Lake Jesup Conservation Area

Land Management Plan Governing Board Approved November 2014

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Lake Jesup Conservation Area Land Management Plan Summary

Management Area Size: 5,592 acres

Date of Acquisition: Acquisition of parcels within Lake Jesup Conservation Area began in 1990.

Date of Plan:	November 2014
Date of Previous Plan:	August 2006

Basin: Middle St. Johns River Basin Basin Planning Unit: Lake Jesup

Location: Lake Jesup Conservation Area (Conservation Area) is located in Seminole County, south of SR 46 and along the shore of Lake Jesup in four separate tracts.

Funding Source: Seminole County Expressway Authority, Florida Department of Transportation, Save Our Rivers/BOND 85, Preservation 2000, ad valorem taxes, Florida Forever, Seminole County, and additional mitigation dollars.

Management Partners:

• The District is lead manager for the Lake Jesup Conservation Area.

Key Resource Issues:

Resource Management Issues:

- WATER RESOURCES The District has worked cooperatively with numerous stakeholders including many state and local agencies to develop the *Lake Jesup Interagency Restoration Strategy*. This document identifies strategies designed to accomplish lake restoration goals with an emphasis on external nutrient load reduction.
- FIRE MANAGEMENT Due to the proximity of the Conservation Area to major roadways and other smoke sensitive areas including the Sanford-Orlando International Airport, the opportunity for the application of prescribed fire within the property is limited. The District will continue to evaluate the potential for prescribed fire and implement when feasible.
- FOREST MANAGEMENT There is limited opportunity for forest management activities within the Conservation Area; however, the District will explore the potential to conduct additional cabbage palm (*Sabal palmetto*) harvesting to further restoration objectives.
- WILDLIFE The Conservation Area provides habitat for numerous wildlife species including a variety of wading birds.
- EXOTICS Invasive exotic pest plant and animal species occur on the property, with some species occurring at moderate to high levels of infestation. The District regularly monitors for the presence of invasive plants and animals and responds with appropriate control action.

 CULTURAL & ARCHEOLOGICAL RESOURCES – A review of the Department of State, Division of Historical Resources indicates there are four Florida master site locations within the boundaries of the Conservation Area.

Key Land Use/Recreation Issues: The Conservation Area is open to the public with recreational opportunities for hiking, biking, and wildlife viewing. While there is no boat launch within the Conservation Area, boating access to Lake Jesup is available via nearby Seminole County boat ramps located along State Road 46.

Land Use Management Issues:

- ACCESS Three public access points provide recreational access to the Conservation Area.
- RECREATION USE The Conservation Area is open for public recreation. Access to canoeing, kayaking, and fishing is available via nearby Seminole County boat ramps.
- SECURITY Maintenance of fence lines, boundary posting, conservation line posting, public access points, gates, and locks is conducted as necessary. The District coordinates with the Florida Fish and Wildlife Conservation Commission (FFWCC), local law enforcement, and a private security firm for security needs.

Administration:

- ACQUISITION While there are no acquisitions currently planned, the District may consider purchasing parcels or easements near the Lake Jesup Conservation Area that become available and that will aid in the conservation of water resources within the Lake Jesup basin. The District may pursue acquisition of small parcels and in holdings or property exchanges with neighbors to improve and/or provide additional access to the Conservation Area.
- COOPERATIVE AGREEMENTS, LEASES, EASEMENTS AND SPECIAL USE AUTHORIZTIONS (SUA) –
 - Agreements, leases, and SUAs relative to the Conservation Area include:
 - Two cattle grazing lease agreements.
 - A lease (pay for performance) with Aquafiber to remove phosphorus from the lake.
 - An intergovernmental management agreement with Seminole County for the Cameron Ranch Stormwater Park.
 - An acquisition related State of Florida Department of Environmental Protection easement.
 - An SUA for the harvest of palm fronds.
 - SUAs for the removal of feral hogs.
 - A security residence agreement.

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INTRODUCTION

This document provides guidelines for land management activities to be implemented at the Lake Jesup Conservation Area (Conservation Area) over the next ten years. This is a revision of the land management plan approved in February of 2008.

The Conservation Area includes approximately 5,592 acres within the Lake Jesup Basin. The property is located in Seminole County, along the shore of Lake Jesup and provides approximately 10 miles of shoreline protection.

The Conservation Area, located east of the City of Sanford, is partitioned into three main tracts, which include Marl Bed Flat Tract, North Cameron Tract, and the East Lake Jesup Tract. An additional tract is located to the south of Lake Jesup. State Road 46 forms the northern boundary of the North Cameron Tract and Toll Road 417 is located on the southwest boundary of the Marl Bed Flat Tract.

The property is located within several Sections of Township 20 South and Range 31 East. Figure 1 is a 2009 aerial image of the property and Figure 2 depicts the location of the Conservation Area.

The acquisition of the parcels that comprise the Conservation Area provide for the protection of important water resources and ecological functions. This acquisition is consistent with the goals of the Middle St. Johns River Basin projects set forth in the District's Land Acquisition and Management Five Year Plan, and the District's Water Management Plan, which were in place during the acquisition of the parcels within the Conservation Area. These goals are to:

- Preserve the natural floodplain for flood control and protection.
- Maintain natural hydrologic regimes and water quality.
- Restore, maintain, and protect native natural communities and diversity.
- Provide opportunities for recreation where compatible with the above listed goals.
- Protect cultural resources.





CONSERVATION AREA OVERVIEW

Regional Significance

The Conservation Area is a significant acquisition providing linkage between a broad network of other publicly owned lands and conservation easements in Seminole County and surrounding areas. Figure 3 illustrates the regional significance of the Conservation Area. Public conservation lands that are in close proximity to the Conservation Area include:

- Lake Monroe Conservation Area
- Black Hammock Wilderness Area
- Lake Jesup Wilderness Area
- Spring Hammock Preserve
- o Little Big Econ State Forest
- \circ $\,$ Charles H. Bronson State Forest $\,$

Acquisition History

The Conservation Area is comprised of thirteen (13) parcels, totaling 5,592 acres (Figure 4.) The following properties were acquired using funding sources as indicated and were subsequently incorporated into the conservation area. Table (1) one summarizes the land acquisition accomplishments.

Futch – 1,684 acres – Land Acquisition Number 1984-001

This parcel was acquired by the District on August 21, 1990 utilizing Save or Rivers funds. In 1991, the parcel was sold to the Florida Department of Transportation (FDOT) to accomplish mitigation for the Central Florida Beltway. In 2000, the District again acquired (through donation) this parcel as part of a combined effort between FDOT, the Florida Department of Environmental Protection (FDEP), and the District to further restoration objectives. In 2007, approximately four (4) acres were sold to FDOT as right-of-way (ROW) for the SR 46 bridge construction.

East Lake Jesup - Williams – 1,083 acres - Land Acquisition number 1989-025 This parcel was acquired by the District on May 31, 1996 utilizing Preservation 2000 funds.

- North Lake Jesup 750 acres Land Acquisition Number 1990-001 This parcel was acquired by the District on March 31, 1994 utilizing Preservation 2000 funds and mitigation donation. Additionally, a small portion of this parcel (approximately .25 acres) was donated to Seminole County as additional ROW required for a road-paving project.
- Little Cameron Ranch 1,169 acres Land Acquisition Number 1190-028 This parcel was acquired by the District on December 5, 1990 utilizing Save Our Rivers funds.

