

Spring Hammock Preserve

Land Management Plan

2010

SPRING HAMMOCK PRESERVE LAND MANAGEMENT PLAN

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LAND MANAGEMENT PLAN SUMMARY

Spring Hammock Preserve

Acres: 1,500 Acres

Location: Longwood, Florida Sections: 21, 26, 27, 28, 29, and 35 Township: 20 South Range: 30 East

Dates of Acquisition: 1927, 1974, 1980

Key Resource Issues: Spring Hammock Preserve holds significant importance through the natural, recreational, and cultural resources it offers and the ecosystem services it provides. The preserve acts as a natural filtering system for the Soldier's Creek Drainage Basin before draining into Lake Jesup. As a watershed and wetlands area, it provides natural habitat for numerous species of plants and animals, and provides storage for flood and storm water. Natural resources include topography, soils, water, agriculture, timber, minerals, unique natural features, plant communities, fish and wildlife, listed species, and other related features. Cultural resources include historical areas, sites and structures, and archaeological sites. The Preserve also contains five acres of active based recreational facilities including: five baseball fields, two softball fields, and two soccer/multi-purpose fields, all of which are located within Soldier's Creek Park. Seminole County's Cross Seminole Trail (CST) also bisects the preserve from west to east offering an alternative avenue for enjoying this regional resource.

GENERAL DESCRIPTION:

- **Security** – The geographical location and dissection of the Preserve by several roadways creates a challenge for the overall security of the site. All possible locations for access whether designated or not, are regularly evaluated and methods for control considered. The additional and more frequent presence of Parks and Recreation, SCNLP staff and Police, should act as an effective deterrent to vandalism. Security of the site will continue to be monitored and further corrective actions may be required.
- **Restoration** – The preserve contains a variety of habitats including hydric hammock, floodplain forest and mesic and scrubby flatwoods. Staff will be evaluating the use of mechanical treatment and prescribed fire as a restoration tool at this property.
- **Fire** – Spring Hammock contains two fire dependent plant communities mesic and scrubby flatwoods. Seminole County Natural Lands Program has developed a comprehensive Prescribed Burn Plan to address the use of fire as a management tool to maintain the ecological integrity of the preserve.
- **Invasive and Exotic Species** – The preserve contains several invasive and exotic plant species with air potato being the most problematic. Other invasive plant species found on site include the Japanese climbing fern, old world climbing fern, camphor and wild balsam

apple. The brown anole, greenhouse frog, and feral hog are species of exotic fauna that have been recorded at the site.

- Wildlife and Plants – Spring Hammock Preserve is home to several listed animal species including the bald eagle, eastern indigo snake, gopher tortoise, and American alligator, as well as the listed plant species Okeechobee gourd, Florida willow, and bipinnate cuplet fern.
- Cultural Resources – Two archeological sites have been recorded within the preserve. Spring Hammock 1, 8SE70, is a small, prehistoric shell midden and is considered to be a potentially significant cultural resource. A single Suwannee projectile point was located at Soldiers Creek 2 but is not considered culturally significant.
- Education – Located on the preserve is the Seminole County School Board's Environmental Studies Center which provides multi-disciplinary environmental education to more than 10,000 students annually. The preserve has also been used as an outdoor learning destination for both high school and college students.

Key Land Use/Recreation Issues: Land use for Spring Hammock Preserve is designated as Preservation Managed Lands on the Seminole County Future Land Use Map, which is consistent with the long-range intended preservation and passive use of the site.

General Description:

- Access – There are two access points into Spring Hammock. The entrance point located on the west side of County Road 419 provides access to active based recreational facilities. The adjacent entrance, located on the east side of CR 419, provides access to the Environmental Studies Center as well as parking for use of the trail system within the preserve.
- Public recreation – The site is open for active based recreational opportunities at Soldier's Creek Park as well as hiking, non-motorized biking, and equestrian use via walking paths and the CST.

