Gator Hole Preserve
Land Management Plan

Second Edition

14291 Corkscrew Road
Estero, FL 33928

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

Approved by the Lee County Board of County Commissioners: 10/11/2016

Acknowledgements

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

Jeff Anderson
Laura Jewell

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List of Exhibits

List of Acronyms

ATV	All Terrain Vehicle
BOCC	Board of County Commissioners
C20/20	Conservation 20/20
CLASAC	Conservation Lands Acquisition and Stewardship Advisory Committee
CREW	Corkscrew Regional Ecosystem Watershed
ESA	Environmental Site Assessment
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FFS	Florida Forest Service
FGCU	Florida Gulf Coast University
FNAI	Florida Natural Areas Inventory
FWC	Florida Fish and Wildlife Conservation Commission
GHP	Gator Hole Preserve
IRC	Institute for Regional Conservation
LCDCD	Lee County Department of Community Development
LCDNR	Lee County Division of Natural Resources
LCDOT	Lee County Department of Transportation
LCDPW	Lee County Division of Public Works
LiDAR	Light Detecting and Ranging
LSOM	Land Stewardship Operations Manual
MU	Management Unit
ORV	Off-road Vehicle
SFWMD	South Florida Water Management District
STRAP	Section-Township-Range-Area-Block.Lot (Parcel)
USACOE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service

VISION STATEMENT

It is the vision of the Lee County Parks and Recreation Department and the Conservation 20/20 Program to conserve, protect and maintain Gator Hole Preserve to a productive, functional and viable ecosystem. As the only C20/20 Preserve being used as a gopher tortoise relocation site for Lee County, the primary stewardship objective will be to maintain the Preserve to ensure the habitat provides for the physical needs of this species including frequent prescribed burning, exotic plant control and feral hog prevention. These activities will also benefit the natural plant communities and other listed species utilizing the site.

I. EXECUTIVE SUMMARY

Gator Hole Preserve (GHP) is located in southeastern Lee County on the north side of Corkscrew Road, 0.8 miles west of Alico Road and 3.8 miles east of I-75. The 175-acre Preserve was acquired in 2000 through the Conservation 20/20 (C20/20) Program for $3,000,000. C20/20 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.

Natural elevations at GHP range from 22 feet at the north end and slope in a general southwesterly direction to 18 feet. The wetlands in the middle of the cypress domes are approximately 15 feet. Man-made topographic features include management access roads, ditches and berms. The roads and ditches alter the elevation by reducing it a couple of inches and raising it up to 2 feet higher. The average berm height is approximately 1.5 feet above sea level.

All of the five soil types are nearly level and poorly drained with severe limitations for recreation and local roads. 51% of the soils are characteristic of south Florida flatwoods and 49% is comprised of sloughs and ponds. The Preserve lies within the Estero River Watershed and is considered to be a recharge area for the sandstone aquifer, an important source of drinking water for Lee County residents.

GHP consists primarily of mesic flatwoods (65%); other natural plant communities include dome swamp, wet flatwoods, depression marsh and wet prairie. There are also disturbed communities related to historical farming on the Preserve. Fire will be a critical management tool for the Preserve due to the dominance of flatwoods. Over 280 plant and 140 animal species have been documented at the Preserve, including exotic and listed species. Over one third of the plant species are listed by either the Florida Fish and Wildlife Conservation Commission, Florida Natural Areas Inventory or the Institute of Regional Conservation. Listed wildlife documented at the Preserve includes eastern indigo snakes, Big Cypress fox squirrels, Florida panthers, roseate spoonbills and wood storks. GHP now provides habitat to 43 gopher tortoises that were relocated for three different Lee County Department of Transportation projects. Much of the restoration activities that will continue at the Preserve will focus on providing an open canopy with diverse groundcover, which is essential for the gopher tortoises.

The Preserve lies along the edge of a 60,000-acre wildlife corridor that constists of conservation lands including: Flint Pen Strand, Imperial Marsh and Corkscrew Regional Ecosystem Watershed lands. The seasonal wetlands, surrounded by intact upland communities are of particular importance to amphibians and wading birds residing at the Preserve.

Historically, GHP was farmed in the southwest corner between 1958 and 1966. Except for several primitive, jeep trails and some logging activities, the site remained undeveloped before purchase by C20/20.

The majority of the Preserve lies within one of the well field protection zones. Staff will need to use caution to ensure that management activities that use various chemicals and petroleum products comply with County Ordinances protecting these zones.

South Florida Water Management District holds a conservation easement over the wet prairie, cypress domes, depression marshes and their upland buffers. The terms of this easement do not present any conflicts with the planned uses for the Preserve. The entire Preserve is under a conservation easement with the Florida Fish and Wildlife Conservation Commission. This easement has been issued to protect the Preserve for up to 107 gopher tortoises that can be relocated in the future from Lee County infrastructure projects. The Future Land Use for the Preserve is “Conservation Lands” and the zoning is Environmentally Critical.

Restoration activities over the past 10 years have been implemented to improve the habitat for gopher tortoises and other upland species. This included pine tree thinning, reducing palmetto cover, exotic plant removal and prescribed burning. Continuing exotic plant maintenance treatments and regular prescribed burns are critical to the listed species and plant communities at GHP. One disturbance that will remain are the ditches and berms associated with the historic agricultural activities. These ditches do not have a major impact on the hydrology of the Preserve and will not be plugged or filled. Using heavy equipment to plug or fill the small ditches seems likely to have more of a negative impact on the soils, plants and wildlife than any potential benefit. Several of the gopher tortoises have also established burrows on the berms adjacent to the ditches.

The goal of this land management plan is to identify Preserve resources, develop strategies to protect those resources and continue with restoration activities to maintain GHP as a productive, functional and viable ecosystem while insuring the Preserve will be managed in accordance with Lee County Parks and Recreation’s Land Stewardship Operations Manual and in compliance with permit conditions associated with gopher tortoise mitigation project requirements. Management activities at GHP will focus on continued control of invasive exotic plant and animal species, and maintaining ecosystems with prescribed fire. A Management Action Plan that outlines restoration and management 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 management plan will be revised in 2026.

II. INTRODUCTION

Gator Hole Preserve (GHP) was acquired as a single 175-acre parcel in February 2000 through Lee County's Conservation 20/20 (C20/20) program for just over 3 million dollars. The C20/20 Program was established in 1996 after Lee County voters approved a referendum that increased property taxes by up to 0.5 mil for the purpose of purchasing and protecting environmentally sensitive lands. The site consists primarily of mesic flatwoods with some wet flatwoods on the northern half of the Preserve. Additional plant communities include two dome swamps (one of which had a resident alligator that the Preserve was named after) and a former agricultural field that is undergoing ecological succession.

Many changes have taken place on GHP since completion of the first management plan. Invasive exotic plants are at a maintenance level. South Florida slash pine trees (*Pinus elliottii* var. *densa*) have been thinned, and the saw palmetto (*Serenoa repens*) cover has been reduced through mechanical work and prescribed burning. Lee County Department of Transportation (LCDOT) has relocated 43 gopher tortoises (*Gopherus polyphemus*) onto the Preserve that were located in the vicinity of three different road projects and the Preserve is permitted through the Florida Fish and Wildlife Conservation Commission (FWC) to have up to 107 additional tortoises relocated during future County, or other public entity, infrastructure projects. During the next ten years, annual treatments will be conducted to maintain the Preserve at a maintenance level for exotic plants, prescribed burning will be continued on a 1-5 year rotation and the perimeter fence will be maintained to prevent feral hogs (*Sus scrofa*) from entering the Preserve.

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

III. LOCATION AND SITE DESCRIPTION

GHP is a 175-acre Preserve located at 14291 Corkscrew Road, Estero, in southeastern Lee County. It is on the north side of Corkscrew Road, 3.8 miles east of Interstate 75 and .8 miles west of Alico Road (Figure 1). It is in the western half of Section 21, Township 46 South, Range 26 East. The site is surrounded by mining activities to the north, east and south as well as vacant land, to be developed as single-family homes, to the west (Figure 2). The Preserve consists of STRAP # 21-46-26-00-00001.1000.

The primary plant community found at the Preserve is mesic flatwoods, but there are several wetlands including three small dome swamps. Ditches, berms, former agricultural activities, as well as invasive exotic plants have disturbed much of the Preserve. GHP is at a maintenance level for invasive exotic plants with the exception of wetland exotic grasses including torpedo grass (*Panicum repens*) and West Indian marsh grass (*Hymenachne amplexicaulis*).

FIGURE 1: LOCATION

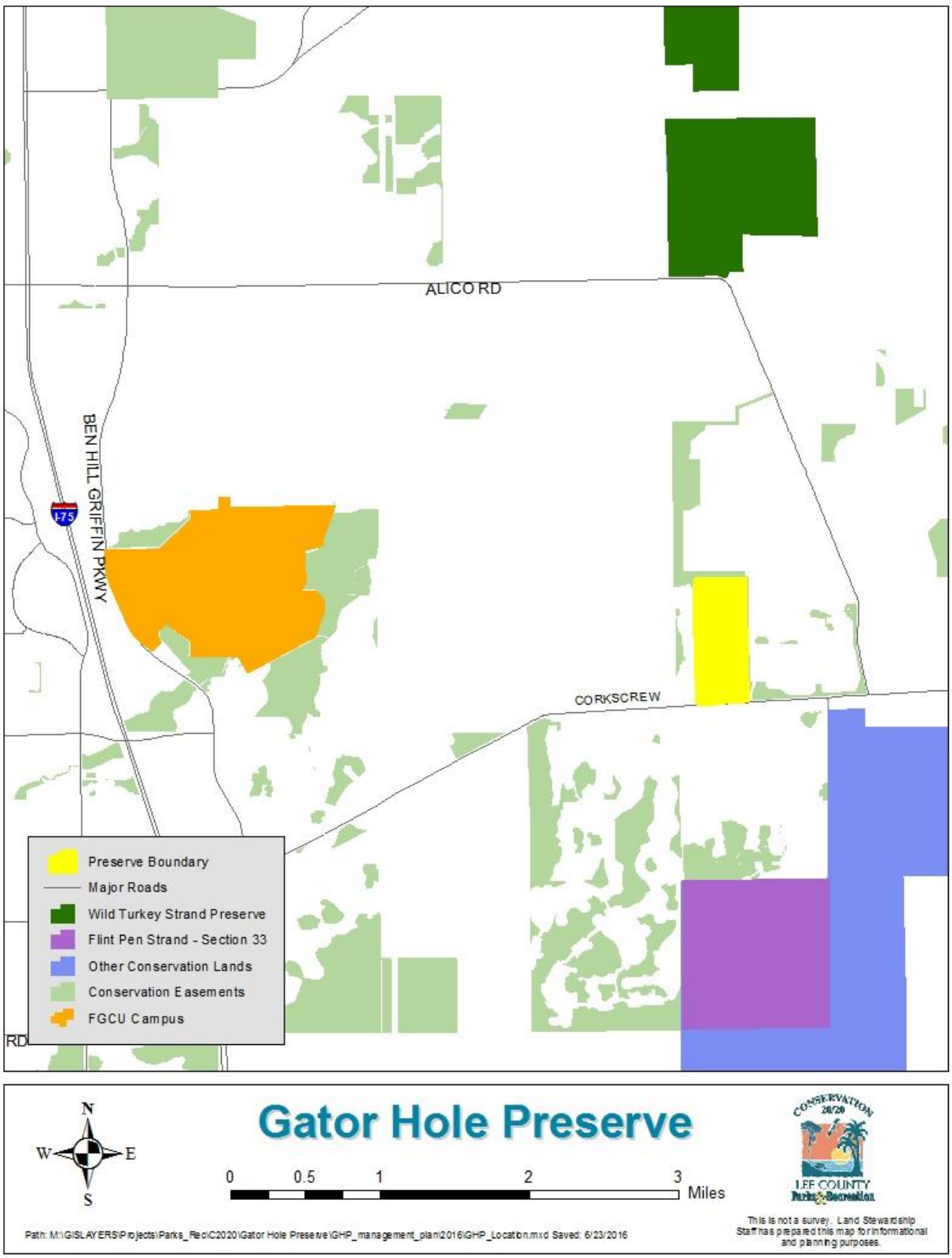


FIGURE 2: 2015 AERIAL

IV. NATURAL RESOURCES DESCRIPTION

A. Physical Resources

i. Climate

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

ii. Geology

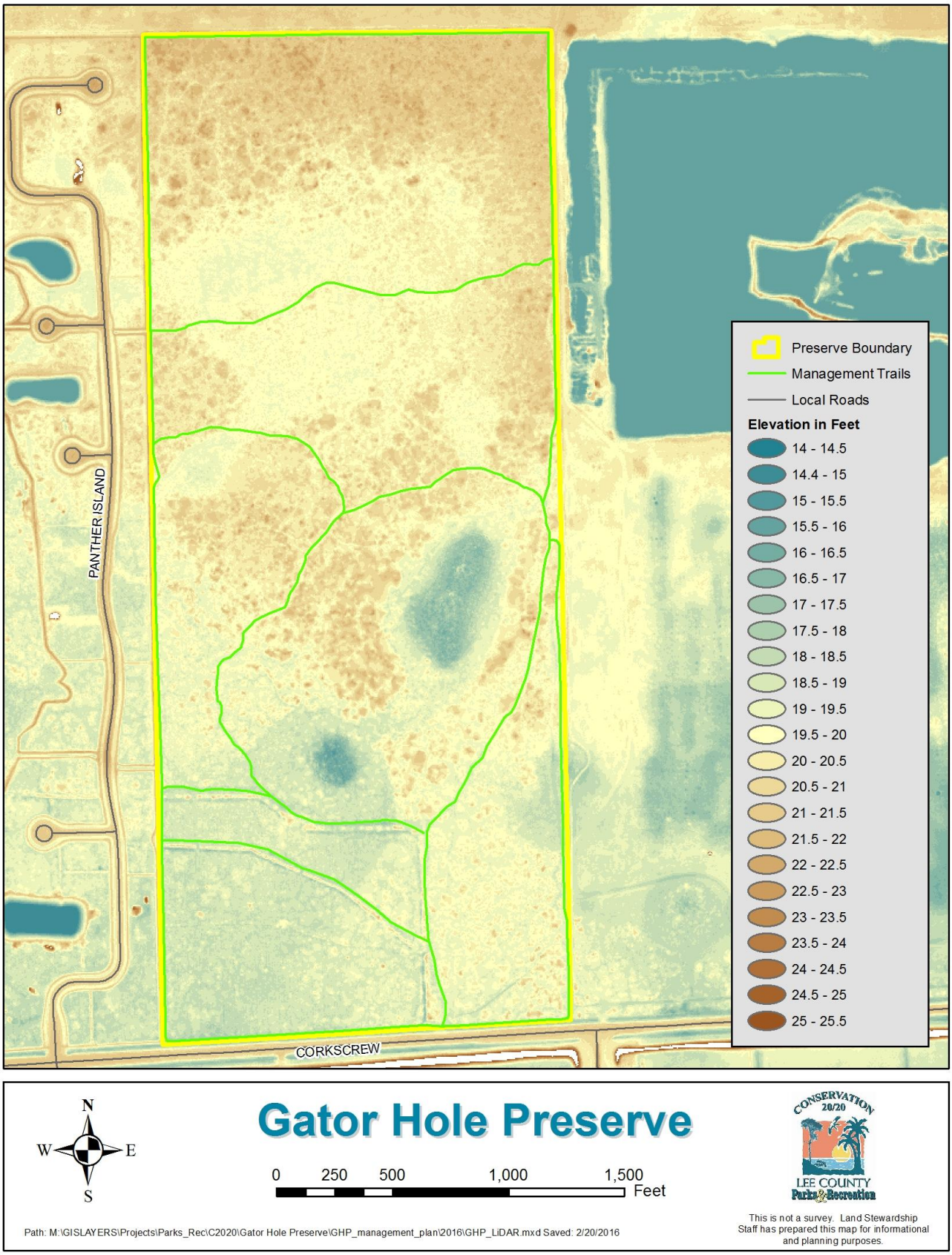
Specific information on the geologic features such as physiographic regions, formations and maps can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

iii. Topography

The following topographic map (Figure 3) uses light detecting and ranging (LiDAR) data, which is an optical remote sensing technology that measures properties of scattered light to find range and/or other information of a distant target. This data was collected in 2007 and represents the published 5 foot digital elevation model. The change in color gradient visually demonstrates the change in elevation.

Natural elevations at GHP range from 22 feet at the north end and slope in a general southwesterly direction to 18 feet at the southwest corner of the Preserve. The wetlands in the middle of the cypress domes are approximately 15 feet. Man-made topographic features include management access roads, ditches and berms. The roads and ditches drop the elevation from a couple of inches up to approximately 2 feet. The average berm height is approximately 1.5 feet.

FIGURE 3: TOPOGRAPHY

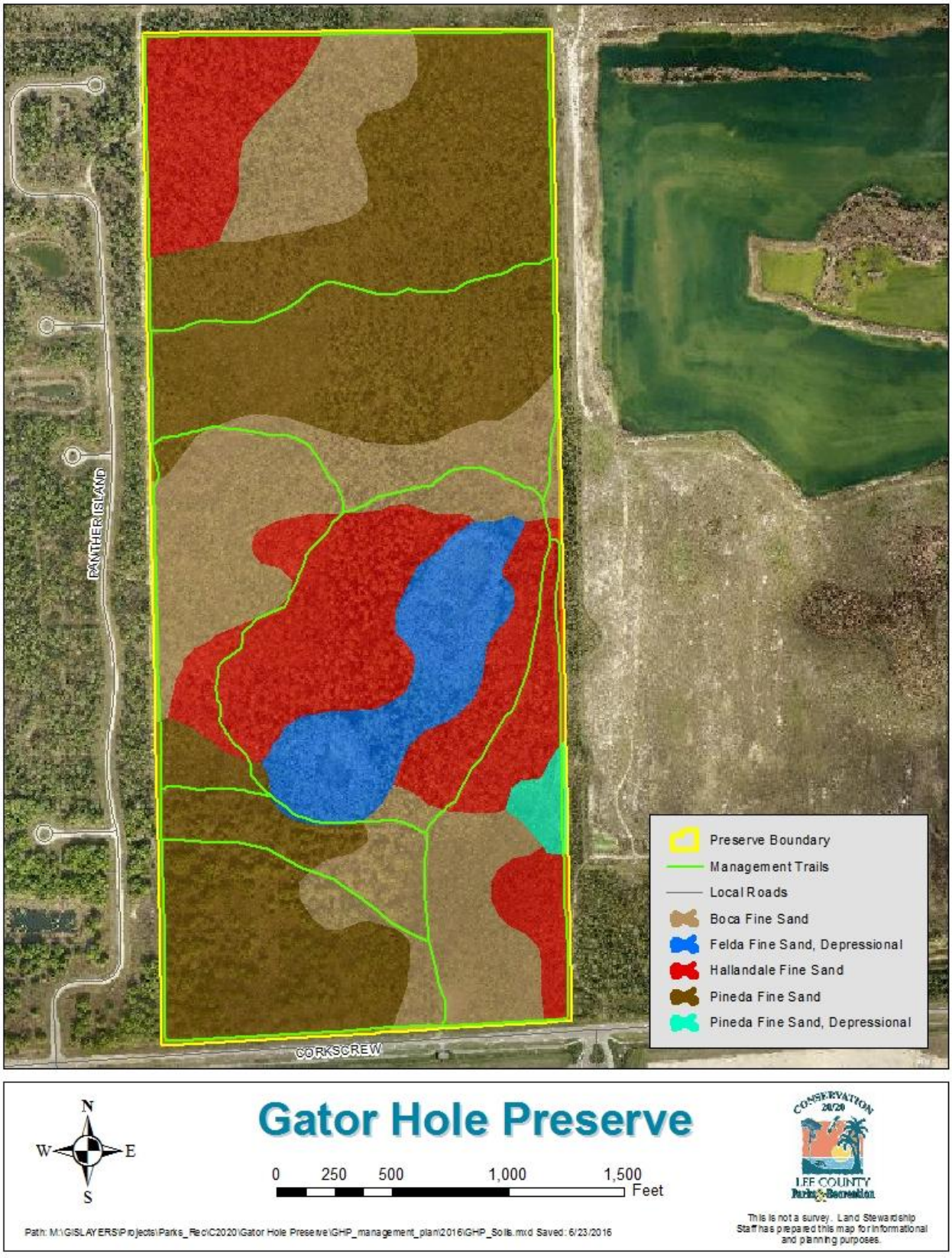


iv. Soils

There are five (5) different soil types found at GHP (Figure 4 and Appendix A). A common relationship for all of these soil types is that their slopes range from 0-2%. Slope is "the inclination of the land surface from the horizon." Essentially, GHP is level.

At the Preserve, Hallandale Fine Sand is unique in having moderate to moderately rapid permeability, while all the other soils have rapid permeability. This is a measurement of how rapidly the water moves downward through the soil. While the majority of the Preserve drains at between 6 – 20 inches per hour, Hallandale Fine Sand drains between 0.6 – 6 inches per hour. The established management roads through these areas are typically very mucky and hold water for extended periods. The reason for the slow drainage in the Hallandale Fine Sand is because the fractured limestone bedrock is approximately 12 inches below the soil surface as compared to the rest of the Preserve that ranges between 30 – 80 inches. Because the limestone is so close to the surface in portions of the Preserve, it has been a challenge to install or replace boundary fence posts. Refer to the LSOM's Land Stewardship Plan Development and Supplemental Information section for additional information on soil types and limitations.

FIGURE 4: SOILS



v. Hydrologic Components and Watershed

GHP is within both the South Florida Water Management District (SFWMD) and Lee County Division of Natural Resources (LCDNR) Estero River Watershed (Figure 5). LCDNR's boundary covers approximately 66 square-miles. Rainfall flows from State Road 82 on the northeast boundary in a general southwest direction to the Estero River and eventually into Estero Bay. The Lee County Surface Water Master Plan concentrated on the downstream (west of Interstate 75) portions of the watershed further west, particularly the Estero River and adjacent lands and the protected State lands. However, the report did discuss the entire watershed's function as a recharge area for the sandstone aquifer, a primary source of drinking water in Lee County. With the escalating development in the Corkscrew Road area, natural areas like GHP will be increasingly important for recharge of the aquifer. General information on hydrology and watershed is located in the LSOM, Land Stewardship Plan Development and Supplemental Information section.

There are minor hydrological alterations (ditches and berms) associated with previous agricultural activities on the Preserve (Figure 6). The first edition of this plan contained a future goal to fill or plug these existing ditches. However, using heavy equipment to plug or fill the small ditches will have more of a negative impact on the soils, plants and wildlife than any potential benefit since these small ditches do not direct water off of the Preserve. Also, since the writing of the first edition of this plan over 40 gopher tortoises have been relocated on the Preserve and many have established burrows in the berms.

FIGURE 5: WATERSHED

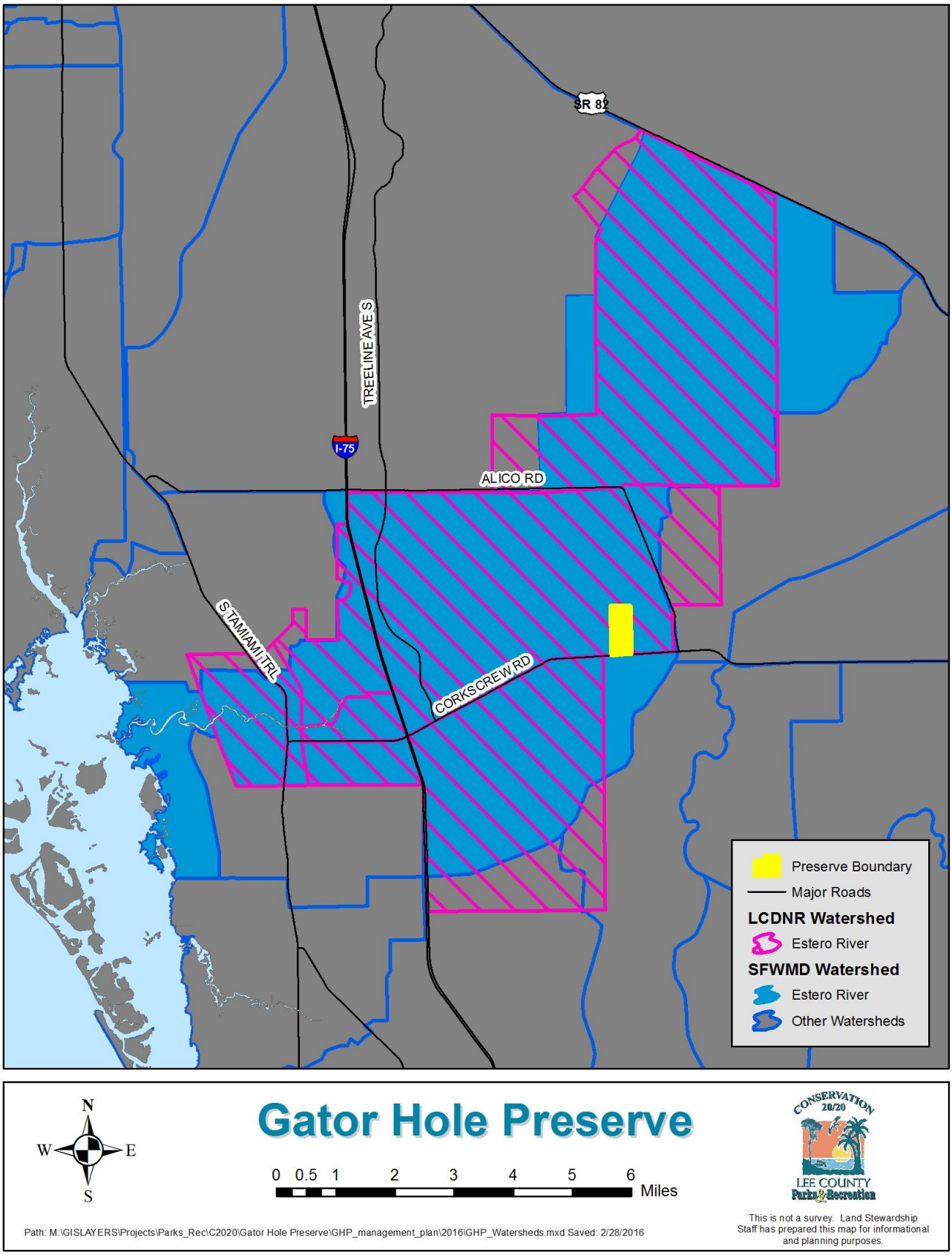
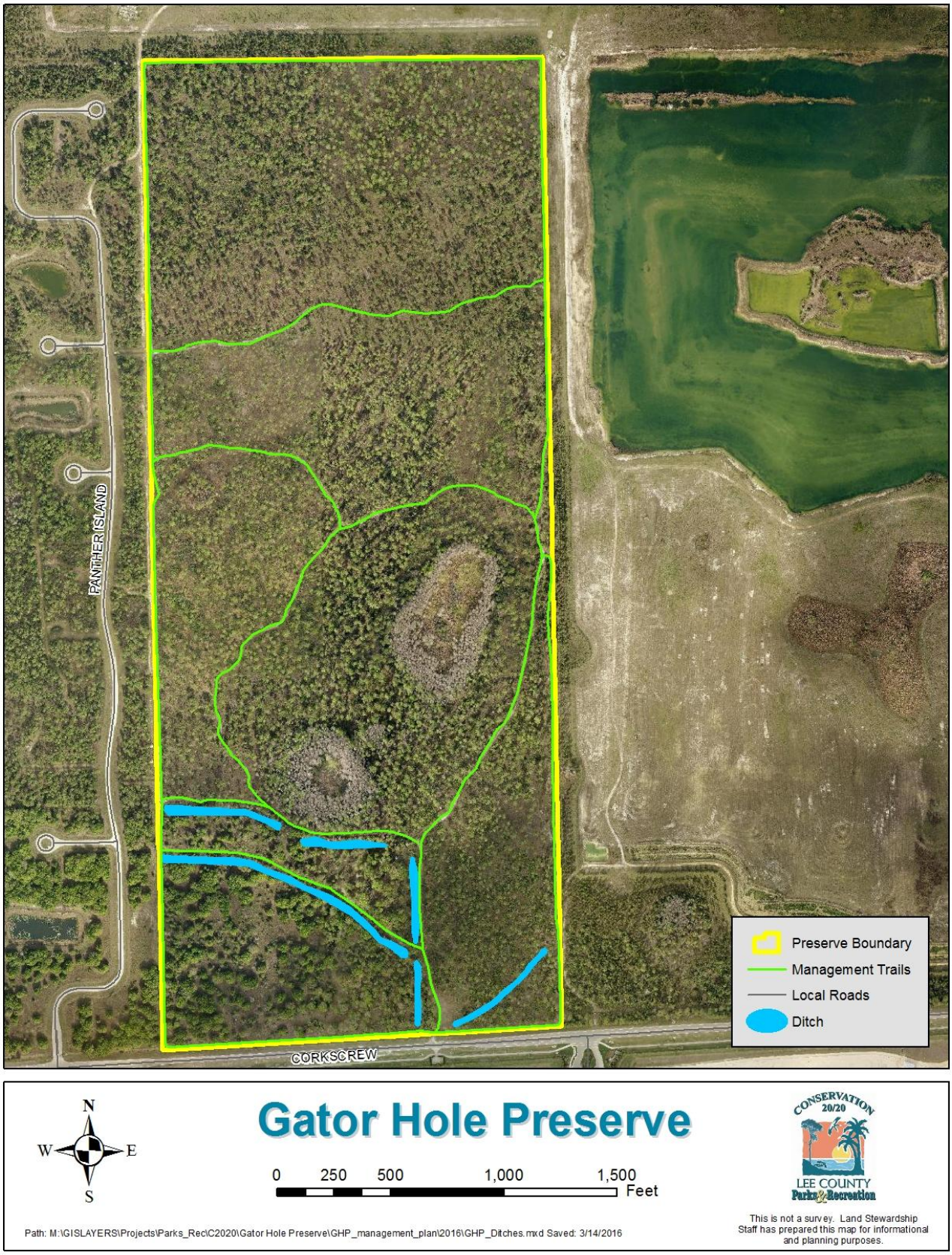


FIGURE 6: DITCHES



B. Biological Resources

i. Ecosystem Function

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

Fire is an important 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 of any region in the United States. Fire shapes ecosystem processes in the flatwoods including creation of soil conditions suitable for germination of seeds of some species, turnover of litter, humus and nutrients, reduction of competition from hardwoods and increasing the hardiness of some species (Myers and Ewel 1990). Mechanical thinning and roller chopping of pine flatwoods is beneficial, especially in areas that have suffered fire suppression or have had hydrologic alterations to surrounding lands which in turn creates conditions favoring growth of pines over hardwood species. Without regular fire or mechanical work, pine flatwoods can become dense stands of palmetto and have tall weak pines which block sunlight from reaching the ground. This causes further decreases in the biodiversity and coverage of native grasses and wildflowers that gopher tortoises, quail and many other species depend upon.

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

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

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

Forested freshwater wetlands include cypress swamps and strands as well as hydric hammock communities. These areas provide excellent cover and foraging for woodpeckers, warblers and other migratory songbirds. Animals depend on the health and long-term viability of the cypress communities for nesting, breeding and feeding. These forested wetlands are highly productive ecosystems, which are directly related to the hydrologic conditions within them. Healthy cypress communities capable of sustainable reproduction occur in depressions with a hydroperiod of approximately 250-290 days and maximum water levels of one to two feet (Duever et al. 1986). The lower hydroperiod and water level ranges produce smaller cypress and the upper ranges produce larger ones. The cypress domes, or heads, are depressions in which the largest cypress trees occur in the center and get progressively smaller from the center out. The conditions for growth (long hydroperiod) are much better in the center as opposed to the edges due to more organic soils in the center. The larger cypress trees populate the lower areas with longer hydroperiods. In the areas where the water is too deep for cypress, treeless ponds occur within the domes and support a variety of plants and wildlife.
These forested systems play a vital role by storing rainwater and improving water quality by filtering nutrients and pollutants.

Although cypress wetlands and wet flatwoods communities at the Preserve have been or may continue to be hydrologically impacted by adjacent development (i.e. mining, roadways, residential communities, utility water wells) and exotic plant infestation, they still provide habitat and foraging opportunities for some species including alligators, frogs, osprey (*Pandion haliaetus*), belted kingfishers (*Ceryle alcyon*) and a variety of herons and egrets.

ii. Natural Plant Communities

GHP contains a combination of wetland and upland communities that serve as important habitat for a variety of wildlife. The Preserve consists of ten natural or altered plant communities described by the Florida Natural Areas Inventory (FNAI). Mesic flatwoods is the dominant plant community at 65% and 22% of the Preserve is classified as wetlands. About 14% of the Preserve consists of altered communities. Figure 7 shows the location of the plant communities found at GHP. The plant communities are defined using the Guide to the Natural Communities of Florida (2010) prepared by FNAI.

Acreages and percent of cover for each community are listed below. Descriptions of the plant communities, characteristic animals found within each community, and management suggestions can be found in the LSOM. A complete list of plant species identified during site inspections to GHP can be found in Appendix B. This list will be updated on a seasonal basis to identify plants in their inflorescence phase.

Natural Plant Communities

Mesic Flatwoods – 113.2 acres, 64.6% coverage

Wet Flatwoods – 23.9 acres, 13.7% coverage

Dome Swamp – 7.3 acres, 4.2% coverage

Depression Marsh – 2.6 acres, 1.5% coverage

Wet Prairie – 2.0 acres, 1.1% coverage

Dome Swamp (Disturbed) – 1.3 acres, <1% coverage

Altered Landcover Types

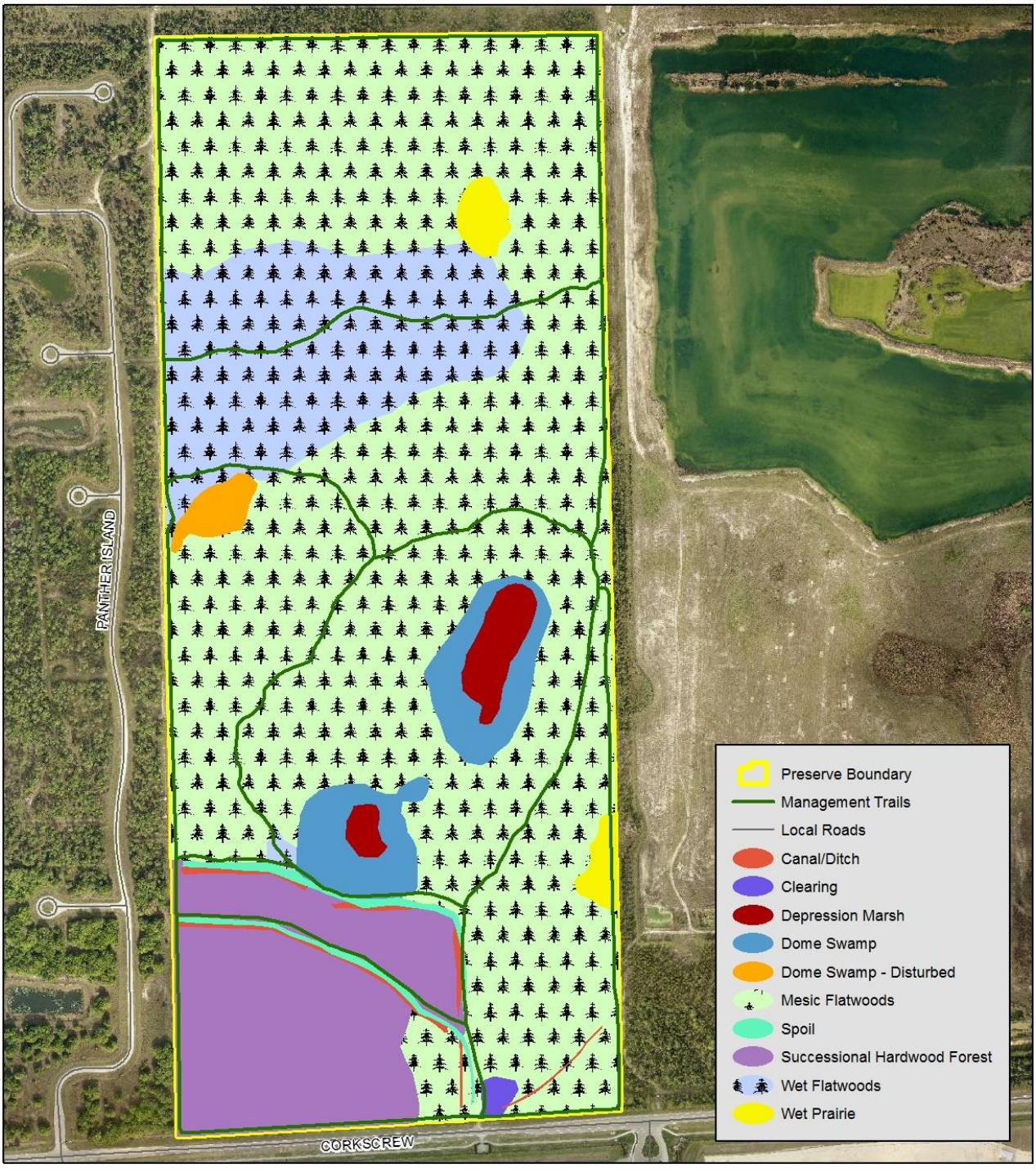
Successional Hardwood Forest – 21.6 acres, 12.3% coverage

Spoil Area – 1.6 acres, <1% coverage

Canal/Ditch – 0.9 acres, <1% coverage

Clearing – 0.4 acres, <1% coverage

FIGURE 7: PLANT COMMUNITIES



iii. Fauna

GHP provides a variety of habitats for state and federally listed wildlife species. This Preserve is an FWC permitted gopher tortoise relocation site for Lee County. Nine exotic wildlife species have been documented at the Preserve. Appendix C has the complete list of wildlife seen at the Preserve at the time of writing this Land Management Plan; as recorded through staff during field work and site inspections as well as by Bird Patrol volunteers and other Preserve visitors.