Condev – 9 acres – Land Acquisition Number 1992-055 This parcel was acquired by the District on April 1, 1993 through mitigation donation.

Raymond Khoshnou – 122 acres – Land Acquisition Number 1992-055 This parcel was acquired by the District on April 1, 1993 through mitigation donation.





White Construction – 96 acres – Land Acquisition Number 1992-055 This parcel was acquired by the District on April 1, 1993 through mitigation donation.

Speer-Holmes – 236 acres – Land Acquisition Number 1995-042 This parcel was acquired by the District on July 15, 1997 utilizing Preservation 2000 funds and mitigation donation.

Tilden Groves – 128 acres – Land Acquisition Number 1997-016 This parcel was acquired by the District on August 22, 2000 utilizing Preservation 2000.

Belfare-Sunbreeze – 256 acres – Land Acquisition Number 2002-015 This parcel was acquired by the District on June 12, 2002 through mitigation donation.

Minter-Solary Canal Proj. Fee Reverter – 29 acres – Land Acquisition Number 2004-004 This parcel was acquired by the District on January 12, 2005 utilizing Florida Forever funds. This parcel was acquired to facilitate the development of a stormwater park to further the goals of the Lake Jesup Restoration Project. The stormwater park was constructed and on March 31, 2010, the District transferred the property to Seminole County. This parcel is no longer identified within the Lake Jesup Conservation Area boundary.

Chubb Creek – 27 acres – Land Acquisition Number 2007-026 This parcel was acquired by the District on June 29, 2007 through mitigation donation.

Logue – 19 acres – Land Acquisition Number 1995-042 This parcel was acquired by the District on June 04, 2010 through mitigation donation.

Florida Southern College – Seminole County – 13 acres – Land Acquisition Number 2012-003

This parcel was acquired by the District on December 12, 2012 through mitigation donation.

Table 1 - Land Acquisition Summary

Parcel	LA Number	Acres*	Funding Amounts	Closing Date	District Funding Source	External Funding Source
Futch	1984-001- P1	1688	\$1,350,000.00	8/21/1990	Save Our Rivers	
			(\$1,350,000.00)	5/21/1991		Seminole County Expressway Authority
				11/29/2000		FDOT Mitigation Donation
		(4)	(\$9,695.00)	5/8/2007		FDOT ROW Transfer
Futch Totals		1,684	(\$9,695.00)			
East Lake Jesup - Williams	1989-025- P1	1,083	\$741,000.00	05/31/1996	Preservation 2000	
North Lake Jesup	1990-001- P1	750	\$260,815.00	03/31/1994	Preservation 2000	
			\$294,185.00	03/31/1994		FDOT Mitigation
North Lake Jesup Totals		750	\$555,000.00			
Little Cameron Ranch	1990-028- P1	1,169	\$1,100,000.00	012/05/1990	Save Our Rivers	
Condev	1992-055- PA	9		04/01/1993	Mitigation Donation	
Raymond Khoshnou	1992-055- РВ	122		04/01/1993	Mitigation Donation	
White Construction	1992-055- PC	96		03/02/1995	Mitigation Donation	
Speer- Holmes	1995-042- P1	236	\$52,190.00 \$356,873,98	07/15/1997 07/15/1997	 Preservation 2000	Mitigation Donation
Speer- Holmes Totals		236	\$409,063.98			
Tilden Groves	1997-016- P1	128	\$216,250.00	08/22/2000	Preservation 2000	
Belfare- Sunbreeze	2002-015- P1	256		06/12/2002	Mitigation	

Lake Jesup Conservation Area

November 2014

Parcel	LA Number	Acres*	Funding Amounts	Closing Date	District Funding Source	External Funding Source
Minter-Solary Canal Project- Fee Reverter	2004-004- P1	29	\$1,820,000.00	01/12/2005	Florida Forever	
		(29)		03/31/2010		Transfer to City of Winter Springs for Stormwater treatment facility
Minter- Solary Canal Project-Fee Reverter Totals		0	\$1,820,000.00			
Chubb Creek	2007-026- P1	27		06/29/2007		Mitigation Donation
Logue	2008-027- P1	19		06/04/2010		Mitigation Donation
Florida Southern College – Seminole County	2012-003- P1	13	\$5,332.00	12-12/2012	FDOT Mitigation	
TOTALS		5,592	\$4,095,950.98			

*Acres based on GIS calculations

Local Government Land Use Designation

Seminole County

Seminole County Future Land Use Maps identify the Conservation Area as Preservation/Managed Lands. This land use includes natural lands owned by public bodies including Seminole County and the District. The purpose of these lands is to preserve open space, water resources and natural areas for the benefit of current and future residents of Seminole County. These areas aid in the maintenance of surface water quality and provide regional opportunities for education, passive recreation, and ecotourism (Seminole County Comprehensive Plan, 2010).

NATURAL RESOURCES OVERVIEW

Topography and Hydrology

The Lake Jesup Conservation Area is within the Lake Jesup basin, a sub basin of the Middle St. Johns River Basin. The Lake Jesup basin is a large, long-degraded, urbanized watershed. The Conservation Area lies primarily within the Central Lakes District. The Central Lakes District includes areas of uplifted limestone of the Floridan Aquifer that lie unconformably

below the surficial sands. This is a sand hill karst solution below surficial sands. It is the region of most active collapsed sinkhole development. Because of the xeric hills and internal drainage, these areas are the principal recharge areas of the Floridan aquifer. The Eastern Flatwoods District is also called the coastal lowlands and has elevations generally less than 90 feet (Brooks).

Elevations within the conservation area range from 5 to 20 feet National Geodetic Vertical Datum (NGVD), with the highest elevations occurring on the easternmost portions of the East Lake Jesup tract. The lowest elevations are within the floodplain swamps marshes associated with Lake Jesup. Figure 5 depicts the hydrologic features of the Conservation Area and surrounding region.

Natural Communities

The 5,592 acres that comprise the Conservation Area consist primarily of freshwater marsh systems and includes a diverse array of other natural communities (Figure 6). Table 2 details the percent coverage associated with each natural community documented within the Conservation Area. Information relative to the natural communities within the conservation area is derived from several sources including personal observations of District staff. Additionally, the general natural community descriptions are characterized using descriptions published in the Florida Natural Areas Inventory's (FNAI) *Guide to the Natural Communities of Florida*. Natural community and species ranking definitions are listed in Addendum 1.

Freshwater Marsh (3,762 acres)

The freshwater marsh system within the Conservation Area is altered and likely supported a matrix of floodplain marshes interspersed with areas of wet prairies. Historical land uses that included hydrologic alterations to support agricultural uses and to drain water from off-site urban areas make distinguishing these areas unlikely.

Freshwater marsh communities are typically herbaceous, non-forested communities, dominated by various grasses, sedges, and other wetland plants. Freshwater marshes within the Conservation Area are associated with the shoreline of Lake Jesup and the St. Johns River and as such are subject to seasonal flooding. Fire is another important factor in the shaping and maintenance of many freshwater marsh systems. Frequent fires limit shrub invasion and the characteristic sand cordgrass re-sprouts readily post-fire.

Sand cordgrass (*Spartina bakeri*) dominates the floodplain marshes with areas of coastal plain willow (*Salix caroliniana*), wax myrtle (*Myrica serifera*) and other shrub species occurring in areas of higher elevation within the Conservation Area. Hydrologic disturbance, fire exclusion, and excessive nutrients have impacted the marshes and as a result, portions of the herbaceous floodplain marsh are heavily encroached by shrubs. Additionally, in some areas common reed (*Phragmites sp.*) has established dominance, displacing sand cordgrass limiting the efficacy of fire in those areas.



