GALT PRESERVE

CONSERVATION
20/20
LAND PROGRAM

Discover
LEE COUNTY
Parks & Recreation

LAND STEWARDSHIP PLAN 2006

Galt Preserve

Land Stewardship Plan

3661 Stringfellow Road
St. James City, FL 33956

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

Approved by the Lee County Board of County Commissioners: January 16, 2007

Acknowledgements

We would like to thank the following for their assistance in the development of this document: Roger Clark, Cathy Olson, other Lee County staff, Bryan Smith from the Lee County Mosquito Control District, and members of the Calusa Land Trust for carefully reviewing the Galt Preserve (GP) Land Stewardship Plan and providing constructive criticism; members of Management Sub-Committee of the Conservation Lands Acquisition and Stewardship Advisory Committee were also instrumental in providing valuable suggestions regarding land management issues and the formatting of the plan; Dean Cerdan, Lee County Parks and Recreation, for providing the plan on the Lee Parks website for public review; Lee County Parks and Recreation Marketing & Media staff, for scanning and printing assistance; Lee County Library System staff for making the plan available for public review; Matlacha Community Center staff for providing a meeting space for public comments; and long time residents James Green and Dr. Philip Buchanan for providing their local historical knowledge.

Lynne Boyd
Sherry Furnari

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List of Exhibits

List of Acronyms

AP	Australian pine
ATV	all terrain vehicle
C20/20	Conservation 20/20
CLT	Calusa Land Trust and Nature Preserve of Pine Island, Inc.
DHR	Division of Historical Resources
ETAC	Eagle Technical Advisory Committee
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDOF	Florida Division of Forestry
FLEPPC	Florida Exotic Pest Plant Council
FLUM	Future Land Use Map
FNAI	Florida Natural Areas Inventory
FWC	Florida Fish and Wildlife Conservation Commission
GIAPRG	Galt Island Avenue Property Rights Group, Inc.
GP	Galt Preserve
IRC	Institute for Regional Conservation
LCDCL	Lee County Division of County Lands
LCDP	Lee County Division of Planning
LCEC	Lee County Electric Cooperative
LCMCD	Lee County Mosquito Control District
LCNR	Lee County Natural Resources
LSOM	Land Stewardship Operations Manual
LWCR	Lower West Coast Region
MU	management units
MUD	Minimum Use Determination
NWI	National Wetlands Inventory
PARI	Piper Archaeological Research, Inc.
SFWMD	South Florida Water Management District
STRAP	Section-Township-Range-Area-Block.Lot
USACOE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service

Vision Statement

It is the vision of the Lee County Department of Parks and Recreation and the Conservation 20/20 Program to conserve, protect and restore Galt Preserve to a productive, functional and viable ecosystem. The primary stewardship objectives for Galt Preserve will be maintaining the upland ecosystems with prescribed fire and removing invasive exotic plants and animals. Wetland and upland plant communities will no longer have dense or scattered patches of Australian pines, melaleucas and other invasive exotic plants. Ultimately, stewardship activities on this Preserve will enhance the borrow pond, protect hydrologic features and thus improve wildlife habitat and water quality reaching Pine Island Sound Aquatic Preserve. Finally, the Preserve will provide rustic hiking, birding and fishing opportunities for the residents and visitors of Lee County.

I. EXECUTIVE SUMMARY

Galt Preserve is located at 3661 Stringfellow Road, St. James City, Florida on Pine Island within Sections 34 and 35, Township 45 South, Range 22 East. The Preserve is located approximately 7 miles south of Pine Island Center at about Pine Island mile marker 2 off York Road in St. James City. The site totals 160 acres and is made up of two separate acquisitions purchased in 2002 for a total of $690,000 after being nominated to the program in the spring of 2000. The Conservation 20/20 Program was established in 1996 after Lee County voters approved a referendum that increased property taxes by up to 0.5 mil for the purpose of purchasing and protecting environmentally sensitive lands.

The central and eastern portions of the land where Galt Preserve (GP) is located today were created during the Pliocene Epoch between 2 million to 10,000 years ago. This period is also known as the Ice Age, where huge ice sheets formed across Canada and the northern United States. The western portions of the Preserve were formed in the last 10,000 years with the warming of earth and human habitation. The Preserve falls within the Gulf Coastal Lowlands physiographic region, which is found in northwest Lee County as well as most of Charlotte and Sarasota Counties to the north. This region is characterized as a gently southwestward sloping plain composed of deposited sediments. Natural elevations at GP range from 4' in the uplands to less than 1' in the tidal swamps.

There are six different soil types found at Galt Preserve. A common relationship for all of these soil types is that their slopes range from 0-2%. All soil types are nearly level and poorly drained with rapid permeability at the surface. Covering 27% of the Preserve, Immokalee Sand is the most common soil type, which is found in the flatwoods areas in the northern portions of the Preserve. Peckish Mucky Fine Sand covers 25% of the Preserve and is found in the salt water marshes of the western portions of the Preserve.

The Preserve contains twelve plant communities including tidal swamps, mesic flatwoods, melaleuca monocultures, mixed exotics and tidal marshes. Galt Preserve is home to variety of animal species, mainly wading birds, including white ibis, snowy egrets, little blue herons and American alligators.

The Preserve lies within the South Pine Island Watershed, which covers a surface area of approximately 28 square miles. This watershed drains the southern half of the island from the center of the island (more or less Stringfellow Road) east into Matlacha Pass and west into Pine Island Sound.

Although not all elements of the land use history occurred on GP, modifications made on adjacent properties have directly influenced it. To the south in St. James City, a series of man-made canals was developed to lead to Pine Island

Sound. Also, a small outparcel on the east side of the Preserve is used by Lee County Mosquito Control District as a helicopter landing and water testing area. The two largest alterations to the Preserve include a 4.6 acre borrow pond and a power line roadway and grid that runs west towards Sanibel Island.

Natural trends and disturbances influencing native communities and stewardship at GP include hurricanes, wildfires, occasional freezes and the cycling of wet and dry seasons. The Preserve has received tropical storm or hurricane force winds from four tropical storms since it was purchased through the Conservation 20/20 Program.

Once major restoration projects are completed, amenities will be installed making it more user friendly for hiking, bird watching, photography and fishing. The proposed nature trails at GP will be marked and will total a length of 2.0 miles. The nature trails will begin at a trailhead near the borrow pond and loop through the Preserve allowing visitors to see the results of different exotic plant control techniques and restored native plant communities. A sign with a map of the trail system and Preserve information will be posted at the trailhead along with a brochure box containing trail maps and environmental education information. A fishing pier and picnic tables are also proposed adjacent to the borrow pond.

The goals of this land stewardship plan is to identify Preserve resources, develop strategies to protect those resources and implement restoration activities to restore GP to a productive, functional and viable ecosystem while ensuring the Preserve will be managed in accordance with Lee County Parks and Recreation's Land Stewardship Operations Manual. Restoration and management activities at GP will focus on control of invasive exotic plant and animal species, maintaining upland ecosystems with prescribed fire or by other methods, enhancing wildlife habitat and public access for resource-based recreational opportunities. A Management Action Plan that outlines restoration and stewardship goals has been developed. This plan outlines these goals and strategies, explains how to accomplish these goals, and provides a timetable for completion. This land stewardship plan will be revised in ten years.

II. INTRODUCTION

Galt Preserve (GP) was acquired as two parcels in April and September 2002 through Lee County's Conservation 20/20 (C20/20) Program. It is approximately 160 acres in size and is located in western Lee County on Pine Island in St. James City. GP is bordered by three roadways, Stringfellow Road and York Road to the east and Galt Island Avenue to the south. The Preserve consists of twelve plant communities which includes an approximate five acre borrow pond. The dominant plant communities are tidal swamp, melaleuca monoculture, and mesic flatwoods.

There are no known Calusa Indian sites at GP, although they were known to inhabit Pine Island until at least the middle of the 16th Century. Historical aerial photographs from 1944 -1958 (Figures 11-13) show evidence of human influences on and adjacent to GP. The 1944 aerial photograph (Figure 11) shows Stringfellow Road as a dirt trail. During the 1950's, canals were dug to create waterfront access for residential homes and commercial businesses (i.e. marina, fishing, etc.). During the 1960's and 1970's, additional borrow ponds, canals, and ditches were dug and the powerline that runs to Sanibel Island was constructed. During the 1980's, Lee County Mosquito Control District established a helicopter landing pad on the outparcel in the center of the Preserve, while an area of land in the southeast corner of GP was excavated for road fill, thus leaving a borrow pit. Since the late 1980's, there have been few disturbances to the Preserve, other than off road vehicle trails and exotic plant infestations. Development has continued around the Preserve and most of the property surrounding the Preserve today is either already developed or is protected as conservation land.

Land stewardship challenges for the site include the need for an extensive amount of invasive exotic plant control, installation of fire lines, prescribed fire in fire dependant communities, fence installation, enhancing hydrologic features and wildlife habitat, debris removal, and creating public access. The proposed public recreation amenities include a new trailhead, two miles of hiking trails, and a trail map on the Preserve's informational sign. If there is demand and available funding, a fishing pier and picnic tables may be added.

The purpose of this stewardship plan is to define conservation goals for GP that will address the above concerns. It will serve as a guide for the Lee County Department of Parks and Recreation and the C20/20 Land Stewardship Program to use best management practices to ensure proper stewardship and protection of the Preserve. A significant number of field surveys were conducted along with reviewing scientific literature and historical records to understand how the Preserve functions in the ecosystem, which wildlife and plants are found within its boundaries and how it has been impacted by people. This allows the plan to serve the purpose as a reference guide for those interested in learning more about the Preserve and some of the land stewardship efforts in Lee County.

III. LOCATION AND SITE DESCRIPTION

Galt Preserve is located at 3661 Stringfellow Road, St. James City, Florida on Pine Island within Sections 34 and 35, Township 45 South, Range 22 East. GP is located approximately 7 miles south of Pine Island Center and 1 mile north of St. James City (Figure 1). Currently, there are three addresses listed by the Lee County Property Appraiser for GP because of the separate STRAP numbers (Section-Township-Range-Area-Block.Lot): 3661 Stringfellow Road, 3681 1 (no road name), and 3760 Galt Island Avenue. To simplify matters and since the

public access will not be on Galt Island Ave., the Stringfellow Road address will be used. The site totals 160 acres and is made up of two separately purchased acquisitions both of which were acquired in 2002.

GP consists of twelve plant communities; the dominant ones include tidal swamp (mangroves), mesic flatwoods, melaleuca and mixed exotic plants. The Preserve is bordered by a Lee County Mosquito Control District (LCMCD) helicopter pad along with Stringfellow and York Roads to the east, mangrove swamps to the west, a proposed future residential development to the north, and a residential development to the south. Figure 2 identifies the boundaries of GP in a 2005 aerial photograph.

Figure 1: Location Map

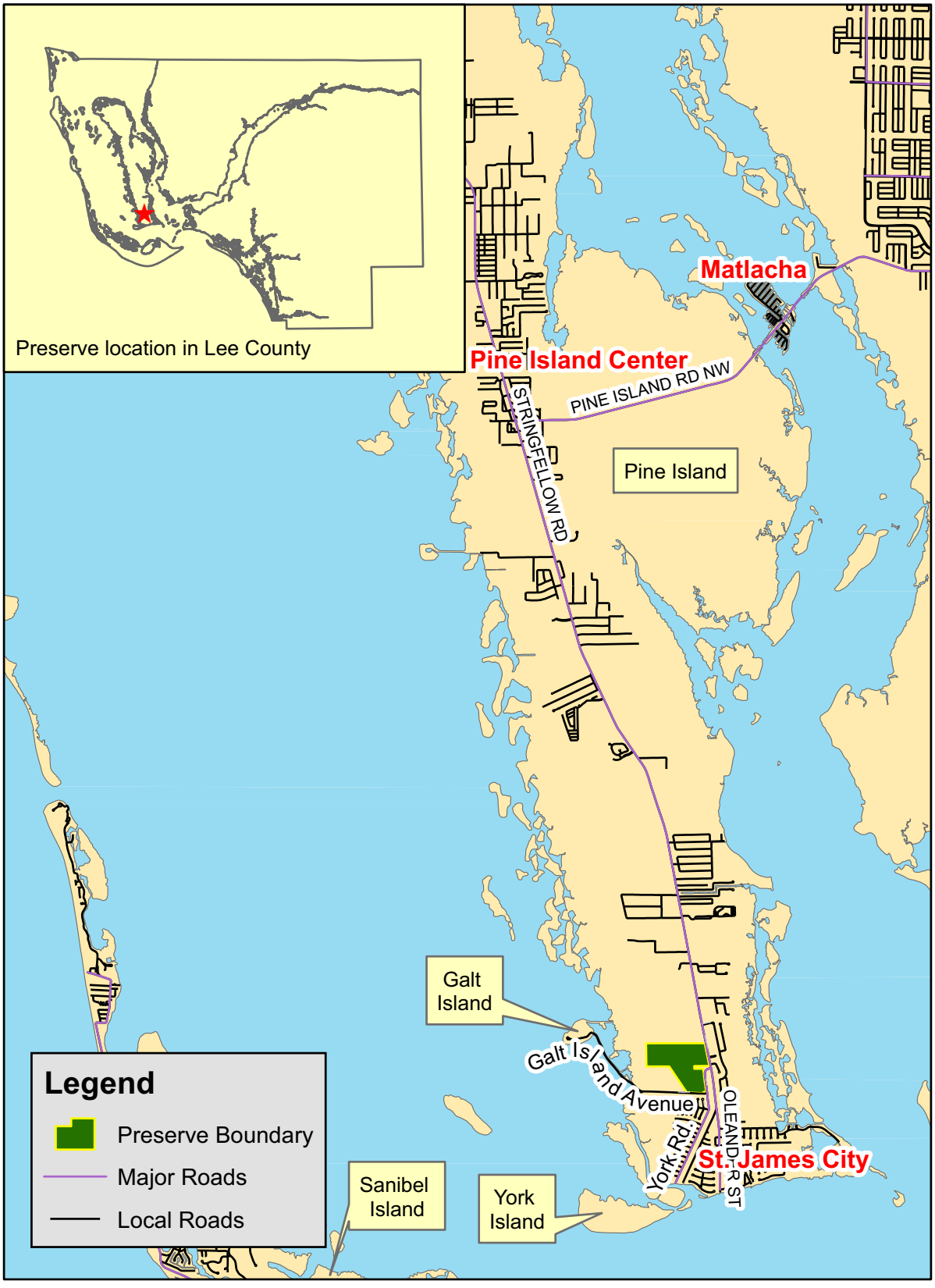

Figure 2: 2005 Aerial Photograph

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Map Prepared On: 05/03/06 by lboyd@leegov.com

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

IV. NATURAL RESOURCES DESCRIPTION

A. Physical Resources

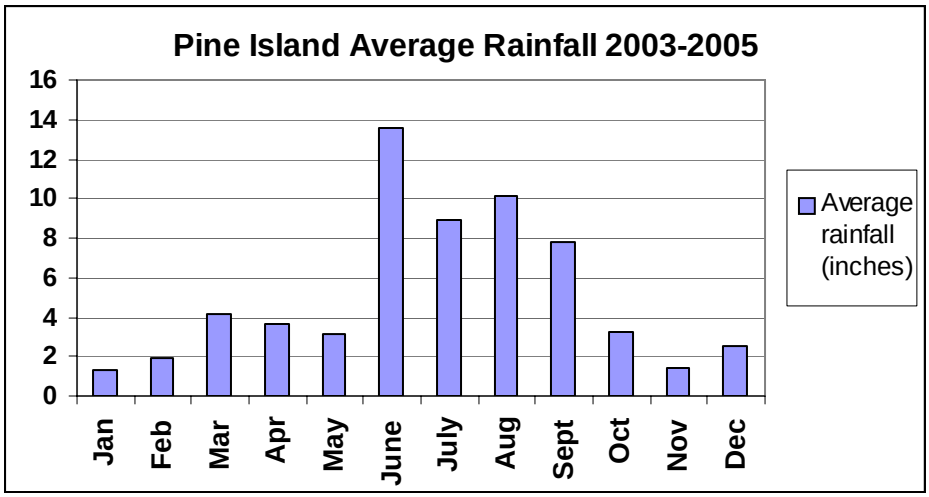
i. Climate

Southwest Florida has a humid, sub-tropical climate due to its maritime influence from the Caribbean Sea and the Gulf of Mexico. The mild temperatures encourage winter residents and tourists to visit the area. Temperate climate influences are exerted as well, with infrequent but significant freezes occurring in December and January (FCC 2005) for most southwest Florida locations. Pine Island is much milder and most tropical plants do well with infrequent freezes of very short duration (Buchanan 2006). Cold fronts regularly push cool, sometimes moist weather from the southeastern U.S. to southwest Florida during the winter. These cold fronts also encourage migratory birds to utilize the Preserve as either a stop-off point on a longer voyage, or as a winter roosting and feeding area. Table 1 shows the average high and low temperatures for Fort Myers, Florida compiled by the Southeast Regional Climate Center from 1931 to 2004.

Table 1: Average High/Low Temperatures for Ft. Myers, FL (1931-2004)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High temperature (°F)	74.7	76.1	79.8	84.2	88.7	90.6	91.1	91.4	89.7	85.7	80.2	76.0
Low temperature (°F)	53.5	54.7	58.4	62.4	67.5	72.4	74.1	74.5	73.9	68.3	60.4	55.1

The graph on the next page depicts the rainfall data collected by Greater Pine Island Water Association on a daily basis from their plant located at 9550 Stringfellow Road, Pine Island. This water plant is approximately 7 miles north of the Preserve. Average annual rainfall over the three years was 61.6 inches, slightly lower than the average rainfall for the entire county for the last fourteen years (64.76 inches).



Occasionally, major hurricanes pass through southwest Florida impacting natural ecosystems and man-made infrastructure. Although these effects are believed by many to be short-term, long-term consequences may result in plant canopy restructuring, invasive plant introduction and/or further dispersal, and increased wildfire severity to communities from increased fuel loads (dead vegetation). The effect of hurricanes on natural systems is compounded by the already present anthropogenic impacts.

During 2004, Hurricane Charley brought hurricane force winds across the Preserve, while Hurricanes Frances and Jeanne brought tropical storm force winds (Appendix A). As a result, Australian pines (*Casuarina equisetifolia*), south Florida slash pines (*Pinus elliottii* var. *densa*) and melaleuca trees (*Melaleuca quinquenervia*) and/or their limbs fell throughout areas of the Preserve. Tidally influenced areas may have experienced higher salt water levels as oaks or other salt tolerant vegetation were notably stressed or have died along the transitional zone. During 2005, Hurricane Wilma also passed through Lee County. The eye of this storm was approximately 50 miles to the south and there was little damage to the Preserve.

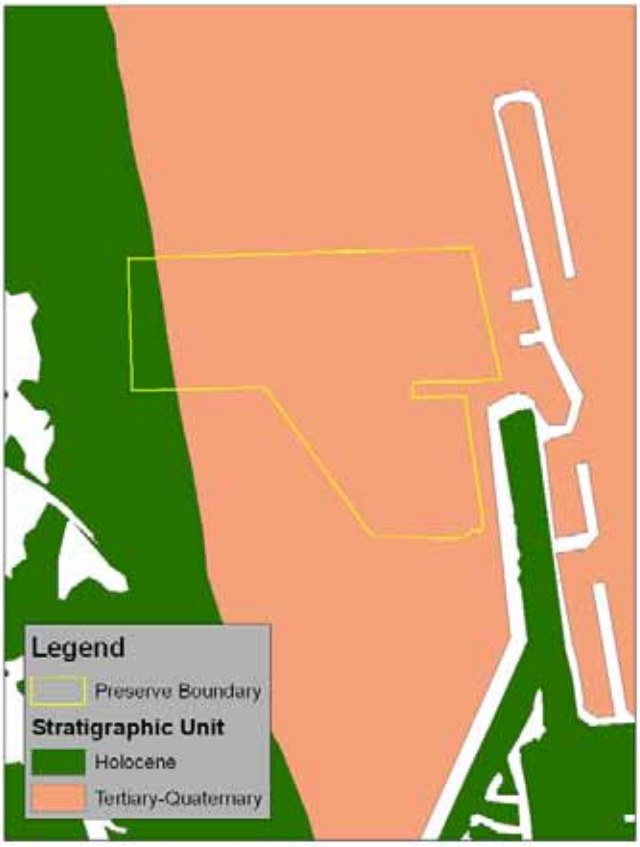
ii. Geology

For millions of years, the Florida Platform was submerged in the ocean. Sediments accumulated upon it and hardened into sedimentary rock. Thirty-five (35) million years ago, portions of Florida rose above the ocean's surface and for the next 12 million years it alternated between emersion and submergence. From 23 million years ago to the present, at least a small portion of the Florida Platform has always been above the ocean surface (Wilder 2005).

Ten lithostratigraphic units have been identified in the state of Florida. Lithostratigraphic units are differentiated by the conditions under which they were formed and when during geologic time they were formed. These

lithostratigraphic units are further divided by timing of formation into stratigraphic units. Galt Preserve lies on the boundary between two stratigraphic units, the Tertiary-Quaternary Sediments and the Holocene Sediments (Figure 3).

Figure 3: Stratigraphic Units



The majority of the Preserve (central and eastern) was created during the Pliocene Epoch between 2 million to 10,000 years ago. This period is also known as the Ice Age, where huge ice sheets formed across Canada and the northern United States. When these ice sheets were formed, they consumed large quantities of seawater, dropping the current sea level 300 or more feet, which greatly increased the land area of Florida. As the glaciers shrank, sea levels rose, and the Florida peninsula was again flooded. During the peak warm periods, sea level reached 150 feet above the current sea level. The waves and currents during these high sea level periods reworked the sediments and formed a series of geological units (Caloosahatchee, Ft. Thompson, Anastasia, Miami Limestone and Key Largo Limestone). Each of these geological units is characterized by their unique compositions. However, throughout much of Lee County, including these portions of GP, the Caloosahatchee and Fort Thompson units are somewhat indistinct and have been lumped together as undifferentiated Tertiary-Quaternary Sediments. This unit consists of a quartz sand blanket

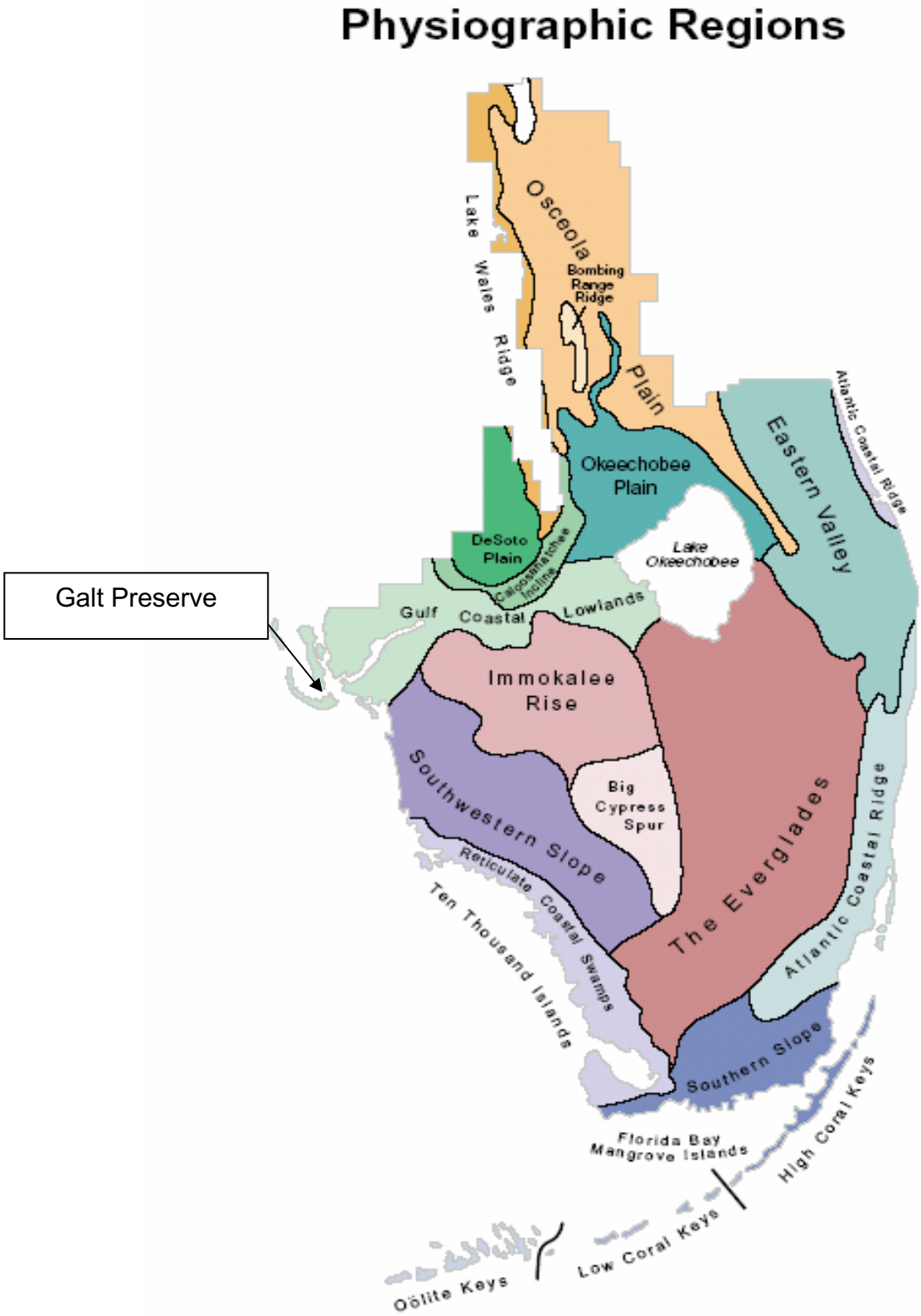
covering limestone and clay. Fossils, including mollusks and corals, are very common and usually in excellent condition (Missimer and Scott 2001).

