

# **GEMINI SPRINGS ADDITION Land Management Plan**

Middle St. Johns River Basin  
Volusia County

Prepared by  
St. Johns River Water Management District

**GOVERNING BOARD APPROVED  
MARCH 2006**

**GEMINI SPRINGS ADDITION  
LAND MANAGEMENT PLAN**

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## LAND MANAGEMENT PLAN SUMMARY

### Gemini Springs Addition

**Acres:** approximately 948 acres

**Location:** City of DeBary, in Volusia County, on the west shore of Lake Monroe, north of the St. Johns River; west of Interstate 4.

**Dates of Acquisition:** Two acquisitions to date: Hugh West (Empire Cattle Company) and Woodruff Tracts both in 1999.

**Funding Sources:** Florida Department of Transportation Mitigation (FDOT) for projects on Interstate 4 (I-4) and State Road 417 (SR 417).

**Key Resource Issues:** The property was acquired as two separate parcels, both of which were purchased with Florida Department of Transportation mitigation funds for the widening of I-4 and the completion of SR 417. The proximity to two major highways makes prescribed burning difficult. Other management techniques that have been used to reduce fuel loads include mowing and chopping. Additionally, District staff has planted 75 acres in pine trees. There is an out parcel owned by FDOT that was used for borrow material. FDOT created a retention pond to contain stormwater runoff from the newly constructed bridgework over the St. Johns River and associated shoreline of Lake Monroe. Volusia County plans to develop a paved trail through the property that connects Gemini Springs Park to Lake Monroe Park (both County owned parks).

#### **GENERAL DESCRIPTION:**

- **Water Resources** – Water resources within the Gemini Springs Addition project area consist of Mullett Lake, Gemini Springs, Padgett Creek (a.k.a., DeBary Creek), Lake Monroe, and the St. Johns River. These water bodies are classified as Class III waters according to the Florida Department of Environmental Protection, providing for recreation and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. The District is cooperating with Volusia County to locate Aquifer Storage and Recovery (ASR) sites within the County. The program is funded with Florida Forever funds to provide local Utility companies with an alternative source of water. One of the test sites is Gemini Springs Addition. A test well will be installed and depending on the results, four permanent wells and a small pump station may be added. The test well (and any subsequent wells) will be in the planted pine area. All associated piping will be underground.
- **Security** – The District security contractor, Volusia County Sheriff's office and the Florida Fish and Wildlife Conservation Commission (FWC) are contacted when necessary to patrol the area.
- **Restoration** – Slash pines (*Pinus elliottii*) have been planted in the improved pasture areas.
- **Fire** – The close proximity to two major highways creates a smoke management concern. District staff have been using mechanical means to reduce fuel loads on the property.
- **Invasive and Exotic Species** – The primary targeted exotic species found on the property are tropical soda apple, or TSA (*Solanum viarum*), cogongrass (*Imperata cylindrica*), Chinese tallow (*Sapium sebiferum*), hairy indigo (*Indogofera hirsuta*), wild balsam apple (*Mordica charantia*) and camphor tree (*Camphora cinnamomum*).

- **Wildlife and Plants** – Wildlife found on the property includes many species of birds including a great blue heron (*Ardea herodias*) rookery. Florida Department of Transportation consultants have conducted a plant survey prior to impacts from the I-4 widening project and an aerial survey looking at avian species was conducted in 2000.
- **Cultural Resources** – There are two prehistoric scatter sites and one historic shipwreck site located on the property according to the Master Site File stored with the Florida Division of Historical Resources. Appropriate protection of identified or suspected sites will be implemented.

**Key Land Use/Recreation Issues:**

This conservation area provides opportunities for a variety of recreational uses including fishing, hiking, bicycling, horseback riding, canoeing, boating and wildlife viewing. Some of these activities are seasonal.

**General Description:**

- **Access** – Access to the property will be from Gemini Springs Park.
- **Public recreation** - The property will be open to the public for nature study, hiking, fishing horseback riding, and bicycling.
- **Coordination of Agreements** – There is an intergovernmental management agreement with Volusia County delegating recreation management to the County and resource management to the District.
- **Leases, Easements and Concessions** – There are two Florida Department of Transportation access easements located on the Hugh West (Empire Cattle Company) tract.

**Middle St. Johns River Basin  
Gemini Springs Addition  
Volusia County, Florida**

**LAND MANAGEMENT PLAN**

**INTRODUCTION**

This document provides guidelines for land management activities to be implemented within the Gemini Springs Addition over the next five years. Management of this property is a cooperative effort between the District and Volusia County, as delineated in a management agreement. This plan updates the management plan approved by the Governing Board in March 2000.

The Gemini Springs Addition is located in the City of DeBary, in Volusia County, west of Lake Monroe and north of the St. Johns River (Figure 1). Two major highways occur on the south and west boundaries. I-4 bisects the property and United States Highway 17 (U.S. 17) occurs along the west boundary. The property served as mitigation to offset wetland impacts for two FDOT projects; the widening of I-4 and the completion of S.R. 417.

**CONSERVATION AREA OVERVIEW**

**Regional Significance**

Gemini Springs Addition protects the west shore of Lake Monroe from direct stormwater runoff from adjacent roadways. The addition of the property creates a contiguous corridor between Gemini Springs Park and Lake Monroe Park (two Volusia County owned parks). A trail has been designed to connect all three properties for public recreation.

**Acquisition History**

The property is comprised of two acquisition parcels (Figure 2).

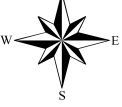
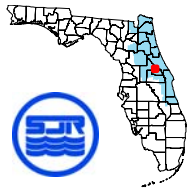
The 815-acre parcel known as Hugh West Tract (Empire Cattle Company, LA 98-71) was acquired on March 24, 1999 for \$4,011,690. It is located west of Interstate 4, north of Old DeLand Road, east of Highway 17-92, and south of Gemini Springs Park and Dirksen Drive. The parcel was acquired with funds from the Florida Department of Transportation as mitigation for the expansion of the Interstate 4 corridor and for the purpose of preserving and enhancing significant portions of wetlands associated with the West Lake Monroe Project Area.

In November 2005, a 29.495-acre portion of this parcel was conveyed to DOT via a Quit Claim Deed. Twenty acres was part of the original purchase and the additional 9.495-acres was purchased in November 2005. This property was used for the construction of a borrow pond for I-4.

The 162-acre Woodruff parcel, (LA 91-54), acquired on May 10, 1999 for \$1,292,000, is located east of Highway 17-92, north of Monroe Park, and south of the Hugh West Tract. The parcel was acquired with funds from the Florida Department of Transportation as mitigation for the remaining segment of SR 417 (Eastern Beltway) and for the purpose of preserving and enhancing wetlands associated with the West Lake Monroe Project Area.