**Spring Hammock Preserve
Seminole County, Florida**

LAND MANAGEMENT PLAN

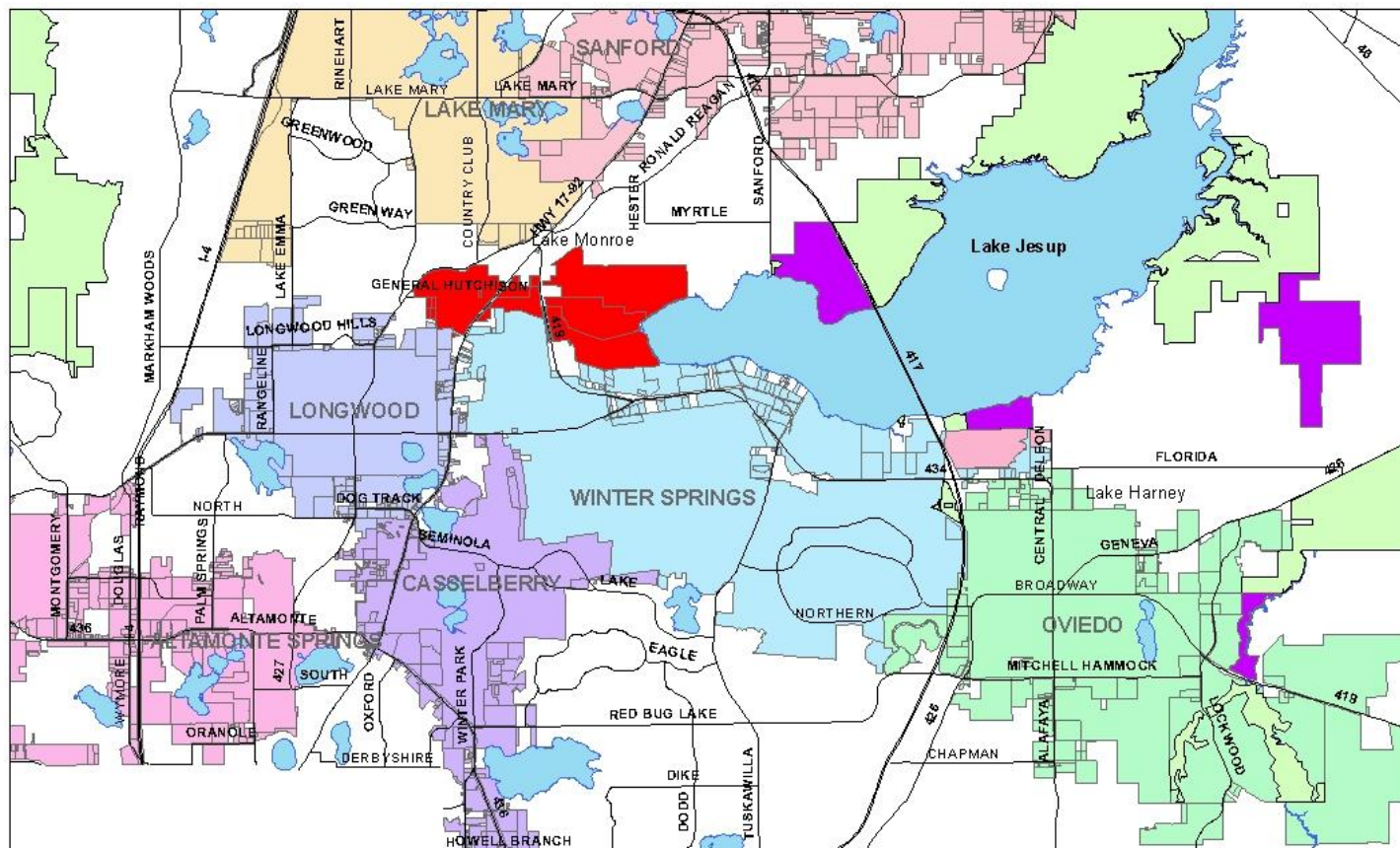
INTRODUCTION

This document provides guidelines for land management activities to be implemented within the Spring Hammock Preserve over the next ten years.

WILDERNESS AREA OVERVIEW

Regional Significance

Spring Hammock Preserve (SHP) is a well-known landmark to both residents and visitors because of its oasis-like appearance in the midst of a rapidly growing urban area. History of the hammock indicates that the area was once known as “Devil’s Bend,” and that County Road (CR) 427, which runs through the property was known as “Old Bear Trail.” Indians lived in Spring Hammock around 1830-1850, and legend has it that during the Fort Mellon days, they stole a payroll shipment and buried it somewhere along Soldier’s Creek possibly within the modern day boundaries of the preserve.

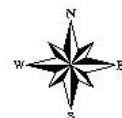


Legend

- Spring Hammock Preserve
- Seminole County Wilderness Area
- Other Public Lands

Spring Hammock Preserve
Figure 1: Location Map

0 3 6 Miles
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Acquisition History

In 1927, the area of the preserve known as Big Tree Park was donated to Seminole County after the death of land owner and State Senator M.O. Overstreet. On this site stands one of the world's largest known living Cypress trees. The majestic 3,500 year old tree is named "The Senator" in honor of Senator Overstreet.

In 1970, a bond referendum was held in Seminole County for purchasing future parklands. This resulted in the purchase of a 312-acre parcel known as Soldier's Creek Park within the Spring Hammock acquisition area by the County in 1974.

In 1980, responding to continued community interest and county efforts, Spring Hammock Preserve was designated as a priority acquisition project of the Department of Natural Resources Conservation and Recreational Lands Program (CARL). This program, under the direction of the Board of Trustees of the Internal Improvement Trust Fund, was established to preserve significant environmental lands through cooperation between private property owners, local jurisdictions, and the State of Florida.

In 1990 and again in 2000 the residents of Seminole County passed voter referendums establishing the County's Natural Lands and Trails Programs. This provided approximately 45 million in funding to purchase environmentally significant lands and the design, acquisition and development of a countywide trail system.

Subsequent to designation as a priority project for acquisition, approximately 446 acres of the hammock have been acquired by the state and subleased to Seminole County for management purposes. Active negotiation for acquisition of the remaining Spring Hammock acreage is ongoing. Upon acquisition of these parcels, the sublease agreement for management by Seminole County will be amended to include any additional sites.

Today most of Spring Hammock Preserve's approximately 1,500 acres remain in a natural state. However, there has been some development (commercial, industrial, agricultural, residential, and recreational) along its fringe, both within and outside the site boundaries. As additional lands for Spring Hammock become available they would be purchased using the Florida Forever acquisition program, and the Seminole County Natural Lands Program.

NATURAL RESOURCES OVERVIEW

Natural Communities

Located within Spring Hammock Preserve are several plant communities including scrubby flatwoods, mesic flatwoods, floodplain forest, cypress dome, and hydric hammock. Plant communities are taken from FNAI, 1990.

Mesic Flatwoods: Soil types associated with the pine flatwoods are Basinger, Samsula, Hontoon, Myakka, and Eau Gallie. Longleaf pine (*Pinus palustris*) is the dominant pine within pine flatwoods areas; however, slash pine (*Pinus elliotii*) and loblolly pine (*Pinus taeda*) occur in wetter portions of flatwoods and along the wetland/upland interface. Saw palmetto (*Serenoa repens*) and gallberry (*Ilex glabra*) form the shrub layer, along with several other woody species. Groundcover in drier areas is dominated by wiregrass (*Aristida beyrichiana*), whereas wetter flatwoods support piney woods Dropseed (*Sporobolus junceus*) and Bottlebrush threeawn (*Aristida spiciformis*). This is a fire dependent community and according to Florida Natural Areas Inventory, has a fire regime of every 3 to 7 years.