The western portion of the Preserve is located in the Holocene Sediments. These were formed in the last 10,000 years with the warming of earth and the beginning of man. These sediments occur near the coastlines with elevations generally less than 5 feet. Sediments here include quartz, sands, carbonate sands and muds, and organics (Missimer and Scott 2001).

Southwest Florida can also be divided into ten major physiographic provinces. These are broad-scale subdivisions based on physical geography features such as terrain texture, rock type and geologic structure and history. Figure 4 illustrates where Galt Preserve lies within the Gulf Coastal Lowlands (Map source: SFWMDb 2000).

The Gulf Coastal Lowlands are found in northwest Lee County as well as most of Charlotte and Sarasota Counties to the north. This region is characterized as a gently southwestward sloping plain composed of deposited sediments. These sediments are aligned parallel to the coastline, which indicates they were formed by marine forces (Missimer and Scott 2001).

Figure 4: Physiographic Regions of South Florida

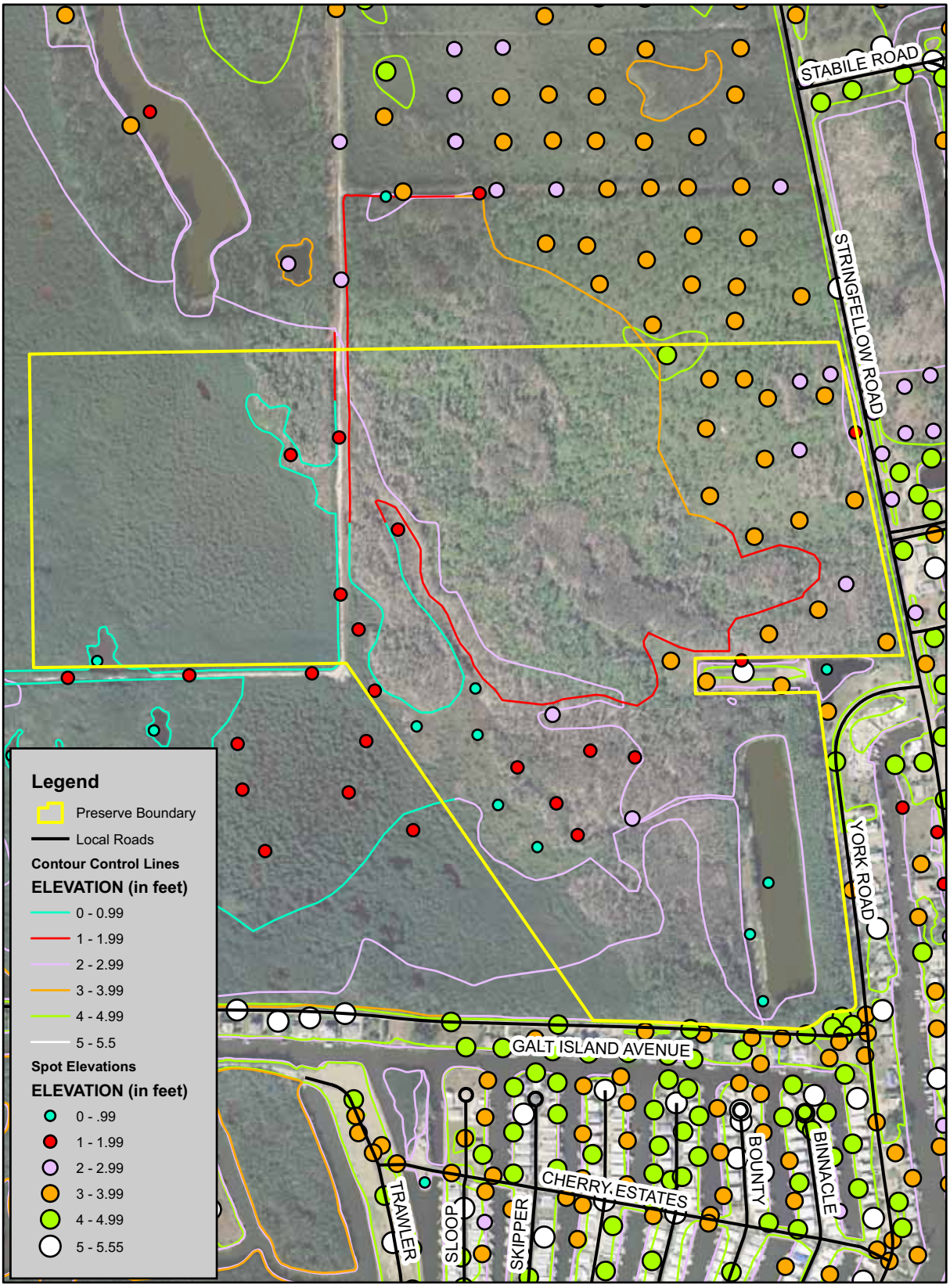


iii. Topography

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

The natural elevations at GP range from over 3' on northeastern portions of the Preserve to 1' or less along the western boundary and salt flats. The highest point is near the northern boundary line with a recorded spot elevation of 4.4 feet. General sheetflow across this part of the island is from east to west (Figure 5).

Figure 5: Topography Map



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Map Prepared On: 05/16/06 by sfurnari@leegov.com

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

iv. Soils

The Soil Survey of Lee County, Florida (Henderson 1984) was designed for a diverse group of clients to be able to comprehend soil behavior, physical and chemical properties, land use limitations, potential impacts, and protection of the environment.

There are six different soil types found at Galt Preserve (Figure 6 and Table 2). A common relationship for all of these soil types is that their slopes range from 0-2%. Slope is "the inclination of the land surface from the horizon." Essentially, GP is fundamentally level. Table 2 and the descriptions below have been organized to quickly provide land stewards with pertinent soils information for understanding restrictions and/or results regarding future restoration and probable recreational plan limitations and expense.

There are eight (8) generalized range site categories in Lee County, three of which are found on GP. A range site has the potential to support a native plant community typified by an association of species different from that of other range sites. Man-made areas are not included as a range site category. These categories are not Florida Natural Areas Inventory (FNAI) natural plant community designations, but rather they are used to group soil types and where they might occur. The three identified on the Preserve are:

- Saltwater Marshes – Tidal marsh areas along the Gulf of Mexico with the potential to produce significant amounts of cordgrass (*Spartina spp.*), seashore saltgrass (*Distichlis spicata*), and seashore paspalum (*Paspalum vaginatum*).
- South Florida Flatwoods - Nearly level areas with scattered to numerous pine trees (*Pinus spp.*), saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), and other woody plants.
- Slough - Open grassland where nearly level areas act as broad natural drainage courses in the flatwoods. The potential plant community is dominated by blue maidencane (*Amphicarpum muhlenbergianum*), chalky bluestem (*Andropogon virginicus* var. *glaucus*), and blue-joint panicum (*Panicum tenerum*).

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

- F-Flooding: Soil flooded by moving water from stream overflow, runoff or high tides.
- S-Slough (sheet flow): A broad nearly level, poorly defined drainage way that is subject to sheet-flow during the rainy season.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive

precipitation from long duration storms. There are three hydrologic soil groups found on the Preserve:

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

Note that some of the soil types are shown as having dual hydrologic groups, such as B/D. A B/D listing means that under natural conditions the soil belongs to D, but by artificial methods the water table can be lowered sufficiently so that the soil fits in B. The Preserve has been impacted in several ways, including installation of power line roadways, adjacent roads and ditches, and a large borrow pond. Since there are different degrees of drainage or water table control, an onsite evaluation would be needed to determine the exact hydrologic group of the soil at each particular impacted location.

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

Very slow	< 0.06 inch
Slow	0.06 – 0.2 inch
Moderately slow	0.2 – 0.6 inch
Moderate	0.6 – 2.0 inches
Moderately rapid	2.0 – 6.0 inches
Rapid	6.0 – 20 inches
Very rapid	> 20 inches

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

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

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

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

Staff considers soil limitations that affect their suitability for recreational development. Although the Soil Survey of Lee County has other categories under recreation, these are not under consideration for this Preserve. The soils within the Preserve have all been identified as having severe limitations. Severe means “that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.” In particular, paths and trails for “hiking and horseback riding should require little or no cutting and filling” plus “should not be subject to flooding more than once a year during the period of use.” Except for the man-made Matlacha soil series that was installed along adjacent roadways, all soil types at GP are fairly sensitive and restrictive and considerations by the impacts of hiking or management trails are addressed.

Table 2: Summary of Soil Characteristics

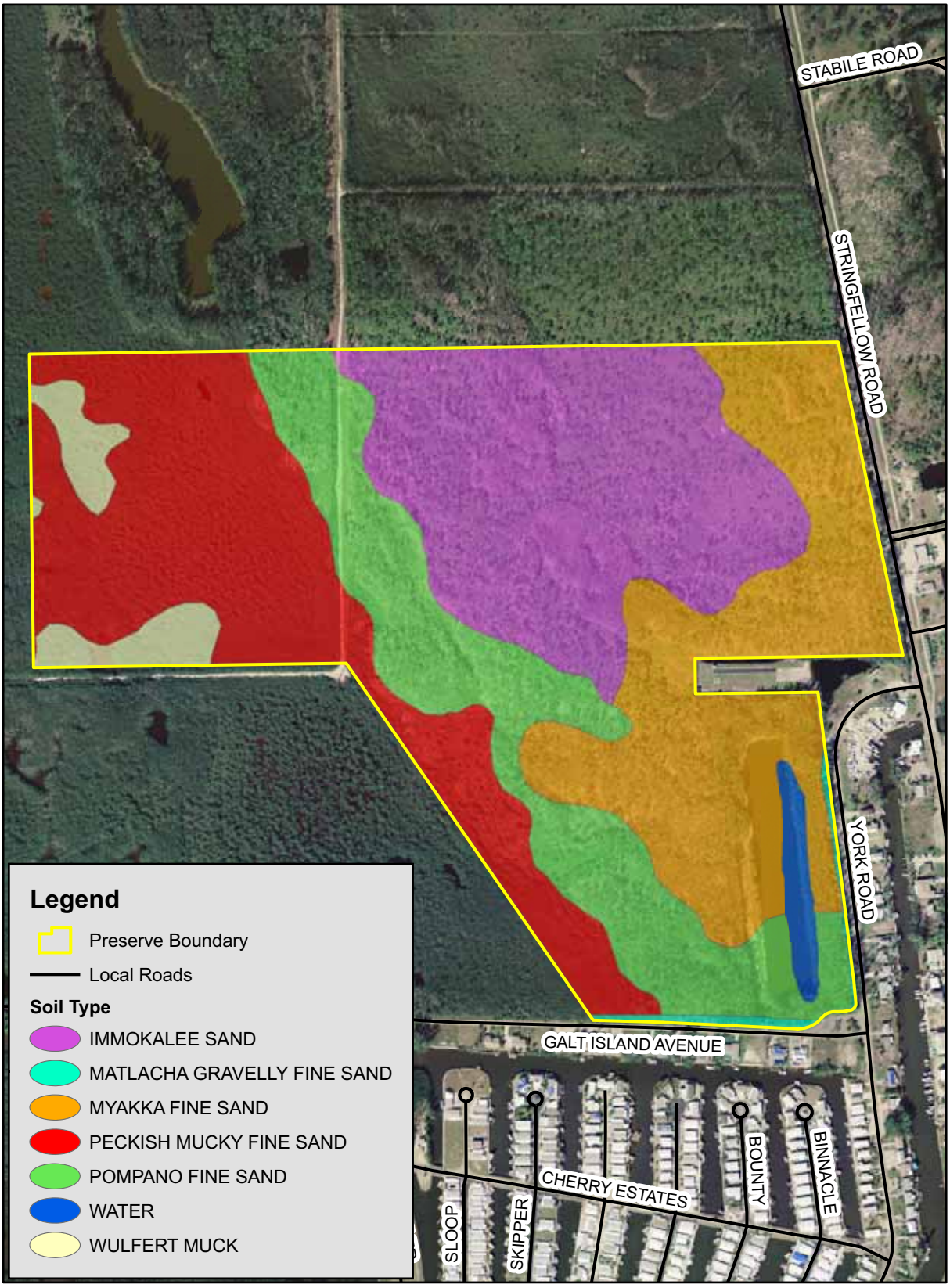
				Physical Attributes							*Biological Attributes*					
Soil Types	Map Symbol	Total Acres	% of Preserve	Habitats (Range Site)	Wetland Class (1)	Hydrologic Group (2)	Surface Permeability	Subsurface Permeability	Water Table within 10" of surface	Water Table below 10-40" of surface	% Organic Matter	Potential as habitat for wildlife in-- Openland	Woodland	Wetland	Rangeland	Limitations for Recreational Paths & Trails
Immokalee Sand	28	42.4	26.9	south Florida flatwoods		B/D	rapid	rapid	1-3 months	2-6 months	1-2%	poor	poor	poor	--	Severe: wetness, too sandy
Matlacha Gravelly Fine Sand	69	1.3	0.9	(manmade areas)		C	moderately rapid	rapid		2-4 months	not estimated	--	--	--	--	Severe: too sandy
Myakka Fine Sand	11	38.2	24.3	slough		B/D	rapid	rapid	1-3 months	2-6 months	<2%	fair	poor	poor	--	Severe: wetness, too sandy
Peckish Mucky Fine Sand	16	39.8	25.3	salt water marsh	F	D	rapid		tidal		--	very poor	very poor	fair	--	Severe: wetness, too sandy
Pompano Fine Sand	10	30	19.1	slough	S	B/D	rapid		2-4 months	6 months	1-5%	poor	poor	fair	--	Severe: wetness, too sandy
Wulfert Muck	23	5.6	3.5	salt water marsh	F	D	rapid		tidal		--	very poor	very poor	fair	--	Severe: wetness, excess humus

Color Key:
Dry
Wet
Wetter
Wettest
Saturated

(1) S - Slough (sheet flow): A broad nearly level, poorly defined drainage way that is subject to sheet-flow during the rainy season.
F - Flooding: The temporary inundation of an area caused by overflowing streams, runoff from adjacent slopes or tides.

(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.

Figure 6: Soils Map



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Map Prepared On: 05/16/06 by sfurnari@leegov.com

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

v. Hydrologic Components and Watershed

Galt Preserve is within the northwestern portion of the South Florida Water Management District's (SFWMD) Lower West Coast Region (LWCR) (SFWMDa 2000). Pine Island is approximately 17 miles long and 3 miles wide at its widest point. It is divided into two watersheds, North and South, which include Little Pine Island (Figure 7). The dividing line is the east-west corridor of Pine Island Road. The North Pine Island Watershed is approximately 21 square miles. The Preserve lies within the South Pine Island Watershed, which covers a surface area of approximately 28 square miles and drains the southern half of the island from the center of the island (more or less Stringfellow Road) east into Matlacha Pass and west into Pine Island Sound.

In 1974, the United States Fish and Wildlife Service (USFWS) directed its Office of Biological Services to conduct an inventory of the nation's wetlands. This National Wetlands Inventory (NWI) became operational in 1977. Wetlands were identified on the photography by vegetation, visible hydrologic features, and geography, and subsequently classified in general accordance with the Classification of Wetlands and Deep Water Habitats of the United States (Cowardin et al. 1979). Figure 8 identifies 51 acres of Estuarine Scrub-Shrub, 28 acres of Palustrine Forested and 5 acres of Palustrine Emergent wetlands at GP. Estuarine systems are defined as deepwater tidal communities and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the open ocean and in which ocean water is at least occasionally diluted by freshwater runoff from the land. Palustrine systems are all non-tidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5%. Scrub-shrub wetlands are intertidal and are dominated by woody vegetation less than 20 feet tall. Forested wetlands are characterized by woody vegetation that is 6 meters (19.6 feet) tall or taller. These areas typically have an overstory of trees, an understory of young trees or shrubs and an herbaceous layer. Emergent wetlands are characterized by erect rooted, herbaceous hydrophytes, excluding mosses and lichens that are present for most of the growing season. Based on the federal NWI evaluation, nearly 53% of GP is classified as wetlands.

Hydrological alterations have been made on and directly adjacent to GP affect the natural sheetflow across the lands (Figure 8). The impacts of existing ditches, borrow pits, and roads alter the natural flow of water. Most of the Preserve's sheetflow proceeds to Pine Island Sound and the rest heads to Matlacha Pass. Future developments to the north may further exacerbate these alterations. The largest hydrologic alteration is a 5-acre borrow pond in the southeastern corner of the Preserve. It is the result of work which removed fill material for the construction of Galt Island Causeway during the early 1980's. The depth and water quality of this borrow pond is unknown although it contains brackish water year-round. During mid-April 2006, there was a large fish die-off that included

several species of fish including common snook (*Centropomus undecimalis*), striped mullet (*Mugil cephalus*), and tarpon (*Megalops atlanticus*) (Buchanan 2006). Staff regularly observes alligators and several wading bird species here.

Around the perimeter of the LCMCD facility, drainage ditches were dug around the landing pad during the late 1970's to early 1980's. Wetlands on the Preserve, which are directly adjacent to the ditches, drain into the ditches and into the off-site borrow pond, then through a culvert under Stringfellow Road which eventually empties into Matlacha Pass. When York Road and the canals were being constructed nearby (before 1958), a large ditch was created along GP's eastern boundary that fills with water during the wet season. In western sections of GP, a Lee County Electric Cooperative (LCEC) power line roadway blocks the natural water flow causing any water flowing from the east to run south after it meets the road. Other alterations outside the Preserve include Stringfellow and York Roads (north/south) and Galt Island Avenue (west/east).

Figure 7: Watershed Map

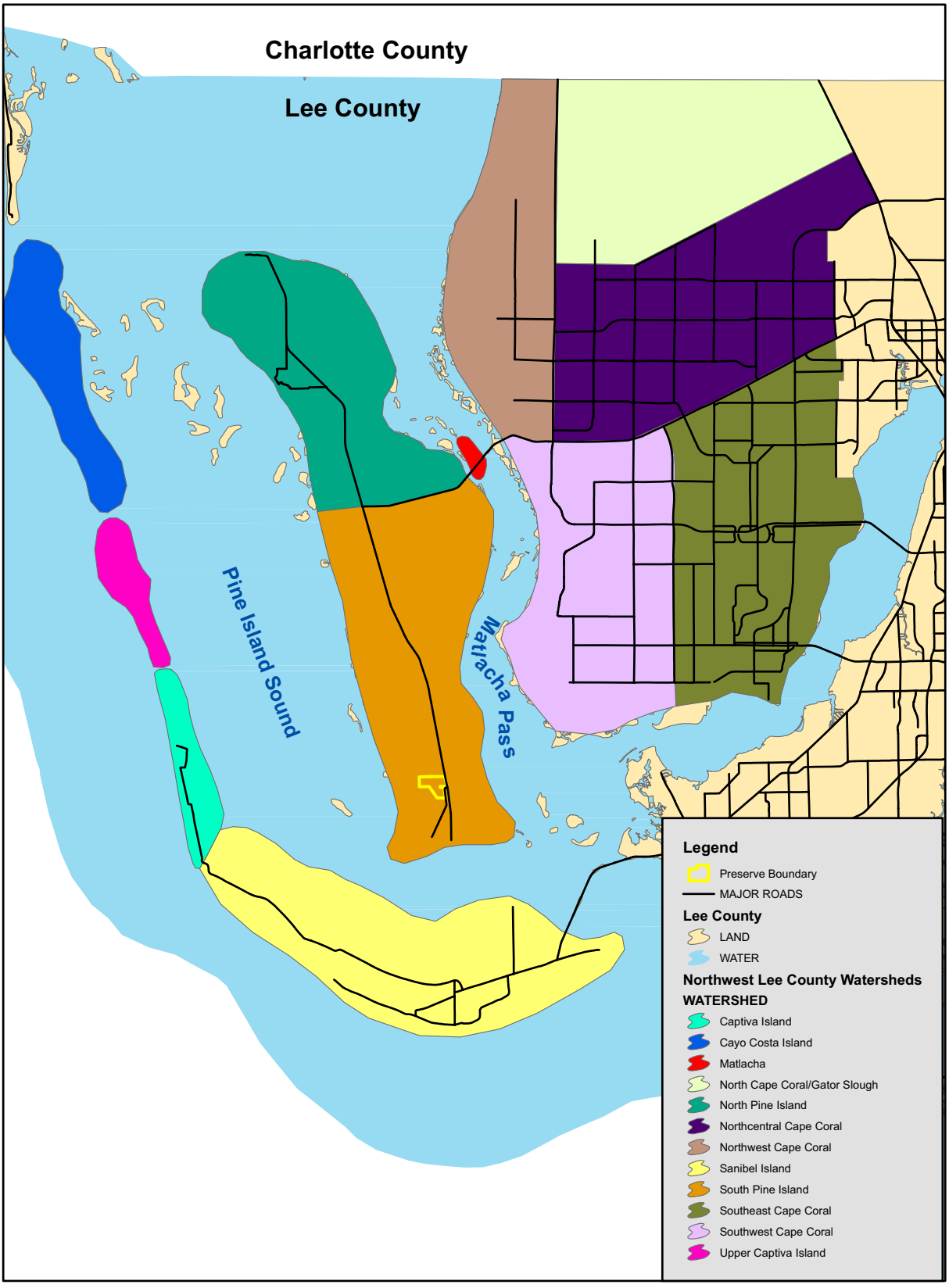
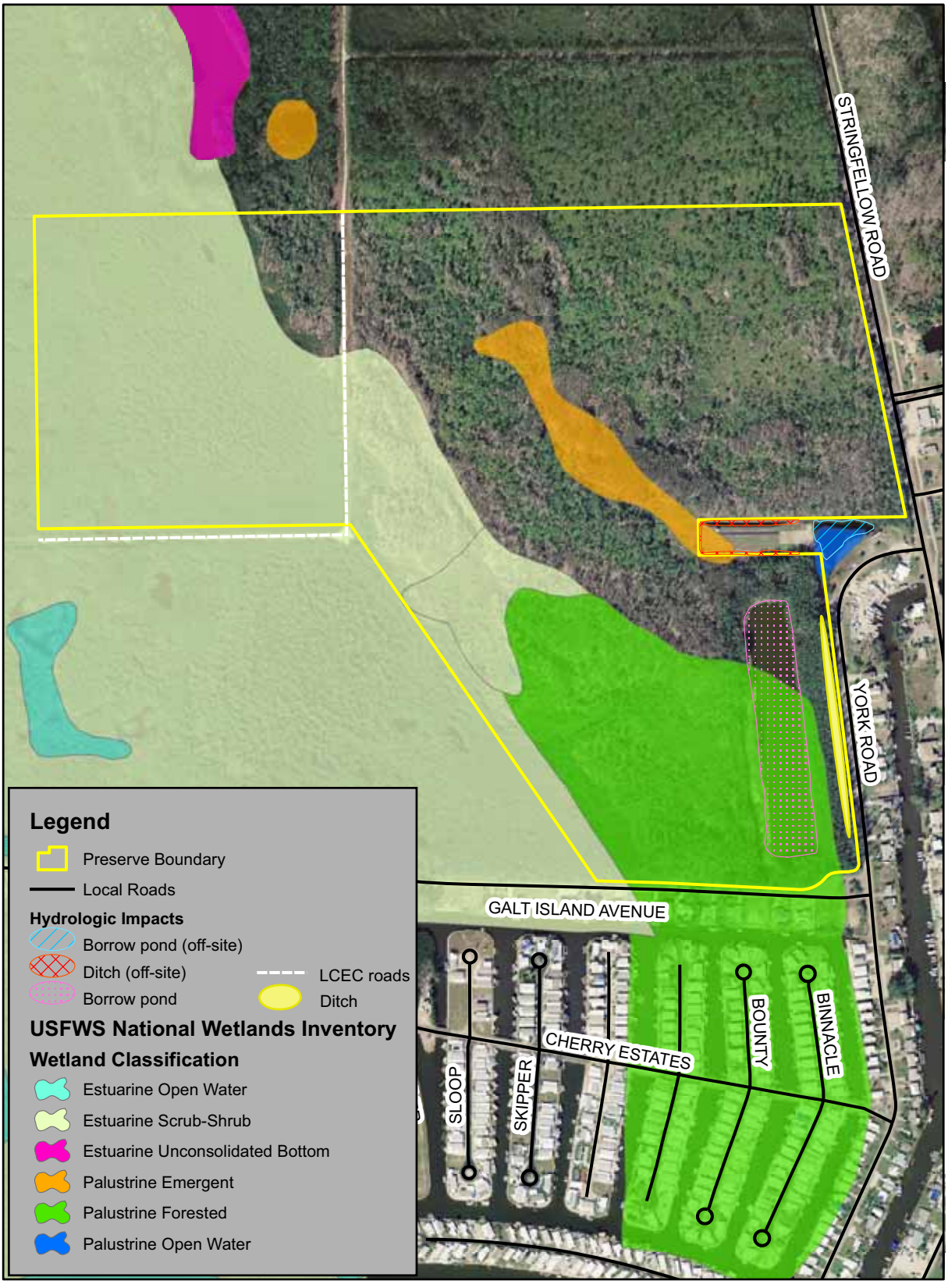