Depression Marsh (9 acres)

Depression marsh communities typically occur embedded within a matrix of wellmaintained pyric plant communities including flatwoods. The depression marsh communities within the Conservation Area occur within the upland fringes of the property within areas of upland mixed forests and areas of forest regeneration. These areas are altered from the past management activities.

Hydric Hammock (1,040 acres)

Soils that support hydric hammock communities are generally poorly drained and may be acidic to slightly alkaline, with little organic matter. While hydric hammocks may often have limestone at or near the surface, no outcropping is known to occur within the Conservation Area. Hydric hammocks are well-developed hardwood and/or palm forests with a variable understory. The closed canopy may include a variety of species, such as cabbage palm (*Sabal palmetto*), live oak (*Quercus virginiana*), water oak (*Q. nigra*), red cedar (*Juniperus virginiana*), and loblolly pine (*Pinus taeda*), all of which are present within the Conservation Area.

The hydric hammock communities within the Conservation Area are scattered across the property and are generally located in areas of slightly higher elevations than the surrounding floodplain swamps and freshwater marshes, typically along the 5-foot contours. These areas are largely in good condition, though many include a dense coverage of Mexican petunia (*Ruellia brittoniana*), an exotic plant species. Fire is not a primary mechanism of disturbance; however, these communities do occasionally burn in conjunction with surrounding pyric plant communities.

Floodplain Swamp (337 acres)

Floodplain swamp communities typically occur on flooded soils along stream channels and within river floodplains. The floodplain swamp communities within the Conservation Area are associated with Lake Jesup, which is connected to the St. Johns River.

Soils that support floodplain swamp communities are variable, but may include a mixture of sand, organic, and alluvial material. Peat soils may also be present in floodplain swamps. The most important physical factor associated with the shaping and maintenance of the floodplain swamp is the hydroperiod. Extended periods of inundation, which may last for most of the year, are common in the floodplain swamp environment. Alterations to the hydrology within the floodplain swamp, particularly a reduction in the duration of inundation periods may have damaging consequences to the system and associated flora and fauna. Since this community type is maintained by hydrologic regimes, it is not fire dependent.

While hydrologic alterations have occurred on this property, the functionality of floodplain swamps across the Conservation Area is largely intact. Typical of the floodplain swamp system, the examples of this community type within the Conservation Area include a closed-canopy forest of hydrophytic, buttressed trees including bald cypress (*Taxodium distichum*) and water tupelo (*Nyssa aquatica*).

Scrub (3 acres)

Scrub is characterized as a community composed of evergreen shrubs, with or without a canopy of sand pine. Scrub systems are found on dry, infertile sandy ridges. Soils that support these systems are low-nutrient acid sands with little organic matter. Within the Conservation Area, the scrub includes myrtle oak, sand live oak, and Chapman's oak, as well as saw palmetto and rusty staggerbush. These areas are located on the Spear-Holmes parcel, along the easternmost boundary line.

Scrub communities are fire maintained and generally burn catastrophically every 5 to 40 years. The high variability of fire intervals within scrub systems is relative to the productivity of the site (Myers, 1990). Highly productive sites will have a lower return interval.

Upland Hardwood Forest (298 acres)

Upland hardwood forests are characterized as well-developed, closed-canopy forests dominated by deciduous hardwood trees. The soils that support these communities are typically sandy clays with substantial organic matter.

The areas designated in the 2008 plan as upland mixed forest have been classified in this plan as upland hardwood forests due to FNAI revisions to natural community classifications. In the 2010 revision to the FNAI *Guide to Natural Communities*, the upland mixed forest is no longer included as a community type. Much of what was classified as an upland mixed forest under the 1990 FNAI Guide will now be classified as upland hardwood forest, as is the case at the Lake Jesup Conservation Area.

Upland hardwood forests within the Conservation Area occur primarily on the East Lake Jesup tract and include a broad coverage of live oak (*Quercus virginiana*), cabbage palm, and pine.

Light gap succession is the primary natural process required for the maintenance of upland hardwood forests. This occurs when an emergent tree falls causing an opening in the canopy and allowing direct sunlight to reach the forest floor. While localized damage from fires that creep in from adjacent pyric plant communities may occur along the edges of the upland hardwood forest, fires rarely burn completely through the system.

Altered Land Types – (107 acres)

Altered land types within the Conservation Area include:

ruderal areas, developed areas, pasture – improved, successional hardwood forest, forest regeneration (17 acres), impoundment, canal/ditch



Natural Community Type	Acreage	Percent Coverage	FNAI Ranking	FNAI Fire Return Interval*	
Depression Marsh	9	<1%	G4/S4	This community burns in conjunction with adjacent pyric plant communities	
Freshwater Marsh	3,762	67%		3 years	
Floodplain Swamp	337	6%	G4/S4	This is not a fire adapted community	
Hydric Hammock	1,040	18%	G4/S4	This community rarely burns	
Scrub	3	<1%		5-40 years	
Upland Mixed Forest	298	5%		This community rarely burns	
Open Water Areas	36	<1%			
Subtotal	5,485				
Altered Land Types	Acreage	Percent Coverage		Fire Return Interval	
Developed	38	<1%		1-3 years; as needed, or in conjunction with adjacent areas, excluding area around security residence or other structures.	
Forest Regeneration	18	<1%		1-3 years; as needed, or in conjunction with adjacent areas.	
Ruderal	3	<1%		1-3 years; as needed, or in conjunction with adjacent areas.	
Canal/Ditch	6	<1%			
Impoundment	5	<1%			
Pasture – Improved	33	<1%		1-3 years; as needed, or in conjunction with adjacent areas.	
Successional Hardwood Forest	4	<1%		Fire may be applied in conjunction with adjacent communities.	
Subtotal	107				
Total	5,592				

Table 2 – Natural Community Coverages

*Stated FNAI fire return intervals are based on regional differences in communities and fuel loading. The District will target the lowest interval possible that will effectively carry fire.

Soils

According to data produced by the United States Department of Agriculture, Soil and Conservation Service, 27 different soil types are within the Conservation Area. Figure 7 depicts the extent of hydric soils within the Conservation Area. The Seminole Soil Surveys provided information used to develop descriptions of the predominant soil series found within the Conservation Area. The soil descriptions are located in Addendum 2.



PAST MANAGEMENT SUMMARY

This section describes management strategies outlined in the 2008 land management plan and provides the status of each item.

Water Resources 2008 Plan Strategy	Status
Maintain the TMDLs for Lake Jesup by	Maintenance of TMDLs occurs as part of the
completing and following the "Lake Jesup	Districts Middle and Lower St. Johns River
Interagency Water Quality Habitat Restoration	Water Quality Improvement Initiative.
Strategy."	

Fire Management 2008 Plan Strategy	Status
Continue to evaluate the use of prescribed	Since the writing of the last plan, District staff
burning at the Lake Jesup Conservation Area	has implemented no burns. One wildfire
and implement where feasible.	totaling 39 acres occurred in 2010.

Forest Management 2008 Plan Strategy	Status
Monitor slash pine harvest and cabbage palm	This task was accomplished and additionally,
harvest at LJCA.	hazard trees were removed from boundaries.

