Yellow Fever Creek Preserve

Land Management Plan

2691 Del Prado Boulevard
Cape Coral, Florida 33909

Second Edition

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

Approved by the Lee County Board of County Commissioners:
May 17, 2016

Acknowledgements

We would like to thank the following for their assistance in the development of this document: The Conservation 20/20 Land Acquisition and Stewardship Advisory Committee, Cathy Olson, and other Lee County staff for carefully reviewing the Yellow Fever Creek Preserve Land Management Plan. Also, we thank the Bird Patrol members who have helped and continue to help with our wildlife list for this Preserve.

Jeff Anderson
Laura Greeno

Table of Contents

List of Exhibits

List of Acronyms

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

Vision Statement

It is the vision of the Lee County Parks and Recreation Department, the Conservation 20/20 Program (in partnership with Lee County's Natural Resources Division and the City of Cape Coral) to conserve, protect, and restore Yellow Fever Creek Preserve to a productive, functional, and viable ecosystem.

I. EXECUTIVE SUMMARY

Yellow Fever Creek Preserve (YFCP) is located in northern Lee County within Sections 20, 28, 29 and 30 of Township 43 South, Range 24 East, within both the City of Cape Coral and unincorporated Lee County. The Preserve consists of STRAPs 29-43-24-C100001.0000 and 28-43-24-0000001.0010. The main trailhead entrance is located on the southwestern end of the preserve.

YFCP was purchased through Lee County's Conservation 20/20 Program (C20/20). C20/20 was established in 1996 after Lee County voters approved a referendum that increased property taxes by up to .5 mil for the purpose of purchasing and protecting environmentally sensitive lands. Nomination 138, totaling 221 acres was purchased on May 4, 2001 for $565,000 and Nomination 156, totaling 118 acres was purchased on August 10, 2001 for $2,758,506.74.

The Preserve is bordered on the west by Del Prado Boulevard, on the south by single family residences and undeveloped land to the east. A Lee County Elecric Coop transmission line easement is also present along the south and east boundaries. The City of Cape Coral's "future park" land is directly north of parcel 156 and a residential development is being constructed to the north of 138.

The natural elevations range from 18 feet above sea level along the northern boundary and slope in a general southerly direction to 15 feet above sea level.

There are ten different soil types found at the Preserve. All of the soils within the Preserve are described as nearly level and poorly drained, have severe limitations for urban uses because of the high water table and all are categorized as subject to sheet-flow or ponding.

YFCP is within both the North central Cape Coral and Yellow Fever Creek subbasin of the South Florida Water Management District's Lower West Coast Region. Lee County's Natural Resources Division defines different boundaries for their watersheds. The Preserve lies within the County's Yellow Fever Creek and City of Cape Coral Canal watersheds. The Gator Slough watershed lies directly north of the preserve boundary.

Hydrological alterations have been made on and directly adjacent to YFCP that affect the natural sheet flow across the lands. The headwaters of Yellow Fever Creek were truncated due to development and may be restored. Residential development, roads and off-site canals have drastically altered the amount and timing of water entering the Preserve.

YFCP contains a combination of wetland and upland communities that serve as important habitat for a variety of birds, mammals, reptiles and amphibians. The Preserve consists of 17 natural or altered plant communities described by the

Florida Natural Areas Inventory (FNAI). While wet and mesic flatwoods are the most common plant communities, approximately 44% of the Preserve has been categorized as disturbed communities, primarily due to lack of fire or hydrologic changes. Nearly 54% of YFCP is classified as wetlands. The Preserve is home to 27 species which are state and/or federally listed and is thus important conservation land.

Land use history for YFCP is similar to much of the land in Lee County. Very few alternations were made on what is now the preserve, but drastic alterations occurred on adjacent property, primarily due to the land clearing and canal digging for what is now the City of Cape Coral.

The goal of this land management plan is to identify Preserve resources, develop strategies to protect the resources and implement restoration activities to continue to restore YFCP to a productive, functional and viable ecosystem while protecting listed species and ensuring that the Preserve will be managed in accordance with Lee County Parks and Recreation's Land Stewardship Operations Manual. This ten year update to the original Land Stewardship Plan is in keeping with the original conservation goals.

Restoration and management activities at YFCP will focus on controlling invasive exotic plant and animal species, protecting listed species, managing pine density, intitiating and continuing burn regimes for all management units, enhancing wildlife habitat and removing debris. 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. Any future land acquisitions to the Preserve will be managed similarly to this land management plan. This plan will be revised in ten years (2025).

II. INTRODUCTION

YFCP was purchased through Lee County's Conservation 20/20 Program (C20/20). C20/20 was established in 1996 after Lee County voters approved a referendum that increased property taxes by up to .5 mil for the purpose of purchasing and protecting environmentally sensitive lands. Nomination 156, totaling 221 acres was purchased on May 4, 2001 for $565,000 and Nomination 138, totaling 118 acres was purchased on August 10, 2001 for $2,758,506.74.

The Preserve's native plant communities consist of a mosaic of wet and mesic pine flatwoods intermixed with wetlands and utility corridors. Nearly 54% of YFCP is classified as wetlands. This mosaic serves as important habitat for a variety of wildlife. YFCP has a very high diversity of bird species. The list contains several state/federally listed species including: roseate spoonbills

(*Platalea ajaja),* wood storks (*Mycteria americana*), and Sherman's fox squirrel (*Sciurus niger shermani*).

Land use history for YFCP is similar to much of the land in Lee County. Very few alternations were made on what is now the preserve, but drastic alterations occurred on adjacent property, primarily due to the land clearing and canal digging for what is now the City of Cape Coral.

Many changes have taken place on YFCP since completion of the first management plan. A public access with a pedestrian walk through and informational kiosk, marked designated hiking trails with resting benches were also installed. Staff and volunteers and the Girl Scouts have hand removed many miles of interior barbed wire fence on multiple workdays. Perimeter boundary fence and perimeter and management unit firelines have been installed. Fuel reduction was completed by mowing the overgrown upland vegetation behind the homes on the south boundary to reduce the wildfire hazard. Melaleuca logging and pine tree thinning was conducted across the entire preserve. After the melaleuca removal, invasive exotic plant treatments were completed. Multiple sweeps for invasive exotic plants have since been conducted. During the next ten years this edition of the management plan covers, rollerchopping and prescribed burning will be conducted and hydrologic improvements including improvements to Yellow Fever Creek by Lee County's Natural Resources Division, and riparian enhancements to the pond at the southwest corner of the preserve.

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

III. LOCATION AND SITE DESCRIPTION

Yellow Fever Creek Preserve (YFCP) is located in northern Lee County within Sections 20, 28, 29 and 30 of Township 43 South, Range 24 East, within both the City of Cape Coral and unincorporated Lee County. YFCP is bordered by Del Prado Blvd on the west and north sides. On the south and east sides the property borders an LCEC transmission easement and single family residential communities. The eastern parcel is east of and contiguous to the proposed northern extension of NE 24th Ave. A housing community is currently under development to the east of the preserve along Del Prado Blvd. Most surrounding lands are proposed for intensive urban development.

The Preserve consists of STRAPs 30-43-24-C200004.0020 and 28-43-24-0000001.0010.

The Preserve is approximately 340 acres in size and contains 18 plant communities. Dominant areas are mesic and wet flatwoods and freshwater marshes. Approximately 16% of the plant communities are designated as "disturbed," typically due to land clearing activities, lack of fire, invasive exotic plant infestations and/or changes in the natural drainage patterns. Figure 1 shows YFCP's location in Lee County while Figure 2 shows the current boundary of YFCP in a 2015 aerial photograph.

Figure 1: Location Map

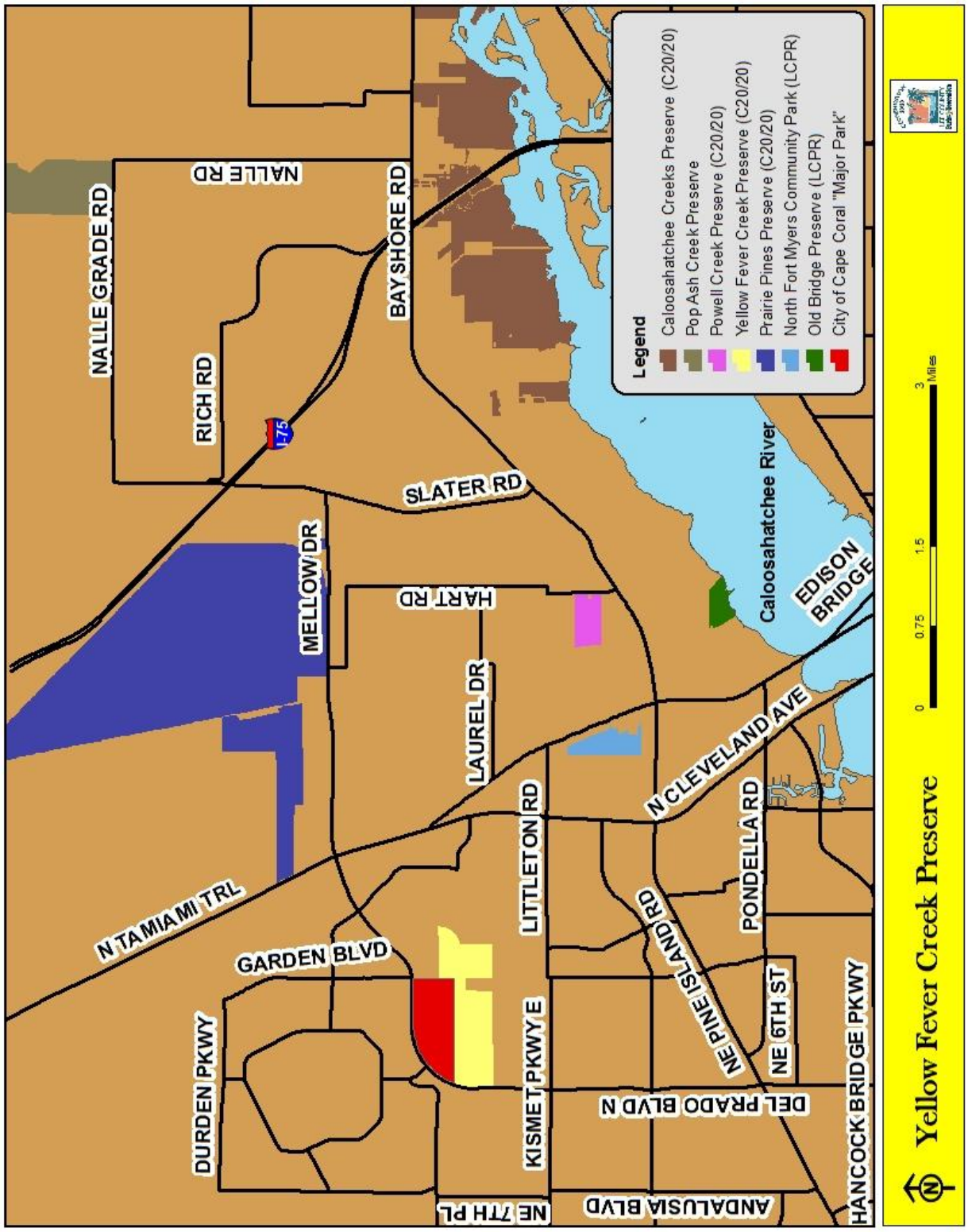
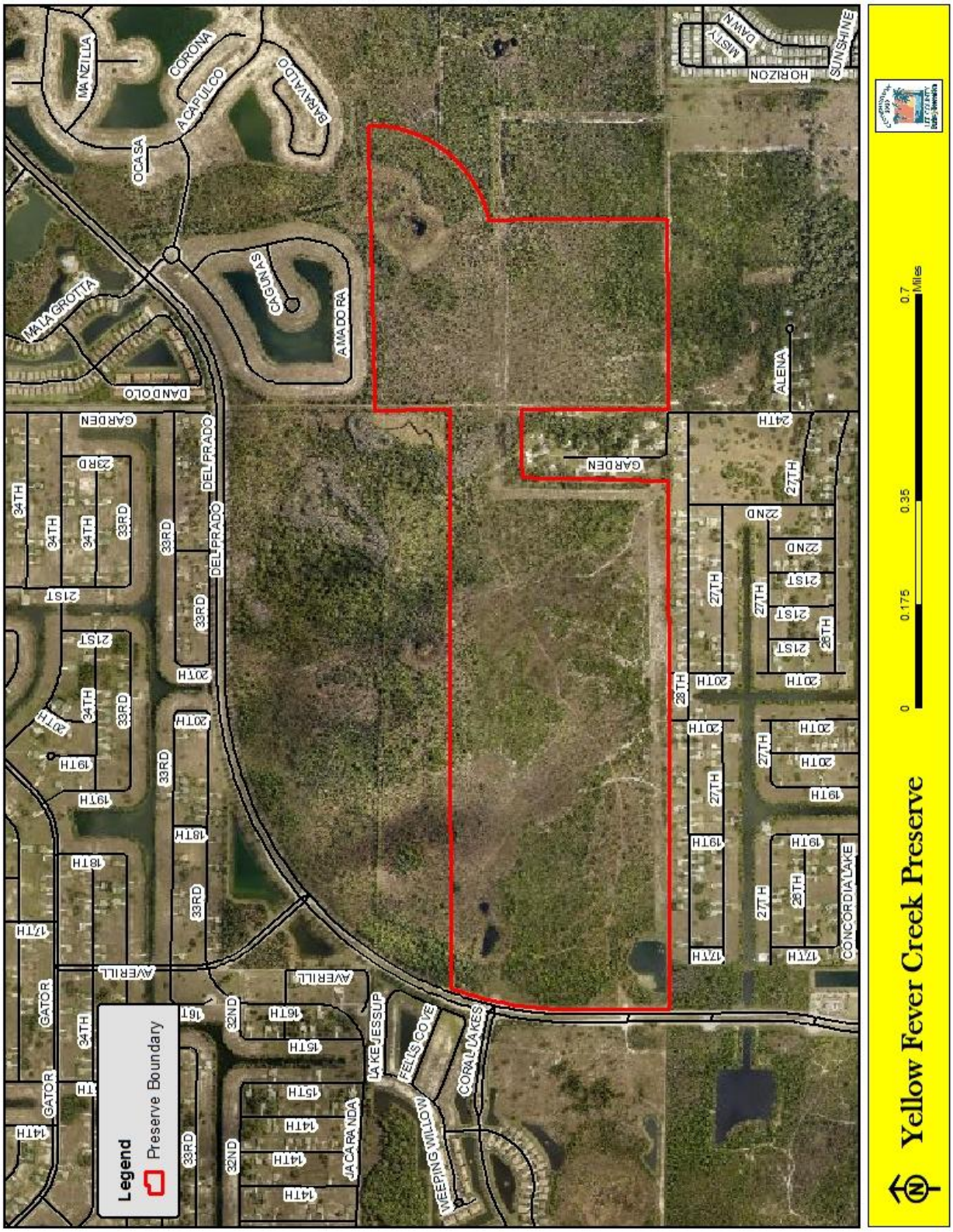


Figure 2: 2015 Aerial



IV. NATURAL RESOURCES DESCRIPTION

A. Physical Resources

i. Climate

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

ii. Geology

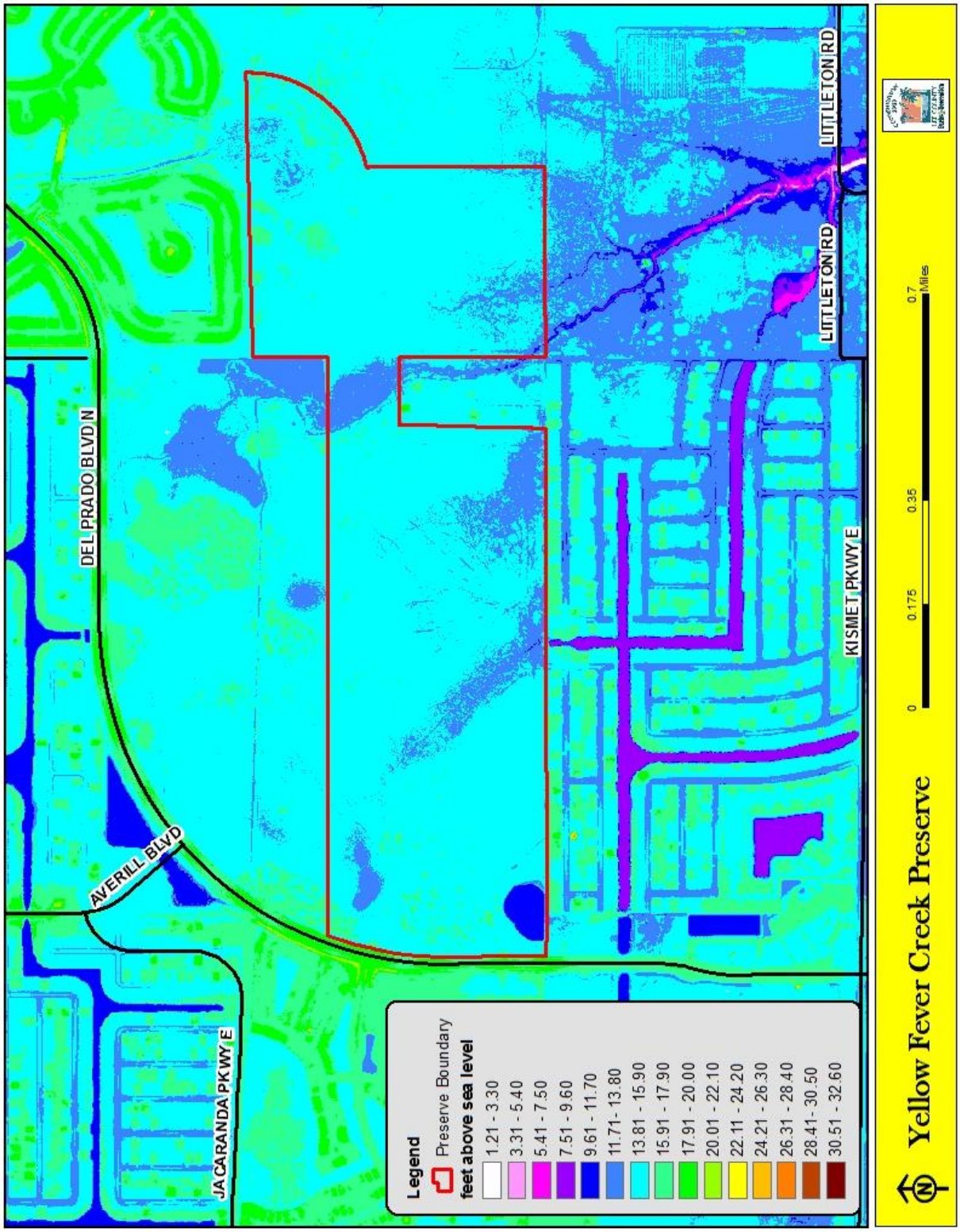
Specific information on the geologic features such as physiographic regions, formations and maps can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

iii. Topography

Natural elevations at YFCP range from 15 to 18 feet above sea level. The general slope of the Preserve is from the north to the south and south east with man-made features (borrow pond, ditch, berm) and Yellow Fever Creek comprising the lower and higher extremes in elevations.

The following topographic map (Figure 3) uses light detecting and ranging (LiDAR) data, which is an optical remote sensing technology that measures properties of scattered light to find range and/or other information of a distant target. These data were collected in 2007 and represent the published 5 foot digital elevation model. The change in color gradient visually demonstrates the change in elevation from the higher north end of the Preserve to lower elevations in the southern end.

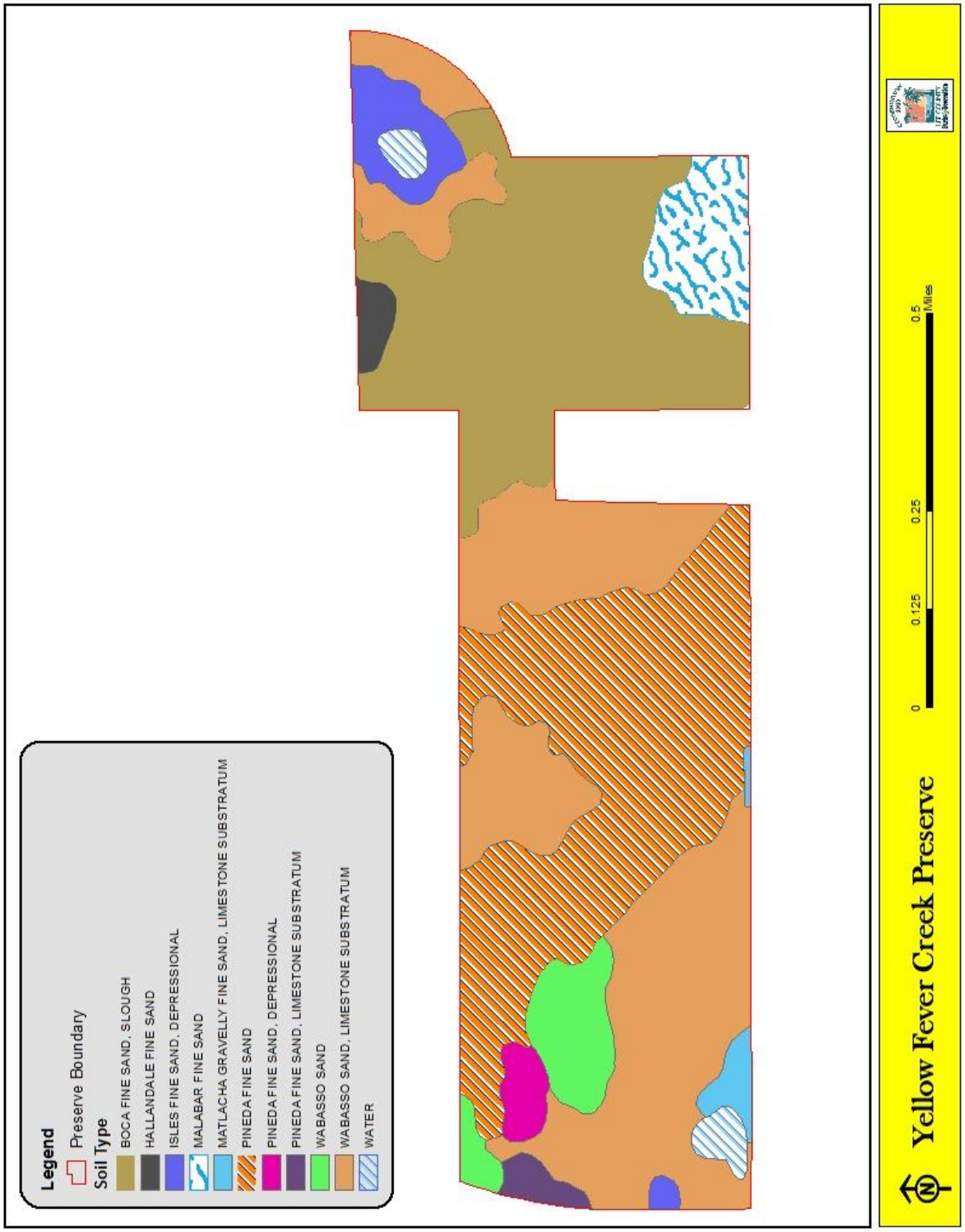
Figure 3: LiDAR Map



iv. Soils

YFCP contains a total of ten different soils (Appendix A and Figure 4). The majority of the soils are described as nearly level and poorly drained, have severe limitations for urban uses because of the high water table and sheet-flow inundation and all but one soil type (Hallendale Fine Sand) are categorized with moderate to rapid permeability in the surface and subsurface levels. Soils play an important role in dictating the location and types of recreation that the Preserve can provide. Refer to the LSOM's Land Stewardship Plan Development and Supplemental Information section for additional information on soil types and limitation.

Figure 4: Soils Map



v. Hydrologic Components and Watershed

YFCP is within both the Northcentral Cape Coral and Yellow Fever Creek subbasin of the South Florida Water Management District's (SFWMD) Lower West Coast Region (Figure 5). Lee County's Natural Resources Division (LCNRD) defines different boundaries for their watersheds. The Preserve lies within the County's Yellow Fever Creek and City of Cape Coral Canal watersheds (Figure 5). The Gator Slough watershed lies directly north of the preserve boundary.

The preserve is bounded by Del Prado Boulevard to the west, residential lots to the south, vacant land to the east and parkland and residential development to the north. The flow of water off the property has been restricted by adjacent development. The outfalls from the site have been reduced to one crossing under NE 28th Street and the Yellow Fever Creek. YFCP experiences significant sheetflow of rainwater during the rainy season and storm events.

YFCP has a borrow lake/artificial pond in the southwest corner. This was once an herbaceous wetland, excavated between 1966 and 1970. A basin marsh is located in the northeastern portion of the Preserve and a depression marsh is located in the northwest corner. The easternmost part of parcel 156 contains a basin swamp and a remnant ditch adjacent to Yellow Fever Creek. Yellow Fever Creek is orientated north to south, passing onto private property before it again enters the Preserve on the southwest corner of parcel 138. The creek flows during rainy season and storm events only. The headwaters of Yellow Fever Creek have been truncated by development, which has greatly altered the hydroperiod. See the Natural Plant Communities section for more information on the characteristics of these wetlands.

According to aerials dating from 1953 a smaller north-south ditch was located in the western edge of the Preserve. It begins near Del Prado Boulevard near the northwest corner and heads south towards the borrow lake and hooks around the west side of it, and then dead ends. This ditch originated from farming activities dating as far back as 1953. During field work for this plan, staff had difficulty finding any remnants of the ditch.

In 1974 the United States Fish and Wildlife Service (USFWS) directed its Office of Biological Services to conduct an inventory of the nation's wetlands. Wetlands were identified on aerial 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). More information about the different classifications can be found there, or in the LSOM's Land Stewardship Plan Development and Supplemental Information section. The majority of YFCP was mapped as wetland.

Lee County NRD proposed a Gator Slough- Yellow Fever Creek Interconnect project to rehydrate the remaining headwaters of Yellow Fever Creek and reduce freshwater flows toward Matlacha Pass. The construction of the Gator Slough Canal was identified as adversely affecting the timing and volumes of stormwater flows to Matlacha Pass. This project would have created a controlled interconnect between Gator Slough to the north and Yellow Fever Creek. The City of Cape Coral determined it would not be able to allow for the transfer of water from its canal system to the north so the project was placed on hold. Lee County NRD staff hopes this project will be readdressed in the future.

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

The Caloosahatchee Estuary was identified by DEP as impaired by nutrients and a basin management action plan (BMAP) was implemented to reduce total maximum discharge limits for total nitrogen in 2009. The purchase and conversion to conservation lands of Yellow Fever Creek Preserve was calculated to reduce 32 LBS/YR of TN from the Caloosahatchee Estuary.

