Blue Cypress Conservation Area

Management Area Size: 61,574
Date of Acquisition: Acquisition began in 1977 by acquiring 31,561 acres in a transfer from the Central and Southern Florida Flood Control District. Acquisition is ongoing.

Date of Plan: June 2008 **Basin Planning Unit:** Upper Basin

Location: Indian River County

Funding Sources: Central and Southern Florida Flood Control District Transfer, Save Our Rivers Bond 85 and Bond 89, ad valorem, land sales, Florida Forever, Preservation 2000, exchanges, Federal Natural Resources Conservation Service Wetland Reserve Program, Environmental Resources Permitting mitigation, and Indian River County Donation.

Management Partners:

- The District is lead manager of Blue Cypress Conservation Area.
- The Florida Fish and Wildlife Conservation Commission (FWC) manages the Upper St. Johns River Marsh Wildlife Management Area, which includes the majority of Blue Cypress Conservation Area.

Key Resource Issues:

- **WATER RESOURCES** – The District will continue to manage the water management areas and marsh conservation areas to protect wetland resources, improve water quality, and meet water supply goals. Pollutant Load Reduction Goals as well as Total Maximum Daily Loads have been established for the District Upper Basin Lakes. Water quality is monitored.
- **FIRE MANAGEMENT** – Prescribed fire has been utilized, as recorded, since 1993. A Comprehensive Fire Management Plan for the area has been created and implemented. Annual prescribed fire plans will be written and implemented.
- **INVASIVE AND EXOTIC SPECIES** – The District receives funding to treat invasive and exotic plants in Blue Cypress Lake through Florida DEP's Bureau of Invasive Plants. The District will also be treating shrubby species through herbicide treatment. Additional exotic invasive species, such as lygodium, will be treated with a goal of obtaining a maintenance level. Exotic animal species include feral hogs; hog trapping agents have been contracted for this property. Feral hogs are hunted seasonally through the wildlife management area program.
- **RESTORATION** – The District will complete the Banjo Groves restoration project in fiscal year 08-09 assuming water quality has improved. The District will work to decrease woody vegetation at BCCA through herbicide treatment. Construction of Fellsmere Water Management Area has been initiated.
- **FOREST MANAGEMENT** – The nature of natural communities will not support silviculture in this Conservation Area.

- **WILDLIFE AND PLANTS** – The property provides important habitat for fish and wildlife populations, including rare and endangered species. Staff will continue to inventory and monitor for threatened and endangered species. Hydrology will be managed in the Blue Cypress Water Management Area to meet hydrological criteria to protect snail kite habitat. The property is included in the avian protection plan. Construction projects will be coordinated to avoid, if possible, construction during avian nesting seasons.
- **CULTURAL AND ARCHAEOLOGICAL RESOURCES** – There are a total of six (6) known cultural resource sites in the Conservation Area. Special measures are being made to ensure that management activities are consistent with the long-term protection of these resources.

Key Land Use/Recreation Issues:

- **ACCESS** – Blue Cypress Conservation Area has seven (7) access points to the property. Access points will be maintained as necessary with potential closings during times of construction.
- **RECREATION USE** – The property is open to the public for boating, canoeing, fishing, hiking, primitive camping, biking, wildlife viewing, air boating, and seasonal hunting. The Conservation Area is included in the Upper St. Johns River Marsh Wildlife Management Area. There is no horseback riding allowed on levees.
- **SECURITY** –Maintenance of the fence lines and replacement of boundary signs is ongoing. The Indian River County Ranch and Grove Squad patrol the area for violations along with FWC officers as part of the wildlife management area regulation. A contracted security firm provides routine security services for the property as needed.
- **COOPERATIVE AGREEMENTS** – The District has agreements with Indian River County for CR 512 Rec Pad and Blue Cypress Lake County Park management and maintenance. FWC manages the area as the Upper St. Johns River Marsh Wildlife Management Area and monitors for violations. FWC also installed and maintains boat ramps at Kenansville Lake and Blue Cypress Lake County Park. The District has an agreement with the United States Army Corps of Engineers to cost share on recreational access in the Upper Basin.
- **LEASES, EASEMENTS, SPECIAL USE AUTHORIZATIONS AND CONCESSIONS –** Fellsmere Water Management Area and Banjo Groves each hold NRCS perpetual conservation easements and Wetland Reserve Program restoration cost share agreements. Fellsmere Joint Venture has an occupancy agreement with the District for cattle and sod leases, which expires June 20, 2008. The Fellsmere Joint Venture Amended and Restated Occupancy Agreement continues these leases until September 30, 2013. Two agricultural leases present on Fellsmere Water Management Area at the time of purchase were assigned to the District and will continue until 2011 and 2013. These leases are for watercress and sod.
- **LAND ACQUISITION** – No additional land acquisition is being pursued for this project area.