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

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

iv. Designated Species

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

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

American Alligator

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

Unfortunately, this is a species that has not benefitted from some of the activities that have taken place at the Preserve. In preparation for the gopher tortoise relocation, the barbed wire boundary fence was replaced with a 5-foot high chain link fence buried approximately 18 inches into the ground in 2008. This was done to both ensure that the tortoises did not leave the Preserve in an attempt to return to their former territories and as a way to help reduce feral hogs. Although many animals can easily jump over or crawl through the fence, larger alligators will not be able to. During a site visit in 2011 a large alligator was found on the eastern fence-line of the Preserve. At that time, staff did not have the resources to catch or remove the alligator. A gate further down the fence line was temporarily left open with the hope that the alligator would leave the Preserve and enter the large ponds in the adjacent mine. If staff spots a large alligator in the future, it is recommended that FWC be called to remove the alligator to a more suitable habitat.

Gopher Tortoise

Gopher tortoises are in decline throughout their range due to loss and degradation of habitat. As a species dependent 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.

Before the first gopher tortoise relocation project in 2006, tortoises had been seen occasionally on the eastern boundary of the preserve and two abandoned burrows had been documented on the western portion of the Preserve. A total of 43 tortoises were relocated to GHP between April and June 2006 (see Internal Influences for more information). Continuing the exotic plant maintenance and prescribed burning will benefit this species.

Eastern Diamondback Rattlesnake

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

Eastern diamondback rattlesnakes are regularly seen at the Preserve, especially during prescribed burns. Prescribed burning and continued exotic plant control will both be beneficial for the species. Additionally, public education about the ecological value of this and other species of snakes will help to protect them from visitors to the Preserve and from adjacent landowners.

Eastern Indigo Snake

The eastern indigo snake 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, and is often associated with gopher tortoise burrows. The eastern indigo is threatened throughout its range due to habitat loss, degradation and fragmentation. Although it is now illegal to possess this animal without the proper permits, the pet trade is another cause for decline of this species. The most common causes of mortality are human caused, either by people 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 which are often found 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).

Although not as common as the diamondback rattlesnake, eastern indigo snakes and their shed skins have occasionally been found at GHP. The same management recommendations for eastern diamondbacks apply to this species.

Wood Stork and Florida Sandhill Crane

Wood storks are very sensitive to water levels in freshwater wetlands, as they require high concentrations of fish in fairly shallow water for foraging. Threats to Florida sandhill cranes (*Grus canadensis pratensis*) include loss and degradation of wetlands, fire suppression, free ranging dogs and cats and entanglement in fencing (Rodgers et al. 1996). Unnaturally high water levels during nesting seasons and extended droughts are both threats that wood storks and Florida sandhill crane face. Both of these species are regularly seen at the Preserve.

Management practices that will benefit these species include continued invasive exotic plant control and prescribed fires that burn both the uplands that the birds forage in, and allowing the fires to burn into the wetlands to reduce brush encroachment.

Herons, Egrets, Ibises and Spoonbills

The little blue heron (*Egretta caerulea*) and tricolored heron (*Egretta tricolor)* decline is 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 these herons. In Florida, the destruction and alteration of more than half of the wetlands, due to the phenomenal increase in population has caused a substantial decline in ardeids. Wetlands have been filled and or impacted by housing developments, agriculture, human activity (i.e. sports,

recreation) and the infrastructure that supports these activities" (Rodgers et al. 1996).

Like these herons, the great egret (*Ardea alba*) and snowy egret (*Egretta thula*) have been declining throughout their ranges since the 1950s. Scientists believe that the main reason for this decline is the loss and alteration of wetlands where they forage.

Similar to the herons and egrets listed above, the white ibis and glossy ibis (*Plegadis falcinellus)* are declining throughout their range due to the reduction and degradation of wetlands and human disturbances to their rookeries.

The roseate spoonbill (*Platalea ajaja*) nests in coastal mangrove areas and occasionally in fresh water willows, and occasionally in fresh water willows, relying on the shallow water for foraging. Their decline is attributed to human disturbance of nesting colonies, alteration of foraging sites and alterations of hydrologic patterns.

All seven of these species of wading birds are seen regularly at the Preserve. The management practices that benefit wood storks and Florida sandhill cranes will also benefit these species.

Swallow-tailed Kites

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

Swallow-tailed kites are seen regularly, but have not been spotted nesting at GHP. If they do nest on the property the tree will be protected from disturbance and planned management activities that could disturb the nesting pair(s) will be postponed. Continued invasive exotic plant removal and regular prescribed fires will benefit the species.

Eagles and Hawks

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

During the summer Cooper's hawks (*Accipeter cooperii)* breed across southern Canada southward to southern United States and into central Mexico. In the winter, they range throughout the United States and Mexico. They breed in deciduous, mixed, and coniferous forests.

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

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.

Neither bald eagles nor short-tailed hawks have been documented utilizing the Preserve for nesting. Bald Eagles are known to nest in the Corkscrew Wellfield less than a mile to the east of the Preserve. If nesting is observed in the future, bald eagle nests will be protected according to federal, state and local laws and the management activities listed under kites will also be implemented to protect any nests. According to eBird, there has been only one documented sighting of a short-tailed hawk and it may have not been in the Preserve.

Royal Tern

The biggest conservation challenges to Royal terns (*Sterna maxima*) concern their nesting colonies, where the high concentration of these birds makes them vulnerable to single disasters. Habitat destruction, human disturbance, pollution and predators also affect them. Royal terns are not known to nest in Lee County, but utilize our areas for feeding and rest during migration.

GHP does not have suitable habitat as this species prefers to nest "in dry sand, well above high-tide levels, usually on small islands" (Hipes et al. 2001). These birds may have been sighted at GHP because of the nearby cleared vegetation, sandy soils, ponds and borrow pits at the neighboring mining operations.

Hairy Woodpecker

The hairy woodpecker (*Picoides villosus*) has a home range from central Alaska to Newfoundland, south to Florida and Central America, but can also be found in

the Bahamas. They are often found in mature woods, wooded areas, and residential areas with large trees. Hairy woodpeckers build their nest in cavities of trees or dead branches and do not put additional materials in the cavity. They are common but may be declining in some areas. The hairy woodpecker is attracted to sound made by a pileated woodpecker when it is excavating a tree. They forage in close association with the pileated woodpecker, pecking in the deep excavations and taking insects. (CLOb 2003).

This is another species that is only occasionally seen at the Preserve. Prescribed fire and continued invasive exotic plant control will be beneficial to this species.

Falcons

The crested caracara's (*Caracara cheriway)* range has contracted and become more fragmented because their habitat is threatened primarily by residential development and conversion to more intensive agricultural (e.g., citrus) uses. The crested caracara's large habitat requirements makes land acquisition and/or development of incentives (e.g., cooperative agreements, conservation easements, tax breaks) for private landowners to maintain their ranch lands for their long-term security an important task.

According to eBird, a caracara was seen at the Preserve in May of 2014 and January of 2015. Crested caracaras are unlikely to be more than an occasional species seen at the Preserve.

The peregrine falcon (*Falco peregrines*) is a migratory, seasonal resident of Florida. Originally listed due to drastic population declines caused by organophosphates such as DDT, peregrine populations recovered enough to be de-listed from the federal endangered species list in 1999 and from the Florida state list in 2009. Peregrines feed on birds, especially shorebirds and waterfowl during their migration and over-wintering. Pollution and decreased availability of food for wading birds and waterfowl can impact peregrine populations. Alteration of wetlands for development or agricultural purposes can also decrease prey availability.

Continued invasive exotic plant removal and regular prescribed fires will benefit both of these species.

Big Cypress Fox Squirrel

The Big Cypress fox squirrel (*Sciurus niger avicennia*) is in decline throughout its range primarily due to loss and degradation of habitat. Although the number of this subspecies of fox squirrel in Florida is unknown, "based on the amount of

known habitat loss, fox squirrel populations have undoubtedly declined at least 85% from pre-settlement levels" (Humphrey 1992). Collisions with vehicles are another common cause of decline of the species.

When the first edition of the GHP management plan was written in 2006, this species had very rarely been documented on the Preserve. After the melaleuca removal and pine tree thinning projects, Big Cypress fox squirrels have been documented on the Preserve several times.

Regular burn regimes of 2-5 years during the growing season (April-July) are critical to maintain their habitat with an open canopy with minimal understory. Fires must be allowed to burn into cypress or other wetland communities to create and maintain broad, diverse transition zones.

Florida Panther

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

A hog trapper documented a Florida panther at the Preserve in 2008. Florida panther telemetry data, compiled by FWC has documented panthers within ¾ miles of the Preserve on numerous occasions (Figure 8) on the Corkscrew Regional Ecosystem Watershed (CREW) lands as well as surrounding conservation easements and less protected areas. GHP is within the USFWS Primary Habitat Zone, which is considered to be land essential to the long-term survival of the Florida panther (Figure 9). Management activities to benefit Florida panthers include preservation of the mosaic of communities throughout the Preserve, continued control of exotic plants, protecting hydrologic features and continuing the prescribed fire regime.

FIGURE 8: FLORIDA PANTHER TELEMETRY DATA 1981-2015

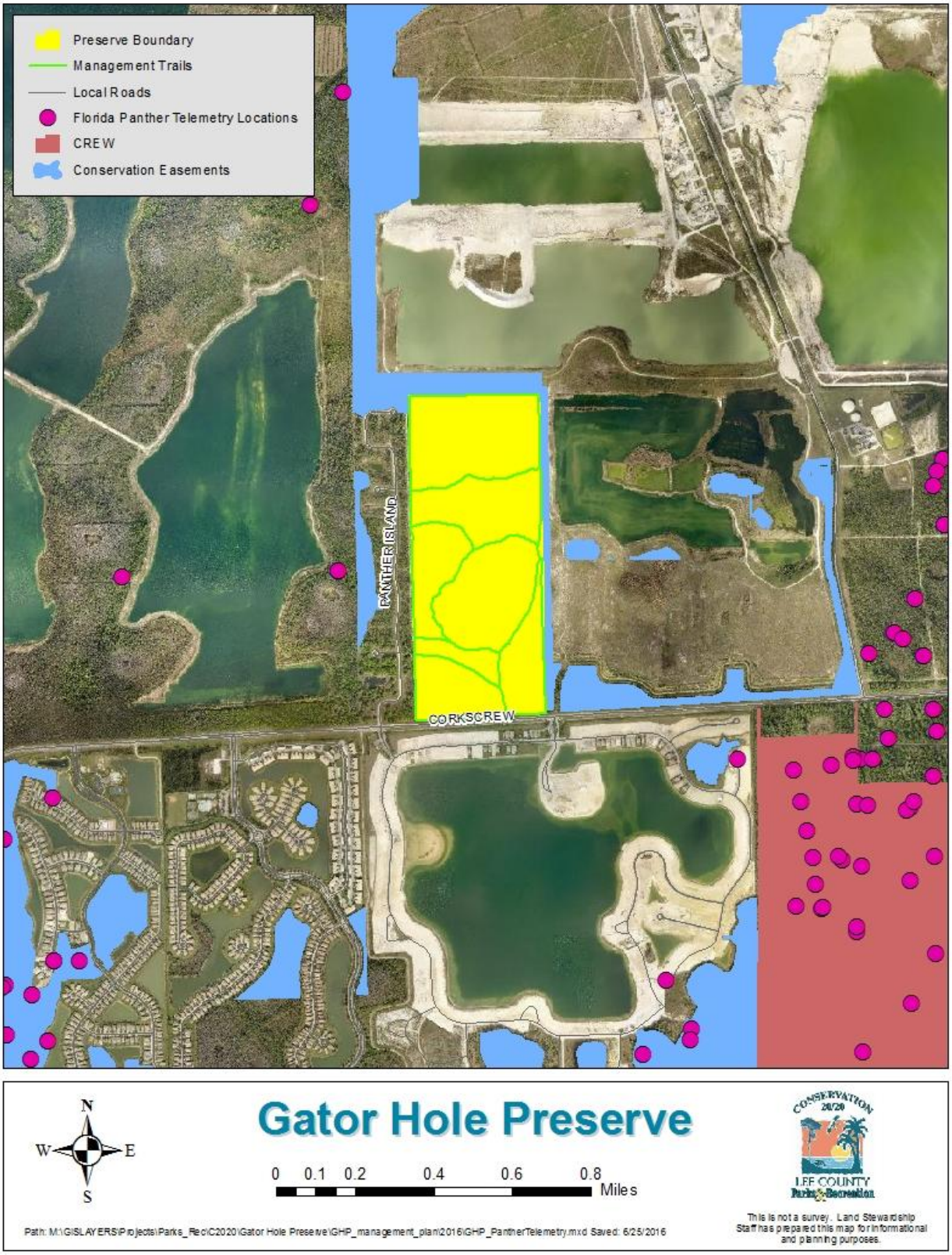
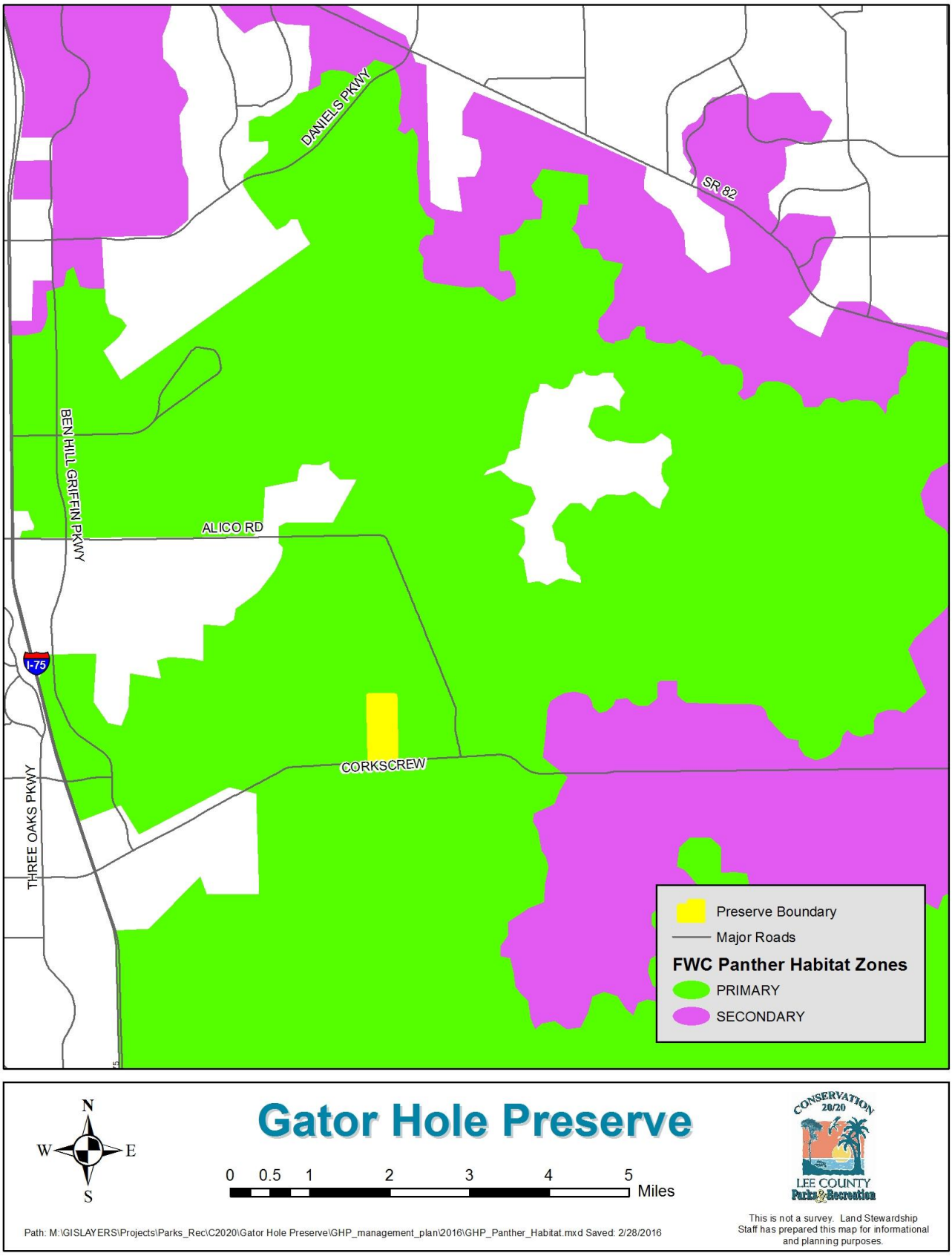


FIGURE 9: PANTHER STRATEGIC HABITAT CONSERVATION AREA



Plant Species

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

Giant Sword Fern

Giant sword fern (*Nephrolepis biserrata*) is another threatened species listed by FDA and is found in swamps and hydric hammocks.

Royal Fern

Royal fern *(Osmunda regalis var. spectabilis)* is listed as commercially exploited by FDA. It has been located in cypress-dominated communities at GHP.

Redmargin Zephyrlily

Redmargin zephyrlily (Zephyranthes simpsonii) is a state threatened species that grows naturally in low pine flatwoods, savannas, and at margins of wet hammocks. It is also adapted to pastures developed from such areas and to moist mowed roadsides. The main limiting factor appears to be competition from other plants and habitat destruction.

Cardinal and Giant Airplants

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

Catesby's Lily

Catesby's (or pine) lily (*Lilium catesbaei*) is a state threatened plant found in moist flatwoods and savannas. There is concern that the population of this species is decreasing and is likely to become endangered in the near future. Like many plants found in fire dependent communities, this species generally benefits from occasional fire and reduced palmetto cover (Sommers 2011).

Continued removal of invasive exotic plants and utilizing prescribed burning, as a management tool, will benefit the species.

Pinepink

Pinepink (*Bletia purpurea*) is listed as a threatened orchid by the FDA and has been found in central and south Florida rockland pinelands and scrub communities (Brown 2002).

Florida Butterfly Orchid

Although locally abundant (Brown 2002), the Florida butterfly orchid (*Encyclia tampensis*) is designated as commercially exploited by the FDACS. A plant with this designation is considered to be threatened by commercial use.

Giant Orchid

Giant orchid *(Pteroglossaspis ecristata)* is listed as threatened by FDA and global & state imperiled by FNAI. It is found mostly in pine rocklands and cypress swamps, but other communities include sandhill, scrub, and pine flatwoods. The use of prescribed fire to create sunny openings and reduce competition from woody species will benefit this species (Chafin 2000).

Leafless Beaked Ladies Tresses

Leafless beaked ladies' tresses (*Sacoila lanceolata*) is a state threatened species found in swamps and hydric hammocks. The variety (*lanceolata*) seen at GHP is more common and is found in open roadsides and other open, moist habitats.

Management activities that benefit the Catesby's lily will also benefit this species.

Long-lipped Ladies Tresses

Long-lipped ladies tresses (*Spiranthes longilabris*) is a state threatened species found in moist, grassy roadsides, and pine flatwoods habitats.

Management activities that benefit the Catesby's lily will also benefit this species.

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

rare when there are fewer than 100,000 individuals. Imperiled plants are those that are imperiled in south Florida because of rarity (6-20 occurrences, or less than 3,000 individuals) or because of vulnerability to extinction. This can be due to some natural or human factors. IRC only ranks taxa as imperiled if there are fewer than 10,000 individuals. Critically Imperiled plants are defined as being either extremely rare (5 or fewer occurrences, or fewer than 1,000 individuals), or extremely vulnerable to extinction from natural or human factors. IRC only ranks those taxa as critically imperiled with 10,000 or fewer individuals.

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

- Prohibit recreational activities such as off-road vehicle use to avoid impacts to rare plant populations.
- Insure 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 regimes in communities that are fire adapted since fire, as a management tool, is extremely critical for the protection of many rare plants.
- Divide the site so the entire area is not burned during the same year.
- Ensure that management activities do not negatively impact rare plant populations.

v. Biological Diversity

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

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

- Control of invasive, exotic vegetation followed by regular maintenance to provide more suitable habitat for native aquatic and terrestrial species.
- Control invasive exotic animal populations to reduce their impacts on the herbaceous plants, native animals, and soils.
- Maintain boundary signs to deter illegal access to the Preserve and protect fragile ecosystems. Continue to monitor the site for illegal off-road vehicle (ORV) use and install fencing or other barriers if necessary.
- Install and maintain "no berry picking" signs to inform saw palmetto pickers it is illegal to harvest them on the preserves.
- Implement prescribed fire and mechanical fuels management program to closely mimic the natural fire regimes for different plant communities to increase plant diversity and ensure the canopies remain open in the appropriate plant communities.
- Where necessary, install perimeter fire breaks to protect resources on the Preserve and surrounding neighbors in the event of wildfires.
- Remove any debris and prevent future dumping within the boundary line.
- Conduct on-going species surveys utilizing volunteers and staff to catalog and monitor the diversity that is present.
- Reduce canopy cover in appropriate habitats to promote herbaceous plant diversity.
- Use adaptive management if monitoring of restoration techniques indicates a change may be necessary.
- Offer public access that allows citizens to enjoy the Preserve while protecting sensitive plant communities and wildlife needs.
- Prevent and prosecute poaching and removal activities (e.g. palmetto berry harvesting, illegal hunting, pine cone/straw removal and orchid collection).

C. Cultural Resources

i. Archaeological Features

In 1987, Piper Archaeological Research, Inc. conducted an archaeological site inventory of Lee County. They were able to identify 53 additional sites increasing the total number of known archaeological sites in Lee County to 204. They also created a site predictive model and archaeological sensitivity map for the county that highlighted potential areas likely to contain additional archaeological sites. There are no known archaeological sites or potential areas predicted by the model at GHP.

ii. Land Use History

Land use activities on GHP began over 100 years ago as logging of slash pine from the late nineteenth century until the 1930s virtually eliminated all virgin stands of the southern mixed forest in south Florida. This activity likely reduced slash pine densities throughout the Preserve and explains the lack of old growth pine trees found on the site. Additional activities were derived from historical aerial photography from 1944 until 2015, historic regional facts, or from the Phase I Environmental Site Assessment (ESA) report (BCI 2000). According to interpretations based on aerial photography, Corkscrew Road is the only visible feature along the southern edge of the Preserve until at least 1953 (Figure 10).

Between that time and 1958 (Figure 11), an agricultural field has been cleared on the southwestern portion of the Preserve, which extends off the property to the west. By 1968 (Figure 12), the agricultural fields were not being used and vegetation began to grow sporadically in several patches. An interviewee from the ESA report stated “that typically these areas were farmed for two to three years, subsequently having to lie fallow for several years due to nematode infestations of the soil.”

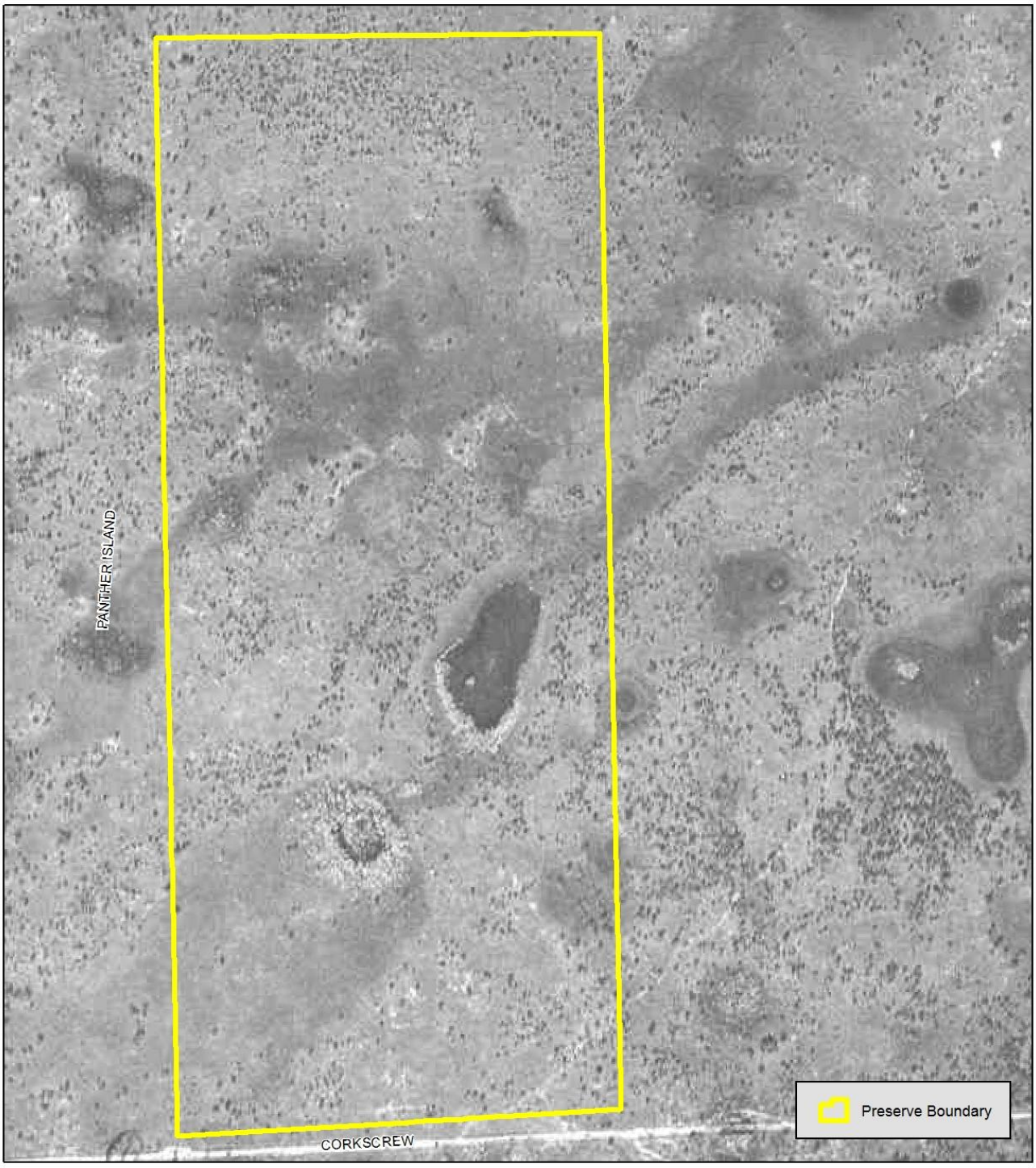
In the 1960s and 1970s, the stumps of the logged slash pines were removed from many properties in the region. This activity, referred to as stumping, was conducted to extract turpentine from the wood. Stumping created depressions in the soil, which created a microhabitat where soil moisture is higher for longer periods than adjacent habitats. For this reason different plant species are likely to occur in these depressions. Evidence of stumping appears in the 1972 aerial (Figure 13) as well as several new trails throughout the Preserve.

By 1990 (Figure 14), mines have been cleared to the west, north and east of the Preserve. By comparing this aerial to earlier ones, the thick melaleuca growth in the flatwoods is apparent.

During the January 2000 ESA on-site survey, one cow was noted on the property, which revealed past uses of cattle grazing.

Between 2002 (Figure 15) and 2007 (Figure 16), development surrounding the Preserve continued. Major restoration projects within GHP took place in 2007 through 2008. The pine trees thinning, melaleuca removal and brush reduction work is apparent in the 2008 aerial (Figure 17) followed by melaleuca removal by Cooper timber on the northern portion of the Preserve that was completed by the 2009 aerial (Figure 18).

FIGURE 10: 1953 AERIAL



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Gator Hole Preserve

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CONSERVATION 20/20
LEE COUNTY Parks & Recreation

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

FIGURE 11: 1958 AERIAL

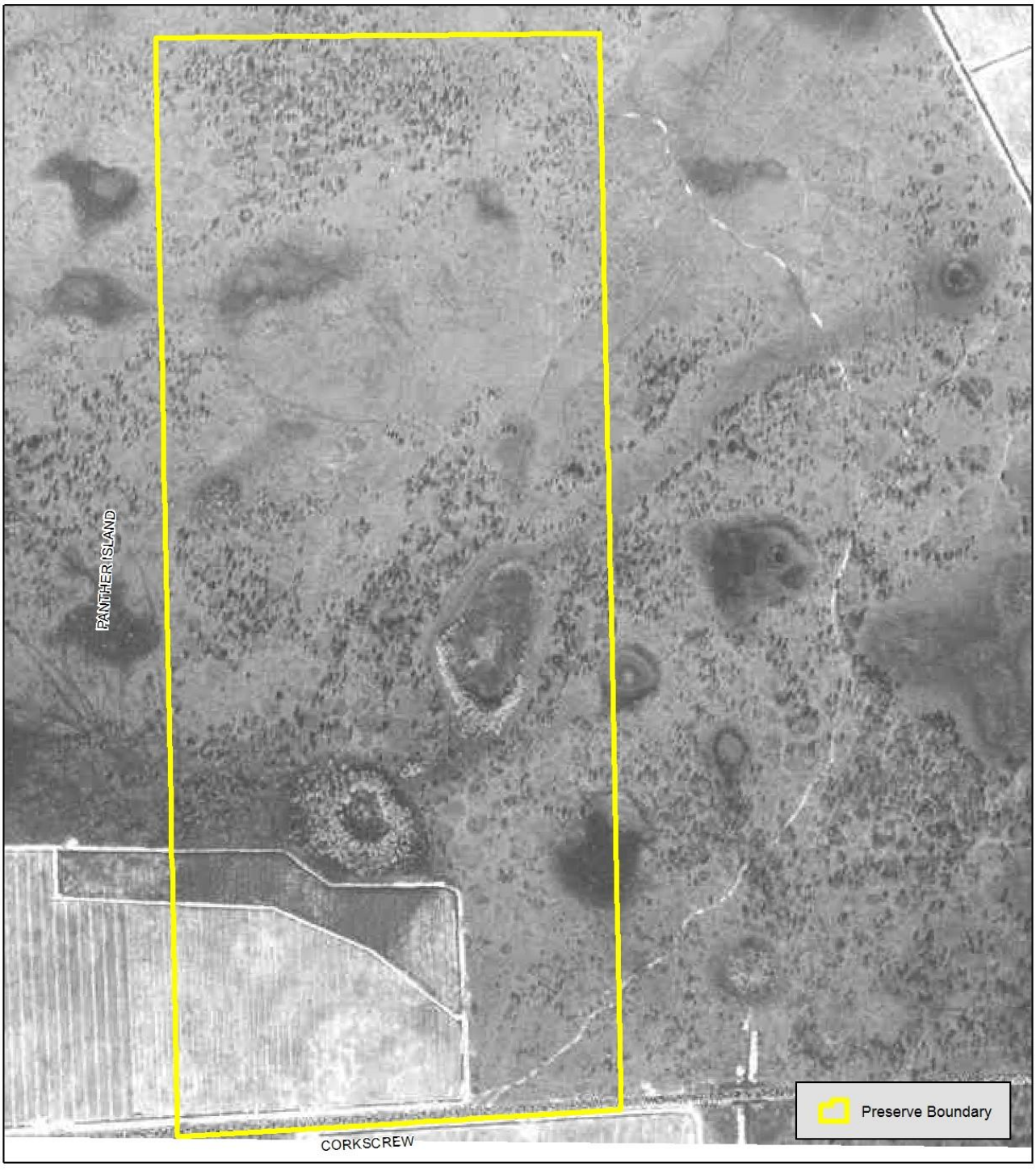

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FIGURE 12: 1968 AERIAL

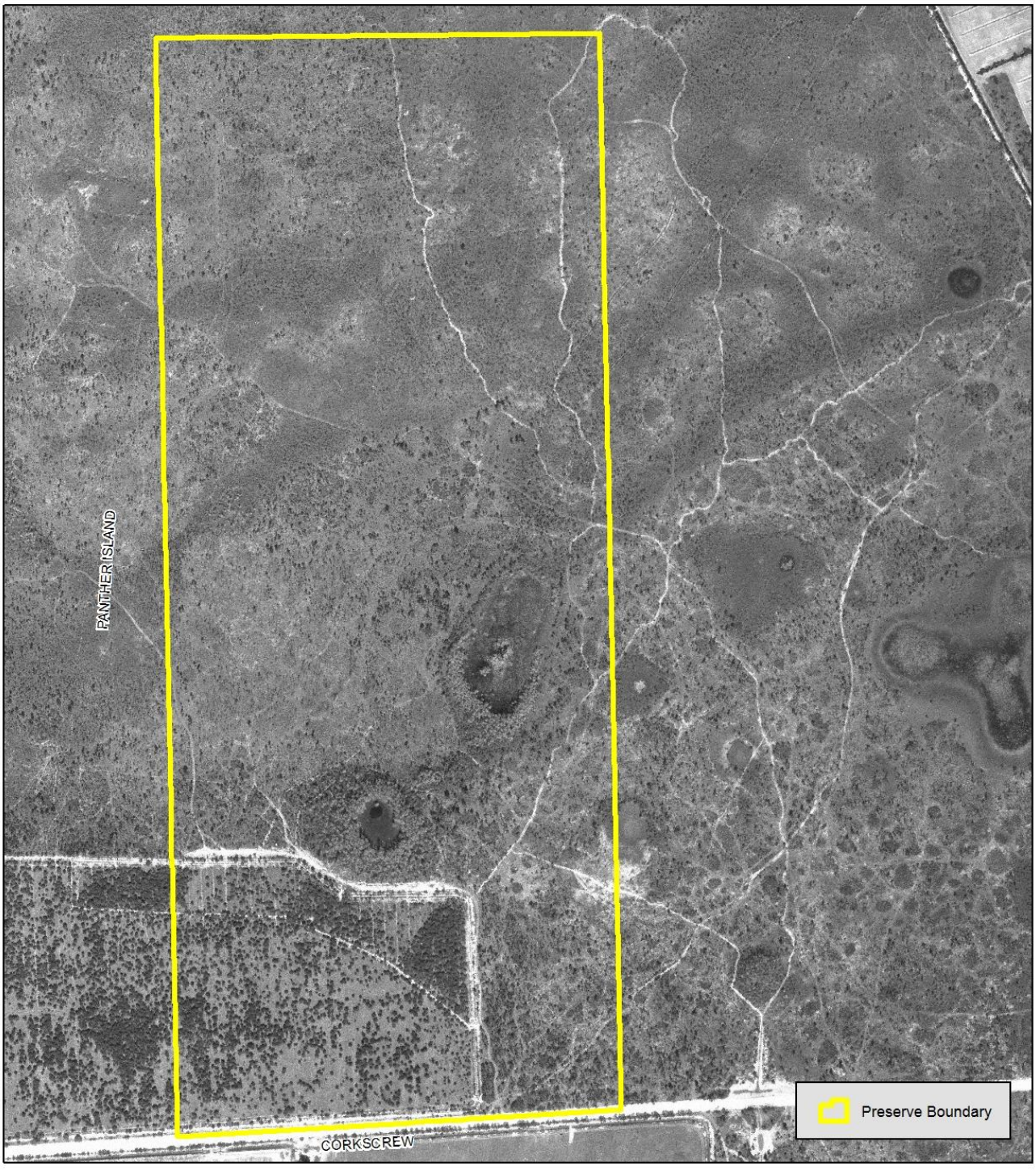

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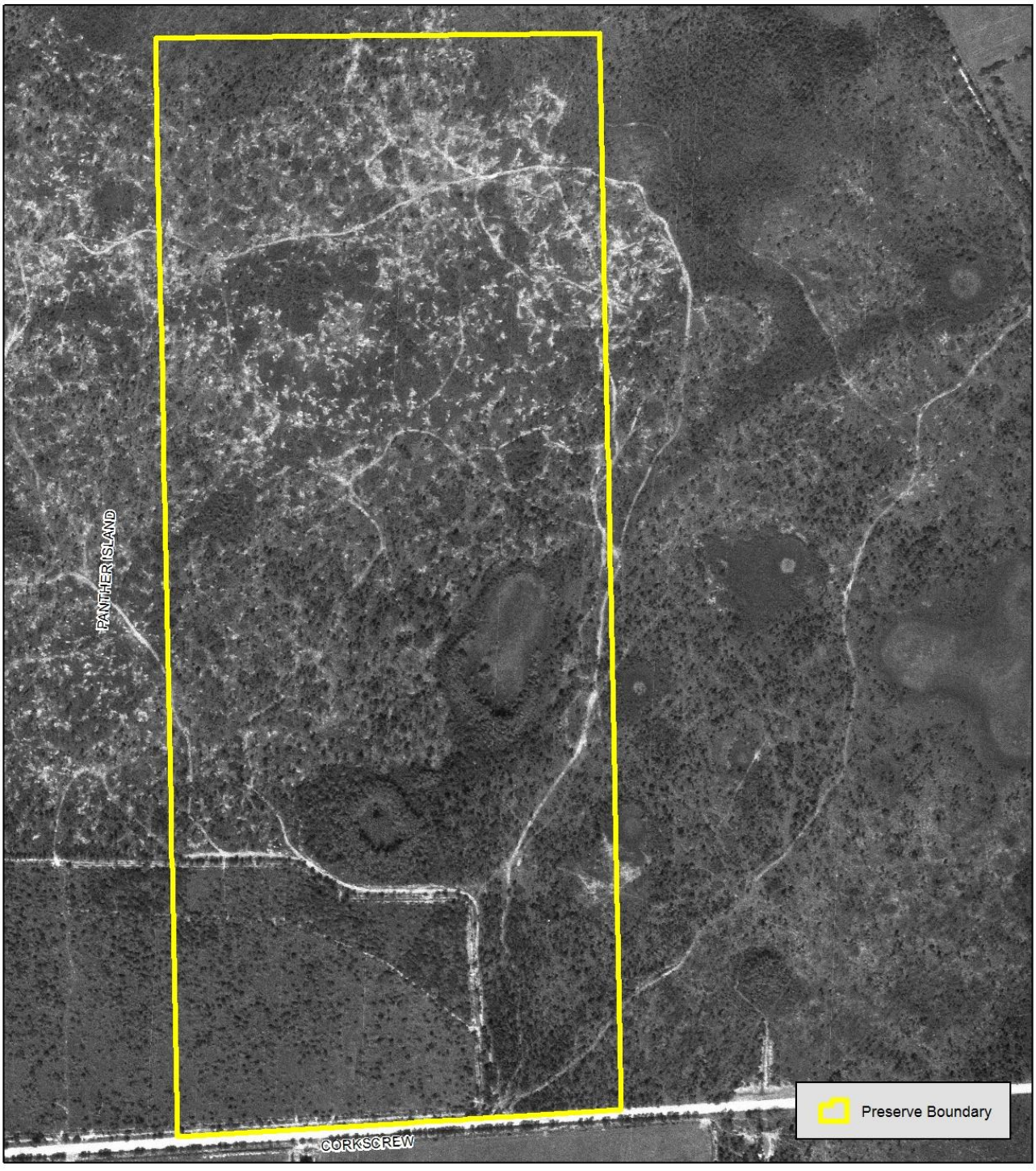
FIGURE 13: 1972 AERIAL