Figure 8: Hydrologic Features Map



B. Biological Resources

i. Ecosystem Function

A mangrove swamp (tidal swamp), such as the one found on the southern fringe of GP, is a significant plant community because it functions as a nursery ground for most of Florida's commercially and recreationally important fish and shellfish. Mangrove swamps also provide breeding grounds for substantial populations of wading birds, shorebirds and other animals (FNAI 1990). Although nesting has not been confirmed, it is possible that mangrove cuckoos (*Coccyzus minor*), black-whiskered vireos (*Vireo altiloquus*) and gray kingbirds (*Tyrannus dominicensis*) may utilize the mangrove swamps found throughout the Preserve for nesting. These three species are dependent on mangroves and their numbers are jeopardized by the fragmentation of mangroves. There are several wildlife species that are found exclusively in mangrove swamps including mangrove salt marsh snakes (*Nerodia clarkii compressicauda*) and at least two butterfly species, the mangrove skipper (*Phocides pigmalion*) and the black mangrove buckeye (*Junonia evarete*), that depend on mangroves as a larval food source (Postmus, per.comm.). To date, only the mangrove skipper has been documented on the Preserve. Additionally, mangroves can produce up to 80% of the total organic material available in the aquatic food web through the continuous shedding of its leaves and other plant components (FNAI 1990).

The upland coastal communities, especially the coastal berm and strand, act as shoreline stabilizers that also help to protect inland communities from the most severe damage of storms. This protection is dependent on the heavy vegetation and therefore damage to these areas during restoration must be minimized. Unlike the strand and berm, the coastal grassland community requires periodic overwash during extreme high tides and storms. These flooding events bring in sand which over time gets covered with pioneer species. On the northern portion of the Preserve, the coastal grasslands are dominated by needlerush. The high density of plant stems provides abundant cover for wildlife. Additionally, net primary production in these needlerush marshes is among the highest in any of the world's ecosystems (Myers and Ewel 1990). There are many terrestrial (insects - spiders - passerine birds) and marine (microalgae and organic detritus - phytoplankton - zooplankton - filter-feeding bivalves - fiddler crabs - snails) food webs occurring within these areas.

The freshwater wetlands of south Florida are important to a variety of wildlife. Birds feed, fish and frogs live and breed, and people rely on these marshes to improve water quality. 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. At the same time, autumn high tides let some fish back into the bays where they contribute to the commercial and recreational fisheries. The wading birds come in to feast and this 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. GP has a mixture of temporary and more permanent wetlands for wildlife to utilize. The deepest areas provide critical habitat for wintering waterfowl such as blue-winged teal (*Anas discors*). Plants in these areas also benefit from the seasonal wet/dry flux. Most aquatic plants cannot germinate under water and require this drying phase. The plants in that 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. When the nutrient loads become too high, cattails (*Typha latifolia*) increase (Myers and Ewel 1990), which is evident in the southernmost portion of the Preserve.

Pine flatwoods serve as important habitat for a variety of birds, small mammals, reptiles and amphibians and some large mammals including white-tailed deer. There are a number of rare wildlife species that primarily occur in the flatwoods, although only a few have been documented at GP. There are also numerous rare plants, including some endemic species, which are found exclusively in pine flatwoods. During a severe flood, the flatwoods serve as a water storage area to help protect adjacent landowners from flooding (Tiner 1998). Fire is an important part 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 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). A number of exotic plant species are present on the Preserve and are negatively affecting the native species. Following exotic plant removal and fuel reduction, fire will be a valuable management tool at GP.

ii. Natural Plant Communities

Galt Preserve consists of twelve different plant communities (Figure 9). Some plant communities are defined using the Guide to the Natural Communities of Florida (1990) prepared by FNAI and the Florida Department of Natural Resources, while others that have undergone extensive disturbance are described using terms that best describe the disturbed communities. The following are descriptions of the dominant plants and characteristic animals found within each community. Appendix B contains an up-to-date list of plant species identified by Land Stewardship staff on numerous site inspections, but not necessarily a comprehensive list for the entire Preserve. This list will be updated seasonally to identify plants in their inflorescence phase.

Tidal Swamp Community – 42.4 acres, 27% coverage of GP

Tidal swamps (mangroves) are characterized as dense forests located along shorelines with low wave energy in southern Florida. The dominant plants in this community are white mangrove (*Laguncularia racemosa*), black mangrove (*Avicennia germinans)*, red mangrove (*Rhizophora mangle*) and buttonwood (*Conocarpus erectus*). The dominant species of mangrove found in different areas is dependant on abiotic factors such as tidal flushing and salinity. This is the largest plant community at GP and is characterized as an overwash swamp found on an island which is frequently inundated by the tides. The five physical factors that greatly influence this community are water temperature, salinity, tidal fluctuation, substrate, and wave energy.

A variety of animals utilize this community including osprey (*Pandion haliaetus*), bald eagle (*Haliaeetus leucocephalus*), red-bellied woodpecker (*Melanerpes carolinus*), and great blue heron (*Ardea herodius*).

Melaleuca Monoculture – 38.2 acres, 24% coverage of GP

There are melaleuca monocultures that run through the central portions of Galt Preserve. Wildlife found in these stands includes the melaleuca psyllid (*Boreioglycaspis melaleucae*), melaleuca weevil (*Oxyops vitiosa*), and mourning dove (*Zenaida macroura*).

Mesic Flatwoods Community – 20.4 acres, 13% coverage of GP

Mesic flatwoods occur on relatively flat, moderately to poorly drained soils. Standing water is common for brief periods during the rainy season. Mesic flatwoods are characterized as having an open canopy with widely spaced pine trees and a dense ground cover of herbs and shrubs. Typical plants growing in these communities at GP include south Florida slash pine, saw palmetto, staggerbush (*Lyonia fruticosa*) and tarflower (*Bejaria racemosa*). The flatwoods found on the Preserve have a range of melaleuca infestations.

Wildlife associated with this community that would likely be encountered at the Preserve include black racer (*Coluber constrictor priapus*), red-bellied woodpecker and red-shouldered hawk (*Buteo lineatus*).

> **Mesic Flatwoods – Melaleuca dominated** – 12.3 acres, 8% coverage of GP
>
> These portions of the preserve are areas within the mesic flatwoods that are dominated by melaleuca. Previous disturbances on the land created conditions that allowed the melaleuca to invade these areas.

Mesic Flatwoods – Melaleuca control – 1 acre, <1% coverage of GP

This area is just to the west of the Lee County Mosquito Control District helicopter landing pad. The melaleuca were cleared to create a more open area for safe helicopter access.

Mixed Exotic Community – 22.9 acres, 14% coverage of GP

These areas of the Preserve are dominated by melaleuca and Australian pine (*Causarina equisetifolia*). Understory plants include Brazilian pepper (*Schinus terebinthifolius*) and leather fern (*Acrostichum spp*.).

Tidal Marsh Community – 6.6 acres, 4% coverage of GP

Marine tidal marshes are characterized as expanses of grasses, rushes and sedges along coastlines of low wave energy. Typical plants include key grass (*Monanthochloe littoralis*), rushes, saltwort (*Batis maritima*), glassworts (*Salicornia spp*.) and seablight (*Suaeda linearis*). Plants here survive under extreme conditions including high salt in the soils, poor soil aeration, submersion, intense sunlight and occasional fire. These areas are extremely important for their storm buffering capacity and pollutant filtering actions.

Wildlife seen here include great egret (*Ardea alba*) and mangrove skipper.

Australian pine Community – 5.3 acres, 3% coverage of GP

This community is to the east of the borrow pond. The area was disturbed when the borrow pond was excavated and regenerated as a monoculture of Australian pines.

Borrow pond – 4.6 acres, 3% coverage of GP

There is one area in the southeastern corner of the Preserve that was excavated for fill. This area has become a brackish pond.

Wildlife seen here include American alligator (*Alligator mississippiensis*), mottled ducks (*Anas fulvigula*) great blue heron and white ibis (*Eudocimus albus*).

Scrubby Flatwoods Community – 4.0 acres, 3% coverage of GP

The scrubby flatwoods at GP are found in higher eastern portions of the Preserve. Synonyms for this community include xeric flatwoods or dry flatwoods. Scrubby flatwoods are characterized by an open canopy of widely scattered pine trees with a sparse, shrubby understory. Plants typically found are south Florida slash pine (*Pinus elliottii* var. *densa*), shiny blueberry (*Vaccinium myrsinites*), saw palmetto and tarflower. The white sandy soil found here is typically several feet deep and

drains rapidly. These areas usually do not flood even under extremely wet conditions. Naturally occurring fire returns every 8 to 25 years. This return interval is longer than mesic flatwoods due to the lack of ground vegetation and abundance of non-combustible scrub-oak leaf litter that is present. The scrubby flatwoods at GP are overgown due to lack of fire and have a few open, sandy patches.

Wildlife seen here include the southern black racer, gray catbird (*Dumetella carolinensis)* and brown anole (*Anolis sagrei*).

Spoil areas – 1.2 acres, <1 % coverage of GP

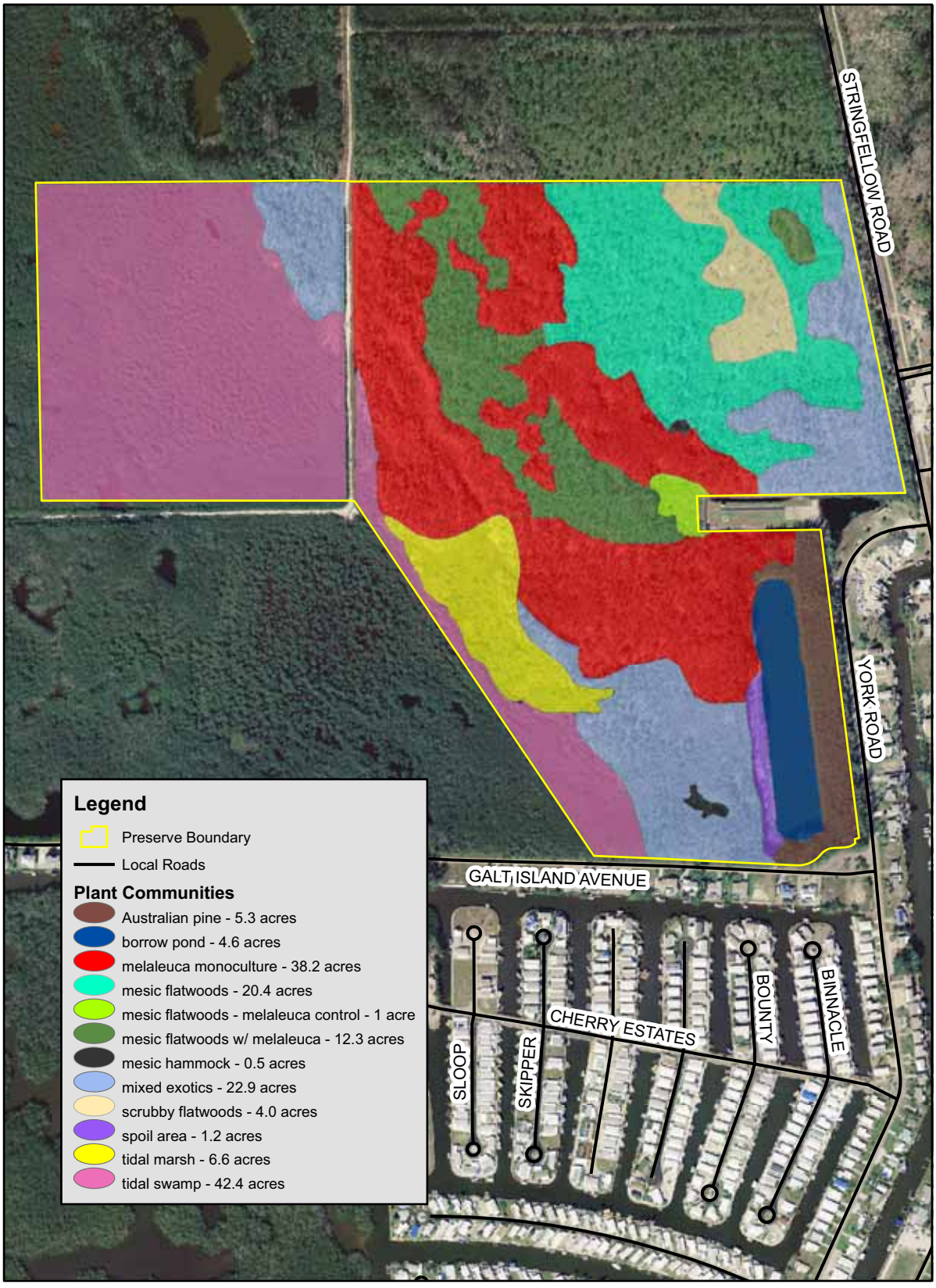
This area is to the west of the borrow pond and is an area that was cleared during the excavation of the pond. It has regenerated into what resembles a tidal marsh community with plants such as saltgrass (*Distichlis spicata*), seablight and glassworts.

Mesic Hammock Community – 0.5 acres, <1 % coverage of GP

There are several small hammock communities scattered throughout the Preserve. Mesic hammocks are characterized by having an open or closed canopy dominated by live oak with cabbage palm present in the canopy or subcanopy. They can have a dense understory of saw palmetto, American beautyberry (*Callicarpa americana*) and wax myrtle (*Myrica cerifera*) with other tropical shrubs mixed in. They usually occur on the fringes of rivers, swamps, marshes or lakes.

The dominant plant species here is the live oak, with an understory of ferns, bromeliads and saw palmetto. These areas are very small but are an important plant community on the Preserve.

Figure 9: Plant Communities



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Galt Preserve

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S:\esri\C2020 ArcView\Galt Preserve\mgmt_plan GP_plant_communities.mxd

Map Prepared On: 05/24/06 by lboyd@leegov.com

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

iii. Fauna

The tidal swamps at Galt Preserve provide excellent foraging and nesting grounds for wading birds. A variety of species, including great egrets, little blue herons (*Egretta caerulea*) and tricolored herons (*Egretta tricolor*) can be seen here. Appendix C shows a list of wildlife documented at the Preserve. Wildlife species were recorded during site inspections and the field work for developing this plan. Future sightings through site inspections and Lee County Bird Patrol volunteers will continue to be recorded. To date, the only exotic wildlife noted on the Preserve are brown anoles, greenhouse frogs (*Eleutherodactylus planirostris planirostris*), melaleuca weevils (*Oxyops vitiosa*) and melaleuca psyllids (*Boreioglycaspis melaleucae*). Another exotic animal, the feral hog (*Sus scrofa*), is of high concern, but has not been noted on the Preserve. If this species becomes a problem, proper management measures will be used to control it.

Wildlife management at the Preserve will focus on providing optimal habitat for native species. Restoration of the disturbed areas, control of invasive exotic plants and application of prescribed fire will be critical restoration components to provide improved habitat for wildlife. Galt Preserve is part of a countywide quarterly site inspection program for all Conservation 20/20 Preserves. A copy of the site inspection form is available in the Land Stewardship Operations Manual (LSOM). These inspections allow staff to monitor for any impacts and/or changes to each preserve and include lists of all animal sightings and new plant species that are found. If, during these inspections, staff finds FNAI listed species, they will be reported using the appropriate forms.

iv. Designated Species

There are a variety of designated animal and plant species (Table 3) found at Galt Preserve. Although all native plant and animal species found at the Preserve have some protection due to the preservation of this property, certain species need additional attention. For stewardship purposes, all plants and animals listed by the USFWS, Florida Fish and Wildlife Conservation Commission (FWC), Florida Department of Agriculture and Consumer Services (FDACS), the Institute for Regional Conservation (IRC) and FNAI will be given special consideration.

Typically, designated species will benefit from proper management of the biological communities in which they occur. However, some species may require additional measures to ensure their protection. Management practices likely to benefit wildlife at the Preserve include exotic plant control, prescribed burning, trash removal, wildlife monitoring, feral animal control, restricting maintenance and hiking trails in certain areas and enforcement of no littering, no weapons and no motorized vehicles regulations.

Table 3: Listed Species Found at GP and Their Designated Status

Scientific Name	Common Name	USFWS	FWC	FNAI	FDA	IRC	Occurrence
REPTILES							
Alligator mississippiensis	American alligator	T (S/A)	SSC	G5/S4			confirmed
Crocodylus acutus	American crocodile	E	E	G2/S1			expected
Drymarchon corais couperi	eastern indigo snake	T	T	G4T3/S3			confirmed
Gopherus polyphemus	gopher tortoise		SSC	G3/S3			confirmed
Malaclemys terrapin	diamondback terrapin			G4/S4			expected
BIRDS							
Pelecanus occidentalis	brown pelican		SSC	G4/S3			expected
Egretta rufescens	reddish egret		SSC	G5/S2			expected
Egretta caerulea	little blue heron		SSC	G5/S4			confirmed
Egretta tricolor	tricolored heron		SSC	G5/S4			confirmed
Egretta thula	snowy egret		SSC	G5/S3			confirmed
Eudocimus albus	white ibis		SSC	G5/S4			confirmed
Platalea ajaja	roseate spoonbill		SSC	G5/S2			expected
Mycteria americana	wood stork	E	E	G4/S2			confirmed
Elanoides forficatus	swallow-tailed kite			G5/S2			confirmed
Buteo brachyurus	short-tailed hawk			G4G5/S1			expected
Haliaeetus leucocephalus	bald eagle	T	T	G4/S3			confirmed
Coccyzus minor	mangrove cuckoo			G5/S3			expected
PLANTS							
Acrostichum aureum	golden leather fern				T	R	confirmed
Tillandsia fasciculata	cardinal airplant				E		confirmed
Tillandsia utriculata	giant airplant				E		confirmed
Syngonanthus flavidulus	yellow hatpins					R	confirmed
Andropogon virginicus var. *glaucus*	chalky bluestem					R	confirmed
Aristida spiciformis	bottlebrush threeawn					R	confirmed

Table 3: Listed Species Found at GP and Their Designated Status (continued)

Scientific Name	Common Name	USFWS	FWC	FNAI	FDA	IRC	Occurrence
Distichlis spicata	saltgrass					R	confirmed
Monanthochloe littoralis	keygrass					R	confirmed
Batis maritima	saltwort					R	confirmed
Drosera capillaris	pink sundew					R	confirmed
Galactia elliottii	Elliott's milkpea					R	confirmed
Limonium carolinianum	Carolina sealavender					R	confirmed
Polygala nana	candyroot					R	confirmed
Polygala rugelli	yellow milkwort					I	confirmed

Key

USFWS - U.S. Fish and Wildlife Service	**FNAI -** Florida Natural Areas Inventory
FWC - Florida Fish and Wildlife Conservation Commission	**G -** Global rarity of the species
FDA - Florida Department of Agriculture and Consumer Services	**S** - State rarity of the species
E - Endangered	**T** - Subspecies of special population
T - Threatened	**1** - Critically imperiled
CE - Commercially Exploited	**2** - Imperiled
SSC - Species of Special Concern	**3** - Rare, restricted or otherwise vulnerable to extinction
IRC - The Institute for Regional Conservation	**4** - Apparently secure
CI - Critically Imperiled	**5** - Demonstrateably secure
I - Imperiled	
R - Rare	

Wildlife Species

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

American Alligator

American alligators have recovered dramatically from overhunting since the 1960's but remain listed by USFWS as threatened by similarity of appearance to the American crocodile (*Crocodylus acutus*) and by FWC as species of special concern. There are even some populations large enough to support limited harvests. Pollution and destruction of wetlands are currently threats to this species. Another threat becoming more prevalent in the southwest Florida area is loss of habitat from the development and uneducated humans either feeding alligators or feeling threatened by their presence. Many alligators are relocated or killed by wildlife officials or authorized trappers because of their size or close proximity to homes adjacent to freshwater wetland ponds.

American Crocodile

The American crocodile's small population size leaves it vulnerable to natural disasters such as disease and hurricanes. Although none has been recorded at GP, there is an individual that is frequently seen on nearby Sanibel Island. The crocodile at J.N. "Ding" Darling National Wildlife Refuge was captured near the Preserve in St. James City. In the spring of 2006, a crocodile was sighted in the Airport Canal, about 200 feet from the Preserve (Buchanan 2006). The same management recommendations for the American alligator apply to this species.

Eastern Indigo Snake

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

snake breeds from November through April, then lays 5-10 eggs in May or June (USFWS 1982). This species was observed by a neighbor (Buchanan 2006).

Gopher Tortoise

Gopher tortoises are in decline throughout their range due to loss and degradation of habitat and are state listed as a species of special concern. As a species dependant on dry, upland communities much of their habitat has been lost to urban and residential development, agriculture, citrus groves, mining and pine plantations. Additional threats include a highly contagious respiratory disease and human consumption.