Figure 5: Watershed Map

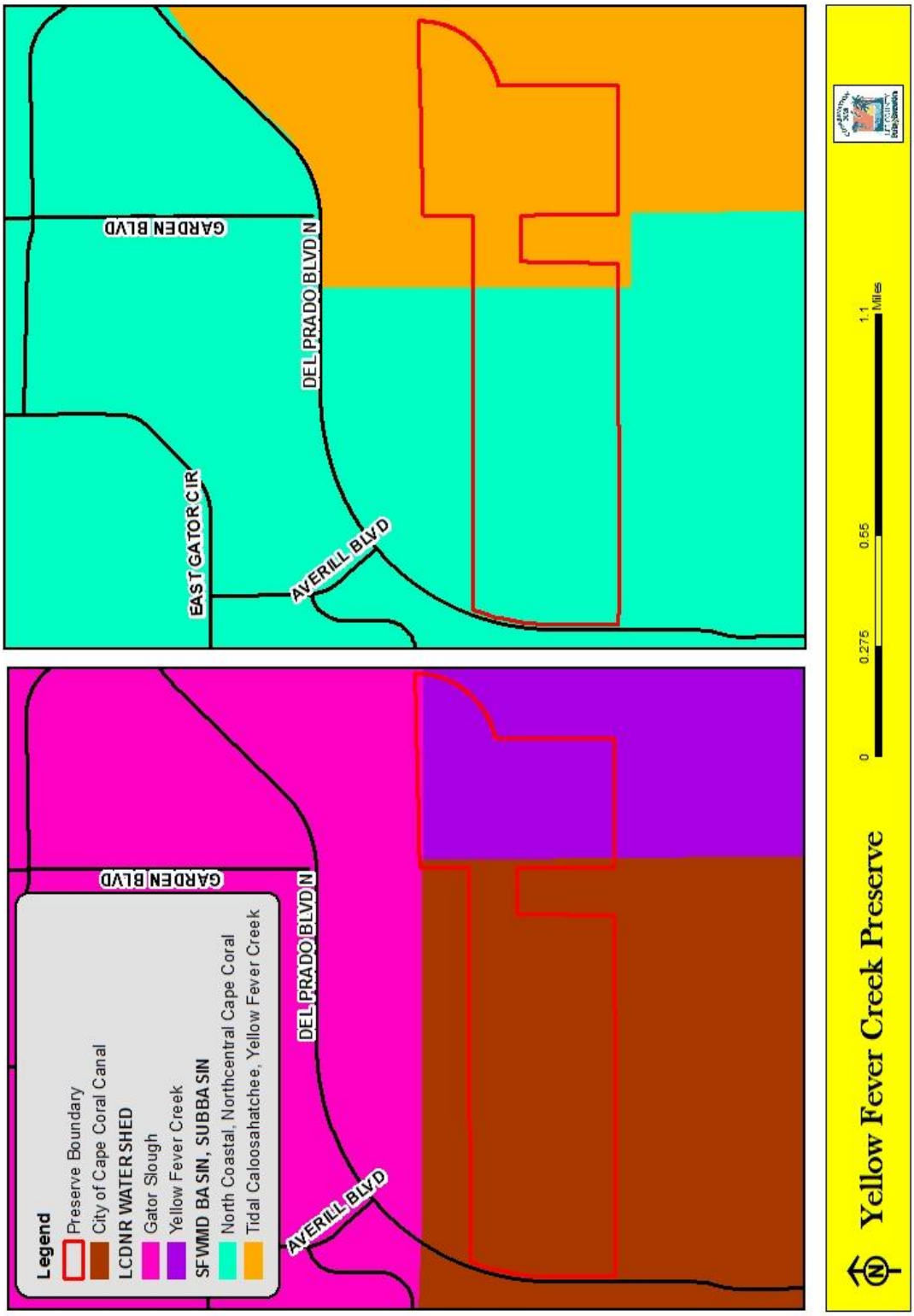
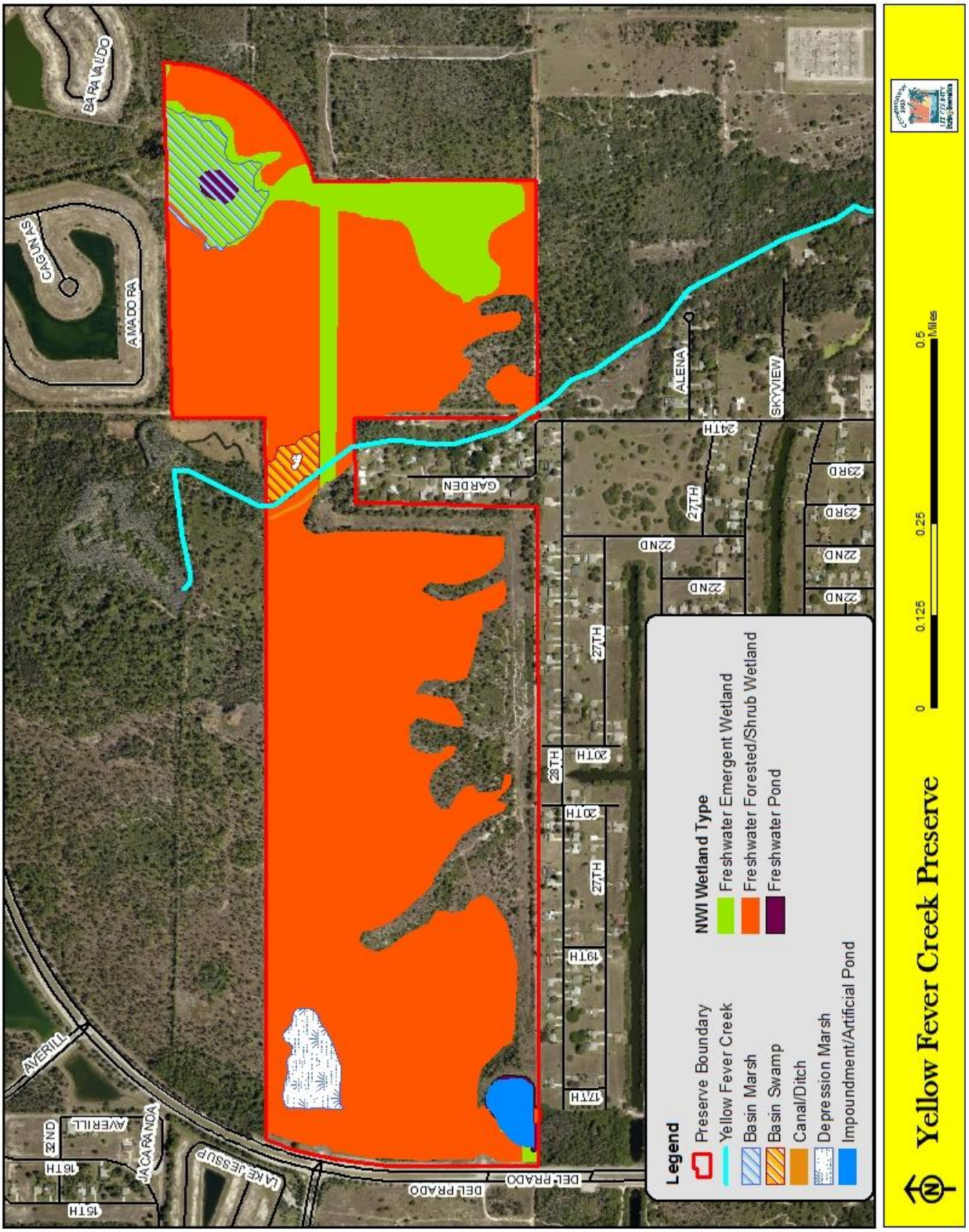


Figure 6: Hydrologic Features Map



B. Biological Resources

i. Ecosystem Function

Lee County's preserves contain a diversity of plant communities that provide habitat for numerous plant and animal species. The majority of the preserves are not islands of habitat, but are pieces of a larger conservation effort striving to create or maintain a healthy and viable ecosystem. For example, YFCP is adjacent to the City of Cape Coral's Major Park to the north of the preserve.

Pine flatwoods provide essential cover and forage material for a variety of birds, small mammals, reptiles and amphibians and some large mammals including gopher tortoise (*Gopherus polyphemus*), eastern indigo snake (*Drymarchon coraiscouperi*) and Florida black bear (*Ursus americanus floridanus*). Birds find shelter in the palmetto understory, nest in the tall pines and forage in the grasses. Oak toads (*Anaxyrus quercicus*) will dig burrows in the sandy soil and hunt for spiders and insects. There are a number of rare wildlife species that primarily occur in the flatwoods, as well as numerous rare plants, including some endemic species. During the wet season, these communities provide dry refuge for non-aquatic animals. During a severe flood, the flatwoods serve as a water storage area to help protect adjacent land from flooding (Tiner 1998). Hydric pine flatwoods function seasonally as both a wetland and upland. This hydrologic transformation allows for an abundant diversity of flora, which in turn, supports a wide range of wildlife (USFWS 1999).

Fire is an important natural component 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 species (Myers and Ewel 1990). 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 biodiversity and coverage of native grasses and wildflowers that gopher tortoises, quail and many other species depend upon. Mechanical reduction of vegetation is also important for converting overgrown abandoned agricultural fields to more natural and dynamic plant communities.

There are numerous isolated herbaceous wetlands scattered throughout the Preserve. The freshwater wetlands of south Florida are important to a variety of

wildlife and people. Birds feed, fish and frogs live and breed, and people rely on these marshes to improve water quality and recharge the aquifers. Seasonal changes profoundly affect the hydrological conditions of preserves. During the late spring and summer months, the rain begins to fall and the wetlands fill to capacity. Fish populations begin to increase both in number and biomass. In the fall when the rains end, the water recedes and the fish are concentrated in the shallow marshes. The wading birds then come in to feast which in turn aids the remaining fish by decreasing the density and increasing the availability of dissolved oxygen. Most wildlife utilizing these communities have adapted by migrating from one wetland to another as the shallow ones dry up.

The depression marshes are also important to some species of wading birds for their nesting success. For example, the white ibis (*Eudocimus albus)* chooses nesting sites near marshes that have appropriate drying conditions. Some herons and wood storks need specific falling water conditions over a prolonged four-month nesting season. The faster the marsh dries, the sooner nesting starts. If the water level rises, then nesting success declines (Myers and Ewel 1990).

This drying period is not only important to the fauna but also to the flora. Plants in these areas also benefit from the seasonal wet/dry flux. The plants in these wetlands become completely dry, die, decay and release nutrients that are bound in their tissues. This makes the soils highly productive for the next wet season. Typically, these plants have low nutrient requirements so they stockpile the excess, which is beneficial to herbivores feeding upon them. Most aquatic plants cannot germinate under water and require a drying phase.

ii. Natural Plant Communities

YFCP contains a combination of wetland and upland communities that serve as important habitat for a variety of birds, mammals, reptiles and amphibians. The Preserve consists of 17 natural or altered plant communities described by the Florida Natural Areas Inventory (FNAI). While wet and mesic flatwoods are the most common plant communities; approximately 44% of the Preserve has been categorized as disturbed communities, primarily due to lack of fire or hydrologic changes. Nearly 54% of YFCP is classified as wetlands. Figure 7 shows the location of the plant communities found at YFCP. The plant communities are defined using the Guide to the Natural Communities of Florida (2010) prepared by FNAI.

Acreages and percent of cover for each community are listed below. Descriptions of the plant communities and characteristic animals found within each community, as well as management suggestions can be found in the LSOM. The percent cover is slightly under 100% due to rounding off values. A complete list of plant species identified during site inspections to YFCP can be

found in Appendix B. This list will be updated on a seasonal basis to identify plants in their inflorescence phase.
Basin Marsh (Disturbed) – 11.01 acres, 3.24% coverage of YFCP

The disturbance to this community is caused by lack of fire and land use changes which cut off sheetflow into the marsh. Running a prescribed fire through this community will potentially kill willows and shrubs encroaching into the marsh.

Basin Swamp – 2.82 acres, 0.83% coverage of YFCP

Blackwater Stream – 0.06 acres, 0.02% coverage of YFCP

Depression Marsh (Disturbed) – 5.58 acres, 1.64% coverage of YFCP

The disturbance to this community is caused by lack of fire and land use changes which cut off sheetflow into the marsh. Running a prescribed fire through this community will potentially kill willows and shrubs encroaching into the marsh.

Mesic Flatwoods – 36.99 acres, 10.90% coverage of YFCP

Mesic Flatwoods (Disturbed) – 125.37 acres, 36.94% coverage of YFCP

The disturbance to this community is caused by lack of fire. Pine density continues to increase as young pines are not thinned by fire. Palmetto density shades out areas for native herbaceous vegetation to grow, resulting in a lack of diversity within this community.

Prairie Mesic Hammock – 1.27 acres, 0.37% coverage of YFCP

Shrub Bog (Disturbed) – 2.82 acres, 0.83% coverage of YFCP

This community is disturbed due to lack of fire and short hydroperiod. This particular part of the preserve exists because of altered water flow due to the impoundment of water caused by the construction of the paved “pull-in” areas off of Del Prado Blvd.

Scrubby Flatwoods – 3.19 acres, 0.94% coverage of YFCP

Successional Hardwood Forest – 11.58 acres, 3.41% coverage of YFCP

Wet Flatwoods – 108.32 acres, 31.92% coverage of YFCP

Wet Prairie (Disturbed) – 3.64 acres, 1.07% coverage of YFCP
The disturbance to this community is caused by lack of fire and land use changes which cut off sheetflow into the prairie. Running a prescribed fire through this community will potentially thin pines and reduce palmetto coverage.

Altered Landcover Types:

Clearing – 0.44 acres, 0.13% coverage of YFCP

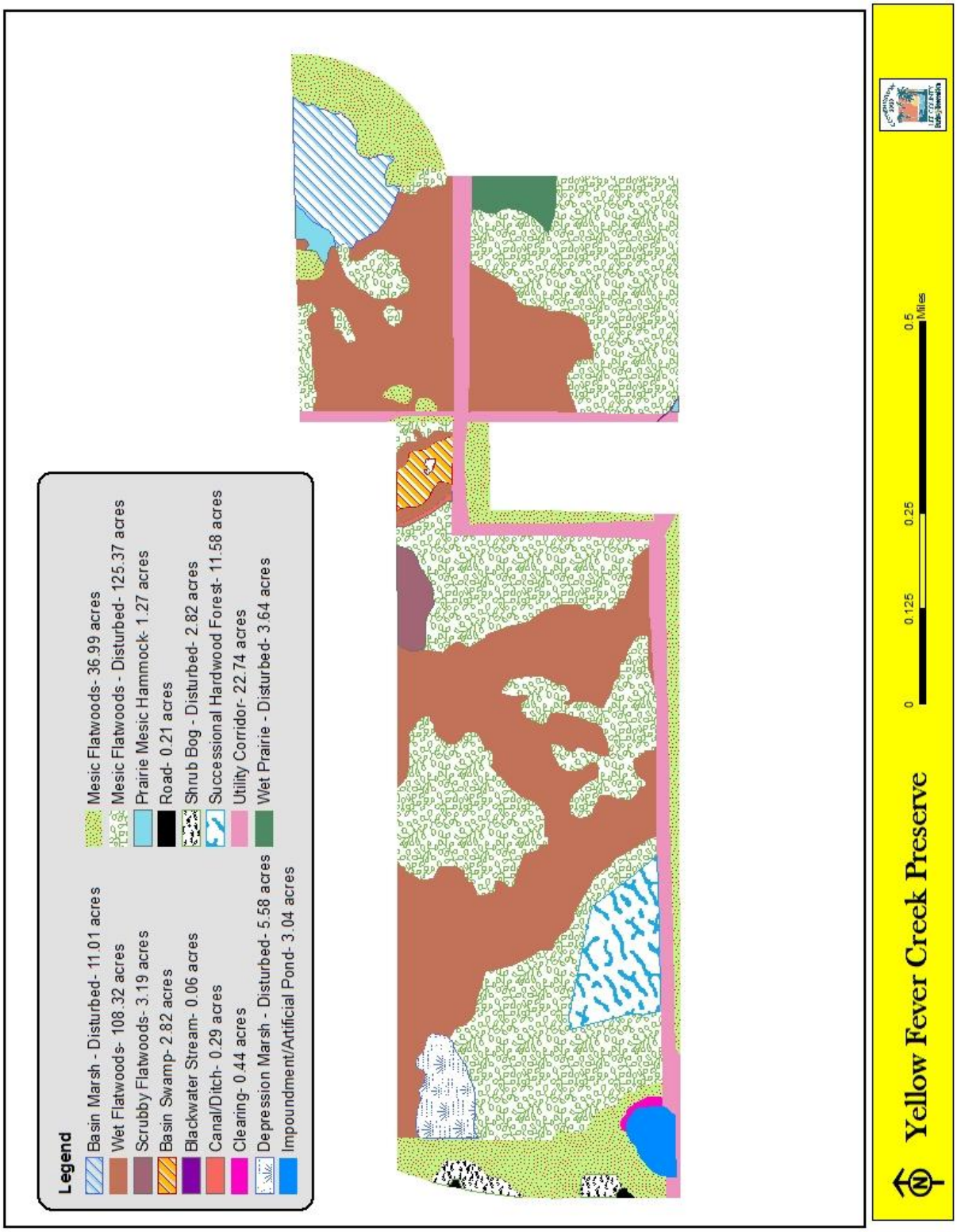
Impoundment/Artificial Pond – 3.04 acres, 0.90% coverage of YFCP

Canal/Ditch – 0.29 acres, 0.09% coverage of YFCP

Road – 0.21 acres, 0.06% coverage of YFCP

Utility Corridor – 22.74 acres, 6.7% coverage of YFCP

Figure 7: Plant Communities Map



iii. Fauna

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

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

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

iv. Designated Species

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

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

Sherman's Fox Squirrel

The Sherman's fox squirrel (*Sciurus niger shermani*) has been eliminated from much of its historic range. Many acres of the fox squirrel's pine-oak forest have been converted to pine plantations, agriculture and development. Collisions with vehicles are another common cause of decline of the species. This species has now been documented several times on the Preserve. Although no prescribed burning has taken place, wildfires, extensive invasive exotic plant removal and mechanical fuels reduction work are helping to improve the habitat for this species.

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.

Wood Stork

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, extended droughts and habitat alteration are threats that wood storks face.

Management practices that will benefit these species hydrologic restoration of borrow pond and creek and implementing a prescribed fire plan that includes both burning the uplands and occasionally allowing the fires to burn into the wetlands to reduce brush encroachment.

Herons, Egrets, Ibises, and Spoonbills

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

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

The roseate spoonbill nests in coastal mangrove areas with a mix of other bird species and occasionally in willowheads around freshwater systems. They forage in shallow-water. Their decline is attributed to human disturbance of nesting colonies, alteration of foraging sites and alterations of hydrologic patterns.

These species are regularly seen in small numbers feeding in the wetland areas of YFCP. The management practices that benefit wood storks will also benefit these species.

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 plantations. Additional threats include a highly contagious respiratory disease, human consumption and dog attacks.

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

Florida Bonneted Bat

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

Plant Species

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

Northern Needleleaf, Cardinal and Giant Airplants

The northern needleleaf (*Tillandsia balbisiana*) is a state threatened species occasionally found in a variety of communities including pinelands, hammocks and mangroves. Endangered cardinal airplants (*Tillandsia fasciculata var. densispica*) and giant airplants (*Tillandsia utriculata*) are found in hammocks, cypress swamps and pinelands. Threats to this species include illegal collecting, habitat destruction and the exotic Mexican bromeliad weevil (*Metamasius callizana*) (Save 2004).

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

IRC, which is not a regulatory agency, also maintains a listing of threatened plant species. IRC's designation is either obtained from their book Rare Plants of South Florida: Their History, Conservation and Restoration, (Gann 2002) or internet website regionalconservation.org. Scientists working for this Institute have conducted a tremendous amount of field work and research documenting plants occurring in conservation areas throughout Florida's 10 southernmost counties. This initial floristic inventory allowed the IRC to rank plant species in order to indicate how rare/common these plants are in protected areas. Rare plants are defined as being either very rare and local throughout their range in south Florida (21-100 occurrences, or less than 10,000 individuals), or found locally in a restricted range. IRC only ranks those taxa as rare when there are fewer than 100,000 individuals. Imperiled plants are those that are imperiled in south Florida because of rarity (6-20 occurrences, or less than 3,000 individuals) or because of vulnerability to extinction. This can be due to some natural or human factors. IRC only ranks taxa as imperiled if there are fewer than 10,000 individuals. Critically Imperiled plants are defined as being either extremely rare (5 or fewer occurrences, or fewer than 1,000 individuals), or extremely vulnerable to extinction from natural or human factors. IRC only ranks those taxa as critically imperiled with 10,000 or fewer individuals.

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

- 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.

v. Biological Diversity

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

The integrity and diversity of each C20/20 preserve must be protected when and where possible. Where applicable and practical, Conservation Lands staff will perform the following actions in this regard:

- Control of invasive, exotic vegetation followed by regular maintenance to provide more suitable habitat for native aquatic and terrestrial species.
- Control invasive exotic animal populations to reduce their impacts on the herbaceous plants, native animals and soils.
- Maintain boundary signs to deter illegal access to the Preserve and protect fragile ecosystems. Continue to monitor the site for illegal off-road vehicle (ORV) use and install fencing or other barriers if necessary.
- Install and maintain "no berry picking" signs to inform palmetto pickers it is illegal to harvest them on the preserves.
- Implement a prescribed fire program/mechanical fuels management program to closely mimic the natural fire regimes for different plant communities to increase plant diversity and ensure the canopies remain open in the appropriate plant communities.
- Where necessary, install perimeter fire breaks to protect resources on the Preserve and surrounding neighbors in the event of wildfires.
- Remove any debris and prevent future dumping within the boundary line.

- Conduct on-going species surveys utilizing volunteers and staff to catalog and monitor the diversity that is present.
- Temporary closure of flooded trails to prevent soil disturbance and avoid plant damage.
- Reduce canopy cover in appropriate habitats to promote herbaceous plant diversity.
- Use adaptive management if monitoring of restoration techniques indicates a change may be necessary.
- Offer public access that allows citizens to enjoy the preserve while protecting sensitive plant communities and wildlife needs.
- Enhance hydrologic conditions with the goal of restoring as close to historic hydroperiods as current surrounding land use allows while protecting current upland communities.
- Prevent and prosecute poaching and removal activities (e.g. palmetto berry harvesting, illegal hunting, pine cone/straw removal and orchid collection).

C. Cultural Resources

i. Archaeological Features

Figure 8 shows the portion of YFCP that falls into the Sensitivity Level 2 area. Approximately one third of the preserve lies within this area. Specifically, the entire Yellow Fever Creek flow-way, on-site and off-site, is categorized as a Sensitivity Level 2 area. General information on archeological features in Lee County can be found in the LSOM.

Figure 8: Archaeological Map

ii. Land Use History

C20/20 staff has reviewed available historical aerials; however, only a few representative ones are placed within this LMP (Figures 9-16). The land which is now YFCP is part of a once wetter and more functional wetland system which provided headwaters for a major tributary of the Caloosahatchee River. Today, large residential developments, canals and roadways have greatly altered the area. Restoration goals will help to address the historic hydrologic flow while working within current day constraints (private property, homes, septic tanks, etc.).

Between 1944 and 1953 the only change to the site is clearing for agricultural use on the western edge. The north-south ditch showing at the edge of this clearing is barely noticeable on-site today. The framework for development in Cape Coral began when the Rosen brothers developed Cape Coral in the 1960s. The Rosen brothers dredged the canals from the southern tip of Cape Coral to the northeastern extremes of the city near what is now YFCP. By 1972 the land clearing and canal construction reached the south boundary of YFCP. The natural wetland in the southwest corner was dug out to create what looks like a cow well and a small area around the wetland was cleared.

By 1979 canal construction and land clearing was completed to the north of YFCP. These canals diverted water away from its historic flow through Yellow Fever Creek. By 1986 houses are beginning to show south of the preserve and more off-road vehicle trails are showing within the preserve.

The 1990 aerial shows dense canopy which is primarily melaleuca. Houses are now present along the south boundary. The footprint of the agricultural clearing on the western edge of the preserve has been re-vegetated. By 1996 the clearing for the powerline has been completed. The biggest change is the construction of Del Prado Boulevard. At some point in the 1990s cattle were put on-site and their trails, along with atv trails become more visible.

In 2001 the land that now comprises YFCP was acquired through Conservation 20/20. The cattle were removed from the site and a battle to keep off-road vehicles ensued. Houses continued to be built along the south boundary and residential developments are being built.

The 2010 aerial (Figure 17) is included here to show the large swaths of melaleuca logging and some areas of pine thinning. This work began in 2009 and ended in 2010. The melaleuca was removed for free and the pine was harvested through a timber sale arranged with the FFS. By 2014 the vegetation has grown across the ramps and drag lines and the current trail system and fire breaks have been installed.