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

FIGURE 14: 1990 AERIAL

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LEE COUNTY Parks & Recreation

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

FIGURE 15: 2002 AERIAL

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LEE COUNTY Parks & Recreation

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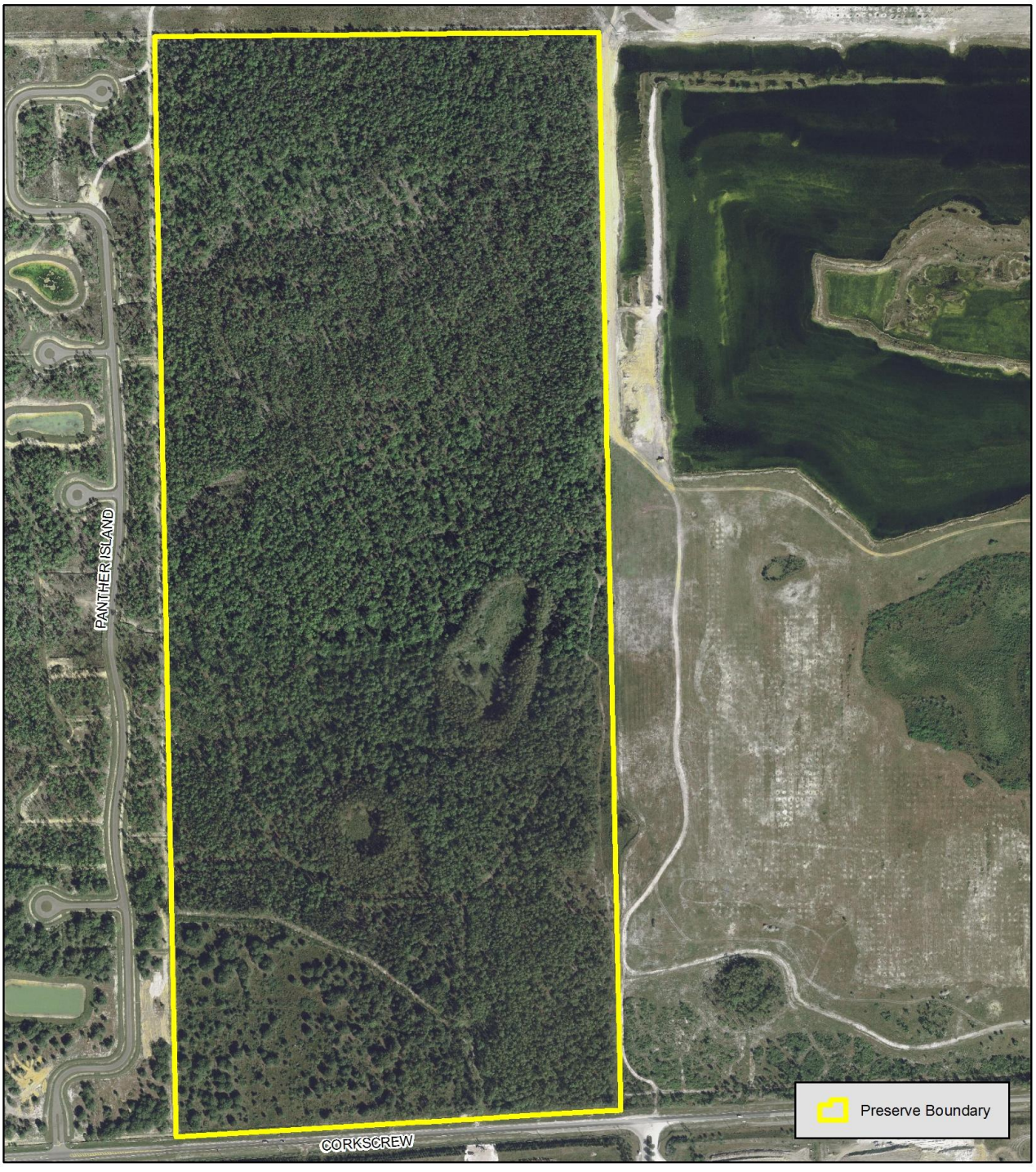
FIGURE 16: 2007 AERIAL



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LEE COUNTY Parks & Recreation

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

FIGURE 17: 2008 AERIAL

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Gator Hole Preserve

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CONSERVATION 20/20
LEE COUNTY Parks & Recreation

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

FIGURE 18: 2009 AERIAL

iii. Public Interest

GHP did not receive much public interest when it was first nominated to the program in 1997 or for several years after its acquisition. At the time of purchase, the site was in the final planning stages of obtaining a development order for the Panther Trace subdivision, which has been abandoned. More recently, the Preserve has been used as a regular site for special group field trips for Florida Gulf Coast University (FGCU) students and people interested in native plant diversity and birding. Currently, the Preserve does not have a safe place for vehicles to park, so visitors are typically limited to seeing the Preserve during an organized field trip. To lessen the opportunity for gopher tortoises to escape onto Corkscrew Road, there is no pedestrian walk through gate. Future parking will not be planned because it will not be allowed under the permit conditions.

V. FACTORS INFLUENCING MANAGEMENT

A. Natural Trends and Disturbances

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

B. Internal Influences

There are several internal influences that impact GHP. Many of their locations can be viewed in Figure 19.

There are portions of the Preserve where melaleuca trees were removed and left to rot on the ground. All of the Preserve has been burned at least one time, which has reduced the amount of slash, but of particular concern is the area between the two cypress domes, where heavy slash with thick grapevine (*Vitis rotundifolia)* intertwined between the logs. The slash continues to slowly decompose, but currently the area is difficult to cross on foot and can be hazardous to the burn team.

Several ditches were dug in association with the row crops on the southern portion of GHP (Figure 6). These ditches do not have a major impact on the hydrology of the Preserve and will not be plugged or filled. For more information refer to the Hydrology section.

In addition to the ditches, there is some concern of possible soil and ground water contamination from the previous agricultural activities. During BCI

Engineers & Scientists, Inc's Phase I ESA, no records for chemical or petroleum produce use, storage, mixing or disposal were found. BCI recommended a Phase II ESA be conducted with soil samples collected according to the Environmental Protection Agency Methods (BCI 2000). Since the fields have not been utilized since 1966 and there is no evidence of contamination, Land management staff has decided to forgo testing at this time. However, this decision may change in the future if any evidence appears.

There are two abandoned wells located in the southern portion of the Preserve. LCDNR Staff checked the wells, found them to be shallow water table wells and felt that no action was needed at this time (Fagan 2006).

One of the larger influences is that in cooperation LCDOT, 43 gopher tortoises were relocated to the Preserve in April and June 2006 under permits WR06067 and WR06067a (Appendix D). At the time, the tortoises were restricted to the southwest corner of the Preserve, Management Unit (MU) 7, because of the invasive exotic infestation and thick palmetto cover on the rest of the Preserve. In addition to fencing off that portion of the Preserve, several large dirt piles were scattered in the MU with the idea that the tortoises may use them to burrow. These piles remain and have been a problem as a source for invasive exotic plants. For three years, the tortoises had not used the "tortoise berms" but in 2008 there were tortoise burrows in two berms. For the most part, the tortoises prefer digging burrows in the historic berms adjacent to the ditches. In 2008 Land management staff removed the temporary fence to allow the tortoises access to the rest of the Preserve. An FGCU student conducted her research project on the relocated tortoises in 2007. There are still rebar markers adjacent to the burrows that were part of the study. C20/20 staff may want to contact the FGCU professor, Dr. Nora Demers, to see if these markers would be useful for a future research project or if they can be removed.

As of 2015, no additional gopher tortoises have been relocated to GHP, but now the entire Preserve is permitted by FWC #GTLR-13-00002B (Appendix E) for an additional 107 tortoises when there is a need for tortoises to be relocated from County infrastructure projects. To ensure the safety of the relocated tortoises, land management activities will be conducted to minimize any possible harm. If there is a need for heavy equipment, burrows will be flagged to warn operators of their location. Brush management activities, such as roller chopping will be conducted during cold weather, when the tortoises are most likely to be underground. Prescribed burning (with each unit being burned every 1-5 years) is a higher priority at this Preserve to help ensure open ground cover and plant diversity for the tortoises. Ideally, burning will be rotated as spring/summer and fall/winter burns to encourage the greatest density of plant species.

Finally, the majority of the Preserve lies within the well field protection zone for Lee County's Corkscrew Water Treatment Facility (Figure 20). Staff will need to be cautious with restoration work that takes place in this area. Additional details

about the regulations protecting these zones can be found in the Other Legal Constraints section.

FIGURE 19: INTERNAL INFLUENCES

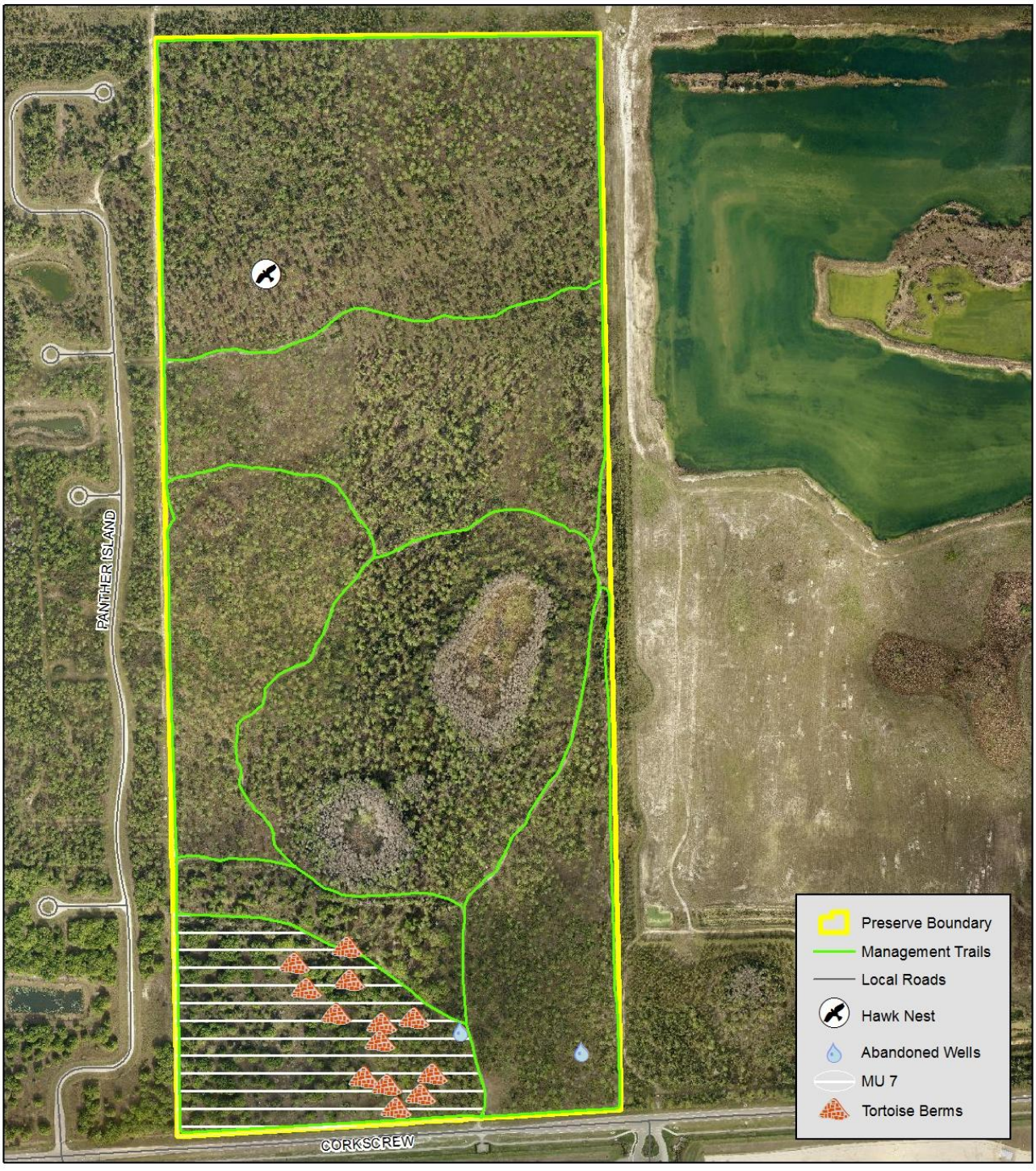
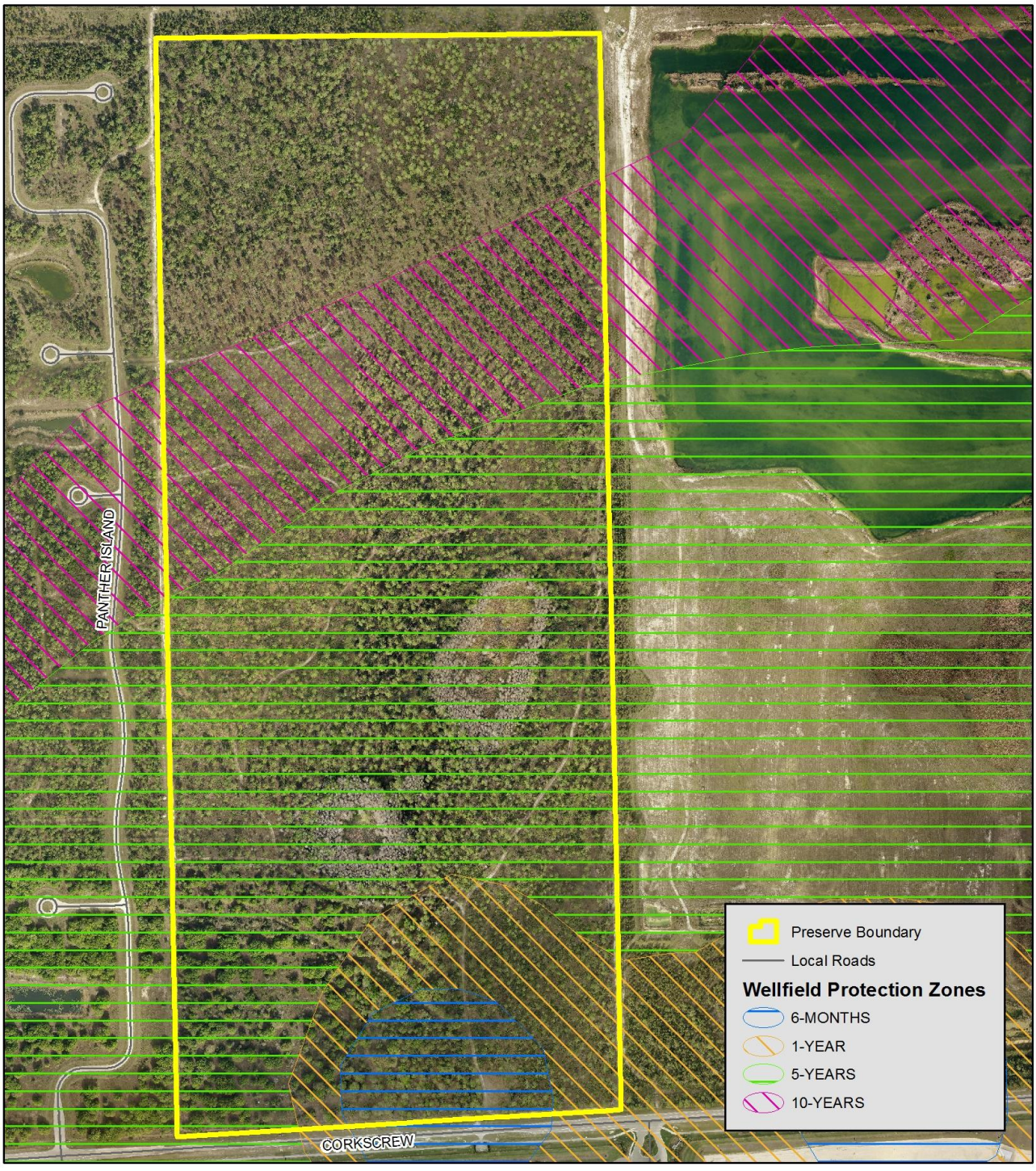


FIGURE 20: WELLFIELD PROTECTION ZONES



C. External Influences

GHP is located on the western side of the Southeast Lee County Planning Community, an area designated by the Lee County BOCC as one of the 22 planning communities designed to capture the unique character of this area of the county.

> "This community consists of regional mining operations, active and passive agricultural uses, public well fields and water treatment plants, significant contiguous tracts set aside for preservation, a private golf course, and very large lot residential home sites. Through the year 2030, Southeast Lee County will change dramatically. Mining pits will double in size as the northwest portion serves as the major supplier of lime rock aggregate for southwest Florida, an activity that continues to generate significant truck traffic especially on Alico Road. The remainder of Southeast Lee County will continue as the county's primary agricultural region and home to its largest (and still expanding) natural preserves. Residential and commercial development will not be significantly increased except in very limited areas where development rights are concentrated by this plan." (LCDCD 2014)

GHP is surrounded by mining operations that are currently zoned industrial as well as a small amount of single-family home sites directly to the west, and a new gated community directly to the south (Figure 21). As the development takes place, it will be increasingly challenging to conduct management activities. C20/20 staff will need to be proactive in working with individual homeowners and developments in education about the importance of prescribed burning and the protection of the Preserve.

A second external influence is the sporadic illegal public use of the Preserve, including littering, saw palmetto berry picking and damage to the chain-link fence. Protecting the boundaries from dumping, hunting and vehicular access will always be a priority for the Preserve. The chain-link fence will require regular maintenance to ensure it remains secure to keep the gopher tortoises inside the Preserve while keeping feral hogs out.

FIGURE 21: EXTERNAL INFLUENCES

D. Legal Obligations and Constraints

i. Permitting

Land management activities at GHP may involve obtaining permits from regulatory agencies. Burn authorization from FFS (Florida Forest Service) and the Estero Fire District are required for all prescribed burns. Although unlikely, any proposed hydrologic improvements may require obtaining permits from the Florida Department of Environmental Protection (FDEP), the U.S. Army Corps of Engineers (USACOE) and SFWMD. Hydrological and/or habitat restoration projects requiring heavy equipment or tree removal will require notification to the Lee County Department of Community Development (LCDCD).

Permits from the FWC (WR06067 and WR06067a – Appendix D and #GTLR13-0002B – Appendix E) have been obtained for gopher tortoise relocations at the Preserve. GHP is still permitted to receive an additional 107 tortoises.

The approval by FWC for a long term gopher tortoise recipient site for County projects requires the financial assurances be maintained for the habitat management and surveys to be conducted for vegetation monitoring as well as gopher tortoise population surveys. Both the vegetative and gopher tortoise surveys were conducted in June 2016 and submitted as required by the permit.

ii. Other Legal Constraints

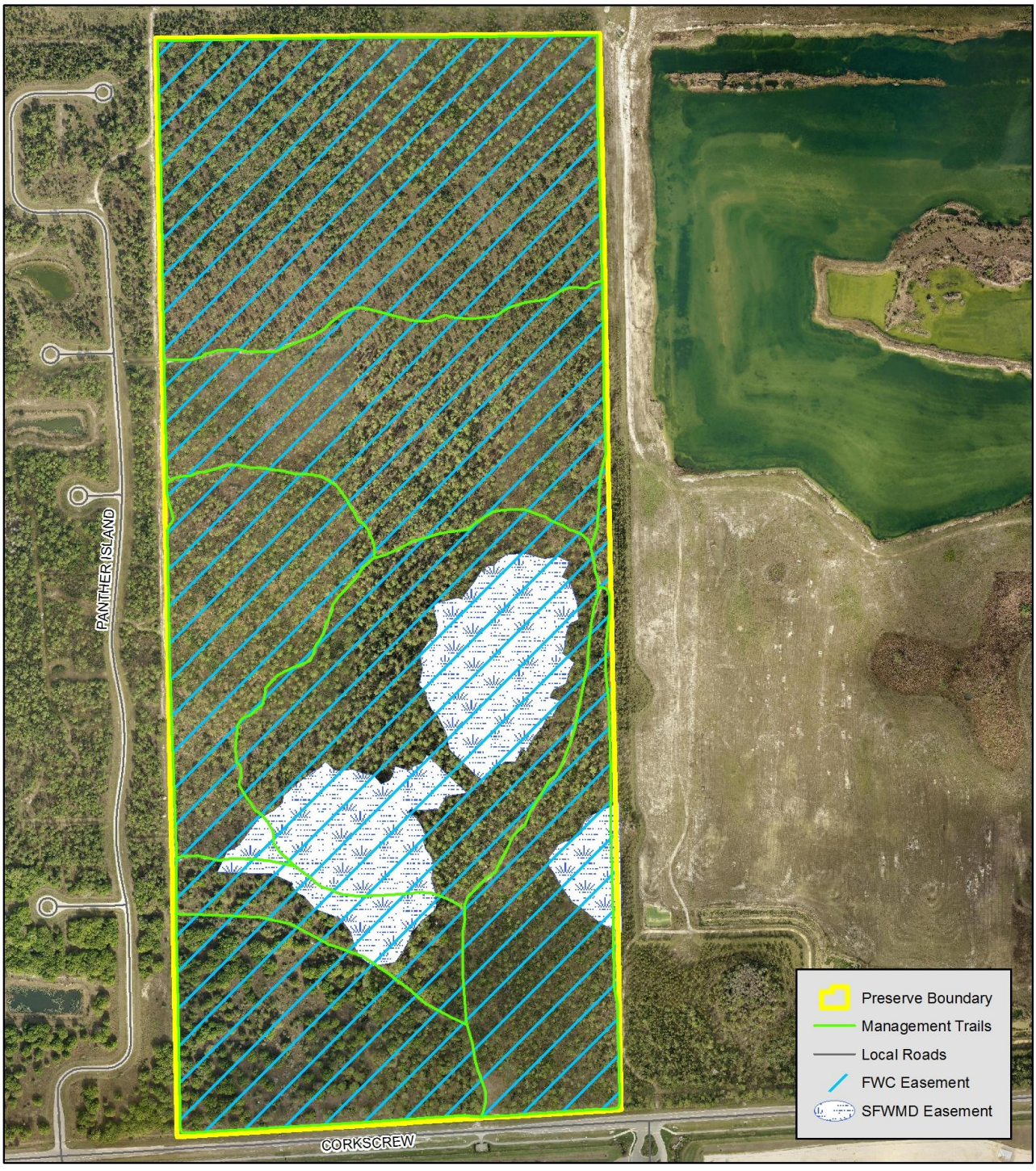
The Lee County Wellfield Protection Ordinance 95-01 establishes protection for the "existing public potable water supply wells from the potentially irreversible and adverse effects of bacterial and chemical contamination from abandoned wells and to control the storage, handling and use of hazardous or toxins substances within certain distance from well fields." The majority of GHP lies within one of the four Wellfield Protection Zones (Figure 20). Section 14-213 of Ordinance 95-01 delineates the specific regulated substances that are only to be used in limited quantities, if at all, in these protection zones and cannot be stored within these zones. It is unlikely that any of these chemicals (restricted-use pesticides, petroleum-based products, etc.) would be used for management activities at the Preserve. However, the Ordinance does provide a special exemption for the application of herbicides in recreation and aquatic weed control activities as long as certain guidelines (Section 14-209b) are followed. During any restoration activities, contractors or staff will be advised of the protection zone and provided a map, and will not be allowed to store any regulated substances (which includes petroleum based products) in the area.

There are two recorded conservation easements on GHP(Figure 22 and Appendices F and G). Richard K. Bennett, the previous owner, granted the first easement of approximately 20.5 acres to the SFWMD on October 10th, 1997. This easement consists of three separate wetland communities of the Preserve and the surrounding upland buffers. The purpose of the easement is to retain

and maintain both the land and water areas in their natural, vegetative, hydrologic and scenic condition, and to retain such areas as suitable habitat for fish, plants and wildlife. Prohibited activities include items such as building roads and other structures, removing native plants and any activities that might interfere with drainage, water conservation and fish and wildlife habitat preservation. A complete list is provided on pages 2-3 of the easement document. There are no conflicts with the easement and the restoration activities planned for the Preserve.

The second Conservation Easement, granted to FWC on April 12th, 2013 covers the entire Preserve and is one of the required conditions to legally allow the Preserve to be used for gopher tortoise relocations from public projects. The purpose of this easement is to ensure that the Preserve will continue to be protected and used as a conservation area, consistent with the Habitat Management Plan (Appendix H). Quest Ecology prepared the Habitat Management Plan for the Lee County Division of Public Works (LCDPW) in October 2012. It includes the following required habitat management activities: prescribed fires every 1-5 years, annual fire line maintenance, and annual treatment of invasive exotic plants. The plan also requires vegetation and burrow surveys every three years for the next 15 years to ensure the management activities are maintaining GHP under FWC's requirements for gopher tortoise relocation areas. Results of these surveys will be provided to FWC as per their requirements. C20/20 and LCDCD will work as partners to ensure that the habitat management goals are met. LCDPW or any other public entity using the Preserve as a gopher tortoise relocation site will be responsible for all costs for invasive exotic plant treatments as well as vegetation and burrow surveys. If the C20/20 staff is unable to conduct prescribed burns in the 1-5 year interval, contractors will be hired to ensure that the Preserve stays in compliance with the conservation easement.

FIGURE 22: EASEMENTS



N
W E
S

Gator Hole Preserve

0 250 500 1,000 1,500 Feet

CONSERVATION 20/20
LEE COUNTY Parks & Recreation

Path: M:\GISLAYERS\Projects\Parks_Rec\C2020\Gator Hole Preserve\GHP_management_plan\2016\GHP_Easements.mxd Saved: 4/17/2016

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

iii. Relationship to Other Plans

The Lee Plan, Lee County's comprehensive plan, is written to depict Lee County, as it will appear in the year 2030. Several themes have been identified as having "great importance as Lee County approaches the planning horizon" (LCDCD 2014). These themes are:

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

The entire Lee Plan is found on the Internet at: www.leegov.com/dcd/planning/leeplan. The sections of the Lee Plan, which may pertain to C20/20 preserves, have been identified in the LSOM.

E. Management Constraints

The principle stewardship constraints for GHP include limited funding, the brief dry season for stewardship activities and the responsibilities of maintaining the Preserve for the relocated gopher tortoises. To meet the funding needs, staff must allocate management money annually for ongoing maintenance and restoration activities. There is also a possibility that this funding source may be eliminated in the future. Therefore, efforts to obtain additional funding through grants and/or monies budgeted for mitigation of County infrastructure projects will be pursued. These funds will be used to supplement the operations budget to meet the restoration goals in a timely manner.

Portions of GHP have standing water for 6-8 months of the year. January though April are typically the driest months and management activities will typically need to be conducted in these months. If access is necessary for management when water levels are high, motorized vehicle travel will be minimized. Vehicles and other motorized equipment are discouraged from driving through wetland communities.

Prescribed burning is a critical management activity conducted at the Preserve. Currently, there is no housing adjacent to the Preserve and C20/20 staff contacts the surrounding mine owner when burns take place. Over the years an excellent relationship has been established and the staff has been given unrestricted access for equipment and personnel outside of the Preserve boundaries to help manage fires. The only current challenge is the chain-link fence surrounding the Preserve. This fence is part of the requirements for the gopher tortoise relocation permit. It is a more difficult fence to cross during a burn and typically

one or more ladders are brought out to allow staff to quickly access the adjacent properties. In the future, staff may want to consider installing one or more gates on the west and north boundaries to allow access for burns.

F. Public Access and Resource-Based Recreation

The majority of the historic recreation that occurred at GHP has been from unlawful trespassers. In decades past, the Preserve was utilized for agricultural farming and the associated fencing prevented most of the general public from entering. Since Lee County has purchased the Preserve, new fencing was installed. However, evidence of both hunting and saw palmetto berry picking continues to be documented. The Parks and Recreation Ordinance, 02-12 (www.leegov.com/bocc/Ordinances/02-12.pdf) prohibits both of these activities.

Currently, GHP is classified as a Resource Protection Preserve. As with all designated Resource Protection Preserves, "if there is a public interest, staff may provide guided field trips when there are no safety concerns and it is compatible with protecting the animals and plant communities found at the specific preserve."

During occasional guided walks, staff and/volunteers leading the walks open the gate onto Corkscrew Road so that attendees can park inside the cleared area immediately inside the gate.

G. Acquisition

GHP (STRAP # 21-46-26-00-00001.1000) was purchased through C20/20 in February 2000 for $3,000,000 after being nominated to the program in the fall of 1997. Figure 23 shows the location of five nominations near GHP. Four parcels near GHP were nominated to the C20/20, but were subsequently withdrawn and the Conservation Lands Acquisition and Stewardship Advisory Committee (CLASAC) did not select nomination #112 for consideration.

The Preserve's Future Land Use is Conservation Lands (Figure 24) and the Zoning is Environmentally Critical (Figure 25). Legal description can be found in Appendix I.

FIGURE 23: ACQUISITION AND NOMINATIONS

VI. Management Action Plan

A. Management Unit Descriptions

GHP has been divided into seven MUs to better organize and achieve management goals. Figure 24 delineates the units that were created primarily based on existing management trails. Acreage for all units has been rounded to the nearest tenth of an acre.

- Management Unit 1

  MU 1 is 46.3 acres and is located on the north boundary of the Preserve. This unit is primarily mesic flatwoods. There is a narrow band along the east side of the MU that has historic problems with a wide variety of invasive exotic plants including: lead tree (*Leucaena leucocephala*), earleaf acacia (*Acacia auriculiformis*), and air potato (*Dioscorea bulbifera*). Small, scattered patches of cogongrass (*Imperata cylindrica*) have also been found and treated in this unit. This unit is at a maintenance level for invasive exotic plants and was burned in 2010, 2012, and 2016.

- Management Unit 2

  MU 2 is 29.1 acres and is located on the north portion of the Preserve. This unit is a mix of wet and mesic flatwoods. Small, scattered patches of cogongrass have been found and treated in this unit. This unit is at a maintenance level for invasive exotic plants and was burned in 2011 and 2014.

- Management Unit 3

  MU 3 is 18.5 acres and is located in the central portion of the Preserve on the west boundary. This unit is primarily mesic flatwoods. Small, scattered patches of cogongrass have also been found and treated on the north side of this unit. This unit is at a maintenance level for invasive exotic plants and was burned in 2008, 2011 and 2014.

- Management Unit 4

  MU 4 is 35.6 acres and is located in the central portion of the Preserve. This unit contains the two large dome swamps surrounding depression marshes. This unit is at a maintenance level for invasive exotic plants, except for the depression marshes that have a considerable amount of torpedo grass and West Indian marsh grass. This unit was burned in 2011 and 2014.

- Management Unit 5

  MU 5 is 18.9 acres and is located on the southeast corner of the Preserve. This unit is primarily mesic flatwoods. It contains one of the abandoned wells and small ditch. This unit is at a maintenance level for invasive exotic plants. A large cogongrass patch was found and treated on the west side of this unit. This unit was burned in 2013.

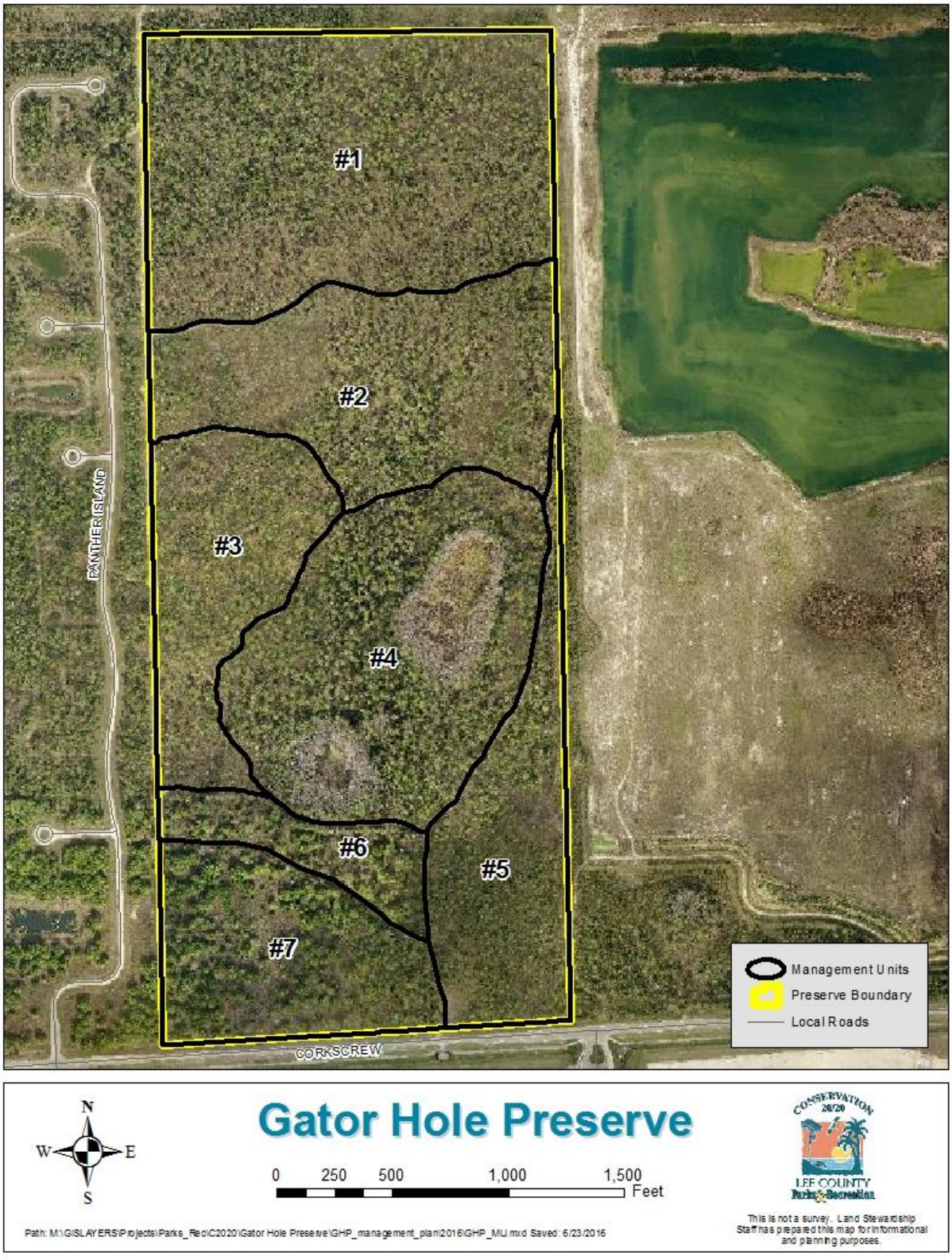
- Management Unit 6

  MU 6 is 7.5 acres and is located in the southwest portion of the Preserve. This unit is fallow cropland that has changed into a pine – oak successional forest. The north and east boundaries of this unit are delineated by a ditch and berm from the historic agricultural activities. This unit is at a maintenance level for invasive exotic plants. This unit was burned in 2012.

- Management Unit 7

  MU 7 is 19.2 acres and is located in the southwest corner of the Preserve. This unit is also fallow cropland that has changed into a pine – oak successional forest and has the same ditch and berms on the north and east boundaries. This unit contains the other abandoned well in the northeast corner. MU 7 was the temporary location for the 43 relocated gopher tortoises. This unit is at a maintenance level for invasive exotic plants. This unit was burned in 2003 and 2012.

FIGURE 24: MANAGEMENT UNITS



B. Goals and Strategies

While the following are long-term goals for the Preserve, funding is currently not available to conduct all of these activities.