Diamondback Terrapin

The diamondback terrapin (*Malaclemys terrapin*) has been extensively harvested in the past for food. Today it has different threats such as the degradation to its mangrove and salt marsh habitat and also incidental drowning in crab traps. Protecting the mangrove swamps from degradation and pollution are management recommendations for this species.

Brown Pelican

The brown pelican (*Pelecanus occidentalis*) population was decimated in the 1950's and 1960's due to the use of the pesticide DDT (dichlorodiphenyltrichloroethane). Populations have risen since then, but they still face other threats such as increased turbidity from dredging, oil and other chemical spills, freezing weather, human disturbance and entanglement in fishing gear.

Reddish Egret, Little Blue Heron, Tricolored Heron, Snowy Egret

Reddish egrets (*Egretta rufescens*) are the rarest heron in Florida. They were nearly extirpated by plume hunters by 1910. They have restricted habitat requirements and are extremely vulnerable to dredging, filling and bulkheading that occurs with coastal development. The little blue heron's (*Egretta caerulea*) and tricolored heron's (*Egretta tricolor*) decline are due to loss of freshwater wetlands and alteration of their natural hydroperiod. There is also some indication that pesticides and heavy metal contamination may affect this heron. Like these herons, the snowy egret (*Egretta thula*) is declining throughout its range, and has been since the 1950's. Scientists believe that the main reason for this decline is the loss and alteration of wetlands where they forage.

White Ibis, Roseate Spoonbill

Similar to the herons listed above, the white ibis and roseate spoonbills (*Platalea ajaja*) are declining throughout their range, due to the same reasons as the other wading birds, which includes the reduction and degradation of wetlands and human disturbances to their rookeries.

Wood Stork

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

Swallow-tailed Kite

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

Short-Tailed Hawk

The short-tailed hawk's (*Buteo brachyurus)* Florida population is very small, with about 400 birds concentrated mainly in the southern part of the state. Although this species is found in other tropical lowlands, Florida's population has probably been isolated for hundreds or even thousands of years. Effects of loss of habitat to urbanization and deforestation are poorly known, but studies suggest that development poses a threat. Florida rehabilitators have treated birds for gunshot wounds and collisions with cars. Nesting habitat has been lost to cypress logging as these birds appear to have high fidelity to their breeding sites.

Bald Eagle

Bald eagle numbers have steadily increased in Florida since a low of 120 active nests in 1973. Still, loss of habitat and human disturbance due to development is a primary concern for this species. Currently, there are no active eagle nests on the Preserve, but there is one nest east of GP whose secondary zone falls within the Preserve. Bald eagles are observed almost daily during the nesting season foraging or bathing at the borrow pond (Buchanan 2006).

Additionally, bird patrol volunteers assigned to the Preserve are always on the look out for nesting activities and report their findings to Land Stewardship staff and Lee County's Eagle Technical Advisory Committee (ETAC).

Mangrove Cuckoo

The mangrove cuckoo (*Coccyzus minor*) has not been confirmed at GP, but its secretive nature and the dense mangrove forest make it likely to be overlooked. These birds are found in Lee County throughout the year, with their numbers increasing during the summer breeding season. Although little is known about the life history of this species, it is known that large, contiguous mangrove forests are essential for their survival.

Plant Species

In addition to designated wildlife, Galt Preserve provides habitat for several listed plant species. There are at least three state listed plant species at GP. The following is a brief summary of each designated plant species explaining why they are in decline, typical habitats where they are located and management recommendations.

Golden Leather Fern

Golden leather fern (*Acrostichum aureum*) is listed as threatened by the FDA. It is found in mangrove swamps, saltwater and brackish marshes and coastal hammocks. Its range is restricted to the southern coastal regions of Florida. It has been documented in several portions of GP.

In some areas of the Preserve, this plant is mixed with exotic plant species. During exotic plant removal or other restoration activities, staff will survey the area before work commences to look for areas to avoid.

Cardinal airplant

Cardinal airplant (*Tillandsia fasciculata*) is an endangered species listed by FDA. Another name for this airplant is stiff-leaved wild pine. It is found in hammocks, cypress swamps, and pinelands and has been documented at GP. Threats to this plant include illegal collecting, habitat destruction and the Mexican bromeliad weevil (Save 2003).

Giant airplant

Giant airplant (*Tillandsia utriculata*) is another bromeliad considered to have been quite common in Florida before the arrival of the Mexican bromeliad weevil

and is now listed as endangered by FDA. Another common name for this bromeliad is giant wild-pine. This species is typically found in hammocks and pinelands. In addition to the weevil, illegal collecting and habitat destruction threaten this species (Save 2003). Currently, scientists are researching biological control agents for the exotic weevil. Staff will follow the research developments and work with scientists in the future if it is determined that these insects are affecting epiphytes and the United States Department of Agriculture (USDA) is in need of release sites.

The majority of the designated plant species (see Table 4) were provided by IRC, which is not a regulatory agency. IRC's designation was either received from their book (Gann 2002) or Internet website (http://www.regionalconservation.org/ircs/database/search/QuickSearch.asp). Scientists working for this Institute have conducted a tremendous amount of field work and research documenting plants occurring in conservation areas in the 10 southernmost counties of Florida. This initial floristic inventory allowed the IRC to rank plant species to indicate how rare/common these plants are in protected areas. At GP, a number of Rare and Imperiled plants occur. Rare plants are defined as being either very rare and local throughout its range in south Florida (21-100 occurrences, or less than 10,000 individuals), or found locally in a restricted range. IRC only ranks those taxa as rare with fewer than 100,000 individuals. Imperiled plants are those that are imperiled in south Florida because of rarity (6-20 occurrences, or less than 3,000 individuals) or because of vulnerability to extinction due to some natural or human factor. IRC only ranks those taxa as imperiled that have fewer than 10,000 individuals.

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

- Restrict recreational activities such as off-road vehicle and equestrian use to avoid impacts to rare plant populations.
- Ensure that park improvements and management activities do not needlessly threaten or destroy 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 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.

Table 4 outlines some specific management and restoration activities at the Preserve that will be taken to protect the designated wildlife and plant species. If additional listed species are documented on the Preserve they will be added to the lists in Appendices B or C. When any of the designed species' nests or burrows are discovered on the Preserve, a map will be created, for staff use only, to assist with planning for restoration activities.

Table 4: Management Recommendations for Designated Wildlife Species

Fauna Species		**Restoration Activities**		**Management Recommendations**
Scientific Name	Common Name	Exotic Control	Prescribed Fire	Mark Nest/Burrow Location
Alligator mississippiensis	American alligator	**X**		**X**
Crocodylus acutus	American crocodile	**X**		
Drymarchon corais couperi	eastern indigo snake	**X**	**X**	**X**
Gopherus polyphemus	gopher tortoise	**X**	**X**	**X**
Malaclemys terrapin	diamondback terrapin	**X**		
Pelecanus occidentalis	brown pelican	**X**		
Egretta rufescens	reddish egret	**X**		
Egretta caerulea	little blue heron	**X**		
Egretta tricolor	tricolored heron	**X**		
Egretta thula	snowy egret	**X**		
Eudocimus albus	white ibis	**X**		
Platalea ajaja	roseate spoonbill	**X**		
Mycteria americana	wood stork	**X**		
Elanoides forficatus	swallow-tailed kite	**X**		
Buteo brachyurus	short-tailed hawk	**X**		
Haliaeetus leucocephalus	bald eagle	**X**	**X**	**X**
Coccyzus minor	mangrove cuckoo	**X**		
Flora Species				
Acrostichum aureum	golden leather fern	**X**		
Tillandsia fasciculata	cardinal airplant	**X**		
Tillandsia utriculata	giant airplant	**X**		

Restoration Activities:

Activities on the Preserve that will benefit and protect designated species for the long term.

Explanation of Management Recommendations:

Mark Location – location of individual plants, nest sites or burrows will be recorded using a GPS for Land Stewardship staff knowledge and protection during restoration activities.

v. Biological Diversity

Biodiversity at Galt Preserve varies depending on the community, but should increase significantly after stewardship activities have been put into practice (i.e. invasive exotic plant removal and prescribed fire). The plant communities range from scrubby flatwoods to tidally influenced mangrove swamps, and include one excavated borrow pond. This range of plant communities contributes largely to the diversity across the Preserve. Protection of native plants across the landscape and throughout the wetlands will enhance the overall biodiversity of the Preserve.

Many species of animals not only inhabit, but also frequently visit the Preserve. Currently 94 plant species (14 exotic) and 53 animal species (4 exotic) have been documented. Eleven of the 14 exotic plant species (78%) are on the Florida Exotic Pest Plant Council's 2005 List of Invasive Species (FLEPPC 2005).

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

- Control of invasive exotic vegetation followed by annual maintenance to provide more suitable habitat for native aquatic and terrestrial species.
- Maintain boundaries with fencing and signs to eliminate illegal access to the Preserve and protect fragile ecosystems.
- Enhance borrow pond to create improved feeding grounds for wading birds.
- Implement a prescribed fire program to closely mimic the natural fire regimes for different plant communities to increase plant diversity and Ensure the canopies remain open.
- Install perimeter fire breaks to protect resources on the Preserve and surrounding neighbors.
- Remove any debris and prevent future dumping on site.
- Control invasive exotic animal populations to reduce their impacts on the herbaceous plants, native animals and soils.

- Conduct on-going species surveys utilizing volunteers and staff to catalog and monitor the diversity that is present.

C. Cultural Resources

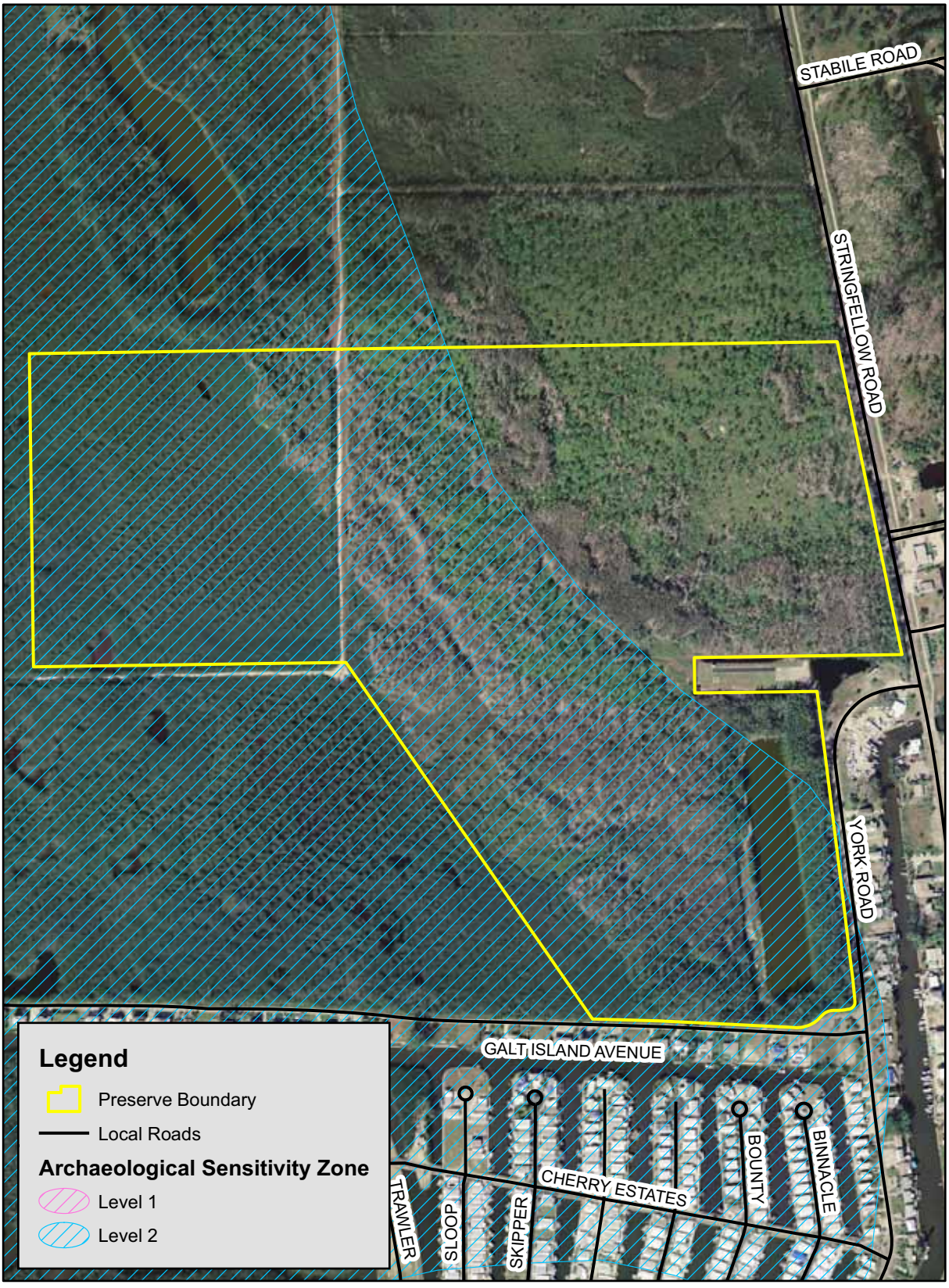
i. Archaeological Features

In 1987, Piper Archaeological Research, Inc. (PARI) conducted an archaeological site inventory of Lee County. They were able to identify an additional 53 sites increasing the total number of known archaeological sites in Lee County to 204. PARI created a site predictive model and archaeological sensitivity map for the county that highlighted potential areas likely to contain additional archaeological sites. Approximately seventy-five percent of Galt Preserve lies within the study's "Sensitivity Level 2" area (Figure 10). The study defines this level as "areas that contain known archaeological sites that have not been assessed for significance and/or conform to the site predictive model in such a way that there is a high likelihood that unrecorded sites of potential significance are present. If these areas are to be impacted, then they should be subjected to a cultural resource assessment survey by a qualified professional archaeologist in order to 1) determine the presence of any archaeological sites in the impact area and/or 2) assess the significance of these sites" (Austin 1987).

There has already been some soil disturbance on GP with the creation of the borrow pond, illegal vehicular use and an archaeological survey. During the 1980's, Mr. Bill Marquart reportedly performed an archaeological survey of the area in preparation to the area being developed into a housing project that was later cancelled (Buchanan 2006). Several scattered one meter square pits were dug and not refilled. These disturbances occurred within the Sensitivity Level 2 areas.

A professional archaeologist will be hired to conduct a survey of the area to be impacted if restoration projects require any major soil disturbance. If evidence of shell middens or other artifacts are found in the area, the Division of Historical Resources (DHR) will be immediately contacted and protection procedures will comply with the provision of Chapter 267, Florida Statutes, Sections 267.061 2(a) and (b). Collection of artifacts and/or any disturbance of the archaeological site will be prohibited unless prior authorization has been obtained from the DHR. Any potential site will be managed in coordination with recommendations from the DHR and, if necessary, the site will be kept confidential with periodic monitoring for impacts. If any significant archaeological resources are found and confidentiality is not found to be necessary, they may be incorporated into a public education program.

Figure 10: Archaeological Features



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Galt Preserve

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Map Prepared On: 05/10/06 by lboyd@leegov.com

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

ii. Land Use History

Though not a barrier island, Pine Island is the largest island on the west coast of Florida and lies in the middle of the Charlotte Harbor Estuary. Human settlement on Pine Island most likely started about twelve thousand years ago with the Pre-Calusa Indians. The Calusa occupied Pine Island until at least the middle of the 16th Century. Remnants of Calusa history still remain on the island in the form of shell middens, mounds, burial grounds and canals. The Randell Research Center at Pineland has preserved some of these well known Calusa sites. The Calusa survived by hunting and fishing and fashioned many tools out of the locally available material to assist in their daily activities. They lived in the same areas that are occupied today; Bokeelia, Pineland and St. James City. Calusa lived on the island until the Spanish arrived in the mid 1500's and were either killed or captured and enslaved by the Spanish. In 1763, the last two known Calusa were sold into slavery in Cuba and never heard from again (CLTb 1998). The site of Galt Preserve is between known village sites and was most likely used by the Calusa for hunting and fishing. There are no known Calusa sites at GP.

St. James City is located on the southern point of Pine Island. Before the bridge to the mainland was built in 1927, it was an important port for travel from the island to Fort Myers, Punta Rassa and Sanibel Island. Settlers were known to be in the area in the 1830's, but written historical accounts aren't known until around 1885. At this time, a development company from New England purchased approximately three thousand acres for $1 an acre. The plans were to develop the first "subdivision" in the area; St. James-on-the-Gulf. When all of the parcels were purchased, the St. James-on-the-Gulf company owned the entire southern portion of Pine Island. By 1886, a 60 foot wharf on San Carlos Bay, stores, cottages and personal homes had been built. The San Carlos Hotel, with 50 rooms and a dining room seating 100, became the center of life in St. James City. In the early 1900's, the hotel was sold to the Koreshan Unity Religious Sect and subsequently burnt down during renovations. Once the main stockholders in the St. James-on-the-Gulf company passed away, the town temporarily died with them (Jordan 1982).

In 1911, the Sisal Hemp and Development Company decided to move hemp production from the Bahamas to St. James City. By 1913, a factory was built to produce rope and the land was surveyed for farm plots. Production began and rail lines were installed to carry the ropes to the loading docks. Unfortunately, as quickly as the business was built, it also collapsed. It is not known exactly why, but it is speculated that hemp could be grown more cheaply in other areas. Once again, St. James City became a quiet abandoned town along the water (Jordan 1982).

In 1927, the road (SR 78) from the mainland connected Pine Island to Fort Myers and electricity was brought to the island by 1941. Since that time, St. James City has steadily grown into the town it is today.

Aerial photographs were used to qualitatively describe land use changes on Galt Preserve and the surrounding area (Figures 11 - 13). The 1953 aerial photograph (Figure 12) shows the canal from the south, from St. James City, reaching Galt Island Avenue just to the east of the Preserve. By 1958, this canal was extended to Stringfellow Road and traversed under the road and turned back to the south. The ditch to the west of York Road is also visible and the canal on the south side of Galt Island Avenue began (Figure 13). By 1966, the borrow pond just to the east of LCMCD was created and the canal to the south of Galt Island Avenue was connected to Pine Island Sound. By 1972, the powerline from the north that runs to Sanibel Island and its associated ditches were created. In 1982, LCMCD moved into the outparcel in the center of the Preserve and the land in the southeast corner was cleared to start work on the borrow pond. The 1986 aerial photograph shows the completed borrow pond, all terrain vehicle (ATV) trails on the Preserve and additional development along and to the south of Galt Island Avenue. Since 1986, there have been few disturbances to the Preserve, other than exotic plant infestations.

Development has continued around the Preserve and most of the property surrounding the Preserve today is either already developed or is protected as conservation land. St. James City is the island's most heavily populated area with the potential to grow even more with several development orders either approved or pending, including the renominated #185-2 parcel with a development order under review. The Pine Island's population is 9,000 year round and 15,000 during the winter months (TGPICC 2006).