Figure 9: 1953 Aerial

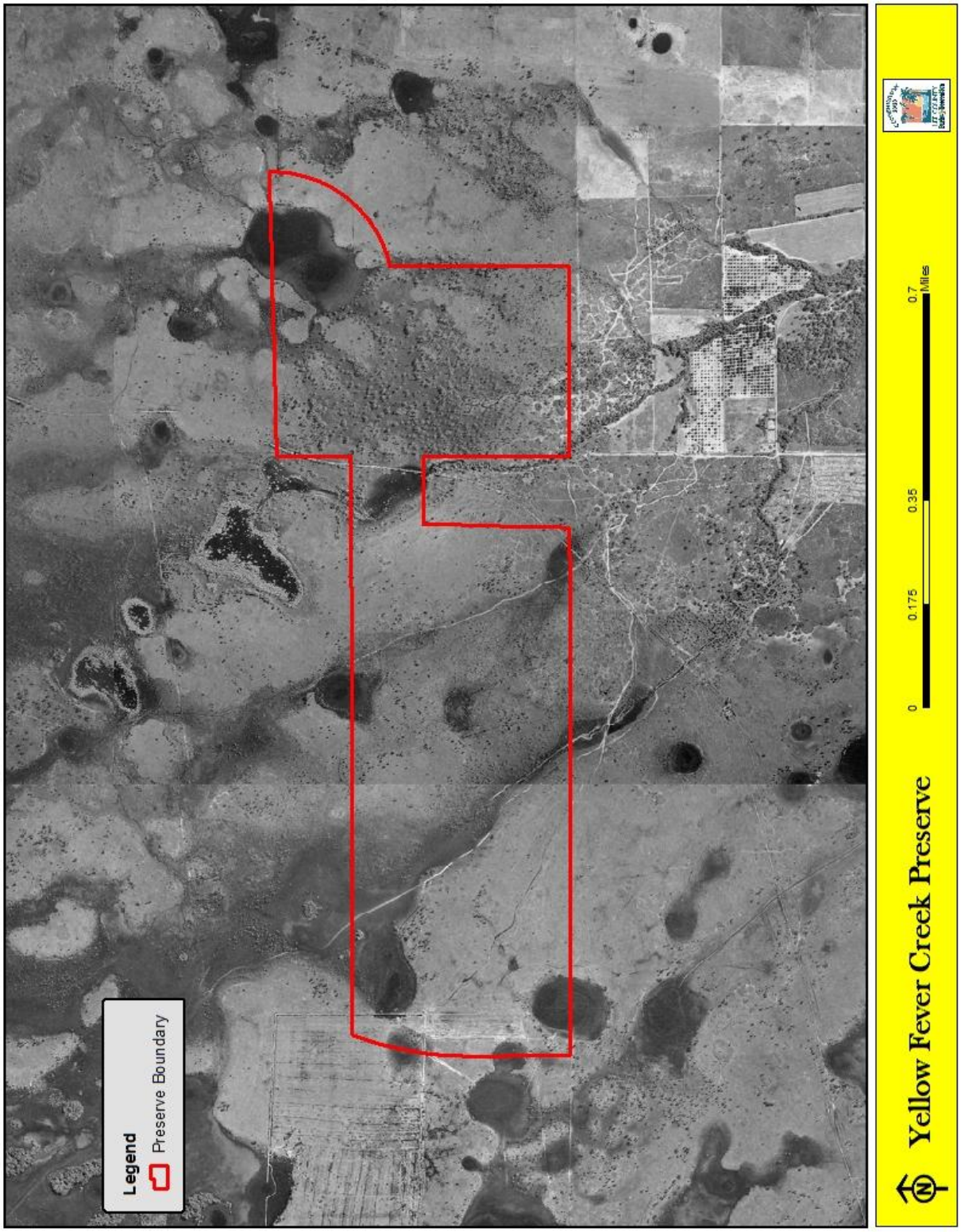


Figure 10: 1968 Aerial

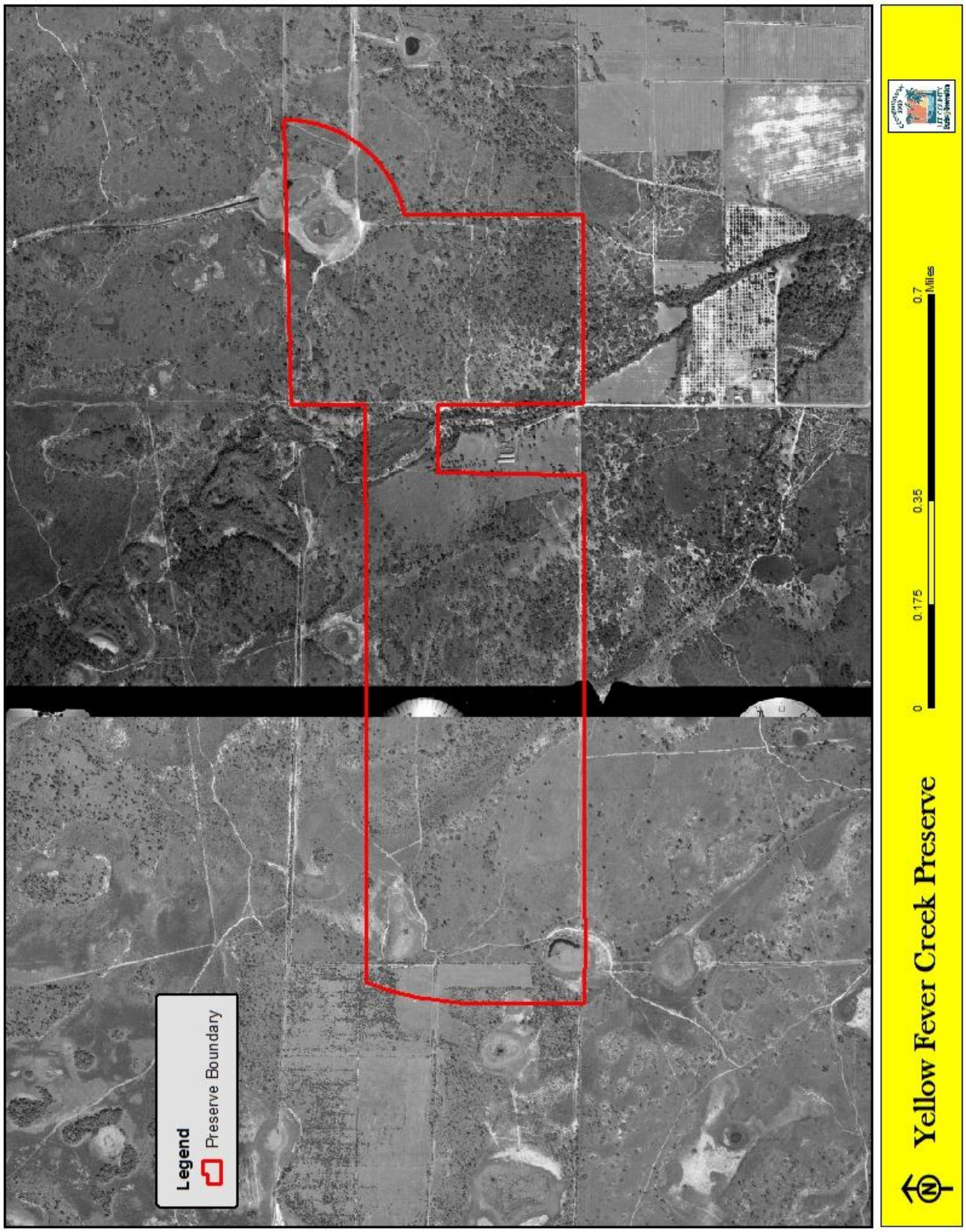


Figure 11: 1972 Aerial

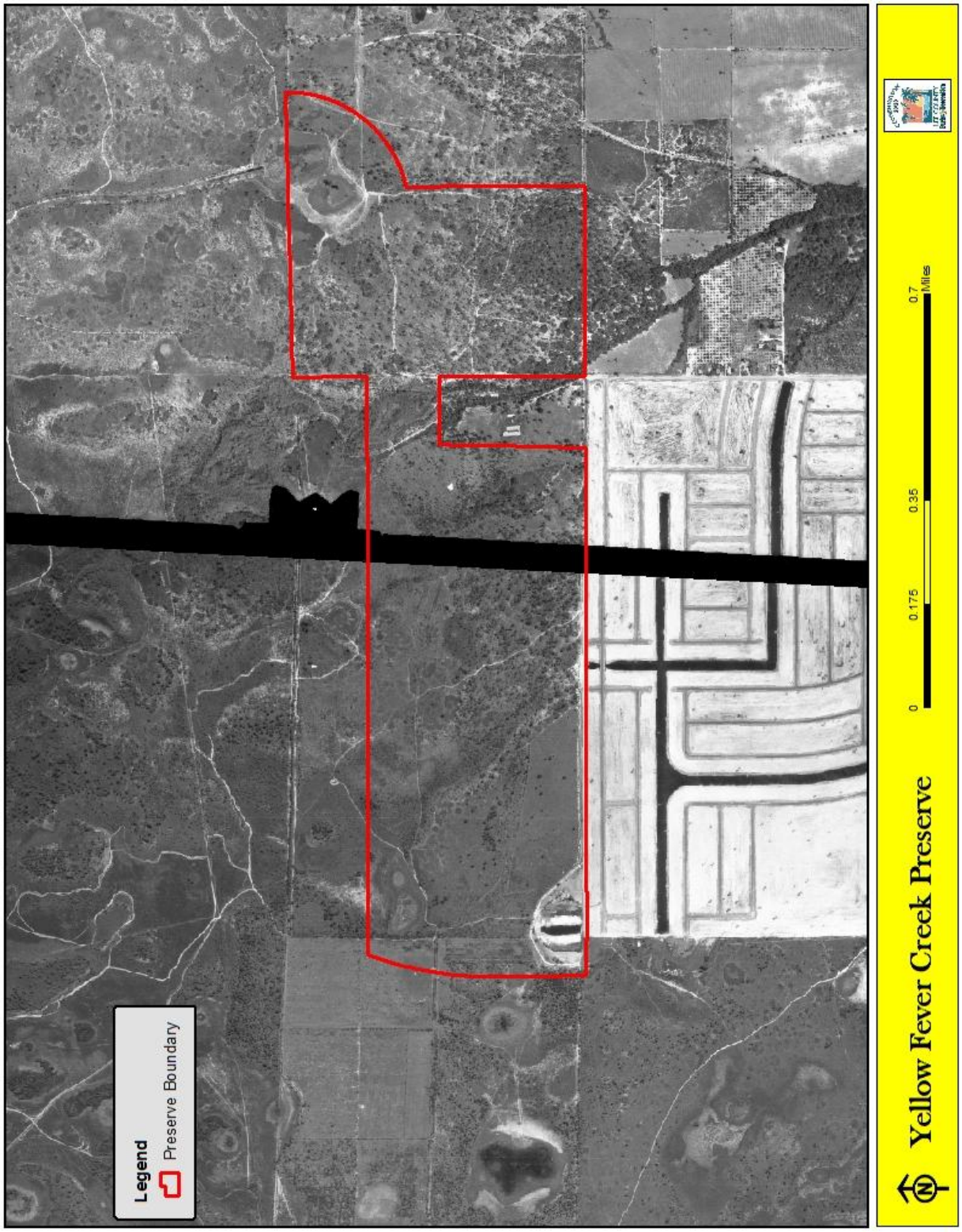


Figure 12: 1979 Aerial

Figure 13: 1986 Aerial

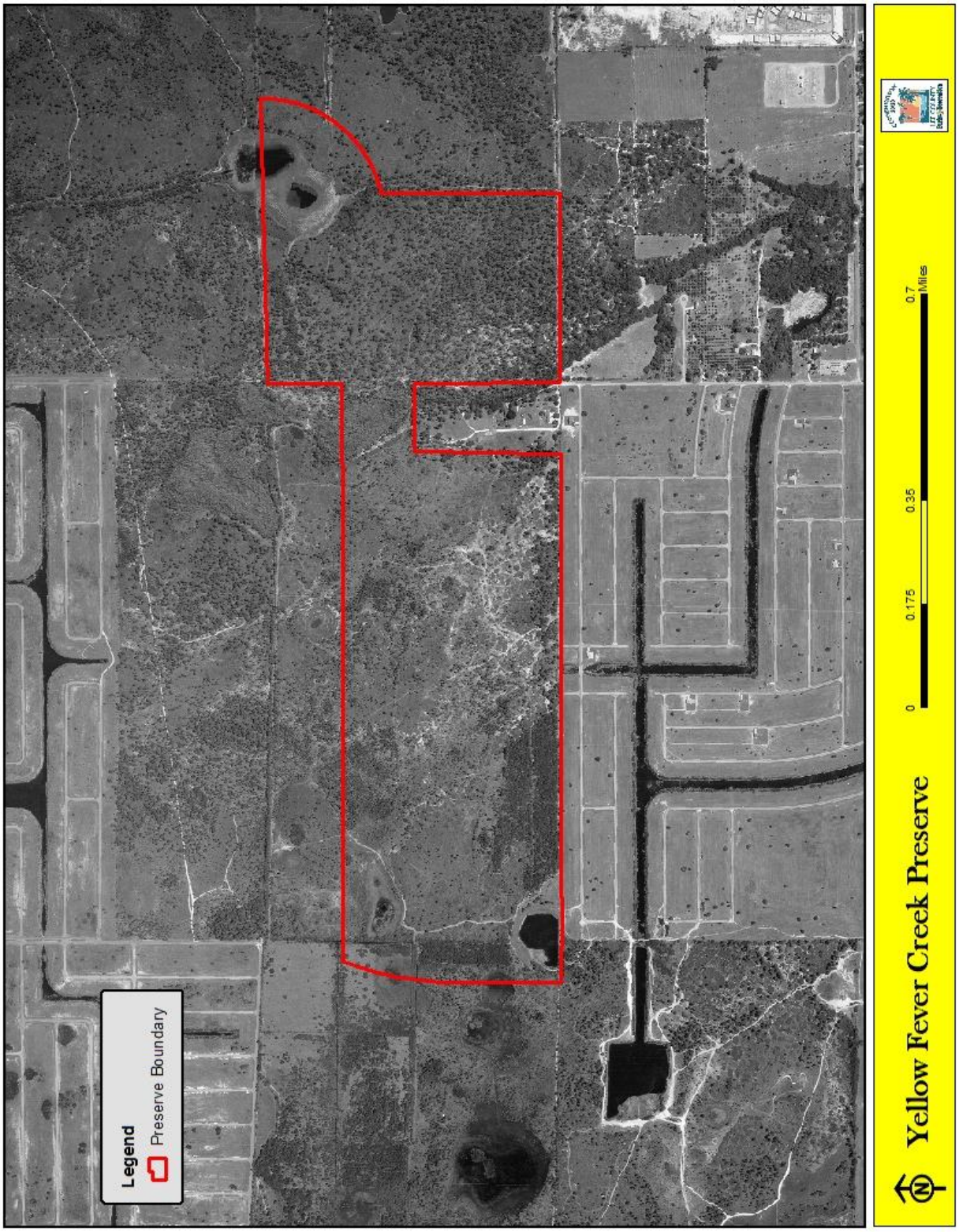


Figure 14: 1990 Aerial

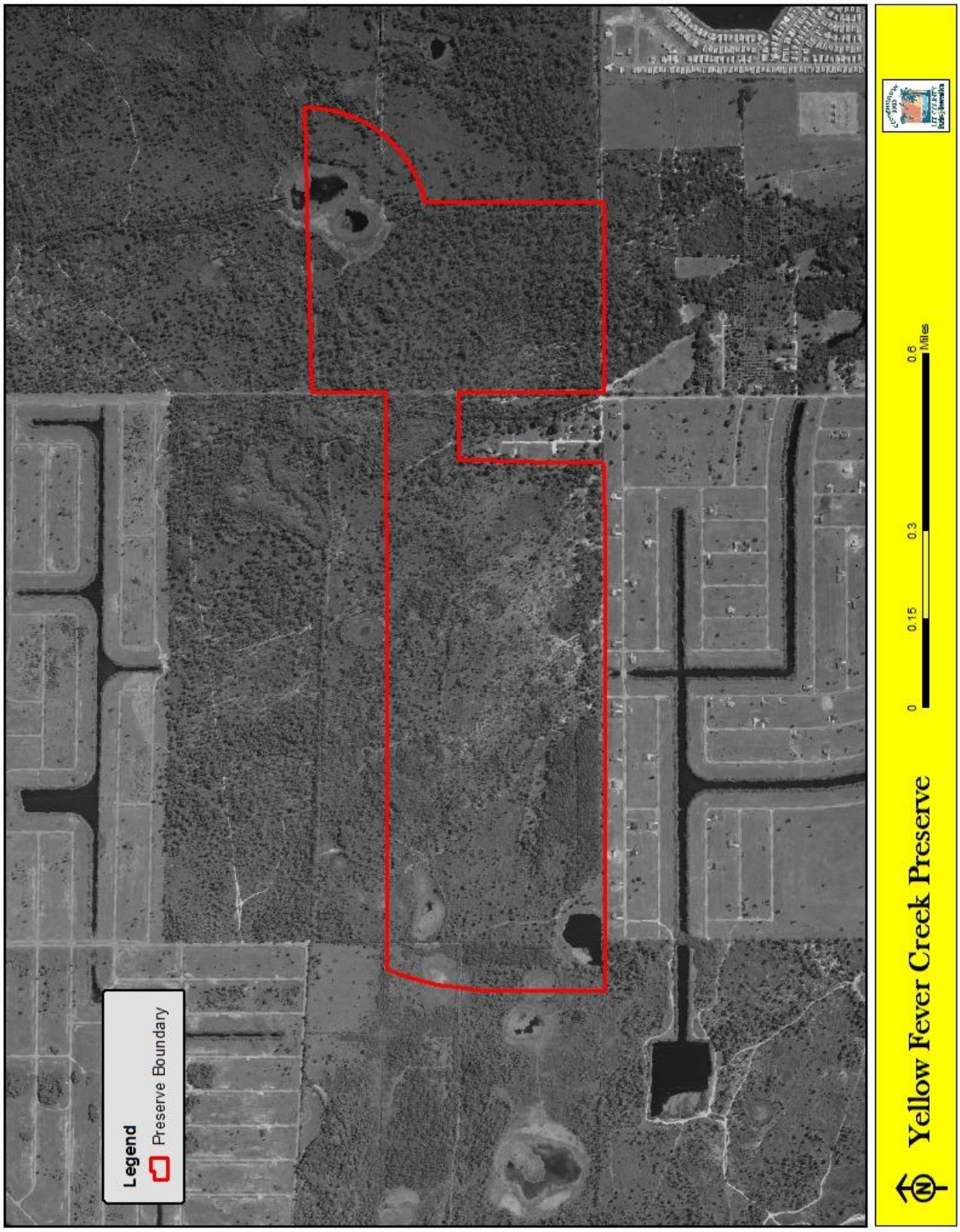


Figure 15: 1999 Aerial

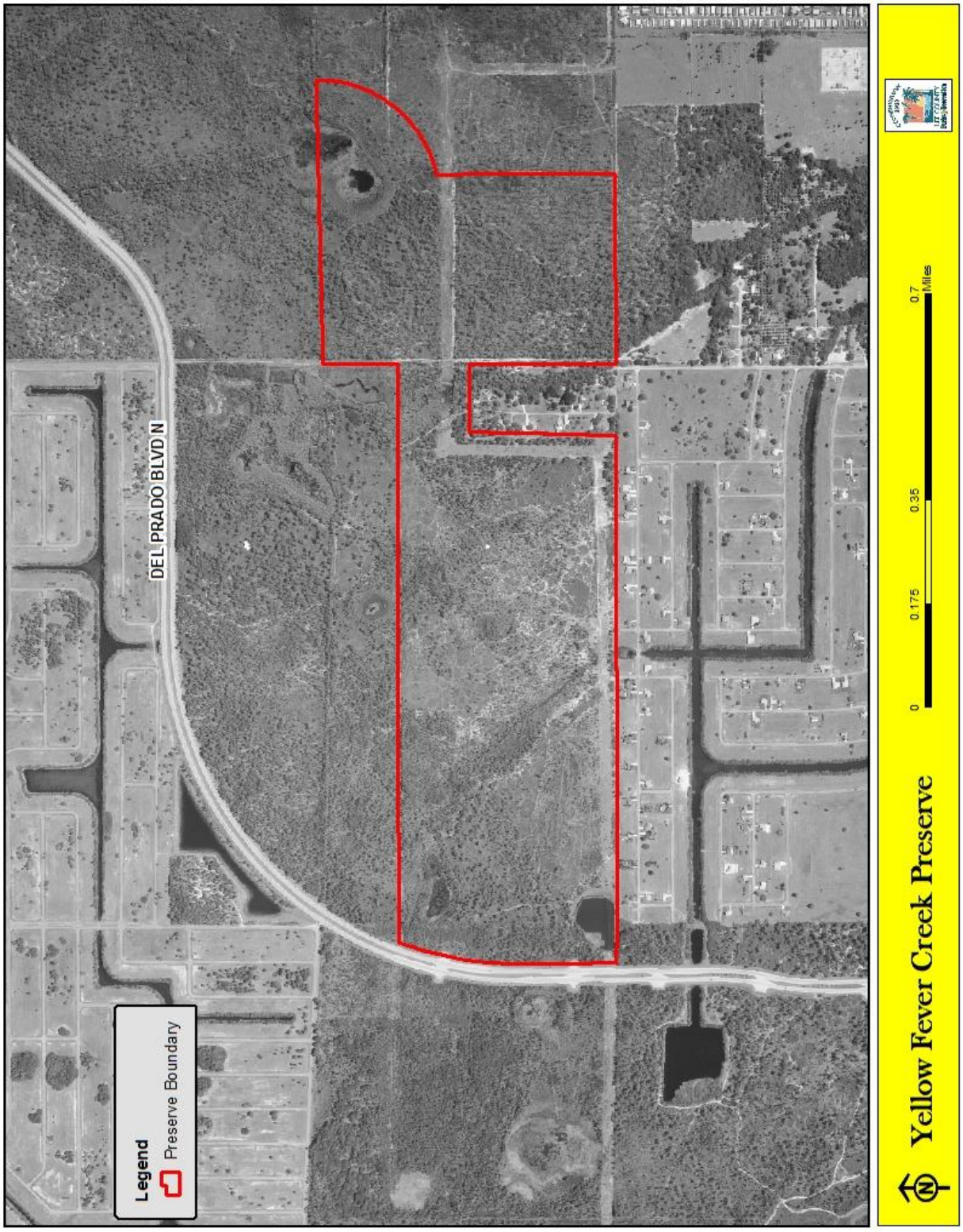


Figure 16: 2002 Aerial

Figure 17: 2010 Aerial

iii. Public Interest

This preserve was purchased for the preservation of environmentally sensitive lands, its high probability for listed species, and for the Preserve's groundwater recharging capability provided by its wetland communities and large sheet flow area. The City of Cape Coral owns the "major park" property to the north and a preliminary master plan was created in 2007. This plan connected trails from the City property onto YFCP. All major infrastructure and recreational offerings will be constructed on the City property.

Staff and volunteers have conducted numerous field trips with various community groups and general visitors, to educate the public on the importance of conservation, native plant communities, birding and other natural history topics.

In January of 2015 Girl Scout Troop 405 from the Girl Scouts of Gulf Coast Florida installed trail markers and two benches. This completed the work of installing a designated trail system at YFCP.

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

V. FACTORS INFLUENCING MANAGEMENT

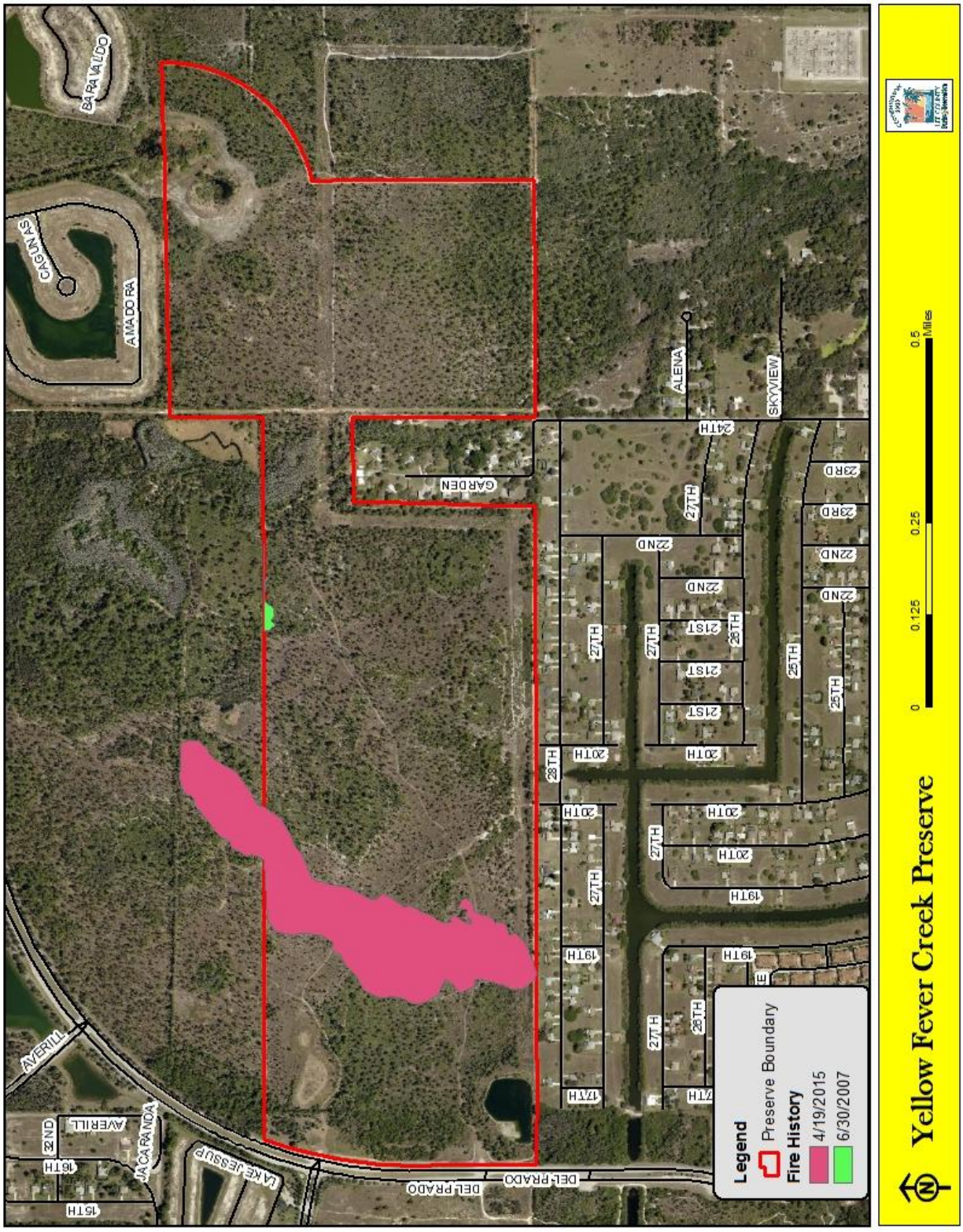
A. Natural Trends and Disturbances

Natural trends and disturbances can include hurricanes, flooding, wildfires, occasional freezes, and the pattern of wet and dry seasons. Implementation of the Management Action Plan will take all of these factors and their influence on projects at YFCP into consideration. General information on natural trends and disturbances influencing native communities and stewardship at YFCP can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

Figure 18 shows the dense coverage of melaleuca before and after logging was done on the site. Invasive exotic plants are an on-going disturbance to natural areas. In addition to the rapid colonization of invasive exotic plants, there have been two documented wildfires on the Preserve since it was acquired by Lee County (Figure 19). One lightning strike wildfire totaled less than an acre on June 30, 2007. On May 19, 2015 a 30 acre wildfire was started on private property adjacent to the south fenceline. The Florida Forest Service (FFS) responded to the fire and plowed containment lines. C20/20 staff worked to rehabilitate the lines afterward.

Figure 18: Invasive Exotic Expansion

Figure 19: Wildfires



B. Internal Influences

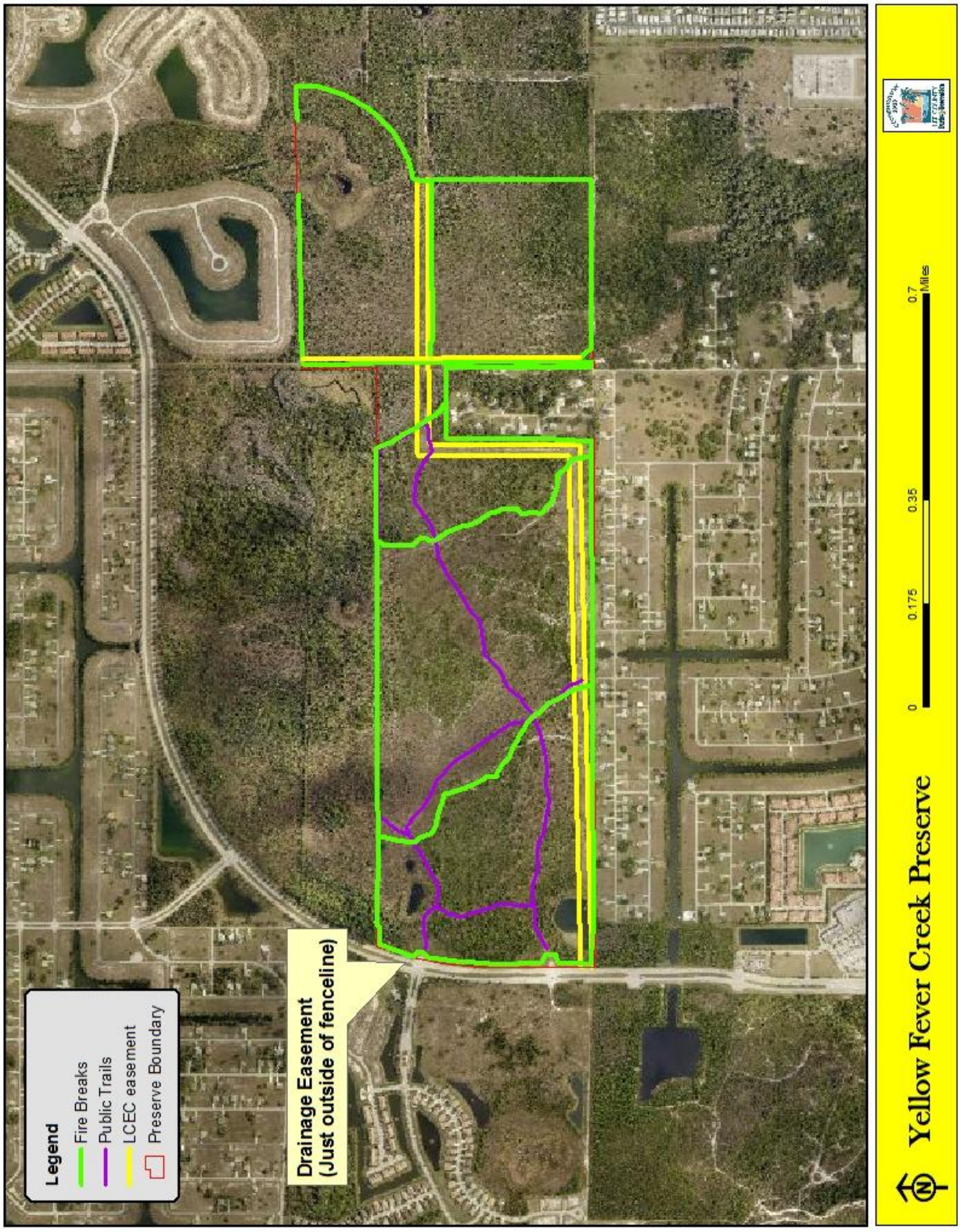
Few alterations were done on this site prior to acquisition. Further information on historic alterations is detailed in the Land Use History section of this plan. Figure 20 shows the location of the internal influences described below.