Listed Species 2008 Plan Strategy	Status
Continue to implement special protection	Appropriate management actions are
measures and management strategies for listed	implemented as occurrence of listed species is
species and communities.	identified.

Exotic Species 2008 Plan Strategy	Status
Continue to monitor for invasive species and	Known populations of invasive plant species
treat as necessary.	are treated; most are at maintenance control
	levels. Accomplished 100 acres of treatment
	on mixed exotic trees, 11.5 acres of Chinese
	tallow treatments, and 2.5 acres of cogongrass
	treatments.
Continue to administer the feral hog-trapping	The District conducts feral hog control through
program.	SUA process and via agreements in cattle
	leases.

Cultural Resources 2008 Plan Strategy	Status
Protect known cultural sites.	No disturbance has been observed and sites are
	protected from management activities.
Identify and report any new sites to the Florida	No new sites have been identified.
Division of Historical Resources.	

Access 2008 Plan Strategy	Status
Continue regular maintenance on trail system	The recreation trail is mowed several times
and interior road system.	each year and overhanging branches are pruned
	as necessary.
Maintain trailhead-parking area, which	Trailhead parking areas, kiosks, and signs are
includes entrance sign and kiosk.	maintained. Periodic closure of trailheads
	occurs as a result of chronic vandalism and
	dumping.

Recreation 2008 Plan Strategy	Status
Continue regular maintenance on interior	The trails and roads are mowed several times
roads, marked multi-use trails and	each year.
corresponding trail brochure.	
Maintain group camping area and observation	Recreational infrastructure is maintained.
tower.	

Environmental Education 2008 Plan Strategy

Environmental Education 2008 Plan Strategy	Status
Continue to offer District environmental	Additional educational/outreach programs have
education programs.	not been established on this property.
	Educational signage is located at key points
	along the trail.

Security 2008 Plan Strategy	Status
Maintain signage, fences, and gates.	Fencing, gates, and boundaries are maintained
	as needed.
Continue coordinating with Seminole County	District staff coordinate with applicable law
Sheriff's Office, FWC, and private security	enforcement/security. Significant security
firm for any potential security needs.	issues have occurred and result in periodic
	closure of parking areas.

Acquisition 2008 Plan Strategy	Status
Continue to pursue parcels that will aid in the	The Logue and Florida Southern College
conservation of the Lake Jesup basin.	parcels were acquired during this planning
	period.

Cooperative Agreements 2008 Plan Strategy	Status
Maintain agreements to assist with the	Agreements are maintained.
management and maintenance of the Lake	
Jesup Conservation Area.	

Leases Easements, and Concessions 2008 Plan Strategy Status

Continue to evaluate leases, easements, and	Leases, easements, and SUAs are evaluated
Special Use Authorizations at the Lake Jesup	and issued as appropriate.
Conservation Area.	

IMPLEMENTATION

The following sections outline land management strategies for resource protection, land management, land use, and administration of the Conservation Area for the next ten years.

RESOURCE PROTECTION AND MANAGEMENT

Water Resource Protection

"Lake Jesup is a large, shallow lake which, combined with the associated floodplain, incorporates approximately 16,000 acres in Seminole County. Water quality degradations within the lake are a result of historic wastewater discharges, agricultural runoff, and urban development combined with the lake's low flushing rate" (Lake Jesup, 2013). Lake Jesup is classified as an impaired water body; a classification derived from the State of Florida's Impaired Water Rule Chapter 62-303 F.A.C. This rule governs the evaluation of whether water bodies meet certain criteria for their designated uses. As a Class III water body, Lake Jesup should support recreational uses while maintaining healthy populations of fish and wildlife. Due to high nutrient loading, Lake Jesup does not meet the standards for these uses (FDEP, 2010).

The District maintains surfacewater monitoring stations and groundwater monitoring wells within the Conservation Area. The surfacewater monitoring stations are a key component in the District's effort to protect and restore water quality within the St. Johns River Water Management District. Surfacewater stations are monitored for various nutrient, chemical, and physical parameters that inform resource-based decisions. The monitoring wells are utilized in the District's regional Floridan Aquifer monitoring efforts to assess current groundwater levels and groundwater quality conditions. This data is also utilized to project future water resource conditions via hydrologic modeling.

While some measure of water resource protection was accomplished through acquisition, portions of the wetlands and surface water within the Conservation Area are disturbed. Hydrologic disturbance within the Conservation Area include roads, canals/ditches, and culverts. The water resource structures within the Conservation Area are detailed in Figure 8 under the roads section of the plan and Table 3 provides detail regarding those structures.

The District will continue to evaluate the option of developing a marsh flow-way system on portions of the Lake Jesup Conservation Area to aid in the management of water resources within the Lake Jesup basin (Addendum 3).



Structure ID	Туре	Size/Material	Condition
114	Culvert	30 inch/Plastic	Excellent
115	Culvert	30 inch/Plastic	Excellent
116	Culvert	24 inch/Concrete	Good
117	Culvert	24 inch/Concrete	Good
118	Culvert	48 inch/Metal	Excellent
119	Culvert	48 inch/Metal	Excellent
120	Culvert	36 inch/Metal	Excellent
121	Culvert	24 inch/Concrete	Good
123	Culvert	2-24 inch/Concrete	Good
124	Culvert	36 inch/Concrete	Good
125	Culvert	24 inch/Concrete	Good
126	Culvert	12 inch/Plastic	Excellent

Table 3 – Water Resource Improvements

Water Resource Strategies

General Maintenance Activities

- Conduct maintenance and incidental or emergency repair of water resource structures as necessary.
- Maintain water resource structures database and incorporate maintenance, repair and any new structures.

Specific Strategies

Recurrent

• Visually inspect roads, trails, and culverts for erosion, maintenance, and repair needs.

Flora and Fauna

Flora

While no comprehensive plant species lists for the Conservation Area exist, the Conservation Area does support a diverse array of plants across multiple natural Community types. Should the opportunity arise, District staff will work with local Native Plant Society groups, college groups, or other interested and capable parties to aid in the development of a plant species list.

Fauna

The Conservation Area is within the core foraging area for a nesting colony of the federally endangered Wood Stork (*Mycteria americana*). This rookery is documented approximately 8 miles south of the property (Wood Storks, 2010) and the property is within the foraging area radii limits established for north Florida Wood Stork rookeries. The District will adhere to the guidelines established in the January 1990 (or any subsequent revision) U.S. Fish and Wildlife Service (FWS) *Habitat Management Guidelines for the Wood Stork in the Southeast Region*.

There are two known Bald Eagle (*Haliaeetus leucocephalus*) nesting sites within the Conservation Area. Additionally, there are several inactive nesting sites on the property and several active nests within close proximity of the Conservation Area. Should

additional nest sites be identified within the Conservation Area, GPS locations will be recorded and incorporated into the District Bald Eagle database. The District will adhere to the guidelines established in the May 2007 U.S. Fish and Wildlife Service (FWS) *National Bald Eagle Management Guidelines*. This document is effective following the delisting of the species from the Endangered Species list. The Bald Eagle continues to receive protection through the Bald and Golden Eagle Protection Act and the <u>Migratory Bird Treaty Act</u>.

