt from participating in or being a member of any future Homeowners Association of OAKS OF ALVA.

Bob B. Little

Witness

Witness

Beverly B. Little

Witness

Witness

EXHIBIT A
2 of 9

SECTION B: EASEMENTS

The equestrian-pedestrian easement shall be removed from parcels 10 and 11 And be relocated to the Northerly line of parcel 12.

SECTION F: HOMEOWNERS ASSOCIATION

For purposes of preserving the sensitive nature of lands purchased by Lee County and included in Conservation 2020 program; Lee County shall be Exempt from participating in or being a member of any future Homeowners Association of OAKS OF ALVA.

George P. Wedeles

Witness

Witness

Jill M. Wedeles

Witness

Witness

EXHIBIT A
3 of 9

SECTION B: EASEMENTS

The equestrian-pedestrian easement shall be removed from parcels 10 and 11 And be relocated to the Northerly line of parcel 12.

SECTION F: HOMEOWNERS ASSOCIATION

For purposes of preserving the sensitive nature of lands purchased by Lee County and included in Conservation 2020 program; Lee County shall be Exempt from participating in or being a member of any future Homeowners Association of OAKS OF ALVA.

Martin A. Call

Witness

Witness

Mary C. Call

Witness

Witness

EXHIBIT A
4089

SECTION B: EASEMENTS

The equestrian-pedestrian easement shall be removed from parcels 10 and 11 And be relocated to the Northerly line of parcel 12.

SECTION F: HOMEOWNERS ASSOCIATION

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Richard P. Theis

Witness

Witness

Annette P. Theis

Witness

Witness

EXHIBIT A
5 of 9

1

SECTION B: EASEMENTS

The equestrian-pedestrian easement shall be removed from parcels 10 and 11 And be relocated to the Northerly line of parcel 12.

SECTION F: HOMEOWNERS ASSOCIATION

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Roger L. Gunder

Witness

Witness

Rebecca M. Gunder

Witness

Witness

EXHIBIT A
6 of 9

SECTION B: EASEMENTS

The equestrian-pedestrian easement shall be removed from parcels 10 and 11 And be relocated to the Northerly line of parcel 12.

SECTION F: HOMEOWNERS ASSOCIATION

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Henry R. Sawyer

Witness

Witness

DeAnne W. Sawyer

Witness

Witness

EXHIBIT A
7 of 9

SECTION B: EASEMENTS

The equestrian-pedestrian easement shall be removed from parcels 10 and 11 And be relocated to the Northerly line of parcel 12.

SECTION F: HOMEOWNERS ASSOCIATION

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Maurice Gibson

Witness

Witness

Joy Gibson

Witness

Witness

EXHIBIT A
8 of 9

SECTION B: EASEMENTS

The equestrian-pedestrian easement shall be removed from parcels 10 and 11 And be relocated to the Northerly line of parcel 12.

SECTION F: HOMEOWNERS ASSOCIATION

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Scott Urquhart

Witness

Witness

Jennifer Lanquell

Witness

Witness

EXHIBIT A
9 of 9

SECTION B: EASEMENTS

The equestrian-pedestrian easement shall be removed from parcels 10 and 11 And be relocated to the Northerly line of parcel 12.

SECTION F: HOMEOWNERS ASSOCIATION

For purposes of preserving the sensitive nature of lands purchased by Lee County and included in Conservation 2020 program; Lee County shall be Exempt from participating in or being a member of any future Homeowners Association of OAKS OF ALVA.

Jim E. Nabors

Witness

Witness

Debra A. Nabors

Witness

Witness

Appendix J: Florida Division of Forestry Pine Thinning Agreement

	Lee County Board Of County Commissioners Agenda Item Summary	Blue Sheet No. 20070545

1. ACTION REQUESTED/PURPOSE: Approve and execute Partnership Agreement between Lee County and Florida Department of Agriculture and Consumer Services, Division of Forestry (DOF) for restoration activities to include thinning of slash pine trees and prescribed burning to improve the quality of wildlife habitat and return Conservation 20/20 preserves to historic conditions.