The largest alteration is the 100' utility easement for the powerlines which run along the south and east boundary of parcel 156 and bisects parcel 138. A 6' utility easement runs north to south along the western edge of parcel 138.The vegetation within these easements must be kept low to prevent interference with the transmission lines. The powerlines will also influence smoke management during prescribed burns. A 10' drainage/utility easement runs along the western property line along Del Prado Blvd. Copies of the recorded easements can be found in Appendix D and E.

The public use trails and perimeter firelines also influence the hydrology of the site. Water generally seeks the path of least resistance, and the mowing of trails and disking of the firelines, along with the wear of hikers breaks down palmetto roots and other vegetation on the trails. During rain events water flows along the trails in a shallow channelized fashion. Staff will not remove palmetto from the trails where it exists, and firelines are not disked to the edge of the wetlands along the perimeter in an attempt to mitigate this "ditching" effect.

The wetlands on YFCP are natural internal influences which limit public trail placement, vehicular access to areas, and the time we can do fence work and other management activities due to changes in water levels and soil conditions.

Figure 20: Internal Influences



C. External Influences

Figure 21 shows the external influences. The south property line of YFCP is bordered by single family homes. Residential lots often contain non-native vegetation that can spread across property lines, and occasionally horticultural debris is thrown across the fenceline onto the preserve. The close proximity of homes to the property line needs to be taken into consideration for smoke management during prescribed burns.

In the spring of 2015 a wildfire was started on one of the residential properties and wind pushed the fire across the preserve. This fire burned approximately 30 acres of wet flatwoods habitat, which has since regrown and the containment lines installed by Florida Forest Service were rehabbed by staff and have since regrown as well.

The western half of the north boundary abuts the City of Cape Coral's "Major Park" property. This parcel is slated to provide parking areas, trail systems and other amenities which will increase use of the existing trail system on YFCP. The planned amenities and public use will influence prescribed burn planning.

The eastern portion of the north boundary is adjacent to a development called Village of Estrada. Infrastructure has been installed but house construction has not taken place as of January 2016. As the development is constructed it will impact prescribed burn planning and smoke management. The Village of Estrada will extend along the eastern boundary of YFCP. The required conservation easements for development of the Village provide a very slim buffer between the property line and future homes and related infrastructure.

To the east a tract of undeveloped land offers additional wildlife habitat connectivity to YFCP and a window for smoke management during prescribed burning.

Roadways can have a detrimental effect on wildlife. Some examples are collisions with cars, direct habitat loss from road location, fragmentation of habitat, alteration of behavior by wildlife avoiding roads and surrounding lands. Road mortality is the number one cause of death to wildlife by humans in the US. Roads have a particularly significant impact on large carnivores with low reproductive rates, low population densities and large home ranges, such as black bears and Florida panthers. Quite often, roads and highways cut through their home range, fragmenting prime habitat and creating hazardous obstacles for migrating carnivores (American Wildlands 2002). YFCP is bordered by 4-lane Del Prado Boulevard on the western boundary.

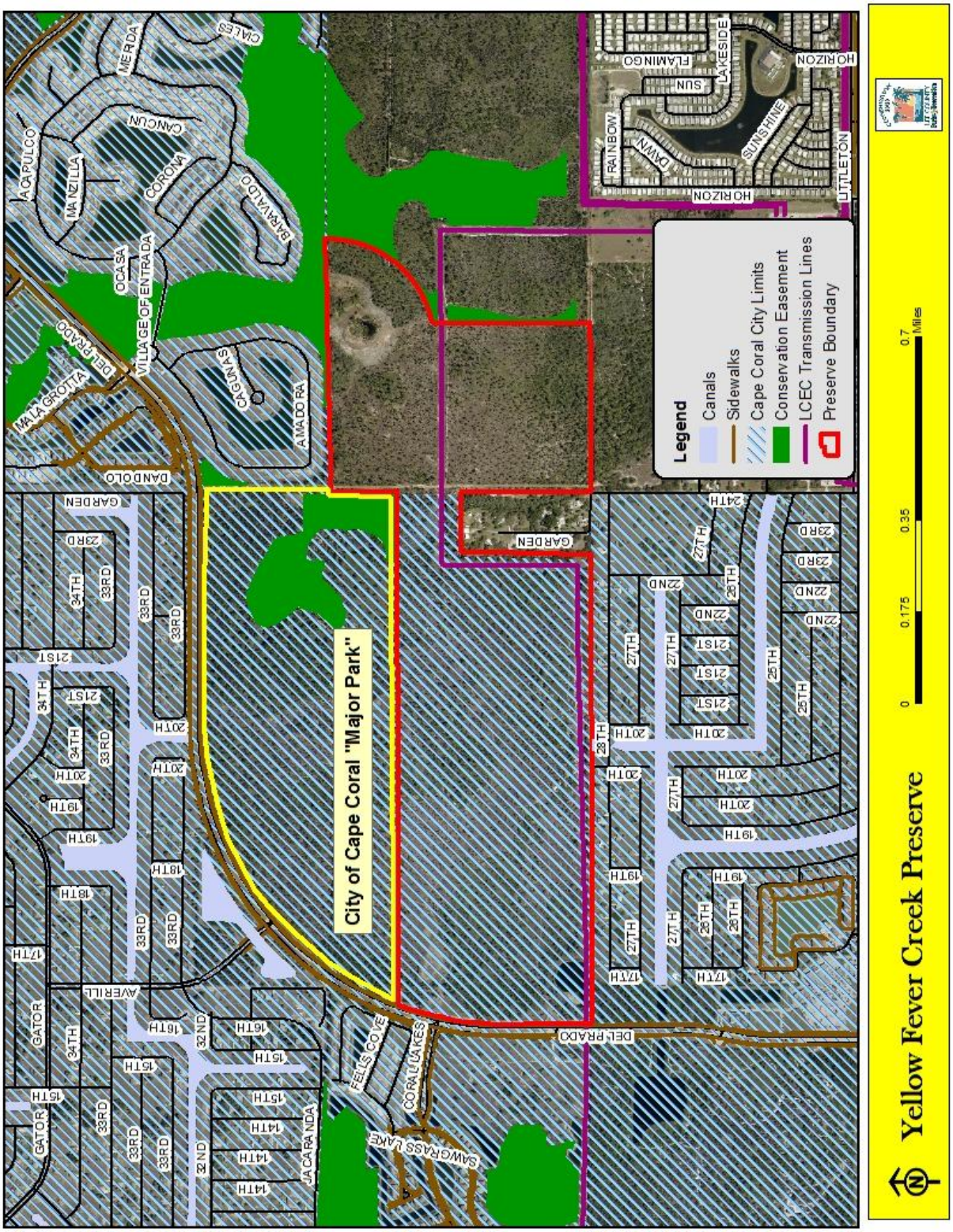
West and north of Del Prado Boulevard residential developments, single family homes and canal systems alter water flow and divert water away from Yellow

Fever Creek. Historically this creek flowed year-round but now only flows in rainy season and after heavy rain events.

Lee County's Division of Natural Resources will be working to restore some of the natural hydrologic flow to Yellow Fever Creek. This project, called the Lee County Yellow Fever Creek/Gator Slough Transfer Facility Project, is within and adjacent to the Yellow Fever Creek Preserve, which is split into Cape Coral and Lee County ownership. Gator Slough once fed Yellow Fever Creek, but due to urbanization, this is no longer true. The objective of this project is to restore interconnection between Gator Slough and Yellow Fever Creek thereby reducing excess freshwater discharges into Matlacha Pass, restore historic base flows to the Yellow Fever Creek watershed, and restore wetlands within Yellow Fever Creek Preserve.

The project plans will include capturing a portion of excess flow in the Gator Slough canal system and transferring this water across Del Prado Blvd. and onto the City's "Major Park" and eventually into Yellow Fever Creek on the YFCP. The transferred water will be staged within a created pond, which will also serve as part of the future main picnic area and parking facilities. Further restoration efforts will include improvements within the Preserve to utilize the transferred surface water to rehydrate adjacent wetlands and increase base flows to Yellow Fever Creek. It is anticipated that low impact flow-ways will be created within the Preserve to complete a connection to the upper portions of the remaining Yellow Fever Creek.

Figure 21: External Influences



D. Legal Obligations and Constraints

i. Permitting

Land stewardship activities at YFCP may involve obtaining permits from regulatory agencies. Any proposed hydrologic improvements 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 FFS is required for all prescribed burns conducted on YFCP.

ii. Other Legal Constraints

Three recorded easements exist within the boundary of YFCP. A 100' utility easement for the powerlines runs along the south and east boundary of parcel 156 and bisects parcel 138. A 6' utility easement runs north to south along the western edge of parcel 138. A 10' drainage/utility easement runs along the western property line along Del Prado Blvd. Copies of the recorded easements can be found in Appendix D and E. Refer to Figure 22 for location of the easements described above.

Figure 22: Easements Map

iii. Relationship to Other Plans

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

- The growth patterns of the county will continue to be dictated by the Future Land Use map.
- The continued protection of the county's natural resource base.
- The diversification of the county's traditional economic base.
- The expansion of cultural, educational and recreational opportunities.
- A significant expansion in the county's physical and social infrastructure.

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

The City of Cape Coral has a comprehensive plan with similar goals to the Lee Plan. The Cape Coral comprehensive plan can be found on the internet at: http://www.capecoral.net/department/community_development/comprehensive_planning/index.php#.VYluA_lVhBc

E. Management Constraints

The principle stewardship constraints for PLP include conducting land management activities with the brief dry season and the coordination of management activities and recreational use. Although C20/20 has funding allocated each year by the Lee County Board of County Commissioners (BoCC), efforts to obtain additional funding through grants and/or monies budgeted for mitigation of public infrastructure projects will be pursued to supplement the operations budget to meet the restoration goals in a timely manner.

Portions of YFCP are very wet most of the year; January through April is typically the driest period. Most restoration efforts will be limited to these months. If access is necessary for management when water levels are high, low-impact vehicles, such as ATVs, may be used. Vehicles and other motorized equipment are discouraged from driving through wetland communities. Mowing of trails and disking of firelines is not done when standing water is present across the site.

Urbanization pressures increasingly affect stewardship activities and boundary security. Prescribed fire is a vital tool used to keep fuel loads down, to ensure biological diversity, to maintain functional habitat value for wildlife and to reduce the severity of wildfires. 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, increased traffic on nearby roadways and surrounding airports.

When restoration activities and prescribed burns which could be dangerous to visitors are in progress, signs will be installed at designated entrance gates to warn the public that the area is temporarily closed. Staff will also contact the power companies when conducting any prescribed burns on the Preserve in accordance with the utility and access easements.

F. Public Access and Resource-Based Recreation

Before acquisition by Lee County, there was minimal recreational activity at Yellow Fever Creek Preserve beyond neighborhood trail riding on horseback. The Preserve was utilized for agricultural uses and the associated fencing prevented the general public from entering.

Off road vehicles (ORVs) are not only prohibited by Ordinance 02-12, they can be destructive to the sensitive communities found at YFCP, especially the wetlands. ORV traffic can impact the wetland communities in a number of different ways. The plants growing in these areas typically do not tolerate a large amount of soil disturbance and rapidly decline. Subsequently fire, which would normally carry through these areas, preventing shrubs from growing further into the wetland, is stopped.

The turbidity in the water affects the phytoplankton at the base of the food chain and alters pond fauna. Additionally, the sedimentation degrades the fish habitat and causes a number of negative impacts including reduced reproductive success, gill damage and an impeded ability to detect prey. Amphibian larvae experience these same negative effects and their adult counterparts loose the edge habitats they often depend on for breeding purposes. Finally, the reduction of fish and amphibian species affect the numerous waterbirds and mammals that depend on these aquatic animals in their natural diets. (Defenders 2002).

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

The main entrance to YFCP has a trailhead area with a walk-through entrance and an informational kiosk on Del Prado Boulevard. Three additional walk through access points are also available; one more on Del Prado Boulevard, one on NE 20th Pl, and one on NE 24th Avenue. No other walk-through/neighborhood gates will be installed. A pond in the southwest corner is available for fishing and approximately two miles of marked hiking trails exist. Additionally, the Preserves firebreaks are also available for hiking. Conservation Lands staff researched the possibility of allowing on-leash dog walking on the Preserve. There are several

criteria which staff has determined would not make on-leash dog walking compatible with the protection of the natural resources on YFCP. These include:

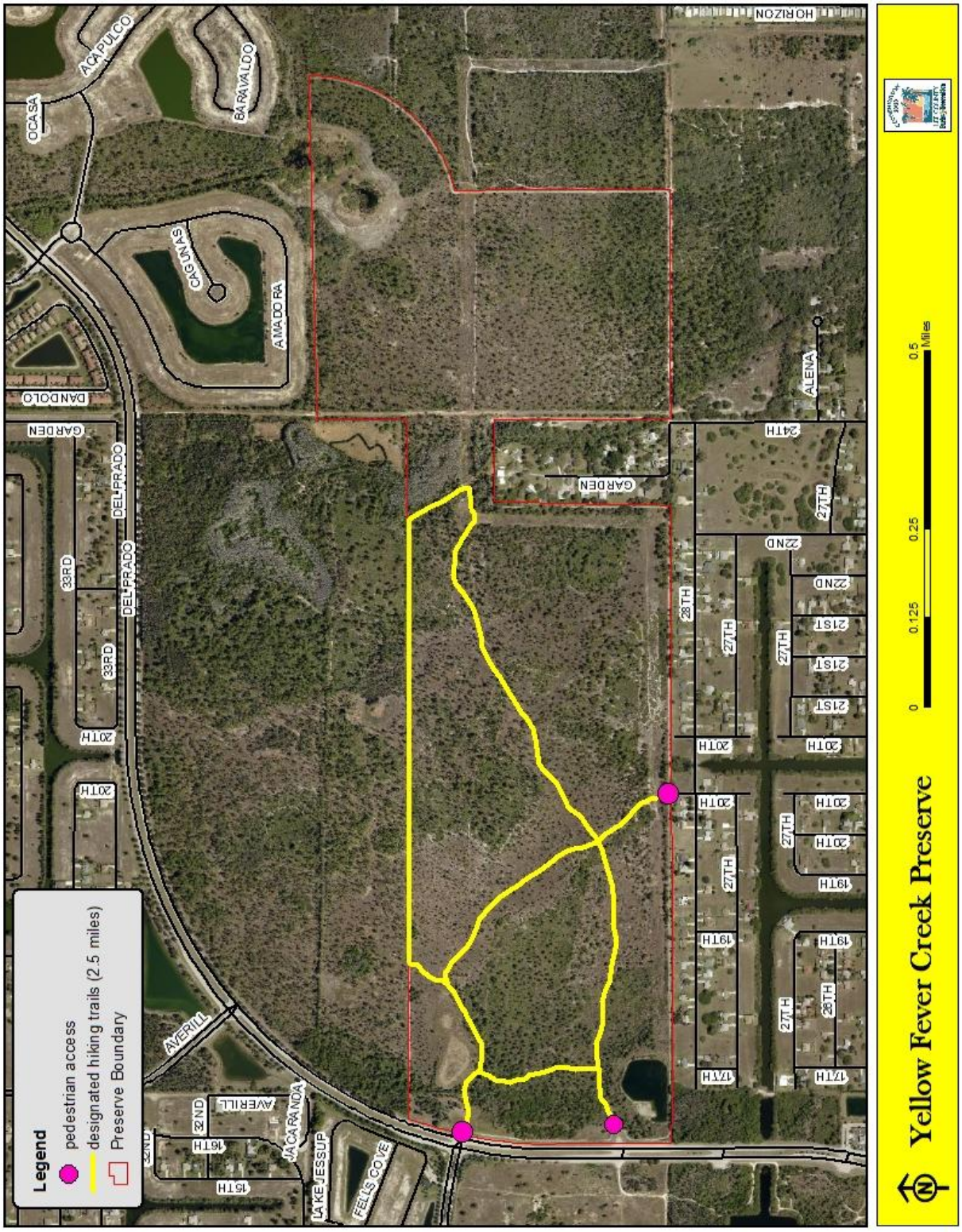
- ✓ Have a large population of waterbirds or shorebirds
- ✓ Have large herpetofauna populations
- ✓ Have active gopher tortoise colonies
- ✓ Consist mainly of wetlands
- ✓ Have minimal staff or no volunteer presence
- ✓ Are adjacent to public lands that do not allow dogs

Hiking trails were constructed after conducting a thorough survey for listed plants and animals. Efforts were made to place designated trails onto already established ATV/ two-track trails. Trails are also centralized to provide buffers from residences and to allow places for wildlife to rest undisturbed by public use of the Preserve.

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

Figure 23 shows the current trail system.

Figure 23: Current Trail Map



G. Acquisition

YFCP is comprised of two nominations. Nomination 138, totaling 119 acres, was purchased on May 4, 2001 for $565,000. Nomination 156, totaling 221 acres was purchased on August 10, 2001 for $2,758,506.74.

Figure 24 illustrates the nominated parcels to the C20/20 Program located near the Preserve. One was withdrawn from the program.

YFCP consists of STRAPs 29-43-24-C100001.0000 and 28-43-24-0000001.0010 Figure 25 shows each piece of the property identified by current STRAP number. The legal descriptions are located in Appendix I.

Future Land Use (FLU) categories for YFCP are Agricultural as shown on Figure 26.

Currently YFCP is zoned as Agriculture(Figure 27). Conservation 20/20 staff will coordinate with the City of Cape Coral Zoning and LCDP to change the zoning to “Environmentally Critical” for the entire Preserve.

Figure 24: Acquisitions and Nominations Map

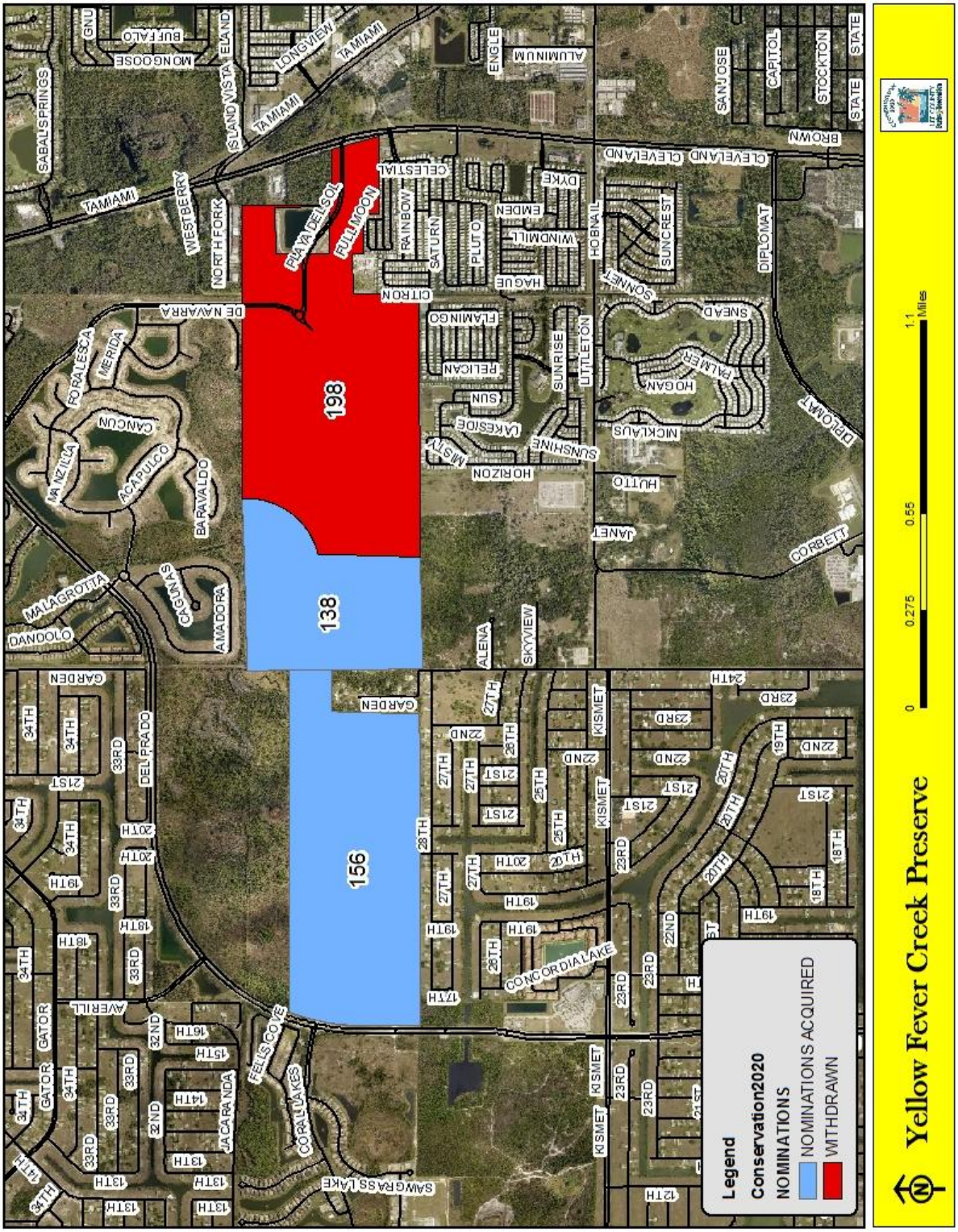


Figure 25: STRAP Map

Figure 26: Future Land Use Map

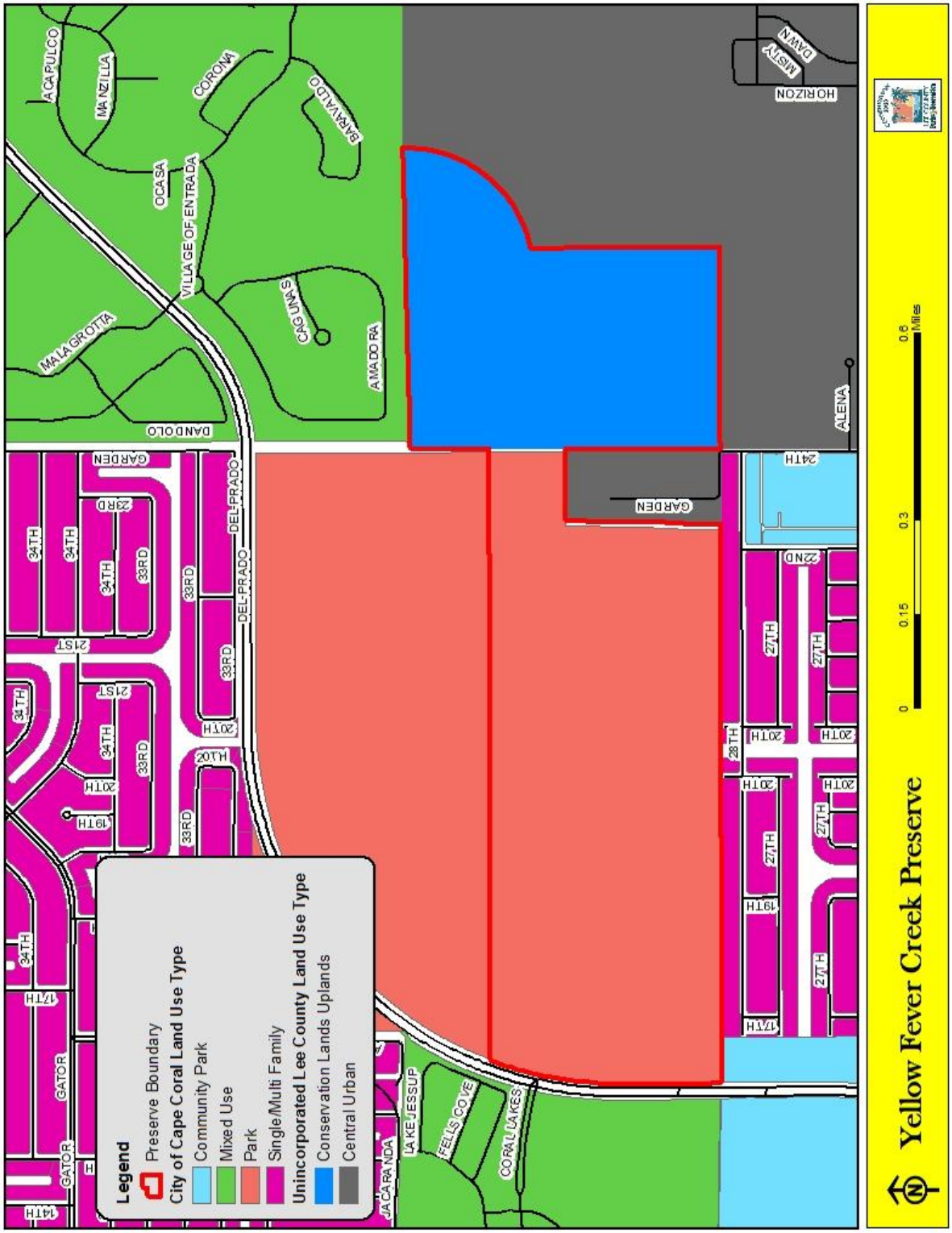
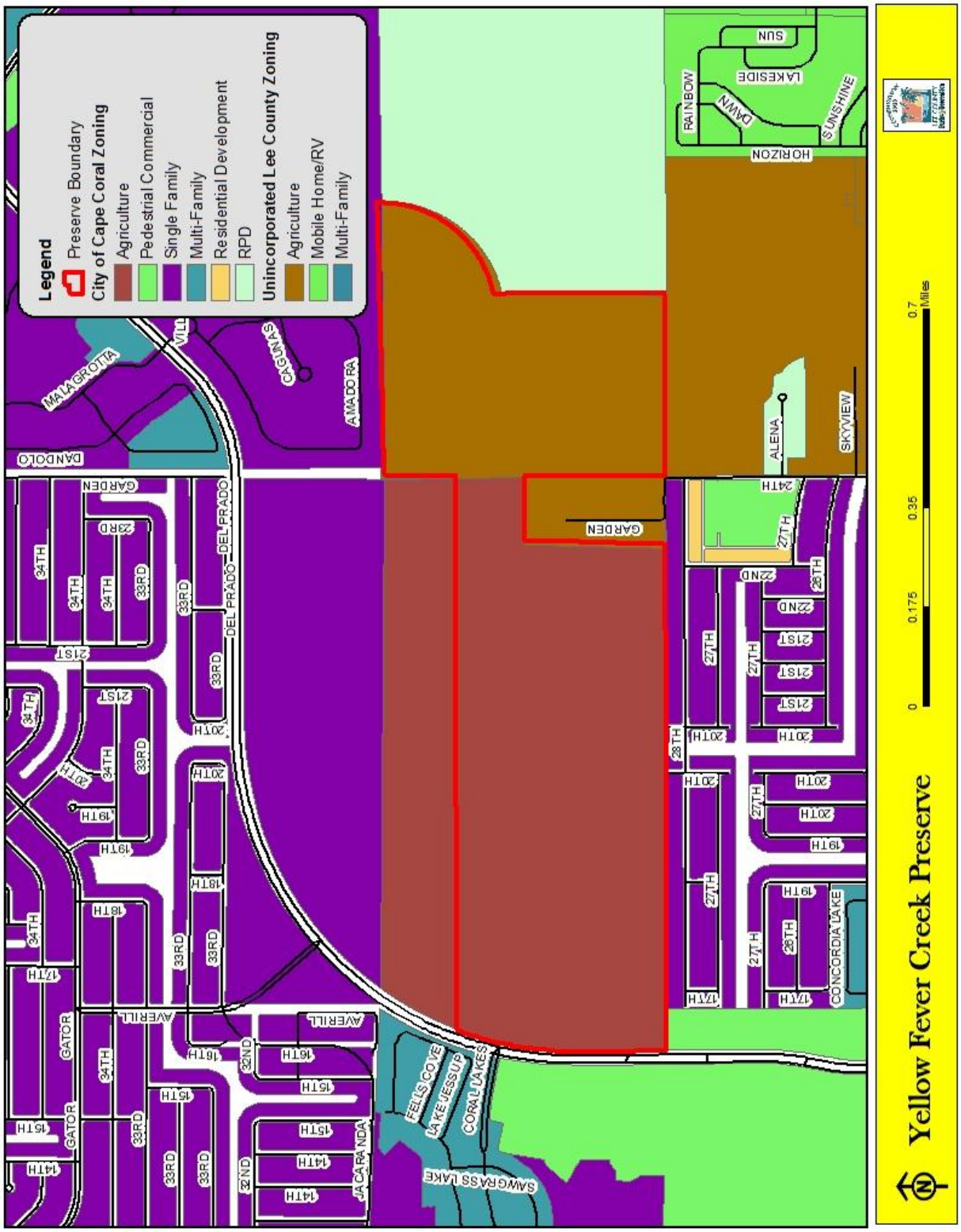


Figure 27: Zoning Map



VI. MANAGEMENT ACTION PLAN

A. Management Unit Descriptions

YFCP is divided into five management units based on vegetation communities, existing roads and firebreaks (Figure 28). Acreage for all units has been rounded to the nearest tenth of an acre. The management unit numbers begin with 4 because numbers 1-3 are on the adjacent management units on City of Cape Coral's Major Park .