Figure 11: 1944 Historical Aerial Photograph

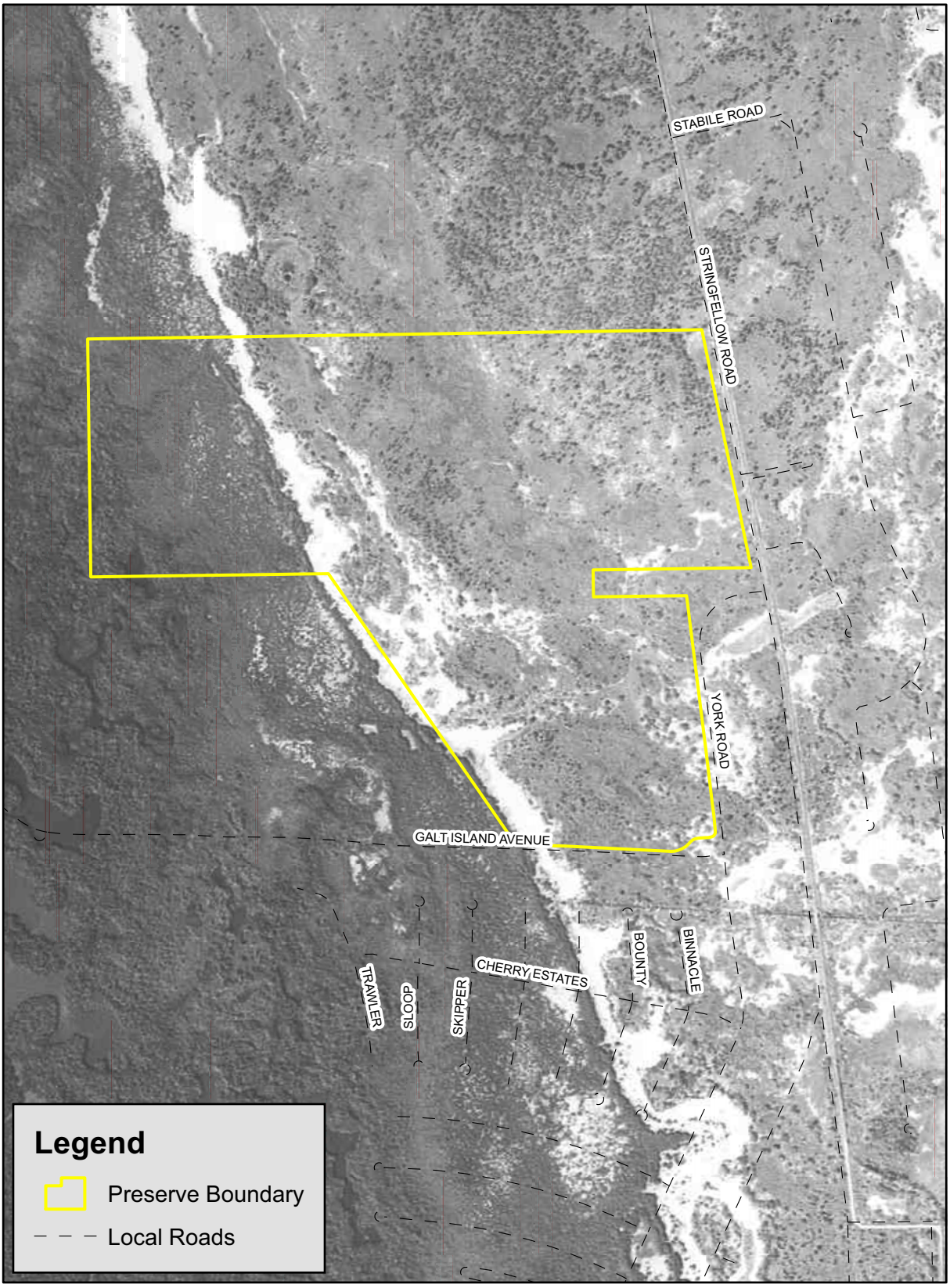


Figure 12: 1953 Historical Aerial Photograph

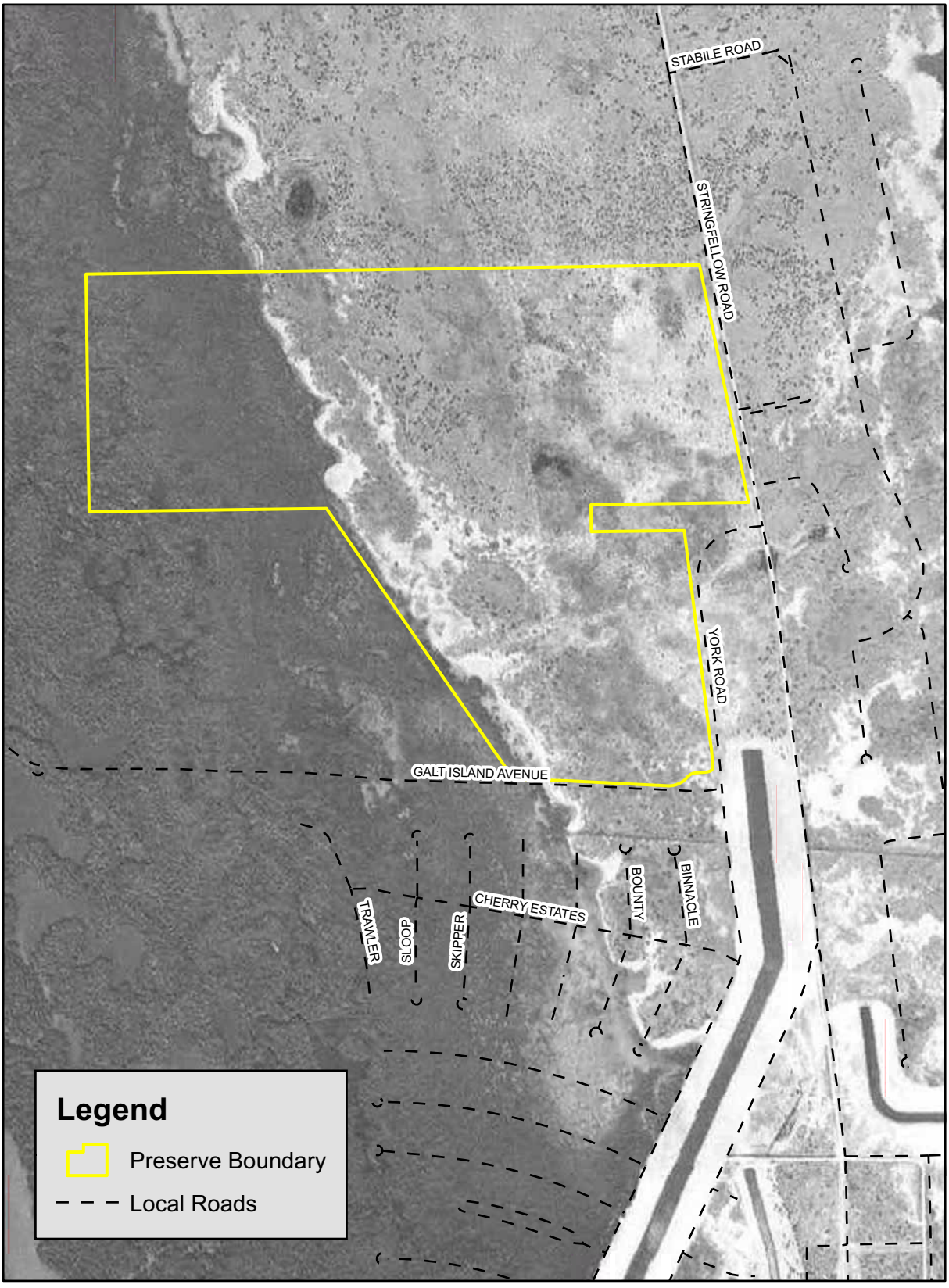
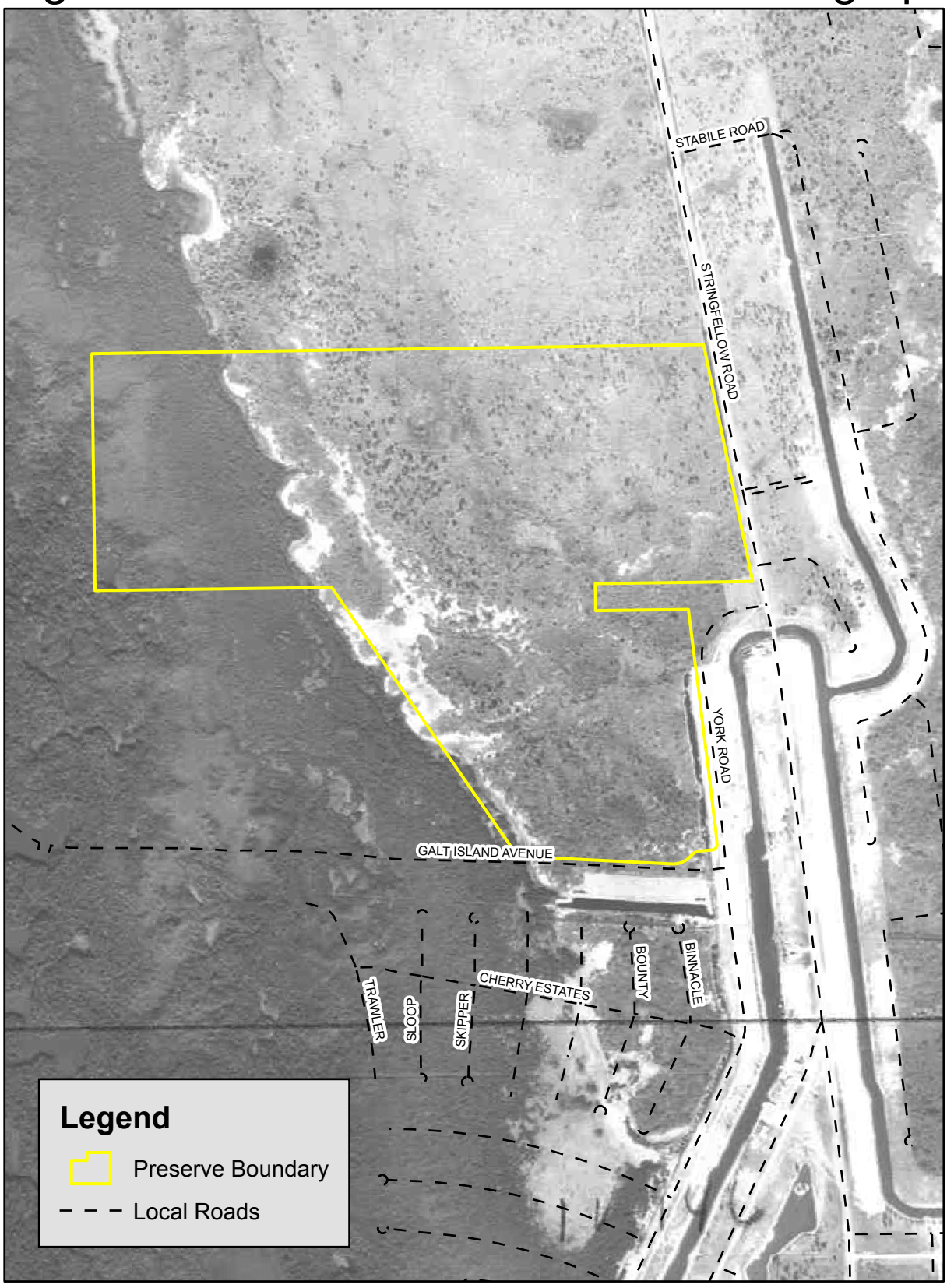


Figure 13: 1958 Historical Aerial Photograph



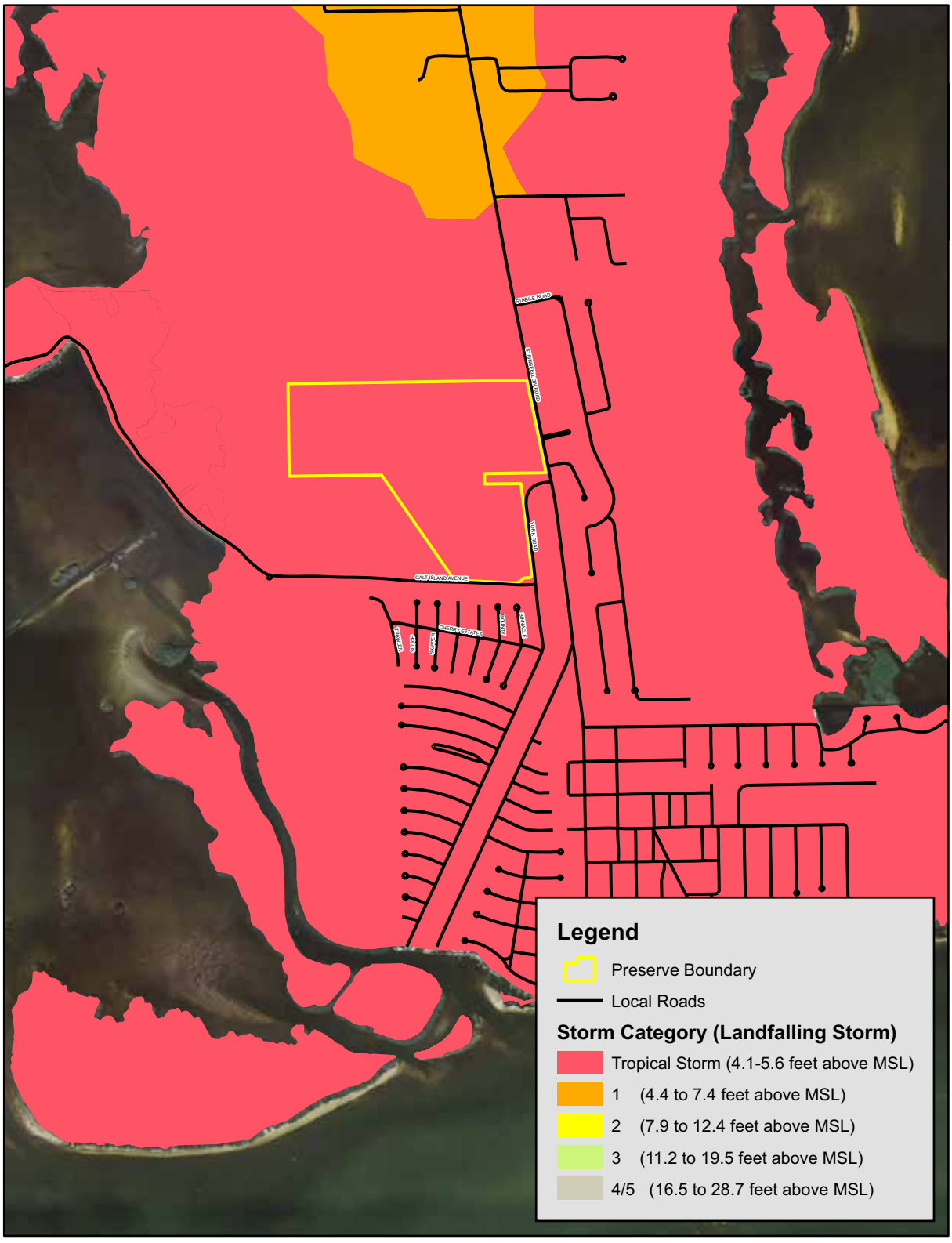
iii. Public Interest

Galt Preserve was purchased for the preservation of environmentally sensitive lands, potential to provide water quality enhancements, and storage of floodwaters and flood protection. It is adjacent to state owned mangrove preserves and serves as a connection between the mangroves on the western coast and the flatwoods in the center of the island. The entire Preserve lies within the Tropical Storm Surge zone and the Coastal High Hazard area (Figure 14). The tidal swamps and tidal marshes provide protection from flooding during extreme weather events for the interior areas. The eastern portions of the Preserve are also in the secondary zone of an eagle nest. Protecting these areas for eagle roosting and feeding is an integral part of the Preserve. Prior to the county purchasing the property, a development order had been approved by the United States Army Corps of Engineers (USACOE) and the Florida Department of Environmental Protection (FDEP) for 48 single family homes. The only permit left to obtain was a vegetation removal permit from Lee County.

Pine Island residents are very interested in protecting their natural lands and the island from major development. The Calusa Land Trust and Nature Preserve Association was formed in late 1970's by a small group of motivated people interested in preserving Calusa Island just off the northern point of Pine Island. Then, in 1989 another group of people organized with the interest of protecting and preserving environmentally-sensitive properties on Pine Island. It was decided that they would adopt the existing organization and change the name to Calusa Land Trust and Nature Preserve of Pine Island, Inc. (CLT) (CLTa). Today, CLT protects over 2,000 acres on Pine Island and has nearly 900 members. CLT has been an important partner with Lee County Conservation 20/20 through financial assistance in acquiring the parcels that make up Galt Preserve. Directly adjacent and south of GP, the local homeowners association, Galt Island Avenue Property Rights Group, Inc. (GIAPRG), is another group interested in Galt Preserve. Both CLT and GIAPRG have promised to provide management assistance to the Preserve (Buchanan and Ott 2006).

After restoration work, the Preserve will be one of the few places for visitors to see the natural communities on Pine Island. At a minimum, the Preserve will be open for hiking, bird watching and photography and trails will be placed on existing trails in the Preserve. Refer to the Public Access and Resource-Based Recreation section for additional information. This will most likely lead to increased use and trash, but Land Stewardship staff will work with neighboring residents if they wish to form a volunteer group for the Preserve.

Figure 14: Coastal High Hazard and Storm Surge Map



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Map Prepared On: 05/10/06 by lboyd@leegov.com

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

V. FACTORS INFLUENCING MANAGEMENT

A. Natural Trends and Disturbances

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

Wildfires caused by lightning strikes are natural occurrences in Florida. The Florida Division of Forestry (FDOF) – Caloosahatchee District - and Lee County Department of Parks and Recreation staff are developing a wildland firefighting protocol for County preserves. The FDOF was provided a map of the Preserve showing the locations of access points, firebreaks, management units and water sources. The FDOF will utilize existing firebreaks to contain wildfires at GP whenever possible. No new firebreaks, such as plow lines, will be created unless there is potential for the wildfire to harm property outside the Preserve boundary. This agreement between FDOF and the County will protect GP from the potential damage associated with emergency firefighting equipment. Land Stewardship staff will lead periodic site visits in order to familiarize FDOF with GP and current management efforts. A comprehensive C20/20 fire plan, to be completed in the fall of 2006, will help decrease the impact of catastrophic wildfires on the Preserve and neighboring lands. Fire lines on the perimeter of the Preserve, as well as those created once burn units are established, will be kept clear of debris and disked or mowed a minimum of once a year during the onset of the dry (wildfire) season.

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

B. Internal Influences

Several human influences have impacted GP. The first of these is the borrow pond that was created in the southeast corner of the Preserve. Approximately

eleven acres were cleared and the borrow pond was created to produce fill for York Road or Galt Island Avenue. Once the area was cleared, Australian pines invaded and now dominate the area to the east of the pond. The borrow pond effects hydrologic components in several ways by drawing down the surrounding groundwater causing it to discharge into the pond, increases surface water runoff, turbidity, and erosion along the steep banks. There is also a drainage ditch in the southeastern corner of the Preserve along York Road.

Another major influence on the Preserve is the power line that runs from the north in the center of the Preserve and its associated access road. The power line was installed in 1972 to provide Sanibel Island with power. The elevated access road that was created blocks the natural sheet flow of water from the flatwoods into the mangroves.

C. External Influences

Galt Preserve is surrounded to the west by state owned protected lands, to the north by undeveloped privately owned land and the east and south by residential neighborhoods. There is one outparcel on the east side near the center of the Preserve. Lee County Mosquito Control District owns this parcel and uses it for a helicopter landing pad. On occasion, the Pine Island Fire and Rescue also utilizes this helicopter landing pad for emergencies. A small adjacent borrow pond is used to test for mosquito larvae and fill the tanks with water when spraying.

In February 2006, development order DOS2006-00006 was applied for on the parcel just to the north of GP. It includes a subdivision of single family homes with 56 units named Harbourwalk Village Preserve. To date, the development order has not been approved and the property was renominated (summer of 2006) to the C20/20 program (#185-2). Negotiations are underway.

D. Legal Obligations and Constraints

i. Permitting

Land stewardship activities at Galt Preserve may involve obtaining permits from several regulatory agencies. Any proposed hydrologic improvements to the site may require obtaining permits from the Florida Department of Environmental Protection (FDEP), the U.S. Army Corps of Engineers (USACOE) and South Florida Water Management District (SFWMD). The use of prescribed fire will require obtaining a DOF burn permit. Tree removal will require notification to Lee County Division of Environmental Sciences and soil disturbance will require a Certificate to Dig permit from Lee County Division of Planning (LCDP).

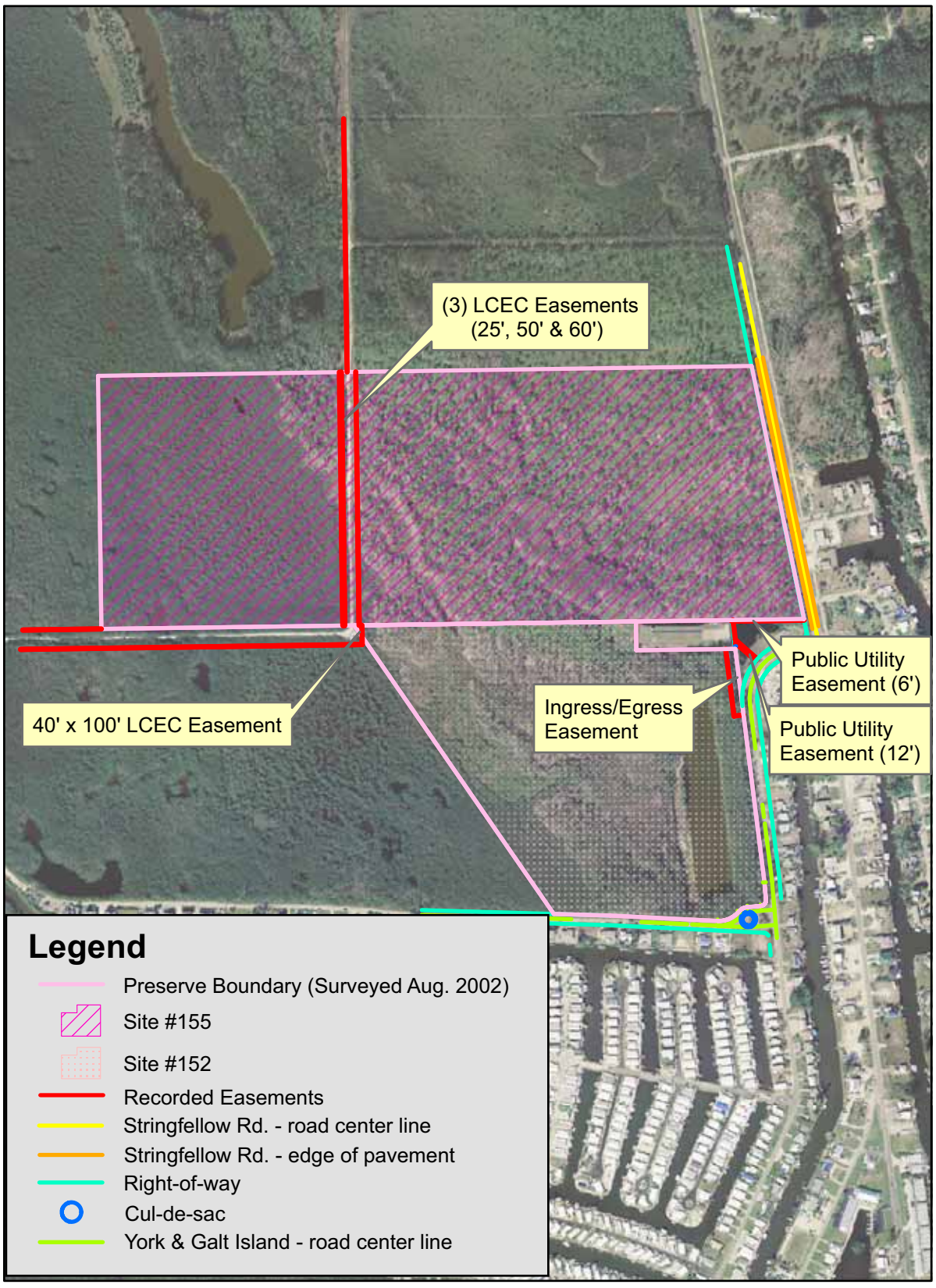
ii. Other Legal Constraints

There are several recorded easements on or directly adjacent to the Preserve (Figure 15). In the western areas of GP, there are four LCEC easements. Three of the easements (north/south) are 25', 50', and 60' that are either aligned side-by-side or overlap for a total of 85 feet. A 40' x 100' LCEC easement is in the northwestern corner of Site #152 where the two parcels that make up GP meet and the LCEC power line road turns to the west. The LCEC roadway runs along the south-side of Site #155 (west/east) adjacent to the GP boundary. Although omitted on the survey, there is a small bridge (wood & steel), maintained by LCEC, along the power line roadway.

In eastern areas of GP, there is a recorded Ingress/Egress easement (dated 6/8/79 and recorded in OR Book 1358 Page 761) that allows LCMCD access to their helicopter landing pad from York Road (Appendix D). In addition, the Pine Island Fire and Rescue utilize this helistop for air ambulance service (Smith 2006). The paved roadway leading from York Road to the helistop was installed and is being maintained by LCMCD. *"The County may use the encumbered area as long as such use does not interfere with the Mosquito Control District's use of the property for ingress and egress"* (Spickerman 2006). Additional easements adjacent to the Preserve include public utility easements (6' & 12') just to the east of LCMCD and adjacent to a portion of the GP boundary. Several road right-of-ways run adjacent to the GP boundary along Stringfellow Road, York Road and Galt Island Avenue.

Galt Island Avenue is a private roadway that is owned and maintained by the GIAPRG and not open to the public (Buchanan 2006). An Assistant County Attorney has provided the following legal determination to County Lands regarding Galt Island Avenue: *"This is in response to your request concerning the County's ability to use Galt Island Avenue for access to the property conveyed to the County pursuant to the Deed recorded in OR Book 3725 Page 4833 of the public records of Lee County (County Property). Upon review of the documents provided, it does not appear that the County has the right to utilize Galt Island Avenue for access to the County Property. It appears that the use of Galt Island Avenue granted to the owner of the subject property pursuant to the plat of Galt Island Shores, Unit One, was extinguished by the Quitclaim Deed dated 10/22/99 and recorded in OR Book 3181 Page 1377* (Spickerman 2006).

Figure 15: Recorded Easements Map



iii. Relationship to Other Plans

The Lee Plan, Lee County's comprehensive plan, is designed to depict Lee County as it will appear in the year 2020. Several themes have been identified as having "great importance as Lee County approaches the planning horizon" (Lee County 2004). These themes are:

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

The entire Lee Plan can be found on the Internet at: http://www.lee-county.com/dcd1/Leeplan /Leeplan.pdf. The four chapters that affect the management of GP are **Chapter II – Future Land Use, Chapter IV – Community Facilities and Services**, **Chapter V – Parks, Recreation and Open Space** and **Chapter VII – Conservation and Coastal Management**. Included below are goals, objectives and policies, citied directly from the Lee Plan, which further affect C20/20 preserves.