2. FUNDING SOURCE: No funds required. DEH

3. WHAT ACTION ACCOMPLISHES: Partnership agreement will allow restoration thinning of select pine stands on Conservation 20/20 preserves in accordance with approved Land Stewardship Plans.

4. MANAGEMENT RECOMMENDATION: APPROVE

5. Departmental Category: 11 C11B					**6. Meeting Date:** 04.17.07	
7. Agenda:		**8. Requirement/Purpose:** *(specify)*			**9. Request Initiated:**	
☒	**Consent**	☐	**Statute**		**Commissioner**	
☐	**Administrative**	☐	**Ordinance**		**Department:**	**Parks & Recreation**
☐	**Appeals**	☐	**Admin. Code**		**Division**	
☐	**Public**	☒	**Other**		**By: John Yarbrough, Director of Parks and Recreation**	
☐	**Walk-On**				[signature]	

10. Background: Each Conservation 20/20 preserve has (or will have) a Board of County Commissioners approved Land Stewardship Plan. Site restoration projects, including exotic species removal, wildlife habitat enhancement, pine tree thining etc. are identified within the Land Stewardship Plan. This partnership agreement permits the Division of Forestry to plan, administor and supervise the harvest of pine trees on Conservation 20/20 preserves where it is needed as a part of the site restoration identitifed within the approved Land Stewardship Plan. The Division of Forestry will be paid the greater of (a) 10% of the total sales revenue or (b) the actual cost of sale preparation plus 3% of the total sales revenue for an administration fee. The balance of the revenue raised in this restoration pine sale will be placed into the Conservation 20/20 management fund for exotic plant removal or other restoration projects.

11. Review for Scheduling:

Department Director	Purchasing or Contracts	Human Resources	Other	County Attorney	Budget Services				County Manager/P. W. Director
					Analyst	Risk	Grants	Mgr.	
[signature] 4.3.07				[signature]	DEH 4/4/07	[signature] 4/4/07	[signature] 4/4/07	[signature]	[signature]

12. Commission Action:

___☐___Approved
___☐___Deferred
___☐___Denied
___☐___Other

RECEIVED BY COUNTY ADMIN: [initials]
4/4 9am
COUNTY ADMIN FORWARDED TO: [initials]
4/4 4:30pm

Rec. by CoAtty
Date: 4/3/07
Time: 3:00pm
Forwarded To:
CAD 3:52pm

FDACS CONTRACT #

012320

Partnership Agreement between
Lee County and State of Florida
Department of Agriculture and Consumer Services
Division of Forestry

This Partnership Agreement is made and entered into this _____ day of _____, 2007, between Lee County, a political subdivision and Charter County of the State of Florida, hereinafter referred to as the COUNTY, and the State of Florida Department of Agriculture and Consumer Services, Division of Forestry, hereinafter referred to as the DOF.

WITNESSETH

WHEREAS, certain lands are owned by the COUNTY and managed through the COUNTY's Department of Parks and Recreation through the Conservation 20/20 program (C20/20); and

WHEREAS, certain lands acquired through C20/20 were acquired using funds provided through Florida Forever and grant partnerships with Florida Communities Trust (FCT); and

WHEREAS, these lands acquired through the COUNTY's C20/20 program are to be utilized for conservation and stewardship of the natural resources, outdoor nature based recreation, environmental education and related public purposes; and

WHEREAS, in the land stewardship plan for these lands, provisions are made to provide for maintenance of the sites in a natural state and/or to restore sites to enhance natural resource values; and

WHEREAS, several of these preserves require restoration activities to include thinning of slash pine trees and prescribed burning to improve the quality of wildlife habitat and return these communities to historic conditions; and

WHEREAS, the DOF has the expertise required to perform the services identified under this Agreement and desires to assist the COUNTY in administering logging activities at selected properties for restoration purposes.