**Gemini Springs Addition  
Figure 1: Location Map**



0 0.375 0.75 Miles



1:82979

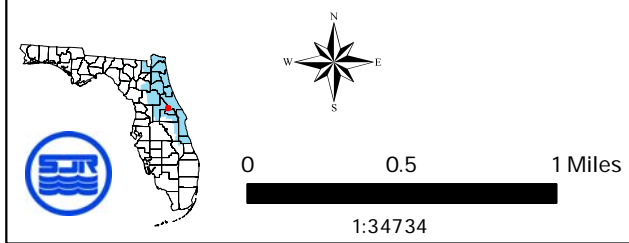
**Legend**

- Gemini Springs Addition
- District - full fee
- District - less than fee
- District - joint ownership
- Potential
- 2005 Florida Public Lands: Not Owned by District
- Reservoir
- Marsh, Wetland, Swamp
- City
- Town
- Village
- Census Designated Place

**Figure 2: Ownership Map**



**Gemini Springs Addition  
Figure 2: Acquisition Map**



**Legend**

- Empire Cattle Co. LA 98-71
- Woodruff LA 91-54
- Marsh, Wetland, Swamp
- Reservoir

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## **Zoning**

The parcels that comprise Gemini Springs Addition are zoned A-2, Rural Agriculture, and RC, Resource Corridor. A-2 is a classification intended to provide and protect rural areas that have some agricultural value. RC is a classification intended to protect natural corridors. These natural corridors consist of environmentally sensitive or ecologically significant lands that connect to other protected areas, such as parks and water. The Future Land Use designations for the property are Environmentally Sensitive Lands and Mixed Use Area. Mixed Use Area consents to Mixed Planned Use Development zoning classification, potentially allowing for development of eight units per acre despite the current A-2 and RC classification.

## **Cooperative Agreements**

There is an intergovernmental management agreement with Volusia County designating the County as the lead manager on a daily basis to manage public access and recreation on the property. The District is responsible for managing the natural and cultural resources.

## **Leases, Easements and Concessions**

The District and Volusia County are evaluating the potential for Gemini Springs Addition to be an ASR site. If the site is proven to be feasible, an easement may be conveyed to Volusia County over the ASR site. Florida Power and Light and BellSouth each have an easement on a portion of the property. DOT has an access easement to the borrow pit/detention pond and a temporary easement to the retention pond.

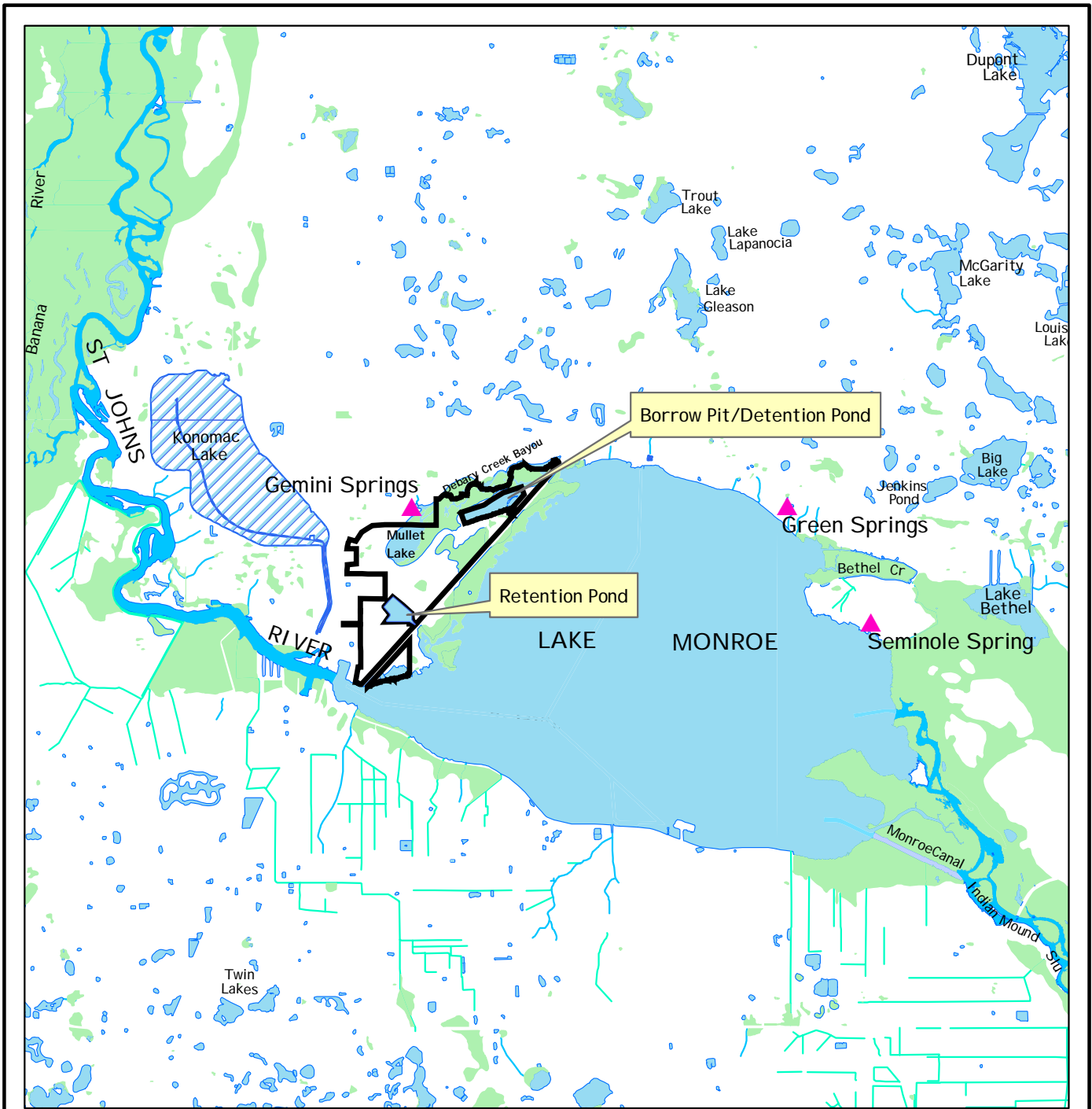
## **NATURAL RESOURCES OVERVIEW**

### **Topography and Hydrology**

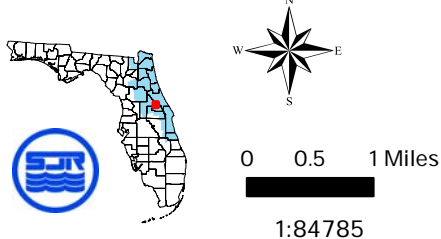
Of the 948-acre Gemini Springs Addition, approximately 48 percent is upland and approximately 52 percent is wetland. The western, southern, and northern portions of the tract are primarily comprised of forested uplands and improved pasture. The wetlands are a combination of open water, floodplain marsh, floodplain forest and hydric hammock. Mullet Lake is a natural water body found within the northwestern section of the property. Encompassing approximately 60 acres, Mullet Lake joins with the DeBary Creek Bayou, and ultimately flows into Lake Monroe. A 55-acre borrow pit located on the northeastern corner and a 30-acre retention pond adjacent to I-4 were created by FDOT during the construction of the I-4 causeway. In addition, the St. Johns River flows along the southern border of the tract connecting to Lake Monroe, bordering easterly portions of the tract (Figure 3).