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

Chapter II, Goal 14: GREATER PINE ISLAND, provides to manage future growth on and around Greater Pine Island so as to maintain the island's unique

natural resources and character and to ensure that island residents and visitors have a reasonable opportunity to evacuate when a hurricane strike is imminent. **Objective 14.1: NATURAL RESOURCES,** states that County regulations, policies, and discretionary actions affecting Greater Pine Island will permit no further degradation of estuarine and wetland resources and no unnecessary loss of native upland vegetation and wildlife habitat. (Amended by Ordinance No. 94-30, 00-22) **Policy 14.1.6** states that the county will continue to purchase environmentally sensitive areas, rare and unique uplands, eagle nesting areas, and archaeological and historic sites on Greater Pine Island in accordance with the priorities set out in this plan. (Amended by Ordinance No. 94-30, 00-22)

Chapter IV, Policy 59.1.5 provides the county will, through appropriate land use and engineering regulations, continue to control the introduction of obstructions or impediments within floodways. (Amended by Ordinance No. 94-30, 00-22)

Chapter IV, Policy 59.1.6 provides that the county will, through appropriate regulations, continue to provide standards for construction of artificial drainage ways compatible with natural flow ways and otherwise provide for the reduction of the risk of flood damage to new development. (Amended by Ordinance No. 94-30, 00-22)

Chapter IV, Policy 60.1.4 provides that the county will examine steps necessary to restore principal flow-way systems, if feasible, to assure the continued environmental function, value, and use of natural surface water flow-ways and associated wetland systems. (Amended by Ordinance No. 00-22)

Chapter V provides that Land Stewardship staff will insure that any public use facilities and recreational opportunities will comply with **Goal 85: PARK PLANNING AND DESIGN**, which requires that parks and recreation sites are planned, designed, and constructed to comply with the best professional standards of design, landscaping, planning, and environmental concern. Staff will also work to meet **Goal 86: ENVIRONMENTAL AND HISTORICAL PROGRAMS, Objective 86.1** to provide information and education programs regarding its cultural history and its environment at appropriate facilities. (Amended by Ordinance No. 94-30, 00- 22)

Chapter VII, Objective 104.1: ENVIRONMENTALLY CRITICAL AREAS provides that within the coastal planning area, the county will manage and regulate, on an ongoing basis, environmentally critical areas to conserve and enhance their natural functions. Environmentally critical areas include wetlands (as defined in Goal 114) and Rare and Unique upland habitats. Rare and Unique upland habitats include, but are not limited to: sand scrub (320); coastal scrub (322); those pine flatwoods (411) which can be categorized as "mature" due to the absence of severe impacts caused by logging, drainage, and exotic infestation; slash pine/midstory oak (412); tropical hardwood (426); live oak

hammock (427); and cabbage palm hammock (428). The numbered references are to the Florida Land Use Cover and Forms Classification System (FLUCFCS) Level III (FDOT, 1985). (See also Policy 113.1.4.) The digitization of the 1989 baseline coastal vegetation mapping (including wetlands and rare and unique uplands, as defined above) will be completed by 1996. (Amended by Ordinance No. 94-30, 00-22)

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

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

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

Chapter VII, Objective 107.6: SOUTHERN BALD EAGLES, states that the county will continue to monitor for Southern bald eagle nesting activity and offer incentives to conserve buffer areas around Southern bald eagle nests. (Amended by Ordinance No. 98-09) **Policy 107.6.1** states that the county will maintain a policy of negotiations with owners of land surrounding eagle nests to provide an

optimal management plan for land subject to imminent development. **Policy 107.6.2** states that the county Eagle Technical Advisory Committee will continue to conduct nest monitoring through the nesting season for all known eagle nests in Lee County. Information from these assessments will be used to modify, as needed, the adopted nest guidelines and to adopt guidelines for new eagle nests documented in Lee County. (Amended by Ordinance No. 94-30, 98-09, 00-22)

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

Chapter VII, Objective 107.10: WOODSTORK, Policy 107.10.1: provides that Land Stewardship staff will continue to document wood stork utilization of the Preserve and insure that the GP management plan follows USFWS “Habitat Management Guidelines for the Wood Stork in the Southeast Region.” according to **Policy 107.10.2**.

Chapter VII, Goal 113: COASTAL PLANNING AREAS, Objective 113.1: COASTAL PLANNING AREA IN GENERAL provides that Lee County will manage the coastal planning area to provide a balance among conservation of resources, public safety capabilities, and development. (Amended by Ordinance No. 94-30, 00-22) **Policy 113.1.5** provides that Lee County will protect and conserve the following environmentally sensitive coastal areas: wetlands, estuaries, mangrove stands, undeveloped barrier islands, beach and dune systems, aquatic preserves and wildlife refuges, undeveloped tidal creeks and inlets, critical wildlife habitats, benthic communities, and marine grass beds. (Amended by Ordinance No. 00-22)

Chapter VII, Goal 114: WETLANDS provides that the county maintains and enforces a regulatory program for development in wetlands that is cost-effective, complements federal and state permitting processes, and protects the fragile ecological characteristics of wetland systems. (Amended by Ordinance No. 94-30) **Objective 114.1** provides that the natural functions of wetlands and wetland systems will be protected and conserved through the enforcement of the county's wetland protection regulations and the goals, objectives, and policies in this plan. "Wetlands" include all of those lands, whether shown on the Future Land Use Map or not, that are identified as wetlands in accordance with F.S. 373.019(17) through the use of the unified state delineation methodology described in FAC Chapter 17-340, as ratified and amended by F.S. 373.4211. (Amended by Ordinance No. 94-30, 00-22)

For adjacent state owned conservation areas (land and water), there are two FDEP agencies with management plans. The Office of Coastal and Aquatic Managed Areas manages the Pine Island Sound Aquatic Preserve (54,000 acres of sovereign submerged lands); while the Division of Recreation and Parks oversees the Charlotte Harbor Preserve State Park. Charlotte Harbor Aquatic Preserves Management Plan encompasses several regional aquatic preserves (Cape Haze, Gasparilla Sound, Charlotte Harbor, Lemon Bay, Matlacha Pass, and Pine Island Sound). This plan was originally drafted in 1983 (http://www.dep.state.fl.us/coastal/downloads/management_plans/aquatic/CharlotteHarbor.pdf) and is currently under revision. The updated Charlotte Harbor Preserve State Park Land Management Plan was completed in 2006.

E. Management Constraints

The principle stewardship constraints for GP include limited funding, the brief dry season for conducting land stewardship activities, and increasing urbanization pressures adjacent to the Preserve. Although C20/20 has a management fund, it is inadequate to fulfill the restoration activities for this and the other preserves. Efforts to obtain additional funding through grants and/or monies budgeted for mitigation of public infrastructure projects will be pursued. These funds will be used to supplement the operations budget to meet the restoration goals in a timely manner.

Tidally influenced communities, such as tidal swamps remain wet year-round, while tidal marshes may have standing water for over 8 months of the year. The remaining plant communities at GP are typically the driest between January through April so most stewardship activities will be conducted during these months. If access is necessary for management when water levels are high, vehicles such as an ATV will be used, otherwise staff will travel on foot.

Urbanization pressures increasingly affect stewardship activities and boundary security. Smoke management will be one of the greatest factors in planning prescribed fires. Prescribed fire parameters become more restrictive with expanding residential and commercial development and increased traffic on nearby roadways. Power lines that run through western locations of the Preserve and along the eastern boundary will also pose a challenge to prescribed fire and smoke management. Illegal ATV access has already occurred in sensitive wetland locations and staff has installed temporary blockades. As additional exotic plant removal work occurs, boundary fencing will need to be installed in vulnerable, accessible areas.

When potentially dangerous restoration activities are being conducted, such as work utilizing heavy equipment or prescribed burns, signs will be installed at the entrance and on the trail near the management activity in order to warn the public that the area is temporarily closed. During and after prescribed fires, the entire Preserve will be closed to the public until the site is safe for visitors.

Although there are no bald eagle nests on GP, there is an existing nest approximately 1100 feet to the east of the proposed public access point. Any restoration activities within 1500 feet of the nest the will be restricted to between May 16th and September 30th (outside of nesting season) and mainly during the dry season, which varies from year to year (see Figure 21).

F. Public Access and Resource-Based Recreation

The majority of the historic recreation that occurred at Galt Preserve was from hikers. Dense exotic vegetation and ditches prevented most of the general public from entering the Preserve. Occasionally there are adventurous hikers who walk around the borrow pond or through nearby areas with dense exotic vegetation. Since Lee County has purchased the Preserve, evidence of camp fires, hunting and ATV use has been documented. The Parks and Recreation Ordinance, 02-12 (http://www.lee-county.com/ordinances/PDF/2002/02-12.pdf) prohibits all of these activities. Several damaging ATV trails still scar tidally influenced western wetland areas.

In accordance with the Land Stewardship Operations Manual (LSOM), GP is classified as a Category 3 Limited Use Preserve. Since the Preserve is medium sized and has undergone extensive disturbance, staff propose an additional recreational activity beyond the usual hiking, bird watching, nature photography and nature study that are allowed at all Conservation 20/20 preserves. Fishing will be allowed in the borrow pond unless there are problems with water quality, littering or other inappropriate activities. In the future, if there is a demand and available funding, there is a possibility of adding a small fishing pier and picnic tables near the pond.

For reasons listed in the "Other Legal Constraints" section, the public access point will be at GP's southeastern corner, located off York Road. After exotic vegetation (Australian pines) has been removed and fill installed to cross through the Ingress/Egress easement (with LCMCD), the future exterior boundary fence will be bumped in to create an unpaved area approximately 75 feet wide and 20 feet deep to prevent visitors from blocking the driveway. A gate for staff access will be added. Signs will be installed along LCMCD's driveway entrance (off York Road) to inform drivers that parking is not allowed and vehicles will be towed. The trailhead will have a sign posted at the pedestrian entrance providing an illustration of the trail system, additional information related to GP, and a brochure box. The brochure box will contain trail maps and other environmental educational literature. The trail map will illustrate the different communities and the length of the nature trails. Staff will attempt to find a volunteer in the community that is willing to keep the brochure box stocked with maps and other literature. See Figure 16 for the Proposed Master Site Plan.

Nearly 90% of the proposed primitive nature trail system will be created within highly disturbed plant communities and will utilize a portion of an abandoned vehicle trail. After initial exotic plant removal efforts, several restored and natural plant communities may be viewed while hiking along the primitive trails. The nature trails will be marked with colored blazes on existing trees or posts that will be reused from removed interior fencing from other C20/20 preserves. Portions of the proposed trail will only require mowing once a year. The trail system will

have two loops: the Pine Cone Loop, 1.4 miles long and the Mullet's Mud Hole Loop, .6 miles long.

Periodically, portions of the trails may have standing water throughout the wet season, but the trail system may remain open for visitors to make the effort if they choose. Since the trail system is beyond 750 feet of an off-site eagle's nest, current county ordinances would allow trails to remain open (Sweigert 2006). The entire Preserve will be closed during certain restoration activities or prescribed fires. Temporary signs will be posted at the pedestrian gate when the Preserve is closed and the pedestrian gate will be locked.

Staff will attempt to provide for the needs of the public, keeping in consideration the lack of daily staff to protect and maintain public use amenities. A strong volunteer group will be encouraged to form to assist staff with trail maintenance, wildlife monitoring and other land stewardship projects. CLT and GIAPRG members may be a supporter and organizer for this effort.

Figure 16: Proposed Master Site Plan

G. Acquisition

Galt Preserve consists of two separate nominations purchased through the C20/20 Program. The first, nomination #152, consists of 52.47 acres and was acquired in September 2002 for $200,000 after being nominated to the program in the spring of 2000. The CLT contributed $55,000 to the purchase of this nomination. The second 107.3-acre nomination, #155, was purchased for $490,000 in April 2002 after being nominated to the Program in April 2000. The CLT contributed $10,000 to the purchase of this nomination. Both CLT and GIAPRG organizations have promised future management support for GP (Buchanan and Ott 2006).

The STRAP numbers for the Preserve are 35-45-22-00-00006.0000, 35-45-22-00-00003.0010 and 34-45-22-00-00004.0000.

Other nearby nominations to the C20/20 Program include one of the first parcels nominated to the Program in 1997. Nomination #3 was less than 1 mile east of GP and it was not selected by CLASAC members. Another 105 acre parcel directly adjacent to GP, nomination #185, was nominated in January 2001 and subsequently withdrawn in the summer of 2002 because the Lee County Division of County Lands (LCDCL) and the landowner were not able to reach an agreement on the price (Figure 17). During the summer of 2006, this parcel was renominated to the Program (under new ownership) as #185-2 with a development order currently in review. Negotiations are currently underway with LCDCL. Another recent nomination to the C20/20 Program is a 1.5-acre parcel, approximately 1.5 miles southeast of the Preserve, nomination #291. Nomination #291 was nominated in the fall of 2005 and CLASAC recommended that the owner obtain an environmental survey and a Minimum Use Determination (MUD) and resubmit with a lower asking price. The Assessment was submitted December 5, 2005 indicating ¼ to 1/3 uplands available but to-date no MUD has been received by LCDCL. The nomination was not forwarded for secondary review.

Galt Preserve's future land use category for site #155 is "Conservation Lands," further sub-categorized as 66-acres of "Uplands" and 41-acres of "Wetlands" (Figure 18). Site #152's future land use categories are 4-acres of "Coastal Rural," 6-acres of "Wetlands," and 42-acres of "Outlying Suburban." A portion of Site #152 will be changed to the "Conservation Lands" category.

GP's site #155 is zoned as agriculture "Ag-2," while site #152 is zoned as residential single family "RS-1" (Figure 19). Land Stewardship staff will work with the LCDP to change to these designations to "Environmentally Critical."

Figure 17: Acquisitions and Nominations

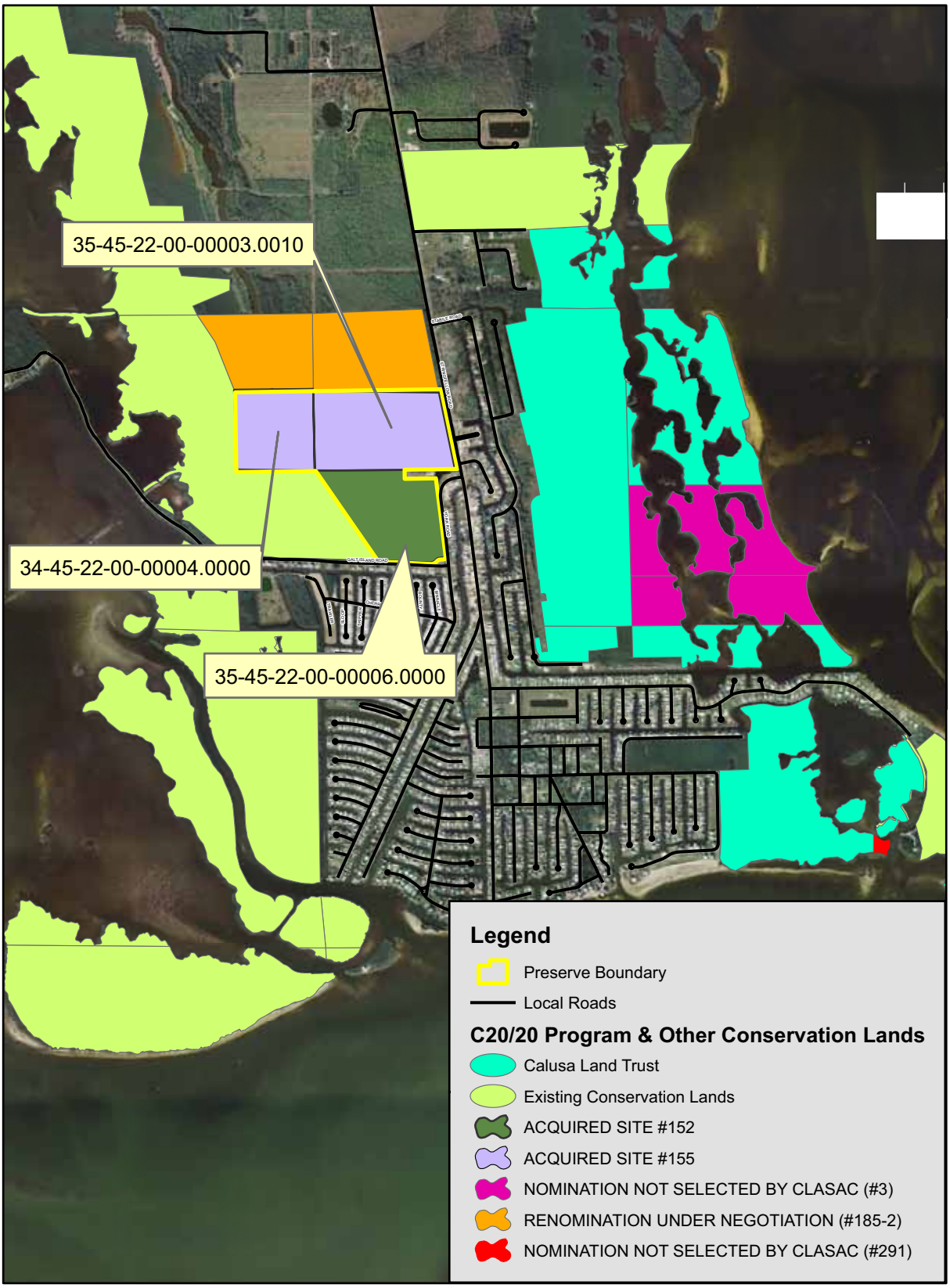
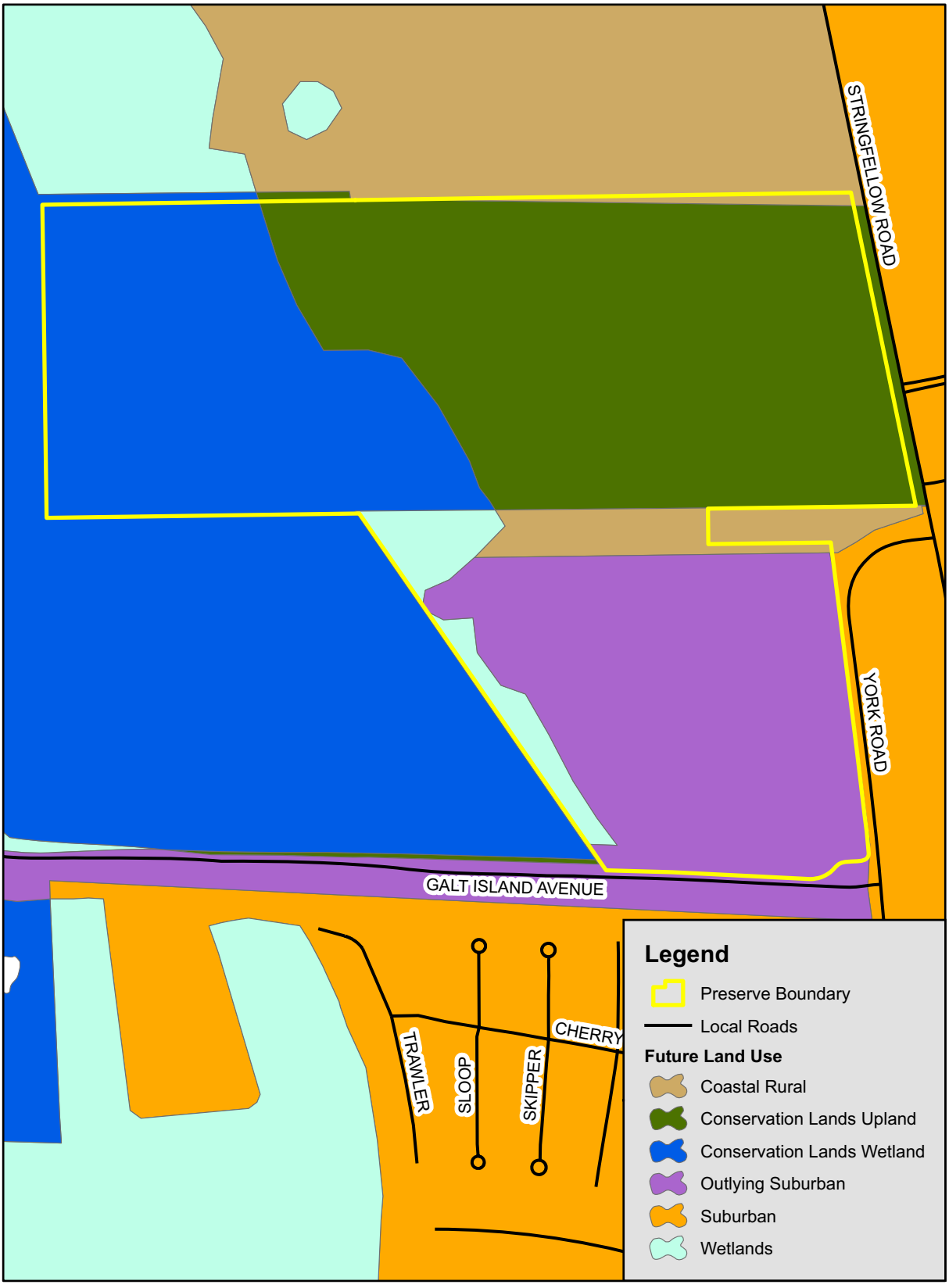


Figure 18: Future Land Use Map



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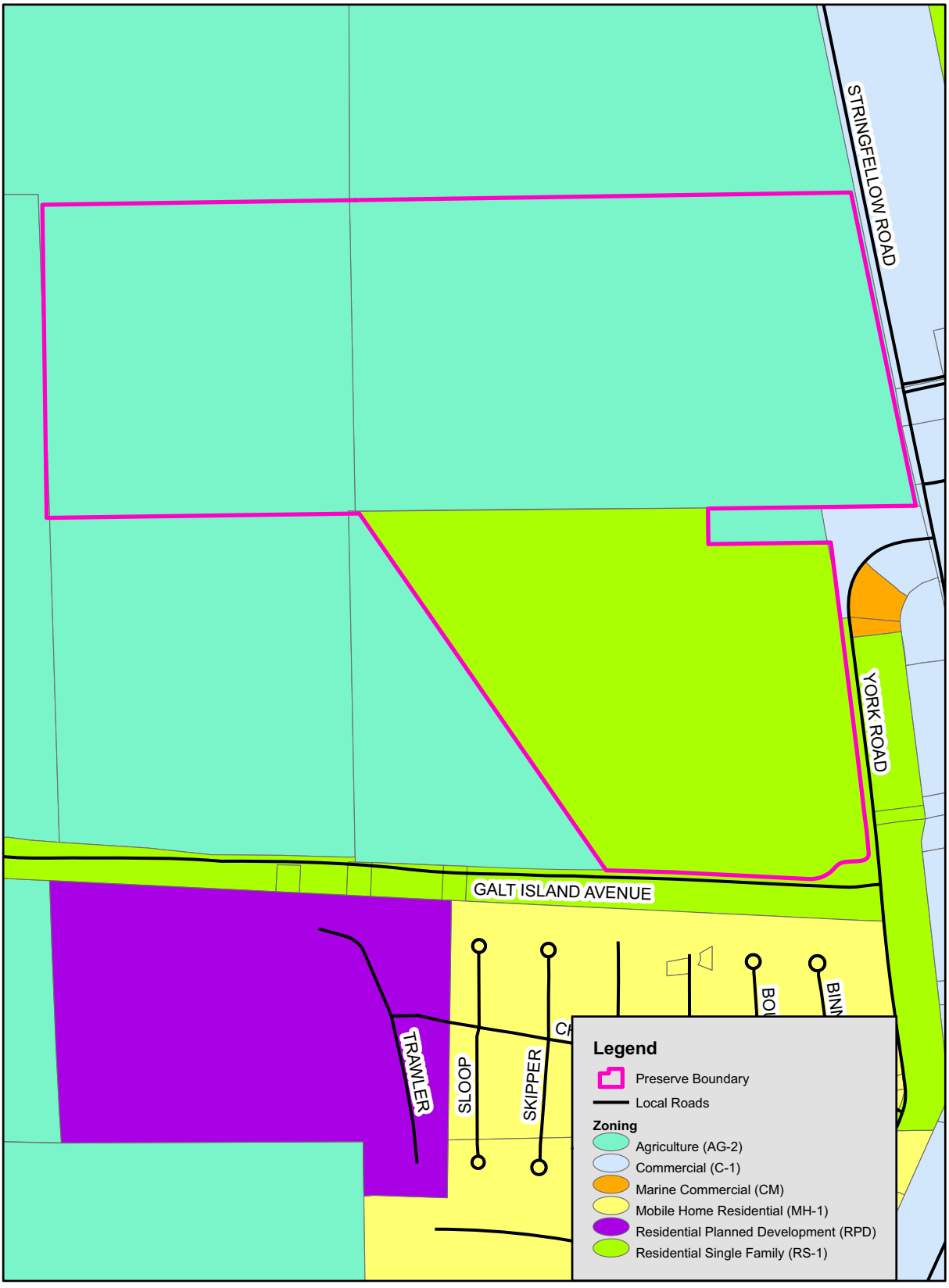
Map Prepared On: 05/22/06 by sfurnari@leegov.com

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

Figure 19: Zoning Map



VI. MANAGEMENT ACTION PLAN

A. Management Unit Descriptions

Galt Preserve has been divided into five (5) management units (MU) to better organize and achieve management goals. Figure 20 delineates the management units that were created based on existing trails and plant communities.