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INTRODUCTION

This management plan provides guidelines for land management activities to be implemented within Blue Cypress Conservation Area (BCCA) over the next five years. This is a revision to the Upper St. Johns River Basin Three Forks Marsh Conservation Area and Blue Cypress Conservation Area combined Land Management Plan approved in October of 2000.

CONSERVATION AREA OVERVIEW

Location
BCCA is comprised of approximately 61,574 acres within the St. Johns River Upper Basin (Figure 1). The property stretches from SR 60 to Canal C-54 (a.k.a. L-74W, Fellsmere Grade/Kenansville Road) just south of the Brevard/Indian River County line in Indian River County. The Conservation Area contains a mosaic of wetland communities dominated by maidencane, sawgrass, willows and buttonbush including open water systems and floodplain marsh, with scattered tree islands and cypress domes. BCCA is the most undisturbed area in the Upper Basin and contains the largest remnant marsh of its type in the region.

Access
The Conservation Area has seven (7) access points. From I-95, take the CR 512 exit heading west and then south. The Blue Cypress Recreation Area is on the east and includes parking, restrooms, handicapped access, and a boat and canoe ramp. Continue on CR 512 until reaching SR 60 and head west to an additional parking area. From Kenansville, go south on U.S. 441, head east onto SR 60 and turn left on Blue Cypress Lake Road. The road dead-ends into a boat ramp along with a campsite and restrooms at Blue Cypress County Park, managed by Indian River County. Also from Kenansville, head south on U.S. 441 and turn east on Kenansville/Fellsmere road. The road ends at the parking area to Kenansville Lake and includes a boat ramp and picnic tables. To access the Fellsmere Grade Recreation Area take the Fellsmere exit at CR 512 and head west. Go to Fellsmere and turn north on CR 507, then turn west on Fellsmere Grade. This access has parking, restrooms, handicap access, and a boat ramp.

Wildlife Management Area
Most of BCCA is included in the Upper St. Johns River Marsh Wildlife Management Area. This Wildlife Management Area is managed by the Florida Fish and Wildlife Conservation Commission (FWC). Updates for restricted areas and regulations are found by visiting the www.myFWC.com website.

Upper St. Johns River Basin Project
The Conservation Area is part of the Upper St. Johns River Basin Project, an effort to restore a component of the St. Johns River headwaters, which once covered nearly 800,000 acres. The restoration project is co-sponsored by the District and the US Army

Corps of Engineers (USACE) and is a semistructural system of water management areas, marsh conservation areas, and marsh restoration areas covering approximately 166,500 acres in Indian River County. The project goals are to reduce damage from floods, improve water quality, reduce freshwater discharges to the Indian River Lagoon, provide water supplies, and restore or enhance wetland habitat.

The BCCA semistructural system of management areas includes Blue Cypress Marsh Conservation Area, Blue Cypress Water Management Area -West, Blue Cypress Water Management Area - East, Banjo Groves, the St. Johns Water Management Area (Stick Marsh), Kenansville Lake (S.N. Knight), Kromhout Wetland, Corrigan Wetland, and Fellsmere Water Management Area (Figure 2). These areas are described below.

Blue Cypress Marsh Conservation Area
Blue Cypress Marsh Conservation Area is the most natural system in the Conservation Area. A marsh slough delimits the eastern boundary with sawgrass, maidencane, and spikerush occupying the interior of the marsh. Wading bird rookeries are present within Blue Cypress Marsh Conservation Area. The eastern portion of the area historically contained foraging and nesting habitat for the endangered snail kite. Wading bird species commonly found include great blue herons, white and glossy ibis, great and snowy egrets, anhingas, and black crowned night herons. Bald eagles have also been found here. Listed species include snail kites, wood storks, ospreys, and river otter. The area also supports a population of river otters.