The topography in general is higher in elevation to the west/southwest, sloping to the east/northeast toward Lake Monroe and its floodplain. Elevations within the Hugh West (Empire Cattle Company) tract are generally between the 0 and 5 foot contours in Sections 2, 3, the north/northeast portion of 10, and 11. The southwest portion of Section 10 ranges in elevation from 5 feet in the east to 15 feet in the west. Elevations in Section 9 range from 5 feet in the east to approximately 20 feet in the west. Elevations on the northwest corner of Section 15 ranges from 5 to 10 feet (Figure 4).

Elevations within the Woodruff parcel range from 0 to 10 feet in Section 15, and from 0 to 15 feet in Section 16. The highest elevations within the Woodruff parcel are located in the central



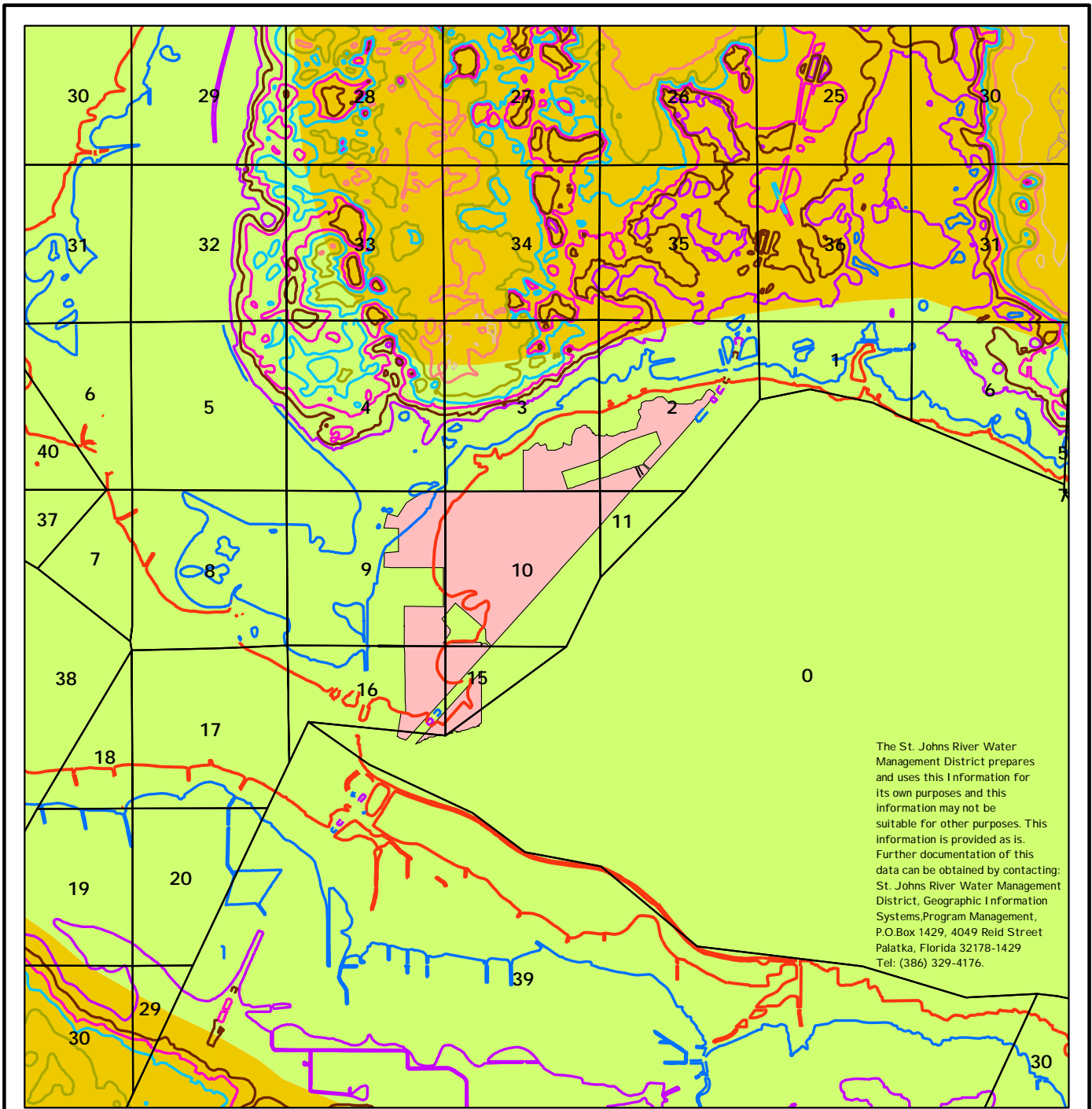
**Gemini Springs Addition**  
**Figure 3: Hydrology Map**



**Legend**

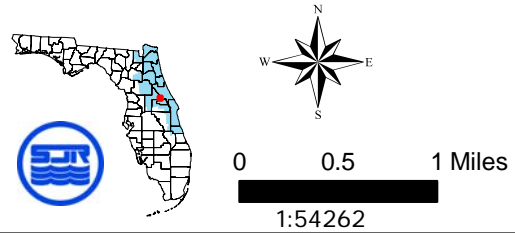
- ▲ Local Springs
- Gemini Springs Addition
- Reservoir
- Marsh, Wetland, Swamp

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**Gemini Springs Addition**  
**Figure 4: Topographic Map**



**Legend**

- Elevation - Feet**
- 10
  - 20
  - 30
  - 40
  - 50
  - 60
  - 70
  - 80

- Gemini Springs Addition
- Eastern Florida Flatwoods
- Central Florida Ridges and Uplands

portions of Section 16, sloping toward Lake Monroe to the east/northeast and toward the St. Johns River to the south/southwest.

Federal Emergency Management Agency (FEMA) data indicates that more than 68 percent of the parcel is below the 100-year floodplain and has no base flood elevations determined. The remainder of the property, primarily located on the western boundary, has been determined to reside along the 10-foot contour line.

#### Wildlife

An aerial survey of the property was performed by a contractor on January 31, 2000 for the purpose of identifying any large bird nests or rookeries within the project area. Numerous avian species including red-shouldered hawk (*Buteo lineatus*), osprey (*Pandion haliaetus*), great blue heron (*Ardea herodias*), cattle egret (*Bubulcus ibis*), great egret (*Ardea alba*), Vermillion flycatcher, and a diverse number of ducks were observed flying over or residing on the property. Several osprey nests and a great blue heron rookery were observed within the Woodruff parcel, near the I-4 Bridge. Results of the aerial survey did not reveal the presence of any bald eagle nests, however, several osprey, heron and egret nests were observed within the property boundaries.