NOW, THEREFORE, the parties hereto, for and in consideration of the mutual covenants and agreements contained herein agree as follows:

1. The DOF shall plan, administer, and supervise the harvest of timber on COUNTY lands in accordance with ATTACHMENT A, Scope of Services, attached hereto and made a part hereof.

2. The DOF shall receive revenues from all timber sales it administers on behalf of the COUNTY pursuant to this Agreement. DOF will be paid the greater of: (a) ten percent (10%) of the total sales revenue or (b) the actual cost of sale preparation plus 3% of the total sales revenue for an administrative fee. Funds retained by DOF for sale preparation shall cover the cost of field consultation with COUNTY staff, field reconnaissance to

prepare the sale, necessary timber cruising or marking, purchase of expendable field supplies, and preparation of the sale package. The sale preparation and administrative fee retained by the DOF shall cover the cost of solicitation and receipt of bids, execution of contract, and supervision of the sale while in progress. Once each sale is completed, DOF will subsequently remit to the COUNTY the total sales revenue accrued from these sales, minus DOF's fee for sale preparation and administration. If DOF hires a private contractor to perform any of the above listed activities, DOF will pay the contractor's fee from their share of the revenues.

3. The COUNTY shall complete any road repairs necessary to access and remove timber from the sites above and beyond those road repairs the timber harvest contractor would be responsible for under the timber harvest contract.

4. The COUNTY shall also assist DOF with field administration of timber sales. Such assistance will be mutually agreed upon in advance and include activities such as site visits and truck tallies.

5. It is understood by both parties that the COUNTY lands shall be managed in a manner consistent with the approved County land stewardship plan.

6. The COUNTY's Project Manager is:

Cathy Olson
Conservation 20/20 Senior Supervisor
Department of Parks and Recreation
3410 Palm Beach Boulevard
Fort Myers, Florida 33916
telephone (239) 461-7455

The DOF's Project Manager is:
Butch Mallett
Senior Forester
Florida Division of Forestry
Other State Lands
15019 Broad Street
Brooksville, FL 34601-4201
telephone (352) 797-5755

The DOF's local contact is:
Michael Weston
CFA Senior Forester
Florida Division of Forestry
10941 Palm Beach Boulevard
Fort Myers, Florida
telephone (239) 690-3500 Ext. 118

All project matters shall be directed to the Project Managers for appropriate action or disposition.

7. The COUNTY represents that it has the right to agree to resource management activities necessary to facilitate the sale of forest products on COUNTY lands by the DOF.

8. The COUNTY, or its duly authorized agents, shall have the right to inspect the COUNTY timber project areas and the works and operations thereon of the DOF in any matter pertaining to this Agreement.

9. This Agreement and any rights and privileges contained herein are for the sole use of the DOF and shall not be assigned or transferred to another party without prior written approval of the COUNTY. The DOF shall have the right to enter and occupy COUNTY lands for the purposes necessary to meet its designated responsibilities, including protection of those lands. The DOF's agents and employees shall take all reasonable measures to provide security against damage, degradation and unauthorized uses of the COUNTY lands and natural resources.

10. The DOF shall submit a report at a minimum of twice every calendar year to the COUNTY on items related to its timber management activities on the COUNTY lands during the year.

11. The COUNTY and DOF agree that this Agreement shall confer upon the DOF the right to implement silvicultural treatments necessary to facilitate the sale of timber on the COUNTY lands. The DOF shall investigate any and all claims of injury or damage either for or against the COUNTY or the DOF pertaining to forest resource management activities conducted on the COUNTY lands by the DOF and shall notify the COUNTY regarding the legal action deemed appropriate to remedy such damages or claims.

12. The COUNTY and DOF hereto agree that each party shall be solely responsible for the negligent or wrongful acts of its employees and agents during the course of normal working conditions. However, nothing contained herein shall be construed as an indemnity or constitute a waiver by either party of its sovereign immunity or the provisions of Section

768.28, Florida Statutes, as amended from time to time, or any other law providing limitations on claims.