Natural Resource Management

- ✓ Exotic plant maintenance
- ✓ Prescribed fire management
- ✓ Maintain fire breaks
- ✓ Monitor and protect listed species
- ✓ Exotic and feral animal removal

Overall Protection

- ✓ Debris removal and prevention of dumping
- ✓ Boundary sign maintenance
- ✓ Fence maintenance

Volunteers

- ✓ Assist volunteer group

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

Natural Resource Management

Exotic plant maintenance

With the exception of the two depression marshes in the center of the cypress domes, the entire Preserve has had initial and at least one maintenance treatment for invasive exotic plants. In the future, the most current FLEPPC's List of Invasive Species will be consulted in determining the invasive exotic plants to be treated in each management unit. The goal is to keep the entire Preserve at a maintenance level, defined as less than 5% invasive exotic plant coverage, and to treat the depression marshes so that they are also at a <5% coverage of invasive exotic plants.

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

Since the Preserve is at a maintenance level for exotics, hand removal work crews will be used for control. Specific methodology will depend on stem size, plant type, season, and location within a plant community. Generally the stem will be cut near the ground and the stump will be sprayed with appropriate

herbicide, or a foliar application will be applied to the entire plant. Hand pulling will be utilized when possible with appropriate species in order to minimize herbicide use. Basal bark treatment may be used in some situations as will foliar broadcast spraying of some grasses.

Prescribed fire management

GHP's burn units are the same as the MUs (Figure 24) and are on a 1-5 year burn rotation. A prescribed fire program has been implemented to mimic the natural fire regime for the different plant communities to increase plant diversity and ensure tree canopies remain open. Prescribed fire may be utilized for exotic plant control of seedling/sapling in areas previously treated.

The timing of prescribed burning will be influenced by seasonal rain, staff and equipment availability, listed species requirements and wind patterns. The Estero Fire District must meet with the burn boss to provide a permit for burning in their district. At this time, the only adjacent neighbor to contact before a burn is the Youngquist Brothers Rock Mine. In the past they have provided access to the future development immediately to the west of the Preserve.

Maintain firebreaks

Firebreaks have been installed and are maintained annually by staff.

Monitor and protect listed species

The listed species of primary concern at GHP is the gopher tortoise. There are several requirements of the FWC permits and conservation easement that must be followed to continue to protect this species and maintain or improve the habitat including:

- Maintain canopy at <40%
- Maintain herbaceous groundcover at >50%
- Maintain firebreaks annually
- Continue annual nuisance exotic species control
- Utilize prescribed fire at a 1-5 year return interval
- Vegetation and gopher tortoise burrow monitoring every 3 years

The majority of management goals will be accomplished through prescribed burning and exotic plant maintenance treatments. Quest Ecology last conducted the vegetation and gopher tortoise surveys in 2012 and established fourteen permanent transects for the tortoise surveys and four transects for vegetation monitoring. These monitoring events are to be conducted every three years for the next 15 years. Surveys are to be conducted using FWC approved methodologies and the results are to be provided to FWC. Recent surveys were completed in 2016 and submitted to FWC.

There are several listed species that have been documented on the Preserve including Big Cypress fox squirrels, Florida panthers, and Catesby lilies. These species will benefit from continued exotic plant control and prescribed burns. During stewardship activities, efforts will be made to minimize negative impacts to listed species.

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

Exotic and feral animal removal

The exotic species that land management staff is primarily concerned with is feral hogs. Hogs currently are found occasionally on the preserve, but when signs are found, the county's hog trapper is notified so the hogs can be removed. Removing all hogs is an unreasonable goal; therefore a control program will need to be continuous on a long-term basis. If practical, a methodology will be established and implemented against other unwanted exotic animal species. Lee County has approved both contracted permit hunting and trapping as acceptable methods of hog removal on C20/20 preserves utilizing licensed contractors. The preserve will be closed to the public with access gates being locked during these hunts.

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

Overall Protection

Debris removal and prevent dumping

Debris removal will be an ongoing project at GHP. During site inspections, small objects that are encountered will be removed. C20/20 Rangers will also assist with removing small items when they are on patrol at the Preserve. All of the larger debris mentioned in the first edition of the GHP Stewardship Plan has been removed.

Boundary sign maintenance

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

Fence maintenance

During tri-annual site inspections, regular ranger patrols and other visits to the Preserve staff will check on the fence and repair areas that have been damaged and/or stretched by wildlife, people and vehicles. Contractors may need to be hired to repair more serious damage.

Volunteers

Assist volunteer group

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.*

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

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

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

C. Management Work to Date

Department of Correction crews initially conducted invasive exotic plant control in 2001. The crews focused on scattered melaleuca trees which they cut, treated the stumps with herbicide, and left the trees to decompose in the woods.

In 2003, a contractor was hired to mulch in place the large melaleuca monoculture on the north boundary of MU 7 to create a fire line. Later that year the first prescribed fire was conducted at GHP in MU 7 in preparation for gopher tortoises to be relocated on the Preserve.

In April and June of 2006, the first gopher tortoise relocation took place at GHP in MU 7. To prepare for the tortoises, a hog trapper was contracted, invasive exotic plants were removed, small oaks and other shrubs were cut down, buried chain link fence was installed on the south boundary of the Preserve and the west side of MU 7, and a partially buried chicken wire/silt fence was installed around the rest of the MU. In addition to the work focusing on MU 7, staff and volunteers treated a wide variety of invasive exotic plants in the northeast corner of the Preserve.

In 2007, C20/20 staff began working with LCDOT to improve the rest of the Preserve for the eventual release of gopher tortoises from MU 7. All of the thick palmetto was mulched or roller chopped from MUs 3-5, scattered large melaleuca trees were removed, and the pine trees were thinned.

In 2008, a timber company logged 119 acres, removing and mulching all the remaining melaleuca. Pine tree thinning had been planned, but once the melaleuca was removed it was not necessary. After this work was complete, contractors installed buried chain link fencing around the rest of the Preserve and C20/20 staff and volunteers had several workdays to remove the temporary fencing holding the gopher tortoises in MU 7. The contractors also poured concrete eighteen inches under the preserve gates to ensure the tortoises would not be able to dig under the gates. During 2008, staff also had to remove the old barbed wire fence that had been left up after the chain link fence was installed. Unfortunately, more than one white-tailed deer had gotten trapped between the two fences. Staff and volunteer also spent several days treating ceasarweed that was growing in thick monocultures in the areas where the logging crews had worked. Later that year, C20/20 received two grants from the Bureau of Invasive Plant Management that paid to have contractors treat all of the melaleuca stumps and all other FLEPPC plants in the entire Preserve. Towards the end of 2008, a prescribed fire was conducted on MU 3.

In 2009, scattered patches of cogongrass were discovered and subsequently treated by C20/20 staff and volunteers in MUs 1, 2, 3 and 5, and were controlled.

In 2010, a prescribed fire was conducted on MU1. Later that year, C20/20 staff and volunteers treated invasive exotics in this MU.

In 2011, prescribed fires were conducted on MU 2, 3 and 4 and contractors that were hired by LCDOT conducted an invasive exotic sweep of the entire Preserve.

In 2012, prescribed fires were conducted on MU 1, 6 and 7 and contractors that were hired by LCDOT conducted two additional invasive exotic plant sweeps.

In 2013, a prescribed fire was conducted on MU 5.

In 2014, prescribed fires were conducted on MU 2, 3 and 4.

In 2016, a prescribed fire was conducted on MU 1 as well as required vegetative and gopher tortoise surveys were conducted on the established transects.

Annual exotic plant maintenance occurs to maintain less than 5% exotic coverage throughout the Preserve.

VII. PROJECTED TIMETABLE FOR IMPLEMENTATION

Prioritized Projected Timetable for Implementation of the Management Action Plan (March 2016 – September 2020)

Management Activity	Mar-16	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Sep-19	Dec-19	Mar-20	Jun-20	Sep-20
Natural Resource Management																			
Exotic plant control maintenance				X				X				X				X			
Conduct prescribed burn	Any time when weather and soil moisture conditions are suitable. Goal of burning MUs 1-7 every 1-5 years.																		
Maintenance (on-going or annual)																			
Fire breaks/trails - mow/disk				X				X				X				X			
Vegetation and gopher tortoise surveys			X												X				
Exotic or feral animal removal	If needed	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Overall Protection																			
Small debris removal	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Boundary sign maintenance	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Fence maintenance	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Volunteers																			
Assist volunteer group	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→

Timetable 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.

VIII. FINANCIAL CONSIDERATIONS

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

LCDPW funds will be used to continue with exotic plan maintenance and monitoring requirements for the FWC permit. If other public entities outside of Lee County request to relocate gopher tortoises at GHP, they will be required to help pay proportionally for the maintenance of the Preserve and will be responsible for all monitoring and any additional requirements under their relocation permit.

Other possible funding for continued exotic plant removal and restoration projects might be requested through grants from agencies such as SFWMD, FDEP, FWC, and USFWS. Projected costs and funding sources are listed in Appendix J.

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X. APPENDICES

Appendix A: GHP Soils Table

Appendix B: Plant Species

Appendix C: Wildlife Species

Appendix D: FWC Permits WR06067 and WR06067a

Appendix E: FWC Permit GTLR-13-00002B

Appendix F: SFWMD Conservation Easement

Appendix G: FWC Conservation Easement

Appendix H: Habitat Management Plan

Appendix I: Legal Description

Appendix J: Expended and Projected Costs and Funding Sources

Appendix A: GHP Soils Table

					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--**				**Limitations for Recreational Paths & Trails**
												Openland	**Woodland**	**Wetland**	**Rangeland**	
Boca Fine Sand	13	46.9	27%	South Florida flatwoods		B/D	rapid	rapid	2-4 months	6 months	1-3%	fair	poor	fair	good	Severe: wetness, too sandy
Felda Fine Sand, Depressional	49	13.1	7%	freshwater marshes/ponds	P	B/D	rapid	rapid	3-6+ months (ponded)	4-6 months	.5-6%	very poor	very poor	good	--	Severe: ponding, too sandy
Hallendale Fine Sand	6	42.2	24%	South Florida flatwoods		B/D	moderately rapid	rapid	1-3 months	7 months	2-5%	poor	poor	fair	poor	Severe: wetness, too sandy
Pineda Fine Sand	26	71.5	41%	slough	S	B/D	rapid	rapid	2-4 months	> 6 months	.5-6%	fair	poor	fair	--	Severe: wetness, too sandy
Pineda Fine Sand, Depressional	73	1.7	1%	freshwater marshes/ponds	P	D *	rapid	rapid	3-6+ months (ponded)	4-6 months	.5-6%	very poor	very poor	good	--	Severe: ponding, too sandy

Color Key:

Wet
Wetter
Wettest

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

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

Appendix B: Plant Species List for Gator Hole Preserve

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

Scientific Name	Common Name	native/ exotic	EPPC	FDACS	IRC	FNAI
Family: Blechnaceae (mid-sorus fern)						
Blechnum serrulatum	swamp fern	native				
Woodwardia virginica	Virginia chain fern	native			R	
Family: Dennstaedtiaceae (cuplet fern)						
Pteridium aquilinum var. *caudatum*	lacy bracken fern	native				
Family: Nephrolepidaceae (sword fern)						
Nephrolepis biserrata	giant sword fern	native		T	R	
Nephrolepis exaltata	sword fern	native				
Family: Osmundaceae (royal fern)						
Osmunda regalis var. spectabilis	royal fern	native		CE	R	
Family: Polypodiaceae (polypody)						
Campyloneurum phyllitidis	long strap fern	native			R	
Phlebodium aureum	golden polypody	native				
Pleopeltis polypodioides var. michauxiana	resurrection fern	native				
Family: Psilotaceae (whisk-fern)						
Psilotum nudum	whisk-fern	native				
Family: Pteridaceae (brake fern)						
Pteris vittata	Chinese ladder brake	exotic	II			
Family: Thelpteridaceae (marsh fern)						
Thelypteris kunthii	southern shield fern	native				
Family: Vittariaceae (shoestring fern)						
Vittaria lineata	shoestring fern	native				
Family: Cupressaceae (cedar)						
Taxodium ascendens	pond cypress	native				
Taxodium distichum	bald cypress	native				
Family: Pinaceae (pine)						
Pinus elliottii	south Florida slash pine	native				
Family: Alismataceae (water plantain)						
Sagittaria graminea	grassy arrowhead	native				
Sagittaria lancifolia subsp. lancifolia	bulltongue arrowhead	native				
Family: Alliaceae (garlic)						
Nothoscordum bivalve	crowpoison	native				
Family: Amaryllidaceae (amaryllis)						
Zephyranthes simpsonii	redmargin zephyrlily	native		T	I	G2G3/S2
Family: Apiaceae (carrot)						
Eryngium yuccifolium	button rattlesnakemaster	native				
Family: Arecaceae (palm)						
Serenoa palmetto	cabbage palm	native				
Serenoa repens	saw palmetto	native				
Family: Bromeliaceae (pineapple)						
Tillandsia fasciculata var. densispica	cardinal airplant	native		E		
Tillandsia recurvata	ball-moss	native				
Tillandsia setacea	southern needleleaf	native				
Tillandsia usneoides	Spanish-moss	native				
Tillandsia utriculata	giant airplant	native		E	CI	

Appendix B: Plant Species List for Gator Hole Preserve

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

Scientific Name	Common Name	native/ exotic	EPPC	FDACS	IRC	FNAI
Family: Cyperaceae (sedge)						
Carex verrucosa	warty sedge	native			CI	
Cladium mariscoides	swamp sawgrass	native				
Cyperus esculentus	yellow nutgrass	exotic				
Cyperus haspan	haspan flatsedge	native				
Cyperus surinamensis	tropical flatsedge	native				
Eleocharis geniculata	Canada spikerush	native				
Eleocharis interstincta	knotted spikerush	native				
Eleocharis montevidensis	sand spikerush	native			CI	
Fimbristylis caroliniana	Carolina fimbry	native			I	
Fimbristylis cymosa	hurricanegrass	native				
Fuirena pumila	dwarf umbrellasedge	native			I	
Fuirena scirpoidea	southern umbrellasedge	native			R	
Rhynchospora baldwinii	Baldwin's beaksedge	native				
Rhynchospora colorata	starrush whitetop	native				
Rhynchospora globularis	globe beaksedge	native			I	
Rhynchospora innundata	narrowfruit horned beaksedge	native			R	
Rhynchospora microcarpa	southern beakrush	native			R	
Rhynchospora fascicularis	fascicled beaksedge	native			R	
Scleria georgiana	slenderfruit nutrush	native			I	
Sceleria reticularis	netted nutrush	native			R	
Scleria triglomerata	tall nutgrass	native			R	
Family: Dioscoreaceae (yam)						
Dioscorea bulbifera	air potato	exotic	I			
Family: Eriocaulaceae (pipewort)						
Eriocaulon decangulare	ten-angled pipewort	native			R	
Lachnocaulon ancepts	whitehead bogbutton	native			R	
Syngonanthus flavidulus	yellow hatpins	native			R	
Family: Haemodoraceae (bloodwort)						
Lachnanthes caroliana	redroot	native				
Family: Hypoxidaceae (yellow stargrass)						
Hypoxis juncea	fringed yellow stargrass	native				
Family: Iridaceae (iris)						
Sisyrinchium angustifolium	narrowleaf blue-eyed grass	native			R	
Family: Juncaceae (rush)						
Juncus marginatus	shore rush	native			R	
Juncus megacephalus	bighead rush	native			R	
Family: Liliaceae (lily)						
Lilium catesbaei	pine lily	native		T	I	
Family: Marantaceae (arrowroot)						
Thalia geniculata	alligatorflag, fireflag	native				
Family: Nartheciaceae (bog asphodel)						
Aletris lutea	yellow colicroot	native			R	

Appendix B: Plant Species List for Gator Hole Preserve

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

Scientific Name	Common Name	native/ exotic	EPPC	FDACS	IRC	FNAI
Family: Orchidaceae (orchid)						
Bletia purpurea	pinepink	native		T	R	
Calapogon pallidus	pale grasspink	native			I	
Encyclia tampensis	Florida butterfly orchid	native		CE		
Eulophia alta	wild coco	native				
Habenaria floribunda	toothpedal false reinorchid	native				
Habenaria quinqueseta	longhorn false reinorchid	native				
Pteroglossaspis ecristata	giant orchid	native		T	I	G2G3/S2
Sacoila lanceolata	leafless beaked ladiestresses	native				
Spiranthes longilabris	longlip ladiestresses	native		T	I	
Spiranthes praecox	greenvein ladiestresses	native			CL	
Family: Poaceae (grass)						
Amphicarpum muhlenbergianum	blue maidencane	native			R	
Andropogon virginicus	chalky bluestem	native			I	
Andropogon glomeratus var. glaucopsis	purple bluestem	native			R	
Andropogon glomeratus var. pumilus	common bushy bluestem	native				
Andropogon gyrans	Elliott's bluestem	native			I	
Andropogon virginicus var. virginicus	broomsedge bluestem	native			I	
Aristida purpurascens	arrowfeather threeawn	native				
Aristida spiciformis	bottlebrush threeawn	native			R	
Aristida stricta	wiregrass	native				
Axonopus fissifolius	common carpetgrass	native			R	
Axonopus furcatus	big carpetgrass	native				
Dactyloctenium aegyptium	durban crowfootgrass	exotic				
Dichanthelium aciculare	needleleaf witchgrass	native				
Dichanthelium ensifolium	cypress witchgrass	native			I	
Dichanthelium ovale	eggleaf witchgrass	native			R	
Dichanthelium strigosum var. glabrescens	roughhair witchgrass	native				
Digitaria ciliaris	southern crabgrass	native				
Echinochloa walteri	coast cockspur	native				
Eleusine indica	Indian goosegrass	exotic				
Elionurus tripsacoides	pan-American balsamscale	native			I	
Eustachys glauca	saltmarsh fingergrass	native				
Eustachys petraea	pinewoods fingergrass	native				
Hymenachne amplexicaulis	West Indian marsh grass	exotic	I			
Imperata cylindrica	cogongrass	exotic	I			
Muhlenbergia capillaris var. filipes	gulf hairawn muhle	native				
Panicum hemitomon	maidencane	native				
Panicum hians	gaping panicum	native			R	
Panicum maximum	Guinea grass	exotic	II			
Panicum repens	torpedograss	exotic	I			
Panicum rigidulum	redtop panicum	native				
Paspalum caespitosum	blue crowngrass	native				
Paspalum monostachyum	gulfdune paspalum	native			R	
Paspalum notatum	bahiagrass	exotic				
Paspalum urvillei	vaseygrass	exotic				
Rhynchelytrum repens	rose natalgrass	exotic			I	
Setaria macrosperma	coral bristlegrass	native			R	

Appendix B: Plant Species List for Gator Hole Preserve

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

Scientific Name	Common Name	native/ exotic	EPPC	FDACS	IRC	FNAI
Setaria parviflora	yellow bristlegrass	native				
Sorghastrum secundum	lopsided indiangrass	native				
Sporobolus indicus	smutgrass	exotic				
Sporobolus junceus	pineywoods dropseed	native				
Family: Pontederiaceae (pickerelweed)						
Pontederia cordata	pickerelweed	native				
Family: Smilacaceae (smilax)						
Smilax auriculata	earleaf greenbriar	native				
Family: Xyridaceae (yelloweyed grass)						
Xyris elliottii	Elliott's yelloweyed grass	native			R	
Xyris smalliana	Small's yelloweyed grass	native			I	
Family: Acanthaceae (acanthus)						
Ruellia caroliniensis	Carolina wild petunia	native			I	
Ruellia ciliosa	clilate wild petunia	native				
Stenandrium dulce	sweet shaggytuft	native			R	
Family: Amaranthaceae (amaranth)						
Alternanthera sessilis	sessile joyweed	exotic				
Iresine diffusa	juba's bush	native				
Family: Anacardiaceae (cashew)						
Rhus copallinum	winged sumac	native				
Schinus terebinthifolius	Brazilian pepper	exotic	I			
Toxicodendron radicans	poison ivy	native				
Family: Annonaceae (custard-apple)						
Annona glarbra	pond apple	native				
Asimina reticulata	netted pawpaw	native				
Family: Apiaceae (carrot)						
Eryngium yuccifolium	button rattlesnakemaster	native			R	
Oxypolis filiformis subsp. filiformis	water cowbane	native				
Ptilimnium capillaceum	mock bishopsweed	native				
Family: Apocynaceae (dogbane)						
Asclepias longifolia	longleaf milkweed	native			R	
Family: Aquifoliaceae (holly)						
Ilex cassine var. *cassine*	dahoon	native				
Ilex glabra	gallberry	native				

Appendix B: Plant Species List for Gator Hole Preserve

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

Scientific Name	Common Name	native/ exotic	EPPC	FDACS	IRC	FNAI
Family: Asteraceae (aster)						
Ambrosia artemisiifolia	common ragweed	native				
Baccharis glomeruliflora	silverling	native				
Baccharis halimifolia	saltbush, groundsel tree	native				
Bidens alba	beggarticks	native				
Bigelowia nudata	rayless goldenrod	native			R	
Chaptalia tomentosa	pineland daisy	native				
Cirsium horridulum	purple thistle	native				
Cirsium nuttallii	Nuttall's thistle	native			I	
Conoclinium coelestinum	blue mistflower	native				
Conyza canadensis var. pusilla	dwarf Canadian horseweed	native				
Coreopsis leavenworthii	Leavenworth's tickseed	native				
Elephantopus elatus	tall elephantsfoot	native			R	
Emilia fosbergii	Florida tasselflower	exotic				
Erechtites hieraciifolius	fireweed	native				
Erigeron quercifolius	oakleaf fleabane	native				
Erigeron vernus	early whitetop fleabane	native			R	
Eupatorium capillifolium	dogfennel	native				
Eupatorium leptophyllum	falsefennel	native			R	
Eupatorium mikanioides	semaphore thoroughwort	native			R	
Eupatorium mohrii	Mohr's thoroughwort	native			R	
Euthamia graminifolia	flattop goldenrod	native				
Flaveria floridana	Florida yellowtop	native			I	
Flaveria linearis	narrowleaf yellowtops	native				
Hieracium megacephalon	coastalplain hawkweed	native				
Liatris chapmanii	Chapman's gayfeather	native			R	
Liatris garberi	Garber's gayfeather	native			I	
Liatris gracilis	slender gayfeather	native			R	
Liatris spicata	dense gayfeather	native			I	
Liatris tenuifolia	shortleaf gayfeather	native			R	
Lygodesmia aphylla	rose-rush	native				
Mikania scandens	climbing hempvine	native				
Pityopsis graminifolia	narrowleaf silkgrass	native				
Pluchea odorata	sweetscent	native				
Pluchea rosea	rosy camphorweed	native				
Pterocaulon pycnostachyum	blackroot	native				
Rudbeckia hirta	blackeyed Susan	native			R	
Solidago fistulosa	pinebarren goldenrod	native			R	
Solidago sphacelata	false goldenrod	native				
Sphagneticola trilobata	creeping oxeye (wedelia)	exotic	II			
Symphyotrichum adnatum	scaleleaf aster	native				
Symphyotrichum carolinianum	climbing aster	native			R	
Symphyotrichum fontinale	eastern silver aster	native				
Vernonia blodgettii	Florida ironweed	native			R	
Family: Boraginaceae (borage)						
Heliotropium polyphyllum	pineland heliotrope	native				
Family: Campanulaceae (bellflower)						
Lobelia glandulosa	glade lobelia	native				
Lobelia paludosa	white lobelia	native			I	

Appendix B: Plant Species List for Gator Hole Preserve

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

Scientific Name	Common Name	native/ exotic	EPPC	FDACS	IRC	FNAI
Family: Chrysobalanaceae (coco plum)						
Licania michauxii	gopher apple	native				
Family: Clusiaceae (mangosteen)						
Hypericum brachyphyllum	coastalplain St. John's-wort	native			R	
Hypericum cistifolium	roundpod St. John's-wort	native				
Hypericum hypericoides	St. Andrew's-cross	native				
Hypericum mutilum	dwarf St. John's-wort	native			I	
Hypericum tetrapetalum	fourpetal St. John's-wort	native				
Family: Convolvulaceae (morning-glory)						
Evolvulus sericeus	silver dwarf morning-glory	native				
Ipomoea hederacea	ivyleaf morning-glory	exotic				
Ipomoea indica	oceanblue morning-glory	native				
Ipomoea triloba	littlebell	exotic				
Family: Cucurbitaceae (gourd)						
Melothria pendula	creeping cucumber	native				
Family: Droseraceae (sundew)						
Drosera capillaris	pink sundew	native			R	
Family: Ericaceae (heath)						
Bejaria racemosa	tarflower	native			R	
Lyonia fruticosa	coastalplain staggerbush	native				
Vaccinium myrsinites	shiny blueberry	native				
Family: Euphorbiaceae (spurge)						
Euphorbia polyphylla	lesser Florida spurge	native				
Ricinus communis	castorbean	exotic	II			
Stillingia aquatica	corkwood	native			R	
Stillingia sylvatica	queensdelight	native			R	
Family: Fabaceae (pea)						
Abrus precatorius	rosary pea	exotic	I			
Acacia auriculiformis	earleaf acacia	exotic	I			
Centrosema virginianum	spurred butterfly pea	native				
Chamaecrista fasciculata	partridge pea	native				
Crotalaria spectabilis	showy rattlebox	exotic				
Dalea carnea	whitetassels	native			R	
Desmodium incanum	zarzabacoa comun	exotic				
Indigofera hirsuta	hairy indigo	exotic				
Leucaena leucocephala	white leadtree	exotic	II			
Macroptilium lathyroides	wild bushbean	exotic				
Senna alata	candlestick plant	exotic				
Senna pendula	valamuerto	exotic	I			
Vigna luteola	hairypod cowpea	native				
Family: Fagaceae (oak)						
Quercus laurifolia	laurel oak	native				
Family: Gentianaceae (gentian)						
Sabatia brevifolia	shortleaf rosegentian	native			I	
Sabatia grandiflora	largeflower rosegentian	native			R	
Sabatia stellaris	rose-of-plymouth	native				
Family: Haloragaceae (watermilfoil)						
Proserpinaca palustris	marsh mermaidweed	native			R	
Proserpinaca pectinata	combleaf mermaidweed	native			R	

Appendix B: Plant Species List for Gator Hole Preserve

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

Scientific Name	Common Name	native/ exotic	EPPC	FDACS	IRC	FNAI
Family: Lamiaceae (mint)						
Callicarpa americana	American beautyberry	native				
Hyptis alata	musky mint	native				
Physostegia purpurea	eastern false dragonhead	native			I	
Piloblephis rigida	wild pennyroyal	native			R	
Family: Lauraceae (laurel)						
Cassytha filiformis	love vine	native				
Persea palustris	swamp bay	native				
Family: Lentibulariaceae (bladderwort)						
Pinguicula pumila	small butterwort	native			R	
Utricularia foliosa	leafy bladderwort	native			R	
Utricularia subulata	zigzag bladderwort	native			R	
Family: Linaceae (flax)						
Linum floridanum	Florida yellow flax	native			I	
Family: Loganaceae (logania)						
Mitreola petiolata	lax hornpod	native				
Mitreola sessilifolia	swamp hornpod	native			R	
Family: Lythraceae (loosestrife)						
Lythrum alatum var lanceolatum	winged loosestrife	native			R	
Family: Malvaceae (mallow)						
Melochia corchorifolia	chocolateweed	exotic				
Melochia spicata	bretonica peluda	native			I	
Sida acuta	common fanpetals	native				
Sida rhombifolia	Cuban jute	native				
Urena lobata	Caesarweed	exotic	II			
Family: Meliaceae (mahogany)						
Melia azedarach	Chinaberrytree	exotic	II			
Family: Moraceae (mulberry)						
Ficus aurea	Florida 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			
Rhodomyrtus tomentosa	downy rose-myrtle	exotic	I			
Family: Onagraceae (eveningprimrose)						
Gaura angustifolia	southern beeblossom	native				
Ludwigia maritima	seaside primrosewillow	native			R	
Ludwigia microcarpa	smallfruit primrosewillow	native			R	
Ludwigia octovalvis	Mexican primrosewillow	native				
Ludwigia peruviana	Peruvian primrosewillow	exotic				
Ludwigia repens	creeping primrosewillow	native				
Family: Orobanchaceae (broomrape)						
Buchnera americana	American bluehearts	native				
Family: Oxalidaceae (woodsorrel)						
Oxalis corniculata	creeping woodsorrel	native				
Family: Phytolaccaceae (pokeweed)						
Phytolacca americana	American pokeweed	native				
Family: Polygonaceae (buckwheat)						
Polygonum hydropiperoides	swamp smartweed	native			R	

Appendix B: Plant Species List for Gator Hole Preserve

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

Scientific Name	Common Name	native/ exotic	EPPC	FDACS	IRC	FNAI
Family: Polygalaceae (milkwort)						
Polygala grandiflora	showy milkwort	native				
Polygala lutea	orange milkwort	native			I	
Polygala racemosa	low pinebarren milkwort	native				
Polygala verticillata	whorled milkwort	native			I	
Polygala violacea	showy milkwort	native				
Family: Ranunculaceae (buttercup)						
Clematis baldwinii	pine-hyacinth	native			R	
Family: Rubiaceae (madder)						
Diodia virginiana	Virginia buttonweed	native			R	
Houstonia procumbens	innocence	native				
Richardia brasiliensis	tropical Mexican clover	exotic				
Richardia grandiflora	largeflower Mexican clover	exotic				
Spermacoce assurgens	woodland false buttonweed	native				
Spermacoce verticillata	shrubby false buttonweed	exotic				
Family: Salicaceae (willow)						
Salix caroliniana	coastalplain willow	native				
Family: Sapindaceae (soapberry)						
Acer rubrum	red maple	native				
Family: Sapotaceae (sapodilla)						
Sideroxylon reclinatum	Florida bully	native			R	
Family: Solanaceae (nightshade)						
Physalis angustifolia	coastal groundcherry	native			I	
Physalis walteri	Walter's groundcherry	native				
Solanum americanum	American black nightshade	native				
Solanum viarum	tropical soda apple	exotic	I			
Family: Turneraceae (turnera)						
Piriqueta cistoides subsp. caroliniana	pitted stripeseed	native				
Family: Urticaceae (nettle)						
Boehmeria cylindrica	false nettle	native				
Family: Verbenaceae (vervain)						
Phyla nodiflora	capeweed	native				
Family: Veronicaceae (speedwell)						
Bacopa monnieri	herb-of-grace	native				
Lindernia dubia var. anagallidea	yellowseed false pimpernel	native				
Lindernia grandiflora	Savannah false pimpernel	native			I	
Mecardonia acuminata subsp. peninsularis	axilflower	native				
Scoparia dulcis	licoriceweed	native				
Family: Violaceae (violet)						
Viola lanceolata	bog white violet	native			I	
Viola palmata	early blue violet	native			CI	
Family: Vitaceae (grape)						
Parthenocissus quinquefolia	Virginia-creeper, woodbine	native				
Vitis cinerea var. floridana	Florida grape	native				
Vitis rotundifolia	muscadine	native				

Key

Florida EPPC Status

I = species that are invading and disrupting native plant communities
II = species that have shown a potential to disrupt native plant communities

FDACS (Florida Department of Agriculture and Consumer Services)

E = Endangered
T = Threatened
CE = Commercially Exploited

IRC (Institute for Regional Conservation)

CI = Critically Imperiled
I = Imperiled
R = Rare

FNAI (Florida Natural Areas Inventory)

G= Global Status
T= Threatened
CE= Commercially Exploited

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

Appendix C: Wildlife Species List for Gator Hole Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
MAMMALS				
Family: Didelphidae (opossums)				
Didelphis virginiana	Virginia opossum			
Family: Dasypodidae (armadillos)				
Dasypus novemcinctus	nine-banded armadillo *			
Family: Sciuridae (squirrels and their allies)				
Sciurus carolinensis	eastern gray squirrel			
Sciurus niger avicennia	Big Cypress fox squirrel	T		G5T2/S2
Family: Muridae (mice and rats)				
Peromyscus gossypinus	cotton mouse			
Sigmodon hispidus	hispid cotton rat			
Family: Leporidae (rabbits and hares)				
Sylvilagus floridanus	eastern cottontail			
Family: Felidae (cats)				
Puma concolor coryi	Florida panther	E	E	G5T1/S1
Lynx rufus	bobcat			
Family: Canidae (wolves and foxes)				
Canis latrans	coyote			
Urocyon cinereoargenteus	common gray fox			
Family: Procyonidae (raccoons)				
Procyon lotor	raccoon			
Family: Suidae (old world swine)				
Sus scrofa	feral hog *			
Family: Cervidae (deer)				
Odocoileus virginianus	white-tailed deer			
BIRDS				
Family: Anatidae (swans, geese and ducks)				
Subfamily: Dendrocygninae				
Dendrocygna autumnalis	black-bellied whistling duck			
Subfamily: Anatinae				
Anas fulvigula	mottled duck			
Family: Odontophoridae (new world quails)				
Colinus virginianus	northern bobwhite			
Family: Phasianidae (pheasant, grouse, turkeys and their allies)				
Subfamily: Meleagridinae (turkeys)				
Meleagris gallopavo	wild turkey			
Family: Ciconiidae (storks)				
Mycteria americana	wood stork	E	E	G4/S2
Family: Phalacrocoracidae (cormorants)				
Phalacrocorax auritus	double-crested cormorant			
Family: Anhingidae (anhingas)				
Anhinga anhinga	anhinga			
Family: Pelecanidae (pelicans)				
Pelecanus erythrorhynchos	American white pelican			
Pelecanus occidentalis	brown pelican	SSC		G4/S3
Family: Ardeidae (herons, egrets, bitterns)				
Ardea herodius	great blue heron			
Ardea alba	great egret			G5/S4
Egretta thula	snowy egret	SSC		G5/S3
Egretta caerulea	little blue heron	SSC		G5/S4
Egretta tricolor	tricolored heron	SSC		G5/S4
Bubulcus ibis	cattle egret			
Butorides virescens	green heron			

Appendix C: Wildlife Species List for Gator Hole Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Family: Threskiornithidae (ibises and spoonbills)				
Subfamily: Threshiornithinae				
Eudocimus albus	white ibis	SSC		G5/S4
Plegadis falcinellus	glossy ibis			G5/S3
Subfamily: Plataleinae				
Platalea ajaja	roseate spoonbill	SSC		G5/S2
Family: Cathartidae (new world vultures)				
Coragyps atratus	black vulture			
Cathartes aura	turkey vulture			
Family: Pandionidae (ospreys)				
Pandion haliaetus	osprey			G5/S3S4
Family: Accipitridae (hawks, kites, accipiters, harriers, eagles)				
Elanoides forficatus	swallow-tailed kite			G5/S2
Accipiter striatus	sharp-shinned hawk			
Circus cyaneus	northern harrier			
Accipiter cooperii	Cooper's hawk			G5/S3
Hailaeetus leucocephalus	bald eagle	T		G5/S3
Buteo lineatus	red-shouldered hawk			
Buteo brachyurus	short-tailed hawk			G4G5/S1
Buteo jamaicensis	red-tailed hawk			
Family: Gruidae (cranes)				
Grus canadensis tabida	sandhill crane			
Family: Charadriidae (plovers)				
Subfamily: Charadriinae				
Charadrius vociferus	killdeer			
Family: Scolopacidae (sandpipers and phalaropes)				
Subfamily: Scolopacinae				
Limnodromus griseus	short-billed dowitcher			
Family: Laridae (gulls)				
Subfamily: Larinae				
Larus atricilla	laughing gull			
Subfamily: Sterninae (terns)				
Sterna maxima	royal tern			G5/S3
Family: Columbidae (pigeons and doves)				
Streptopelia decaocto	Eurasian collared-dove *			
Zenaida macroura	mourning dove			
Columbina passerina	common ground-dove			
Family: Strigidae (true owls)				
Bubo virginianus	great horned owl			
Strix varia	barred owl			
Family: Caprimulgidae (goatsuckers)				
Subfamily: Chordeilinae				
Chordeiles minor	common nighthawk			
Family: Alcedinidae (kingfishers)				
Ceryle alcyon	belted kingfisher			
Family: Picidae (woodpeckers)				
Melanerpes erythrocephalus	red-headed woodpecker			
Melanerpes carolinus	red-bellied woodpecker			
Sphyrapicus varius	yellow-bellied sapsucker			
Picoides pubescens	downy woodpecker			
Picoides villosus	hairy woodpecker			G5/S3
Colaptes auratus	northern flicker			
Dryocopus pileatus	pileated woodpecker			