Other wildlife found on the property includes white-tailed deer (*Odocoileus virginianus*), American alligator (*Alligator mississippiensis*), raccoon (*Procyon lotor*), and wild turkey (*Meleagris gallopavo*). Florida black bear (*Ursus americana floridana*) tracks have been found on the property.

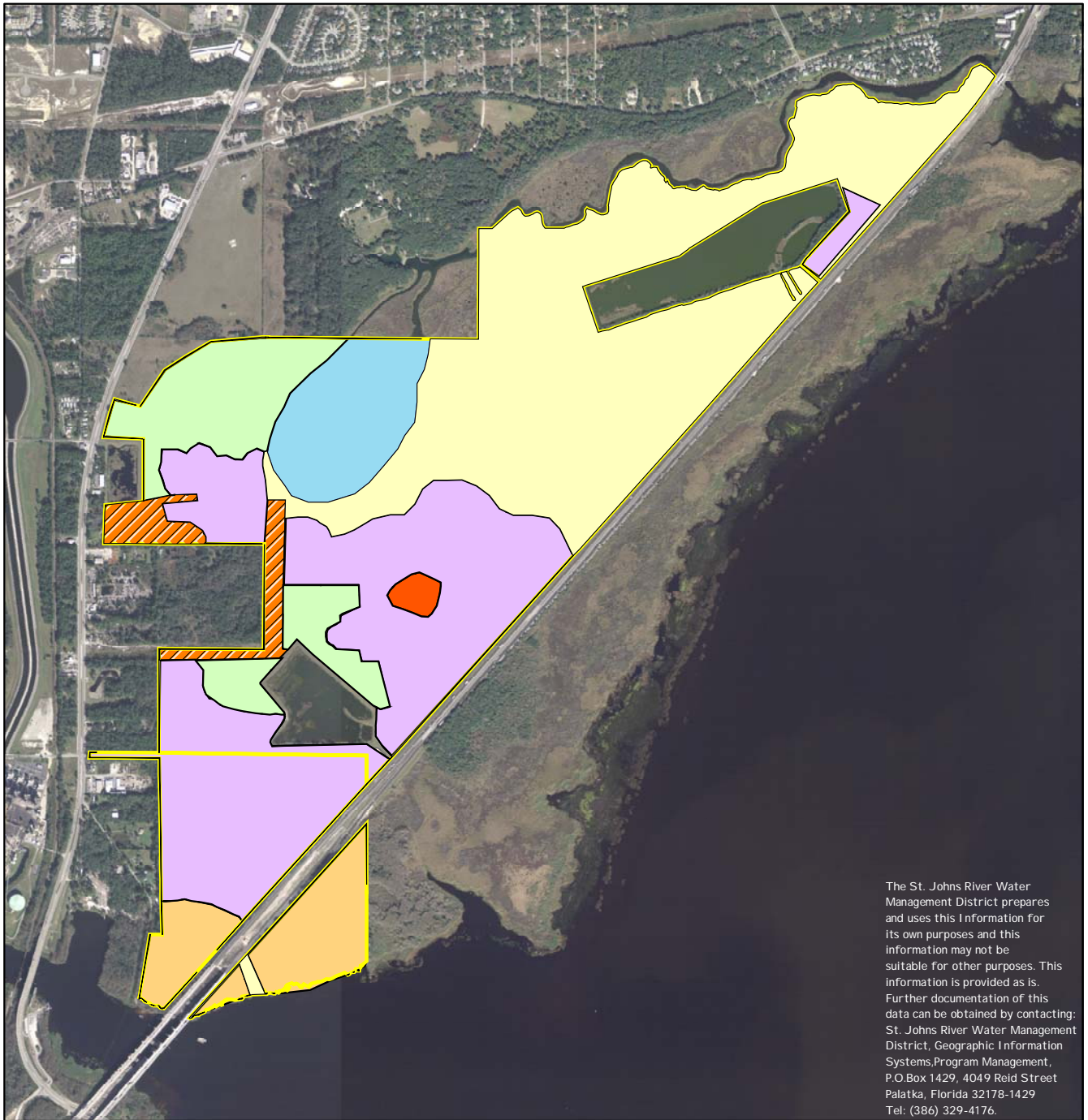
Exotic wildlife species found on the property include the feral hog, coyote (*Canis latrans*), brown anole (*Anolis sagrei*) and the nine-banded armadillo.

#### Natural Communities

There are four natural communities, improved pasture and planted pines on this conservation area (Figure 5a). The majority of the property is floodplain marsh and hydric hammock.

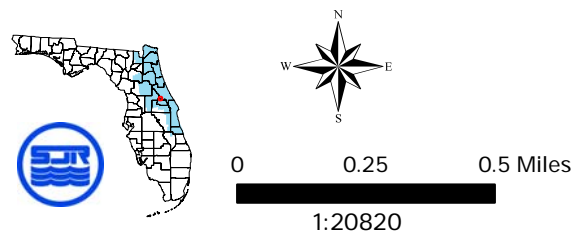
**Table 1. Acres for each plant community and percent uplands and wetlands.**

<b>Community Type</b>	<b>Acres</b>
Floodplain Marsh	451
Hydric Hammock	295
Planted Pine	75
Floodplain Swamp	66
Pasture	45
Depression Marsh	6
<hr/>	
Percent Wetland Vegetation	84
Percent Upland Vegetation	16



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**Gemini Springs Addition**  
**Figure 5a: Natural Communities**

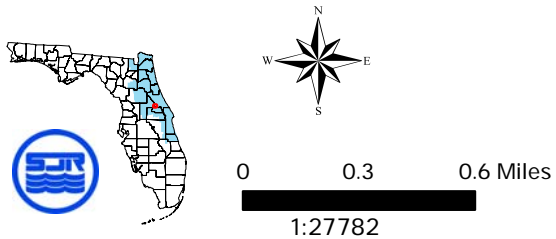


**Legend**


- Gemini Springs Addition Boundary
- Floodplain Marsh
- Water
- Hydric Hammock
- Depression Marsh
- Planted Pine
- Pasture
- Floodplain Forest



**Gemini Springs Addition**  
**Figure 5b: 2004 DOQ**



**Legend**

 Gemini Springs Addition Boundary

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*Floodplain Marsh:* Almost forty-six percent (451 acres) of the property is composed of floodplain marsh. The marsh supports sand cordgrass (*Spartina bakeri*), cattail (*Typha* spp.), various species of rushes (*Juncus* spp.), and other herbaceous wetland species. Floodplain marsh burns every 1 to 5 years.