While the occurrence of Florida black bear, listed by the State of Florida as a Threatened species, is occasional through this area, the species is documented within the Conservation Area. Additionally, nuisance bears and roadkills have been documented in close proximity to the property. In addition to habitat loss and fragmentation and a host of diseases and parasites, threats to the bear include human caused mortality and incompatible habitat management. Human caused mortality typically includes illegal killing, euthanasia performed on nuisance bears, and roadkill (Draft Black Bear Management Plan for Florida, 2008). The Conservation Area lies within the secondary range for the St. Johns subpopulation. Secondary range includes habitat areas important for bear movement and use (dispersal and foraging), but outside the primary range, which includes evidence of reproduction within the core population. To the extent that issues relate to District managed lands, District staff will coordinate as necessary with the FWC, the Florida Department of Transportation (FDOT), and other relevant parties regarding the management of bear habitat and the facilitation of bear movement across the landscape.

Floral and Faunal Strategies

General Maintenance and Management Strategies

- Collect species occurrence data and incorporate into the land management biological database.
- Adhere to the Wood Stork habitat management guidelines established by USFWS.
- Adhere to the USFWS National Bald Eagle Management Guidelines.

Specific Strategies

Short-term Planning Horizon (1-5 years)

• Coordinate with local Native Plant Society chapter(s) and other organizations to conduct diversity surveys.

Exotic Species

Several exotic pest plants occur within the Conservation Area including:

Camphor tree	Cinnamomum camphora	
• Chinese tallow tree	Triadica sebifera	
• Mimosa	Albizia julibrissin	
Asparagus fern	Asparagus sp.	
• Water hyacinth	Eichhornia crassipes	
• Water lettuce	Pistia stratiotes	
• Hydrilla	Hydrilla verticillata	
• Wild taro	Colocasia esculenta	
• Lantana	Lantana camara	
Torpedo grass	Panicum repens	
Castor bean	Ricinus communis	
• Caesar weed	Urena lobata	
Bahia grass	Paspalum notatum	
• Paper mulberry	Broussonetia papyrifera	
Brazilian pepper	Schinus terebinthifolius	
• Air potato	Discorea bulbifera	
Japanese climbing fern	Lygodium japonicum	
• Cat's-claw vine	Macfadyena unguis-cati	
Christmas senna	Senna pedula	
Bermuda grass	Cynodon dactylon	
Coral ardisia	Ardisia crenata	
• Britton's wild petunia	Ruellia simplex	
Cogongrass	Imperata cylindrica	

The Conservation Area is part of the District's invasive plant management program. Exotic species control is necessary to inhibit the continued proliferation of exotic plants and integral in the restoration and maintenance of natural plant communities. While it is unlikely that the District will entirely eradicate invasive plants within the Conservation Area, achieving maintenance control of such species is targeted within the scope of this plan. At this level, the property is regularly monitored and treated as necessary.

In an effort to better quantify the level of infestations within the conservation area and to better track the success of treatments, District staff will begin mapping infestations of exotic plant species and documenting all treatment actions. Mapping efforts will focus on those species listed by the Florida Exotic Pest Plant Council (FLEPPC) and other undesirable species that have the potential to change natural community structure and functions.

Exotic wildlife species known to occur within the Conservation Area include feral hogs (*Sus scrofa*), brown anoles (*Anolis sagrei*), and nine-banded armadillos (*Dasypus novemcinctus*).

Feral hog damage is frequently observed and control is currently administered via provisions of an existing cattle grazing lease agreement and through the District's Special Use Authorization (SUA) process and a feral hog removal agent. Should hog populations or damage increase, the District may initiate additional control actions which may include the use of a contract with The United States Department of Agriculture (USDA).

Exotic Species Strategies

General Maintenance and Management Strategies

- Document, report, and treat observations of exotic species.
- If necessary, coordinate with USDA hog removal agent.

Specific Strategies

Short-term Planning Horizon (1-5 years)

- Locate and map infestations of FLEPPC Category I and II species and other infestations or undesirable plant distributions focusing on locating new populations in previously unsurveyed or undocumented areas within the Conservation Area.
- Upload infestation data into invasive plant management database.

Long-term Planning Horizon (5-10 years)

• Inspect and map treated infestations of invasive exotics to measure success of treatments and assess additional needs and to document locations of specific chemical use.

Fire Management

Fire is a vital factor in managing the character and composition of vegetation in many of the natural communities in Florida. The District's primary use of fire is to mimic natural fire regimes to encourage the amelioration of native pyric plant communities and dependant wildlife. Additionally, the application of fire aids in the reduction of fuels and minimizes the potential for catastrophic and damaging wildfires. The presence of organic soils within the Conservation Area and the close proximity of the property to highly developed and smoke sensitive areas (Figure 9) narrows the window of opportunity for the use of prescribed fire as a management tool within the Conservation Area. Fire suppression activities are coordinated through the Florida Forest Service.

Since the writing of the last plan, there have been no prescribed fires. In 2010, a wildfire burned 39 acres within the Conservation Area.



Fire Management Strategies

General Maintenance Activities

- Implement prescribed burning as described in the District's Fire Management Plan and annual burn plans.
- Implement fire surrogate activities as needed.

Specific Strategies

Recurrent

- Develop annual burn plans.
- Populate and maintain the fire management database.
- Conduct fireline maintenance.

Forest Management and Restoration/Enhancement

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...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 management objectives of this property may require pine, hardwood, or cabbage palm harvesting. Pine harvests may occur within an 18- acre area of planted slash pine.

The Conservation Area does not support significant acreage of pine domianted forests, and as such, forest management activities will be limited to those necessary as a response to disease, insect infestation or wind damage. District staff will monitor the property for evidence of insect infestation, disease, or for hazardous trees along trails and boundaries and implement appropriate action. The District may conduct management activities to reduce the coverage of cabbage palm, oaks, or shrubs to aid in the restoration and managemnt of the property.

Forest Management Strategies

General Maintenance Activities

- Conduct visual monitoring and forest management activities as necessary in response to disease, insect infestation, or wind damage.
- Evaluate thinning of planted pine area.
- Remove hazard trees as necessary.

Cultural Resources Protection

A review of the Department of State, Division of Historical Resources (DHR) indicates four registered Florida Master Site File locations within the Conservation Area. If additional sites are located, District staff will document and report sites to the DHR. District land management activities that may affect or impact these resources will be evaluated and modified to reduce the potential for disturbance of the identified sites. Additionally, detrimental activities discovered on these sites will also be reported to the DHR and appropriate law enforcement agencies. Due to the District and State policy, the location of any sites will not be identified on public maps.

Cultural Resource Protection Strategies

General Maintenance and Management Strategies

• Identify and report any new sites.

LAND USE MANAGEMENT

Access

Three public parking areas are located on the Conservation Area. The parking areas are fenced and include a walkthrough providing for recreational access. An informational kiosk is located near the parking area trailheads. Because these parking areas are more secluded than typical District parking areas, they are periodically subject to dumping, vandalism, and other illegal activity. In an effort to minimize these activities and provide protection to the resource and recreation infrastructure, the parking areas may be periodically closed or use otherwise regulated.

There are currently 13 gates providing management access to and across the property. These gates are monitored regularly for maintenance and/or repair needs from normal wear and tear and vandalism. In an effort to expedite emergency responses and to assist law enforcement and fire rescue in locating individuals in the event of an emergency, a 911 address has been issued for several gate locations. Table 4 includes the 911 addresses for the Conservation Area.