Appendix C: Wildlife Species List for Gator Hole Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Family: Falconidae (falcons)				
Subfamily: Falconinae (caracaras)				
Caracara cheriway	crested caracara	T	T	G5/S2
Subfamily: Falconinae (falcons)				
Falco sparverius	American kestrel			
Falco peregrinus	peregrine falcon	E		G4/S2
Family: Tyrannidae (tyrant flycatchers)				
Subfamily: Fluvicolinae				
Sayornis phoebe	eastern phoebe			
Myiarchus crinicensis	great-crested flycatcher			
Family: Laniidae (shrikes)				
Lanius ludovicianus	loggerhead shrike			
Family: Vireonidae (vireos)				
Vireo griseus	white-eyed vireo			
Vireo solitarius	blue-headed vireo			
Vireo olivaceus	red-eyed vireo			
Family: Corvidae (crows, jays, etc.)				
Cyanocitta cristata	blue jay			
Corvus brachyrhyncos	American crow			
Corvus ossifragus	fish crow			
Family: Hirundinidae (swallows)				
Subfamily: Hirundinidae				
Progne subis	purple martin			
Tachycineta bicolor	tree swallow			
Stelgidopteryx serripennis	northern rough-winged swallow			
Family: Sittinae (nuthatches)				
Sitta pusilla	brown-headed nuthatch			
Family: Troglodytidae (wrens)				
Troglodytes aedon	house wren			
Cistothorus platensis	sedge wren			
Thryothorus ludovicianus	Carolina wren			
Family: Regulidae (kinglets)				
Regulus calendula	ruby-crowned kinglet			
Family: Polioptilidae				
Polioptila caerulea	blue-gray gnatcatcher			
Family: Turdidae (thrushes)				
Sialia sialis	eastern bluebird			
Catharus guttatus	hermit thrush			
Turdus migratorius	American robin			
Family: Mimidae (mockingbirds and thrashers)				
Dumetella carolinensis	gray catbird			
Toxostoma rufum	brown thrasher			
Mimus polyglottos	northern mockingbird			
Family: Sturnidae (starlings)				
Sturnus vulgaris	European starling *			
Family: Bombycillidae (waxwings)				
Bombycilla cedrorum	cedar waxwing			

Appendix C: Wildlife Species List for Gator Hole Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Family: Parulidae (wood-warblers)				
Seiurus aurocapillus	ovenbird			
Mniotilta varia	black-and-white warbler			
Oreothlypis celata	orange-crowned warbler			
Geothlypis tristis	common yellowthroat			
Setophaga ruticilla	American redstart			
Parula americana	northern parula			
Dendroica palmarum	palm warbler			
Dendroica pinus	pine warbler			
Dendroica coronata	yellow-rumped warbler			
Dendroica dominica	yellow-throated warbler			
Dendroica discolor	prairie warbler			
Vermivora peregrina	Tennessee warbler			
Family: Emberizine (sparrows and their allies)				
Pipilo erythrophthalmus	eastern towhee			
Family: Cardinalidae (cardinals, some grosbeaks, new world buntings, etc.)				
Cardinalis cardinalis	northern cardinal			
Passerina cyanea	indigo bunting			
Passerina ciris	painted bunting			
Family: Icteridae (blackbirds, orioles, etc.)				
Agelaius phoeniceus	red-winged blackbird			
Sturnella magna	eastern meadowlark			
Quiscalus quiscula	common grackle			
Quiscalus major	boat-tailed grackle			
Family: Fringillidae				
Subfamily: Carduelinae				
Carduelis tristis	American goldfinch			
REPTILES				
Family: Alligatoridae (alligator and caiman)				
Alligator mississippiensis	American alligator	SSC		G5/S4
Family: Kinosternidae (musk and mud turtles)				
Kinosternon baurii	striped mud turtle			
Family: Emydidae (box and water turtles)				
Pseudemys peninsularis	peninsula cooter			
Family: Testudinidae (gopher tortoises)				
Gopherus polyphemus	gopher tortoise	T		G3/S3
Family: Polychridae (anoles)				
Anolis carolinensis	green anole			
Anolis sagrei	brown anole *			
Family: Colubridae (harmless egg-laying snakes)				
Coluber constrictor priapus	southern black racer			
Drymarchon couperi	eastern indigo snake	T	T	G3/S3
Family: Crotalidae (pitvipers)				
Crotalus adamanteus	eastern diamondback rattlesnake			G4/S3
Family: Dipsadidae (rear-fanged snakes)				
Diadophis punctatus punctatus	southern ringneck snake			
Family Natricidae (harmless live-bearing snakes)				
Thamnophis sirtalis sirtalis	eastern garter snake			
AMPHIBIANS				
Family: Bufonidae (toads)				
Anaxyrus quercicus	oak toad			
Family: Eleutherodactylidae (free-toed frogs)				
Eleutherodactylus planirostris	greenhouse frog *			

Appendix C: Wildlife Species List for Gator Hole Preserve

		Designated Status		
Scientific Name	**Common Name**	**FWC**	**FWS**	**FNAI**
Family: Hylidae (treefrogs and their allies)				
Acris gryllus dorsalis	Florida cricket frog			
Hyla cinerea	green treefrog			
Hyla squirella	squirrel treefrog			
Osteopilus septentrionalis	Cuban treefrog *			
Family: Ranidae (true frogs)				
Lithobates grylio	pig frog			
Lithobates sphenocephalus sphenocephalus	Florida leopard frog			
FISHES				
Family: Poeciliidae (livebearers)				
Gambusia spp.	mosquitofish			
INSECTS				
Family: Libellulidae (skimmer dragonflies)				
Tramea carolina	Carolina saddlebags			
Family: Psyllidae (psyllids)				
Boreioglycaspis melaleucae	melaleuca psyllid *			
Family: Curculionidae (true weevils)				
Oxyops vitiosa	melaleuca weevil *			
Family: Nymphalidae (brushfoots)				
Subfamily: Heliconiinae (longwings)				
Agraulis vanillae	gulf fritillary			
Heliconius charitonius	zebra			
Subfamily: Nymphalinae (brushfoots)				
Junonia coenia	common buckeye			
Anartia jatrophae	white peacock			
Subfamily: Danaidae (milkweed butterfiles)				
Danaus gilippus	queen			
ARACHNIDS				
Family: Buthidae (thick-tailed scorpions)				
Centruroides gracillis	Florida bark scorpion			
Family: Tetragnathidae (long jawed spiders)				
Leucauge venusta	orchard orbweaver			
CRUSTACEANS				
Family: Cambaridae (crayfish)				
Cambaridae camburus	crayfish			
GASTROPODS				
Family: Philomycidae (mantleslugs)				
Philomycus carolinianus	Carolina mangleslug			

KEY:

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

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

*** = Non-native**

Appendix D: FWC Permits WR06067 and WR06067a

PERMIT

Issued Under Authority of the Wildlife Code of the State of Florida (Title 68A, Florida Administrative Code) by the

STATE OF FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Division of Habitat and Species Conservation, 620 South Meridian Street, MS 2A, Tallahassee, FL 32399-1600, (850) 921-5990, ext. 17310

Permit No. WR06067 **Issuance Date** 10 March 2006 **Expiration Date** 10 March 2009

Permit Type Tortoise Relocation **Specific Rule Authority** 68A-9.002, 68A-25.002 & 68A-27.005

Permittee	Betsie N. Hiatt	**Consultant**	Ray E. Ashton
Affiliation	Lee County Dept. of Transportation	**Company**	Ashton, Ashton & Associates
Address	1500 Monroe Street	**Address**	14260-331 W. Newberry Rd.
	Fort Myers, FL 33902-0398		Newberry, Florida 32669
Phone/Fax No.	(239) 479-8177/ 479-8520	**Phone/Fax No.**	352-495-7449/495-7433

Signature Betsie N. Hiatt **Date** 3-27-06

Not valid until signed

Certification: I hereby state and confirm by signature that I have received, read, understand, and agree to abide by all regulations, guidelines, and provisions regarding the issuance of this permit, and I further certify that the information submitted in this application and supporting documents is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to criminal penalties. I further state that I will abide by all applicable State, Federal, and local laws. Please return a signed copy to this office.

The above named Permittee is authorized to capture, remove and relocate gopher tortoises (*Gopherus polyphemus*) in Florida pursuant to Rules 68A-9.002, 68A-25.002 and 68A-27.005, F.A.C., the Florida Fish and Wildlife Conservation Commission's Gopher Tortoise Relocation Guidelines dated August 13, 2001 and subject to the following provisions/conditions.

Provisions/Conditions:

1. Up to 25 gopher tortoises (*Gopherus polyphemus*) may be captured by nonharmful means in association with development activities at the Three Oaks Road Widening project sites located at (T47S,R25E,S11,14,23-25 and T46S,R25E,S10,15,22,23,27,34&35), in Lee County, relocated to and released at the enclosed 20-acre Gator Hole Preserve Recipient Area located at (T46S,R26E,S21), which is owned by Lee County Parks and Recreation and managed by Cathy Olson, Lee County Government as part of the Conservation Lands Project 20/20 Program, P.O. Box 398, Fort Myers, FL 33902-0398. Any gopher tortoise burrow commensals encountered in the capture operation may likewise be live-captured, relocated and released. However, no more than one indigo snake (*Drymarchon corais couperi*), or 10 each of Florida mice (*Podomys floridanus*) and gopher frogs (*Rana capito*) may be relocated. Should additional specimens of those species or other species listed as endangered, threatened or of special concern, be encountered, the capture operation is to be suspended immediately and this office contacted for instructions.

2. Tortoises shall not be captured/relocated on days for which the overnight low temperature for that day and the two consecutive days thereafter is forecasted by the U.S. National Weather Service to be below 50°F. This 3-day window of milder overnight temperatures is to allow the relocated tortoises to settle into the recipient site. Authorizing the capture/relocation is otherwise predicated and conditioned on the information and assurances provided in the Permittee's October 14, 2005 application, the assurances of which are herein incorporated by reference.

PERMIT

Permit no. WR06067

Provisions/Conditions: Continued

3. This 20-acre parcel of Gator Hole Preserve has been approved as an experimental recipient site for a total of up to 40 relocated tortoises. Said tortoises will be received from a number of Lee County projects sites and are exempt from the URTD testing requirement. The property will be managed and monitored long-term in accordance with a Habitat Management Plan.

4. The entire perimeter of the property must be permanently fenced to retain the tortoises and exclude predators. The fence must be inspected routinely to prevent any breaches to the integrity of the structure. Any such breaches must be repaired in a timely manner.

5. This permit does not authorize Permittee access to any public or private properties. Any required permission accordingly must be secured from the appropriate landholders prior to undertaking any work on such properties.

6. Captures/relocations may be undertaken only subsequent to all other permits for the project, which may be required by local, state and/or federal agencies being issued.

7. The activities authorized under this Permit may be carried out by authorized personnel or contractors of the Permittee or designated Consulting Firm (Authorized Agent), provided all such activities are under the direct supervision and responsibility of the Permittee or Authorized Agent. The Permittee and Authorized Agent shall be as fully responsible for any such activities to the same extent as if they had themselves carried out those activities under this Permit.

8. This permit is subject to revocation at any time pursuant to Chapter 120, Florida Statutes.

9. The Permittee shall notify the Protected Species Permit Coordinator by fax at (850) 921-1847 or by phone at (850) 921-5990, ext. 17310, within 24 hours of initiating the tortoise relocation effort.

10. Either this original permit, or a complete copy, must be clearly posted at the affected site at all times while engaged in the permitted tortoises relocation activities.

11. The Permittee, by signing this permit, specifically agrees to allow authorized Commission personnel, upon presentation of credentials as may be required by law, access to the donor and recipient sites, at reasonable times, for the purpose of inspecting the capture/relocation activities authorized under this permit.

12. The Permittee shall submit the following reports:
    a. 30 day after action report detailing the capture/relocation effort. A report form is attached for use in that regard.
    b. One year survey and monitoring report which provides a full assessment of the success of the relocation is due by March 30, 2007 and
    c. A three year survey and monitoring report is due by March 30, 2009.

PERMIT

Permit no. WR06067

Provisions/Conditions: Continued

Reports must be submitted to the Species Conservation Planning Section (SCPS) Regional contact person, with copies provided to the recipient site landowner and this office. Any request for permit renewal or extension shall be submitted at least 45 days prior to the expiration date of this permit.

Kenneth D. Haddad
Executive Director

By: Bradley S. Lewis for
Thomas H. Eason, Ph.D., Leader
Species Conservation Planning Section

ATW/THE/atw
LIC 6-20
WR06067.per
Enclosure: Notice of Rights
After Action Report form

Cc w/ enc (1): Mr. Ray Ashton
Ms. Cathy Olson

Cc w/o enc: Mr. Rick McCann
Southwest Region

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
EXPLANATION OF RIGHTS

If your substantial interests are or will be determined by the Florida Fish and Wildlife Conservation Commission's action or proposed action stated in the accompanying notice, you may make any one of the following elections on the attached Election of Rights form and file the form within twenty-one (21) days from the date you receive the notice of agency action or proposed action. If you so choose, please return the completed Election of Rights form with the enclosed Petition for Administrative Proceeding form completed in accordance with Chapter 28-106, Florida Administrative code, or a substitute document in compliance with Chapter 28-106, of the Florida Administrative code, to the address listed on the Election of Rights form.

1. If you wish to contest the agency action or proposed action, but do not dispute any of the issues of material fact set forth in the notice, you may request an informal proceeding pursuant to Sections 120.569 and 120.57(2), Florida Statutes. In the event that your request for an informal proceeding is granted, you will be given the opportunity to either simply present a written statement challenging the grounds upon which the Commission has chosen to justify its action or inaction or present evidence in mitigation.

Any request for an informal proceeding in this matter should be directed to the Commission by checking the space marked as 1 on the Election of Rights form and filing the completed and signed form with the Commission within twenty-one (21) days from the date of receipt of the notice. In making such a request, you must include with the completed and signed Election of Rights form either the completed and signed Petition for Administrative Proceeding form completed in accordance with Chapter 28-106, Florida Administrative code, or a substitute document in compliance with Chapter 28-106, of the Florida Administrative code.

2. If you wish to contest the notice of agency action or proposed action and you dispute one or more of the issues of material fact as set forth in the notice, you may request a formal hearing pursuant to Sections 120.569 and 120.57(1), Florida Statutes. If there is a disputed issue of material fact and your request is otherwise complete, an administrative law judge shall be furnished by the Division of Administrative Hearings of the Department of Management Services pursuant to Sections 120.569 and 120.57(1), Florida Statutes. A petition shall be dismissed if it fails to state disputed issues of material fact, it otherwise is not in substantial compliance with the requirements of 28-106.201(2) FAC, or it has been untimely filed.

Any request for a formal hearing in this matter should be directed to the Commission by checking the space marked as 2 on the Election of Rights form and filing the completed and signed form with the Commission within twenty-one (21) days from the date of receipt of the notice. In making such a request, you must include with the completed and signed Election of Rights form either the completed and signed Petition for Administrative Proceeding form completed in accordance with Chapter 28-106, Florida Administrative code, or a substitute document in compliance with Chapter 28-106, of the Florida Administrative code.

Failure to make any election in this matter, as provided above, within twenty-one (21) days from the date you received the notice, shall be considered a waiver of your rights to any administrative proceeding as provided in either 1 or 2, above.

Mediation is not an available alternative with respect to this action or proposed action.

REPORT FORM FOR GOPHER TORTOISE RELOCATIONS

PERMITTEE: _____ PERMIT NO: _____

ADDRESS: _____

_____

_____

PHONE NO: _____

PROJECT NAME: _____

DONOR SITE: County: _____ Township: _____ Range: _____ Section: _____

NO. ACTIVE PLUS INACTIVE BURROWS: _____ NO. TORTOISES CAPTURED: _____

METHOD OF CAPTURE: _____

CAPTURE DATE: RELEASE DATE: _____

NUMBER OF MALES[1]: _____ MEAN CARAPACE LENGTH: _____ mm

NUMBER OF FEMALES[2]: _____ MEAN CARAPACE LENGTH: _____ mm

NUMBER OF IMMATURES: _____ MEAN CARAPACE LENGTH: _____ mm

RECIPIENT SITE: County: _____ Township: _____ Range: _____ Section: _____

PROPERTY NAME: _____

OWNER: _____

HABITAT TYPE: _____

ACREAGE AVAILABLE TO TORTOISES: _____

NUMBER OF ACTIVE AND INACTIVE BURROWS PRESENT: _____

TYPE OF PROPOSED MANAGEMENT: _____

_____

COMMENTS : _____

_____

_____

_____

[1]For comparison purposes, include only tortoises greater than 170 mm CL with concave plastrons.
[2]For comparison purposes, include only tortoises greater than 220 mm CL with flat plastrons.

PERMIT
AMENDMENT

Issued Under Authority of the Wildlife Code of the State of Florida
(Title 68A, Florida Administrative Code) by the

STATE OF FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Division of Habitat and Species Conservation, 620 South Meridian Street, MS 2A, Tallahassee, FL 32399-1600, (850) 921-5990, ext. 17310

Permit No. WR06067a **Issuance Date** 15 December 2006 **Expiration Date** 10 March 2009
Permit Type Tortoise Relocation **Specific Rule Authority** 68A-9.002, 68A-25.002 & 68A-27.005
Permittee Betsie N. Hiatt **Consultant** Ray E. Ashton
Affiliation Lee County Dept. of Transportation **Company** Ashton, Ashton & Associates
Address 1500 Monroe Street **Address** 14260-331 W. Newberry Rd.
Fort Myers, FL 33902-0398 Newberry, Florida 32669
Phone/Fax No. 239-479-8177/479-8520 **Phone/Fax No.** 352-495-7449/495-7433

Signature _____ **Date** _____
Not valid until signed

Certification: I hereby state and confirm by signature that I have received, read, understand, and agree to abide by all regulations, guidelines, and provisions regarding the issuance of this permit, and I further certify that the information submitted in this application and supporting documents is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to criminal penalties. I further state that I will abide by all applicable State, Federal, and local laws. Please return a signed copy to this office.

The above named Permittee is authorized to capture, remove and relocate gopher tortoises (*Gopherus polyphemus*) in Florida pursuant to Rules 68A-9.002, 68A-25.002 and 68A-27.005, F.A.C., the Florida Fish and Wildlife Conservation Commission's Gopher Tortoise Relocation Guidelines dated August 15, 2006 and subject to the following provisions/conditions.

Provisions/Conditions:

1. **Up to 15 additional gopher tortoises (*Gopherus polyphemus*) (for a total of 40) may be captured by nonharmful means in association with development activities at Lee County Department of Transportation (DOT) project sites located in Lee County, relocated to and released at the enclosed 20-acre off-site Gator Hole Preserve Recipient Area (T46S,R26E,S21 with Latitude 26°27'12"N and Longitude 81°43'14"W), in Lee County, which is owned by Lee County Parks and Recreation and managed as part of the Conservation 20/20 Land Program, represented by Ms. Cathy Olson, Conservation 20/20 Land Stewardship Supervisor, 3410 Palm Beach Blvd., Fort Myers, FL 33916, (239) 461-7455/461-7460 (fax).** Any gopher tortoise burrow commensals encountered in the capture operation may likewise be live-captured, relocated and released. However, no more than one indigo snake (*Drymarchon corais couperi*), or 10 each of Florida mice (*Podomys floridanus*) and gopher frogs (*Rana capito*) may be relocated. Should additional specimens of those species or other species listed as endangered, threatened or of special concern, be encountered, the capture operation is to be suspended immediately and this office contacted for instructions.

2. Tortoises shall not be captured/relocated on days for which the overnight low temperature for that day and the two consecutive days thereafter is forecasted by the U.S. National Weather Service to be below 50°F. This 3-day window of milder overnight temperatures is to allow the relocated tortoises to settle into the recipient site. Authorizing the capture/relocation is otherwise predicated and conditioned on the information and assurances provided in the Permittee's October 14, 2005 application **and November 30, 2006 amendment request**, the assurances of which are herein incorporated by reference.

PERMIT
AMENDMENT

Permit no. WR06067a

Provisions/Conditions: Continued

3. **Captured gopher tortoises that show signs of disease (i.e., nasal and ocular discharge, emaciation, etc.) should not be relocated off-site. At the Permittee's discretion, symptomatic tortoises may be: relocated on-site; transported to and quarantined at a FWC licensed wildlife rehabilitation center (list available upon request) or licensed veterinary facility and observed for recovery and subsequent relocation along with others from the population; transported and donated to a FWC permitted disease research program; or humanely euthanized by a licensed veterinarian when disease is advanced.**

4. This 20-acre parcel of Gator Hole Preserve has been approved as an experimental recipient site for a total of up to 40 relocated tortoises. Said tortoises will be received from a number of Lee County projects sites and are exempt from the URTD testing requirement. The property will be managed and monitored long-term in accordance with a Habitat Management Plan.

5. The entire perimeter of the property must be permanently fenced to retain the tortoises and exclude predators. The fence must be inspected routinely to prevent any breaches to the integrity of the structure. Any such breaches must be repaired in a timely manner.

6. **This permit is in effect an amendment of permit WR06067, which expires March 10, 2009, and supersedes all previous versions. All amended conditions of the previous permit (changed or new items) are indicated by bold text.** It does not authorize Permittee access to any public or private properties. Any required permission accordingly must be secured from the appropriate landholders prior to undertaking any work on such properties.

7. Captures/relocations may be undertaken only subsequent to all other permits for the project, which may be required by local, state and/or federal agencies being issued. This permit is subject to revocation at any time pursuant to Chapter 120, Florida Statutes. It is nontransferable and must be readily available for inspection at all times while engaging in the permitted activities.

8. The activities authorized under this Permit may be carried out by authorized personnel or contractors of the Permittee or designated Consulting Firm (Authorized Agent), provided all such activities are under the direct supervision and responsibility of the Permittee or Authorized Agent. The Permittee and Authorized Agent shall be as fully responsible for any such activities to the same extent as if they had themselves carried out those activities under this Permit.

9. The Permittee shall notify the Protected Species Permit Coordinator by fax at (850) 921-1847 or by phone at (850) 921-5990, ext. 17310, within 24 hours of initiating the tortoise relocation effort.

10. Either this original permit, or a complete copy, must be clearly posted at the affected site at all times while engaged in the permitted tortoises relocation activities.

11. The Permittee, by signing this permit, specifically agrees to allow authorized Commission personnel, upon presentation of credentials as may be required by law, access to the donor and recipient sites, at reasonable times, for the purpose of inspecting the capture/relocation activities authorized under this permit.

PERMIT AMENDMENT

Permit no. WR06067a

Provisions/Conditions: Continued

12. The Permittee shall submit the following reports:
    a. 30-day after action report detailing the capture/relocation effort. A report form is attached for use in that regard.
    b. One year survey and monitoring report which provides a full assessment of the success of the relocation is due by March 30, 2007, and
    c. A three year survey and monitoring report is due by March 30, 2009.

    Reports must be submitted to the Species Conservation Planning Section (SCPS) Regional contact person, with copies provided to the recipient site landowner and this office. Any request for permit renewal or extension shall be submitted at least 45 days prior to the expiration date of this permit.

Kenneth D. Haddad
Executive Director

By: _____
Elsa Haubold, Ph.D., Leader
Species Conservation Planning Section

ATW/EH/jn
LIC 6-20
WR06067a.per
Enclosure: Notice of Rights
After Action Report form

Cc w/ enc.: Ms. Cathy Olson

Cc w/o enc: Mr. Rick McCann
Southwest Region

Appendix E: FWC Permit GTLR-13-00002B

Gopher Tortoise Recipient Site (For Long-Term Protected Sites)

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
Division of Habitat and Species Conservation
Species Conservation Planning Section
620 South Meridian Street, Mail Station 2A
Tallahassee, Florida 32399-1600
(850) 921-1031

Permittee Name:	Lee County Department of Public Works	Permit Number:	GTLR-13-00002**B**
Permittee Address:	PO BOX 398 FORT MYERS, FLORIDA 33902 UNITED STATES	Effective Date: Expiration Date:	**May 9, 2016** Perpetual
Agent Name:	Rebecca Sweigert		
Agent Address:	Lee County Board of County Commissioners DCD/Planning Section PO BOX 398 FORT MYERS, FLORIDA 33902 UNITED STATES		

IS AUTHORIZED TO:

receive and release gopher tortoises (Gopherus polyphemus) within the long-term protected recipient site identified below

AUTHORIZED LOCATION(S): 175.0-acre Gator Hole Preserve recipient site, including about 106.82 acres of gopher tortoise habitat, located at 14291 Corkscrew Road (T46S,R26E,S21; Latitude 26° 27' 53"N and Longitude 81° 43' 18"W), City of Fort Myers, Lee County.

Permittee Signature: Rebecca N S Date: 5-11-2016

Not valid unless signed. By signature, confirms that all information provided to issue the permit is accurate and complete, and indicates acceptance and understanding of the provisions and conditions listed below. **Any false statements or misrepresentations when applying for this permit may result in felony charges and will result in revocation of this permit.**

Authorized By: Richard McCann Authorized for: Nick Wiley, Executive Director

Richard D. McCann

Authorizing Signature: _____ Date: 05/09/2016

Species Conservation Planning Section

This permit is in effect an amendment of permit GTLR-13-00002A and supersedes all previous versions. The authorized agent associated with this permit has been changed. All other conditions and provisions of the previous permit (changed or new items) are indicated in bold text.

PERMIT CONDITIONS AND PROVISIONS:

1 Authorization to conduct the specified activities in association with the relocation of gopher tortoises in Florida is subject to Rules 68A-9.002 and 68A-27, Florida Administrative Code (F.A.C.), the Gopher Tortoise Permitting Guidelines (April 2008 – **revised February 2015**) [hereafter, the "Permitting Guidelines"], and subsequent revisions of these guidelines that are in

effect at the time permits are granted to relocate gopher tortoises to the authorized location, and subject to the following provisions/conditions.

2 The Permittee shall grant a perpetual conservation easement over [insert unit name(s)] to the Florida Fish and Wildlife Conservation Commission (FWC) and record the easement in the permanent [insert county name] property records. Either the original recorded easement, or a certified as recorded copy, shall be provided to the Gopher Tortoise Permit Coordinator, 620 S. Meridian Street (M.S. 2A), Tallahassee, Florida 32399-1600. The conservation areas perimeter boundaries shall be either clearly marked with boundary posts or have boundary points recorded on a Global Positioning System (GPS) unit, at no less than 500-linear-foot intervals and at boundary turning points, to facilitate boundary identification by FWC biologists. If GPS boundary points are recorded, a copy of the record shall be provided to the FWC. The boundary posts or GPS records must be maintained for the life of the easement. This permit will not go into effect until the Permittee has obtained a receipt from the FWC for the conservation easement specified under this condition.

3 Up to 107 gopher tortoises may be received at and relocated to the estimated 106.82 acres of tortoise habitat contained within the 175.0-acre Gator Hole Preserve identified above. All tortoises must be soft-released into temporary enclosures in accordance with the enclosure methods described in the Permitting Guidelines (April 2008 - **revised February 2015**). Applications to amend this permit to authorize release of gopher tortoises to other units within this recipient site will be evaluated and acted upon by the FWC under the permitting guidelines and provisions/conditions in place at the time of application. Specific areas within other units that are proposed to receive relocated tortoises will also be evaluated for their suitability during the application review process.

4 Approval of the recipient site is otherwise predicated and conditioned on the information and assurances provided in the Permittee's 12/07/2009 application (supplemented on 01/08/2010, 10/20/2010, 11/09/2010, 01/26/2011, 06/07/2011, 08/29/2011, 08/30/2011, 09/23/2011, 02/16/2012, 04/17/2012, 07/06/2012, 09/23/2012, 03/07/2013, 03/11/2013 and 03/12/2013); and the 07/10/2015 **and 04/29/2016 amendment requests**, the assurances of which are herein incorporated by reference.

5 The Permittee shall have the obligation to manage and maintain habitat for gopher tortoises in accordance with the Gator Hole Preserve Gopher Tortoise Management Plan September 2009-updated October 2012 that has been approved by the FWC. The approved Management Plan shall be appended to and incorporated by reference into the conservation easement.

6 The Permittee shall keep written records of all the habitat management activities conducted within, and all tortoises relocated into the recipient site. A report of the habitat management activities, habitat monitoring and gopher tortoise population monitoring, as described in the Management Plan, shall be provided to the **Gopher Tortoise Permit Coordinator either by being uploaded to the FWC online permit system, sent via email to GTPermits@MyFWC.com,** or mailed to the address indicated in Condition #2, in accordance with the phased recipient site monitoring and reporting requirements of the Permitting Guidelines (April 2008 - **revised February 2015**), with the first report due June 30, 2016. The subsequent reports shall be received by **the Gopher Tortoise Permitting Coordinator's office** by June 30th every three years thereafter for the first 15 years this permit is in effect. If the landowner has met monitoring and reporting requirements during the first 15 years, the monitoring and reporting requirement is reduced to every 5 years for the next 10 years. Following 25 years of successfully meeting all monitoring, habitat management and reporting requirement, reports are required every ten years. Reports shall contain the content and be in the form **provided** by the FWC, and shall include the results of all monitoring and habitat management activities conducted through March 31st of the year the report is due.

7 All tortoises accepted and received at the recipient site must be covered under a valid FWC permit that specifically authorizes the relocation of those animals to this site.

8 All tortoises must be marked. Either the marginal scutes of tortoises > 130 mm carapace length (CL) shall be drilled or notched and marginal scutes of juveniles < 130 mm CL notched, or Passive Integrated Transponder (PIT) tags shall be used.

9 During colder months, tortoises shall only be captured and relocated when the low temperature at the recipient site is forecasted by the National Weather Service (www.weather.gov) to be above 50° F for three consecutive days [72 hours] after release (including the day of relocation). This three-day window of milder temperatures is required to allow the relocated tortoises to settle into the recipient site and reduce the chance of cold-related stress or mortality.

10 Permittee shall not accept gopher tortoises that show signs of disease (i.e., nasal and ocular discharge, emaciation, etc.). The Permittee should direct individuals that bring symptomatic tortoises to the recipient site to alternatively release those tortoises back within the donor/capture site; transport them to an FWC licensed wildlife rehabilitation center (list available upon request) or licensed veterinary facility for quarantine and observation for recovery and subsequent relocation; transport and donate them to an FWC permitted disease research program; or have them humanely euthanized by a licensed veterinarian when disease is advanced.

11 This permit does not authorize Permittee access to any public or private properties. Any required permission accordingly must be secured from the appropriate landholders prior to undertaking any work on such properties.

12 This permit can be suspended, revoked or not renewed for just cause pursuant to 68-1.010, F.A.C. and Chapter 120, Florida Statutes. It is non-transferable and must be readily available for inspection at all times while engaging in the permitted activities.

13 The activities authorized under this Permit may be carried out by authorized personnel or contractors of the Permittee or the designated Authorized Gopher Tortoise Agent (Agent), provided all such activities are under the direct supervision and responsibility of the Permittee or Agent. The Permittee and Agent shall be as fully responsible for any such activities to the same extent as if they had themselves carried out those activities under this Permit.

14 The Permittee, by signing this permit, specifically agrees to allow authorized Commission personnel, upon presentation of credentials as may be required by law, access to the recipient site, at reasonable times, for the purpose of inspecting the relocation and release activities authorized under this permit.

15 After the first tortoises are received for release at this site, the Permittee should submit a monthly summary report to the FWC for each month that gopher tortoises are received. The report should include the numbers of tortoises relocated and released within the recipient site, by each relocation authorization permit number, and **either be uploaded to the FWC online permit system, or be sent via email to GTPermits@MyFWC.com.**

16 The Permittee shall provide the FWC with sufficient assurance that it retains the financial capability to conduct the habitat management necessary to enhance or maintain quality habitat for gopher tortoises by annual budgetary appropriation committed to in Lee County Resolution Number 13-02-13, signed February 19, 2013. By November 30th of each year the Permittee shall submit to FWC documentation that the monies committed to in this Lee County Resolution have been allocated to the account designated for habitat management within the Gator Hole Preserve recipient site.

A person whose substantial interests are affected by FWC's action may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. A person seeking a hearing on FWC's action shall file a petition for hearing with the agency within 21 days of receipt of written notice of the decision. The petition must contain the information and otherwise comply with section 120.569, Florida Statutes, and the uniform rules of the Florida Division of Administration, chapter 28-106, Florida Administrative Code. If the FWC receives a petition, FWC will notify the Permittee. Upon such notification, the Permittee shall cease all work authorized by this permit until the petition is resolved. The enclosed Explanation of Rights statement provides additional information as to the rights of parties whose substantial interests are or may be affected by this action.

Appendix F: SFWMD Conservation Easement

55.50 - R
.70 - DS
56.20

4263377

OR2881 PG0810

DEED OF CONSERVATION EASEMENT

THIS DEED OF CONSERVATION EASEMENT is given this 10th day of October, 1997, by Richard K. Bennett, as Trustee of Corkscrew East and Corkscrew West Land Trusts, 865 Fifth Avenue South, Naples, FL 34102 ("Grantor") to the South Florida Water Management District ("Grantee"). As used herein, the term Grantor shall include any and all heirs, successors or assigns of the Grantor, and all subsequent owners of the "Property" (as hereinafter defined) and the term Grantee shall include any successor or assignee of Grantee.

WITNESSETH

WHEREAS, the Grantor is the owner of certain lands situated in Lee County, Florida, and more specifically described in Exhibit "A" attached hereto and incorporated herein by reference ("Property"); and

WHEREAS, the Grantor desires to construct Panther Trace ("Project") at a site in Lee County, which is subject to the regulatory jurisdiction of South Florida Water Management District ("District"); and

WHEREAS, District Permit No. 36-03235-P ("Permit") authorizes certain activities which affect surface waters in or of the State of Florida; and

WHEREAS, this Permit requires that the Grantor preserve and/or mitigate wetlands under the District's jurisdiction; and

WHEREAS, the Grantor has developed and proposed as part of the permit conditions a conservation tract and maintenance buffer ("Conservation Area") involving preservation of certain wetland and/or upland systems on the Property which is more specifically described in Exhibit "B" attached hereto and incorporated herein by reference; and

WHEREAS, the Grantor, in consideration of the consent granted by the Permit, is agreeable to granting and securing to the Grantee a perpetual conservation easement as defined in Section 704.06, Florida Statutes (1995), over the Property.

NOW, THEREFORE, in consideration of the issuance of the Permit to construct and operate the permitted activity, and as an inducement to Grantee in issuing the Permit, together with other good and valuable consideration, the adequacy and receipt of which is hereby acknowledged, Grantor hereby grants, creates and establishes a perpetual conservation easement for and in favor of the Grantee upon the Conservation Area which shall run with the land and be binding upon the Grantor, and shall remain in full force and effect forever.

The scope, nature, and character of this conservation easement shall be as follows:

Documentary Tax Pd. $ .70
$ ——— Intangible Tax Pd.
CHARLIE GREEN, CLERK, LEE COUNTY
By Trudy Sherwood Deputy Clerk

1. It is the purpose of this conservation easement to retain land or water areas predominantly in their natural, vegetative, hydrologic, scenic, open, agricultural or wooded condition and to retain such areas as suitable habitat for fish, plants or wildlife. Those wetland and/or upland areas included in the Conservation Area which are to be enhanced or created pursuant ot the Permit shall be retained and maintained in the enhanced or created conditions required by the Permit.

To carry out this purpose, the following rights are conveyed to Grantee by this easement:

a. To enter upon the Conservation Area via the internal road system of the Property at reasonable times with any necessary equipment or vehicles to enforce the rights herein granted in a manner that will not unreasonably interfere with the use and quiet enjoyment of the Property by Grantor at the time of such entry; and

b. To enjoin any activity on or use of the Conservation Area that is inconsistent with this grant of easement and to enforce the restoration of such areas or features of the Conservation Area that may be damaged by any inconsistent activity or use.

2. Except for restoration, creation, enhancement, maintenance and monitoring activities, or surface water management improvements, which are permitted or required by the Permit, the following activities are prohibited in or on the Conservation Area:

a. Construction or placing of buildings, roads, signs, billboards or other advertising, utilities, or other structures on or above the ground;

b. Dumping or placing of soil or other substance or material as landfill, or dumping or placing of trash, waste, or unsightly or offensive materials;

c. Removal or destruction of trees, shrubs, or other vegetation, except for the removal of exotic vegetation in accordance with a District approved maintenance plan;

d. Excavation, dredging, or removal of loam, peat, gravel, soil, rock or other material substance in such manner as to affect the surface.

e. Surface use except for purposes that permit the land or water area to remain in its natural condition;

f. Activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, or fish and wildlife habitat preservation including, but not limited to, ditching, diking and fencing;

g. Acts or uses detrimental to such aforementioned retention of land or water areas;

h. Acts or uses within Grantor's regulatory jurisdiction which are detrimental to the preservation of any features or aspects of the Conservation Area having historical or archaeological significance.

3. Grantor reserves all rights as owner of the Conservation Area, including the right to engage in uses of the Conservation Area that are not prohibited herein and which are not inconsistent with any District Rule, criteria, permit and the intent and purposes of this Conservation Easement. Passive recreational activities which are not contrary to the purpose of this conservation easement may be permitted within the Conservation Area upon written approval by the District. The Grantor may conduct limited land clearing for the purpose of constructing such pervious facilities as docks, boardwalks, or mulched walking trails. Grantor shall submit plans for the construction of proposed facilities to the District for approval prior to construction. Grantor shall minimize and avoid, to the fullest extent possible, impact to any wetland or upland buffer areas within the Conservation Area. Any such work shall be subject to all applicable federal, state or local permitting requirements.

4. No right of access by the general public to any portion of the Property is conveyed by this conservation easement.

5. Grantee shall not be responsible for any costs or liabilities related to the operation, upkeep, or maintenance of the Property.

6. Grantor shall pay any and all real property taxes and assessments levied by competent authority on the Property.

7. Any costs incurred in enforcing, judicially or otherwise, the terms, provisions and restrictions of this conservation easement shall be borne by and recoverable against the non-prevailing party in such proceedings.

8. Enforcement of the terms, provisions and restrictions of this conservation easement shall be at the reasonable discretion of Grantee, and any forbearance on behalf of Grantee to exercise its rights hereunder in the event of any breach hereof by Grantor shall not be deemed or construed to be a waiver of Grantee's rights hereunder.