*Hydric Hammock* is found mostly on the southern end of the property and totals approximately 295 acres. Plants such as cabbage palms, laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), red cedar (*Juniperus virginiana*), red maple (*Acer rubrum*), sweetbay (*Magnolia virginiana*), sweetgum (*Liquidambar styraciflua*), and saw palmetto are found in these low flat, wet sites. *Hydric hammocks* are non-pyric plant communities due to a lack of ground cover to carry fire. The hydric hammock on Gemini Springs Addition has probably expanded due to lack of fire in surrounding upland habitat.

*Floodplain Swamp:* There are 66 acres of floodplain forest located in the southern-most portion of the property, where I-4 bisects the property. This plant community occurs on the floodplain at a slightly higher elevation than the floodplain marsh. The dominant tree species are laurel oak, water oak, red maple, sweetgum, southern magnolia (*Magnolia grandiflora*), and water chestnut (*Carya glabra*). Other species include wax myrtle (*Myrica cerifera*), saw palmetto, Florida elm (*Ulmus americana*) and sweetbay. This is not a fire dependent plant community.

*Depression Marsh:* There are approximately six acres of depression marsh scattered throughout the floodplain marsh. Typical vegetation includes pickerelweed (*Pontederia cordata*), St. John's-wort (*Hypericum* spp.), sedges and rushes. This plant community is dependent on fire to maintain its open character and decrease the amount of encroaching shrubby vegetation.

*Disturbed Uplands:* Approximately 75 acres of improved pasture have been planted in slash pine (*Pinus elliotii*). Another 75 acres were left as improved pasture of which 30 acres was turned into a retention pond. These areas (except the retention pond) will be evaluated for burning on a 1-4 year rotation.

## Soils

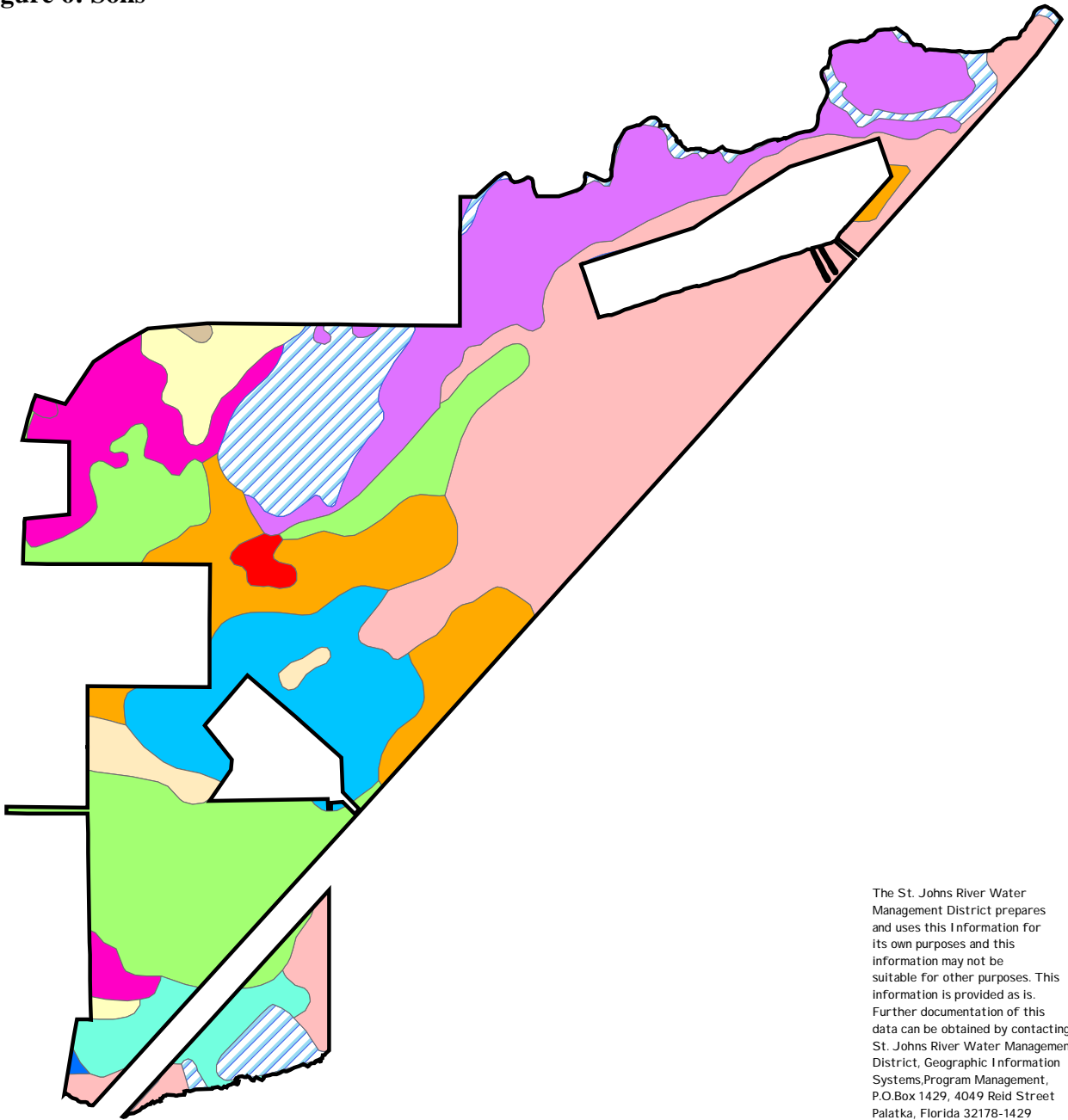
Twelve different soil types have been identified at Gemini Springs Addition. (See Figure 6.) The predominant soil types found on the property are described below.

*Bluff soils* have a sandy clay loam composition and is the dominant soil type of the wetlands on the property. Being a hydric soil, it consists of nearly level, very poorly drained sediments that are associated with the St. Johns River drainage system.

*Eau Gallie soils* are described as a fine sandy soil with slopes ranging from 0 to 2 percent. Occurring in broad flatwood areas, these soils are nearly level and poorly drain. This soil type is located in various sections throughout property.

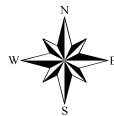
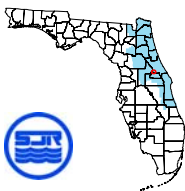
*Farmton soils* are a fine sandy series that occur nearly level with very poor drainage. Soil properties containing soil saturation within 10 inches of the surface in late summer and in early fall under natural conditions. Farmton soils emerge in broad flatwood areas with less than a 2 percent slope.