- MU 4 (66.5 acres) is located on the west boundary of the Preserve. It is bordered to the east by unit 5, to the north by City of Cape Coral's Major Park, and to the south by residential lots. The unit contains a 3.07 acre borrow pond within its southwest corner and associated disturbed land, a powerline easement along the southern boundary, fallow agricultural land, and wet and mesic flatwoods.

  Melaleuca and slash pine were logged in this MU in 2007/08 and it has had two additional invasive exotic plant treatments in 2012 and 2014. In the spring of 2013, the vegetation under the powerline easement was mowed by staff to reduce height and wildfire hazard. Management activities here will focus on exotic plant control, hydrologic restoration, and prescribed fire.

- MU 5 (114.57 acres) is located in the central portion of site 156, bordered by unit 4 to the west to the north by Major Park and unit 6 to the east. Residential lots and powerline easement occur to the south. The three plant communities in this MU are wet and mesic flatwoods and a large depression marsh in the southeast corner. There is also a large outfall on the southboundary that connects to a canal going under 28th Place.

  In 2015 a wildfire burned part of this unit. Melaleuca and slash pine were logged out of this MU in 2007/08 and it has had two additional invasive exotic plant treatments in 2012 and 2014. In spring of 2013, the vegetation under the powerline easement was mowed by staff to reduce height and wildfire hazard. Management activities here will focus on exotic control, hydrologic restoration, and prescribed fire.

- MU 6 (40 acres) is located to the east of MU 4 and 5, with firebreak and unit 5 delineating its western boundary and MU 7 and powerline easement to the east. Residential lots and powerline easement to the south and to the north by Major Park. This MU contains six natural plant communities including a cypress swamp and the Yellow Fever Creek flowway.

  Melaleuca and slash pine were logged out of this MU in 2007/08 and it has had two additional invasive exotic plant treatments in 2012 and 2014.

In the spring of 2013, the vegetation under the powerline easement was mowed to reduce height and wildfire hazard. Management activities here will focus on exotic control, hydrologic restoration, and prescribed fire.

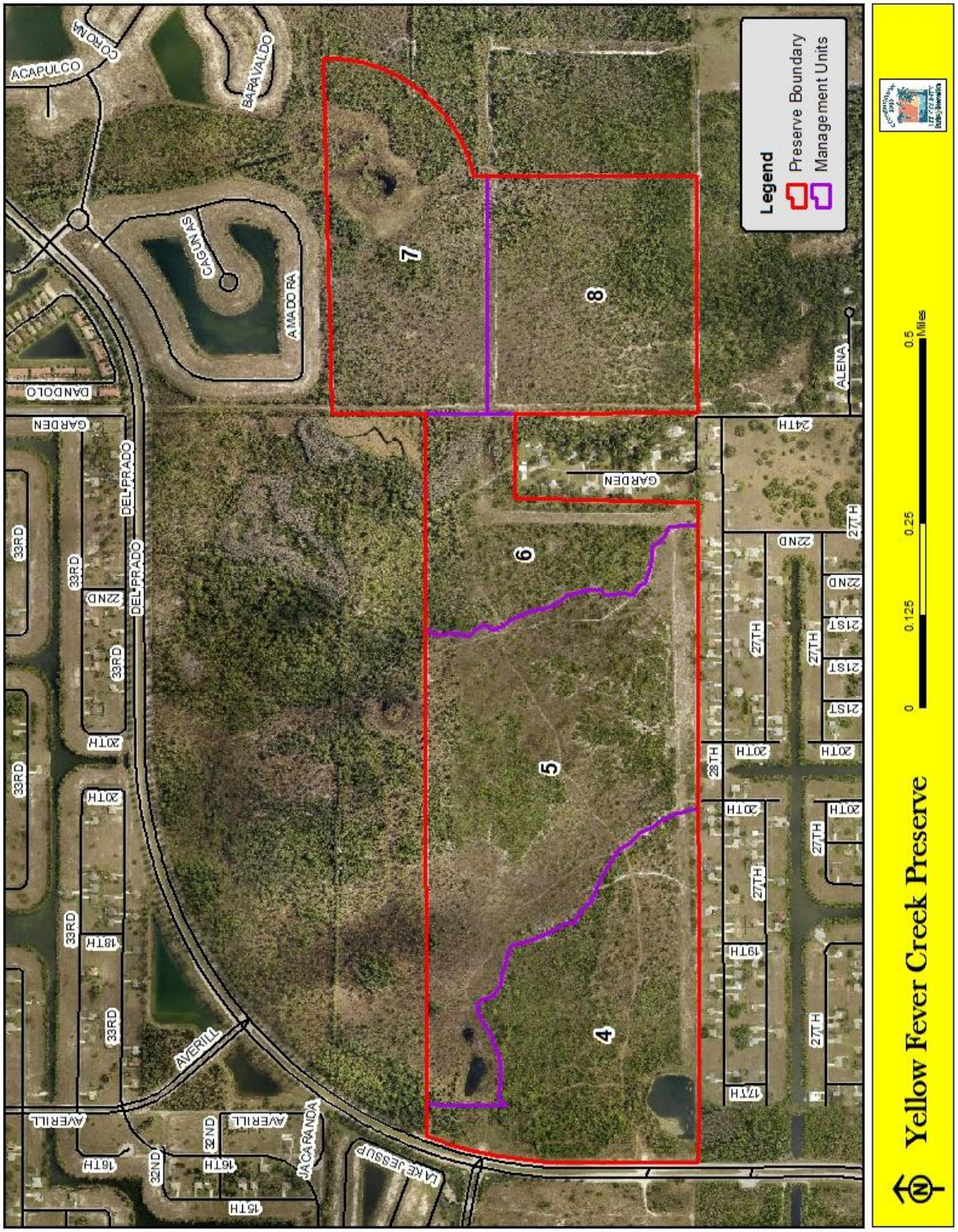
- MU 7 (60 acres) is located in the northeast portion of the preserve. It is bordered by MU 8 to the south, Major Park, MU 6 and powerline easement to the west, a future residential development to the north and undeveloped, private land to the east. It contains five natural plant communities, including a large freshwater marsh.

  Melaleuca and slash pine were logged out of this MU in 2007/08 and it has had two additional invasive exotic plant treatments in 2012 and 2014. Management activities here will focus on exotic control, hydrologic restoration, and prescribed fire.

- MU 8 (6.26 acres) is located in the southeastern portion of the preserve. It is bordered by MU 7 to the north, MU 6, powerline easement and residential lots to the west, a powerline easement and private, undeveloped property to the south and undeveloped, private land to the east. This MU contains five natural plant communities, the largest being pine flatwoods. Yellow Fever creek also crosses the southwest corner of this MU.

  Melaleuca and slash pine were logged out of this MU in 2007/08 and it has had two additional invasive exotic plant treatments in 2012 and 2014. Management activities here will focus on exotic control, hydrologic restoration, and prescribed fire.

Figure 28: Management Unit Map



B. Goals and Strategies

The primary management objectives for YFCP are natural community improvements, removal and continued treatment of invasive exotic plants and prescribed burning. Although funding is currently not available to conduct all of these stewardship activities, work at YFCP will be prioritized in order of importance and ease of accomplishment and include the following tasks. 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.

Natural Resource Management

- ✓ Exotic plant control/maintenance
- ✓ Prescribed fire management
- ✓ Mechanical brush reduction
- ✓ Monitor and protect listed species
- ✓ Exotic and feral animal removal
- ✓ Hydrologic Restoration

Overall Protection

- ✓ Install/maintain fire breaks
- ✓ Boundary fence installation and interior fence removal
- ✓ Boundary sign maintenance
- ✓ Change Zoning and Future Land Use categories
- ✓ Prevent dumping

Volunteers

- ✓ Assist volunteer group(s)

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

Natural Resource Management

Exotic plant control and maintenance

The most current Florida Exotic Pest Plant Council's (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 with treatments of resprouts and new seedlings as needed. This goal will bring the entire Preserve to a maintenance level, defined as less than 5% invasive exotic plant coverage. All of YFCP is considered to be at maintenance level as of January 2016. The site can easily fall out of maintenance level if annual treatments are not conducted across the site.

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

- Uplands with light to moderate infestations:

  In areas where invasive plants are sporadic and below 50% of the vegetation cover, hand removal will be utilized for control, while heavy equipment may be used in more densely infested areas. 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. Areas that receive heavy equipment work will receive follow-up treatment that will include an application of an appropriate herbicide mixture to the foliage of any resprouts or seedlings. 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 and the native seed bank. No debris will be piled in such a way as to block established flowways.

- Wetlands with light to moderate infestations:

  Hand crews will need to hike in and foliar, girdle, basal bark, or cut-stump treat the exotics with the appropriate herbicide. Follow-up treatments will need to be done on an annual basis and may eventually decrease to every two years. Where feasible or necessary, biomass may be removed from wetland sites to be piled and burned and/or mulched.

Since YFCP is too wet during roughly half of the year for mechanical work, staff must take advantage of every opportunity during dry season.

Prescribed fire management

A prescribed fire program will be implemented that as closely as possible mimics the natural fire regimes for the different plant communities to increase plant diversity and ensure tree canopies remain open. Once restoration projects are completed in management units that contain fire dependent communities, prescribed burns will be performed after the creation of appropriate fire lines/breaks. Prescribed fire may be utilized for exotic plant control of seedling/sapling in areas previously treated.

Due to the close proximity of several smoke sensitive areas, including multiple residences and major roads, burning opportunities are very limited. When weather conditions are right, staff will shutdown the public use amenities with very short notice. All designated access gates will be closed during the burn and may remain closed for several days afterwards during mop-up to ensure the site is safe for visitors.

The timing of prescribed burning will be influenced by seasonal rain, staff and equipment availability, listed species requirements and wind patterns. The C20/20 Burn Team Coordinator has coordinated with the FFS and finalized the C20/20-wide Fire Management Plan that applies to all Preserves. C20/20 staff will inform adjacent neighbors of the possibility of burning each year in a neighbor letter prior to burn season.

Mechanical brush reduction

Lack of fire and high density of exotic vegetation across YFCP allowed saw palmetto to become thick and high in some areas. Mechanical work, including roller chopping and mowing, will reduce vegetation height which in turn will reduce fuel loads across the site. Mechanical work will also encourage plant diversity. Areas of dense vegetation will be left in each MU to provide cover for nesting turkeys, black bear and other fauna.

In the future as the slash pine density increases another timber harvest will be conducted to maintain open canopy. Funds from the timber sale will be used for management activities on the Preserve.

Monitor and protect listed species

There are several listed species that have been documented on the Preserve including gopher tortoise, Sherman's fox squirrel, American alligator, and giant airplant. These species will benefit from exotic plant control, prescribed burns, and low impact hydrological restoration activities. During stewardship activities, efforts will be made to minimize negative impacts to listed species.

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

Exotic and feral animal removal

Numerous exotic animal species have been recorded on YFCP. Although melaleuca psyllids and weevils are non-native animals, they are beneficial biological control agents targeting the invasive melaleuca tree. C20/20 staff is primarily concerned with the feral hog (*Sus scrofa*). Currently, the most common method of hog removal on C20/20 preserves is trapping, but guided hunts have been appoved and will begin in early 2016. 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.

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

Hydrologic Restoration

Conservation 20/20 staff is working on a partnership with FWC to remove the old agricultural ditch and restore a more natural grade around the borrow pond in MU 4. This would allow for greater ground water filtration by supporting a larger diversity of plant species around the pond perimeter as well as providing improved habitat for birds and fish.

Another part of the hydrologic restoration involves a partnership with Lee County Division of Natural Resources. The Lee County Yellow Fever Creek/Gator Slough Transfer Facility Project area is within and adjacent to the Yellow Fever Creek Preserve, which is split into Cape Coral and Lee County ownership. Gator Slough once fed Yellow Fever Creek, but due to urbanization, this is no longer true. The objective of this project is to restore interconnection between Gator Slough and Yellow Fever Creek thereby reducing excess freshwater discharges into Matlacha Pass, restore historic base flows to the Yellow Fever Creek watershed, and restore wetlands within Yellow Fever Creek Preserve.

The project plans will include capturing a portion of excess flow in the Gator Slough canal system and transferring this water across Del Prado Boulevard into the Yellow Fever Creek Preserve. The transferred water will be staged within a created pond, which will also serve as part of the future main picnic area and parking facilities. Further restoration efforts will include improvements within the Preserve to utilize the transferred surface water to rehydrate adjacent wetlands and increase base flows to Yellow Fever Creek. It is anticipated that low impact flow-ways will be created within the Preserve to complete a connection to the

upper portions of the remaining Yellow Fever Creek. This work will be designed to enhance existing plant communities and meet other restoration and management goals.

Overall Protection

Install/maintain fire breaks

Perimeter and management unit fire breaks have been installed and are maintained annually by staff. When prescribed burns are planned the burn boss will evaluate the need for installing additional temporary lines. Wherever possible firebreaks will be installed on existing trails or other disturbed areas to minimize impact to plant communities or alter water flow.

Boundary fence installation

The perimeter of the Preserve, except for the areas that border Major Park, is fenced to prevent activities such as dumping and the illegal use of motorized vehicles. As perimeter fence is replaced, new fence will include a middle strand of heavy gauge cable to deter fence cutting.

Boundary sign maintenance

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

Change Zoning categories

Staff will coordinate with LCDP and Cape Coral staff to change the zoning and future land use categories for YFCP. All zoning designations will be changed to "Environmentally Critical" from "Agriculture" and future land use designations will be modified to either "Conservation Lands – Uplands," "Conservation Lands – Wetlands," or "DRGR."

Prevent dumping

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

Volunteers

Assist volunteer group(s)

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

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

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

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

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

C. Management Work to Date

The primary focus of the projects that have been completed at YFCP is exotic plant control. When this site was purchased it had a considerable number of exotic plant species including a significant monoculture of melaleuca that was targeted and removed mechanically by logging in 2007 and 2008. After the initial treatments were completed on the two parcels, regular maintenance treatments of all FLEEPC listed category I and II invasive exotic plants were completed by both contractors and staff. In addition to exotic control, other projects taken on included trash collection, posting boundary signs, installing new fencing, installing fire breaks, installing designated hiking trails, and installing a visitor kiosk.

VII. PROJECTED TIMETABLE FOR IMPLEMENTATION

Management Activity	Jan-16	April-16	July-16	Oct-16	Jan-17	April-17	July-17	Oct-17	Jan-18	April-18	July-18	Oct-18	Jan-19	April-19	July-19	Oct-19	Jan-20	April-20	July-20	Oct-20	2021 or later
Natural Resource Management																					
Mechanical tree and brush reduction																					
Mechanical brush reduction	X	X																			
Pine tree thinning																					
Prescribed fire management																					
Install additional firelines																					
Conduct prescribed burning	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Exotic plant control/maintenance																					
Follow-up treatment																					→
Habitat restoration																					
Hyrdologic Restoration					X	X															
Maintenance (On-going/Annual)																					
Exotic animal removal	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Fire break mow/disk		X				X				X				X				X			X
Overall Protection																					
Trash removal	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Prevent dumping	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Boundary sign maintenance	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Change Zoning categories																					
Volunteers																					
Assist volunteer group	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→

VIII. FINANCIAL CONSIDERATIONS

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

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

IX. LITERATURE CITED

American Wildlands. 2002. America's Love of the Open Road- Deadly for Wildlife. http://www.wildlands.org/ows200206_road.html

Baum, Allen, personal interview, February 11, 2000.

[CLOa] Cornell Lab of Ornithology. All About Birds: Cooper's Hawk. 2003 [Internet]. [cited 2008 Sept 5]. Available from: http://www.birds.cornell.edu/AllAboutBirds/BirdGuide/Coopers_Hawk_dtl.html

[CLOb] Cornell Lab of Ornithology. All About Birds: Merlin. 2003 [Internet]. [cited 2008 Sept 5]. Available from: http://www.birds.cornell.edu/AllAboutBirds/BirdGuide/Merlin.html#conservation

[CLOc] Cornell Lab of Ornithology. All About Birds: Hairy Woodpecker. 2003 [Internet]. [cited 2008 Sept 5]. Available from: http://www.birds.cornell.edu/AllAboutBirds/BirdGuide/Hairy_Woodpecker_dtl.html

Cole, D.N. and D.R. Spildie. 1998. Hiker, horse and llama trampling effects on native vegetation in Montana, USA. *Journal of Environmenal Management. 53: 61-71.*

Cowardin LM, Carter V, Golet FC, LaRoe ET (Department of the Interior). 1979 December. U.S. Fish and Wildlife Service, Office of Biological Services. Classification of Wetlands and Deepwater Habitats of the United States. Washington, D.C.: DOI. 131 p. Available from: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C.; FWS/OBS-79/31.

Defenders of Wildlife. 2002. *The Impacts of Off-Road Vehicles and Roads on Wildlife and Habitat in Florida's National Forests.* Washington D.C.

[FNAI] Florida Natural Areas Inventory. Tallahassee (FL): Guide to the Natural Communities of Florida 2010 Update [cited 2010 Mar 2]. Available from: http://www.fnai.org/natcomguide_update.cfm .

[FWC] Florida Fish and Wildlife Conservation Commission. [Internet]. Tallahassee (FL): Review of Free Ranging Cats Policy; May 30, 2003. [cited 2006 Sept 9]. Available from: http://myfwc.com/cats/review.htm

Gann GD, Bradley KA, Woodmansee SW. 2002. Rare Plants of South Florida: Their History, Conservation, and Restoration. Institute for Regional Conservation. Miami, Florida.

Harmon, G and F. Keim. 1934. The Percentage and Viability of Weed Seeds recovered in the Feces of Farm Animals and Their Longevity When Buried in Manure. *American Society of Agronomy 26*: *762-767.*

Hipes D, Jackson DR, NeSmith K, Printiss D, Brandt K. 2001. Field Guide to the Rare Animals of Florida. Tallahassee: Florida Natural Areas Inventory. 122 p.

Humphrey, SR, editor. 1992. Rare and Endangered Biota of Florida, Volume 1. Mammals. Gainesville, FL: University Press of Florida. 392 p.

International Llama Association. 1997. The Impacts of Llamas as Hiking Companions. An informational brochure from the International Llama Association.

Kale HW II, Maehr DS. 1990. Florida's Birds: A Handbook and Reference. Sarasota: Pineapple Press, Inc. 288 p.

Land Stewardship Staff of Lee County Parks and Recreation. (2012). Land Stewardship Operations Manual.

[LCDCD] Lee County Department of Community Development. The Lee Plan 2009 Codification As Amended through May 2011 [Internet]. [cited 2011 Mar 2]. Available from: http://www3.leegov.com/dcd/ComprehensivePlanning/planningmain.htm#The%20Lee%20Plan

[MDC] Missouri Department of Conservation. Endangered Species Guidesheet – Bachman's Sparrow [Internet]. [updated 1997 Jun: cited 2007 Sept 21]. Available from: http://mdc.mo.gov/nathis/endangered/endanger/bachspar/index.htm

Myers RL, Ewel JH, editors. 1990. Ecosystems of Florida. Orlando: University of Central Florida Press.

Nelson, Gil. 2000. *The Ferns of Florida*. Sarasota: Pineapple Press, Inc.

Schantz, Heidi A. "Comparing Forage Selection and Evaluating Trampling Impacts of Horses and Llamas in Wilderness and Backcountry Meadows." M.S. Thesis. Moscow: University of Idaho.

Tiner RW. 1998. In Search of Swampland, A Wetland Sourcebook and Fieldguide. New Brunswick, NJ: Rutgers University Press.

University of Florida Institute of Food and Agriculture Sciences. February 18, 2004. Save Florida's Native Bromeliads: Conservation of Endangered Airplanst Through Biological Control and Seed Collection. http://savebromeliads.ifas.ufl.edu/index.htm.

[USFWS] U.S. Fish and Wildlife Service. 1999. South Florida Multi-species Recovery Plan. Atlanta (GA): U.S. Fish and Wildlife Service. 2172 p.

Watson, Alan E., Neal A. Christensen, Dale J. Blahna & Kari S. Archibald. 1998. *Comparing Manager and Visitor Perceptions of Llama Use in Wilderness*. Ogden, UT: United States Department of Agriculture, Rocky Mountain Research Station.

Woodmansee, Steven W., and Jimi L. Sadle, April 2004. Preliminary List of Vascular Plants for Prairie Pines Preserve, Lee County, FL. The Institute for Regional Conservation, Miami, FL.

X. APPENDICES

Appendix A: YFCP Soils Chart

Appendix B: Plant Species List

Appendix C: Wildlife Species List

Appendix D: Drainage Easement

Appendix E: Other Easements

Appendix F: Legal Description

Appendix G: Expended and Projected Costs and Funding Sources

Appendix A: YFCP Soils Chart

Appendix A: YFCP Soils Chart

					Physical Attributes			*Biological Attributes*				
Soil Types	**Map Symbol**	**Total Acres**	**% of Preserve**	**Habitats (Range Site)**	**Wetland Class (1)**	**Hydrologic Group (2)**	**% Organic Matter**	**Potential as habitat for wildlife in--**				**Limitations for Recreational Paths & Trails**
								Openland	**Woodland**	**Wetland**	**Rangeland**	
Boca Fine Sand, Slough	74	85	25.07	south Florida flatwoods	S	B/D	1-3%	poor	very poor	fair	fair	Severe: wetness, too sandy
Hallandale Fine Sand	6	3	0.88	south Florida flatwoods		B/D	2-5%	poor	poor	fair	poor	Severe: wetness, too sandy
Isles Fine Sand, Depressional	39	9	2.7	freshwater marshes/ponds	P	D *	1-2%	very poor	very poor	good	--	Severe: wetness, too sandy
Malabar Fine Sand	34	15	4.42	slough	S	B/D	1-2%	poor	poor	fair	--	Severe: wetness, too sandy
Matlacha Gravelly Fine Sand, Limestone Substatum	18	4	1.18	manmade areas		C	not estimated	--	--	--	--	Severe: too sandy
Pineda Fine Sand	26	92	27.14	slough	S	B/D	.5-6%	fair	poor	fair	--	Severe: wetness, too sandy
Pineda Fine Sand, Depressional	73	4	1.18	freshwater marshes/ponds	P	D *	.5-6%	very poor	very poor	good	--	Severe: ponding, too sandy
Pineda Fine Sand, limestone substratum	77	3	0.88	slough	S	B/D	1-2%	fair	poor	fair	--	Severe: wetness, too sandy
Wabasso Sand	35	14	4.13	south Florida flatwoods		B/D	1-4%	poor	fair	poor	--	Severe: wetness, too sandy
Wabasso Sand, Limestone Substratum	42	106	31.27	south Florida flatwoods		B/D	2-5%	poor	fair	poor	--	Severe: wetness, too sandy

Color Key:

- Upland
- Wetlands Rarely Present (Under 20%)
- Wetlands Sometimes Present (20-40%)
- Wetlands Often Present (75-95%)

(1) F - Flooding: The temporary inundation of an area caused by overflowing streams, runoff from adjacent slopes or tides.
S - Slough (sheet flow): A broad nearly level, poorly defined drainage way that is subject to sheet-flow during the rainy season.
P - Ponding: Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

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

Appendix B: Plant Species List

Appendix 2: Plant Species List for Yellow Fever Creek Preserve

Scientific Name	Common Name	Status	EPPC	FDA	IRC	FNAI
Family: Azollaceae (mosquito fern)						
Woodwardia virginica	Virginia chain fern	native			R	
Family: Blechnaceae (mid-sorus fern)						
Blechnum serrulatum	swamp fern	native				
Family: Dennstaedtiaceae (cuplet fern)						
Pteridium aquilinum var. caudatum	lacy braken fern	native				
Pteridium aquilinum var. pseudocaudatum	tailed braken fern	native			R	
Family: Nephrolepidaceae (sword fern)						
Nephrolepis exaltata	wild Boston fern	native				
Nephrolepis multiflora	Asian sword fern	exotic	I			
Family: Polypodiaceae (polypody)						
Phlebodium aureum	golden polypody	native				
Pleopeltis polypodioides var. michauxiana	resurrection fern	native				
Family: Pteridaceae (brake fern)						
Pteris vittata	Chinese ladder brake	exotic	II			
Family: Schizaeaceae (curly-grass)						
Lygodium microphyllum	small-leaf climbing fern	exotic	I			
Family: Thelypteridaceae (marsh fern)						
Thelypteris kunthii	southern shield fern	native				
Family: Vittariaceae (shoestring fern)						
Vittaria lineata	shoestring fern	native				
Family: Cupressaceae (cedar)						
Taxodium ascendens	pond cypress	native				
Taxodium distichum	bald cypress	native				
Family: Pinaceae (pine)						
Pinus elliottii var. densa	south Florida slash pine	native				
Family: Alismataceae (water plantain)						
Sagittaria graminea var. chapmanii	Chapman's arrowhead	native			I	
Sagittaria lancifolia	bulltongue arrowhead	native				
Family: Amaryllidaceae (amaryllis)						
Hymenocallis palmeri	alligatorlily	native				
Family: Arecaceae (palm)						
Sabal palmetto	cabbage palm	native				
Serenoa repens	saw palmetto	native				
Family: Bromeliaceae (pineapple)						
Tillandsia balbisiana	northern needleleaf	native		T		
Tillandsia fasciculata var. densispica	cardinal airplant	native		E		
Tillandsia paucifolia	potbelly airplant	native				
Tillandsia recurvata	ball-moss	native				
Tillandsia setacea	southern needleleaf	native				
Tillandsia usneoides	Spanish-moss	native				
Tillandsia utriculata	giant airplant	native		E		
Family: Burmanniaceae (burmannia)						
Burmannia capitata	southern bluethread	native			R	
Family: Commelinaceae (spiderwort)						
Commelina erecta	whitemouth dayflower	native				
Murdannia spirata	Asiatic dewflower	exotic				
Family: Cyperaceae (sedge)						
Bulbostylis ciliatifolia	densetuft hairsedge	native			R	
Cladium jamaicense	Jamaica swamp sawgrass	native				
Cyperus articulatus	jointed flatsedge	native			I	