9. Grantee will hold this conservation easement exclusively for conservation purposes. Grantee will not assign its rights and obligations under this conservation easement except to another organization qualified to hold such interests under the applicable state laws.

10. If any provision of this conservation easement or the application thereof to any person or circumstances is found to be invalid, the remainder of the provisions of this conservation easement shall not be affected thereby, as long as the purpose of the conservation easement is preserved.

11. All notices, consents, approvals or other communications hereunder shall be in writing and shall be deemed properly given if sent by United States certified mail, return receipt requested, addressed to the appropriate party or successor-in-interest.

12. The terms, conditions, restrictions and purpose of this conservation easement shall be inserted by Grantor in any subsequent deed or other legal instrument by which Grantor divests itself of any interest in the Property. Any future holder of the Grantor's interest in the Property shall be notified in writing by Grantor of this conservation easement.

13. This conservation easement may be amended, altered, released or revoked only by written agreement between the parties hereto or their heirs, assigns or successors-in-interest, which shall be filed in the public records in Lee County.

TO HAVE AND TO HOLD unto Grantor forever. The covenants, terms, conditions, restrictions and purpose imposed with this conservation easement shall be binding upon Grantor, and shall continue as a servitude running in perpetuity with the Property.

Grantor hereby covenants with said Grantee that Grantor is lawfully seized of said Property in fee simple, that the Property is free and clear of all encumbrances, that Grantor has good right and lawful authority to convey this conservation easement, and that it hereby fully warrants and defends the title to the conservation easement hereby conveyed against the lawful claims of all persons whomsoever.

IN WITNESS WHEREOF, the undersigned has hereunto set its authorized hand this 10th day of October, 1997.

Signed, sealed and delivered in our presence as witnesses:

Erika Ziegler-Robinson

Erika Ziegler-Robinson

Print/Type Name of Witness

Barbara J. Hipsley

Barbara J. Hipsley

Print/Type Name of Witness

Richard K. Bennett, as Trustee of Corkscrew East/West Land Trusts

By: Richard K. Bennett

Richard K. Bennett, Esquire

Legal Form Approved
SFWMD Office of Counsel
By _____ Date 8/25/97

STATE OF FLORIDA)

COUNTY OF COLLIER)

THE FOREGOING INSTRUMENT was acknowledged before me this 10th day of October, 1997, by **RICHARD K. BENNETT**, who is personally known to me or who has produced _____ as identification, acknowledging that the above and foregoing is true and correct and that it was executed freely and voluntarily for the purposes expressed therein.

Barbara J. Hipsley

Barbara J. Hipsley, Notary Public
Commission Expiration Date:_____
Commission No: _____

Barbara J. Hipsley
MY COMMISSION # CC525831 EXPIRES
January 21, 2000
BONDED THRU TROY FAIN INSURANCE, INC.

OR2881 PG0814

DESCRIPTION OF RECORD:

(O. R. 2044 PAGE 2257 & O. R. 2083 PAGE 820)

A TRACT OR PARCEL OF LAND SITUATED IN THE STATE OF FLORIDA, COUNTY OF LEE, BEING A PART OF THE WEST ONE HALF (W. 1/2) OF SECTION 21, TOWNSHIP 46 SOUTH, RANGE 26 EAST, AND FURTHER BONDED AND DESCRIBED AS FOLLOWS:

STARTING AT A CONCRETE POST MARKING THE NORTHWEST CORNER OF SAID SECTION 21: THENCE N. 89°16'29.5" E. ALONG THE NORTH LINE OF SAID SECTION 21 FOR 1627.01 FEET TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED PARCEL: THENCE CONTINUE N. 89°16'29.5" E. ALONG SAID NORTH LINE FOR 881.89 FEET; THENCE S. 01°16'47.5" E. PARALLEL WITH THE WEST LINE OF SAID SECTION 21 FOR 4278.166 FEET TO AN INTERSECTION WITH THE NORTHERLY RIGHT-OF-WAY LINE OF CORKSCREW ROAD (100.00 FEET WIDE); THENCE S. 86°25'00" W. ALONG SAID RIGHT-OF-WAY LINE FOR 882.56 FEET; THENCE N. 01°16'47.5" W. PARALLEL WITH SAID WEST LINE OF SAID SECTION 21 FOR 4322.18 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS: 87.05 ACRES MORE OR LESS.

AND

A TRACT OR PARCEL OF LAND SITUATED IN THE STATE OF FLORIDA, COUNTY OF LEE, BEING A PART OF THE WEST ONE HALF (W. 1/2) OF SECTION 21, TOWNSHIP 46 SOUTH, RANGE 26 EAST, AND FURTHER BONDED AND DESCRIBED AS FOLLOWS:

STARTING AT A CONCRETE POST MARKING THE NORTHWEST CORNER OF SAID SECTION 21; THENCE N. 89°16'29.5" E. ALONG THE NORTH LINE OF SAID SECTION 21 FOR 745.115 FEET TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED PARCEL; THENCE CONTINUE N. 89°16'29.5" E. ALONG SAID NORTH LINE FOR 881.89 FEET; THENCE S. 01°16'47.5" E. PARALLEL WITH THE WEST LINE OF SAID SECTION 21 FOR 4322.18 FEET TO AN INTERSECTION WITH THE NORTHERLY RIGHT-OF-WAY LINE OF CORKSCREW ROAD (100.00 FEET WIDE); THENCE S. 86°25'00" W. ALONG SAID RIGHT-OF-WAY LINE FOR 882.56 FEET; THENCE N. 01°16'47.5" W. PARALLEL WITH SAID WEST LINE OF SAID SECTION 21 FOR 4366.19 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS: 87.95 ACRES MORE OR LESS.

Exhibit "A"

K&T SURVEY GROUP, INC.
LAND SURVEYORS & MAPPERS

2726 Swamp Cabbage Court
Fort Myers, Florida 33901
Phone (941) 274-0991
Fax (941) 274-0992

DESCRIPTION OF A WETLAND EASEMENT
LYING IN SECTION 21, T-46-S, R-26-E,
LEE COUNTY, FLORIDA.

(WETLAND EASEMENT)

A WETLAND EASEMENT SITUATED IN THE STATE OF FLORIDA, COUNTY OF LEE, LYING IN SECTION 21, TOWNSHIP 46 SOUTH, RANGE 26 EAST, BEING FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 21; THENCE N.89°23'44"E., ALONG THE NORTH LINE OF SAID SECTION 21 FOR 2508.90 FEET; THENCE S.01°09'13"E., FOR 3063.87 FEET TO THE POINT OF BEGINNING; THENCE S.01°09'13"E., FOR 516.16 FEET; THENCE N.68°55'43"W., FOR 77.02 FEET; THENCE N.54°04'07"W., FOR 53.22 FEET; THENCE N.48°59'32"W., FOR 42.46 FEET; THENCE N.48°59'32"W., FOR 4.14 FEET; THENCE N.56°19'26"W., FOR 56.82 FEET; THENCE N.34°08'48"W., FOR 45.19 FEET; THENCE N.33°01'03"W., FOR 47.39 FEET; THENCE N.28°52'43"W., FOR 38.99 FEET; THENCE N.37°07'34"W., FOR 38.03 FEET; THENCE N.04°03'17"E., FOR 34.18 FEET; THENCE N.35°17'50"E., FOR 30.87 FEET; THENCE N.37°21'31"E., FOR 29.38 FEET; THENCE N.63°50'51"E., FOR 35.04 FEET; THENCE N.84°11'52"E., FOR 26.13 FEET; THENCE N.50°26'01"E., FOR 32.75 FEET; THENCE N.53°43'56"E., FOR 13.72 FEET; THENCE N.08°43'28"W., FOR 18.79 FEET; THENCE N.22°53'08"E., FOR 32.35 FEET; THENCE N.50°33'09"E., FOR 38.10 FEET; THENCE N.64°59'47"E., FOR 30.93 FEET; THENCE N.63°52'12"E., FOR 35.06 FEET; THENCE N.65°23'57"E., FOR 54.43 FEET TO THE POINT OF BEGINNING.

PARCEL CONTAINS 91751 SQUARE FEET OR 2.11 ACRES, MORE OR LESS.

BEARINGS ARE BASED ON SAID NORTH LINE OF SECTION 21 AS BEARING N.89°23'44"E.

K&T SURVEY GROUP, INC. July 23, 1997

Kenneth E. Trask

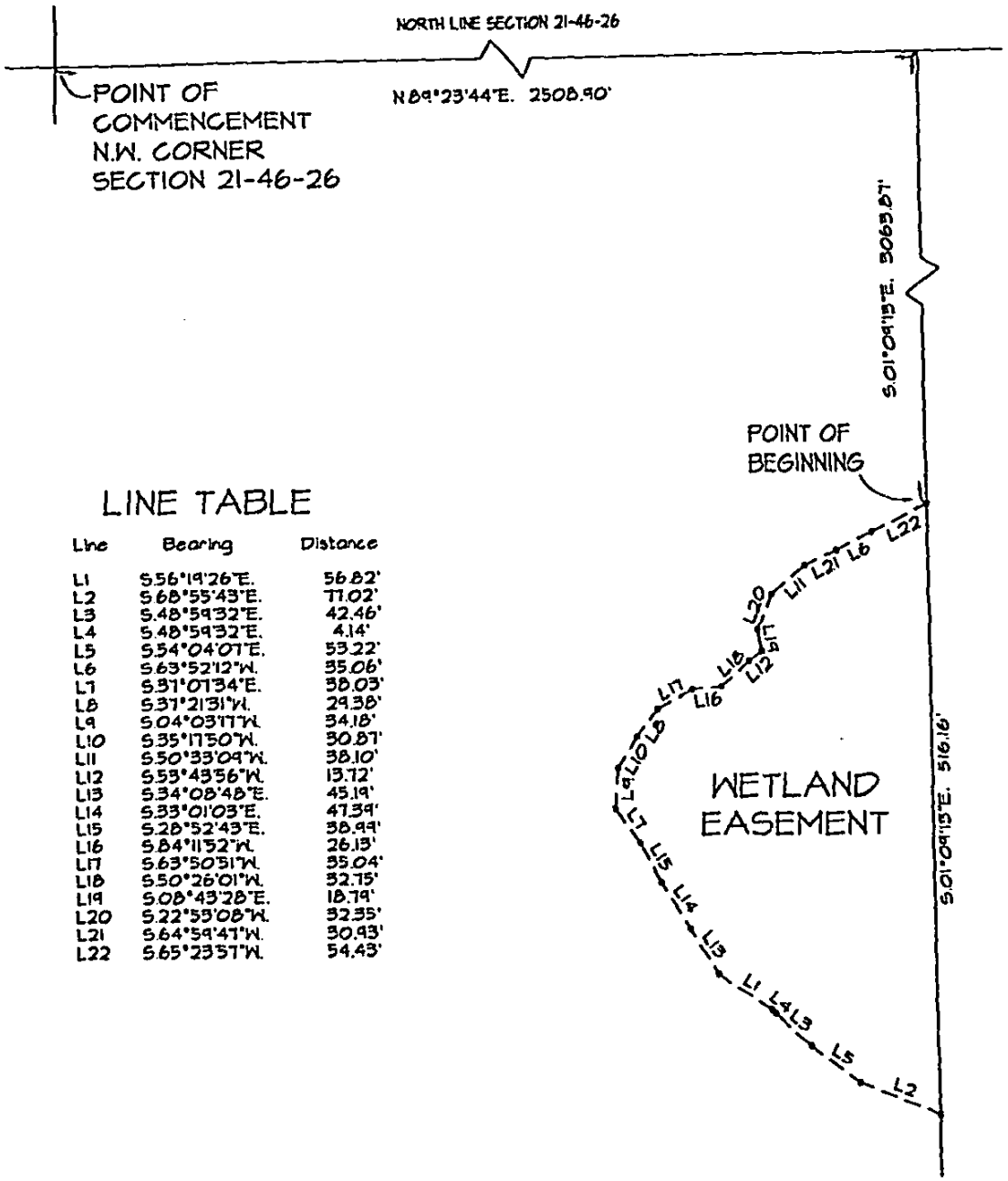
KENNETH E. TRASK
PROFESSIONAL LAND SURVEYOR
FLORIDA CERTIFICATE NO. 4684

\4508WM.doc

SKETCH TO ACCOMPANY DESCRIPTION

1" = 150'

N



LINE TABLE

Line	Bearing	Distance
L1	S.56°19'26"E.	56.82'
L2	S.68°55'43"E.	77.02'
L3	S.48°59'32"E.	42.46'
L4	S.48°59'32"E.	4.14'
L5	S.54°04'07"E.	53.22'
L6	S.63°52'12"W.	35.06'
L7	S.31°01'34"E.	38.03'
L8	S.31°21'31"W.	29.38'
L9	S.04°03'17"W.	34.18'
L10	S.35°11'50"W.	30.87'
L11	S.50°33'09"W.	38.10'
L12	S.55°43'56"W.	13.72'
L13	S.34°08'48"E.	45.19'
L14	S.33°01'03"E.	47.39'
L15	S.28°52'43"E.	38.99'
L16	S.84°11'52"W.	26.13'
L17	S.63°50'51"W.	35.04'
L18	S.50°26'01"W.	32.75'
L19	S.08°43'28"E.	18.79'
L20	S.22°55'08"W.	32.35'
L21	S.64°59'47"W.	30.93'
L22	S.65°23'51"W.	54.43'

K&T SURVEY GROUP, INC.
LAND SURVEYORS & MAPPERS
FLORIDA LICENSED BUSINESS #6468

2726 SWAMP CABBAGE COURT
FORT MYERS, FLORIDA 33901
PHONE (941) 274-0991
FAX (941) 274-0992

**** THIS IS NOT A SURVEY ****

7-23-97

KENNETH E. TRASK DATE
PROFESSIONAL LAND SURVEYOR
FLORIDA CERTIFICATE NO. 4684

K&T SURVEY GROUP, INC.
LAND SURVEYORS & MAPPERS

2726 Swamp Cabbage Court
Fort Myers, Florida 33901
Phone (941) 274-0991
Fax (941) 274-0992

DESCRIPTION OF A WETLAND EASEMENT
LYING IN SECTION 21, T-46-S, R-26-E,
LEE COUNTY, FLORIDA.

(WETLAND EASEMENT)

A WETLAND EASEMENT SITUATED IN THE STATE OF FLORIDA, COUNTY OF LEE, LYING IN SECTION 21, TOWNSHIP 46 SOUTH, RANGE 26 EAST, BEING FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 21; THENCE N.89°23'44"E., ALONG THE NORTH LINE OF SAID SECTION 21 FOR 2508.90 FEET; THENCE S.01°09'13"E., FOR 2494.70 FEET; THENCE S.88°50'48"W., FOR 183.69 FEET TO THE POINT OF BEGINNING; THENCE S.31°42'09"W., FOR 34.92 FEET; THENCE S.13°42'24"W., FOR 27.00 FEET; THENCE S.17°30'47"W., FOR 28.10 FEET; THENCE S.62°25'14"W., FOR 52.95 FEET; THENCE S.37°25'22"W., FOR 18.35 FEET; THENCE S.12°44'39"W., FOR 18.75 FEET; THENCE S.72°29'13"E., FOR 43.31 FEET; THENCE S.26°26'18"W., FOR 70.16 FEET; THENCE S.88°51'49"W., FOR 21.18 FEET; THENCE S.26°40'07"W., FOR 20.20 FEET; THENCE S.29°05'02"W., FOR 32.24 FEET; THENCE S.40°47'02"W., FOR 40.83 FEET; THENCE S.29°44'58"W., FOR 68.55 FEET; THENCE N.51°25'17"W., FOR 24.89 FEET; THENCE S.06°06'55"W., FOR 21.97 FEET; THENCE S.30°34'30"W., FOR 39.35 FEET; THENCE S.88°39'05"W., FOR 39.93 FEET; THENCE S.56°10'15"W., FOR 22.68 FEET; THENCE S.74°54'03"W., FOR 25.87 FEET; THENCE S.28°37'17"W., FOR 18.43 FEET; THENCE S.62°35'34"W., FOR 27.72 FEET; THENCE S.10°50'01"W., FOR 34.81 FEET; THENCE N.46°21'34"W., FOR 188.85 FEET; THENCE N.13°22'50"W., FOR 17.90 FEET; THENCE N.08°29'06"W., FOR 35.88 FEET; THENCE N.24°02'38"W., FOR 34.86 FEET; THENCE N.26°12'23"W., FOR 56.73 FEET; THENCE N.43°16'12"W., FOR 35.71 FEET; THENCE N.22°02'01"W., FOR 44.15 FEET; THENCE N.07°14'09"W., FOR 26.27 FEET; THENCE N.42°51'43"W., FOR 40.83 FEET; THENCE N.12°07'28"E., FOR 62.26 FEET; THENCE N.09°22'46"W., FOR 61.07 FEET; THENCE N.33°04'32"E., FOR 59.05 FEET; THENCE N.52°03'54"E., FOR 39.40 FEET; THENCE N.09°52'09"E., FOR 41.65 FEET; THENCE N.14°38'45"W., FOR 63.51 FEET; THENCE N.08°29'54"E., FOR 19.65 FEET; THENCE N.54°47'13"E., FOR 19.65 FEET; THENCE N.77°55'52"E., FOR 74.94 FEET; THENCE S.84°01'53"E., FOR 19.56 FEET; THENCE N.36°34'46"E., FOR 74.63 FEET; THENCE N.32°49'32"E., FOR 62.22 FEET; THENCE S.44°26'32"E., FOR 15.73 FEET; THENCE N.12°57'39"E., FOR 23.26 FEET; THENCE N.54°50'27"E., FOR 12.69 FEET; THENCE N.89°22'44"E., FOR 23.84 FEET; THENCE N.36°52'46"E., FOR 25.09 FEET; THENCE N.54°45'08"E., FOR 42.65 FEET; THENCE N.87°50'06"E., FOR 76.15 FEET; THENCE S.75°10'02"E., FOR 74.89 FEET; THENCE N.82°21'37"E., FOR 55.24 FEET; THENCE S.65°27'32"E., FOR 49.83 FEET; THENCE S.24°32'28"W., FOR 66.28 FEET; THENCE S.64°34'06"E., FOR 28.14 FEET; THENCE S.21°02'36"E., FOR 52.85 FEET; THENCE S.21°01'34"E., FOR 37.73 FEET; THENCE S.05°26'56"E., FOR 72.99 FEET; THENCE S.64°51'00"W., FOR 39.66 FEET; THENCE S.22°13'39"W., FOR 12.06 FEET; THENCE S.19°00'14"W., FOR 33.27 FEET; THENCE S.01°48'16"W., FOR 33.81 FEET; THENCE S.15°13'10"W., FOR 40.59 FEET; THENCE S.28°21'45"E., FOR 7.79 FEET; THENCE S.52°25'09"E., FOR 51.30 FEET TO THE POINT OF BEGINNING.

PARCEL CONTAINS 381382 SQUARE FEET OR 8.76 ACRES, MORE OR LESS.

BEARINGS ARE BASED ON SAID NORTH LINE OF SECTION 21 AS BEARING N.89°23'44"E.

K&T SURVEY GROUP, INC.

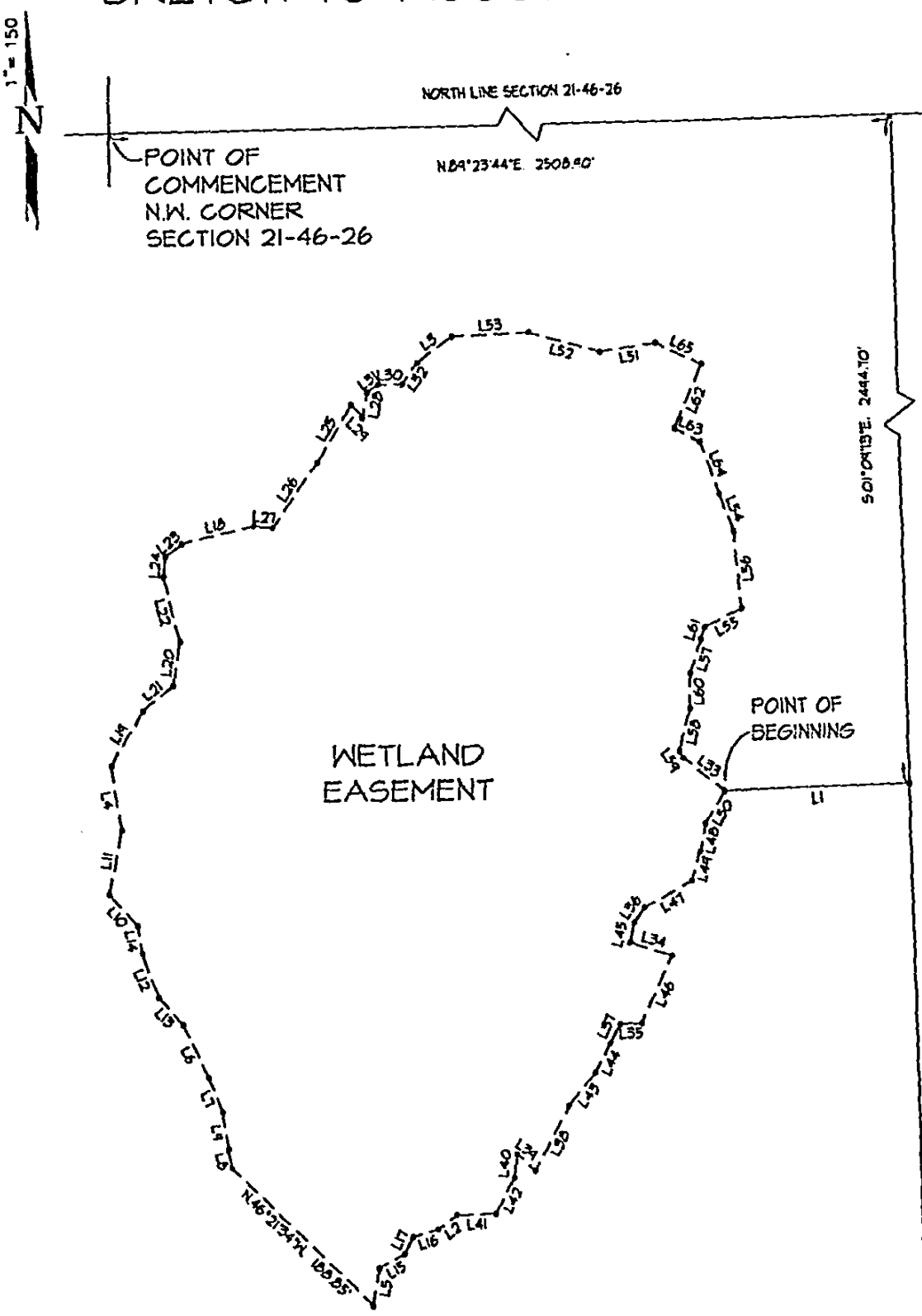
July 23, 1997

KENNETH E. TRASK
PROFESSIONAL LAND SURVEYOR
FLORIDA CERTIFICATE NO. 4684

Exhibit "B"
Page 3 of 6
Wetland B (East)

\4508WI.doc

SKETCH TO ACCOMPANY DESCRIPTION



LINE TABLE

Line	Bearing	Distance
L1	S.88°50'48"W.	1836.9'
L2	S.56°10'15"W.	226.8'
L3	N.54°45'08"E.	42.65'
L4	N.09°22'46"W.	61.01'
L5	S.10°50'01"W.	34.81'
L6	N.26°12'23"W.	56.13'
L7	N.24°02'38"W.	34.86'
L8	N.13°22'50"W.	119.10'
L9	N.08°29'06"W.	35.88'
L10	N.42°51'43"W.	40.85'
L11	N.12°01'28"E.	62.26'
L12	N.22°02'01"W.	44.15'
L13	N.45°16'12"W.	35.71'
L14	N.01°14'09"W.	26.21'
L15	S.62°35'34"W.	27.72'
L16	S.14°54'03"W.	25.81'
L17	S.28°31'11"W.	18.43'
L18	N.71°55'52"E.	74.94'
L19	N.33°04'32"E.	59.05'
L20	N.09°52'09"E.	41.65'
L21	N.52°03'54"E.	39.40'
L22	N.14°38'45"W.	63.51'
L23	N.54°41'13"E.	19.65'
L24	N.08°29'54"E.	19.65'
L25	N.32°44'32"E.	82.22'
L26	N.36°34'46"E.	74.63'
L27	S.84°01'53"E.	19.56'
L28	N.12°51'39"E.	23.26'
L29	S.44°26'32"E.	15.13'
L30	N.89°22'44"E.	23.84'
L31	N.54°50'21"E.	12.69'
L32	N.56°52'46"E.	25.09'
L33	S.52°25'09"E.	51.30'
L34	S.12°29'13"E.	43.31'
L35	S.88°51'49"W.	21.18'
L36	S.31°25'22"W.	18.35'
L37	S.26°40'01"W.	20.20'
L38	S.29°44'58"W.	68.55'
L39	N.51°25'11"W.	24.89'
L40	S.06°06'55"W.	21.91'
L41	S.88°34'09"W.	34.93'
L42	S.30°34'30"W.	34.35'
L43	S.40°41'02"W.	40.83'
L44	S.29°05'02"W.	52.24'
L45	S.12°44'39"W.	18.75'
L46	S.26°26'16"W.	70.16'
L47	S.62°25'14"W.	52.95'
L48	S.13°42'24"W.	27.00'
L49	S.11°30'41"W.	28.10'
L50	S.31°42'09"W.	34.92'
L51	S.82°21'31"W.	55.24'
L52	N.75°10'02"W.	74.89'
L53	N.81°50'06"E.	16.15'
L54	S.21°01'34"E.	31.73'
L55	S.64°51'00"W.	34.66'
L56	S.05°26'56"E.	72.99'
L57	S.19°00'14"W.	33.21'
L58	S.15°13'10"W.	40.54'
L59	S.28°21'45"E.	7.79'
L60	S.01°48'16"W.	33.81'
L61	S.22°13'34"W.	12.06'
L62	S.24°32'28"W.	66.28'
L63	S.64°34'06"E.	28.14'
L64	S.21°02'36"E.	52.85'
L65	S.65°21'32"E.	49.83'

OR2881 PG0819

K&T SURVEY GROUP, INC.
LAND SURVEYORS & MAPPERS
FLORIDA LICENSED BUSINESS #6468

2726 SWAMP CABBAGE COURT
FORT MYERS, FLORIDA 33901
PHONE (941) 274-0991
FAX (941) 274-0992

Exhibit "B"
Page 4 of 6
Wetland B (East)

**** THIS IS NOT A SURVEY ****

Kenneth E. Trask 7-23-97

KENNETH E. TRASK DATE
PROFESSIONAL LAND SURVEYOR
FLORIDA CERTIFICATE NO. 4684

K&T SURVEY GROUP, INC.
LAND SURVEYORS & MAPPERS

2726 Swamp Cabbage Court
Fort Myers, Florida 33901
Phone (941) 274-0991
Fax (941) 274-0992

DESCRIPTION OF A WETLAND EASEMENT
LYING IN SECTION 21, T-46-S, R-26-E,
LEE COUNTY, FLORIDA.

(WETLAND EASEMENT)

A WETLAND EASEMENT SITUATED IN THE STATE OF FLORIDA, COUNTY OF LEE, LYING IN SECTION 21, TOWNSHIP 46 SOUTH, RANGE 26 EAST, BEING FURTHER DESCRIBED AS FOLLOWS:
COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 21; THENCE N.89°23'44"E., ALONG THE NORTH LINE OF SAID SECTION 21 FOR 745.13 FEET; THENCE S.01°09'13"E., FOR 3355.80 FEET; THENCE N.88°50'48"E., FOR 478.12 FEET TO THE POINT OF BEGINNING; THENCE N.66°33'12"W., FOR 87.61 FEET; THENCE N.88°51'08"W., FOR 55.19 FEET; THENCE N.88°36'16"W., FOR 79.76 FEET; THENCE N.88°47'29"W., FOR 79.24 FEET; THENCE N.25°28'55"E., FOR 89.63 FEET; THENCE N.62°03'08"E., FOR 46.46 FEET; THENCE N.38°41'09"E., FOR 55.17 FEET; THENCE N.38°41'09"E., FOR 15.36 FEET; THENCE N.37°49'46"E., FOR 68.39 FEET; THENCE N.59°11'28"E., FOR 71.38 FEET; THENCE N.48°16'18"E., FOR 45.29 FEET; THENCE N.08°13'04"E., FOR 26.18 FEET; THENCE N.48°23'35"E., FOR 76.66 FEET; THENCE N.52°50'03"E., FOR 84.23 FEET; THENCE N.66°47'53"E., FOR 15.91 FEET; THENCE N.43°38'26"E., FOR 37.91 FEET; THENCE S.46°21'34"E., FOR 16.22 FEET; THENCE S.49°34'08"E., FOR 29.22 FEET; THENCE S.76°09'30"E., FOR 18.53 FEET; THENCE N.86°19'43"E., FOR 56.88 FEET; THENCE S.71°36'26"E., FOR 43.61 FEET; THENCE S.77°51'20"E., FOR 41.52 FEET; THENCE S.43°10'56"E., FOR 47.27 FEET; THENCE N.67°46'17"E., FOR 31.31 FEET; THENCE N.43°23'52"E., FOR 23.50 FEET; THENCE N.11°05'01"E., FOR 42.62 FEET; THENCE S.73°13'33"E., FOR 52.52 FEET; THENCE N.81°36'55"E., FOR 18.65 FEET; THENCE N.01°55'45"E., FOR 8.06 FEET; THENCE N.64°38'08"E., FOR 27.37 FEET; THENCE N.69°53'41"E., FOR 14.31 FEET; THENCE N.31°03'48"E., FOR 38.22 FEET; THENCE S.46°21'34"E., FOR 218.95 FEET; THENCE S.81°01'40"W., FOR 84.02 FEET; THENCE S.30°14'56"W., FOR 10.81 FEET; THENCE S.31°21'59"W., FOR 49.92 FEET; THENCE S.86°24'43"W., FOR 67.09 FEET; THENCE N.84°07'39"W., FOR 32.09 FEET; THENCE N.88°31'05"W., FOR 11.83 FEET; THENCE S.32°34'09"W., FOR 7.71 FEET; THENCE S.05°26'13"W., FOR 5.98 FEET; THENCE S.52°49'12"E., 9 FOR 38.89 FEET; THENCE S.31°31'23"E., FOR 39.22 FEET; THENCE S.21°53'56"E., FOR 33.18 FEET; THENCE S.07°10'09"W., FOR 30.83 FEET; THENCE S.14°06'43"E., FOR 28.48 FEET; THENCE S.30°15'33"E., FOR 16.72 FEET; THENCE S.33°43'47"E., FOR 27.05 FEET; THENCE S.12°18'12"E., FOR 32.05 FEET; THENCE S.08°11'17"W., FOR 51.33 FEET; THENCE S.15°02'01"E., FOR 61.29 FEET; THENCE S.02°53'03"W., FOR 21.42 FEET; THENCE S.11°21'13"E., FOR 26.28 FEET; THENCE S.25°53'04"W., FOR 22.73 FEET; THENCE S.52°55'20"W., FOR 59.79 FEET; THENCE S.37°59'06"W., FOR 32.83 FEET; THENCE S.47°09'39"W., FOR 27.58 FEET; THENCE S.18°02'54"W., FOR 13.22 FEET; THENCE S.18°02'54"W., FOR 22.91 FEET; THENCE S.27°22'39"W., FOR 53.37 FEET; THENCE S.36°21'45"W., FOR 51.78 FEET; THENCE S.81°11'26"W., FOR 91.15 FEET; THENCE N.53°43'59"W., FOR 66.16 FEET; THENCE N.25°09'36"W., FOR 37.40 FEET; THENCE N.15°08'15"W., FOR 65.01 FEET; THENCE N.38°05'53"W., FOR 66.05 FEET; THENCE N.69°12'06"W., FOR 107.03 FEET; THENCE N.40°26'52"W., FOR 69.57 FEET; THENCE N.68°26'09"W., FOR 23.08 FEET; THENCE N.38°44'29"W., FOR 39.82 FEET; THENCE N.16°23'19"E., FOR 7.53 FEET; THENCE N.43°24'41"W., FOR 8.79 FEET TO THE POINT OF BEGINNING.

PARCEL CONTAINS 416220 SQUARE FEET OR 9.56 ACRES, MORE OR LESS.

BEARINGS ARE BASED ON SAID NORTH LINE OF SECTION 21 AS BEARING N.89°23'44"E.

K&T SURVEY GROUP, INC.

July 23, 1997

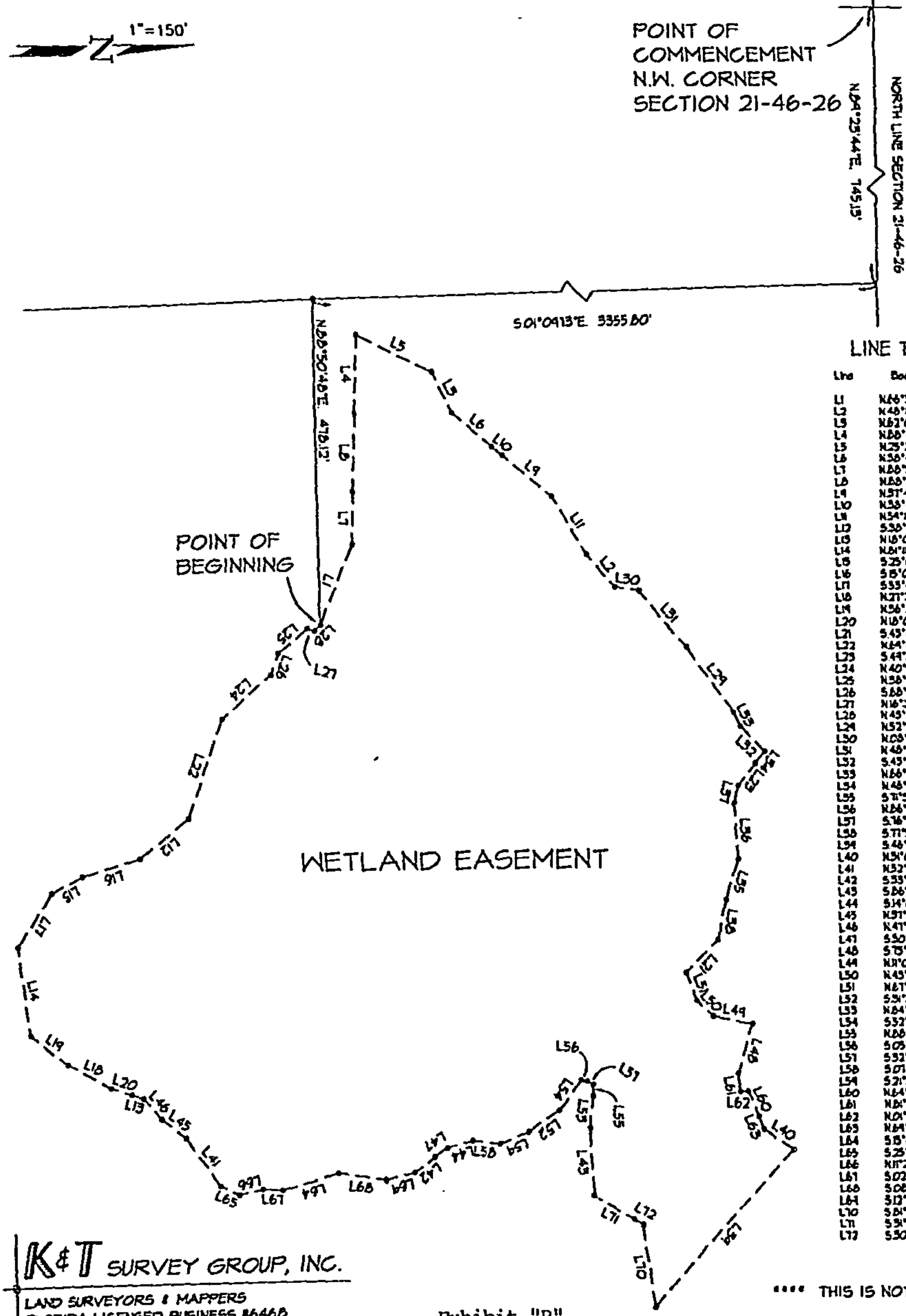
Kenneth E. Trask

KENNETH E. TRASK
PROFESSIONAL LAND SURVEYOR
FLORIDA CERTIFICATE NO. 4684

Exhibit "B"
Page 5 of 6
Wetland B (West)

\4508WIS.doc

SKETCH TO ACCOMPANY DESCRIPTION



LINE TABLE

Line	Bearing	Distance
L1	N86°53'12"W	81.81'
L2	N48°16'18"E	43.29'
L3	N62°03'08"E	46.46'
L4	N88°47'29"W	79.24'
L5	N25°28'55"E	84.63'
L6	N38°41'09"E	53.17'
L7	N88°51'08"W	55.19'
L8	N88°36'16"W	79.76'
L9	N57°49'46"E	68.59'
L10	N38°41'09"E	15.36'
L11	N54°11'28"E	71.58'
L12	S38°05'53"E	66.05'
L13	N18°02'54"E	13.22'
L14	N81°11'26"E	41.15'
L15	S25°09'56"E	51.40'
L16	S15°08'15"E	65.01'
L17	S33°43'54"E	66.16'
L18	N27°22'54"E	53.57'
L19	N56°21'45"E	51.18'
L20	N18°02'54"E	22.41'
L21	S43°10'56"E	41.27'
L22	N84°12'06"W	101.05'
L23	S49°34'08"E	29.22'
L24	N40°26'52"W	64.57'
L25	N58°44'29"W	34.82'
L26	S88°26'09"E	23.08'
L27	N16°23'14"E	7.53'
L28	N43°24'41"W	8.79'
L29	N52°50'05"E	84.25'
L30	N08°15'04"E	26.18'
L31	N48°23'53"E	16.66'
L32	S43°58'26"W	51.41'
L33	N66°47'53"E	15.41'
L34	N48°21'34"W	16.27'
L35	S71°56'26"E	43.61'
L36	N86°14'43"E	56.88'
L37	S16°01'50"E	10.55'
L38	S77°51'20"E	41.57'
L39	S48°21'54"E	28.93'
L40	N51°05'48"E	50.22'
L41	N52°55'20"E	54.79'
L42	S33°43'47"E	27.05'
L43	S86°24'43"W	61.09'
L44	S14°06'43"E	28.48'
L45	N57°54'06"E	52.85'
L46	N47°09'54"E	21.58'
L47	S50°18'53"E	16.12'
L48	S75°13'53"E	32.57'
L49	N19°05'01"E	42.62'
L50	N43°25'52"E	23.50'
L51	N67°46'17"E	31.51'
L52	S51°51'25"E	54.22'
L53	N84°07'59"W	52.09'
L54	S32°44'12"E	53.84'
L55	N88°31'03"W	11.85'
L56	S05°26'13"W	3.45'
L57	S32°34'04"W	7.17'
L58	S01°10'04"W	50.85'
L59	S21°53'56"E	53.18'
L60	N64°38'08"E	21.57'
L61	N81°26'53"E	13.85'
L62	N01°35'43"E	8.06'
L63	N64°35'41"E	14.51'
L64	S15°02'01"E	61.29'
L65	S25°53'04"W	22.13'
L66	N17°21'13"W	26.28'
L67	S02°53'05"W	21.42'
L68	S08°11'17"W	31.53'
L69	S12°18'12"E	52.05'
L70	S81°01'40"W	84.02'
L71	S51°21'54"W	44.42'
L72	S50°14'56"W	10.51'

OR2881 PG0821

97 OCT 23 PM 4:04

CHARLIE GREEN LEE CTY.FL

K&T SURVEY GROUP, INC.
LAND SURVEYORS & MAPPERS
FLORIDA LICENSED BUSINESS #6468
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Exhibit "B"
Page 6 of 6
Wetland B (West)

**** THIS IS NOT A SURVEY ****

Kenneth E. Trask 7-23-97

KENNETH E. TRASK DATE
PROFESSIONAL LAND SURVEYOR
FLORIDA CERTIFICATE NO. 4584

Appendix G: FWC Conservation Easement

INSTR # 2013000084816, Doc Type EAS, Pages 28, Recorded 04/12/2013 at 08:47 AM, Linda Doggett, Lee County Clerk of Circuit Court, Rec. Fee $239.50 Deputy Clerk PSMITH

This instrument prepared by:
Lee County
PO Box 398
Fort Myers, Florida 33902-0398

After recording please return the document to Grantee:
Florida Fish and Wildlife Conservation Commission
Attention: Rick McCann
620 South Meridian Street
Tallahassee, Florida 32399-1600

CONSERVATION EASEMENT

THIS DEED OF CONSERVATION EASEMENT is given this 19th day of February, 2013 by Lee County Board of County Commissioners, a political subdivision and charter county of the State of Florida whose mailing address is P. O. Box 398, Fort Myers, Florida 33902-0398, ("Grantor") to the Florida Fish and Wildlife Conservation Commission, an agency of the State of Florida, with its principal office at 620 South Meridian Street, Tallahassee, Florida 32399-1600 ("Grantee").