Scrubby Flatwoods: There is a small patch of scrubby flatwoods near the Environmental Studies Center. The area is overgrown and is mostly scrub oaks, palmetto and slash pine. There are a number of gopher tortoise (*Gopherus polyphemus*) burrows in this area. Although this is a fire dependent plant community, due to proximity to the urban interface and major thoroughfares, prescribed fire will not be used as a restoration tool. Staff will explore mechanical treatment as a way to mimic fire in this area. The fire interval for this plant community is 7 to 12 years (FNAI 1990).

Alluvial Forest: This community type forms a great arc around the western end of Lake Jesup. A minor ridge limits the western extent of the community, which picks up again as the elevational gradient is reduced near the headwaters of Soldier's Creek. In terms of area, these swamps constitute 1,045.4 acres of the hammock. The soils include Basinger, Samsula, Hontoon, Smyrna, Nittaw Mucky, Nittaw and Okeelanta. A wide variety of trees comprise the swamp forest. Among these are Sweet gum (*Liquidambar styraciflua*), Red maple (*Acer rubrum*), Water oak (*Quercus nigra*), Sweet bay (*Magnolia virginiana*), Red bay (*Persea borbonia*), Black gum (*Nyssa biflora*), Water hickory (*Carya aquatica*), and Swamp bay (*Gordonia lasianthus*). Bald cypress (*Taxodium distichum*) appears as solitary individuals and in stands that reflect past land-use occurrences. Smaller trees and shrubs include Wax myrtle (*Myrica cerifera*), Fringe tree (*Chionanthus virginica*), Florida willow (*Salix floridana*), Buttonbush (*Cephalanthus occidentalis*), Hornbeam (*Carpinus caroliniana*), Swamp azalea (*Rhododendron viscosum*), Dwarf palmetto (*Sabal minor*), and Needle palm (*Rhapidophyllum hystrix*). These slightly higher or better-drained portions of bay swamp and stream and lake

swamps support populations of Yellow poplar (*Liriodendron tulipifera*) and Basswood (*Tilia caroliniana*).

Cypress Swamp: A single cypress dome occupies 3.8 acres of Spring Hammock Preserve. Pond cypress (*Taxodium ascendens*), Black gum (*Nyssa biflora*) and Holly (*Ilex cassine*) dominate this depressional wetland on Basinger, Samsula and Hontoon soils.

Floodplain Swamp: This high-water elevation is up to 5 feet above normal high water, with slight relief. The soil is classified as Nittaw Mucky which is occasionally flooded. These soils experience long hydroperiods with reduced decomposition rates depending on water levels and soil saturation. Hardwoods and Bald cypress (*Taxodium distichum*) make up the forest. Typical trees include Sweet gum, Red maple, Water oak, Water hickory (*Carya aquatica*), Swamp bay (*Persea palustris*), Elm (*Ulmus americana*), and Hackberry (*Celtis laevigata*). Understory shrubs are seldom abundant but may contain Pop ash (*Fraxinus caroliniana*), Grape (*Vitis* sp.) and Virginia willow (*Itea virginica*). Chain ferns (*Woodwardia areolata* and *W. virginica*), and Royal fern (*Osmunda regalis*).

Fire

Fire is an integral part of the Florida landscape. Before the influx of settlers, lightning fires would burn unimpeded through fire adaptive communities and landscapes until extinguished via changes in weather and/or fuel characteristics. Native Americans would also burn at various times of the year to attract wild game and to keep the landscape open for easy travel. Today, due to increased development pressures on conservation areas, fires must be managed under strict regulations and performed according to set criteria depending on the site. Seminole County hired the Nature Conservancy to develop a Prescribed Burn Plan for all Natural Land sites and make recommendations for the application of this important management tool.

The Preserve contains two fire dependent plant communities, mesic and scrubby flatwoods. These habitats and much of the flora and fauna, have adapted to, and in some instances become dependent upon fire to maintain their physical structure and populations. In the absence of fire, hardwood species eventually dominate and shade the understory, hindering the germination of seeds and leading to a much less diverse community. Plants such as pine trees and wiregrass fail to reproduce and many species of wildlife dependent upon these understory plants must move elsewhere or perish. Staff will evaluate the use of mechanical treatment in lieu of fire due to the urban interface issues in this area.

Wildlife

Preliminary surveys and historical records acquired through the Environmental Studies Center have confirmed the presence of many species of wildlife including, Raccoon (*Procyon lotor*), River otter (*Lutra canadensis*), Bobcat (*Lynx rufus*), and Gray fox (*Urocyon cinereoargenteus*). Common species such as the gray squirrel (*Sciurus carolinensis*) and Virginia opossum (*Didelphis virginiana*) occur throughout the hammock.

The large expanse of forested wetlands present on SHP provide a vital source of food and shelter for migrating birds in fall and spring. Many resident nesting birds such as the White-eyed Vireos (*Vireo griseus*), Parula Warbler (*Compsothlypis americana*), and Carolina Wren (*Thryothorus ludovicianus*) can also be observed. Larger avian species recorded in SHP include the Red-shouldered (*Buteo lineatus*) and Red-tailed hawks (*Buteo jamaicensis*), Barred (*Strix varia*) and Great horned (*Bubo virginianus*), owls, Great Blue heron (*Ardea Herodias*), Anhinga (*Anhinga anhinga*) and White Ibis (*Eudocimus albus*).

Numerous reptiles and amphibians are associated with the natural communities of Spring Hammock. Species confirmed on site include: gopher tortoise, green anole (*Anolis carolinensis*), ground skink (*Scincella lateralis*), and southeastern five-lined skink (*Eumeces inexpectatus*). Numerous snakes are found throughout the hammock, however most species will not be seen by the casual observer. In the uplands, red and yellow rat snakes (*Elaphe guttata* and *obsoleta*), eastern indigo snake (*Drymarchon corais couperi*), and the ubiquitous southern black racer (*Coluber constrictor priapus*) may be seen. In the streams and forested wetlands aquatic species such as the Florida water snake (*Nerodia fasciata pictiventris*), mud snake (*Farancia abacura*) and black swamp snake (*Seminatrix pygaea*) have been observed.