**Figure 6: Soils**



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**Gemini Springs Addition**  
**Figure 6: Soils**



0 0.25 0.5 Miles



1:18944

**Legend**

Gemini Springs Addition Boundary

BLUFF

CHOBEE

DAYTONA

EAUGALLIE

ELECTRA

FARMTON

GATOR

IMMOKALEE

PINEDA

RIVIERA

ST. JOHNS

WABASSO

WATER



*Gator muck soils* consist of nearly level, very poorly drained organic soils. They form in moderately thick beds of hydrophytic non-woody plant remains underlain by loamy and sandy material. This soil type is a hydric soil occurring in freshwater swamps and marshes, as well as on flood plains of creeks, rivers, and lakes.

*Wabasso soil*, described as fine sand, nearly level, and poorly drained. These soils form in beds of marine sandy and loamy materials that are influenced by alkaline material. Occurring in broad flatwood areas and depressions with a less than 2 percent slope. Soil properties containing soil saturation within 10 inches of the surface in late summer and in early fall under natural conditions. Normally, depressions are seasonally ponded.

## **PAST MANAGEMENT SUMMARY**

### **Management Issues and Strategies**

#### Security

**2000 Strategy:** Maintain signage, fences, gates, and access areas to direct users towards appropriate access points.

**Status:** Volusia County is responsible for recreation management. They have provided a trailhead at Gemini Springs Park and are in the process of constructing a trail through Gemini Springs Addition to connect with Lake Monroe Park. Gemini Springs Park provides parking for visitors wanting to access Gemini Springs Addition.

**2000 Strategy:** Provide routine surveillance and security for the property through coordination with local law enforcement officers, contracted security, and on-site staff.

**Status:** Local law enforcement or the District's contracted security company is contacted when necessary.

#### Water Resources

**2000 Strategy:** Coordinate proposed hydrologic and wetland restoration projects.

**Status:** Proposed projects were coordinated through land management staff.

**2000 Strategy:** Inventory and control any free-flowing or abandoned wells located onsite.

**Status:** All of the wells on-site have been plugged.

#### Fire Management

**2000 Strategy:** Develop a fire management plan to restore and maintain native community structure and assemblages with fire if feasible.

**Status:** A fire management plan has been developed and included in the 2005 management plan. To date, no burning has been done on the property.

**2000 Strategy:** Provide DOF with the Landowner Policy Packet, which includes any known precautions on the site and assist with fighting wildfires as required.

**Status:** District staff has notified DOF.

**2000 Strategy:** Inform adjacent neighbors of planned prescription burns that may affect them.

**Status:** No prescribed burns have been conducted. Adjacent neighbors will be informed if any occur.

**2000 Strategy:** Monitor changes in plant communities based on fire frequencies.

**Status:** No prescribed burns have been conducted.

**2000 Strategy:** Develop mowing schedule for improved pasture areas.

**Status:** The property is mowed when needed.

#### Wildlife

**2000 Strategy:** Continue to inventory and monitor populations of plants and animals present onsite.

**Status:** District staff record observations during site visits.

**2000 Strategy:** Identify special protection areas and management strategies for threatened, endangered or imperiled species and communities.

**Status:** Proper maintenance and management of the property enhances the property for all species. The District and the County have been maintaining the natural resources on the property by mowing, chopping and planting pines in areas that were improved pasture.

#### Exotic Species

**2000 Strategy:** Continue to monitor and treat exotic species, as necessary.

**Status:** The District's Invasive Plant Management program routinely inspects the property for exotics and treats areas when necessary. The property is considered to be at a maintenance level.

**2000 Strategy:** Further evaluate non-native species eradication methods and determine appropriate procedure.

**Status:** The District's Invasive Plant Management Program staff has spent numerous hours treating a variety of exotic species on this property including Chinese tallow and camphor tree.

**2000 Strategies:** Evaluate the need to establish a volunteer hog trapping program onsite to manage hog populations.

**Status:** Feral hog disturbance on the property is minimal. Volunteer hog trappers are used when necessary.

#### Restoration

**2000 Strategy:** Implement approved restoration elements associated with mitigation for I-4 widening.

**Status:** Cattle were removed from the property, enabling wetland vegetation to recover in the marsh areas and the hydric hammock areas to recover from cattle trampling. The property is treated for exotics, which helps to restore native plant cover. Pine trees have been planted in some of the pasture areas.

**2000 Strategy:** Implement replanting efforts of pasture for restoration.

**Status:** Approximately 75 acres of improved pasture has been planted with slash pines.

**2000 Strategy:** Identify and evaluate the need for additional wetland and upland restoration projects.

**Status:** Areas of wetlands have been identified for restoration. Portions of the uplands have been enhanced with slash pines. Additionally, staff has planted a few hundred trees around the new pond.

**2000 Strategy:** Enforce strict compliance on cattle lessee until cattle lease is terminated.

**Status:** Cattle lease has been terminated.

**2000 Strategy:** Terminate cattle lease on expiration date.

**Status:** Cattle lease was terminated on expiration date.

**2000 Strategy:** Develop appropriate legal instrument ensuring that no future cattle leases will be established for this property, as required by regulatory agencies.

**Status:** This was completed in 2003.

#### Access

**2000 Strategy:** Develop and maintain parking areas and walk-in access points.

**Status:** Access to Gemini Springs addition will be from Gemini Springs Park once the proposed trail system is constructed.

**2000 Strategy:** Develop and maintain signage and informational kiosk.

**Status:** A kiosk will be developed by Volusia County once the proposed trail is completed.

#### Recreation

**2000 Strategy:** Develop and establish a trail system connecting the property with Gemini Springs Park and Lake Monroe Park.

**Status:** Volusia County is in the process of constructing a trail. The District will add a small loop trail within Gemini Springs Addition, once the main trail is complete.

**2000 Strategy:** Evaluate site for additional recreational opportunities, such as primitive camping and nature study.

**Status:** Once the trail is in use and access is provided to Gemini Springs Addition, the District will evaluate the need for a primitive campsite.

**2000 Strategy:** Evaluate the feasibility of establishing a horse concession in the northern pasture.

**Status:** A horse concession for the property was evaluated and proved not to be feasible..

#### Cultural Resources Protection

**2000 Strategy:** Establish protection measures for known sites and continue to monitor for additional cultural resources.

**Status:** The property is patrolled when necessary.

**2000 Strategy:** Coordinate with DHR and take action to reduce any potential disturbance of any sites identified.

**Status:** The District reports all disturbance of cultural sites to DHR.

#### Environmental Education

**2000 Strategy:** Evaluate the potential for developing a Legacy Program or other environmental education programs onsite.

**Status:** The County will take the lead on providing any educational programs onsite. At this time, the property is not open to the public.

**2000 Strategy:** Consider the development of additional interpretive signage about the resources and history of the site.