Appendix 2: Plant Species List for Yellow Fever Creek Preserve

Scientific Name	Common Name	Status	EPPC	FDA	IRC	FNAI
Cyperus croceus	Baldwin's flatsedge	native				
Cyperus haspan	haspan flatsedge	native				
Cyperus ligularis	swamp flatsedge	native				
Cyperus pumilus	low flatsedge	exotic				
Cyperus retrorsus	pinebarren flatsedge	native			R	
Cyperus rotundus	nutgrass	exotic				
Cyperus surinamensis	tropical flatsedge	native				
Eleocharis cellulosa	gulf coast spikerush	native				
Eleocharis geniculata	Canada spikerush	native				
Eleocharis interstincta	knotted spikerush	native				
Fimbristylis autumnalis	slender fimbry	native			R	
Fimbristylis cymosa	hurricanegrass	native				
Fimbristylis puberula	hairy fimbry	native			I	
Fimbristylis schoenoides	ditch fimbry	exotic				
Fuirena breviseta	saltmarsh umbrellasedge	native			R	
Fuirena scirpoidea	southern umbrellasedge	native			R	
Lipocarpha aristulata	awned halfchaff sedge	exotic				
Lipocarpha maculata	American halfchaff sedge	native			CI	
Lipocarpha micrantha	smallflower halfchaff sedge	native			I	
Rhynchospora colorata	starrush whitetop	native				
Rhynchospora divergens	spreading beaksedge	native				
Rhynchospora fascicularis	fascicled Beaksedge	native			R	
Rhynchospora globularis	globe beaksedge	native			I	
Rhynchospora inundata	Narrowfruit horned beaksedge	native			R	
Rhynchospora microcarpa	southern beaksedge	native			R	
Rhynchospora nitens	shortbeak beaksedge	native			R	
Rhynchospora odorata	fragrant beaksedge	native			R	
Rhynchospora plumosa	plumed beaksedge	native			R	
Rhynchospora tracyi	Tracy's beaksedge	native			R	
Schoenus nigricans	black bogrush	native				
Scleria ciliata	fringed nutrush	native			R	
Scleria ciliata var. pauciflora	fewflower nutrush	native			CI	
Scleria georgiana	slenderfruit nutrush	native			I	
Scleria reticularis	netted nutrush	native			R	
Family: Eriocaulaceae (pipewort)						
Eriocaulon decangulare	tenangle pipewort	native			R	
Lachnocaulon anceps	whitehead bogbutton	native			R	
Syngonanthus flavidulus	yellow hatpins	native			R	
Family: Haemodoraceae (blootwort)						
Lachnanthes caroliana	Carolina redroot	native				
Family: Hypoxidaceae (yellow stargrass)						
Hypoxis juncea	fringed yellow stargrass	native			R	
Hypoxis wrightii	bristleseed yellow stargrass	native			I	
Family: Iridaceae (iris)						
Sisyrinchium nashii	Nash's blueeyed-grass	native			R	
Family: Juncaceae (rush)						
Juncus marginatus	shorerush	native			R	
Juncus megacephalus	bighead rush	native			R	
Juncus polycephalos	manyhead rush	native			I	
Juncus scirpoides	needlepod rush	native			I	
Family: Liliaceae (lily)						

Appendix 2: Plant Species List for Yellow Fever Creek Preserve

Scientific Name	Common Name	Status	EPPC	FDA	IRC	FNAI
Lilium catesbaei	pine lily	native		T	I	
Family: Marantaceae (arrowroot)						
Thalia geniculata	alligatorflag	native				
Family: Nartheciaceae (bob asphodel)						
Aletris lutea	yellow colicroot	native			R	
Family: Orchidaceae (orchid)						
Eulophia alta	wild-coco	native				
Habenaria floribunda	toothpedal false reinorchid	native				
Habenaria quinqueseta	longhorn false reinorchid	native			R	
Oeceoclades maculata	monk orchid	exotic				
Sacoila lanceolata	beaked ladiestresses	native			I	
Spiranthes praecox	greenvein lady's-tresses	native			CI	
Family: Poaceae (grass)						
Amphicarpum muhlenbergianum	blue maidencane	native			R	
Andropogon glomeratus var. glaucopsis	purple bluestem	native			R	
Andropogon glomeratus var. hirsutior	hairy bushy bluestem	native			I	
Andropogon glomeratus var. pumilus	common bushy bluestem	native				
Andropogon gyrans	Elliott's bluestem	native			I	
Andropogon ternarius	splitbeard bluestem	native				
Andropogon virginicus	broomsedge bluestem	native			I	
Andropogon virginicus var. decipiens	broomsedge bluestem	native			I	
Andropogon virginicus var. glaucus	chalky bluestem	native			R	
Aristida beyrichiana	southern wiregrass	native				
Aristida patula	tall threeawn	native			R	
Aristida purpurascens	arrowfeather threeawn	native				
Aristida spiciformis	bottlebrush threeawn	native			R	
Aristida stricta var. beyrichiana	wiregrass	native				
Axonopus fissifolius	common carpetgrass	native			R	
Cenchrus spinifex	coastal sandbur	native				
Coelorachis rugosa	wrinkled jointtailgrass	native			R	
Dichanthelium aciculare	needleleaf witchgrass	native				
Dichanthelium commutatum	variable witchgrass	native			R	
Dichanthelium dichotomum	cypress witchgrass	native			R	
Dichanthelium ensifolium	cypress witchgrass	native			I	
Dichanthelium erectifolium	erectleaf witchgrass	native			R	
Dichanthelium portoricense	hemlock witchgrass	native				
Dichanthelium strigosum var. glabrescens	roughhair witchgrass	native				
Digitaria longiflora	Indian crabgrass	exotic				
Eragrostis atrovirens	thalia lovegrass	native				
Eragrostis ciliaris	gophertail lovegrass	exotic				
Eragrostis elliottii	Elliott's lovegrass	native				
Eustachys glauca	saltmarsh fingergrass	native				
Eustachys petraea	pinewoods fingergrass	native				
Heteropogon contortus	tanglehead	native			I	
Hymenachne amplexicaulis	trompetilla	exotic	I			
Imperata brasiliensis	Brazilian satintail	native			R	
Imperata cylindrica	cogongrass	exotic	I			
Leersia hexandra	southern cutgrass	native			R	
Muhlenbergia capillaris	hairawnmuhly	native				
Oplismenus hirtellus	woodsgrass	native				
Panicum hemitomon	maidencane	native				

Appendix 2: Plant Species List for Yellow Fever Creek Preserve

Scientific Name	Common Name	Status	EPPC	FDA	IRC	FNAI
Panicum hians	gaping panicum	native			R	
Panicum maximum	guineagrass	exotic	II			
Panicum repens	torpedograss	exotic	I			
Panicum rigidulum	redtop panicum	native				
Panicum tenerum	bluejoint panicum	native			R	
Panicum virgatum	switchgrass	native				
Paspalidium geminatum	Egyptian paspalidium	native			I	
Paspalum monostachyum	gulfdune paspalum	native			R	
Paspalum notatum	bahia grass	exotic				
Palpalum praecox	early paspalum	native			I	
Paspalum setaceum	thin paspalum	native				
Paspalum vaginatum	seashore paspalum	native				
Pennisetum purpureum	napier grass	exotic	I			
Phragmites australis	common reed	native			R	
Reimarochloa oligostachya	Florida reimargrass	native				
Rhynchelytrum repens	rose natalgrass	exotic	I			
Saccharum giganteum	sugercane plumegrass	native				
Sacciolepis indica	Indian cupscale	exotic				
Schizachyrium rhizomatum	rhizomatous bluestem	native				
Setaria parviflora	knotroot foxtail	native				
Sorghastrum secondum	lopsided indiangrass	native				
Spartina bakeri	sand cordgrass	native				
Sporobolus indicus var. pyramidalis	West Indian dropseed	exotic				
Sporobolus junceus	pineywoods dropseed	native				
Tripsacum dactyloides	Fakahatcheegrass	native			R	
Family : Pontederiaceae (pickerelweed)						
Pontederia cordata	pickerelweed	native				
Family: Smilacaceae (smilax)						
Smilax auriculata	earleaf greenbriar	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	
Xyris brevifolia	shortleaf yelloweyed grass	native			I	
Xyris caroliniana	Carolina yelloweyed grass	native			R	
Xyris elliottii	Elliott's yelloweyed grass	native			R	
Xyris flabelliformis	Savannah yelloweyed grass	native			I	
Xyris smalliana	Small's yelloweyed grass	native			I	
Family: Acanthaceae (acanthus)						
Dyschoriste oblongifolia	oblongleaf twinflower	native			I	
Elytraria caroliniensis var. caroliniensis	Carolina scalystem	native			CI	
Ruellia succulenta	thickleaf wild petunia	native				
Stenandrium dulce	sweet shaggytuft	native			R	
Family: Amaranthaceae (Amaranth)						
Amaranthus australis	southern amaranth	native			R	
Gomphrena serrata	globe amaranth	exotic				
Iresine diffusa	Juba's bush	native				
Family: Anacardiaceae (cashew)						
Rhus copallinium	winged sumac	native				
Schinus terebinthifolius	Brazilian pepper	exotic	I			

Appendix 2: Plant Species List for Yellow Fever Creek Preserve

Scientific Name	Common Name	Status	EPPC	FDA	IRC	FNAI
Toxicodendron radicans	eastern poison ivy	native				
Family: Annonaceae (custard-apple)						
Asimina reticulata	netted pawpaw	native				
Family: Apiaceae (carrot)						
Eryngium baldwinii	Baldwin's eryngo	native			R	
Eryngium yuccifolium	button rattlesnakemaster	native			R	
Oxypolis filiformis	water cowbane	native				
Ptilimnium capillaceum	mock bishopsweed	native				
Family: Apocynaceae (dogbane)						
Asclepias pedicellata	Savannah milkweed	native			I	
Asclepias tuberosa	butterflyweed	native			R	
Sarcostemma clausum	white twinevine	native				
Family: Aquifoliaceae (holly)						
Ilex cassine	dahoon	native				
Ilex glabra	gallberry	native				
Family: Araliaceae (ginseng)						
Centella asiatica	spadeleaf					
Family: Asteraceae (aster)						
Acmella oppositifolia var. repens	oppositeleaf spotflower	native			I	
Ambrosia artemisiifolia	common ragweed	native				
Baccharis glomeruliflora	silverling	native				
Baccharis halimifolia	groundsel tree	native				
Bidens alba var. radiata	beggarticks	native				
Bigelowia nudata subsp. australis	pineland rayless goldenrod	native			R	
Boltonia diffusa	smallhead doll's-daisy	native			I	
Carphephorus corymbosus	Florida paintbrush	native			R	
subtropicanus	false vanillaleaf	native			I	
Chaptalia tomentosa	pineland daisy	native			R	
Cirsium horridulum	purple thistle	native				
Conoclinium coelestinum	blue mistflower	native				
Conyza canadensis var. pusilla	dwarf Canadian horseweed	native				
Coreopsis floridana	Florida tickseed	native			I	
Coreopsis leavenworthii	Leavonworth's tickseed	native				
Cyanthillium cinereum	little ironweed	exotic				
Elephantopus elatus	tall elephantsfoot	native			R	
Emilia sonchifolia	lilac tassleflower	exotic				
Erechtites hieracifolia	fireweed	native				
Erigeron quercifolius	oakleaf fleabane	native				
Erigeron vernus	early whitetop fleabane	native			R	
Eupatorium capillifolium	dogfennel	native				
Eupatorium leptophyllum	falsefennel	native			R	
Eupatorium mohrii	Mohr's thoroughwort	native			R	
Eupatorium rotundifolium	roundleaf thoroughwort	native			I	
Euthamia caroliniana	slender flattop goldenrod	native				
Flaveria linearis	narrowleaf yellowtops	native				
Gamochaeta falcata	narrowleaf purple everlasting	native				
Helenium pinnatifidum	southeastern sneezeweed	native			R	
Heterotheca subaxillaris	camphorweed	native				
Hieracium megacephalon	coastal plain hawkweed	native				
Iva microcephala	piedmont marshelder	native				
Liatris tenuifolia	shortleaf gayfeather	native			R	

Appendix 2: Plant Species List for Yellow Fever Creek Preserve

Scientific Name	Common Name	Status	EPPC	FDA	IRC	FNAI
Mikania cordifolia	Florida Keys hempvine	native			R	
Mikania scandens	climbing hempvine	native				
Pectis prostrata	spreading cinchweed	native				
Pityopsis graminifolia	narrowleaf silkgrass	native				
Pluchea odorata	sweetscent	native				
Pluchea rosea	rosy camphorweed	native				
Pterocaulon pycnostachyum	blackroot	native				
Rubeckia hirta	blackeyed susan	native				
Solidago fistulosa	pinebarren goldenrod	native			R	
Solidago odora var. chapmanii	Chapman's goldenrod	native				
Solidago sempervirens	seaside goldenrod	native			R	
Solidago stricta	wand goldenrod	native				
Solidago tortifolia	twistedleaf goldenrod	native			I	
Symphyotrichum adnatum	scaleleaf aster	native				
Symphyotrichum bracei	Brace's aster	native				
Symphyotrichum carolinianum	climbing aster	native				
Symphyotrichum dumosum	rice button aster	native				
Symphyotrichum subulatum	annual saltmarsh aster	native				
Vernonia blodgettii	Florida ironweed	native			R	
Family: Boraginaceae (borage)						
Heliotropium polyphyllum	pineland heliotrope	native				
Family: Cactaceae (cactus)						
Opuntia humifusa	pricklypear	native				
Family: Campanulaceae (bellflower)						
Lobelia feayana	bay lobelia	native			I	
Lobelia glandulosa	glade lobelia	native				
Lobelia paludosa	white lobelia	native			I	
Family: Caryophylliaceae (pink)						
Stipulicida setacea var. lacerata	pineland scalypink	native			I	
Family: Cistaceae (rockrose)						
Helianthemum corymbosum	pinebarren frostweed	native			R	
Lechea torreyi	piedmont pinweed	native			R	
Family: Clusiaceae (mangosteen)						
Hypericum brachyphyllum	coastalplain St. John's-wort	native			R	
Hypericum cistifolium	roundpod St. John's-wort	native				
Hypericum crux-andreae	St. Peter's-wort	native			CI	
Hypericum fasciculatum	peelbark St. John's-wort	native			R	
Hypericum hypericoides	St. Andrew's cross	native				
Hypericum mutilum	dwarf St. John's-wort	native			I	
Hypericum reductum	Atlantic St. John's-wort	native			R	
Hypericum tetrapetalum	fourpetal St. John's-wort	native				
Family: Convoluvulaceae (morningglory)						
Evolvulus sericeus	silver dwarf morning-glory	native				
Ipomoea sagittata	Everglades morningglory	native				
Ipomoea triloba	littlebell	exotic				
Family: Crassulaceae (orpine)						
Kalanchoe daigremontiana	devil's-backbone	exotic				
Family: Droseraceae (sundew)						
Drosera brevifolia	dwarf sundew	native			I	
Drosera capillaris	pink sundew	native			R	
Family: Ebenaceae (ebony)						

Appendix 2: Plant Species List for Yellow Fever Creek Preserve

Scientific Name	Common Name	Status	EPPC	FDA	IRC	FNAI
Diospyros virginiana	persimmon	native			R	
Family: Ericaceae (heath)						
Bejaria racemosa	tarflower	native			R	
Lyonia fruticosa	coastalplain staggerbush	native				
Vaccinium myrsinites	shiny blueberry	native				
Family: Euphorbiaceae (spurge)						
Caperonia castaneifolia	chestnutleaf falsecroton	native			I	
Chamaesyce hyssopifolia	hyssopleaf sandmat	native				
Chamaesyce thymifolia	gulf sandmat	native			I	
Cnidoscolus stimulosus	tread-softly	native				
Croton glandulosus	vente conmigo	native				
Euphorbia inundata	Florida pineland spurge	native			CI	
Euphorbia polyphylla	lesser Florida spurge	native				
Phyllanthus caroliniensis subsp. saxicola	rock carolina leafflower	native			R	
Phyllanthus urinaria	chamber bitter	exotic				
Stillingia aquatica	corkwood	native			R	
Stillingia sylvatica	queensdelight	native			R	
Family: Fabaceae (pea)						
Abrus precatorius	rosary pea	native	I			
Acacia auriculiformis	earleaf acacia	exotic	I			
Albizia lebbeck	woman's tongue	exotic	I			
Amorpha fruticosa	bastard false indigobush	native			I	
Chamaecrista fasciculata	partridge pea	native				
Chamaecrista nictitans var. aspera	sensitive-pea	native				
Crotalaria rotundifolia	rabbitbells	native				
Dalea carnea	whitetassels	native			R	
Desmodium floridanum	Florida ticktrefoil	native			CI	
Desmodium incanum	beggar's-ticks	native				
Desmodium paniculatum	panicled ticktrefoil	native			I	
Desmodium triflorum	threeflower ticktrefoil	exotic				
Galactia elliottii	Elliott's milkpea	native				
Galactia regularis	eastern milkpea	native			R	
Indigofera caroliniana	Carolina indigo	native			I	
Indigofera hirsuta	hairy indigo	exotic				
Sesbania herbacea	danglepod	native				
Family: Fagaceae (beech)						
Quercus elliottii	running oak	native				
Quercus geminata	sand live oak	native				
Quercus laurifolia	laurel oak	native				
Quercus minima	dwarf live oak	native			R	
Quercus myrtifolia	myrtle oak	native				
Quercus virginiana	Virginia live oak	native				
Family: Gentianaceae (gentian)						
Sabatia brevifolia	shortleaf rosegentian	native			I	
Sabatia stellaris	rose-of-plymouth	native				
Family: Haloragaceae (watermilfoil)						
Proserpinaca palustris	marsh mermaidweed	native			R	
Proserpinaca pectinata	combleaf mermaidweed	native			R	
Family: Hydroleaceae (false fiddleleaf)						
Hydrolea corymbosa	skyflower	native			R	
Family: Lamiaceae (mint)						

Appendix 2: Plant Species List for Yellow Fever Creek Preserve

Scientific Name	Common Name	Status	EPPC	FDA	IRC	FNAI
Hyptis alata	musky mint	native				
Physostegia purpurea	eastern false dragonhead	native			I	
Piloblephis rigida	wild pennyroyal	native			R	
Family: Lauraceae (laurel)						
Cassytha filiformis	lovevine	native				
Persea palustris	swamp bay	native				
Family: Lentibulariaceae (bladderwort)						
Pinguicula lutea	yellow butterwort	native		T	CI	
Pinguicula pumila	small butterwort	native			R	
Utricularia cornuta	horned bladderwort	native			R	
Utricularia foliosa	leafy bladderwort	native			R	
Utricularia gibba	humped bladderwort	native			I	
Utricularia purpurea	eastern purple bladderwort	native			R	
Utricularia simulans	fringed bladderwort	native			I	
Utricularia subulata	zigzag bladderwort	native			R	
Family: Linaceae (flax)						
Linum medium var. texanum	stiff yellow flax	native			R	
Family: Loganiaceae (logania)						
Mitreola petiolata	lax hornpod					
Mitreola sessilifolia	swamp hornpod	native			R	
Family: Lythraceae (loosestrife)						
Ammannia latifolia	pink redstem, toothcups	native			R	
Cuphea carthagenensis	Columbian waxweed	exotic				
Lythrum alatum var. lanceolatum	winged loosestrife	native			R	
Rotala ramosior	lowland rotala, toothcup	exotic			I	
Family: Malvaceae (mallow)						
Melochia corchorifolia	chocolateweed	exotic				
Melochia spicata	bretonica peluda	native			I	
Sida cordifolia	Ilima	exotic				
Sida rhombifolia	Cuban jute, Indian hemp	native				
Urena lobata	caesarweed	native	II			
Family: Melastomataceae (melastome)						
Rhexia cubensis	West Indian meadowbeauty	native			I	
Rhexia mariana	pale meadowbeauty	native			R	
Rhexia nuttallii	Nuttall's meadowbeauty	native			I	
Family: Moraceae (mulberry)						
Ficus aurea	strangler fig	native				
Ficus microcarpa	Indian laurel	exotic	I			
Family: Myricaceae (bayberry)						
Myrica cerifera	wax myrtle	native				
Family: Myrsinaceae (myrsine)						
Rapanea punctata	myrsine	native				
Family: Myrtaceae (myrtle)						
Melaleuca quinquenervia	punktree	exotic	I			
Syzygium cumini	Java plum	exotic	I			
Family: Nymphaeaceae (waterlily)						
Nymphaea elegans	tropical royalblue waterlily	native			I	
Family: Onagraceae (eveningprimrose)						
Ludwigia alata	winged primrosewillow	native			R	
Ludwigia curtissii	Curtiss's primrosewillow	native			R	
Ludwigia maritima	seaside primrosewillow	native			R	

Appendix 2: Plant Species List for Yellow Fever Creek Preserve

Scientific Name	Common Name	Status	EPPC	FDA	IRC	FNAI
Ludwigia microcarpa	smallfruit primrosewillow	native			R	
Ludwigia octovalvis	Mexican primrosewillow	native				
Ludwigia peruviana	Peruvian primrosewillow	exotic				
Ludwigia repens	creeping primrosewillow	native				
Family: Orobanchaceae (broomrape)						
Agalinis purpurea	purple false foxglove	native				
Buchnera americana	American bluehearts	native				
Family: Oxalidaceae (woodsorrel)						
Oxalis corniculata	common yellow woodsorrel	native				
Family: Passifloraceae (passionflower)						
Passiflora suberosa	corkystem passionflower	native				
Family: Phytolaccaceae (pokeweed)						
Phytolacca americana	American pokeweed	native				
Family: Polygalaceae (milkwort)						
Polygala cruciata	drumheads	native			I	
Polygala grandiflora	showy milkwort	native				
Polygala incarnata	procession flower	native			R	
Polygala nana	candyroot	native			R	
Polygala polygama	racemed milkwort	native			CI	
Polygala setacea	coastalplain milkwort	native			I	
Family: Polygonaceae (buckwheat)						
Polygonella polygama var. brachystachya	October flower	native			I	
Polygonum densiflorum	denseflower knotweed	native			R	
Polygonum hydropiperoides	swamp smartweed	native			R	
Polygonum punctatum	dotted smartweed	native				
Family: Primulaceae (primrose)						
Anagallis pumila	Florida pimpernel	native			CI	
Oenothera laciniata	Cutleaf evening primrose	native				
Family: Rubiaceae (madder)						
Cephalanthus occidentalis	common buttonbush	native				
Diodia teres	rough buttonweed	native			R	
Diodia virginiana	virginia buttonweed	native			R	
Houstonia procumbens	innocence, roundleaf bluet	native				
Oldenlandia uniflora	clustered mille graines	native				
Pentodon pentandrus	Hale's pentodon	native			I	
Psychotria nervosa	wild-coffee	native				
Richardia brasiliensis	tropical Mexican clover	exotic				
Richardia scabra	rough Mexican clover	exotic				
Spermacoce assurgens	woodland false buttonweed	native				
Spermacoce prostrata	prostrate false buttonweed	native			R	
Spermacoce verticillata	shrubby false buttonweed	exotic				
Family: Salicaceae (willow)						
Salix caroliniana	Carolina willow	native				
Family: Sapindaceae (soapberry)						
Cupaniopsis anacardioides	carrotwood	exotic	I			
Family: Sapotaceae (sapodilla)						
Sideroxylon reclinatum	Florida bully	native			R	
Family: Solanaceae (nightshade)						
Physalis pubescens	husk tomato	native			R	
Solanum tampicense	aquatic soda-apple	exotic	I			
Solanum torvum	turkeyberry	exotic	II			

Appendix 2: Plant Species List for Yellow Fever Creek Preserve

Scientific Name	Common Name	Status	EPPC	FDA	IRC	FNAI
Family: Tetrachondraceae (tetrachondra)						
Polypremum procumbens	rustweed, juniperleaf	native				
Family: Turneraceae (turnera)						
Piriqueta caroliniana	pitted stripeseed	native				
Turnera ulmifolia	yellow alder	exotic				
Family: Urticaceae (nettle)						
Boehmeria cylindrica	false nettle	native				
Family: Verbenaceae (vervain)						
Callicarpa americana	American beautyberry	native				
Phyla nodiflora	capeweed	native				
Family: Veronicaceae (speedwell)						
Bacopa caroliniana	lemon bacopa	native				
Bacopa innominata	tropical waterhyssop	native			CI	
Bacopa monnieri	herb-of-grace	native				
Gratiola hispida	rough hedgehyssop	native			I	
Gratiola pilosa	shaggy hedgehyssop	native				
Gratiola ramosa	branched hedgehyssop	native			R	
Lindernia crustacea	Malaysian false pimpernel	exotic				
Lindernia grandiflora	Savannah false-pimpernel	native			I	
Mecardonia acuminata subsp. peninsularis	axilflower	native				
Micranthemum glomeratum	manatee mudflower	native			I	
Scoparia dulcis	licoriceweed	native				
Family: Violaceae (violet)						
Viola palmata	early blue violet	native			CI	
Family: Vitaceae (grape)						
Parthenocissus quinquefolia	Virginia creeper	native				
Vitis rotundifolia	muscadine					
Vitis shuttleworthii	Calusa grape	native			R	

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

Appendix 2: Plant Species List for Yellow Fever Creek Preserve

Scientific Name	Common Name	Status	EPPC	FDA	IRC	FNAI

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

Appendix C: Wildlife Species List

Appendix 5: Wildlife Species List for Yellow Fever Creek 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 shermani	Sherman's fox squirrel	SSC		G5T3/S2
Family: Muridae (mice and rats)				
Sigmodon hispidus	hispid cotton rat			
Family: Leporidae (rabbits and hares)				
Sylvilagus floridanus	eastern cottontail			
Family: Talpidae (moles)				
Scalopus aquaticus	eastern mole			
Family: Felidae (cats)				
Lynx rufus	bobcat			
Family: Canidae (wolves and foxes)				
Canis latrans	coyote			
Family: Procyonidae (raccoons)				
Procyon lotor	raccoon			
Family: Mephitidae (skunks)				
Spilogale putorius	eastern spotted skunk			
Family: Suidae (old world swine)				
Sus scrofa	feral hog *			
BIRDS				
Family: Anatidae (swans, geese and ducks)				
Subfamily: Anatinae				
Anas fulvigula	mottled duck			
Anas discors	blue-winged teal			
Family: Odontophoridae (new world quails)				
Colinus virginianus	northern bobwhite			
Family: Ciconiidae (storks)				
Mycteria americana	wood stork	E	E	G4/S2
Family: Podicipedidae (grebes)				
Podilymbus podiceps	pied-billed grebe			
Family: Phalacrocoracidae (cormorants)				
Phalacrocorax auritus	double-crested cormorant			
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			
Butorides virescens	green heron			
Family: Threskiornithidae (ibises and spoonbills)				
Subfamily: Threshiornithinae				
Eudocimus albus	white ibis	SSC		G5/S4
Subfamily: Plataleinae				
Ajaia ajaja	roseate spoonbill	SSC		G5/S2
Family: Cathartidae (new world vultures)				
Coragyps atratus	black vulture			
Cathartes aura	turkey vulture			