Initial fish and amphibian surveys in Soldier's Creek revealed species such as: Redfin pickerel (*Esox americanus*), Redbreast sunfish (*Lepomis auritus*), and smaller more diminutive species such as the Pirate perch (*Aphredoderus sayanus*) and Swamp darter (*Etheostoma fusiforme*). Amphibians observed included the Pig frog (*Rana grylio*), Amphiuma (*Amphiuma means*) and Peninsula newt (*Notophthalmus viridescens piaropicola*).

Listed Species

This list is comprised of 15 vertebrate species (6 amphibians and reptiles, 5 birds, and 4 mammals) and 9 plant species which are known or likely to occur in the Spring Hammock Preserve area.

Several pairs of bald eagles (*Haliaetus leucocephalus*) exist south and east of Spring Hammock Preserve where mature longleaf pine still grow and provide nesting sites. As development on these private lands continues, the eagles may be displaced. Pinelands within the hammock area are maturing, and it is possible that at some time in the future eagles will nest within the hammock. Other listed bird species are the Limpkin (*Aramus quarauna*), Snowy egret (*Egretta thula*), and Wood stork (*Mycteria americana*). Also present at the site are several listed reptile species including the Gopher Tortoise (*Gopherus polyphemus*), Eastern Indigo Snake (*Drymarchon corais couperi*), and the American alligator (*Alligator mississippiensis*).

The Preserve also contains several listed plant species including the pygmy fringe tree (*Chionanthuspygmaeus*), royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), needle palm (*Rapidophyllum hystrix*), Florida willow (*Salix floridana*), and Okeechobee gourd (*Cucurbita okeechobeensis*).

Exotics

Florida's climate is not only attractive to humans, but also to invasive exotic species. An exotic species is defined as a species introduced to Florida, purposefully or accidentally, from a natural region outside of Florida. Several species of exotic flora and fauna have been recorded on site.

SCNL has an ongoing treatment program to control exotic species and continues to receive grant assistance to treat exotics. An exotic management plan for the Natural Lands program has been developed.

Plants

Exotic plant species include air potato (*Dioscorea bulbifera*), Japanese climbing fern (*Lygodium japonicum*), camphor (*Cinnamomum camphora*), Chinese balsam apple (*Momordica charantia*), small leaf spiderwort (*Tradescantia fluminensis*), Ceasar's weed (*Urena lobata*), Brazilian pepper (*Schinus terbinthifolius*), Chinese tallow (*Sapium sebiferum*), and skunkvine (*Paederia foetida*).

Animals

Exotic animal species include the Brown anole (*Anolis sagrei*), Greenhouse frog (*Eleutherodactylus planirostris*), Cuban tree frog (), Wild Hog () and Mozambique tilapia (*Tilapia mozambica*).

Topography

Spring Hammock Preserve is part of an elongated depression that extends west approximately five miles from Lake Jesup along the Soldier's Creek Drainage Basin. The hammock's elevation ranges from 1.9 to 50 feet above mean sea level, with 53 percent lying within the 100-year flood plain. The 100 year flood plain elevations for Soldier's Creek are 25.1 feet above sea level at SR 427, and 9.6 feet above sea level at the confluence with Lake Jesup. Spring Hammock is the natural treatment area for surface water runoff from approximately 50 square miles of rapidly urbanizing uplands. Artesian springs and flowing wells are present within the area, due to high potentiometric surfaces.

Soils

The predominant soils in Spring Hammock are organic and poorly to very poorly drained, including: Basinger, Samsula, Hontoon, and Nittaw series. These soil types are characteristically wet and have limited recreational uses. Upland soil types, Pomello, Myakka, and Eau Gallie fine sands occur within the hammock's western boundary area. These soils are characterized as being nearly level and poorly drained.

Upland Soil Types

These are somewhat poorly drained soils formed by the deposition of approximately 32 inches of sandy materials over naturally occurring soils. They are in former low areas that have been filled for urban development. The water table is generally between 1.5 and 3.0 feet below the surface during the wet season. Recreational development is limited due to the sandy nature of upland soil types.

(A) Myakka/Eau Gallie Fine Sands (Type 20)

These are nearly level, poorly drained sandy soils in broad areas of the flatwoods, in depressions, and in areas between sand ridges and ponds and sloughs. The water table is between 1.0 and 3.0 feet below grade during the wet season. The baseball fields, soccer/football fields, and Big Tree Park are all located on this soil type.

(B) Pomello (Type 27)

These are moderately well drained sandy soils on low ridges. The high water table elevation ranges from 2.0 to 3.5 feet below the surface. The Environmental Studies Center located between State Road 419 and the power line right-of-way is currently located on this soil type.

(C) Tavares-Millhopper Fine Sands (Type 31)

These are moderately well drained nearly level to sloping soils that have formed in the thick beds of sandy and loamy marine sediments. The wet season water table is generally 3.5 to 6.0 feet below grade.

Wetland Soil Types

(A) Basinger Depressional Soils (Types 9, 10, 11 & 23)

These are very poorly drained, deep sandy soils that occur in broad sloughs and depressions in central and south Florida. The normal high-water elevation occurs between June and February, and ranges from 2 feet above to 1 foot below the surface. Recreational use within this soil type is limited due to the characteristic ponding of water and sandy nature of the soil.

(B) Nittaw Series (Type 10)

These are nearly level, very poorly drained organic soils that occur in freshwater swamps and marshes. Normal high-water elevation occurs between June and February and ranges from 2 feet above to 1 foot below the surface. Recreational uses are limited by ponding and excessive muck levels.

(C) Felda Soils (Type 11)

These are very poorly drained sandy soils in depressions. Normal high-water elevation occurs from June through February, and ranges from two feet above to one foot below the surface. Recreational use is limited due to severe ponding and excessive humus.