911 Address	Location/Description	
1725 Oakway Sanford, FL 32773	Gate along Oakway	
3555 Cameron Avenue Sanford, FL 32773	Gate along Cameron Avenue	
3251 Elm Street Oveido, FL 32765	East Jesup main gate	
3205 Elm Street Oveido, FL 32765	Logue gates	
3945 Kentucky Street Sanford, FL 32773	Gate along Kentucky Avenue	
5295 E SR 46 Sanford, FL 32776	Futch gate	

Table 4 – 911 Address

Approximately 4 miles of interior management roads traverse the property, some of which incorporate the multiuse trail system. In order to manage road maintenance, the District utilizes a roads classification system. This system includes the following classifications:

- A. Paved Road Any road that is paved in nature.
- B. Primary Road Any road that requires routine maintenance of any kind.
- C. Secondary Road Any road that does not require routine maintenance; only periodic or no maintenance.

District staff will update the roads database to reflect changes to the road network within the property area as necessary. Roads will be regularly inspected and receive maintenance and repair as necessary and may be subject to closure during these times. Table 5 details the extent of the various road types within the Conservation Area. Figure 10 depicts the location of the parking areas, roads, and gates on the property.



Table 5 – Roads

Road Classification Type	Miles
Type C	1.9
Type B	2
Total	3.9

Access Strategies

General Maintenance and Management Strategies

- Maintain parking areas, signs, gates, road, and trail.
- Close or regulate parking areas in response to illegal activities.

Specific Strategies

Recurrent

• Update roads, gates, and firelines in the land management database as maintenance, repair, or creation of new roads or trails occurs.

Recreation

The primary objective of the Recreation Management Program is to facilitate resourcebased recreational activities on District lands. An aspect in developing the SJRWMD Recreation Program is not to compete with other local recreational opportunities, but rather to complement what they may already have in place by filling an outdoor recreation niche through dispersed recreation opportunities. Dispersed recreation activities generally require large tracts of land with some level of isolation. This type of recreation blends well with District conservation areas, providing numerous opportunities for passive recreation, which also provides solitude and challenge.

Recreational opportunities within the Conservation Area are geared toward dispersed resource-based activities. The Conservation Area includes three trailheads with designated parking areas, information kiosks, and access to the land using trails that may also be utilized for management access.

The Conservation Area supports numerous public recreational opportunities. The opportunities include hiking, biking, wildlife viewing, and equestrian activities. 3.6 miles of marked trails are available for recreation within the Conservation Area.

While there is no water access for boat launches located within the Conservation Area, boats, kayaks, and canoes may be launched at nearby County boat ramps.

Currently, District trails and trailheads within the Conservation Area are maintained through a trail maintenance contract. The targeted maintenance schedule includes:

- Mowing grassy trails and road edges four (4) times yearly.
- Trail blazing and trimming of overhanging branches as needed.
- Trail and trailhead maintenance as needed.

Figure 11 is the recreation trail guide for the Conservation Area.

The entire conservation area is open to the public for passive recreation and is included in the District's <u>*Recreation Guide to District Lands*</u>, which can be viewed online at www.SJRWMD.com.

Recreation Strategies

General Maintenance and Management Strategies

- Maintain parking area, kiosks, and trail.
- Maintain current information in recreation guide, trail guides, kiosk, and District website.

Specific Strategies

Recurrent

- Mow recreational trails four times each year.
- Conduct trail blazing and trimming maintenance.

Environmental Education

The District has historically looked for opportunities to collaborate with local schools and organizations to encourage the use of District lands for environmental education. While the District is still open to such opportunities, during Fiscal Year 2011 the District funding and positions allocated for environmental education were eliminated due to budget reductions.

Environmental Education Strategies

General Maintenance Strategies

• Continue to offer environmental education opportunities subject to staff and budget availabilities.

Security

Security concerns within the Conservation Area include illegal motorized vehicle access, dumping, vandalism of gates, fences, facilities, and poaching. The District, primarily through a contract security firm as well as coordination with FWC and local law enforcement, administers law enforcement for the property.



Security Strategies

General Maintenance and Management Strategies

- Coordinate with local law enforcement, FWC, security resident, and contract security for security needs.
- Maintain contract with private security firm.
- Conduct biennial boundary posting maintenance.
- Respond to illegal activities occurring within parking areas in a manner that balances public access with resource protection.

Specific Strategies

Recurrent

• Develop monthly, prioritized security needs and provide to contracted security firm.

Short-term Planning Horizon (1-5 years)

• Identify, map, and prioritize locations of fencing needs and where appropriate, coordinate as in-kind services with cattle lessees.

ADMINISTRATION

Land Acquisition

The District may pursue acquisition of out parcels within the Conservation Area or small parcels or easements that may improve access for management purposes.

The extent of boundaries and parcels acquired that combine to form the Conservation Area and subsequent database information will be refined to ensure accurate accounting of all acquired acres.

Land Acquisition Strategies

General Maintenance and Management Strategies

- Evaluate adjacent properties and in holdings for potential acquisition.
- Short-term Planning Horizon (1-5 years)
 - Refine boundary and parcel data information and map layers.

Cooperative Agreements, Leases, Easements, and Special Use Authorization

In accordance with District Policy #90-16, the District promotes entering into agreements with other agencies and private parties for cooperation and coordination of management of the District's lands. These cooperative agreements serve to protect the District's water management interests and to enhance the management and public value of the land. Table 6 details the agreements and SUAs in effect during the writing of this plan.

Agreement Number	Туре	Agreement Name	Term
412	Lease Agreement	Aquafiber	Through 4/17/2019; renewable
240	Lease Agreement (Grazing)	Schuller/Crescent TS Cattle Company	Annually renewable
632	SUA (Hog removal)	Lema, Dwayne	Terminates December 31, 2014
578	Lease Agreement (Grazing)	Lefils, James	Through July 2, 2016; renewable
982	Residence Agreement	Heidi Cogburn	Through January 29, 2015; 4-year renewable
984	SUA	Higginbotham Palm Frond Harvesting	Through April 30,2015
982	Residence	Heidi Cogburn	Through Jan 29, 2015; renewable for up to 4 years.
413	Easement Agreement	DEP – State Easement	
68	Intergovernmental	Cameron Ranch Stormwater Park	Through April 25, 2054

Table 6 –	Agreements	Easements	and	SUA	Table
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<u>Cooperative Agreements, Leases, Easements, and Special Use Authorizations Strategies</u> General Maintenance and Management Strategies

• Administer easements, agreements, leases, and SUAs.

IMPLEMENTATION CHART

Lake Jesup Conservation Area Implementation Chart

TASK	RECURRENT	1-5 YEARS	5-10 YEARS	LEAD (COOPERATOR)
RESOURCE PROTECTION A	AND MANAGE	MENT		
Water Resources				
General Maintenance				
Conduct maintenance and				
incidental or emergency repair				DIM
of water resource structures as				BLM
necessary.				
Maintain water resource				
structures database and				BLM
incorporate maintenance,				
repair, and any new structures.				
Recurrent				
Visually inspect roads, trails,				
low water crossings, bridges,				
and culverts for erosion	Annually			BLM
problems and maintenance and				
repair needs.				
Floral and Faunal				
General Maintenance				
Collect species occurrence data				
and incorporate into the land				DIM
management biological				DLIVI
database.				
Adhere to the Wood Stork				
habitat management guidelines				BLM
established by USFWS.				
Adhere to the USFWS				
National Bald Eagle				BLM
Management Guidelines.				
Short-term Planning Horizon				
Coordinate with local Native				
plant Society chapter(s) and		2010		BI M
other organizations to conduct		2017		DLIVI
diversity surveys.				
Fire Management				
General Maintenance				
Implement prescribed burning				
as described in the District's				RI M
Fire Management Plan and			DLIVI	
annual burn plans.				
Implement fire surrogate				RI M
activities as needed.				DLW