13. This Agreement shall be effective upon execution by both parties, and shall remain in full force and effect until terminated as provided herein. Either party may terminate this Agreement for cause or convenience by giving sixty (60) days notice in writing to the other party of its intent to do so.

14. Upon such termination invoked by either the DOF or the COUNTY, and upon cessation of timber operations on said COUNTY lands, by the DOF, the DOF agrees to remove any improvements placed or made by the DOF at DOF's sole cost and expense.

15. To the extent required by law, the DOF will be self-insured against, or will secure and maintain during the life of this Agreement, Worker's Compensation Insurance for all of its employees connected with the work of this project. Such self-insurance coverage shall comply fully with the Florida Worker's Compensation law. In case any class of employees engaged in hazardous work under this Agreement is not protected under Worker's Compensation statutes, the DOF shall provide adequate insurance satisfactory to the COUNTY, for the protection of its employees not otherwise protected.

16. The DOF warrants and represents that it is self-funded for liability insurance, appropriate and allowable under Florida law, and that such self-insurance offers protection applicable to the DOF's officers, employees, servants and agents while acting within the scope of their employment with the DOF.

17. This Agreement represents the entire agreement of the parties. Any alterations, variations, changes, modifications, waivers of provisions of this Agreement shall only be valid when they have been reduced to writing, duly signed by each of the parties hereto, and attached to the original of this Agreement, unless otherwise provided herein.

IN WITNESS WHEREOF, the Florida Department of Agriculture and Consumer Services, Division of Forestry, and Lee County Department of Parks and Recreation have caused this Agreement to be duly executed and effective as of the date last written below.

WITNESSES

Christa A. Register

Chandler A. Baker

STATE OF FLORIDA
DEPARTMENT OF AGRICULTURE AND
CONSUMER SERVICES,
CHARLES BRONSON, COMMISSIONER

BY: Mike Gresham
MIKE GRESHAM, DIRECTOR
DIVISION OF ADMINISTRATION

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 8th day of March, 2007, by Mike Gresham, as Director, Division of Administration, Department of Agriculture and Consumer Services, who is personally known to me and who did take an oath.

Karen A. Meyer
Commission # DD346679
Expires October 20, 2008
Bonded Troy Fain - Insurance, Inc 800-385-7019

Karen A. Meyer
Notary Public
My Commission Expires: 10/20/2008

WITNESSES

_____

_____

LEE COUNTY, FLORIDA
BOARD OF COUNTY COMMISSIONERS

BY: _____
BOB JANES, CHAIR

AS APPROVED BY THE BOARD ON

_____

ATTACHMENT A
Scope of Services

Lee County is desirous of managing timber on selected Conservation 20/20 lands for the purposes of maintenance or restoration. These lands include flatwoods ecosystems, as well as disturbed community types. The goal of restoration is to return these communities to historic conditions, and to improve the quality of wildlife habitat.

Within the restoration areas, slash pine trees will be thinned to a density appropriate for the management goals of the timber unit. Typically, healthy, dominant slash pine trees will remain as a seed source for pine regeneration.

The DOF agrees to perform the tasks stated below.

The identified tasks are as follows:

1. Provide assistance to COUNTY staff in marking the timber that is to be removed for restoration purposes. In natural stands, the leave trees shall consist of healthy, mature slash pine. Where surrounding stands do not provide large den trees,, leave the old flat-topped slash pines, large overtopped slash, (>10 in. d.b.h.) and any cat-faced pines within the sale areas. Pines will be selectively removed to allow enough room in between clusters of trees for future roller chopping or other brush reduction activities. Timber harvesting, combined with brush reduction and a prescribed burning program, will be the quickest way to increase biodiversity and return these stands to a more historical condition.