(D) Eau Gallie Series (Type 13)

These are nearly level, poorly drained soils on low ridges in flatwoods areas. Normal high-water elevation occurs from June through October, and ranges from the surface to one foot below. Recreational use is limited due to severe wetness and the sandy nature of the soil.

(E) Felda and Manatee Mucky Fine Sands, Depressional (Type 15)

These are very poorly drained soils occurring in depressions. Normal high-water elevation occurs from June through December and ranges from two feet above to one foot below the surface. Recreational development is limited due to severe ponding and the sandy nature of the soil.

(F) Arents (Type 29)

These are nearly level, poorly drained soils occurring in broad, low flatwood areas of the coastal plain. Normal high-water elevation ranges from the surface to one foot below during the wet season. Recreational use is limited, due to severe wetness and sandy nature of the soil. The baseball and soccer fields in Soldier's Creek Park occupy an area of this soil type, although some filling has been done to raise the grade to facilitate construction of these facilities.

Water Resources

Spring Hammock Preserve lies predominantly within the Soldier's Creek Drainage Basin, along with a small area in the Gee Creek Drainage Basin. Soldier's Creek, with its headwaters in Lake Searcy, flows northeastward to a confluence with a north branch of Lake Mary, then southeast to Lake Jesup. Soldier's Creek was historically canalized for flood control purposes. The subsequent development of the surrounding basin and potential impacts to residential and commercial properties, as well as roadways, makes restoration unlikely.

Gee Creek, with its headwaters in Prairie Lake, flows through a chain of small lakes in the Casselberry including, Lake Fairy, Lake Kathryn and Crystal Lake on its way to Lake Jesup.

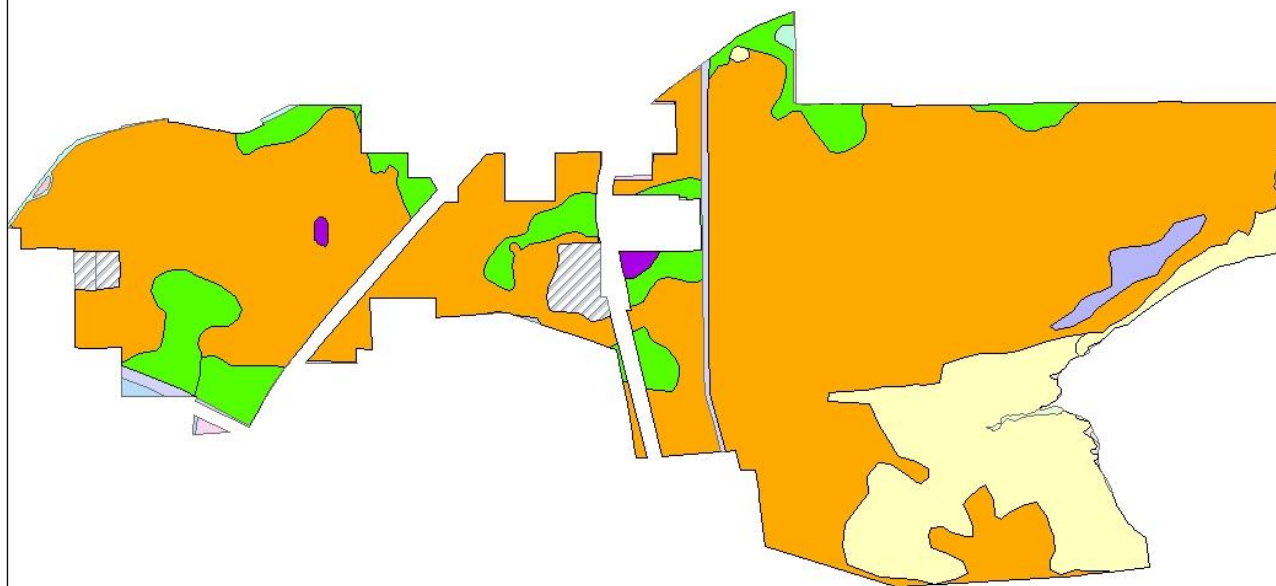
The waters of Soldier's Creek, Gee Creek and Lake Jesup are Class III recreational waters, as classified by the Florida Department of Environmental Protection. Surface water in the area is clear and moderately high in nutrients. Overall, surface water quality is good, considering the urban and agricultural activities within the Soldier's Creek and Gee Creek basins. The Seminole County Stormwater Division continues to monitor water quality flowing through these systems to identify key sources of pollution and develop plans for improvement.

Unique Natural Features

Water is a primary natural resource for Central Florida. Spring Hammock Preserve's eastern-most boundary is adjacent to the water's edge of Lake Jesup. Gee Creek and Soldier's Creek traverse the hammock and flow toward Lake Jesup. The large expanse of forested habitat extends like a peninsula into a rapidly urbanizing area, providing a corridor for the movement of plants and animals. Another natural feature, which increases the hammock's uniqueness, is the presence of flowing artesian wells. The wells, creeks, and Lake Jesup create Spring Hammock Preserve's aesthetic value, visual interests, and opportunities for positive experiences.

The large bald cypress trees that exist on the Spring Hammock site, especially those in Big Tree Park, are unique in the region due to past lumbering activities. However, the most unique

feature is Spring Hammock itself, because of its large expanse of relatively undeveloped, heavily wooded land area. Large tracts of forested wetlands like the Preserve are extremely important for resting and feeding of small, migratory birds in the spring and fall.