The parties agree as follows:

WITNESSETH

WHEREAS, the Grantor is the owner of certain lands situated in Lee County, Florida, hereinafter referred to as the "Property", more specifically described in Exhibit A attached hereto and incorporated herein by this reference; and

WHEREAS, the Property possesses natural, scenic, open space, wildlife preservation and conservation values (collectively, "conservation values") of great importance to Grantor, the people of Lee County, and the people of the State of Florida; and

WHEREAS, the specific conservation values of the Property are documented as part of the Gator Hole Preserve Gopher Tortoise Habitat Management Plan pertaining to the Property, dated October 2009, Updated October 2012 ("Plan"), part of which is entitled the "Baseline Habitat Conditions". A copy of the Plan is attached hereto as Exhibit B, and incorporated herein by reference. The Baseline Documentation is an accurate representation of the Property at the time of this grant and is intended to serve as an objective information baseline for monitoring compliance with the terms of this grant; and

WHEREAS, Grantor intends that the conservation values of the Property be preserved and maintained by the continuation of land use patterns, including, without limitation, those relating to a resource-based public park existing at the time of this grant, that do not significantly impair or interfere with those values; and

C9c
2-19-13

WHEREAS, Grantor further intends, as owner of the Property, to convey to Grantee the right to preserve and protect the conservation values of the Property in perpetuity; and

WHEREAS, Grantee is a state public agency, part of whose mission is the conservation, preservation, protection or enhancement of lands such as the Property; and

WHEREAS, the Grantor, in consideration of the issuance by the Grantee of Permit No. GTLR-13-0002 issued by the Grantee on March 12, 2013 ("Permit") in favor of the Grantor for a long term protected gopher tortoise recipient site, is required to grant and secure the enforcement of a perpetual conservation easement pertaining to the Property.

NOW THEREFORE, consistent with the issuance of the Permit, Grantor hereby grants, creates, and establishes a perpetual conservation easement upon the Property described in Exhibit A, which shall run with the land and be binding upon the Grantor, its heirs, successors and assigns, and remain in full force and effect forever.

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

2. Purpose. The purpose of this Conservation Easement is to ensure that the Property or part thereof as described in this Conservation Easement will be protected forever and used as conservation areas, consistent with the Habitat Management Plan ("Plan"). The parties intend that this Conservation Easement will confine the use of the Property to such uses as are consistent with the purpose of this Conservation Easement.

3. Rights of Grantee. To accomplish the purpose of this Conservation Easement the following rights are conveyed to Grantee:

a. To preserve and protect the conservation values of the Property as defined in this Conservation Easement;

b. To enter upon the Property at reasonable times and upon reasonable notice to the Grantor in order to engage in activities consistent with this Conservation Easement, to monitor Grantor's compliance with this Conservation Easement, and to otherwise enforce the terms of this Conservation Easement; provided that Grantee does not unreasonably interfere with Grantor's use and quiet enjoyment of the Property; and

c. To prevent any activity on or use of the Property that is inconsistent with the purpose of this Conservation Easement, and to require the restoration of such areas or features of the Property that may be damaged by any inconsistent activity or use.

4. Grantor's Reserved Rights. Grantor reserves to itself, its heirs, successors or assigns all rights as owner of the Property including the right to engage in all uses of the Property that are not expressly prohibited herein and are not inconsistent with the purpose of this Conservation Easement.

5. Prohibited Uses. Unless expressly authorized in accordance with the Plan (Exhibit B), the following are prohibited activities on the Property:

a. Construction or placing of buildings, roads, billboards or other advertising, utilities or other structures on or above the ground.

b. Dumping or placing of soil or other substance or material as landfill or dumping of trash, waste, or unsightly or offensive materials.

c. Removal or destruction of trees, shrubs, or other vegetation other than for habitat management including exotic pest plant control and eradication, brush management and for trails and access roads.

d. Excavation, dredging, or removal of loam, peat, gravel, soil, rock or other material substance in such manner as to affect the surface.

e. Surface use except for purposes that permit the land or water areas to remain in their existing natural condition.

f. Activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, or fish and wildlife habitat preservation.

g. Acts or uses detrimental to such retention of land or water areas in their existing natural condition.

h. Acts or uses detrimental to the preservation of the structural integrity or physical appearance of sites or properties of historical, architectural, archaeological, or culture significance.

i. Alteration of the Property except in compliance with the Plan.

6. Expenses; Taxes. Grantor retains all responsibilities and will bear all costs and liabilities of any kind related to the ownership, operation, upkeep, and maintenance of the Property. Such responsibilities and costs include those associated with the management activities discussed in the Plan. Grantor will keep the Property free of any liens arising out of any work performed for, materials furnished to, or obligations incurred by Grantor. Grantor will pay before delinquency all taxes, assessments, fee, and charges of whatever description levied on or assessed against the Property by competent authority, and furnish Grantee with satisfactory evidence of payment upon request.

7. Costs of Enforcement. The reasonable costs incurred by Grantee in enforcing the terms of this easement against Grantor, including, without limitation, costs of suit and attorney's fees, and any costs of restoration necessitated by Grantor's violation of the terms of this Easement, will be borne by Grantor. Grantor will be responsible for the costs of restoration for any violation of this easement.

8. Liability. To the extent permitted by Florida Law, Grantor and its successors shall hold harmless, indemnify and defend Grantee from and against all liabilities, penalties, costs, losses, damages, expenses causes of action, claims, demands or judgments, including attorneys fees, arising from 1) injury to or the death of any person, or physical damage to any property, resulting from any negligent act or omission by Grantor, its officers, agents, and employees while acting within the scope of their employment related to or occurring on or about the Property; 2) costs and liabilities related to the ownership, operation, upkeep and maintenance of the Property; and, 3) the existence or administration of this Conservation Easement. Neither Grantor nor any of its officers, agents or employees will be liable under the existence or administration of this Conservation Easement for any and all claims, actions, damages, and liability cost expense, including those arising from bodily injury, death and/or property damages or any other lawful expense, including, but not limited to, attorney's fees and court costs resulting from the negligence of Grantee or any of its officers, agents or employees. However, nothing contained herein constitutes a waiver by either party of its sovereign immunity or the provisions of Section 768.28, Florida Statutes, as it may be revised or amended from time to time.

9. Remedies. If Grantee determines that Grantor or successors are in violation of the terms of this Conservation Easement, it may take any of the following actions, after thirty (30) day written notice to Grantor or successors to correct the violation: 1) Grantee may itself correct the violation, including but not limited to restoration of any portion of the Property affected to the condition that existed prior to the violation, and demand payment from Grantor for all reasonable costs associated with such action; 2) Grantee may bring an action at law or in equity in a court of competent jurisdiction to enforce the terms of this Conservation Easement, for specific performance, to temporarily or permanently enjoin the violation, recover damages for violation of this Conservation Easement, including but not limited to the costs of restoration, and any other damages permitted by law. In any enforcement action Grantee will not be required to prove either actual damages or the inadequacy of otherwise available remedies. Grantee's remedies will be cumulative and in addition to all remedies now or hereafter existing at law or in equity.

10. Waiver. Grantor intends that enforcement of the terms and provisions of the Conservation Easement and the Plan will be at the discretion of Grantee and that any forbearance on behalf of Grantee to exercise its rights hereunder in the event of any breach hereof by Grantor, its heirs, successors, personal representatives or assigns will not be deemed or construed to be a waiver of Grantee's rights hereunder in the event of a subsequent breach. Grantor hereby waives any defense of laches, estoppel, or prescription.

11. Assignment. Grantee agrees that it will hold this Conservation Easement exclusively for conservation purposes and that it will not assign its rights and obligations under this Conservation Easement except to another organization qualified to hold such interests under the

applicable state and federal laws and committed to holding this Conservation Easement exclusively for conservation purposes. Such assignments shall not occur without written approval from Grantor. Not later than thirty (30) days after recordation in the Public records of Lee County, Florida of an instrument transferring the title to the property, which is the subject of this easement, Grantor agrees to give written notice to Grantee of such transfer.

12. Severability. If any provision of this Conservation Easement or the application thereof to any person or circumstance is found to be invalid, the remainder of the provisions of this Conservation Easement, and the application of such provision to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

13. Notices; References. All notices, consents approvals or other communications hereunder must be in writing and will be deemed properly given as of the second business day after mailing if sent by United State certified mail, return receipt requested, or by overnight mail service (e.g. FedEx, UPS), addressed to the appropriate party or successor-in-interest, at the address above set forth or such new addresses as either party may in writing deliver to the other. References in this Conservation Easement to the Grantor or Grantee include their successors-in-interest.

14. Venue; Waiver of Jury Trial. This Conservation Easement has been delivered in the State of Florida and will be construed in accordance with the laws of Florida. As part of the consideration for this Conservation Easement, the parties hereby waive trial by jury in any action or proceeding brought by any party against any other party pertaining to any matter whatsoever arising out of or in any way connected with this Conservation Easement.

15. Amendment. This Conservation Easement may be amended, altered, released or revoked only by written agreement between the parties hereto, their successors or assigns.

16. Subordination of Liens. Grantor agrees that if the Property is subject to a mortgage lien or any other form of lien or security pertaining to the Property, Grantor will provide recorded or recordable documentation to verify that such lien or security interest is subordinate to this Conservation Easement.

17. Recording. This Easement will be recorded in the same manner as any other instrument asserting title to real property.

TO HAVE AND TO HOLD unto grantee, its respective successors and assigns forever. The covenants, terms, conditions, restrictions and purposes imposed with this Conservation Easement shall not only be binding upon Grantor but also its agents, personal representatives, heirs, assigns and all other successors to it in interest and shall continue as a servitude running in perpetuity with the Property.

IN WITNESS WHEREOF Grantor has set its hand on the day and year first above written.

ATTEST: LINDA DOGGETT
CLERK OF COURTS

BY: Marcia Wilson
Deputy Clerk

BOARD OF COUNTY COMMISSIONERS
OF LEE COUNTY, FLORIDA

BY: _____
Chair

SEAL
BOARD OF COUNTY COMMISSIONERS
LEE COUNTY, FLORIDA

APPROVED AS TO FORM:

BY: _____
Office of the County Attorney

_____
Notary Public State of Florida
Commission No:
Commission expires:

GRANTEE'S ACCEPTANCE

The Florida Fish and Wildlife Conservation Commission hereby accepts the foregoing Conservation Easement.

FLORIDA FISH AND WILDLIFE
CONSERVATION COMMISSION

By: _____
Title: Asst. Exec. Dir.
Date: 4.4.13

Approved as to form and legal sufficiency:

_____
FWC Attorney

Exhibits:
A- Legal and Sketch of Easement Area
B- Gator Hole Preserve Gopher Tortoise Habitat Management Plan

Exhibit "A"
Page 1 of 2

DESCRIPTION OF RECORD:

(O. R. 2044 PAGE 2257 & O. R. 2083 PAGE 820)

PARCEL NO. 10-F02-00-8
A TRACT OR PARCEL OF LAND SITUATED IN THE STATE OF FLORIDA, COUNTY OF LEE, BEING A PART OF THE WEST ONE HALF (W 1/2) OF SECTION 21, TOWNSHIP 46 SOUTH, RANGE 26 EAST, AND FURTHER BOUNDED AND DESCRIBED AS FOLLOWS:

STARTING AT A CONCRETE POST MARKING THE NORTHWEST CORNER OF SAID SECTION 21; THENCE N. 89°16'29.5" E. ALONG THE NORTH LINE OF SAID SECTION 21 FOR 1627.01 FEET TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED PARCEL; THENCE CONTINUE N. 89°16'29.5" E. ALONG SAID NORTH LINE FOR 881.89 FEET; THENCE S. 01°16'47.5" E. PARALLEL WITH THE WEST LINE OF SAID SECTION 21 FOR 4278.166 FEET TO AN INTERSECTION WITH THE NORTHERLY RIGHT-OF-WAY LINE OF CORKSCREW ROAD (100.00 FEET WIDE); THENCE S. 86°25'00" W. ALONG SAID RIGHT-OF-WAY LINE FOR 882.56 FEET; THENCE N. 01°16'47.5" W. PARALLEL WITH SAID WEST LINE OF SAID SECTION 21 FOR 4322.18 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS: 87.05 ACRES MORE OR LESS

AND

PARCEL NO. 10-F013-00-6
A TRACT OR PARCEL OF LAND SITUATED IN THE STATE OF FLORIDA, COUNTY OF LEE, BEING A PART OF THE WEST ONE HALF (W 1/2) OF SECTION 21, TOWNSHIP 46 SOUTH, RANGE 26 EAST, AND FURTHER BOUNDED AND DESCRIBED AS FOLLOWS:

STARTING AT A CONCRETE POST MARKING THE NORTHWEST CORNER OF SAID SECTION 21; THENCE N. 89°16'29.5" E. ALONG THE NORTH LINE OF SAID SECTION 21 FOR 745.115 FEET TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED PARCEL; THENCE CONTINUE N. 89°16'29.5" E. ALONG SAID NORTH FOR 881.89 FEET; THENCE S. 01°16'47.5" E. PARALLEL WITH THE WEST LINE OF SAID SECTION 21 FOR 4322.18 FEET TO AN INTERSECTION WITH THE NORTHERLY RIGHT-OF-WAY LINE OF CORKSCREW ROAD (100.00 FEET WIDE); THENCE S. 86°25'00" W ALONG SAID RIGHT-OF-WAY LINE FOR 882.56 FEET; THENCE N. 01°16'47.5" W. PARALLEL WITH SAID WEST LINE OF SAID SECTION 21 FOR 4366.19 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS: 87.95 ACRES MORE OR LESS

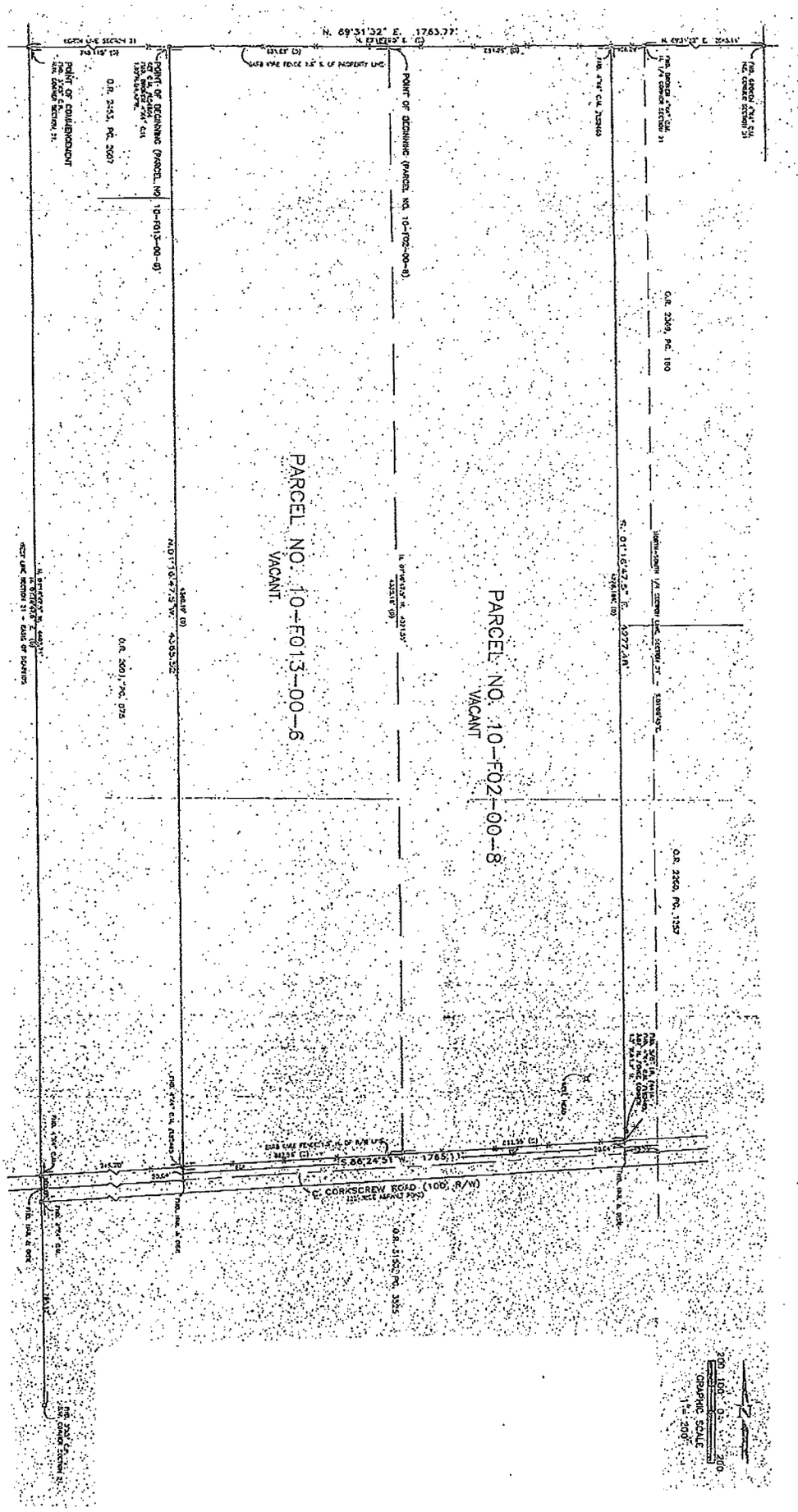

Exhibit "A"

Page 2 of 2

'Exhibit B'

GATOR HOLE PRESERVE
GOPHER TORTOISE HABITAT MANAGEMENT PLAN
Certified Florida Fish and Wildlife Conservation Commission
Long-Term Gopher Tortoise Recipient Site

Prepared for

Lee County Department of Public Works

LEE COUNTY
SOUTHWEST FLORIDA

By

QUEST
ecology

735 Lakeview Drive
Wimauma, FL 33598

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TABLES

EXHIBIT

1.0 INTRODUCTION/BACKGROUND

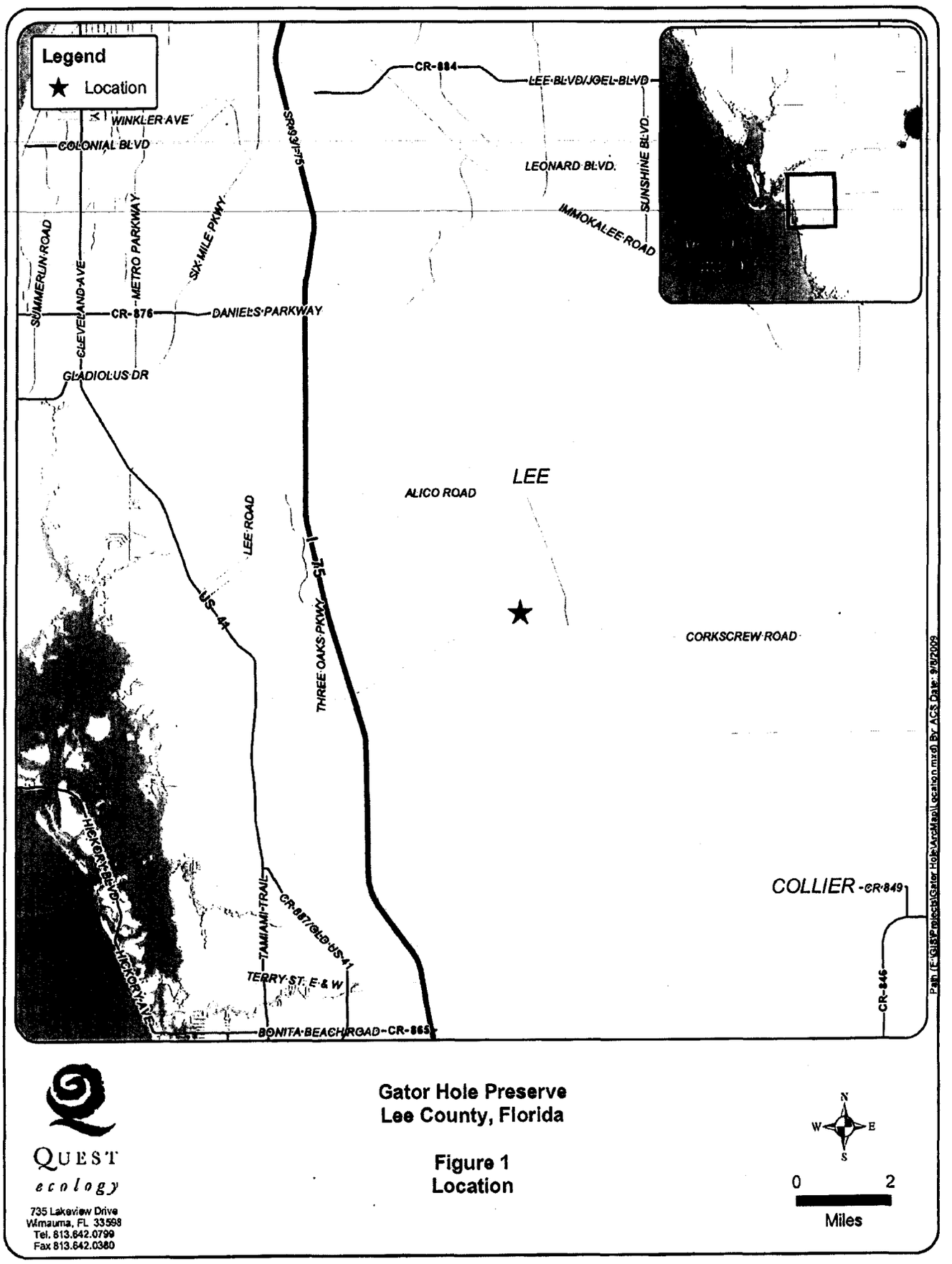
Gator Hole Preserve (Preserve) was purchased in 2000 under Lee County's Conservation 20/20 Land Program. The preserve encompasses approximately 175 acres primarily consisting of pine flatwoods. The southwest corner of the Preserve was converted to agricultural fields during the 1950's, but these were abandoned by the mid 1960's and gradually succeeded to dense pine-mesic oak habitat through the 1990's. Approximately 18.5 acres in the southwest corner of the Preserve was approved by Florida Fish and Wildlife Conservation Commission (FWC) as an experimental gopher tortoise (*Gopherus polyphemus*) recipient site. A total of 43 gopher tortoises, including adults, sub-adults and juveniles were relocated to the enclosed area in April 2006 (29 tortoises), June 2006 (10 tortoises), and May 2008 (4 tortoises). This equates to a stocking rate of 2.2 tortoises per acre. Following March 2009 surveys conducted by Ashton, Ashton & Associates, 77 tortoise burrows were counted and based on the activity of those burrows the population was estimated at 38.5 tortoises or a survivorship of 90% of the original 43 tortoises released in the 18.5 acres. With the exception of the existing gopher tortoise recipient site, the remainder of Gator Hole Preserve was surveyed on July 14-15 and September 2, 2009 to establish a baseline density of gopher tortoises and to evaluate the suitability of the vegetative community as gopher tortoise habitat. Lee County Department of Public Works desires to expand the existing recipient site to include the entire 175 acre Gator Hole as an approved Gopher Tortoise Recipient Site.

It is the vision of the Lee County Parks and Recreation Department and the Conservation 20/20 Program to conserve, protect and restore Gator Hole Preserve to a productive, functional and viable ecosystem. The flatwoods and cypress heads no longer have dense stands of melaleuca (*Melaleuca quinquenervia*) and other invasive exotic plants. The freshwater wetland communities will continue to recharge the underground aquifers and provide valuable habitat and foraging opportunities for wildlife. The berms and ditches from the fallow agricultural field will be restored to enhance the transitional plant communities with increased hydrologic functionality and improved wildlife habitat. Maintaining the upland ecosystems with prescribed fire and controlling all invasive exotic plants are the ultimate objectives for the management of this Preserve.

2.0 BASELINE DOCUMENTATION

2.1 Site Description

Gator Hole Preserve is owned and managed by Lee County as part of the Lee County Conservation 20/20 Land Program, (FOLIO ID 10351658), and is located in Township 46S, Range 26E, Section 21, (Fig. 1 and 2) in southeastern Lee County on the north side of Corkscrew Road, 0.8 miles west of Alico Road and 3.8 miles east of I-75. The preserve is not currently located adjacent to other public/conservation lands. However, Gator Hole Preserve lies along the edge of a 60,000-acre wildlife corridor that includes Flint Pen Strand, Imperial Marsh and Corkscrew Regional Ecosystem Watershed lands (Gator Hole Management Plan 2006). In addition, the Preserve is within the second priority Florida Panther Strategic Habitat Area (USFWS 2006).



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Gator Hole Preserve
Lee County, Florida

Figure 1
Location

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Gator Hole Preserve
Lee County, Florida

Figure 2
Aerial

N
W E
S

0 320
Feet

Natural elevations at Gator Hole Preserve range from 22' at the north end and slope in a general southwesterly direction to 17-18' (GHP Management Plan 2006). Accordingly, with nearly half of the soils characteristic of sloughs and ponds, sheet flow during rain events will typically move from the northeast to the southwest across the site. The Preserve also lies within the Estero River Watershed and is considered to be within the recharge area for the sandstone aquifer, which supplies drinking water to Lee County (GHP Management Plan 2006).

Listed wildlife may also increase in diversity as restoration improves the condition of the site. For example, brown-headed nuthatches (*Sitta pusilla*), an indicator species for the health of southeastern pine forests were documented for the first time at the Preserve during the current surveys. This species does not tolerate habitat with high tree density and was not previously documented at the site. Restoration has enhanced habitat for this declining species as well as for the gopher tortoise. Other species that may be positively affected by restoration include eastern indigo snake, big cypress fox squirrel, white ibis, roseate spoonbill and wood stork (GHP Management Plan 2006). Over 150 plant and 70 animal species have been documented at the Preserve. In addition, gopher tortoises were historically reported on site, although recent surveys, including those completed for acquisition as well as the current surveys, have not documented evidence of historical use.

Currently, access to the Preserve by the public is restricted. Guided tours are provided at the discretion of Lee County Environmental Management staff only.

2.2 Soils and Hydrology

The predominant soil type at Gator Hole Preserve is Pineda Fine Sand which occurs on 72 acres. Hallandale fine sand and Boca fine sand also contribute 42 and 47 acres, respectively (Fig. 3). All soil types that occur on Gator Hole Preserve are poorly drained to very poorly drained. The acreage, depth to water table, depth to bedrock, and drainage class for each soil type are listed in Table 1 below.

Table 1: Soil Types and Properties at Gator Hole Preserve

Soil Type	Acres	Depth to Water Table	Depth to Bedrock	Drainage
Hallandale Fine Sand	43	0-12 inches	12-16 inches	poorly drained
Boca Fine Sand	47	6-18 inches	30-34 inches	poorly drained
Pineda Fine Sand	71	0-12 inches	over 80 inches	poorly drained
Felda Fine Sand, Depressional	13	0 inches	over 80 inches	very poorly drained
Pineda Fine Sand, Depressional	2	0 inches	over 80 inches	very poorly drained

The depth to the water table for all of the soil types at the Preserve does not meet typical FWC criteria. However, based on historic documentation of gopher tortoises at the Preserve and the current use of a small portion of the Preserve by relocated tortoises, we believe that the Preserve is suitable for gopher tortoise habitation, at stocking rates below two tortoises per acre. Tortoises have been successfully relocated to the southwest

portion of Gator Hole Preserve between April 2006 and May 2008. The remainder of the Preserve appears more suitable for relocated tortoises than the previously permitted southwest section, based on vegetation diversity and structure, and observed surface water conditions during the July and September survey periods. Although it is well documented that gopher tortoises prefer well drained sandy soils, current data show that they are found in periodically flooded soils as well, albeit at lower densities (Ashton 2008). In addition, there are historical data on the presence of gopher tortoises on this site (GHP Management Plan 2006). It is felt that due to surrounding mines that historic ground water levels have been reduced.

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Gator Hole Preserve
Lee County, Florida

Figure 3
Soils

2.3 Gopher Tortoise Survey Methods

Authorized Gopher Tortoise Agent David Gordon (GTA-09-00177) and assistant, Lauren Deaner, of Quest Ecology Inc. conducted gopher tortoise and vegetation surveys following the FWC's Gopher Tortoise Permitting Guidelines. A total of fourteen permanent transects, each 820 feet long and 52 feet wide, were established throughout Gator Hole Preserve, and meandering transects were conducted in order to sample a minimum of 15% of suitable gopher tortoise habitat. Each transect was surveyed for the presence of gopher tortoise burrows by two ecologists walking thirteen feet apart along the length of one side of a central transect line while searching for burrows, then repeating this process on the opposite side of the central transect line. This process ensured that the proper area was surveyed on each of the fourteen transects. This survey was conducted again on January 30, 2012 at the request of FWC.

2.4 Vegetation Survey Methods

Vegetation surveys were conducted according to approved FWC methodologies. Four 820-foot long transects were established to monitor canopy, shrub, and herbaceous cover (Fig. 4). Starting at the beginning of each transect, at 246-foot intervals, canopy and herbaceous cover were sampled by taking twenty steps in each direction perpendicular to a transect and recording the presence or absence of vegetation through a densitometer at every other step. Shrub coverage was recorded at the same intervals by having the observer extend their arms out to the side and if vegetation was encountered, shrub cover was counted as being present.

For each criterion, positive encounters were recorded as a one (1), or as a zero (0) when absent. The sum of encounters was then divided by the total number of points recorded (480) and converted to a cover percentage.

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Gator Hole Preserve
Lee County, Florida

Figure 4
Gopher Tortoise Burrow Survey
and Vegetative Monitoring Transects

2.5 Gopher Tortoise Survey Results

On July 14 and 15 and September 2, 2009, David Gordon (an FWC gopher tortoise Authorized Agent) and Lauren Deaner of Quest Ecology surveyed 16.84 acres (15.8%) of a total 106.50 acres of suitable and potentially suitable gopher tortoise habitat (pine flatwoods), and surveyed 5.87 acres (11.3%) of a total 51.76 acres of gopher tortoise foraging habitat (wet pine flatwoods) to determine the current population of gopher tortoises within Gator Hole Preserve. No gopher tortoise burrows or evidence of presence was found on Gator Hole Preserve during the 2009 or 2012 survey.

A total of 106.5 acres of potential gopher tortoise habitat was delineated in the field based on vegetation.

An estimated 51.76 acres of wet (mesic) pine flatwoods were surveyed as this habitat is utilized by tortoise for foraging and for seasonal burrowing habitat. The gopher tortoises that utilize natural mesic pine flatwoods often construct wet season burrows in dry, upland ridge islands. In drained mesic pine flatwoods, gopher tortoises construct dry season burrows in the flatwoods. The gopher tortoise forages in both the upland ridge and the adjacent mesic pine flatwoods when water levels recede and throughout the dry season. The gopher tortoise forages on the grasses, herbs, fruits, and berries provided by the understory of fire-maintained mesic pine flatwoods. Gopher tortoise densities in mesic pine flatwoods are limited by the extent of upland suitable for year-round burrow use and the availability of forage (USFWS 2007).

2.6 Vegetation Survey Results

Of the fourteen established transects, 35%, or six transects were sampled for vegetative suitability. The following describes the results of the vegetative surveys with respect to canopy, shrub, and herbaceous coverage:

Canopy Coverage

Forested canopy coverage was estimated at 23.3%. This is within the desirable range (<40%) for gopher tortoise recipient sites according to FWC Gopher Tortoise Permitting Guidelines (2008). The dominant tree species was slash pine (*Pinus elliottii*). Melaleuca has been cut and treated and therefore removed from the canopy layer, however some stumps show re-growth and saplings are currently growing in the shrub layer. Continued management of exotic species will occur as discussed in the 'Habitat Management Activities' section below.

Shrub Coverage

Shrub coverage was estimated at 20.8%. FWC's *Acceptable* and *Desirable* Criteria Thresholds for Recipient Site Characteristics does not characterize a desirable shrub cover; however it is felt that the current shrub cover is within the desirable range for gopher tortoises. Species included staggerbush (*Lyonia fruticosa*), inkberry (*Ilex glabra*),

beautyberry (*Callicarpa americana*), saw palmetto (*Serenoa repens*) and saltbush (*Baccharis halimifolia*). Melaleuca shrubs were regenerating from scattered treated stumps. Continued management of exotic species will occur as stated in the 'Habitat Management Activities' section below.

Herbaceous Coverage

Herbaceous groundcover was estimated at 54.2%. This is within the desirable range of more than 50% coverage for gopher tortoise recipient sites according to FWC Gopher Tortoise Permitting Guidelines (2008). Grass (*Poeaceae*) species were dominant through all transects and dogfennel (*Eupatorium* sp.) was subdominant. It is expected that as prescribed fire removes accumulated duff and slash from restoration and nuisance and exotic removal activities, and more mineral soil is exposed, the existing flora and any remaining seed bank will further recruit and increase the vegetation cover and diversity.

2.7 Florida Land Use Cover and Forms Classification System

The Florida Land Use Cover and Forms Classification System (FLUCFCS 1999) was used to map native habitats at the Preserve. The site is composed of 105.2 acres of pine flatwoods, 21.7 acres of pine-mesic oak, 40.7 acres of hydric pine flatwoods, 6.5 acres of cypress, and 2.5 acres of freshwater marsh (Fig. 5). Of this total acreage, the existing gopher tortoise relocation area previously permitted by FWC consists of 18.4 acres of pine-mesic oak.