2. Any environmentally sensitive areas, such as wetlands, that are encountered while marking the timber must be recorded and documented. Do not mark any timber in such areas that could potentially damage or destroy the area. Areas of concern include, but are not limited to, seasonal ponds, cypress strands, wet prairies, archaeological sites, cultural sites, and threatened or endangered plant or animal habitations (e.g. inactive or active bald eagle nest trees, fox squirrel nests, gopher tortoise burrows). A 30-50 foot buffer zone may be marked around these sensitive wetland habitats and will be marked around cultural, archaeological and listed species habitats that the equipment must stay out of. In addition, tree thinning activities will only take place during the dry season. In areas where saw palmetto is the dominant ground cover, timber harvesting skid trails will be scattered over the general harvest area to disperse the impacts to a broader area of saw palmetto. Slash piles will be spread in piles no higher than 18" or near remaining trees. No slash will be left on roads or trails after work is completed. Remaining tree stumps shall be no higher than 8". All timber sales operations must be conducted in accordance with the most current Florida Silviculture Best Management Practices Manual.

3. The DOF agrees at a minimum to assist and administer the needed timber sales within the COUNTY during the term of this Agreement. These sales would include reducing merchantable pine basal area.

4. The DOF will prepare timber sale packages, mail the packages to prospective bidders, and be responsible for overseeing the harvesting operations. Timber revenues will be receipted by the DOF and revenues (less the 10% administrative fee) returned to the COUNTY at the end of each sale. In the event the actual cost of the sale preparation plus 3% of the total sales revenue exceeds 10% of timber sale revenues, the County will pay the actual cost of the sale preparation plus 3% of the total sales revenue.

5. The DOF will obtain COUNTY approval prior to initiating any timber sale. This will include COUNTY approval of the entire timber sale bid package, including the timber sale agreement, prior to mailing to prospective bidders.

6. The DOF agrees that all applicable Federal, State and COUNTY laws and regulations will be adhered to. The County regulations include but are not limited to:

    a. Management of the lands shall be for conservation of the natural resources and to provide environmental education and passive recreation opportunities. Damage to non-harvested trees shall be limited as much as possible. Root systems of leave trees are to be impacted as little as possible. Only double marked trees may be removed, leaving the lowest mark on the tree for verification, unless for a particular sale, a decision is made to double mark the leave trees.
    b. Logging slash will be spread around the site. All ramps and loading decks shall be re-graded to natural soil level.
    c. No off-road motorized vehicles are allowed, except for authorized land management activities.
    d. No hunting is allowed.
    e. No collecting of plants or animals (dead or alive), for any purposes is allowed, except by special permit or agreement issued by the Lee County Parks and Recreation staff.
    f. No pets are allowed.
    g. No illegal activities are allowed.
    h. No trash from the contractor or DOF personnel shall be left on site at the end of each work day.
    i. A hydraulic spill containment kit shall be on-site during all harvesting work and be used for all hydraulic fluid spills.

Healthy flatwoods communities are characterized by open, uneven-aged pine stands that allow a considerable amount of sunlight to reach the forest floor. Ground cover consists of a diverse mixture of grasses, herbaceous plants and dried pine needles that foster frequent lightning season fires. Saw palmettos are scattered and low growing. Unfortunately, some of the pine flatwoods stands in Lee County Preserves have become overgrown due to years of fire suppression and previous land use practices. Some of the stands are very dense and filled with thick, skinny pines with few other plants, beyond some weedy and exotic species (Figure A). Other flatwoods stands have larger pines, surrounded by extremely high; thick palmetto bushes (Figure B).