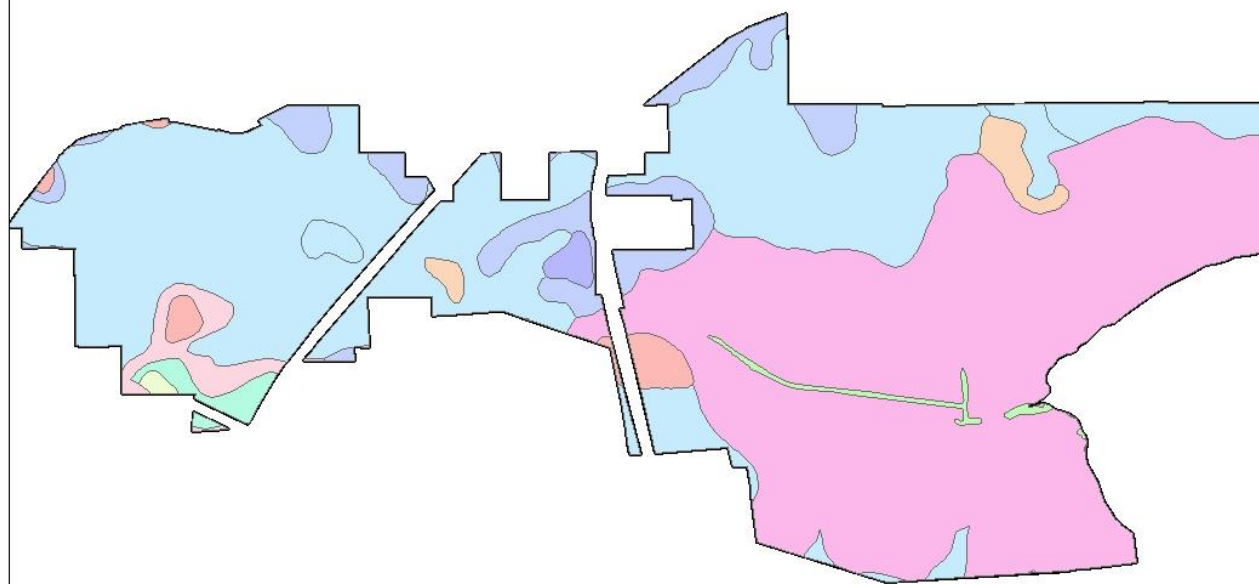
Legend

- Scrubby Flatwoods
- Mesic Flatwoods
- Floodplain Swamp
- Hydric Hammock

- Alluvial Forest
- Disturbed Land

Spring Hammock Preserve
Figure 2: Natural Communities Map





Legend

ARENDS	POMELLO
BASINGER	ST. JOHNS
FELDA	TAVARES
MYAKKA	URBAN LAND
NITTAU	WATER

Spring Hammock Preserve
Figure 3: Soils Map

0 0.5 1 Miles
1:19,368



IMPLEMENTATION

Integral to the goals and objectives for managing acquired lands in an acceptable manner are protection and restoration of those lands where feasible. An important element in protecting the natural and recreational resources is to prevent dumping, poaching, and other illegal activities. Appropriate land management activities, such as prescribed burning, forest management, and removal of exotics, should be continued to protect the viability of the site.

Rules and Regulations

Seminole County Code Chapter 190 Section 4 establishes the provisions relating to management and use of the properties acquired or managed by Seminole County Natural Lands Program.

RESOURCE PROTECTION AND MANAGEMENT

The primary objectives in the management of Spring Hammock Preserve are: resource management, including preservation of wildlife, supporting habitat, and potential historic and archaeological resources, and recreational and educational uses that are compatible with the preservation of Spring Hammock.

Restoration

Natural Lands staff is evaluating the need for restoration where large infestations of exotic plant species have occurred and have been treated.

Restoration Strategies

- Continue to evaluate the need for restoration activity

Forest Management

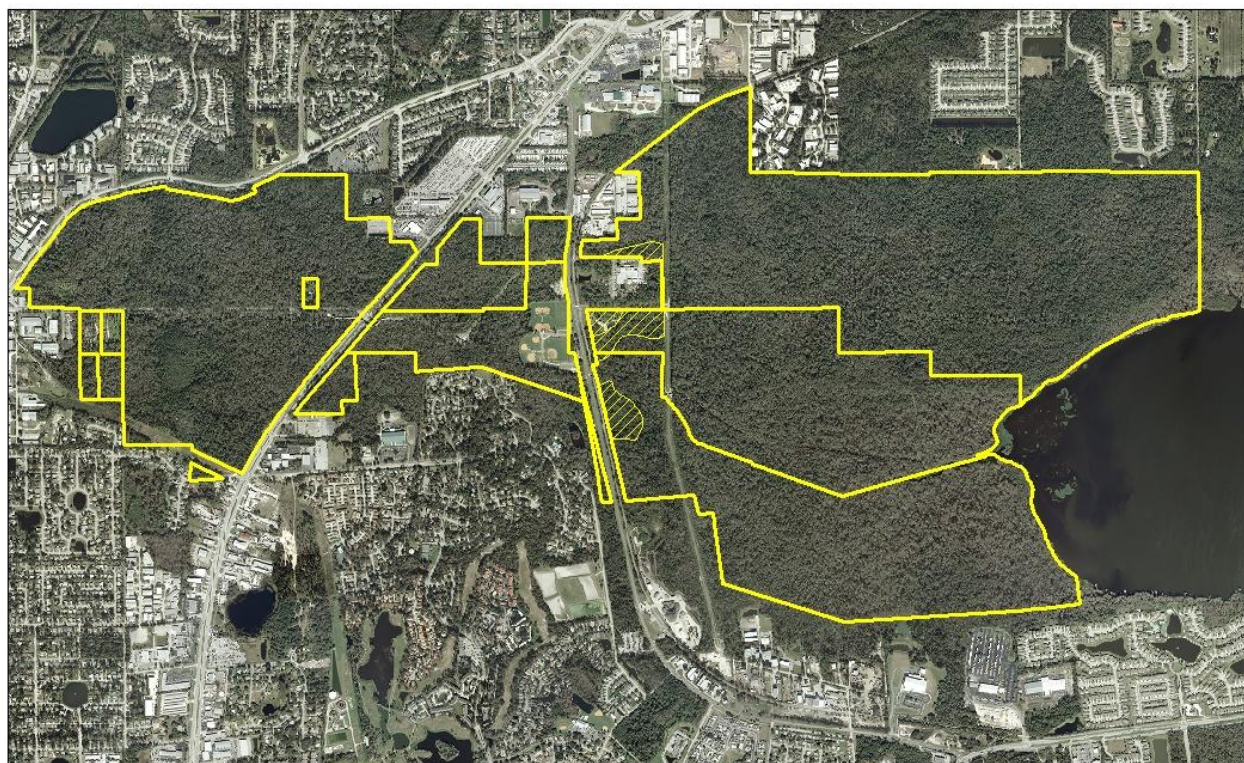
Florida Statutes require public agencies to evaluate lands they manage for timber production. Planting of upland forest species may be a component of future upland restoration projects.