- Management Unit 1 – 39.4 acres
  Management Unit 1 is located in the northwest portion of the Preserve. It contains all of the area west of the LCEC powerline. This includes tidal swamp and a small area of mixed exotics in the northeast corner of the unit. MU 1 is bordered to the south and west by state owned conservation lands, the north by private lands and the east by the powerline and MU 2. Only a small area in the northeast corner has exotic plants, which include melaleuca and Australian pines. Stewardship activities here will focus on exotic plant control and boundary protection.

- Management Unit 2 – 35 acres
  MU 2 is located in the north central portion of the Preserve. Plant communities in this unit consist of mesic flatwoods with melaleuca, melaleuca monocultures and a small oak hammock area. It is bordered to the west by MU1, the north by private property, the east by MU 3 and the south by MU 4. Melaleuca are present in greater than 50% of the cover in this unit. Stewardship activities here will focus on exotic plant control, prescribed fire, boundary protection, and trail improvement.

- Management Unit 3 – 32.9 acres
  Management Unit 3 is located on the eastern boundary of the Preserve. Plant communities in this unit include scrubby and mesic flatwoods and mixed exotics. It is bordered to the west by MU 2, the north by private land, the east by Stringfellow Road and to the south by LCMCD. This unit has less than 25% cover of melaleuca. Stewardship activities will focus on exotic plant control, prescribed fire, boundary protection, and trail improvement.

- Management Unit 4 – 37.7 acres
  MU 4 is located in the southwest corner of the Preserve. It contains tidal swamps, tidal marshes, melaleuca monocultures and mixed exotic plant communities. It is bordered to the west by state owned lands, the north by MU 2, the east by MU 5 and the south by Galt Island Avenue. This MU contains a mix of exotic plants including melaleuca, Australian pine and Brazilian pepper. Stewardship activities here will focus on exotic plant control, prescribed fire, fence southern boundary, and trail improvement.

- Management Unit 5 – 14.8 acres
  This unit is located in the southeast corner of the Preserve and includes the borrow pond and spoil areas. Plant communities include Australian pine monocultures and spoil areas. It is bordered to the west by MU 4, the north by LCMCD, the east by York Road and the south by Galt Island Ave. Australian pines are present in a monoculture on the east side of the borrow pond and melaleuca are present in the area to the north of the pond. Stewardship activities here will focus on exotic plant control, borrow pond enhancements, fence installation along accessible perimeter boundary areas, debris removal, and the creation of its public access and trail system.

Figure 20: Management Units Map

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Map Prepared On: 06/22/06 by lboyd@leegov.com

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

B. Goals and Strategies

While the following are our long-term goals for the Preserve, funding is currently not available to conduct all of these activities. Grants and/or monies budgeted for mitigation of governmental infrastructure projects will be used to supplement our operations budget to meet our goals in a timely manner.

Natural Resource Management

- ✓ Exotic plant control and maintenance
- ✓ Hydrologic enhancement
- ✓ Water quality testing
- ✓ Prescribed fire management
- ✓ Monitor and protect listed species
- ✓ Photo point installation and monitoring
- ✓ Exotic and feral animal removal

Outside Consultants

- ✓ Environmental/engineering
- ✓ Survey north boundary line

Overall Protection

- ✓ Debris removal and prevention of dumping
- ✓ Install boundary fencing
- ✓ Boundary and Preserve sign installation
- ✓ Change future land use and zoning categories

Public Use

- ✓ Infrastructure for public access
- ✓ Trail maintenance

Volunteers

- ✓ Assist volunteer groups

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

Natural Resource Management

Exotic plant control and maintenance

The most current Florida Exotic Pest Plant Council's List of Invasive Species will be consulted in determining the invasive exotic plants to be controlled in each management unit. The goal is to remove/control these exotic species, followed with semi-annual or as needed treatments of resprouts and new seedlings. This goal will bring the entire Preserve to a maintenance level, defined as less than 5% invasive exotic plant coverage.

Prior to each invasive exotic plant control project at GP, a Prescription Form (located in the LSOM) will be filled out by Land Stewardship staff, reviewed by the contractor(s) and filed appropriately. Contractors involved in these projects will be required to fill out the Daily Report Control Form (located in the LSOM), which will be filed appropriately by staff.

- Uplands with light to moderate exotic species infestations:

  In areas where invasive exotics are sporadic and below 50% of the vegetation cover, handwork will be utilized for control. Specific methodology will depend on stem size, plant type and season, but general methodologies will be one of the following. The stem will be cut near ground and the stump sprayed with appropriate herbicide, the trunk will be basal bark sprayed or a foliar application will be applied to the entire plant. Hand pulling will be utilized when possible and with appropriate species to minimize herbicide use. Cut stems will be piled as necessary to facilitate future potential burning, chipping or removal from site. No replanting will be needed in these areas due to significant presence of native vegetation and native seed bank.

- Uplands with heavy exotic species infestations:

  In areas where the exotics occur as monotypic stands or are greater than 50% of the vegetation cover, several exotic removal methods may be utilized. The use of heavy equipment will be utilized in appropriate communities and during suitable seasonal conditions. The type of heavy equipment used should minimize soil disturbance and compaction. Land Stewardship staff will evaluate replanting on a case-by-case basis.
    - Future public access areas with dense Australian pines (APs) should use a feller buncher or similar equipment to cut and remove the biomass. It is desired that the biomass be removed off-site or relocated to adjacent western areas for future pile burning. The remaining stumps should be sprayed with an appropriate herbicide. For follow-up treatment of these areas, an application of an appropriate herbicide mixture to the foliage of any resprouts or

seedlings will be made. Along northeastern areas, mulching equipment will be used. Follow-up treatment of these areas will consist of an application of an appropriate herbicide mixture to the foliage of any resprouts or seedlings.

- A feller buncher or similar equipment will be used in combination with hand crews to cut and pile a mixture of APs, melaleuca, and Brazilian pepper trees. The larger vegetative debris will then be stacked and burned in the adjacent flatwoods and/or left to decay. Follow-up treatment of these areas will consist of an application of an appropriate herbicide mixture to the foliage of any resprouts or seedlings.
- C20/20 staff will broadcast a granular herbicide (Velpar® ULW) in areas containing heavy monoculture melaleuca stands. Staff will evaluate broadcast areas for follow-up treatment. Additional site preparations will be needed when prescribed fire is performed near or in these areas.

- Wetlands with light to moderate exotic species infestations:

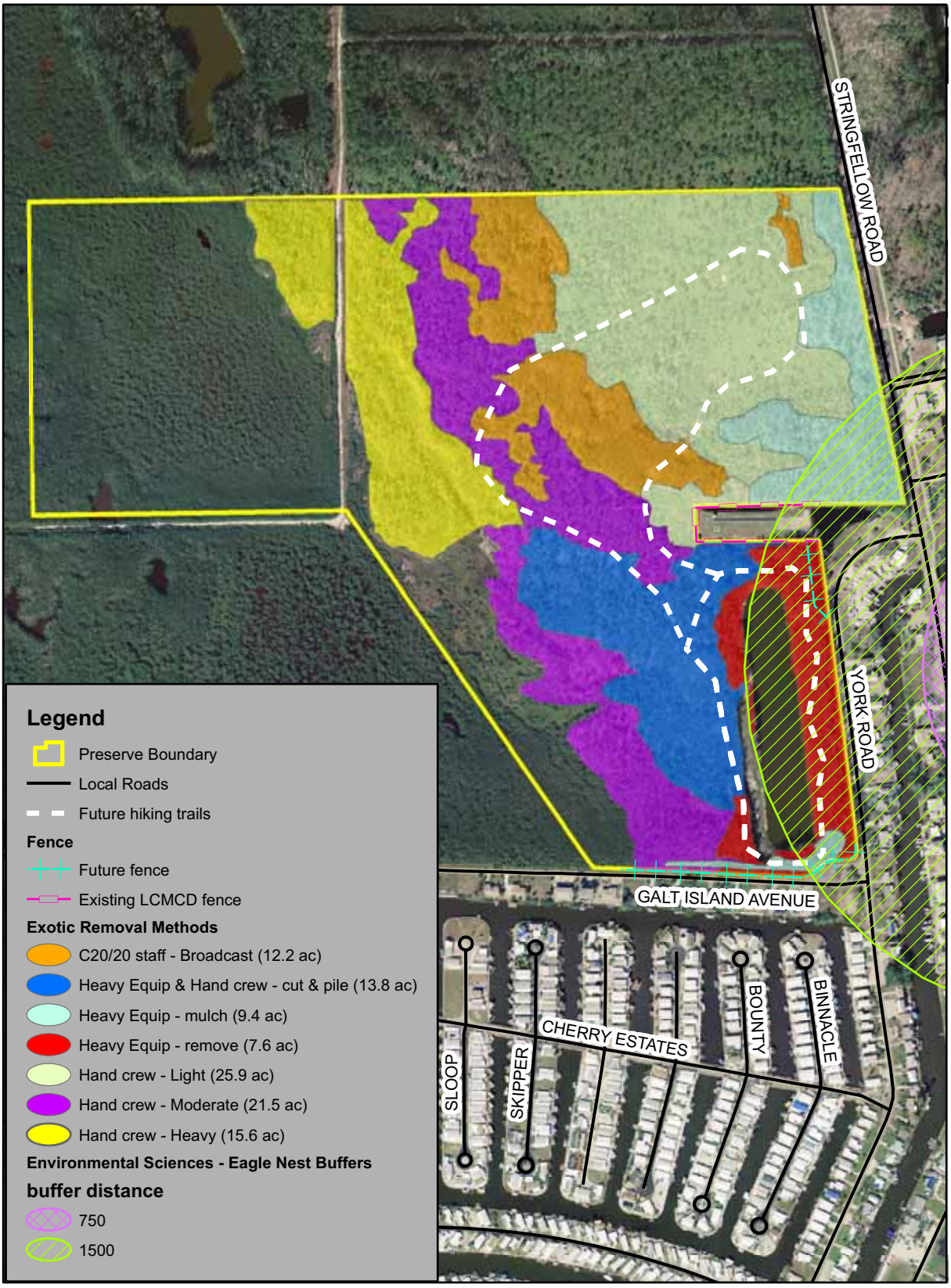
  Hand crews will either hand pull, basal bark, girdle, foliar, or cut-stump treat the exotics with the appropriate herbicide during the dry season. Follow-up treatments will be conducted on an annual basis and may eventually decrease to every two years. Where feasible or necessary, the biomass may be removed from wetland sites to be piled & burned. No replanting will be needed due to significant presence of native vegetation and the native seed bank.

- Wetlands with heavy exotic species infestations:

  Hand crews will either foliar spray, basal bark, girdle (hack and squirt), or cut-stump treat the exotics with the appropriate herbicide in the dry season. 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 & burned. Land Stewardship staff will evaluate the need for replanting on a case-by-case basis.

Figure 21 illustrates the location and corresponding acreage for each of the different exotic plant removal methods, fencing requirements once exotic plants are removed, and bald eagle nest buffer zone distances. The proposed hiking trails will allow visitors the opportunity to view various control methods and other land stewardship activities.

Figure 21: Exotic Plant Removal Methods and Fence Map



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Map Prepared On: 07/24/06 by sfurnari@leegov.com

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

Hydrologic enhancement

The main objectives for hydrologic enhancement are to create gradual slopes, littoral zones and fish traps within the borrow pond to increase foraging opportunities for wading birds and suitable habitat for other wildlife. Another hydrologic enhancement project would consist of modifications to the LCEC roadway along western portions of GP to improve natural sheet flow.

Once funding for the borrow pond enhancement has been secured, an environmental/engineering consultant firm will need to be contracted to provide specific recommendations for restoration methods on the large borrow pond site. A restoration proposal will be presented to SFWMD, Lee County Natural Resources (LCNR), FDEP, and/or USACOE to determine the feasibility of the project and decide what permits are required.

Water quality testing

Land Stewardship staff will coordinate with staff from the Lee County Environmental Laboratory to conduct initial water quality testing of or in the borrow pond before permitting fishing activities.

Prescribed fire management

The C20/20 prescribed fire program will be implemented to closely mimic the natural fire regimes for the different plant communities to increase plant diversity and ensure the canopies remain open. Once restoration projects are completed in management units that contain fire dependent communities, a prescribed fire management program will be implemented after the creation of appropriate fire lines/breaks. The timing of prescribed burning will be influenced by seasonal rain, listed species requirements and wind patterns. The Conservation 20/20 Burn Team Coordinator is coordinating with the FDOF and FWC to finalize the County-wide Fire Management Plan that will apply to all Land Stewardship Preserves.

Monitor and protect listed species

As discussed in the Designated Species section, there are several listed species that have been documented on the Preserve including gopher tortoises, bald eagles and cardinal airplant. These species will benefit from restoration activities, such as exotic plant control efforts and prescribed fire activities. During stewardship activities, efforts will be made to minimize any negative impact to listed species. Although the active bald eagle's nest is not located on GP, any restoration work performed within the 1500' USFWS buffer zone will be performed outside the nesting season (October 1 – May 15) unless Federal protection guidelines change (Figure 21).

GP is part of a countywide quarterly site inspection program conducted for all Conservation 20/20 Preserves. A copy of the site inspection form is available in the Land Stewardship Operations Manual. These inspections allow staff to monitor for any impacts and/or changes to each preserve and includes lists of all animal sightings and new plant species that are found. If, during these inspections, staff finds FNAI listed species, they will be reported using the appropriate forms.

Photo point installation and monitoring

One photo point monitoring station will be established, at a restoration project site in MU 2, before work begins. A pre-restoration photo will be taken, followed by post restoration photos. Additional follow up restoration photos will be taken during the growing season for five years from completion of the project to document transformations, with photos taken as needed from then on.

Exotic and feral animal removal

To date, feral hogs have not been noted on GP. Several exotic amphibian species have been recorded. If practical, a methodology will be established and implemented against unwanted exotic animal species.

Although not noted at GP, this Preserve, like other C20/20 preserves, does not contain nor will support feral cat colonies. FWC's Feral and Free Ranging Cats policy is *"To protect native wildlife from predation, disease, and other impacts presented by feral and free-ranging cats"* (FWC 2003). Any feral cats will be trapped and taken to Lee County Animal Services.

Outside Consultants

Environmental/engineering

As funds become available, C20/20 staff will hire an environmental and/or engineering consultant to perform all or most aspects concerning the borrow pond's hydrological enhancement. Additional efforts by this or another hired firm would include the design, permitting, and construction of the potential fishing pier.

Survey north boundary line

The original surveyor did not install boundary markers along the northern boundary line. The north boundary line needs to be identified before exotic plant removal work can begin along the boundary. If the parcel to the north (Renomination #185-2) is acquired by C20/20 or the development order currently under review is approved and the property undergoes development, a surveyor may not need to be hired.

Overall Protection

Debris removal and prevent dumping

Management units #2 and #5 contain debris such as concrete blocks and trailer parts that will be removed by staff. Debris removal will be an ongoing effort at GP. During quarterly site inspections, small objects that are encountered will be removed. Conservation 20/20 Rangers will also assist with removing small items when they are on patrol at the Preserve.

Land Stewardship staff recognizes that new debris may be dumped in the Preserve periodically and depending on the nature of this debris it will be dealt with accordingly.

Install boundary fencing

There are several locations around the perimeter boundary where fencing needs to be installed (Figure 21). Once exotic plant removal work is completed, these areas will be fenced to deter illegal vehicular access, primarily at several southern and eastern locations that do not have deep ditches along the Preserve boundary. Additional fencing will be added, as necessary.

Boundary and Preserve sign installation

Boundary signs have been installed to further protect and delineate the Preserve. Missing or damaged signs will be replaced. C20/20 Rangers will check for boundary signs during the patrols and replace them immediately if possible or report the problem to the C20/20 Supervisor. Boundary signs will be placed every 200-300' along roadsides and 500' elsewhere. A sign will be installed at the future public access gate that will inform the public of the Preserve's name, acquisition information, public use category, LCPR website address and contact information.

Change future land use and zoning categories

Staff will coordinate with LCDP staff to update the future land use map (FLUM) and zoning designation of GP. While Site #155 already has the "Conservation Lands" categories (uplands and wetlands), Site #152's future land use codes needs to also reflect these categories. The zoning categories will be changed to "Environmentally Critical" from "Agriculture" and "Single Family."

Public Use

Infrastructure for Public Access

Amenities discussed in the recreation section of this plan, include a small trail head area off York Road, no parking signs along LCMCD's driveway entrance, two primitive hiking trails, blazing or trail markers, and other potential amenities. A permanent sign will contain an illustration of the trail system and their lengths. Trail maintenance will be coordinated with staff as needed.

Volunteers

Assist volunteer groups

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

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

If there is interest from the community to form a volunteer group, staff will work with them to assist with the many diverse stewardship activities that will be associated with this Preserve, such as trail maintenance, wildlife monitoring, and other land stewardship projects. One existing organization is the CLT group that occasionally organizes workdays for many of the preserved natural areas on Pine Island.

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.

VII. PROJECTED TIMETABLE FOR IMPLEMENTATION

Prioritized Projected Timetable for Implementation of the Management Action Plan (Dec 2006 – Dec 2011)

Management Activity	Dec-06	Mar-07	Jun-07	Sept-07	Dec-07	Mar-08	Jun-08	Sept-08	Dec-08	Mar-09	Jun-09	Sept-09	Dec-09	Mar-10	Jun-10	Sept-10	Dec-10	Mar-11	Jun-11	Sept-11	Dec-11	2012 or later
Natural Resource Management																						
Exotic Plants																						
Initial exotic plant control											5	3	4	1, 2	→							
Fire																						
Install fire breaks											X											
Perform prescribed fire																		X				X
Hydrologic Components																						
Hydrologic enhancement of borrow pond																	X					
Water quality testing						X																
Maintenance (On-going/Annual)																						
Exotic plant control															5	3	4	1, 2			1-5	X
Exotic animal monitor &/or removal																			X	→	→	→
Fire break mow/disk																X				X		X
Photo point installation & monitoring														Install (2)		X		X				X
Outside Consultants																						
Environmental/engineering firm													X									
Survey north boundary line										X												
Overall Protection																						
Install Preserve's identification sign											X											
Debris removal									X													
Install fencing & maintenance gate											X											
Change FLUM & Zoning categories	FLUM				Zoning																	
Public Use																						
Create trails and trail markers																	X					
Install sign with trail information																		X				
Install primitive parking area											X											
Potential fishing pier & picnic tables																		X				
Trail maintenance																					X	
Volunteers																						
Assist volunteer group																		X				

Numbers correspond to Management Units and details on each management activity are found in the Management Action Plan.
→ = project continues

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

VIII. FINANCIAL CONSIDERATIONS

There is a perpetual management fund established for all Conservation 20/20 preserves. Monies from this fund primarily serve to meet the operational needs of the Management section of the C20/20 Program, but a certain amount of this fund will be set aside for planned restoration projects. There is currently no outside funding available for this preserve. Monies will be supplemented through grants from agencies such as FDEP, FDOF and USFWS as well as pursuing mitigation opportunities from Lee County and other public entities. The Calusa Land Trust has already contributed money to the acquisition of both GP parcels. They are also available to help with management activities at the Preserve and to assist staff with seeking additional grant funding opportunities. Projected costs and funding sources are listed in Appendix E.

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X. APPENDICES

Appendix A: 2004 Tropical Systems Map

Appendix B: Plant Sightings

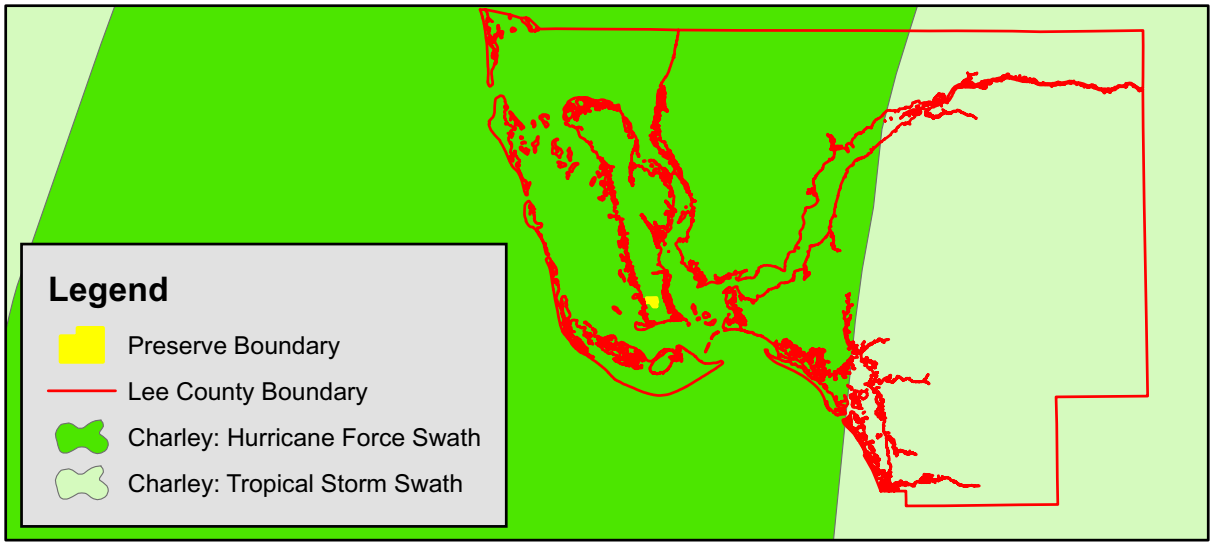
Appendix C: Wildlife Sightings

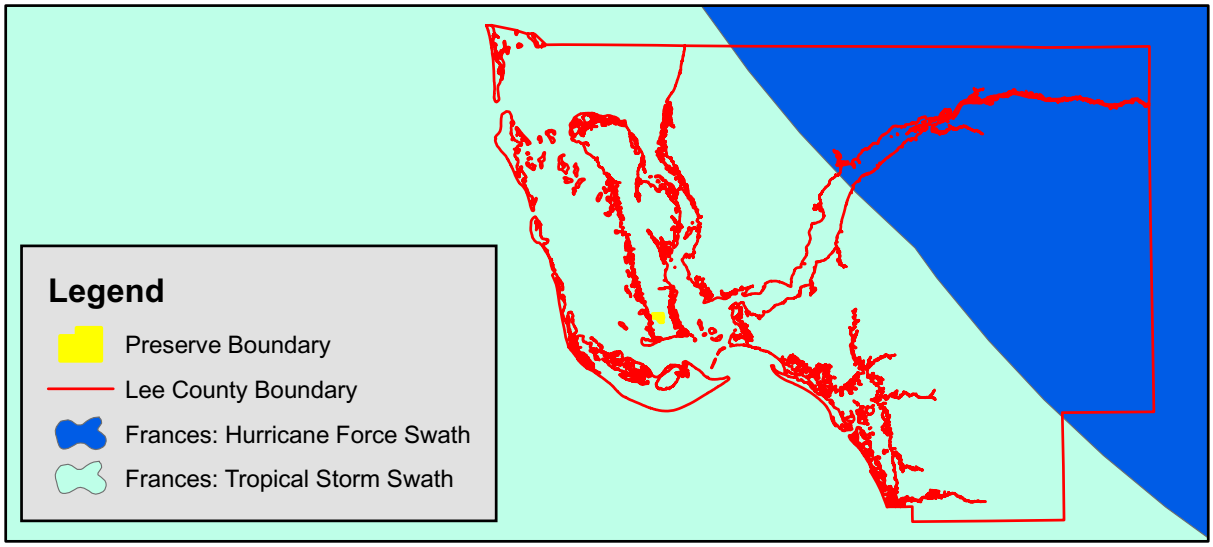
Appendix D: Ingress and Egress Easement to Pine Island Helistop