Appendix 5: Wildlife Species List for Yellow Fever Creek Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Family: Pandionidae (ospreys)				
Pandion haliaetus	osprey			G5/S3S4

Appendix 5: Wildlife Species List for Yellow Fever Creek Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Family: Accipitridae (hawks, kites, accipiters, harriers, eagles)				
Elanoides forficatus	swallow-tailed kite			G5/S2
Hailaeetus leucocephalus	bald eagle	T		G5/S3
Accipiter cooperii	Cooper's hawk			G5/S3
Buteo lineatus	red-shouldered hawk			
Buteo jamaicensis	red-tailed hawk			
Family: Rallidae (coots and gallinules)				
Gallinula chloropus	common moorhen			
Fulica americana	American coot			
Family: Charadriidae (plovers)				
Subfamily: Charadriinae				
Charadrius vociferus	killdeer			
Family: Columbidae (pigeons and doves)				
Zenaida macroura	mourning dove			
Columbina passerina	common ground-dove			
Family: Strigidae (true owls)				
Bubo virginianus	great horned owl			
Family: Caprimulgidae (goatsuckers)				
Subfamily: Chordeilinae				
Chordeiles minor	common nighthawk			
Family: Alcedinidae (kingfishers)				
Ceryle alcyon	belted kingfisher			
Family: Picidae (woodpeckers)				
Subfamily: Picinae				
Melanerpes carolinus	red-bellied woodpecker			
Sphyrapicus varius	yellow-bellied sapsucker			
Picoides pubescens	downy woodpecker			
Colaptes auratus	northern flicker			
Dryocopus pileatus	pileated woodpecker			
Family: Falconidae (falcons)				
Subfamily: Falconinae (falcons)				
Falco sparverius	American kestrel			
Family: Tyrannidae (tyrant flycatchers)				
Subfamily: Fluvicolinae				
Sayornis phoebe	eastern phoebe			
Myiarchus crinicensis	great-crested flycatcher			
Family: Laniidae (shrikes)				
Lanius ludovicianus	loggerhead shrike			
Family: Vireonidae (vireos)				
Vireo griseus	white-eyed vireo			
Vireo solitarius	blue-headed vireo			
Family: Corvidae (crows, jays, etc.)				
Cyanocitta cristata	blue jay			
Corvus ossifragus	fish crow			
Family: Hirundinidae (swallows)				
Subfamily: Hirundinidae				
Progne subis	purple martin			
Tachycineta bicolor	tree swallow			
Riparia riparia	bank swallow			
Hirundo rustica	barn swallow			
Family: Paridae (chickadees and titmice)				
Baeolophus bicolor	tufted titmouse			
Family: Troglodytidae (wrens)				
Troglodytes aedon	house wren			
Cistothorus palustris	marsh wren			

Appendix 5: Wildlife Species List for Yellow Fever Creek Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Thryothorus ludovicianus	Carolina wren			
Family: Regulidae (kinglets)				
Regulus calendula	ruby-crowned kinglet			
Family: Polioptilidae				
Polioptila caerulea	blue-gray gnatcatcher			
Family: Turdidae (thrushes)				
Turdus migratorius	American robin			
Family: Mimidae (mockingbirds and thrashers)				
Dumetella carolinensis	gray catbird			
Toxostoma rufum	brown thrasher			
Mimus polyglottos	northern mockingbird			
Family: Parulidae (wood-warblers)				
Mniotilta varia	black-and-white warbler			
Protonotaria citrea	prothonotary warbler			
Geothlypis tristis	common yellowthroat			
Setophaga ruticilla	American redstart			
Parula americana	northern parula			
Dendroica palmarum	palm warbler			
Dendroica pinus	pine warbler			
Dendroica coronata	yellow-rumped warbler			
Dendroica dominica	yellow-throated warbler			
Family: Emberizine (sparrows and their allies)				
Pipilo erythrophthalmus	eastern towhee			
Family: Cardinalidae (cardinals, some grosbeaks, new world buntings, etc.)				
Cardinalis cardinalis	northern cardinal			
Family: Icteridae (blackbirds, orioles, etc.)				
Dolichonyx oryzivorus	bobolink			
Agelaius phoeniceus	red-winged blackbird			
Quiscalus quiscula	common grackle			
Quiscalus major	boat-tailed grackle			
REPTILES				
Family: Emydidae (box and water turtles)				
Pseudemys floridana peninsularis	peninsula cooter			
Pseudemys nelsoni	Florida redbelly turtle			
Family: Testudinidae (gopher tortoises)				
Gopherus polyphemus	gopher tortoise	T		G3/S3
Family: Polychridae (anoles)				
Anolis sagrei	brown anole *			
Family: Teiidae (whiptails)				
Cnemidophorus sexlineatus sexlineatus	six-lined racerunner			
Family: Scincidae (skinks)				
Eumeces fasciatus	five-lined skink			
Family: Colubridae (colubrids)				
Nerodia fasciata pictiventris	Florida water snake			
Coluber constrictor priapus	southern black racer			
Elaphe guttata guttata	corn snake			
AMPHIBIANS				
Family: Leptodactylidae (tropical frogs)				
Eleutherodactylus planirostris planirostris	greenhouse frog *			
Family: Bufonidae (toads)				
Bufo terrestris	southern toad			
Bufo quercicus	oak toad			
Family: Hylidae (treefrogs and their allies)				
Acris gryllus dorsalis	Florida cricket frog			
Hyla cinerea	green treefrog			

Appendix 5: Wildlife Species List for Yellow Fever Creek Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Hyla squirella	squirrel treefrog			
Osteopilus septentrionalis	Cuban treefrog *			
Family: Microhylidae (narrowmouth toads)				
Gastrophryne carolinensis	eastern narrowmouth toad			

Appendix 5: Wildlife Species List for Yellow Fever Creek Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Family: Ranidae (true frogs)				
Rana grylio	pig frog			
Rana utricularia	southern leopard frog			
FISHES				
Family: Lepisosteidae (gar fish)				
Lepisosteus platyrhincus	Florida gar			
Family: Centrarchidae (sunfishes and basses)				
Micropterus salmoides	largemouth bass			
Lepomis macrochirus	bluegill			
Lepomis microlophus	redear sunfish			
INSECTS				
Family: Acrididae (grasshoppers)				
Romalea microptera	eastern lubber grasshopper			
Family: Pieridae (whites and sulphurs)				
Subfamily: Coliadinae (sulphurs)				
Eurema lisa	little sulphur			
Family: Lycaenidae (gossamer-wings)				
Subfamily: Theclinae (hairstreaks)				
Strymon melinus	gray hairstreak			
Family: Nymphalidae (brushfoots)				
Subfamily: Heliconiinae (longwings)				
Agraulis vanillae	gulf fritillary			
Subfamily: Nymphalinae (brushfoots)				
Junonia coenia	common buckeye			
Anartia jatrophae	white peacock			
Subfamily: Limenitidinae (admirals)				
Limenitis archippus	viceroy			
Subfamily: Danaidae (milkweed butterfiles)				
Danaus gilippus	queen			
GASTROPODS				
Family: Ampullariidae (apple snails)				
Pomaceae paludosa	Florida apple snail			

Appendix 5: Wildlife Species List for Yellow Fever Creek Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**

KEY:

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

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

*** = Non-native**

Appendix D: Drainage Easement

OR2496 PG1486

10.50 Filed 70

Prepared By:
Nancy J. Suhrie
City of Cape Coral
P.O. Box 15007
Cape Coral, FL 33915-0027
STRAP: 30-43-24-A0-00004-0000

3584369

PERMANENT UTILITY EASEMENT

This grant of an Easement, made this 20th day of December 1993, by and between Bernard Fliegel, Trustee and Don David Derzavis, 1 Bluebill Avenue, Naples, FL. 33940 in the County of Collier, State of Florida, "Grantor", and the CITY OF CAPE CORAL, FLORIDA, a municipal corporation, "Grantee":

WITNESSETH, That said Grantors, for and in consideration of the sum of Ten and 00/100 Dollars ($10.00) and other good and valuable considerations to said Grantors in hand paid by said Grantee, the receipt whereof is hereby acknowledged, has granted, and conveyed to the said Grantee, and Grantee's successors and assigns forever, a perpetual easement to survey, construct, operate, maintain, remove, replace or abandon in place and control utility facilities, in, along, and upon the following described land, situate, lying and being in Lee County, Florida, to wit:

A tract or parcel of land for public drainage and utility easement purposes lying 10 feet each side and contiguious to a 140 foot right-of-way, and more particularly described in attached Exhibit "A" and incorported herein by reference.

WITNESS WHEREOF, Grantors has hereunto set their hands the day and year first above written.

• RECORD VERIFIED - CHARLIE GREEN, CLERK •
• By: KAY TANNER, D.C. •

Documentary Tax Pd. $ ____ Intangible Tax Pd. $ ____
CHARLIE GREEN, CLERK, LEE COUNTY
By Deputy Clerk

Louis L. Carter (1)
Witness - Signature

DORIS S CARTER (1)
Witness - Print or Type Name

Ronald Sinkan (2)
Witness - Signature

Ronald Sinkan (2)
Witness - Print or Type Name

Bernard Fliegel
Bernard Fliegel, TR.

(by DERAVIS)
Don David Derzavis

STATE OF: Maryland **S**

COUNTY OF: Montgomery **S**

Sworn to and subscribed before me this 20th day of December 1993 by Don David Derzavis who is/is not personally known by me or has produced the following as identification _____.
(describe type of identification)

My Commission Expires:
CHARLES J. CAVANAUGH
NOTARY PUBLIC STATE OF MARYLAND
~~My Commission Expires February 1, 1997~~

Notary Public - Signature

Charles J. Cavanaugh
Print Name of Notary

Notary Number:

State of Florida
County of Collier

Sworn to and subscribed before me this 31st day of DECEMBER 1993 by Bernard Fliegel who is personally known by me or has ~~produced the following as identification~~.

My Commission Expires:

CARIDAD M GONZALEZ
My Commission CC304858
Expires Aug. 03, 1997
Bonded by ANB
800-852-5878

Caridad M. Gonzalez
NOTARY PUBLIC - Signature

CARIDAD M. GONZALEZ

EXHIBIT A

LEGAL DESCRIPTION

PERMANENT UTILITY EASEMENT
SECTION 30, T. 43 S., R. 24 W.

LEE COUNTY, FLORIDA

A tract or parcel of land for public drainage and utility easement purposes lying 10 feet each side and contiguous to the following described 140 foot right-of-way:

A tract of land for a proposed road right of way situated in the east one-half of the northeast one-quarter of (E ½ NE ¼) Section 30 and the northwest one-quarter of the northwest one-quarter (NW ¼ NW ¼) of Section 29, all in Township 43 South, Range 24 East, Lee County, Florida, being hereby designated Tract "B" and more particularly described as follows; Commencing at the corner common to Sections 19, 20, 29, and 30, the Point of Beginning; Thence S88°52'32"E a distance of 167.53 feet along the line common to Sections 20 and 29, to a point on a curve, concave to the southeast, having a radius of 3,042.29 feet; Thence southwesterly along said curve a distance of 1,891.41 feet, through a central angle of 35°37'30", said curve segment is subtended by a chord which bears S17°29'04"W a distance of 1,861.29 feet to the point of tangency; Thence S00°19'41"E a distance of 875.61 feet to a point on the east west midsection line of Section 30; Thence N88°56'39"W a distance of 140.01 feet along the last described line; Thence N00°19'41"W a distance of 872.22 feet, to the point of curvature, of a curve concave to the southeast; having a radius of 3,182.29 feet; Thence northeasterly along said curve a distance of 1,884.55 feet, through a central angle of 33°55'50", said curve segment is subtended by a chord which bears N16°38'14"E a distance of 1,857.13 feet to the Point of Beginning, bearings are based on the north line of the northeast one quarter of Section 29, Township 43 South, Range 24 East, Lee County, Florida, being derived as N89°23'54"E from the official plat of CAPE CORAL SUBDIVISION, UNIT 85, recorded in Plat Book 24 at pages 49 through 58, of the Public records of Lee County Florida.
Containing 8.88 acres, more or less.

Less and excepting the northeasterly 793.67 feet of right of way line which is also the westerly boundary of "Tract A" as described in the official records of Lee County in Book 2196 Page 1714.

Appendix E: Other Easements

2455234

IN THE CIRCUIT COURT OF THE TWENTIETH JUDICIAL CIRCUIT IN AND FOR LEE COUNTY, FLORIDA CIVIL ACTION

LEE COUNTY ELECTRIC COOPERATIVE, INC., a Florida corporation not for profit,

Plaintiff,

vs.

MEADOWBROOK HEIGHTS, INC., a Florida corporation, and DICK STEELE, Tax Collector of Lee County, Florida,

Defendants.

2453518

CASE NO. 86-5944 CA-JHS

FILED

FINAL JUDGMENT

THIS CAUSE, having come on for hearing upon the joint motion for entry of a final judgment made by the Plaintiff, LEE COUNTY ELECTRIC COOPERATIVE, INC., a Florida corporation not for profit, and Defendants, MEADOWBROOK HEIGHTS, INC., a Florida corporation, and DICK STEELE, Tax Collector of Lee County, Florida, and it appearing to the Court that the parties are authorized to enter into such motion, and the court finding that the compensation to be paid to the Defendant, MEADOWBROOK HEIGHTS, INC., is full, just and reasonable for all parties concerned, and the Court having been fully advised in the premises, it is now therefore

ORDERED, ADJUDGED and DECREED:

1. That the following named Defendant shall have and recover of and from the Plaintiff the sum of $12,000.00 in full payment for the easement described in the Order of Taking and for all damages of any nature.

2. It is further ordered and directed that the following sums shall be paid from the Registry of the Court as follows:

MEADOWBROOK HEIGHTS, INC.	$12,000.00
STEWART & KEYES	$2,400.00
W. STANLEY HANSON & ASSOCIATES, INC.	400.00

Any sums remaining in the Registry of the Court shall be paid to Plaintiff (in care of Henderson, Franklin, Starnes & Holt, P.A., P.O. Box 280, Fort Myers, Florida 33902).

3. It is further ordered and adjudged that the Clerk of this Court pay to the above named the sums set forth above less

any sums heretofore paid to the above named from the funds deposited in the Registry of the Court.

4. It is further ordered that the Plaintiff be entitled to possession of the property described in the Petition for a temporary easement to be used for construction, operation and maintenance of one or more electrical distribution lines, together with all rights and privileges, necessary and convenient from time to time for the full enjoyment or use thereof, including wires, poles, H-frame structures, towers, anchors, guys, and necessary appurtenant equipment, in, over, upon and across the land described herein; together with the right and privilege to reconstruct, inspect, alter, improve, remove or relocate such distribution lines on the right-of-way as described herein, with all the rights and privileges necessary or convenient for the full enjoyment or use thereof for the above mentioned purposes, including, without limitation, the right to patrol the line, inspect, ingress and egress, the right to cut and keep clear of all trees and undergrowth and other obstructions within said right-of-way that may interfere with the proper construction, operation, and maintenance of said distribution lines; reserving to the Defendant, however, the right and privilege to use the herein described parcel of land for the growing of crops and all other purposes except as herein stated or as might interfere with the Petitioner's use, occupation, and enjoyment thereof, provided that no building or structure, other than fences, provided said fences do not interfere with Petitioner's use, occupation, or enjoyment of said parcel of land, will be located or constructed by the Defendant on said parcel of land; and

Provided, further, that the Defendant will not excavate any portion of the right-of-way without written permission of the Petitioner, which permission shall not be unreasonably withheld by the Petitioner, reserving further to the Defendant, the right to construct roads, culverts or underground utility facilities at its own cost and expense, except that such road, culvert, or underground utility facilities may not interfere with the structures or facilities or both or access to said structures or facilities constructed or installed by the Petitioner; and

BK1908PG3951

Provided, further, that no such construction of roads, culverts, or underground facilities shall be made without written permission of the Petitioner, which permission shall not be unreasonably withheld;

Provided, further, that upon the completion of a public road on the Westerly 50 feet of the Northwest Quarter (NW-1/4), Township 43 South, Range 24 East, Lee County, Florida and the acceptance of that road by Lee County, Florida and a dedication of a public utility easement, a minimum of six foot in width, adjacent to the road right-of-way this temporary easement shall terminate. Upon such termination, a permanent easement shall vest in the Petitioner for the purposes described herein. Said permanent easement shall be described as the East 12 feet of the West 56 feet of the Northwest Quarter (NW 1/4) of Section 28, Township 43 South, Range 24 East, Lee County, Florida, as more particularly shown on Exhibit "A" attached hereto. At all times, the petitioner shall be allowed the continued use of the property on the same centerline as originally granted and shall have the right to clear and maintain the original 30 foot easement necessary for the safe operation of its electrical powerlines.

DONE AND ORDERED in Chambers at Fort Myers, Lee County, Florida, this 4th day of May, 1988.

William L. Blackwell
CIRCUIT JUDGE

Pursuant to Rule 1.080, Florida Rules of Civil Procedure, service of the foregoing Final Judgment is made this 6th day of May, 1988, upon:

John A. Noland, Esquire
HENDERSON, FRANKLIN, STARNES & HOLT
Attorneys for Plaintiff
Post Office Box 280
Fort Myers, Florida 33902

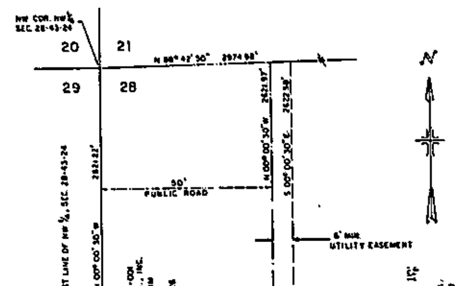
William A. Keyes, Jr., Esquire
STEWART & KEYES
Attorneys for MEADOWBROOK HEIGHTS, INC.
P.O. Drawer 790
Fort Myers, Florida 33902

Kenneth A. Jones, Esquire
HUMPHREY, JONES & MYERS
Attorneys for DICK STEEL, Tax Collector
1625 Hendry Street, Suite 301
Fort Myers, FL 33901

By: Andrea J. Kean
Secretary to Judge

OR1900PG3458

OR 1988 PG 3959



PARCEL IN NW 1/4 OF
SECTION 28, TWP. 43 S., RGE. 24 E.
LEE COUNTY, FLA.

DESIGNED ________
DRAWN ________
CHECKED ________
APPROVED ________
SCALE 1" = 20'

LEE COUNTY ELECTRIC COOPERATIVE, INC.
P.O. BOX 3455/NORTH FT MYERS, FLORIDA 33903

PROPOSED EASEMENT

EXHIBIT "A"

RECORDED & RECORD VERIFIED
Charlie Green
CLERK CIRCUIT COURT
LEE COUNTY, FLA.

MAY 13 4 05 PM '88

I Charlie Green, Clerk of the Circuit Court in and for said County and State do hereby certify that the foregoing is a true and correct copy of Final Judgment as filed in this office 5/11/88 at 4:05 PM and recorded in O.R. Book 1988, Page 3567-3571 of the Public Records of Lee County, Florida

Witness my hand and official seal this 13th day of May A.D. 1988

CHARLIE GREEN, CLERK

By R. Starkey D.C.

IN THE CIRCUIT COURT OF THE TWENTIETH JUDICIAL CIRCUIT
OF THE STATE OF FLORIDA, IN AND FOR LEE COUNTY
CIVIL DIVISION

14.50

SEMINOLE ELECTRIC COOPERATIVE, INC., a Florida corporation,

Plaintiff,

vs.

CASE NO: 91-9727 CA

DIVISION: _____

OR2264 PG1636

3125640

WILLIAM R. SCHUCHTER, TRUSTEE, GAC PROPERTIES, INC., W.A. KENDRICK, MARY KENDRICK, JOSEPH F. SCHUCHTER, RICHARD T. SHARPENTER, TRUSTEE, AURORA NATIONAL BANK, EDWARD J. DUNN, MARY JANE DUNN, DONALD BASS, LOUISE BASS, BERNARD FLIEGEL, TRUSTEE, DON DAVID DERZAVIS, TRUSTEE, GEORGE G. GRAHAM, LUCILLE M. FLEMING, HOWARD PFISTER, EDWARD WOLZ, MARTHA B. WOLZ, BURNUP & SIMMS, INC., MORTON A. GOLDBERG, TRUSTEE, and THE NATIONAL BANK OF LEE COUNTY,

Defendants.

FILED

DEC 11 1991

CHARLIE GREEN, CLERK
CIRCUIT/COUNTY COURTS
BY R Bittenhouse

DOCKETED & FILED

NOV 13 1991

Charlie Green, Clerk
R Bittenhouse

NOTICE OF LIS PENDENS

TO: DEFENDANTS ABOVE NAMED, AND TO ALL OTHERS WHOM IT MAY CONCERN:

YOU ARE NOTIFIED of the institution of this action by Plaintiff against you seeking to condemn and acquire interests in certain properties located in Lee County, Florida, described in Exhibits B, and F through N attached hereto by eminent domain proceedings. This action was instituted on December 10, 1991, and the interest in the properties that Plaintiff seeks to acquire is as follows:

"A perpetual right-of-way easement, license and privilege of ingress and egress together with the right to place, construct, own, operate, repair, maintain, relocate and replace thereon, and/or thereunder electric transmission and/or electric distribution lines, poles and guy anchors, access roads, and/or electric systems and underground facilities and all associated appurtenances in connection with any aboveground and/or underground facilities; the right to permit the joint use or joint occupancy of said easement with any other person or firm for electrification, telephone, cable television, or communication purposes; the right to keep the easement clear of all buildings and structures, obstructions, trees, shrubbery, undergrowth and objects; the right and privilege to cut or trim and overhanging trees, limbs or other growth on adjacent land encroaching said easement; and the right of ingress and egress to and from said easement across the lands of the owner of the fee simple title to the land on which said easement is located."

ALLEN, DELL, FRANK & TRINKLE
The Barnett Plaza, Suite 1240
101 E. Kennedy Blvd.
P.O. Box 2111
Tampa, FL 33602
813/223-5351

ROBERT A. MORA, ESQUIRE
Fla Bar No. 211648

OR2264 PG1637

Revised June 12, 1991
Revised May 10, 1991
April 24, 1991

LEGAL DESCRIPTION
For: Seminole Electric Cooperative, Inc.
Hardee Power Station 230 kv Transmission Line
Parcel No. L-3
Owner: Willian F. Schuchter, Trustee

EXHIBIT 'A'

A 35 foot wide strip of land lying in the northeast 1/4 of the northeast 1/4 south of the centerline of Gator Slough in Section 24, Township 43 South, Range 23 East, Lee County, Florida, that lies within 5.00 feet left of (east) and 30.00 feet right of (west) the following described centerline:

Commence at a concrete monument at the northeast corner of said Section 24 and run thence South 89°44'55" West, along the north boundary thereof 5.00 feet; thence South 01°03'05" West, parallel with the east boundary of said Section, 375.90 feet to the centerline of Gator Slough and the Point of Beginning of the herein described centerline; thence continue South 01°03'05" West, 5.00 feet west of(measured perpendicular to) and parallel with the east boundary of said Section, 969.52 feet to the south boundary of said northeast 1/4 of northeast 1/4 and the end of centerline as herein described.

The intent of this description is for the easement to be bounded on the north by the centerline of Gator Slough and on the south by the south boundary of said northeast 1/4 of northeast 1/4.

Containing 0.77 Acres, more or less.

6/hardee2/10

SUBJECT TO: Easement to GAC Properties, Inc.
OR 788 PG 213 and OR 1059 PG 797

EXHIBIT
"B"

Revised June 12, 1991
Revised May 10, 1991
April 24, 1991

LEGAL DESCRIPTION
For: Seminole Electric Cooperative, Inc.
Hardee Power Station 230 kv Transmission Line
Parcel No. L-7
Owner: W. A. Kendrick and Mary Kendrick

EXHIBIT 'A'

A 35 foot wide strip of land lying in the south 1/2 of the northeast 1/4 of the southeast 1/4 of Section 24, Township 43 South, Range 23 East, Lee County, Florida, that lies within 5.00 feet left of (east) and 30.00 feet right of (west) the following described centerline:

Commence at the northeast corner of said south 1/2 of northeast 1/4 of southeast 1/4 and run thence South 89°46'32" West, along the north boundary thereof, 5.00 feet to the Point of Beginning of the herein described centerline; thence South 00°08'53" East, parallel with the east boundary of said south 1/2 of northeast 1/4 of southeast 1/4, a distance of 663.12 feet to the south boundary of said south 1/2 of northeast 1/4 of southeast 1/4 and the end of the centerline as herein described.

The intent of this description is for the easement to be bounded on the north by the north boundary of said south 1/2 of northeast 1/4 of southeast 1/4 and on the south by the south boundary of said south 1/2 of northeast 1/4 of southeast 1/4.

Containing 0.53 Acres, more or less.

6/hardee2/14

EXHIBIT
"F"

Revised June 12, 1991
Revised May 10, 1991
April 24, 1991

LEGAL DESCRIPTION
For: Seminole Electric Cooperative, Inc.
Hardee Power Station 230 kv Transmission Line
Parcel No. L-8
Owner: Joseph F. Schuchter, ~~Trustee~~ and William R. Schuchter, Trustee

EXHIBIT 'A'

A 35 foot wide strip of land lying in the north 1/2 of north 1/2 of the southeast 1/4 of the southeast 1/4 of Section 24, Township 43 South, Range 23 East, Lee County, Florida, that lies within 5.00 feet left of (east) and 30.00 feet right of (west) the following described centerline:

Commence at the northeast corner of said north 1/2 of north 1/2 of southeast 1/4 of southeast 1/4 and run thence South 89°41'59" West, along the north boundary thereof, 5.00 feet to the Point of Beginning of the herein described centerline; thence South 00°08'53" East, parallel with the east boundary of said north 1/2 of north 1/2 of southeast 1/4 of southeast 1/4, a distance of 331.56 feet to the south boundary of said north 1/2 of north 1/2 of southeast 1/4 of southeast 1/4 and the end of the centerline as herein described.

The intent of this description is for the easement to be bounded on the north by the north boundary of said north 1/2 of north 1/2 of southeast 1/4 of southeast 1/4 and on the south by the south boundary of said north 1/2 of north 1/2 of southeast 1/4 of southeast 1/4.

Containing 0.27 Acres, more or less.

6/hardee2/15

SUBJECT TO:

EXHIBIT
"G"

Revised June 12, 1991
Revised May 10, 1991
April 24, 1991

LEGAL DESCRIPTION
For: Seminole Electric Cooperative, Inc.
Hardee Power Station 230 kv Transmission Line
Parcel No. L-9
Owner: Richard T. Sharpenter, Trustee

EXHIBIT 'A'

The south 1/2 of the northeast 1/4 of the southeast 1/4 and the north 1/2 of southeast 1/4 of southeast 1/4 of Section 24, Township 43 South, Range 23 East, Lee County, Florida, that lies within 5.00 feet left of (east) and 30.00 feet right of (west) the following described centerline:

Commence at the northeast corner of said north 1/2 of southeast 1/4 of southeast 1/4 and run thence South 89°39'43" West, along the north boundary thereof, 5.00 feet to the Point of Beginning of the herein described centerline; thence South 00°08'53" East, 5.00 feet west of (measured perpendicular to) and parallel with the east boundary of said Section 24, a distance of 663.09 feet to the south boundary of said north 1/2 of southeast 1/4 of southeast 1/4 and the end of the centerline as herein described.

The intent of this description is for the easement to be bounded on the north by the north boundary of said south 1/2 of northeast 1/4 of southeast 1/4 and in the south by the south boundary of said north 1/2 of southeast 1/4 of southeast 1/4.

Containing 0.53 Acres, more or less.