Table 2: Desirable Habitat Attributes*

NRCS Soil Types	Soil Code	Total Acreage	Baseline Population	Site >200 acre	Soils >130 cm DTW	Habitat >50% Herb <40% Canopy	Supplemental Criteria	Restocking Density	Final Stocking Rate
Hallandale Fine Sand	6	43	0	No	No	Yes			
Boca Fine Sand	13	47	0	No	No	Yes			
Pineda Fine Sand	26	71	0	No	No	Yes			

*(Each potentially qualifies for an added 0.5 gopher tortoise/acre stocking bonus)

Gator Hole Preserve
Lee County, Florida

Figure 5
FLUCFCS

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3.0 RECOMMENDED STOCKING RATE

We believe suitable burrowing habitat for gopher tortoises is inaccurately represented by soil type in South Florida Wet Pine Flatwoods. Therefore, suitable burrowing habitat was delineated in the field (Fig. 6) and the resulting acreage from this delineation was used rather than the acreage of suitable soil types. A total stocking rate of 1.0 tortoise per acre is recommended for Gator Hole Preserve based on the site conditions described above. However, should data be collected in the future that indicates a higher stocking rate could be sustained, Lee County will request a permit amendment to increase to that rate.

Based on the results of the baseline surveys we request that the remainder of Gator Hole Preserve be approved as a Gopher Tortoise Recipient Site at a stocking rate of 1 tortoise per acre for a total stocking of 106 tortoises.

4.0 RELOCATION METHODS

A six foot tall chain-link fence, with one foot buried beneath the soil, surrounds the entire Preserve. Hard release of gopher tortoises will be implemented on Gator Hole Preserve. In addition, adult tortoises relocated to the Preserve will be marked using the Cagle (1939) numbering system.

5.0 HABITAT MANAGEMENT GOAL

The goal of Gator Hole Preserve Gopher Tortoise Habitat Management Plan is to restore and maintain a desirable vegetation community structure within the habitats at Gator Hole Preserve. To meet this goal, five restoration objectives will be accomplished, including:

1) Reduce the canopy cover and density of slash pine;
2) Reduce the cover and structure of saw palmetto;
3) Reduce nuisance and exotic species cover to less than 5%;
4) Establish fire lines and management units; and
5) Conduct prescribed fires to consume biomass from pine tree thinning, roller chopping, treated nuisance and exotics, and consume duff accumulated from a long period of fire exclusion.

Following implementation of the restoration objectives, three maintenance objectives must be conducted, including:

1) Maintain fire lines;
2) Continue annual nuisance and exotic species control; and
3) Utilize prescribed fire at a 1-5 year return interval to maintain a desirable structure of habitats at Gator Hole Preserve.

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Gator Hole Preserve
Lee County, Florida

Figure 6
Gopher Tortoise Habitat

6.0 BASELINE HABITAT CONDITIONS

Habitats at Gator Hole Preserve at the time of purchase by Lee County in 2000 had not been burned for well over 20 years. During this time duff and biomass from pine leaf litter and saw palmetto (*Serenoa repens*) increased, slash pine (*Pinus elliottii*) canopy cover surpassed 70% within large portions of the pine flatwoods, saw palmetto cover increased to over 80% in pine flatwoods, the height of palmetto in some areas ranged up to eight feet, and nuisance and exotic species (primarily melaleuca and Brazilian pepper (*Schinus terebinthifolius*)), became established within all habitats onsite. The combined cover by nuisance and exotic species within the site ranged from 5 – 100%, with higher densities in the fringes of cypress domes, wet prairie habitats, and the lower elevations of the pine flatwoods.

7.0 HABITAT RESTORATION ACTIVITIES CONDUCTED TO DATE

Nuisance/exotic plant removal began in April 2001 with efforts focused on removing melaleuca (*Melaleuca quinquenervia*). Mature trees were felled and removed from the site for mulch. The remaining stumps were treated with herbicide. Smaller melaleuca, not marketable for mulch, were cut in place and the remaining stem or stump was treated.

Dense slash pine stands were thinned throughout the site with the exception of two areas where pines were too young for harvesting. In addition, roller chopping reduced the saw palmetto cover that invaded due to years of fire exclusion. Cover by saw palmetto was reduced from nearly 100 percent to a range of 20-40%, and the structure from six to eight feet in height to less than two feet. Desirable groundcover, and therefore tortoise forage, will be enhanced by the reduction in the canopy and saw palmetto cover. Fire management is the most important aspect in managing Gator Hole Preserve, and will aid in establishing a diverse assemblage of flora and maintain the proper vegetation and habitat structure.

As of October 2012, all five restoration objectives have been accomplished. Pine tree thinning through logging has reduced the pine canopy cover in the pine flatwoods to mosaics ranging from 5 to 40% canopy cover. Saw palmetto has been roller chopped over the entire site, resulting in a reduction in the average height to two feet and the average cover within the pine flatwoods to 40%. Nuisance and exotic species have been controlled and are being maintained at a cover of less than 5%. Fire lines have been established and are being maintained annually. Prescribed burns have occurred within all management units, with some units having two prescribed fires conducted since October 2009. Specific weather and air quality conditions must be met for Lee County to conduct prescribed fires, and prescribed fire will be implemented only at times when all conditions are met.

8.0 HABITAT MANAGEMENT ACTIVITIES

Prescribed fire will occur on a 1-5 year regime, when conditions permit. This regime may be refined over time to best meet the management goals based on monitoring and observations of the habitat structure. Prescribed fire will be the primary management tool used to maintain desirable vegetative diversity and structure.

Fire lines will be maintained annually to prevent the accumulation of fuels that may render fire lines ineffective in isolating prescribed fires from surrounding areas.

Nuisance and exotic species control will be ongoing and will occur at a minimum of once per year. Typically, chemical control will be utilized, as this tends to be the most cost effective method.

9.0 ADAPTIVE/REMEDIAL MANAGEMENT

Using qualitative assessments made by land managers and the results of vegetation and wildlife monitoring, adaptive management decisions may be made and employed to meet the restoration and/or maintenance objectives and goals of the Gator Hole Preserve Gopher Tortoise Habitat Management Plan.

Adaptive/remedial actions may be implemented if management objectives are not being met, other technologies or information become available to improve the habitat, surrounding land-uses change, or climate changes occur. These actions may include but are not limited to activities such as : pine tree thinning, supplemental tree plantings, roller chopping, supplemental planting in the herbaceous and shrub strata, physical removal of nuisance and exotic species, eliminating interior burn lines or expanding perimeter burn lines, conducting focused research where specific questions about habitat management exist, mechanical vegetation reduction, refining the fire regime, improving or increasing the frequency of flora and fauna monitoring, conducting prescribed fire and fire intensity mapping, and utilizing GIS as a monitoring tool.

10.0 COMPATIBILITY OF FUTURE LAND USES

The 175 acre Gator Hole Gopher Tortoise Recipient Site is owned by Lee County. Lee County will execute a conservation easement in favor of the Florida Fish and Wildlife Conservation Commission. The conservation easement will ensure the long term preservation of the recipient site while allowing the current resource based public recreation activities to continue.

11.0 FINANCIAL ASSURANCES

Financial assurances will be provided as an annual appropriation as detailed in Lee County Resolution 13- (see Exhibit 1).

12.0 CONSERVATION EASEMENT

A conservation easement will be recorded upon final Lee County BOCC and FWC execution for the Gator Hole Preserve.

13.0 MONITORING

Vegetation and gopher tortoise burrow monitoring will occur at least every three years for the first 15 years. Results of these surveys will be submitted to FWC, as required by FWC.

Vegetation monitoring will be conducted per the protocols described in the Gopher Tortoise - Permitting Guidelines – Appendix 7: Methods for Baseline Vegetative Sampling and Follow-Up Monitoring on Recipient Sites.

Gopher tortoise surveys (Minimum of 15%) will be conducted per the monitoring protocols in the Gopher Tortoise - Permitting Guidelines – Appendix 4: Methods for Burrow Surveys on Development (Donor) and Recipient Sites.

Literature Cited

Ashton, R. E, and P. S. Ashton. 2008. The Natural History and Management of the Gopher Tortoise *Gopherus polyphemus*. Krieger Publishing Company

Cagle, F. R. 1939. A system of marking turtles for future identification. Copeia 1939:170-173.

Florida Fish and Wildlife Conservation Commission. 2008. Gopher Tortoise Permitting Guidelines. Tallahassee, FL.

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United States Fish and Wildlife Service. 2006. Strategic Panther Zones Map. USFWS, Vero Beach, FL.

United States Fish and Wildlife Service. 2006. South Florida Multi-Species Habitat Recovery Plan. USFWS, Vero Beach, FL.

Appendix H: Habitat Management Plan

'Exhibit B'

GATOR HOLE PRESERVE
GOPHER TORTOISE HABITAT MANAGEMENT PLAN
Certified Florida Fish and Wildlife Conservation Commission
Long-Term Gopher Tortoise Recipient Site

Prepared for

Lee County Department of Public Works

LEE COUNTY
SOUTHWEST FLORIDA

By

QUEST
ecology

735 Lakeview Drive
Wimauma, FL 33598

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EXHIBIT

1.0 INTRODUCTION/BACKGROUND

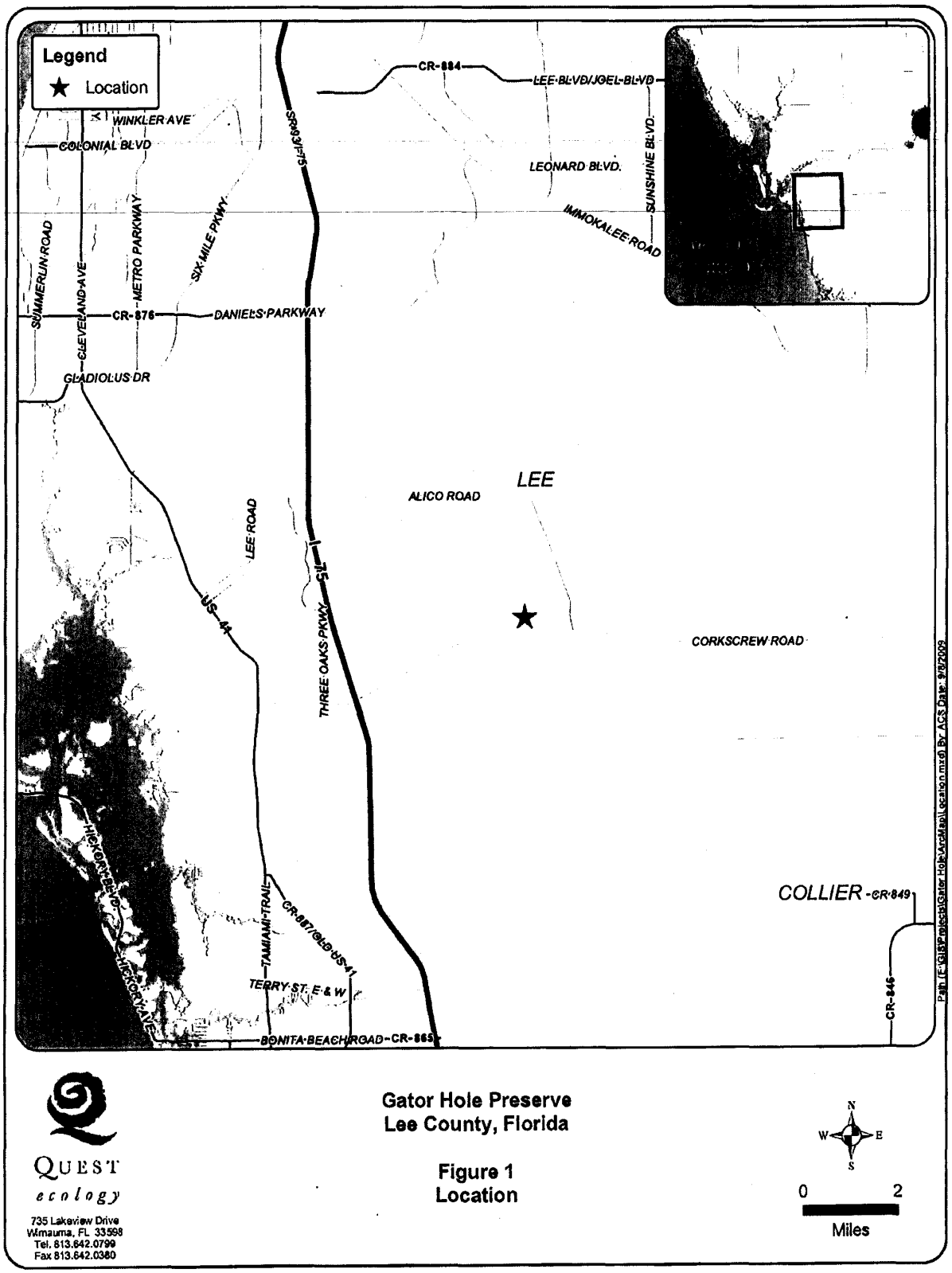
Gator Hole Preserve (Preserve) was purchased in 2000 under Lee County's Conservation 20/20 Land Program. The preserve encompasses approximately 175 acres primarily consisting of pine flatwoods. The southwest corner of the Preserve was converted to agricultural fields during the 1950's, but these were abandoned by the mid 1960's and gradually succeeded to dense pine-mesic oak habitat through the 1990's. Approximately 18.5 acres in the southwest corner of the Preserve was approved by Florida Fish and Wildlife Conservation Commission (FWC) as an experimental gopher tortoise (*Gopherus polyphemus*) recipient site. A total of 43 gopher tortoises, including adults, sub-adults and juveniles were relocated to the enclosed area in April 2006 (29 tortoises), June 2006 (10 tortoises), and May 2008 (4 tortoises). This equates to a stocking rate of 2.2 tortoises per acre. Following March 2009 surveys conducted by Ashton, Ashton & Associates, 77 tortoise burrows were counted and based on the activity of those burrows the population was estimated at 38.5 tortoises or a survivorship of 90% of the original 43 tortoises released in the 18.5 acres. With the exception of the existing gopher tortoise recipient site, the remainder of Gator Hole Preserve was surveyed on July 14-15 and September 2, 2009 to establish a baseline density of gopher tortoises and to evaluate the suitability of the vegetative community as gopher tortoise habitat. Lee County Department of Public Works desires to expand the existing recipient site to include the entire 175 acre Gator Hole as an approved Gopher Tortoise Recipient Site.

It is the vision of the Lee County Parks and Recreation Department and the Conservation 20/20 Program to conserve, protect and restore Gator Hole Preserve to a productive, functional and viable ecosystem. The flatwoods and cypress heads no longer have dense stands of melaleuca (*Melaleuca quinquenervia*) and other invasive exotic plants. The freshwater wetland communities will continue to recharge the underground aquifers and provide valuable habitat and foraging opportunities for wildlife. The berms and ditches from the fallow agricultural field will be restored to enhance the transitional plant communities with increased hydrologic functionality and improved wildlife habitat. Maintaining the upland ecosystems with prescribed fire and controlling all invasive exotic plants are the ultimate objectives for the management of this Preserve.

2.0 BASELINE DOCUMENTATION

2.1 Site Description

Gator Hole Preserve is owned and managed by Lee County as part of the Lee County Conservation 20/20 Land Program, (FOLIO ID 10351658), and is located in Township 46S, Range 26E, Section 21, (Fig. 1 and 2) in southeastern Lee County on the north side of Corkscrew Road, 0.8 miles west of Alico Road and 3.8 miles east of I-75. The preserve is not currently located adjacent to other public/conservation lands. However, Gator Hole Preserve lies along the edge of a 60,000-acre wildlife corridor that includes Flint Pen Strand, Imperial Marsh and Corkscrew Regional Ecosystem Watershed lands (Gator Hole Management Plan 2006). In addition, the Preserve is within the second priority Florida Panther Strategic Habitat Area (USFWS 2006).



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Gator Hole Preserve
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Figure 1
Location

N
W E
S

0 2
Miles

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Gator Hole Preserve
Lee County, Florida

Figure 2
Aerial

Natural elevations at Gator Hole Preserve range from 22' at the north end and slope in a general southwesterly direction to 17-18' (GHP Management Plan 2006). Accordingly, with nearly half of the soils characteristic of sloughs and ponds, sheet flow during rain events will typically move from the northeast to the southwest across the site. The Preserve also lies within the Estero River Watershed and is considered to be within the recharge area for the sandstone aquifer, which supplies drinking water to Lee County (GHP Management Plan 2006).

Listed wildlife may also increase in diversity as restoration improves the condition of the site. For example, brown-headed nuthatches (*Sitta pusilla*), an indicator species for the health of southeastern pine forests were documented for the first time at the Preserve during the current surveys. This species does not tolerate habitat with high tree density and was not previously documented at the site. Restoration has enhanced habitat for this declining species as well as for the gopher tortoise. Other species that may be positively affected by restoration include eastern indigo snake, big cypress fox squirrel, white ibis, roseate spoonbill and wood stork (GHP Management Plan 2006). Over 150 plant and 70 animal species have been documented at the Preserve. In addition, gopher tortoises were historically reported on site, although recent surveys, including those completed for acquisition as well as the current surveys, have not documented evidence of historical use.

Currently, access to the Preserve by the public is restricted. Guided tours are provided at the discretion of Lee County Environmental Management staff only.

2.2 Soils and Hydrology

The predominant soil type at Gator Hole Preserve is Pineda Fine Sand which occurs on 72 acres. Hallandale fine sand and Boca fine sand also contribute 42 and 47 acres, respectively (Fig. 3). All soil types that occur on Gator Hole Preserve are poorly drained to very poorly drained. The acreage, depth to water table, depth to bedrock, and drainage class for each soil type are listed in Table 1 below.

Table 1: Soil Types and Properties at Gator Hole Preserve

Soil Type	Acres	Depth to Water Table	Depth to Bedrock	Drainage
Hallandale Fine Sand	43	0-12 inches	12-16 inches	poorly drained
Boca Fine Sand	47	6-18 inches	30-34 inches	poorly drained
Pineda Fine Sand	71	0-12 inches	over 80 inches	poorly drained
Felda Fine Sand, Depressional	13	0 inches	over 80 inches	very poorly drained
Pineda Fine Sand, Depressional	2	0 inches	over 80 inches	very poorly drained

The depth to the water table for all of the soil types at the Preserve does not meet typical FWC criteria. However, based on historic documentation of gopher tortoises at the Preserve and the current use of a small portion of the Preserve by relocated tortoises, we believe that the Preserve is suitable for gopher tortoise habitation, at stocking rates below two tortoises per acre. Tortoises have been successfully relocated to the southwest

portion of Gator Hole Preserve between April 2006 and May 2008. The remainder of the Preserve appears more suitable for relocated tortoises than the previously permitted southwest section, based on vegetation diversity and structure, and observed surface water conditions during the July and September survey periods. Although it is well documented that gopher tortoises prefer well drained sandy soils, current data show that they are found in periodically flooded soils as well, albeit at lower densities (Ashton 2008). In addition, there are historical data on the presence of gopher tortoises on this site (GHP Management Plan 2006). It is felt that due to surrounding mines that historic ground water levels have been reduced.

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Figure 3
Soils

2.3 Gopher Tortoise Survey Methods

Authorized Gopher Tortoise Agent David Gordon (GTA-09-00177) and assistant, Lauren Deaner, of Quest Ecology Inc. conducted gopher tortoise and vegetation surveys following the FWC's Gopher Tortoise Permitting Guidelines. A total of fourteen permanent transects, each 820 feet long and 52 feet wide, were established throughout Gator Hole Preserve, and meandering transects were conducted in order to sample a minimum of 15% of suitable gopher tortoise habitat. Each transect was surveyed for the presence of gopher tortoise burrows by two ecologists walking thirteen feet apart along the length of one side of a central transect line while searching for burrows, then repeating this process on the opposite side of the central transect line. This process ensured that the proper area was surveyed on each of the fourteen transects. This survey was conducted again on January 30, 2012 at the request of FWC.

2.4 Vegetation Survey Methods

Vegetation surveys were conducted according to approved FWC methodologies. Four 820-foot long transects were established to monitor canopy, shrub, and herbaceous cover (Fig. 4). Starting at the beginning of each transect, at 246-foot intervals, canopy and herbaceous cover were sampled by taking twenty steps in each direction perpendicular to a transect and recording the presence or absence of vegetation through a densitometer at every other step. Shrub coverage was recorded at the same intervals by having the observer extend their arms out to the side and if vegetation was encountered, shrub cover was counted as being present.

For each criterion, positive encounters were recorded as a one (1), or as a zero (0) when absent. The sum of encounters was then divided by the total number of points recorded (480) and converted to a cover percentage.

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Gator Hole Preserve
Lee County, Florida

Figure 4
Gopher Tortoise Burrow Survey
and Vegetative Monitoring Transects

2.5 Gopher Tortoise Survey Results

On July 14 and 15 and September 2, 2009, David Gordon (an FWC gopher tortoise Authorized Agent) and Lauren Deaner of Quest Ecology surveyed 16.84 acres (15.8%) of a total 106.50 acres of suitable and potentially suitable gopher tortoise habitat (pine flatwoods), and surveyed 5.87 acres (11.3%) of a total 51.76 acres of gopher tortoise foraging habitat (wet pine flatwoods) to determine the current population of gopher tortoises within Gator Hole Preserve. No gopher tortoise burrows or evidence of presence was found on Gator Hole Preserve during the 2009 or 2012 survey.

A total of 106.5 acres of potential gopher tortoise habitat was delineated in the field based on vegetation.

An estimated 51.76 acres of wet (mesic) pine flatwoods were surveyed as this habitat is utilized by tortoise for foraging and for seasonal burrowing habitat. The gopher tortoises that utilize natural mesic pine flatwoods often construct wet season burrows in dry, upland ridge islands. In drained mesic pine flatwoods, gopher tortoises construct dry season burrows in the flatwoods. The gopher tortoise forages in both the upland ridge and the adjacent mesic pine flatwoods when water levels recede and throughout the dry season. The gopher tortoise forages on the grasses, herbs, fruits, and berries provided by the understory of fire-maintained mesic pine flatwoods. Gopher tortoise densities in mesic pine flatwoods are limited by the extent of upland suitable for year-round burrow use and the availability of forage (USFWS 2007).

2.6 Vegetation Survey Results

Of the fourteen established transects, 35%, or six transects were sampled for vegetative suitability. The following describes the results of the vegetative surveys with respect to canopy, shrub, and herbaceous coverage:

Canopy Coverage

Forested canopy coverage was estimated at 23.3%. This is within the desirable range (<40%) for gopher tortoise recipient sites according to FWC Gopher Tortoise Permitting Guidelines (2008). The dominant tree species was slash pine (*Pinus elliottii*). Melaleuca has been cut and treated and therefore removed from the canopy layer, however some stumps show re-growth and saplings are currently growing in the shrub layer. Continued management of exotic species will occur as discussed in the 'Habitat Management Activities' section below.

Shrub Coverage

Shrub coverage was estimated at 20.8%. FWC's *Acceptable* and *Desirable* Criteria Thresholds for Recipient Site Characteristics does not characterize a desirable shrub cover; however it is felt that the current shrub cover is within the desirable range for gopher tortoises. Species included staggerbush (*Lyonia fruiticosa*), inkberry (*Ilex glabra*),

beautyberry (*Callicarpa americana*), saw palmetto (*Serenoa repens*) and saltbush (*Baccharis halimifolia*). Melaleuca shrubs were regenerating from scattered treated stumps. Continued management of exotic species will occur as stated in the 'Habitat Management Activities' section below.

Herbaceous Coverage

Herbaceous groundcover was estimated at 54.2%. This is within the desirable range of more than 50% coverage for gopher tortoise recipient sites according to FWC Gopher Tortoise Permitting Guidelines (2008). Grass (*Poeaceae*) species were dominant through all transects and dogfennel (*Eupatorium* sp.) was subdominant. It is expected that as prescribed fire removes accumulated duff and slash from restoration and nuisance and exotic removal activities, and more mineral soil is exposed, the existing flora and any remaining seed bank will further recruit and increase the vegetation cover and diversity.

2.7 Florida Land Use Cover and Forms Classification System

The Florida Land Use Cover and Forms Classification System (FLUCFCS 1999) was used to map native habitats at the Preserve. The site is composed of 105.2 acres of pine flatwoods, 21.7 acres of pine-mesic oak, 40.7 acres of hydric pine flatwoods, 6.5 acres of cypress, and 2.5 acres of freshwater marsh (Fig. 5). Of this total acreage, the existing gopher tortoise relocation area previously permitted by FWC consists of 18.4 acres of pine-mesic oak.

Table 2: Desirable Habitat Attributes*

NRCS Soil Types	Soil Code	Total Acreage	Baseline Population	Site >200 acre	Soils >130 cm DTW	Habitat >50% Herb <40% Canopy	Supplemental Criteria	Restocking Density	Final Stocking Rate
Hallandale Fine Sand	6	43	0	No	No	Yes			
Boca Fine Sand	13	47	0	No	No	Yes			
Pineda Fine Sand	26	71	0	No	No	Yes			

*(Each potentially qualifies for an added 0.5 gopher tortoise/acre stocking bonus)

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Figure 5
FLUCFCS

3.0 RECOMMENDED STOCKING RATE

We believe suitable burrowing habitat for gopher tortoises is inaccurately represented by soil type in South Florida Wet Pine Flatwoods. Therefore, suitable burrowing habitat was delineated in the field (Fig. 6) and the resulting acreage from this delineation was used rather than the acreage of suitable soil types. A total stocking rate of 1.0 tortoise per acre is recommended for Gator Hole Preserve based on the site conditions described above. However, should data be collected in the future that indicates a higher stocking rate could be sustained, Lee County will request a permit amendment to increase to that rate.

Based on the results of the baseline surveys we request that the remainder of Gator Hole Preserve be approved as a Gopher Tortoise Recipient Site at a stocking rate of 1 tortoise per acre for a total stocking of 106 tortoises.

4.0 RELOCATION METHODS

A six foot tall chain-link fence, with one foot buried beneath the soil, surrounds the entire Preserve. Hard release of gopher tortoises will be implemented on Gator Hole Preserve. In addition, adult tortoises relocated to the Preserve will be marked using the Cagle (1939) numbering system.

5.0 HABITAT MANAGEMENT GOAL

The goal of Gator Hole Preserve Gopher Tortoise Habitat Management Plan is to restore and maintain a desirable vegetation community structure within the habitats at Gator Hole Preserve. To meet this goal, five restoration objectives will be accomplished, including:

1) Reduce the canopy cover and density of slash pine;
2) Reduce the cover and structure of saw palmetto;
3) Reduce nuisance and exotic species cover to less than 5%;
4) Establish fire lines and management units; and
5) Conduct prescribed fires to consume biomass from pine tree thinning, roller chopping, treated nuisance and exotics, and consume duff accumulated from a long period of fire exclusion.

Following implementation of the restoration objectives, three maintenance objectives must be conducted, including:

1) Maintain fire lines;
2) Continue annual nuisance and exotic species control; and
3) Utilize prescribed fire at a 1-5 year return interval to maintain a desirable structure of habitats at Gator Hole Preserve.

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Gator Hole Preserve
Lee County, Florida

Figure 6
Gopher Tortoise Habitat

6.0 BASELINE HABITAT CONDITIONS

Habitats at Gator Hole Preserve at the time of purchase by Lee County in 2000 had not been burned for well over 20 years. During this time duff and biomass from pine leaf litter and saw palmetto (*Serenoa repens*) increased, slash pine (*Pinus elliottii*) canopy cover surpassed 70% within large portions of the pine flatwoods, saw palmetto cover increased to over 80% in pine flatwoods, the height of palmetto in some areas ranged up to eight feet, and nuisance and exotic species (primarily melaleuca and Brazilian pepper (*Schinus terebinthifolius*)), became established within all habitats onsite. The combined cover by nuisance and exotic species within the site ranged from 5 – 100%, with higher densities in the fringes of cypress domes, wet prairie habitats, and the lower elevations of the pine flatwoods.

7.0 HABITAT RESTORATION ACTIVITIES CONDUCTED TO DATE

Nuisance/exotic plant removal began in April 2001 with efforts focused on removing melaleuca (*Melaleuca quinquenervia*). Mature trees were felled and removed from the site for mulch. The remaining stumps were treated with herbicide. Smaller melaleuca, not marketable for mulch, were cut in place and the remaining stem or stump was treated.

Dense slash pine stands were thinned throughout the site with the exception of two areas where pines were too young for harvesting. In addition, roller chopping reduced the saw palmetto cover that invaded due to years of fire exclusion. Cover by saw palmetto was reduced from nearly 100 percent to a range of 20-40%, and the structure from six to eight feet in height to less than two feet. Desirable groundcover, and therefore tortoise forage, will be enhanced by the reduction in the canopy and saw palmetto cover. Fire management is the most important aspect in managing Gator Hole Preserve, and will aid in establishing a diverse assemblage of flora and maintain the proper vegetation and habitat structure.

As of October 2012, all five restoration objectives have been accomplished. Pine tree thinning through logging has reduced the pine canopy cover in the pine flatwoods to mosaics ranging from 5 to 40% canopy cover. Saw palmetto has been roller chopped over the entire site, resulting in a reduction in the average height to two feet and the average cover within the pine flatwoods to 40%. Nuisance and exotic species have been controlled and are being maintained at a cover of less than 5%. Fire lines have been established and are being maintained annually. Prescribed burns have occurred within all management units, with some units having two prescribed fires conducted since October 2009. Specific weather and air quality conditions must be met for Lee County to conduct prescribed fires, and prescribed fire will be implemented only at times when all conditions are met.

8.0 HABITAT MANAGEMENT ACTIVITIES

Prescribed fire will occur on a 1-5 year regime, when conditions permit. This regime may be refined over time to best meet the management goals based on monitoring and observations of the habitat structure. Prescribed fire will be the primary management tool used to maintain desirable vegetative diversity and structure.

Fire lines will be maintained annually to prevent the accumulation of fuels that may render fire lines ineffective in isolating prescribed fires from surrounding areas.

Nuisance and exotic species control will be ongoing and will occur at a minimum of once per year. Typically, chemical control will be utilized, as this tends to be the most cost effective method.

9.0 ADAPTIVE/REMEDIAL MANAGEMENT

Using qualitative assessments made by land managers and the results of vegetation and wildlife monitoring, adaptive management decisions may be made and employed to meet the restoration and/or maintenance objectives and goals of the Gator Hole Preserve Gopher Tortoise Habitat Management Plan.

Adaptive/remedial actions may be implemented if management objectives are not being met, other technologies or information become available to improve the habitat, surrounding land-uses change, or climate changes occur. These actions may include but are not limited to activities such as : pine tree thinning, supplemental tree plantings, roller chopping, supplemental planting in the herbaceous and shrub strata, physical removal of nuisance and exotic species, eliminating interior burn lines or expanding perimeter burn lines, conducting focused research where specific questions about habitat management exist, mechanical vegetation reduction, refining the fire regime, improving or increasing the frequency of flora and fauna monitoring, conducting prescribed fire and fire intensity mapping, and utilizing GIS as a monitoring tool.

10.0 COMPATIBILITY OF FUTURE LAND USES

The 175 acre Gator Hole Gopher Tortoise Recipient Site is owned by Lee County. Lee County will execute a conservation easement in favor of the Florida Fish and Wildlife Conservation Commission. The conservation easement will ensure the long term preservation of the recipient site while allowing the current resource based public recreation activities to continue.

11.0 FINANCIAL ASSURANCES

Financial assurances will be provided as an annual appropriation as detailed in Lee County Resolution 13- (see Exhibit 1).

12.0 CONSERVATION EASEMENT

A conservation easement will be recorded upon final Lee County BOCC and FWC execution for the Gator Hole Preserve.

13.0 MONITORING

Vegetation and gopher tortoise burrow monitoring will occur at least every three years for the first 15 years. Results of these surveys will be submitted to FWC, as required by FWC.

Vegetation monitoring will be conducted per the protocols described in the Gopher Tortoise - Permitting Guidelines – Appendix 7: Methods for Baseline Vegetative Sampling and Follow-Up Monitoring on Recipient Sites.

Gopher tortoise surveys (Minimum of 15%) will be conducted per the monitoring protocols in the Gopher Tortoise - Permitting Guidelines – Appendix 4: Methods for Burrow Surveys on Development (Donor) and Recipient Sites.

Literature Cited

Ashton, R. E, and P. S. Ashton. 2008. The Natural History and Management of the Gopher Tortoise *Gopherus polyphemus*. Krieger Publishing Company

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United States Fish and Wildlife Service. 2006. Strategic Panther Zones Map. USFWS, Vero Beach, FL.

United States Fish and Wildlife Service. 2006. South Florida Multi-Species Habitat Recovery Plan. USFWS, Vero Beach, FL.

Appendix I: Legal Description

DESCRIPTION OF RECORD:

(O. R. 2044 PAGE 2257 & O. R. 2083 PAGE 820)

PARCEL NO. 10-F02-00-8
A TRACT OR PARCEL OF LAND SITUATED IN THE STATE OF FLORIDA, COUNTY OF LEE, BEING A PART OF THE WEST ONE HALF (W. 1/2) OF SECTION 21, TOWNSHIP 46 SOUTH, RANGE 26 EAST, AND FURTHER BOUNDED AND DESCRIBED AS FOLLOWS:

STARTING AT A CONCRETE POST MARKING THE NORTHWEST CORNER OF SAID SECTION 21; THENCE N. 89°16'29.5" E. ALONG THE NORTH LINE OF SAID SECTION 21 FOR 1627.01 FEET TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED PARCEL; THENCE CONTINUE N. 89°16'29.5" E. ALONG SAID NORTH LINE FOR 881.89 FEET; THENCE S. 01°16'47.5" E. PARALLEL WITH THE WEST LINE OF SAID SECTION 21 FOR 4278.166 FEET TO AN INTERSECTION WITH THE NORTHERLY RIGHT-OF-WAY LINE OF CORKSCREW ROAD (100.00 FEET WIDE); THENCE S. 86°25'00" W. ALONG SAID RIGHT- OF-WAY LINE FOR 882.56 FEET; THENCE N. 01°16'47.5" W. PARALLEL WITH SAID WEST LINE OF SAID SECTION 21 FOR 4322.18 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS: 87.05 ACRES MORE OR LESS.

AND

PARCEL NO. 10-F013-00-6
A TRACT OR PARCEL OF LAND SITUATED IN THE STATE OF FLORIDA, COUNTY OF LEE, BEING A PART OF THE WEST ONE HALF (W. 1/2) OF SECTION 21, TOWNSHIP 46 SOUTH, RANGE 26 EAST, AND FURTHER BOUNDED AND DESCRIBED AS FOLLOWS:

STARTING AT A CONCRETE POST MARKING THE NORTHWEST CORNER OF SAID SECTION 21; THENCE N. 89°16'29.5" E. ALONG THE NORTH LINE OF SAID SECTION 21 FOR 745.115 FEET TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED PARCEL; THENCE CONTINUE N. 89°16'29.5" E. ALONG SAID NORTH LINE FOR 881.89 FEET; THENCE S. 01°16'47.5" E. PARALLEL WITH THE WEST LINE OF SAID SECTION 21 FOR 4322.18 FEET TO AN INTERSECTION WITH THE NORTHERLY RIGHT-OF-WAY LINE OF CORKSCREW ROAD (100.00 FEET WIDE); THENCE S. 86°25'00" W. ALONG SAID RIGHT-OF- WAY LINE FOR 882.56 FEET; THENCE N. 01°16'47.5" W. PARALLEL WITH SAID WEST LINE OF SAID SECTION 21 FOR 4366.19 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS: 87.95 ACRES MORE OR LESS.

Appendix J - Expended and Projected Costs and Funding Sources

Expended Costs 2006-2016

Natural Resource Management		
Item	Funding Source	Costs
Exotic Plant Treatments (initial)	Grants	$205,449.00
	C20/20 Volunteers and Staff	$3,984.00
	LCDOT	$296,000.00
Exotic Plant Treatments (maintenance)	LCDOT	$8,906.00
Pine tree thinning and Snag removal	C20/20 staff	$280.00
Mechanical Brush Reduction	C20/20 Management fund	$580.00
	C20/20 Staff	$9,250.00
	LCDOT	$2,000.00
Prescribed Burns (In House)	C20/20 Management fund	$27,000.00

Overall Protection		
Item	Funding Source	Costs
Fireline Installation	LCDOT	$9,000.00
Fencing Installation	LCDOT	$50,000.00
Feral Hog Trapping	C20/20 Management fund	$18,250.00
Large Debris Removal	C20/20 in-house	$2,030.00
Management Plan (2 editions)	C20/20 in-house	$12,600.00
Preserve Identification Sign	C20/20	$1,200.00
Boundary sign replacement	C20/20	$50

Total Natural Resource Management Cost	$553,449.00
Total Overall Protection Cost	$93,130.00
Gator Hole Preserve Total Expended Cost	**$646,579.00**

Projected Costs 2016-2026

Natural Resource Management		
Item	Funding Source	Costs
Annual Costs		
Exotic Plant Treatments (LCDPW)	LCDPW	$6,357.00
Vegetation and Gopher Tortoise monitoring	LCDPW	$4,000.00
Variable Costs		
Prescribed Burns (In House)*	C20/20	$27,000.00

Overall Protection		
Item	Funding Source	Costs
Annual Costs		
Fence Maintenance (In House)	C20/20	$400.00
Debris Removal (In House)	C20/20	$50.00
vandalism repairs	C20/20	$50.00
Fireline Maintenance (In House)	C20/20	$1,376.00
Boundary sign replacement	C20/20	$50

Total Projected Annual Maintenance Cost Per Year	$12,283.00
Total Projected Variable Maintenance and Restoration Project Cost	$27,000.00
Gator Hole Preserve Total Projected Cost Over 10 Years	**$149,830.00**

*Prescribed burns projected on 3-4 year rotation, total variable cost includes expense for 3 burns in 10 years