Ecological benefits of thinning pine trees

- Many wildlife species benefit from healthy flatwoods for the diversity of plants, and open midstory to watch for predators. This includes listed species such as gopher tortoises, eastern indigo snakes, Sherman's and Big Cypress fox squirrels and red-cockaded woodpeckers.
- Remove weak and diseased trees before the health problem spreads throughout the stand.
- Create openings which allow new seedlings to get established to ensure an uneven aged stand of trees. Slash pines typically only live 100 years, and so it is important to have young trees growing up to replace the old ones.
- Control the midstory growth of palmettos and other shrubs to allow young pines to grow.
- Reduce heavy fuel loads for prescribed burning and to prevent catastrophic wildfires.
- Provide room for fuel reduction through mowing, roller chopping, etc where prescribed burning is not feasible (small urban sites).
- Diminish the possibility of crown fire, which have a high risk of spotting over into adjacent areas, during a wildfire or prescribed fire. Crown fires also typically kill the pine trees, leaving an enormous amount of potentially dangerous snags (Figure C).
- Promote rare plant species such as beautiful paw paw and Simpson's zephyrlily that only grow in open flatwoods with periodic fires.
- Prevent significant forest die offs from pine beetles and other insects that attack trees that are stressed, such as those growing in dense pine stands.
- Allow staff to reduce fuels in urban-interface areas where the risk of high-intensity wildfires that could endanger people and property.
- Improve the habitat for future Lee County gopher tortoise relocation needs.

In each stand, Land Stewardship staff has calculated the Basal Area (BA). This measurement is calculated by using a prism that measures both the number of trees and their diameter, per acre, in a stand. Ideal flatwoods conditions are between 40-60 square feet of BA, which provides enough needles to carry a fire and enough sunlight for native grasses and other plants to thrive. Then with the assistance of Division of

Forestry staff, trees are carefully selected to achieve the goal of creating a healthy pine flatwoods community (Figures D & E).

Figure A: Pop Ash Creek Preserve

Figure B: Gator Hole Preserve

Figure C: Snags from a wildfire in an overly thick pine forest (not in Lee County)

Figure D: Gator Hole Preserve

Figure E: Charlotte Harbor Buffer Preserve

Appendix K: Expended and Projected Costs and Funding Sources

Appendix I: Expended and Projected Costs and Funding Sources

EXPENDED

Resource Enhancement and Protection

Item	Funding Source	Costs
Exotic Plant Control	C20/20	$8,904.61
	DEP-BIPM	$92,565.00
	Timber Harvest	$25,520.89
	WHIP	$150.00
Fireline Installation	WHIP	$420.08
	C20/20	$27,152.00
Fuel Reduction	C20/20	$1,020.00
Prescribed Fire Regime	WHIP	$685.08
total		**$156,417.66**

Overall Protection

Item	Funding Source	Costs
Fence Installation	C20/20	$72,140.00
Cow Well Installation	C20/20	$751.21
Survey Parcel 57	C20/20	$1,500.00
Boundary Signs	C20/20	$1,120.00
General Maintenance Supplies	C20/20	$65.12
total		**$75,576.33**

TOTAL COST TO DATE **$231,993.99**

PROJECTED

Resource Enhancement and Protection

Item	Possible Funding Sources	Other	WHIP Contract
Mechanical Tree & Brush Reduction	C20/20, WHIP, Future Mitigation	$109,200.00	$4,208.00
Initial Exotic Plant Control	C20/20, WHIP, DEP-BIPM, Future Mitigation	$372,000.00	$4,650.00
Tree/Shrub Plantings	WHIP, Future Mitigation	$26,069.00	$1,995.00
Hydrologic and Spoil Restoration	C20/20, SFWMD, USFWS	unknown	unknown
total		**$507,269.00**	**$10,853.00**

Overall Protection

Item	Possible Funding Sources		WHIP Contract
Fence Installation	C20/20	$8,800.00	
Survey Parcels 127 & 136	C20/20	$5,600.00	
total		**$14,400.00**	**$0.00**

Total Cost Estimate **$521,669.00** **$10,853.00**

GRAND TOTAL **$532,522.00**

Site Management and Maintenance

Item	Possible Funding Sources		WHIP Contract
Exotic Plant Control	C20/20, DEP-BIPM	$19,500.00	
Prescribed Fire Regime	C20/20, FDOF, LCPR	in house	$2,594.23
Fireline & Management Trail Maintenance	C20/20	in house	
Fence Repairs	C20/20	$2,500.00	
total		**$22,000.00**	**$2,594.23**

GRAND MAINTENANCE TOTAL **$24,594.23**