6/hardee2/16

Subject to: Aurora National Bank OR 1774 PG 2091

EXHIBIT
"H"

Revised June 17, 1991
May 6, 1991

LEGAL DESCRIPTION
For: Seminole Electric Cooperative, Inc.
Hardee Power Station 230 kv Transmission Line
Parcel No. L-12
Owner: Edward J. Dunn and Mary Jane Dunn

THAT PART OF:

A 100 foot wide strip of land in the northwest 1/4 of northwest 1/4 of Section 30, Township 43 South, Range 24 East, Lee County, Florida; that lies within 50 feet either side of the following described centerline:

Commence at a 5/8" iron rod at the northwest corner of said northwest 1/4 of northwest 1/4 and run thence North 89°59'22" East, along the north boundary thereof 48.18 feet to the Point of Beginning of the herein described centerline; thence South 41°36'26" East, 451.21 feet; thence South 00°37'36" West, 1009.09 feet to the south boundary of said northwest 1/4 of northwest 1/4 and the end of centerline as herein described:

The intent of this description is for the easement to be bounded on the north by the north line of said northwest 1/4 of northwest 1/4 and on the south by the south line of said northwest 1/4 of northwest 1/4 (the side lines of said 100' strip to be extended or shortened to intersect at angle points).

Containing 3.34 Acres, more or less.

6/hardee2/19

EXHIBIT

"T"

Revised July 2, 1991
Revised June 17, 1991
May 6, 1991

LEGAL DESCRIPTION
For: Seminole Electric Cooperative, Inc.
Hardee Power Station 230 kv Transmission Line
Parcel No. L-13
Owner: Louise Miles Bass and Donald Bass

A 100 foot wide strip of land in the south 1/2 of northwest 1/4 of Section 30, Township 43 South, Range 24 East, Lee County, Florida: that lies within 50 feet either side of the following described centerline:

Commence at a concrete monument at the northwest corner of said south 1/2 of northwest 1/4 and run thence South 89°29'10" East, along the north boundary thereof 350.68 feet to the Point of Beginning of the herein described centerline; thence South 00°37'36" West, 1295.74 feet; thence South 89°00'05" East, 2655.40 feet to the east boundary of said south 1/2 of northwest 1/4 and the end of centerline as herein described:

The intent of this description is for the easement to be bounded on the north by the north boundary of said south 1/2 of northwest 1/4 and on the east by the east boundary of said south 1/2 of northwest 1/4 (the side lines of said 100' strip to be extended or shortened to intersect at angle points).

Containing 9.07 Acres, more or less.

6/hardee2/20

EXHIBIT
"J"

Revised July 2, 1991
Revised June 17, 1991
May 6, 1991

LEGAL DESCRIPTION
For: Seminole Electric Cooperative, Inc.
Hardee Power Station 230 kv Transmission Line
Parcel No. L-14
Owner: Bernard Fliegel and Don David Derzavis, Trustees

A 100 foot wide strip of land in the northeast 1/4 of Section 30, and in the north 1/2 of Section 29, Township 43 South, Range 24 East, Lee County, Florida; that lies within 50 feet either side of the following described centerline:

Commence at a concrete monument at the southwest corner of said northeast 1/4 and run thence North 00°06'17" East, along the west boundary thereof 50.01 feet to the Point of Beginning of the herein described centerline; thence South 89°00'05" East, 0.82 feet; thence South 88°54'50" East, 2277.61 feet; thence North 88°41'25" East, 350.06 feet to the west boundary of said north 1/2 of Section 29; thence continue North 88°41'25" East, 4236.67 feet; thence North 00°24'14" East, 1351.80 feet; thence North 89°42'48" East, 737.84 feet to the east boundary of said north 1/2 of of Section 29 and the end of the herein described centerline.

The intent of this description is for the easement to be bounded on the west by said west boundary of northeast 1/4 and on the east by said east boundary of said north 1/2 of Section 29 (the side lines of said 100' strip to be extended or shortened to intersect at angle points).

Containing 20.56 Acres, more or less; and
The Anchor easements described in Exhibits "A" attached hereto.

6/hardee2/21

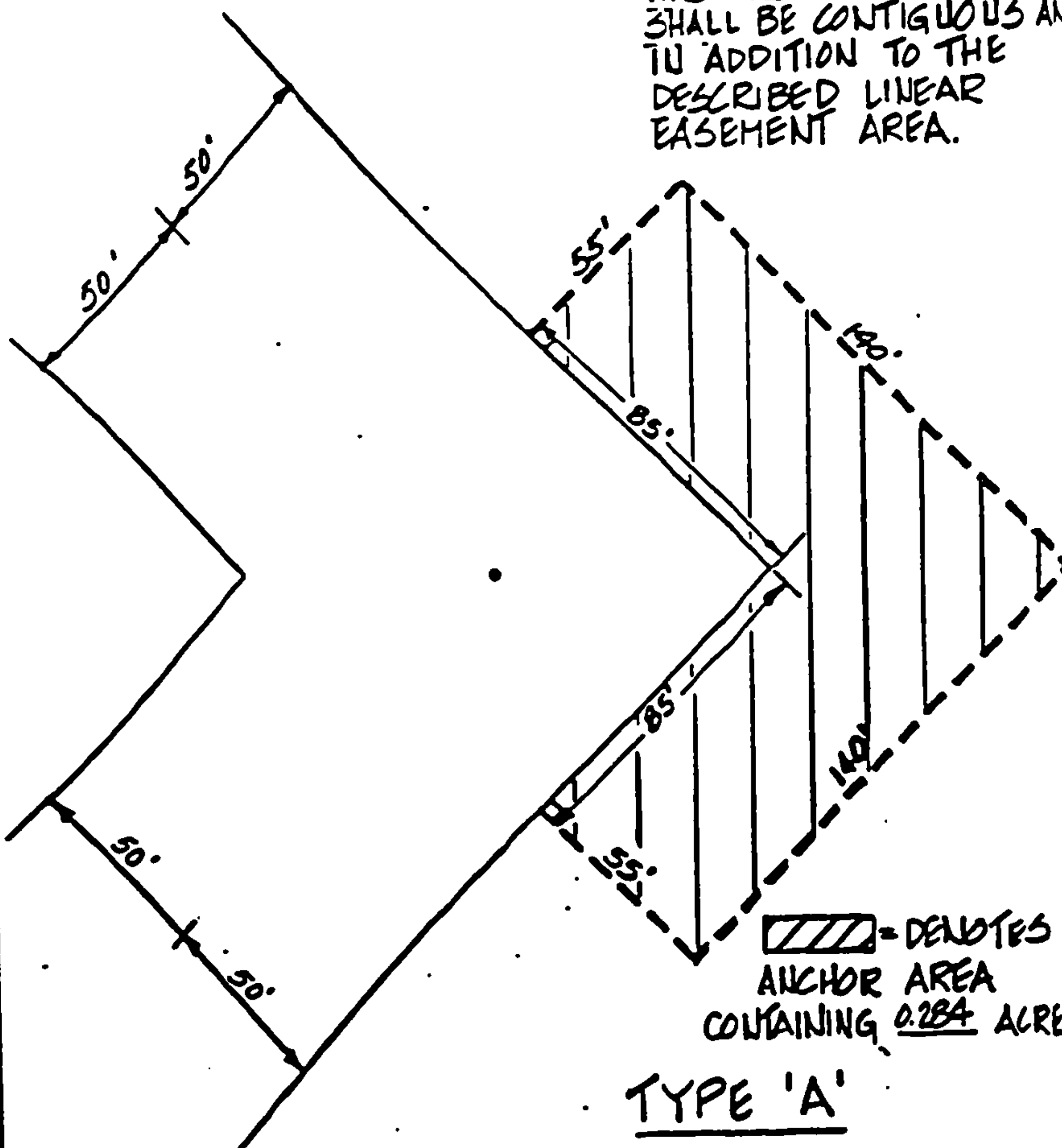
SUBJECT TO: oil and mineral rights interest in Ruth Kaune Baucom
OR 1175 PG. 695

EXHIBIT
"K"

ANCHOR EASEMENT
EXHIBIT 'A'

PARCEL L-14; Pt 76
PORTION OF SECTION 29, TOWNSHIP 43S, RANGE 24C

THIS ANCHOR EASEMENT SHALL BE CONTIGUOUS AND IN ADDITION TO THE DESCRIBED LINEAR EASEMENT AREA.



▨ = DENOTES ANCHOR AREA CONTAINING 0.284 ACRES ±

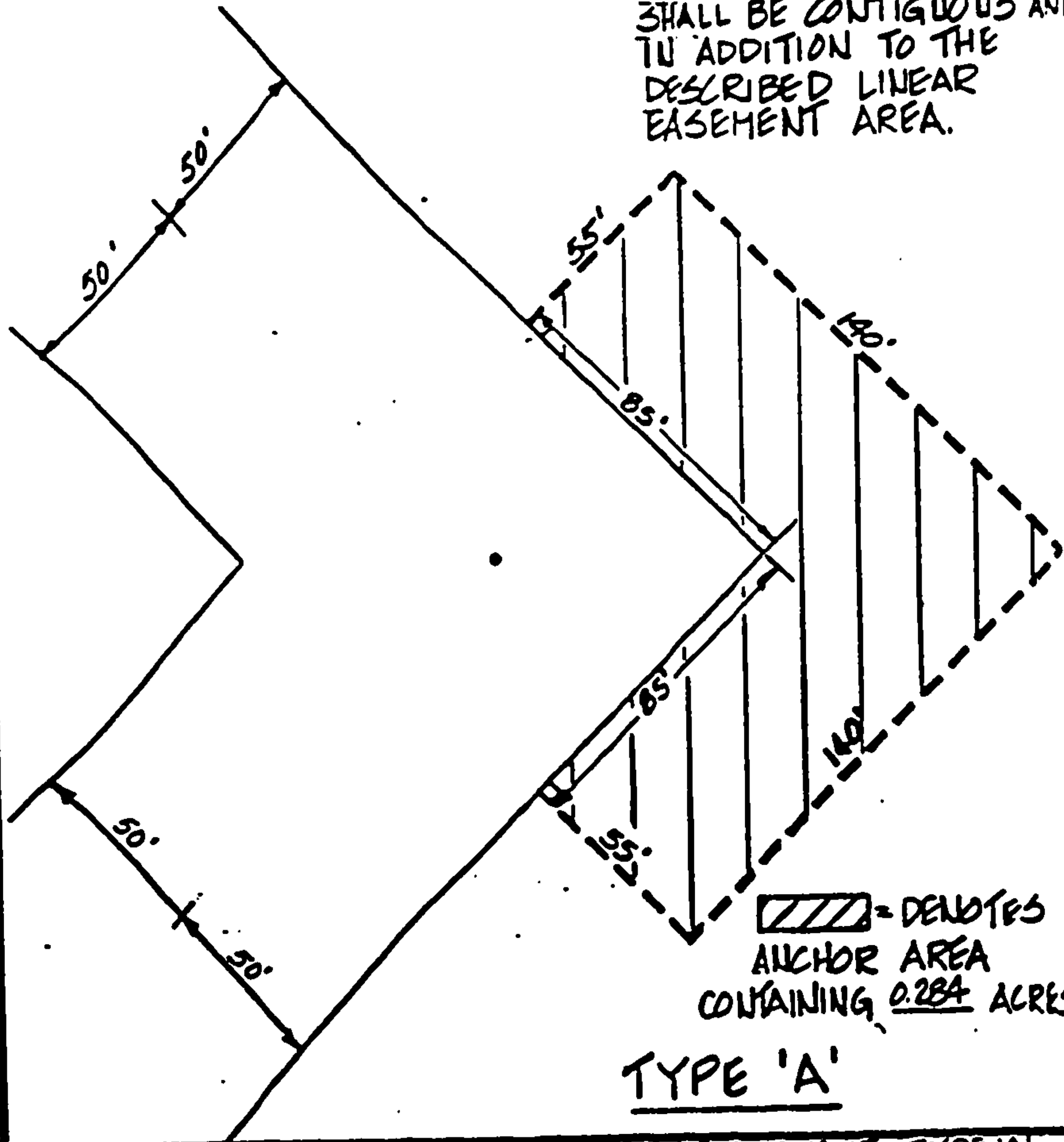
TYPE 'A'

SEMINOLE ELECTRIC COOPERATIVE INCORPORATED TAMPA, FLORIDA	1		TKL	REVISED	HPS ANCHOR EASEMENT - TYPE 'A'		
	2		TKL	REVISED	TK-1	4-23-91	1" = 40'
					2170	9-23-4	H-0401-A-01
							20053

ANCHOR EASEMENT
EXHIBIT 'A'

PARCEL L-14; PI 77
PORTION OF SECTION 29, TOWNSHIP 43S, RANGE 24C

THIS ANCHOR EASEMENT SHALL BE CONTIGUOUS AND IN ADDITION TO THE DESCRIBED LINEAR EASEMENT AREA.



= DENOTES ANCHOR AREA CONTAINING 0.284 ACRES ±

TYPE 'A'

SEMINOLE ELECTRIC COOPERATIVE INCORPORATED
TAMPA FLORIDA

HPS ANCHOR EASEMENT - TYPE 'A'

1			REVISED
2			REVISED

SCALE 1" = 40'
M-0401-A-01

May 6, 1991

LEGAL DESCRIPTION
For: Seminole Electric Cooperative, Inc.
Hardee Power Station 230 kv Transmission Line
Parcel No. L-15
Owner: George G. Graham, Lucille M. Fleming, Howard Pfister, Edward and Martha B. Wolz

A 100 foot wide strip of land in the west 1700 feet of the northwest 1/4 of Section 28, Township 43 South, Range 24 East, Lee County, Florida; that lies within 50 feet either side of the following described centerline:

Commence at a concrete monument at the southwest corner of the northwest 1/4 of northwest 1/4 of said Section 28 and run thence North 00°08'33" West, along the west boundary thereof 250.00 feet to the Point of Beginning of the herein described centerline; thence North 89°32'36" East, 1700.03 feet to the east line of said west 1700 feet of northwest 1/4 of Section 28 and the end of the herein described centerline.

Containing 3.90 Acres, more or less.

6/hardee2/22

EXHIBIT
"L"

Revised June 17, 1991
May 6, 1991

LEGAL DESCRIPTION
For: Seminole Electric Cooperative, Inc.
Hardee Power Station 230 kv Transmission Line
Parcel No. L-16
Owner: ~~Robert Janssen, Trustee~~
Burnup & Sims, Inc.

A 100 foot wide strip of land in the north 1/2 of Section 28, Township 43 South, Range 24 East, Lee County, Florida; that lies within 50 feet either side of the following described centerline:

Commence at the southwest corner of the northwest 1/4 of northwest 1/4 of said Section 28 and run thence North 01°13'36" West, along the west boundary thereof 192.81 feet; thence North 89°42'48" East, 1700.01 feet to the east line of the west 1700 feet of said Section 28 and the Point of Beginning of the herein described centerline; thence continue North 89°42'48" East, 929.68 feet; thence South 00°10'02" West, 1504.34 feet to the south line of said north 1/2 of Section 28 and the end of centerline as herein described.

The intent of this description is for the easement to be bounded on the west by the east boundary of said west 1700 feet of Section 28 and on the south by the south boundary of said north 1/2 of Section 28 (the side lines of said 100' strip to be extended or shortened to intersect at angle points).

Containing 5.75 Acres, more or less; and
The Another Easement described in Exhibit "A" attached hereto.

6/hardee2/23

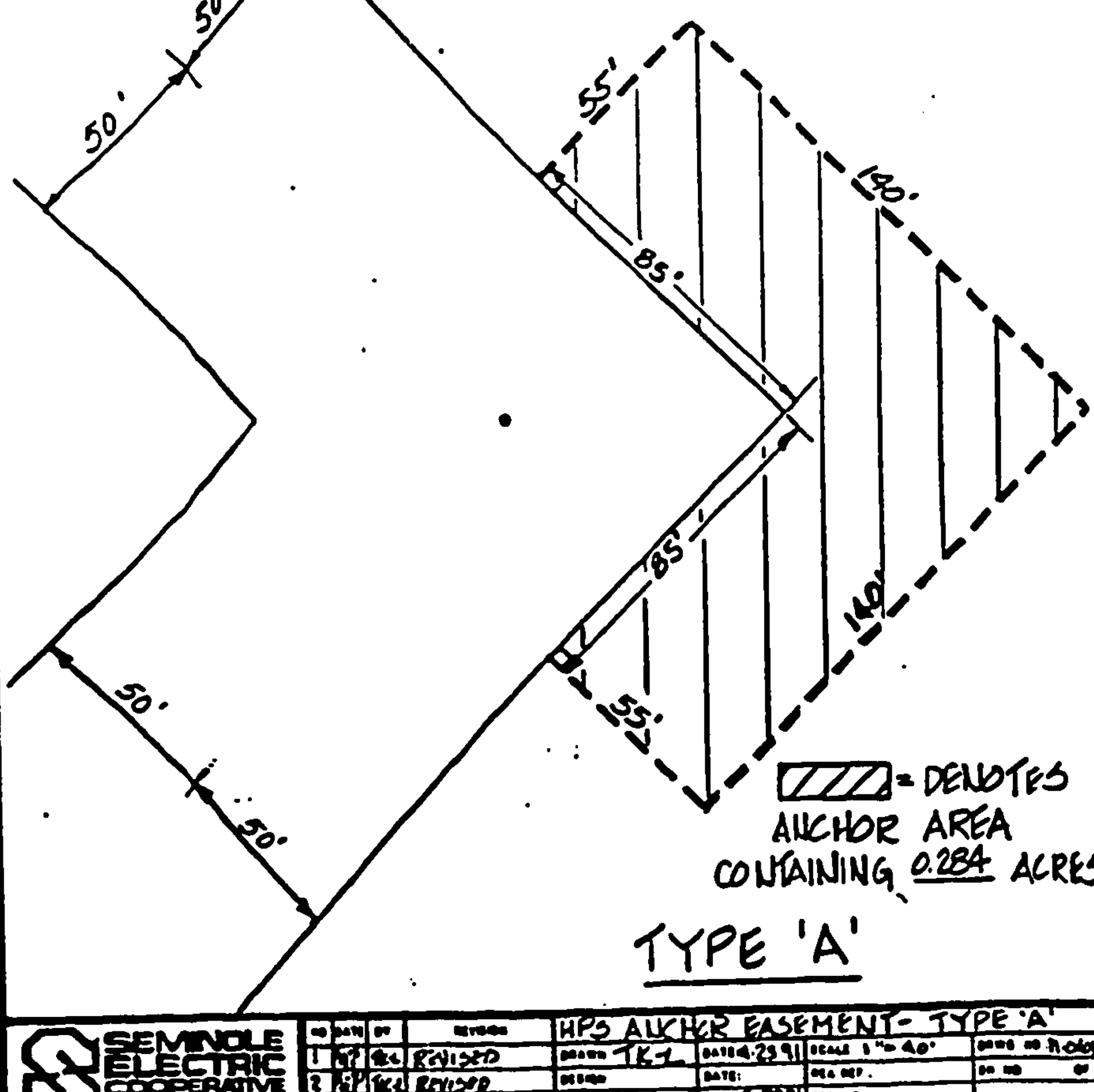
EXHIBIT
"M"

ANCHOR EASEMENT
EXHIBIT 'A'

PARCEL L-16; PI 78
PORTION OF SECTION 28, TOWNSHIP 43S, RANGE 24E

OR2264 PG1648

THIS ANCHOR EASEMENT SHALL BE CONTIGUOUS AND IN ADDITION TO THE DESCRIBED LINEAR EASEMENT AREA.



▨ = DENOTES ANCHOR AREA CONTAINING 0.284 ACRES ±

TYPE 'A'

SEMINOLE ELECTRIC COOPERATIVE INCORPORATED
TAMPA, FLORIDA

NO	DATE	BY	REVISION
1	[illegible]	[illegible]	REVISED
2	[illegible]	[illegible]	REVISED

HPS ANCHOR EASEMENT - TYPE 'A'

DRAWN TKL	DATE 4-23-91	SCALE 1" = 40'	DWG NO [illegible]
DESIGN	DATE:	REF.	
CHECKED [illegible]	DATE 4-23-91	REF NO	H-0461-A-01
APPROVED [illegible]	DATE [illegible]	PROJ. NO 2005B	

LEGAL DESCRIPTION
For: Seminole Electric Cooperative, Inc.
Hardee Power Station 230 kv Transmission Line
Parcel No. L-17
Lee County
Owner: Morton A. Goldberg, Trustee

A 100 foot strip of land lying in the southwest 1/4 of Section 28, Township 43 South, Range 24 East, Lee County, Florida, lying 50 feet either side of the following described centerline:

Commence at the northeast corner of said southwest 1/4 of Section 28 and run South 89°43'53" West, along the north line thereof 323.64 feet to the Point of Beginning of the herein described centerline; thence South 00°10'02" West, 1792.22 feet to the end of the herein described centerline and being bounded on the north by the north line of said southwest 1/4 and on the south by the north line of the south 860 feet of said southwest 1/4.

Containing 4.11 Acres, more or less.

6/hardee2/24

SUBJECT TO: Mortgage to The National Bank of Lee County
OR 1943 PG 218

OR2264 PG1649

CHARLIE GREEN CLK CIV FL
91 DEC 13 PM 3:03

EXHIBIT
"N"

Appendix F: Legal Description

LEGAL DESCRIPTION

A TRACT OR PARCEL OF LAND IN THE NORTH HALF (N 1/2) OF SECTION 29 AND THE NORTHEAST QUARTER (NE 1/4) OF SECTION 30, ALL IN TOWNSHIP 43 SOUTH, RANGE 24 EAST, LEE COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE QUARTER CORNER COMMON TO SAID SECTION 29 AND 30; THENCE N88°56'56"W (BEARINGS BASED ON THE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83/90) ALONG THE SOUTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SAID SECTION 30 FOR 380.01 FEET TO THE EAST RIGHT OF WAY LINE OF DEL PRADO BOULEVARD (70 FEET FROM CENTER LINE); THENCE N00°20'07"W ALONG SAID EAST RIGHT OF WAY LINE FOR 875.61 FEET TO A POINT OF CURVATURE; THENCE CONTINUE ALONG SAID EAST RIGHT OF WAY LINE NORTHERLY FOR 1098.59 FEET ALONG THE ARC OF A CURVE TO THE RIGHT HAVING A RADIUS OF 3042.29 FEET, A CENTRAL ANGLE OF 20°41'24", A CHORD BEARING AND DISTANCE OF N10°00'35"E FOR 1092.63 FEET TO THE SOUTHWEST CORNER OF LANDS DESCRIBED IN OFFICIAL RECORDS BOOK 2196, PAGE 1714, OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA; THENCE N89°54'38"E LEAVING SAID EAST RIGHT OF WAY LINE ALONG THE SOUTH LINE OF SAID LANDS FOR 5177.63 FEET TO A POINT ON THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29 AND TO THE SOUTHEAST CORNER OF SAID LANDS, SAID POINT BEING 668.00 FEET S00°07'49"E FROM THE NORTHEAST CORNER OF SECTION 29; THENCE S00°07'49"E ALONG THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29 FOR 642.66 FEET TO THE NORTHEAST CORNER OF THE EAST HALF (E 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SAID SECTION 29; THENCE S89°37'07"W ALONG THE NORTH LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SAID SECTION 29 FOR 607.04 FEET; THENCE S01°19'23"W LEAVING SAID NORTH LINE FOR 1308.68 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH HALF (N 1/2) OF SECTION 29, SAID POINT BEING 640.23 FEET S89°50'49"W FROM THE QUARTER CORNER COMMON TO SECTIONS 28 AND 29; THENCE S89°50'49"W ALONG SAID SOUTH LINE OF THE NORTH HALF (N 1/2) OF SAID SECTION 29 AND ALONG THE NORTH LINE OF CAPE CORAL UNIT 33 AS RECORDED IN PLAT BOOK 16, PAGES 59–61 OF AFORESAID PUBLIC RECORDS FOR 4346.70 FEET TO THE POINT OF BEGINNING.

TOGETHER WITH A NON–EXCLUSIVE ROADWAY EASEMENT FOR INGRESS AND EGRESS OVER THE SOUTHERLY 60 FEET OF THE EAST HALF (E 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 43 SOUTH, RANGE 24 EAST, AS RECORDED IN DEED BOOK 280, PAGE 203 OF SAID PUBLIC RECORDS.

CONTAINING 220.81 ACRES, MORE OR LESS.

LEGAL DESCRIPTION

ALL OF THE NW 1/4 OF SECTION 28, TOWNSHIP 43 SOUTH, RANGE 24 EAST, LYING WEST AND NORTH OF THE FOLLOWING DESCRIBED LINE: FROM THE NW CORNER OF SAID NW 1/4 RUN EASTERLY ALONG THE NORTH LINE OF SAID NW 1/4 FOR 2,550 FEET PASSING THROUGH THE CENTER OF A CURVE OF RADIUS 1,080 FEET AT 1,470 FEET TO THE POINT OF BEGINNING OF THE LANDS HEREIN DESCRIBED; FROM SAID POINT OF BEGINNING RUN SOUTHERLY, SOUTHWESTERLY AND WESTERLY ALONG THE ARC OF SAID CURVE TO THE RIGHT OF RADIUS 1,080 FEET TO AN INTERSECTION WITH A LINE PARALLEL WITH AND 1,700 FEET EAST OF THE WEST LINE OF SAID NW 1/4; THENCE RUN SOUTHERLY PARALLEL WITH AND 1,700 FEET EAST OF SAID WEST LINE TO THE SOUTH LINE OF SAID NW 1/4.
CONTAINING 113 ACRES, MORE OR LESS.

DESCRIPTION TAKEN FROM OFFICIAL RECORDS BOOK 2573, PAGE 1704.

Appendix G: Expended and Projected Costs and Funding Sources

Appendix G - Expended and Projected Costs and Funding Sources

EXPENDED $

Public Amenities

Item	Funding Source	Costs
Trail markers	C20/20	$325
Maintenance supplies	C20/20	$25
Benches	Girl Scout Project	$250
Kiosk	C20/20	$500
City of Cape Coral stormwater assessment	C20/20	$4,558
total		**$5,658**

Resource Enhancement and Protection

Item	Funding Source	Costs
Exotic plant treatment	C20/20	$79,268
Gopher tortoise survey	C20/20	$1,858
total		**$81,126**

Overall Protection

Item	Funding Source	Costs
Fireline installation	C20/20	$11,570
Fence installation and repair	C20/20	$68,108
Trash disposal	C20/20	$323
Boundary signs (~ miles)	C20/20	$748
LCSO off-duty officer patrolling	C20/20	$89
Management plan writing-1st edition contracted out	C20/20	$71,700
IRC plant survey	C20/20	$5,191
total		**$157,729**

TOTAL COST TO DATE	**$244,513**

PROJECTED $

Annual Public Amenities Maintenance

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

Resource Enhancement and Protection

Item	Possible Funding Source	Costs
Borrow pond restoration planting	C20/20	$75,000
Hydrologic restoration	LCDNR,C20/20, grants	to be determined
Prescribed burning	C20/20 in-house	$3,000 per year*
Mechanical brush reduction	C20/20	$22,500
Fire break maintenance	C20/20 in-house	$688 per year
total		**$101,188**

Overall Protection

Item	Possible Funding Source	Costs
Fence repairs/maintenance	C20/20 in-house	$500 per year
Boundary sign replacement	C20/20	$50
total		**$550**

Site Management and Maintenance

Item	Possible Funding Sources	
Exotic plant maintenance	C20/20, IPM	$16,000 per year
Rollerchopping	C20/20	$22,500 in house
Trash removal	C20/20	$100 per year
Repairs from vandalism	C20/20	$100 per year
total		**$38,700**