**Status:** A kiosk will be developed to highlight the history and resources onsite.

#### Cooperative Agreements

**2000 Strategy:** Administer agreement with Volusia County for joint management of the property.

**Status:** District staff work closely with Volusia County to manage the property.

**2000 Strategy:** Continue to administer existing agreement with cattle contractor.

**Status:** The cattle agreement has been terminated.

**2000 Strategy:** Terminate continuance of current cattle lease when date of lease expires.

**Status:** The cattle agreement has been terminated.

**2000 Strategy:** Determine need for additional agreements.

**Status:** Additional agreements for management of this property are not needed at this time.

## **IMPLEMENTATION**

Integral to the goals and objectives for managing acquired lands is the protection and restoration of those lands where feasible. An important element in protecting the 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 enhance the viability of the site.

### Rules and Regulations

*The Water Management Lands Acquisition and Management Rule*, Chapter 40C-9 of the Administrative Code, is authorized by Section 373.59, Florida Statutes (F.S.), to establish District policies and procedures for management of lands held by the St. Johns River Water Management District.

## **RESOURCE PROTECTION AND MANAGEMENT**

### Water Resource Protection

The property protects part of the north shoreline of Lake Monroe from direct stormwater runoff. The District is cooperating with Volusia County to research the potential for establishing underground water storage and retrieval areas. The project is referred to as Aquifer Storage and Recovery (ASR) and is funded through Florida Forever. Gemini Springs Addition has been chosen as a test site.

An area of hammock was impacted by the construction of the retention pond. It protracted the hydroperiod of the surrounding area. Additional culverts have been installed under the pond access road to reduce the problem. The need for restorative planting will be assessed.

### Water Resource Protection Strategies

- Continue cooperating with Volusia County on ASR project.
- Coordinate with DOT the restoration of the hammock that was impacted (protracted hydroperiod) by the construction of the retention pond.

### Fire Management

Fire is an essential tool for land management in Florida. It plays a vital role in maintaining natural landscapes. Gemini Springs Addition has been divided into two manageable burn units. The burn units include the planted pine area, the improved pasture area and the floodplain marsh located in the northwest corner of the property. Lack of fire, disrupted hydrology and past cattle grazing activities in the floodplain marsh have resulted in an increase in cover of shrubby and weedy species in the marsh. Current strategies include mechanical treatments such as roller chopping and mowing and prescribed fire in order to restore the herbaceous nature of the freshwater marsh system. A Fire Management Plan has been developed for this property and is included in Appendix B. Figure 7 depicts the burn zones on the conservation area.

**Table 2: Natural Community and Fire Return Interval**

<b>Plant Community</b>	<b>Fire Frequency for Restoration</b>	<b>Fire Frequency for Maintenance</b>
Floodplain Marsh (including depression marsh)	1 to 4 years	1 to 5 years
Pine Plantation		1 to 4 years
Improved Pasture		1 to 4 years

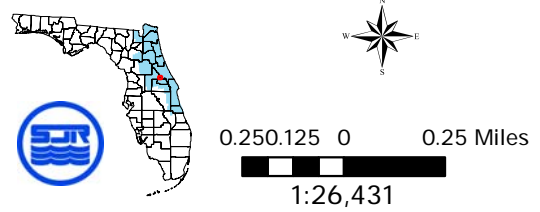
Currently, there have been no prescribed burns or wildfires on the property. The Division of Forestry is the initial responder for wildfires.

Fire Management Strategies

- Continue to reevaluate the use of mechanical treatment over the use of prescribed fire.



**Gemini Springs Addition  
Figure 7: Burn Unit Map**



- Legend**
- GS-1
  - GS-2
  - Gemini Springs Addition
  - Lake Monroe Park
  - Gemini Springs Park

The St. Johns River Water Management District prepares and uses this information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems, Program Management, P.O. Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel: (386) 329-4176.

## Forest Management

Chapter 253.036, Florida Statutes requires the lead agency of state lands to prepare a forest resource analysis, "...which shall contain a component or section prepared by a qualified professional forester which assesses the feasibility of managing timber resources on the parcel for resource conservation and revenue generation purposes through a stewardship ethic that embraces sustainable forest management practices if the lead management agency determines that the timber resource management is not in conflict with the primary management objectives of the parcel." The following section fulfills this requirement.

At the time of acquisition, remnant slash pine (*Pinus elliottii*) occurred on the Gemini Springs addition. No pine forests or areas requiring management were present. In an effort to restore the pine canopy, approximately 75 acres of improved pasture historically used for cattle grazing have been planted with south Florida slash pine. When planting trees, every effort is made to evaluate soil conditions and determine the appropriate native species to plant. Soil surveys indicate that slash pine is the correct species. Pines were planted densely in an effort to control prolific noxious weed species that often succeed in feral pastures. Here, pines were planted in densities of 700 to 726 seedlings per acre. As the planted trees mature they will begin to shade out some of the undesirable weeds.

During the term of this management plan no planted areas will require the harvesting of marketable timber. Beginning in approximately 2012, areas will be assessed for the need for thinning. The primary objective of harvesting will be to improve natural community health and to strive toward an eventual multi-aged structure.

These planted pine areas are fire-dependent, making prescribed fire one of the most important tools for achieving enhancement and management goals. Fire will be evaluated for use in the reduction of hardwood and weed competition, to stimulate the growth of native grasses and forbs, and to reduce hazardous fuel loads. Prescribed fire will also be used to restore and maintain natural community structure and diversity. In the event that prescribed fire is not used in these planted areas, mechanical measures will be implemented.

### Forest Management Strategies

- Evaluate need to plant remaining improved pasture in slash pine.

## Wildlife

Continued management of the freshwater marsh system through roller chopping, mowing, and burning is necessary to improve habitat for wildlife species.

### Wildlife Strategies

- Continue to record on-site observations.

## Listed Species

### **Plants**

No listed plant species have been identified to date.

## **Animals**

A variety of listed wading birds utilize the marsh portions of the property including wood storks, snowy egret, little blue egret, and white ibis. Other protected species include the American alligator.

### Listed Plant and Animal Strategies

- Continue to add to species list.
- Identify special protection areas and management strategies for threatened, endangered, or imperiled species and communities if necessary.

## Exotic Species

### **Plants**

Maintenance control using herbicides is necessary to prevent proliferation of exotic and nuisance species. Control of these species is problematic but vital to maintaining the ecological integrity of natural communities. The goal of the District's Invasive Plant Program is to achieve maintenance control of exotic and invasive plant populations present on District properties.

Species that are treated on the property include Chinese tallow, camphor tree, cogongrass and tropical soda apple.

## **Animals**

With regard to exotic animals, feral hogs and nine-banded armadillos are found on the property.

### Exotic Plant and Animal Strategies

- Continue coordinating with Vegetation Management staff to set up monitoring and treatment of exotic plants.
- If feral hog damage escalates, District staff will consider implementing a feral hog removal program.

## Cultural Resources Protection

District Policy #90-11 establishes management policies for archaeological and cultural sites on District property. There are two prehistoric scatter sites and one historic shipwreck site located on the property according to the Master Site File stored with the Florida Division of Historical Resources.

## **LAND USE MANAGEMENT**

### Access

Access is through Gemini Springs Park, once the proposed multi-use trail is completed.