Forest Management Strategies


- At this time there are no plans to conduct any forestry related activity with Spring Hammock Preserve.

Fire Management

Taking into consideration the extremely urbanized surroundings and the presence of several very busy roadways the Conservancy staff recommended the use of fire be restricted to the section of the preserve east of CR 419 and only conducted with a west wind. County staff concurred that the possible side effects of fire in this location and the subsequent public perception of prescribed burning, may outweigh the ecological benefit to these relatively small areas.



Legend

 Proposed Burn Units (burnable plant communities)

Spring Hammock Preserve
Figure 4: Burn Zone Map



0 0.5 1 Miles
1:20,264

Wildlife

Continued habitat management through roller chopping, mowing, and burning should provide optimal habitat for wildlife species. Wildlife observations are on-going through the monitoring program and updates will be added to the Natural Lands database.

Wildlife Strategies

- Continue to monitor and record wildlife species
- Continue land management activities

Listed Species

Surveys are conducted annually to verify the existence of listed plant and animal species. A volunteer program was established by Natural Land's staff to mark and record information on gopher tortoises. Volunteers complete at least four hours of training before they are certified to participate in the mark-recapture monitoring effort.

Plants

Known listed plant species within the Preserve include the Pygmy Fringe Tree (*Chionanthus pygmaeus*), Royal Fern (*Osmunda regalis*), Cinnamon fern (*Osmunda cinnamomea*), Needle palm (*Rapidophyllum hystrix*), Florida willow (*Salix floridana*), and Okeechobee gourd (*Cucurbita okeechobeensis*) and Cuplet fern (*Dennstaedtia bipinnata*).

Animals

There are several listed animal species occurring within the Preserve's boundaries including: Bald eagles (*Haliaetus leucocephalus*), Limpkin (*Aramus quarauna*), Snowy egret (*Egretta thula*), and Wood stork (*Mycteria americana*).

Listed reptile species include the Gopher Tortoise (*Gopherus polyphemus*), Eastern Indigo Snake (*Drymarchon corais couperi*), and the American alligator (*Alligator mississippiensis*).

Listed Plant and Animal Strategies

- Continue to monitor gopher tortoise activity
- Continue annual listed plant surveys

Exotic Species

There are several exotic plant and animal species within SHP. These invasive species often out compete and displace native flora and fauna.

Plants

Known exotic plant species include Air potato (*Dioscorea bulbifera*), Japanese climbing fern (*Lygodium japonicum*), Camphor (*Cinnamomum camphora*) and Chinese Balsam Apple (*Momordica charantia*).

Animal

Exotic animal species include the Brown anole (*Anolis sagrei*), greenhouse frog (*Eleutherodactylus planirostris*) and Mozambique tilapia (*Tilapia mozambica*), feral hogs (*Sus scrofa*).

Exotic Plant and Animal Strategies

- Get all Category I exotic species under maintenance control
- Trap and remove wild hogs annually or as needed

Monitoring

Monitoring natural resources is an important tool in gauging the overall health of an ecosystem. Over the years there have been numerous monitoring studies at Spring Hammock Preserve to determine the overall scope of plant, amphibian, reptile, and mammal species, including exotics located within the property.

In 2006, SCNL developed a new monitoring plan. In accordance with that plan, monitoring at SHP now includes a volunteer based gopher tortoise mark and release program coordinated by Natural Lands staff. Post-burn burrow surveys and photo-points are also conducted by staff and the data collected from these two types of monitoring efforts allow staff to estimate gopher tortoise populations on each property.

Plant transects are conducted to gather population estimates for the wide variety of plant species occurring within the Preserve, including both listed and exotic species.

Monitoring Strategies

- Continue quarterly monitoring
- Continue volunteer monitoring program
- Continue monitoring exotic species

LAND USE MANAGEMENT

Access

There are two access points into Spring Hammock. The entrance point located on the west side of County Road 419 provides access to active based recreational facilities. The adjacent entrance, located on the east side of CR 419, provides access to the Environmental Studies Center as well as parking for use of the trail system within the preserve.

Access Strategies

- Continue regular maintenance of public access area
- Maintain signs and kiosk

Recreation

Spring Hammock preserve is presently the site of two county-owned parks – Big Tree Park and Soldier's Creek Park. Recreational uses and facilities at Big Tree Park include picnicking, nature

walk/boardwalk, interpretive signage, restrooms, two pavilions and parking. Soldier's Creek Park is the site of five acres of active-use recreation (five baseball fields, two soccer/multi-purpose fields, and two softball fields) and the Seminole County Schools Board's Environmental Studies Center. Recreational uses and facilities include parking, restrooms, pavilions, picnicking, nature trails, boardwalks, and other passive and educational uses. The Florida Trail, a nature trail for hiking, traverses the site as well as the paved County Trail known as the Cross Seminole Trail which runs east from Big Tree Park and then south on the east side of CR 419.