Recurrent					
Develop annual burn plans.	Annually			BLM	
Populate and maintain the fire	Appuolly			BLM	
management database	Allitually	Annuarry			
Conduct fireline maintenance.	Twice	vice ually		BIM	
	annually			DLIVI	
Forest Management					
General Maintenance					
Conduct visual monitoring and					
forest management activities as					
necessary in response to				BLM	
disease, insect infestation, or					
wind damage.					
Evaluate planted pine area for				BLM	
possible thinning.				DEM	
Remove hazard trees as				BLM	
necessary.				DEM	
Exotic Species					
General Maintenance					
Document and report				RI M	
observations of exotic species.				DLIVI	
If necessary, Coordinate with				RI M	
USDA hog removal agents.				DLIVI	
Short-term Planning Horizon					
Locate and map infestations of		2014-			
FLEPPC Category I and II		2014-	Continues	BLM	
species.		2017			
Upload infestation data into		2014-			
invasive plant management		2014-	Continues	BLM	
database.		2017	519		
Long-term Planning Horizon					
Inspect and map treated					
infestations of invasive exotics					
to measure success of		2014-			
treatments and assess		2014-	Continues	BLM	
additional needs and to		2017			
document locations of specific					
chemical use.					
Cultural Resource Protection					
General Maintenance					
Identify and report any new				BLM	
sites.			(BRS, FDHR)		
Access					
General Maintenance					
Maintain parking area, signs,			BLM		

gates, road, and trail.				
Recurrent				
Update roads and firelines in				
the land management database	Annually by			
as maintenance, repair or	September			BLM
creation of new roads or trails	30th			
occurs.				
Recreation				
General Maintenance				
Maintain parking area, kiosk,				
and trail.				BLM
Maintain current information				
in recreation guide, trail				DIM
guides, kiosk, and District				BLM
website.				(OC)
Recurrent				
Mow recreational trails.	Ouarterly			BLM
Conduct trail blazing and	Annually by			
trimming maintenance.	December			BLM
······································	31^{st} .			
Environmental Education				
General Maintenance				
Continue to offer educational				
opportunities if possible and				OC
subject to staff and budget				(BLM)
availability				
Security				
General Maintenance				
Coordinate with local law				BLM
enforcement FWC security				(FWC)
resident and contract security				(SC)
for security needs				
Respond to illegal activities				
occurring within parking areas				
in a manner that balances				RI M
public access with resource		_	_	DLAN
protection				
Maintain contract with private				
security firm				BLM
Identify man and prioritize				
locations of fencing poods and				BLM
iocations of rending needs and	1			

where appropriate, coordinate			
as in-kind services with cattle			
lessees.			
Recurrent			
Develop monthly, prioritized			
security needs and provide to	Monthly		 BLM
contracted security firm.			
Conduct biennial boundary	2015, 2017,		
posting maintenance.	2019, 2021,		 BLM
	2023		
Short-term Planning Horizon			
Land Acquisition			
General Maintenance			
Evaluate adjacent properties			BRS
and in-holdings for potential			 (BLM)
acquisition.			
Short-term Planning Horizon			
Refine boundary and parcel			
data information and map		2019	BRS
layers.			
Cooperative Agreements,			
Leases, Easements, and			
Special Use Authorizations			
General Maintenance			DDC
Administer easements,			 BKS
agreements, leases, and SUAs			(BLM)

IMPLEMENTATION CHART KEY

LM	Bureau Land Management
RS	Bureau of Real Estate Services
DHR	Florida Division of Historical Resources
WC	Florida Fish and Wildlife Conservation Commission
C	Office of Communications and Intergovernmental Affairs
С	Seminole County
DHR WC DC C	Florida Division of Historical Resources Florida Fish and Wildlife Conservation Commission Office of Communications and Intergovernmental Affai Seminole County

Addendum 1 Listing Status/Ranking Definitions

FNAI GLOBAL RANKING

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor. G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

G4 = Apparently secure globally (may be rare in parts of range).

G5 = Demonstrably secure globally.

FNAI STATE RANKING

S1 = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or manmade factor.

S2 = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

S3 = Either very rare and local in Florida (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

S4 = Apparently secure in Florida (may be rare in parts of range).

S5 = Demonstrably secure in Florida.

STATE LEGAL STATUS

LE Endangered: species, subspecies, or isolated population so few or depleted in number or so restricted in range that it is in imminent danger of extinction.

LT Threatened: species, subspecies, or isolated population facing a very high risk of extinction in the future.

LS Species of Special Concern is a species, subspecies, or isolated population which is facing a moderate risk of extinction in the future.

PE Proposed for listing as Endangered.

PT Proposed for listing as Threatened.

PS Proposed for listing as Species of Special Concern.

N Not currently listed, nor currently being considered for listing.

FEDERAL LEGAL STATUS

LE Endangered: species in danger of extinction throughout all or a significant portion of its range.

LT Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.

LT,PDL Species currently listed threatened but has been proposed for delisting.

LT,PE Species currently listed Threatened but has been proposed for listing as Endangered.

PE Proposed for listing as Endangered species.

PT Proposed for listing as Threatened species.

C Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.

XN Non-essential experimental population.

SC Not currently listed, but considered a "species of concern" to USFWS.

N Not currently listed, nor currently being considered for listing as Endangered or Threatened.

Addendum 2 Soils

The Basinger series consists of very deep, poorly drained and very poorly drained, rapidly permeable soils in sloughs, depressions, low flats, and poorly defined drainage ways. They formed in sandy marine sediments. The natural vegetation may consist of wax myrtle, St. Johns wort, maidencane, pineland threeawn, cypress, slash pine, longleaf pine, pond pine, and other water tolerant plants.

Delray soils consist of very deep, very poorly drained, moderately permeable soils on broad flats, floodplains, and depressions in the lower coastal plain. Slopes in these areas range from 0-2%. These soils were formed in sandy and loamy marine sediments. Natural vegetation in these soils includes southern bayberry, pickerelweed, sedges, reeds, water tolerant grasses, and cypress, bay, tupelo, and other water tolerant trees.

The Canova series consists of very deep, very poorly drained moderately slowly permeable soils in depressions, freshwater swamps, and marshes. Formed in loamy marine sediments. Most areas are in their natural state and are used for wildlife habitat. Vegetation dominated by reeds, sedges, saw grass, lilies, scattered cypress, maple, gum, bay, and myrtle.

The EauGallie series consists of deep or very deep, poorly or very poorly drained, slowly permeable soils in flats, sloughs and depressional areas. They formed in sandy and loamy marine sediments in Peninsula Florida. Natural vegetation may consist of longleaf pine, South Florida slash pine, and saw palmetto, with understory vegetation possibly including inkberry, southern bayberry, and pineland threeawn.

Felda Fine Sand - The Felda series consists of very deep, poorly drained and very poorly drained, moderately permeable soils in drainage ways, sloughs and depressions, and on flood plains and low flats. They formed in stratified, unconsolidated marine sands and clays. Felda soils are in depressions, poorly defined drainage ways, sloughs, flood plains, or low flat. Natural vegetation consists of cypress, wax myrtle, pond pine, slash pine, cabbage palm, pineland threeawn, and various grasses, vines, and shrubs.