### Access Strategies

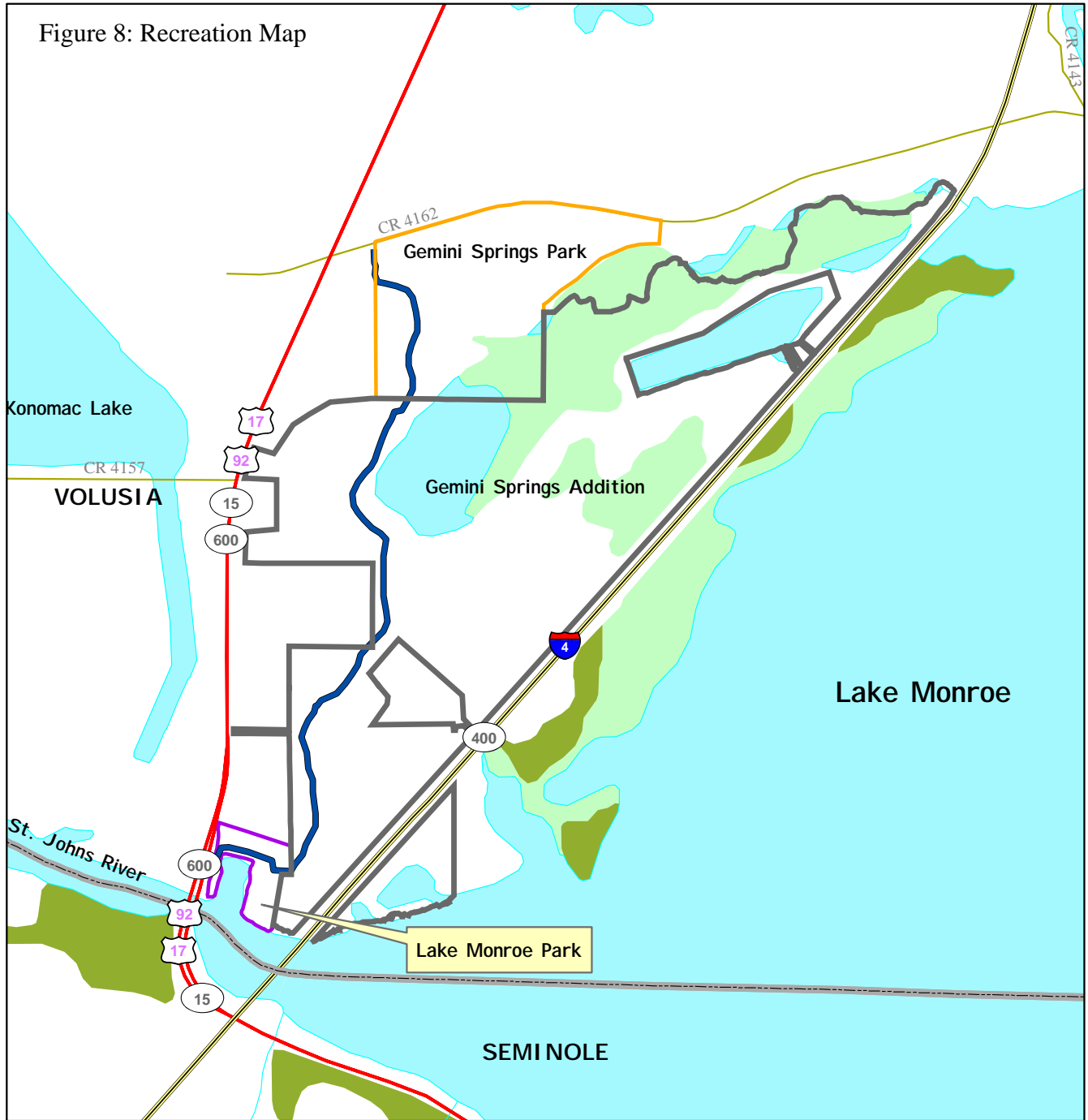
- Maintain perimeter signs.
- Coordinate with County to develop new trailhead sign.

### Recreation

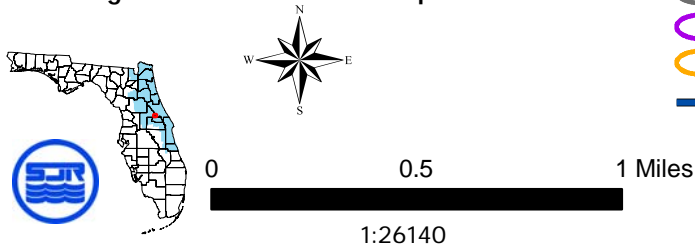
Currently, access is limited to the property until the multi-use trail from Gemini Springs Park through Gemini Springs Addition to Lake Monroe Park is complete (Figure 8). Once construction of the multi-use trail is complete, District staff will develop a loop trail within Gemini Springs Addition that connects to the larger trail.



Figure 8: Recreation Map



Gemini Springs Addition  
Figure 8: Recreation Map



**Legend**

- Gemini Springs Addition
- Lake Monroe Park
- Gemini Springs Park
- Proposed Trail Connecting County and District Property

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### Recreation Strategies

- Continue coordinating with Volusia County during construction of the large multi-use trail.

### Environmental Education

Volusia County is responsible for any environmental education programs. Currently there are none proposed for the property due to the access issue.

- Volusia County will evaluate need for environmental education program on Gemini Springs Addition.

### Security

District contracted security and the local sheriff's department are contacted when necessary.

### Security Strategies

- Continue coordinating Volusia County Sheriff's office and District's contracted security, if necessary.

## **ADMINISTRATION AND IMPLEMENTATION**

### Acquisition

The immediate area surrounding Gemini Springs addition is mostly developed. Potential to acquire additional lands to protect the north shoreline of Lake Monroe is low.

### Cooperative Agreements

In accordance with District Policy #90-16, the District promotes inter-agency coordination in the management of District lands for increased efficiency, protection of natural resources, and improved recreation opportunities. The District believes these agreements are vital for proper stewardship of public lands, and those cooperators should be acknowledged and recognized for their contributions. The District has an intergovernmental management agreement with Volusia County for the day-to-day and recreation management of the Gemini Springs Addition. The District is responsible for resource management.

### Cooperative Agreement Strategies

- Maintain agreement to assist with the management and maintenance of Gemini Springs Addition.

### Leases, Easements and Concessions

There are four easements on this property. The FP&L, BellSouth and FDOT easements will be maintained on the property. If Gemini Springs addition is selected as an ASR site, a fifth easement will be granted to Volusia County over a portion of the property that will contain the four wells and pump station.

### Leases, Easements and Concessions Strategies

- Develop easement with Volusia County for ASR site if Gemini Springs Addition found to be suitable.
- Continue to work with FP&L, FDOT and BellSouth regarding their easements.