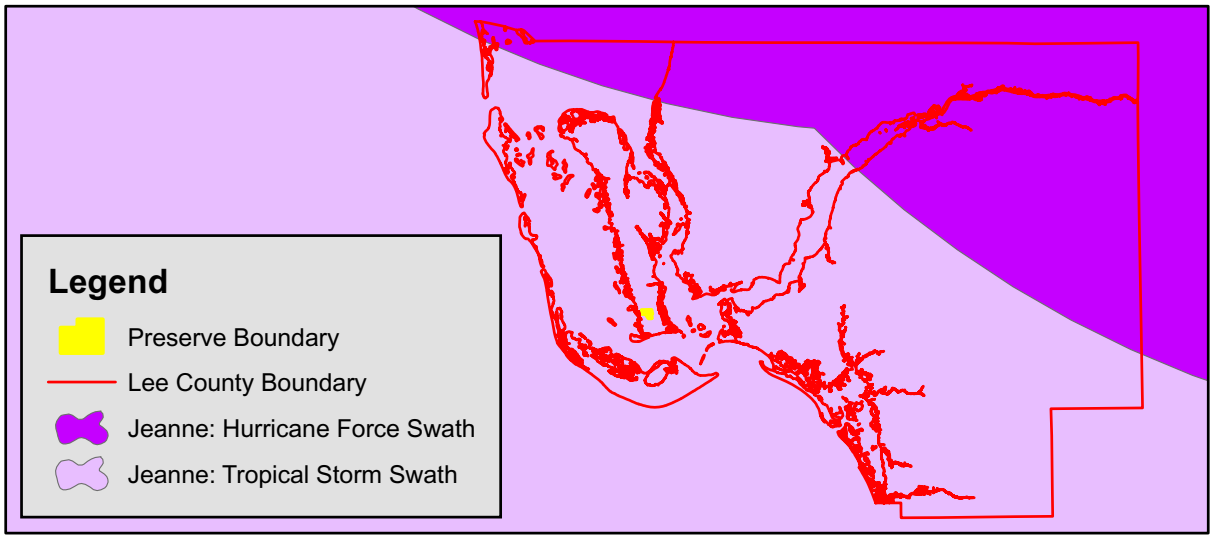
Appendix E: Projected Costs and Funding Sources

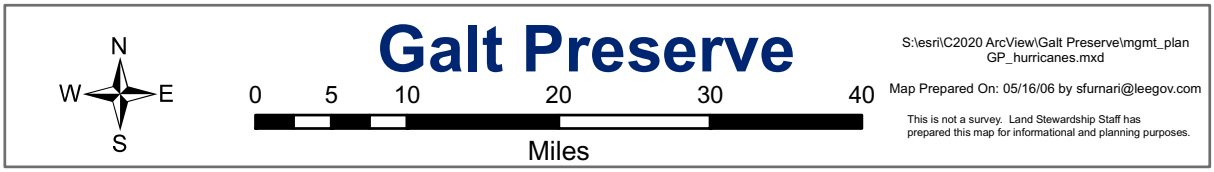
Appendix A: 2004 Tropical Systems Map

Appendix A: 2004 Tropical Systems









Appendix B: Plant Sightings

Appendix B: Plant Sightings at Galt Preserve

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

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC
Family: Cladoniaceae (lichens)					
Cladonia spp.	reindeer moss	native			
Family: Blechnaceae (midsorus fern)					
Blechnum serrulatum	swamp fern	native			
Family: Dennstaedtiaceae (cuplet fern)					
Pteridium aquilinum	bracken fern	native			
Family: Nephrolepidaceae (sword fern)					
Nephrolepis exaltata	wild Boston fern	native			
Family: Psilotaceae (whisk-fern)					
Psilotum nudum	whisk-fern	native			
Family: Pteridaceae (brake fren)					
Acrostichum aureum	golden leather fern	native		T	R
Acrostichum danaeifolium	giant leather fern	native			
Family: Schizaeaceae (curly-grass)					
Lygodium microphyllum	Old World climbing fern	exotic	I		
Family: Pinaceae (pine)					
Pinus elliottii var. *densa*	south Florida slash pine	native			
Family: Arecaceae (palm)					
Sabal palmetto	cabbage palm	native			
Serenoa repens	saw palmetto	native			
Family: Bromeliaceae (pineapple)					
Tillandsia fasciculata	cardinal airplant	native		E	
Tillandsia recurvata	ballmoss	native			
Tillandsia usneoides	Spanish moss	native			
Tillandsia utriculata	giant airplant	native		E	
Family: Cyperaceae (sedge)					
Cladium jamaicense	Jamaica swamp sawgrass	native			
Eleocharis cellulosa	gulf coast spikerush	native			
Fimbristylis caroliniana	Carolina fimbry	native			
Fimbristylis cymosa	hurricanegrass	native			
Rhyncospora colorata	starrush whitetop	native			
Family: Eriocaulaceae (pipewort)					
Syngonanthus flavidulus	yellow hatpins	native			R
Family: Orchidaceae (orchid)					
Habenaria floribunda	toothpetal false reinorchid	native			
Family: Poaceae (grass)					
Andropogon virginicus var. virginicus	broomsedge bluestem	native			
Andropogon virginicus var. *glaucus*	chalky bluestem	native			R
Aristida spiciformis	bottlebrush threeawn	native			R
Aristida stricta	wiregrass	native			
Distichlis spicata	saltgrass	native			R
Monanthochloe littoralis	keygrass	native			R
Spartina bakeri	sand cordgrass	native			
Family: Ruscaceae (butcher's broom)					
Sansevieria hyacinthoides	bowstring hemp	exotic	II		
Family: Smilaceae (smilax)					
Smilax auriculata	earleaf greenbrier	native			

Appendix B: Plant Sightings at Galt Preserve (continued)

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC
Family: Typhaceae (cattail)					
Typha domingensis	southern cattail	native			
Family: Aizoaceae (mesembryanthemum)					
Sesuvium portulacastrum	shoreline seapurslane	native			
Family: Amaranthaceae (amaranth)					
Blutaparon vermiculare	silverhead	native			
Salicornia bigelovii	annual glasswort	native			
Sarcocornia perennis	perennial glasswort	native			
Suaeda linearis	sea blite	native			
Family: Anacardiaceae (cashew)					
Schinus terebinthifolius	Brazilian pepper	exotic	I		
Toxicodendron radicans	eastern poison ivy	native			
Family: Araliaceae (ginseng)					
Scheffelera actinophylla	Australian umbrella tree	exotic	I		
Family: Asteraceae (aster)					
Ambrosia artemisiifolia	common ragweed	native			
Baccharis halimifolia	groundsel tree	native			
Bidens alba	beggarticks	native			
Borrichia frutescens	bushy seaside oxeye	native			
Calyptocarpus vialis	straggler daisy	exotic			
Coreopsis leavenworthii	Leavenworth's tickseed	native			
Eupatorium capillifolium	dogfennel	native			
Mikania scandens	climbing hempvine	native			
Pluchea odorata	sweetscent	native			
Solidago sempervirens	seaside goldenrod	native			
Family: Avicenniaceae (black mangrove)					
Avicennia germinans	black mangrove	native			
Family: Bataceae (saltwort)					
Batis maritima	saltwort	native			R
Family: Boraginaceae (borage)					
Heliotropium angiospermum	scorpionstail	native			
Family: Burseraceae (gumbo-limbo)					
Bursera simaruba	gumbo-limbo	native			
Family: Casuarinaceae (sheoak)					
Casuarina equisetifolia	Australian pine	exotic	I		
Family: Ceratophyllaceae (hornwort)					
Ceratophyllum demersum	coontail	native			
Family: Combretaceae (combretum)					
Conocarpus erectus	buttonwood	native			
Laguncularia racemosa	white mangrove	native			
Family: Droseraceae (sundew)					
Drosera capillaris	pink sundew	native			R
Family: Ericaceae (heath)					
Bejaria racemosa	tarflower	native			
Lyonia fruticosa	coastalplain staggerbush	native			
Vaccinium myrsinites	shiny blueberry	native			

Appendix B: Plant Sightings at Galt Preserve (continued)

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC
Family: Fabaceae (pea)					
Abrus precatorius	rosary pea	exotic	I		
Acacia auriculiformis	earleaf acacia	exotic	I		
Galactia elliottii	Elliott's milkpea	native			R
Mimosa quadrivalvis	sensitive brier	native			
Senna alata	candlestick plant	exotic			
Sesbania herbacea	danglepod	native			
Family: Fagaceae (beech)					
Quercus geminata	sand live oak	native			
Quercus minima	dwarf live oak	native			
Quercus virginiana	live oak	native			
Family: Gentianaceae (gentian)					
Sabatia stellaris	rose-of-plymouth	native			
Family: Malvaceae (mallow)					
Kosteletzkya virginica	Virginia saltmarsh mallow	native			
Talipariti tiliaceum var. *tiliaceum*	seaside hibiscus, mahoe	exotic			
Family: Moraceae (mulberry)					
Ficus microcarpa	Indian laurel	exotic	I		
Ficus aurea	strangler fig	native			
Family: Myricaceae (bayberry)					
Myrica cerifera	wax myrtle	native			
Family: Myrsinaceae (myrsine)					
Rapanea punctata	myrsine	native			
Family: Myrtaceae (myrtle)					
Melaleuca quinquenervia	punktree	exotic	I		
Syzgium cumini	Java plum	exotic	I		
Family: Oleaceae (olive)					
Forestiera segregata	Florida swampprivet	native			
Family: Orobanchaceae (broomrape)					
Agalinis maritima	saltmarsh false foxglove	native			
Family: Plumbaginaceae (leadwort)					
Limonium carolinianum	Carolina sealavender	native			R
Family: Polygalaceae (milkwort)					
Polygala nana	candyroot	native			R
Polygala rugelli	yellow milkwort	native			I
Family: Polygonaceae (buckwheat)					
Coccoloba uvifera	sea grape	native			
Family: Rhizophoraceae (mangrove)					
Rhizophora mangle	red mangrove	native			
Family: Rubiaceae (madder)					
Spermacoce prostrata	prostrate false buttonweed	native			
Randia aculeata	white indigoberry	native			
Family: Sapindaceae (soapberry)					
Cupaniopsis anacardioides	carrotwood	exotic	I		
Family: Solanaceae (nightshade)					
Lycium carolinianum	Christmasberry	native			
Family: Verbenaceae (vervain)					
Phyla nodiflora	turkey tangle fogfruit	native			

Appendix B: Plant Sightings at Galt Preserve (continued)

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC
Family: Veronicaceae (speedwell)					
Bacopa monnieri	herb-of-grace	native			
Family: Vitaceae (grape)					
Parthenocissus quinquefolia	Virginia creeper	native			

Key

Florida EPPC Status

I = species that are invading and disrupting native plant communities

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

FDA (Florida Department of Agriculture and Consumer Services)

E = Endangered

T = Threatened

IRC (Institute for Regional Conservation)

I = Imperiled

R = Rare

Appendix C: Wildlife Sightings

Appendix C: Wildlife Sightings at Galt Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWS**	**FWC**	**FNAI**
Reptiles				
Family: Alligatoridae (alligator and caiman)				
Alligator mississippiensis	American alligator	T	SSC	G5/S4
Family: Colubridae (colubrids)				
Coluber constrictor priapus	southern black racer			
Drymarchon corais couperi	eastern indigo snake	T	T	G4T3/S3
Family: Polychridae (anoles)				
Anolis carolinensis	green anole			
Anolis sagrei	brown anole *			
Family: Testudinidae (gopher tortoises)				
Gopherus polyphemus	gopher tortoise		SSC	
Amphibians				
Family: Leptodactylidae (tropical frogs)				
Eleutherodactylus planirostris planirostris	greenhouse frog *			
Family: Hylidae (treefrogs)				
Hyla cinerea	green treefrog			
Family: Ranidae (true frogs)				
Rana utricularia	southern leopard frog			
Birds				
Family: Anhingidae (anhingas or darters)				
Anhinga anhinga	anhinga			
Family: Ardeidae (herons, egerts, bitterns)				
Ardea herodius	great blue heron			
Butorides virescens	green heron			
Egretta caerulea	little blue heron		SSC	G5/S4
Egretta thula	snowy egret		SSC	G5/S3
Egretta tricolor	tricolored heron		SSC	G5/S4
Ardea alba	great egret			
Family: Threskiornithidae (ibises and spoonbills)				
Eudocimus albus	white ibis		SSC	G5/S4
Family: Ciconiidae (storks)				
Mycteria americana	wood stork	E	E	G4/S2
Family: Anatinae (dabbling ducks)				
Anas fulvigula	mottled duck			
Family: Cathartidae (new world vultures)				
Cathartes aura	turkey vulture			
Coragyps atratus	black vulture			
Family: Accipitridae (hawks, kites, accipiters, harriers and eagles)				
Subfamily: Buteoninae (buzzard hawks)				
Buteo lineatus	red-shouldered hawk			
Subfamily: Circinae (harriers)				
Circus cyaneus	northern harrier			
Subfamily: Buteoninae (eagles)				
Haliaeetus leucocephalus	bald eagle	T	T	G4/S3
Subfamily: Elaninae and Milvinae (kites)				
Elanoides forficatus	swallow-tailed kite			G5/S2

Appendix C: Wildlife Sightings at Galt Preserve (continued)

		Designated Status		
Scientific Name	**Common Name**	**FWS**	**FWC**	**FNAI**
Birds (continued)				
Family: Pandionidae (ospreys)				
Pandion haliaetus	osprey			
Family: Rallidae (coots and gallinules)				
Gallinula chloropus	common moorhen			
Family: Columbidae (pigeons and doves)				
Zenaida macroura	mourning dove			
Columbina passerina	common ground-dove			
Families: Strigidae and Tytonidae (owls)				
Tyto alba	barn owl			
Family: Picidae (woodpeckers)				
Melanerpes carolinus	red-bellied woodpecker			
Picoides pudescens	downy woodpecker			
Family: Tyrannidae (tyrant flycatchers)				
Myiarchus crinitus	great-crested flycatcher			
Family: Troglodytidae (wrens)				
Thryothorus ludovicianus	Carolina wren			
Family: Regulidae (kinglets)				
Subfamily: Poliptilinae (gnatcatchers)				
Polioptila caerulea	blue-gray gnatcatcher			
Family: Mimidae (mockingbirds and thrashers)				
Dumetella carolinensis	gray catbird			
Mimus polyglottos	northern mockingbird			
Family: Corvidae (crows, jays, etc.)				
Cyanocitta cristata	blue jay			
Family: Vireonidae (vireos)				
Vireo griseus	white-eyed vireo			
Family: Parulidae (wood-warblers)				
Dendroica discolor	prairie warbler			
Family: Cardinalidae (cardinal)				
Cardinalis cardinalis	northern cardinal			
Family: Emberizidae (sparrows and their allies)				
Pipilo erythrophthalmus	eastern towhee			
Butterflies				
Family: Nymphalidae (brushfooted butterflies)				
Junonia coenia	common buckeye			
Subfamily: Nymphalinae (true brush-foots)				
Anartia jatrophae	white peacock			
Subfamily: Heliconiinae (longwings and fritillaries)				
Agraulis vanillae	gulf fritillary			
Family: Hesperiidae (skippers)				
Phocides pigmalion	mangrove skipper			
Insects and Spiders				
Family: Araneidae (orb weavers)				
Nephila clavipes	golden-silk spider			
Family: Curculionidae (weevils)				
Oxyops vitiosa	melaleuca weevil *			

Appendix C: Wildlife Sightings at Galt Preserve (continued)

		Designated Status		
Scientific Name	**Common Name**	**FWS**	**FWC**	**FNAI**
Insects and Spiders (continued)				
Family: Psyllidae (psyllids)				
Boreioglycaspis melaleucae	melaleuca psyllid *			
Crabs				
Family: Ocypodidae				
Subfamily: Ocypodinae				
Uca stylifera	fiddler crab			
Fish				
Family: Elopidae (tarpons)				
Megalops atlanticus	tarpon			
Family: Centropomidae (snooks)				
Centropomus undecimalis	common snook			
Family: Muglidae (mullets)				
Mugil cephalus	striped (black) mullet			

KEY:

FWS = U.S. Fish & Wildlife Service
FWC = Florida Fish & Wildlife Conservation Commission
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 - Demonstrateably secure

*** = Non-native**

Appendix D: Ingress and Egress Easement to Pine Island Helistop

JOHNSON ENGINEERING, INC.

CIVIL ENGINEERS AND LAND SURVEYORS

2158 JOHNSON STREET
TELEPHONE (813) 334-0046
POST OFFICE BOX 1550
FORT MYERS, FLORIDA
33902

CARL E. JOHNSON
1911-1968

April 18, 1979

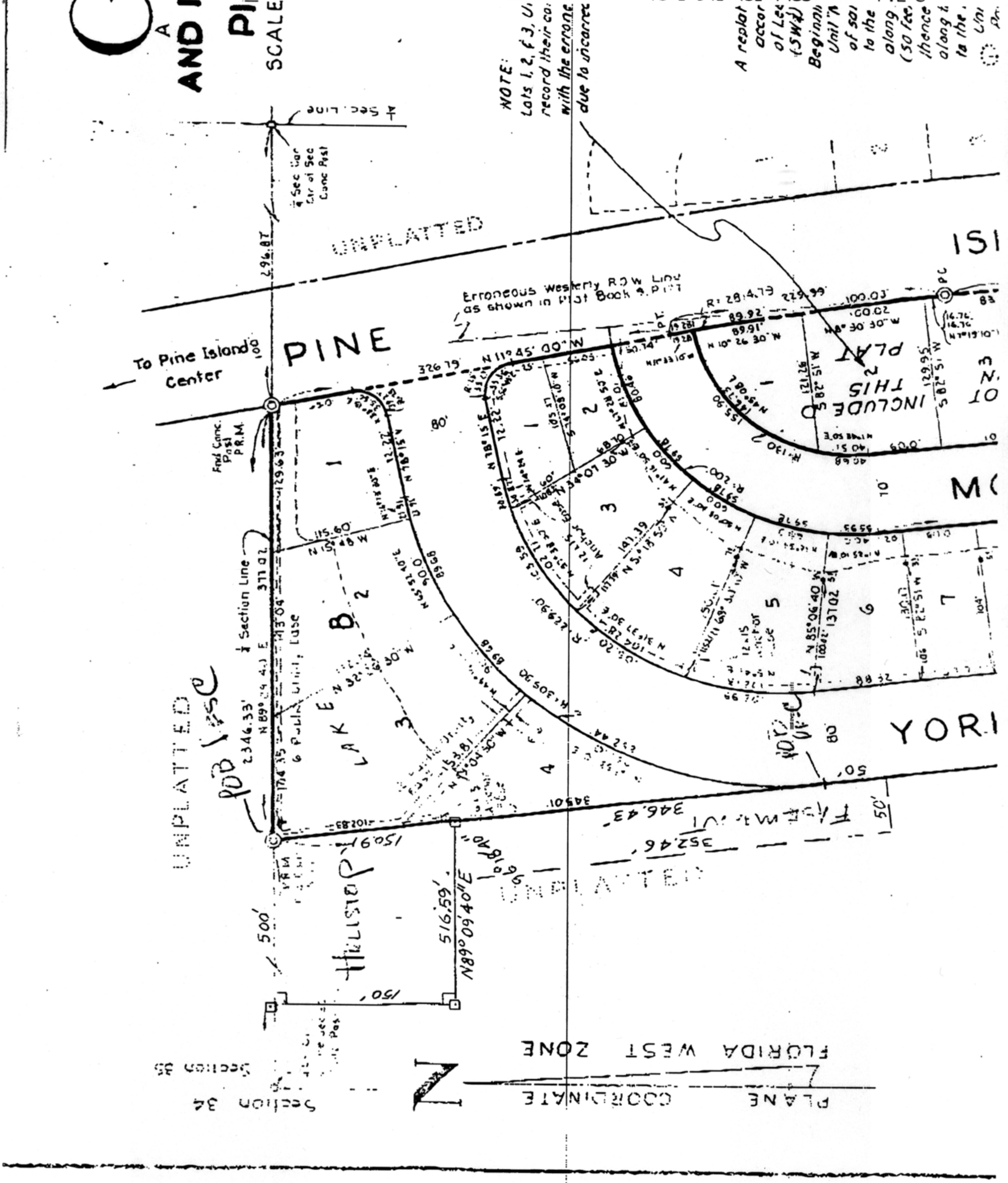
DESCRIPTION
INGRESS AND EGRESS EASEMENT
TO PINE ISLAND HELISTOP
NW¼, SECTION 35, T. 45 S., R. 22 E.
PINE ISLAND, LEE COUNTY, FLORIDA
FOR PROPOSED CONVEYANCE
PRICE TO LEE COUNTY MOSQUITO CONTROL DISTRICT

An easement for ingress and egress 50 feet wide in the southwest quarter (SW¼), Section 35, Township 45 South, Range 22 East, Pine Island, Lee County, Florida which easement is described as follows:

Beginning at the southerlymost corner of Lot 4, Block B, Addition to Unit "N", Gulfhaven, as shown on plat recorded in Plat Book 14 at page 112 of the public records of Lee County, Florida run S 07° 09' 00" E along the west line of York Road (80 feet wide), as shown on said plat, for 50 feet; thence run S 82° 51' 00" W, perpendicular to said west line, for 50 feet; thence run N 07° 09' 00" W, parallel with said west line of York Road and the west line of said Lot 4, for 352.46 feet to an intersection with the south line of the proposed Pine Island helistop site; thence run N 89° 09' 40" E along said south line for 50.30 feet to an intersection with said west line of Lot 4; thence run S 07° 09' 00" E along said west line for 296.93 feet to the Point of Beginning.

Bearings hereinabove mentioned are Plane Coordinate for the Florida West Zone.

LEJ/ds
9322


PINE
UNPLATTED
To Pine Island Center
Erroneous Westerly R.O.W. Line as shown in Plat Book 9, P 17
Section Line
LAKE
B
YORK
80'
50'
500'
150'
516.59'
N89°09'40"E
346.43'
352.46'
2346.33'
377.02
296.87
FLORIDA WEST ZONE
PLANE COORDINATE
Section 34
Section 35
NOTE:

Appendix E: Projected Costs and Funding Sources

Appendix E: Projected Costs and Funding Sources Table

Resource Enhancement and Protection

Item	Possible Funding Sources	Estimated Costs
Invasive exotic plant control	DEP-BIPM, mitigation, C20/20, USFWS, DOC crew	
Broadcast herbicide		$1,550
Heavy equipment		$70,000
Hand crew		$64,680
Hydrologic restoration/enhancement	C20/20, grants, mitigation	$375,000
Install fire breaks	C20/20, DOF	$2,000

Total $513,230

Overall Protection

Item	Possible Funding Sources	Estimated Costs
1/2 mile of fencing and walk-through	C20/20	$20,000
Minor debris removal		$100
Preserve & Boundary signs		$400

Total $20,500

Public Access

Item	Possible Funding Sources	Estimated Costs
Hire Consultant for Design and Permitting of Facilities	Conservation 20/20, LC P&R, Recreational Trails Program, LC TDC, and other	$25,000
Fishing pier		$15,000
Crushed shell at trail head		$5,000
Clearing for trail		$1,000
10 Trail markers		in-house
Informational Signs		$500
Brochure boxes		$40

Total $46,540

TOTAL COST ESTIMATE **$580,270**

Site Management and Maintenance

Item	Possible Funding Source	Estimated Costs
Exotic Plant Control	C20/20, BIPM	$20,000
Prescribed Fire Regime	LC P&R, C20/20	in-house
Mow trails	C20/20	in-house
Fence Repairs	C20/20	$500

Yearly Maintenance Estimate **$20,500**

All costs are rough estimates based on information currently available.
Every effort will be made to not exceed this budget by more than 10%.