The Floridana series are very deep, very poorly drained, slowly to very slowly permeable soils on low, broad flats, flood plains, and in depressional areas. They formed in thick beds of sandy and loamy marine sediments. Slopes in areas where this soil is found ranges from 0-1%. Natural vegetation consists of sand cordgrass, cabbage palmetto, myrtle, and pineland threeawn. In depressional areas, most of the soil has a sparse to dense cover of cypress. In floodplains, the vegetation is mostly sweetgum, black gum, red maple, and cypress.

The Gator series consists of very poorly drained organic soils that formed in moderately thick beds of hydrophytic plant remains overlying beds of loamy and sandy marine sediments. They are in depressions and on floodplains with slopes less than 1%. Almost

all areas are in marsh or swamp wetlands used for wildlife and water storage. Native vegetation is mostly cordgrass or Jamaica sawgrass, maidencane, coastal palmetto, dogwood, or swamp vegetation including bald cypress, sweetgum, red maple, and American hornbeam.

The Hontoon series consists of deep, very poorly drained, rapidly permeable organic soils formed in hydrophytic non-woody plant remains. These soils occur in fresh water swamps and marshes. Native vegetation is loblolly, bay, maple, gum, and scattered cypress trees with a ground cover of greenbriers, ferns, and other aquatic plants. In a few areas there are slash pines with a ground cover of fern.

The Holopaw series consists of deep and very deep, poorly and very poorly drained soils formed in sandy marine sediments. Slopes range from 0-2% and are found on low-lying flats, in poorly defined drainages or depressional areas. Native vegetation is scattered slash and pond pine, cabbage and saw palmettos, scattered cypress, myrtle, sand cordgrass, and pineland threeawn.

The Immokalee series consists of deep to very deep and poorly drained to very poorly drained soils that formed in sandy marine sediments. They occur on flatwoods and in depressions of Peninsular Florida. Slopes tend to be 0 - 2%, but may range to 5%. Principle vegetation is longleaf and slash pine with undergrowth of saw palmetto, gallberry, wax myrtle, and pineland threeawn. In depressions, water tolerant plants such as cypress, loblolly bay, gorodonia, red maple, sweetbay, maidencane, bluestem, sand cordgrass, and blue joint panicum are more common. Most areas with Immokalee soils are in rangeland and forests.

Malabar soils are very deep, poorly to very poorly drained soils in sloughs, shallow depressions, and along flood plains. Formed in sandy and loamy marine sediments. Slopes in areas where these soils are found range from 0-2%. Native vegetation consists of scattered slash pine, cypress, wax myrtle, cabbage palm, pineland threeawn, and maidencane. In depressions, the vegetation is dominantly St. Johns Wort or maidencane.

Manatee soils are very deep, very poorly drained, and moderately permeable soils in depressions, broad drainage ways, and on floodplains. They formed in sandy and loamy marine sediments. Slope is dominantly less than 1%, but may range to 2%. Natural vegetation in these soils includes red maple, gum, cabbage palm, and widely spaced cypress. Treeless areas are covered by pickerelweed, sedge, maidencane, sawgrass, cutgrass bluestem, panicum, cinnamon fern, sand cordgrass, St. Johns Wort, and other perennial grasses.

The Myakka series consists of deep and very deep, poorly to very poorly drained soils formed in sandy marine deposits. These soils are on flatwoods, high tidal areas, flood plains, depressions, and gently sloping to barrier islands. Slopes in areas where these soils are found range from 0-8%. Native vegetation includes longleaf and slash pines with an undergrowth of saw palmetto, running oak, inkberry, wax myrtle, huckleberry, chalky bluestem, pineland threeawn, and scattered fetterbush.

The Nittaw series consists of very poorly drained, slowly permeable soils that formed in thick deposits of clayey sediments of marine origin. These soils are in well-defined drainage ways, broad, nearly level swamps, and marshes of central and southern peninsular Florida. They are subject to flooding and water standing above the soil surface for 6 months or more in most years during late spring, summer and fall. Native vegetation is mixed hardwoods of bald cypress, red maple, sweetgum, and hickory with an understory of wax myrtle, greenbrier, wild grape, cabbage palm, and few shade and water tolerant forbes and grasses.

The Okeelanta series consists of very deep, very poorly drained, rapidly permeable soils in large fresh water marshes and small depressional areas. They formed in decomposed hydrophytic non-woody organic material overlying sand. Native vegetation consists of sawgrass, lilies, sedges, and other water tolerant plants. Willow, southern bayberry, and melaleuca are common tree species.

Pineda – Deep and very deep, poorly and very poorly drained, very slowly permeable soils in depressions, low hammocks, poorly defined drainage ways, broad low flats, and floodplains. Formed in thick beds of sandy and loamy marine sediments on the lower coastal plain. Slopes in areas where these soils are found range from 0-2%. Native vegetation consists of slash pine, cypress, myrtle, cabbage palm, blue maidencane, chalky bluestem, blue point panicum, sedges, pineland threeawn, and sand cordgrass.

The Pomello series consists of very deep, moderately well to somewhat poorly drained soils that are sandy to depths of more than 80 inches. Pomello soils formed in sandy marine sediments in the flatwoods areas of Peninsular Florida. Native vegetation is dominated by scrub oak, dwarf live oak, saw palmetto, longleaf pine, slash pine, and wiregrass.

The Seffner series consists of very deep, somewhat poorly drained, rapidly permeable soils on the rims of depressions and on lower lying flats and knolls in the Lower Coastal Plain of south Florida. They formed in sandy marine sediments. The natural vegetation consists of longleaf pine, laurel oak, and water oak with an understory of saw palmetto, pineland threeawn, indiangrass, bluestem grasses, and several low panicums.

The St. Johns series consists of very deep, very poorly or poorly drained, moderately permeable soils on broad flats and depressional areas of the lower Coastal Plain. They formed in sandy marine sediments. Principal vegetation of the forested areas is longleaf pine, slash pine, and pond pine with an undergrowth of saw palmetto, gallberry, wax myrtle, huckleberry, and pineland threeawn.

The Terra Ceia series consists of very deep, very poorly drained organic soils that formed from nonwoody fibrous hydrophytic plant remains. They occur mostly in nearly level freshwater marshes and occasionally on river floodplains and in tidal swamps or flats. Natural vegetation includes sawgrass, lilies, sedges, reeds, maidencane, and other aquatic plants. Wooded areas include cypress, black gum, cabbage palm, Carolina ash, loblolly bay, red maple, sweet bay, and pond pine. Large undeveloped areas are used for wildlife habitat and water storage.

The Wabasso series consists of deep or very deep, very poorly drained, very slowly and slowly permeable soils on flatwoods, floodplains, and depressions in Peninsular Florida. They formed in sandy and loamy marine sediments. Slopes range from 0-2% in areas where these soils are found. Natural vegetation consists of longleaf pine, slash pine, cabbage palm, and live oak with an understory of saw palmetto, laurel oak, wax myrtle, chalky bluestem, and pineland threeawn.



all all and Lake Jesup Cameron Flow-way Project Potential Treatment Wetland Area CONTOUR Average Stage ~ 2ft Little (Cameron 2 year Stage: 4.33 ft 10 year Stage: 7.06 ft 25 year Stage: 8.33 ft 100 year Stage: 10.10 ft Max. Stage: 12.04 ft itch Potential location and footprint for Lake Jesup flow-way treatment wetland East Lake Jesup-W East La

Addendum 3 Potential Marsh Flow-way Location Map

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