Recreation Strategies

- Continue regular maintenance for all recreational resources

Environmental Education

The Environmental Studies Center operates under a cooperative agreement between the Seminole County Board of County Commissioners and the Seminole County School Board. This center has served for 30 plus years to introduce many students to the natural and historic qualities Seminole County has to offer. The school board funds the environmental education program which annually serves approximately 10,000 students.

Environmental Education Strategies

- Continue educational programs

Security

The security of Spring Hammock Preserve will continue to be addressed through the existing partnerships and the addition of assistance from the GNLD.

Security Strategies

- Continue with current security

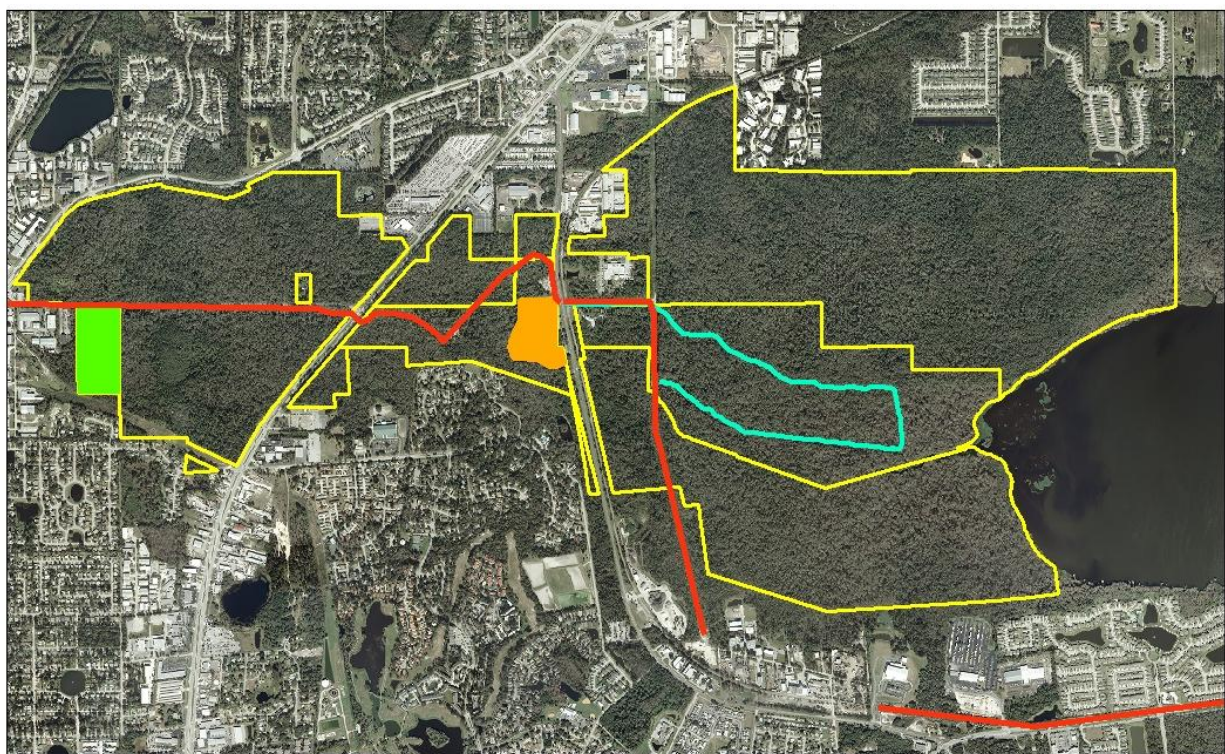
ADMINISTRATION AND IMPLEMENTATION

Acquisition

If available, additional lands for Spring Hammock Preserve will be purchased under the Conservation and Recreational Lands (CARL) acquisition program, and the Seminole County Natural Lands Program.

Acquisition Strategies

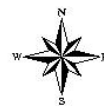
- Continue to pursue adjacent parcels as available.



Legend

- Osprey Trail Big Tree Park
- Cross Seminole Trail Soldier's Creek Park

Spring Hammock Preserve
Figure 5: Recreation



0 0.5 1
Miles
1:20,264

Spring Hammock Preserve Management Activity Implementation Chart

TASK	RESPONSIBLE LEAD	DUE DATE	COOPERATORS
RESOURCE PROTECTION AND MANAGEMENT			
<u>Restoration</u>			
Evaluate need for restoration activity	NL	On-going	
<u>Forest Management</u>			
No current plan for forestry related activities			
<u>Fire Management</u>			
Evaluate mechanical treatment for site.	NL	2013	PS, DOF
<u>Wildlife</u>			
Continue to record wildlife observations	NL	On-going	Volunteers
Continue with land management activities	NL	On-going	PW
<u>Listed Species</u>			
Plants & Animals			
Continue monitoring for gopher tortoises	NL	On-going	Volunteers
Continue with listed plant species survey	NL	On-going	Volunteers
<u>Exotic Species</u>			
Plants & Animals			
Get all Category I exotics under maintenance control	NL	2012	PW
Continue with exotic species monitoring	NL	On-going	Volunteers
<u>Monitoring</u>			
Continue quarterly monitoring	NL	On-going	Volunteers
Continue volunteer monitoring program	NL	On-going	Volunteers
Continue monitoring exotic species	NL	On-going	Volunteers
LAND USE MANAGEMENT			
<u>Access</u>			
Continue regular maintenance of public access areas	NL	On-going	PW
Maintain signs and kiosks	NL	On-going	PW
<u>Recreation</u>			
Maintain regular maintenance of all recreational resources	NL	On-going	PW, Volunteers
<u>Education</u>			
Continue educational programs through the Environmental Studies Center	NL	On-going	
<u>Security</u>			
Continue with current security	NL	On-going	

TASK	RESPONSIBLE LEAD	DUE DATE	COOPERATORS
<u>Acquisition</u>			
Continue to purchase adjacent lands as they become available	NL	On-going	

KEY

DOF Division of Forestry
PS Public Safety
PW Public Works

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