Blue Cypress Lake is a tannin stained Lake within Blue Cypress Marsh Conservation Area and is surrounded by a cypress fringe. As is typical of many blackwater systems, the lake has low productivity and therefore supports a limited sport fishery for largemouth bass, bream, and black crappie.

Blue Cypress Water Management Area (BCWMA) The Blue Cypress Water Management Areas are bisected by CR 512, resulting in the two subunits of the water management area- East and West. When complete, the Banjo Groves Restoration Area will also become a sub-unit of the BCWMA. The BCWMA is managed to meet multiple goals. Besides the primary project purpose of flood control, the area is managed to improve water quality by retaining and treating agricultural discharges and to provide for limited water supply needs. Providing water for agricultural irrigation was an initial project purpose, however, only water withdrawals for freeze protection are now allowed. This is because the BCWMA also provides important habitat for the endangered snail kite. Because the Upper Basin Project is a federal project, management of water within this area must be sensitive to the needs of this species. Water management within the BCWMA is regulated by U. S. Fish and Wildlife Service (USFWS) Biological Opinion for the BCWMA (FWS 4-1-96-246 (amended)). The Biological Opinion details long-term water level statistics that need to be met and specifies that only surface withdrawals for freeze protection are allowed. Water levels in the BCWMA are continually being monitored by the District's Water Resource Department to ensure the constraints specified in the Biological Opinion are being met.

Blue Cypress Water Management Area-West (BCWMAW)
BCWMAW is composed of the Ansin West property, Lake Miami Ranch parcels, and the C-34 flow-way along the northern portion of the water management area. Ansin West and the flow-way are similar to the eastern portion of the Blue Cypress Marsh Conservation Area as they have not been extensively drained, and were hydrologically connected to the marsh prior to construction of the project. These areas provide important foraging and nesting habitat for a variety of wetland dependent species, including snail kites. The Lake Miami Ranch parcels, which were drained and farmed, now represent a deeper water area dominated by cattails on the eastern half of the parcel, and open water with submergents, such as hydrilla and coontail, becoming established in the western half.

Blue Cypress Water Management Area-East (BCWMAE)
BCWMAE is a low nutrient system supporting emergent vegetation and tree islands, with elevations gradually rising from west to east. The area provides foraging and nesting habitat for wading birds, snail kites, osprey, and bald eagles. This area is the primary area used for nesting by snail kites. The BCWMAE has extremely low nutrient levels and as a result contains large areas of periphyton, a benthic algae that attaches to larger plants (EPA 2008).Periphyton is an assemblage of algae and diatoms and is an indicator of good biological health (EPA 2008).

Banjo Groves
Banjo Groves, a 298-acre former citrus grove, was acquired in December 2003. The parcel is located within BCWMAE. To restore the property, the citrus trees have been removed along with the associated irrigation tubing, and interior ditches and canals have been filled. Once phosphorus levels have decreased within the property, perimeter ditches will be filled and the property will be hydrologically reconnected to BCWMAE. The Natural Resources Conservation Service (NRCS) holds a perpetual Wetland Reserve Program conservation easement on the Banjo Groves property.

St. Johns Water Management Area (Stick Marsh; Farm 13; SJWMA))
The SJWMA is a 6,500-acre reservoir, also referred to as the Stick Marsh and/or Farm 13. The primary purpose of the SJWMA is to provide storage for flood control and to reduce flood control discharges to the Indian River Lagoon. The SJWMA is also managed to improve water quality by retaining agricultural discharges before they are released downstream. The area is used extensively for agricultural water supply during the dry season. Because of high nutrient and long hydroperiods the reservoir developed a quality largemouth bass and black crappie fishery. The quality of the largemouth bass fishery has been enhanced by a ban on recreational harvest imposed by the FWC. The northern and extreme southern portions of the SJWMA contain standing dead trees, which provided roosting sites for wading birds. Water levels in the SJWMA are managed to the greatest extent possible to meet all the multipurpose goals for the reservoir.

Kenansville Lake

The Kenansville Lake parcel, also called S.N. Knight, is a 2,500-acre tract west of Blue Cypress Marsh Conservation Area. The site was historically contiguous with the Upper St. Johns River floodplain, but was diked and drained for improved pasture and row crops in the 1960's. An unnamed tributary historically flowed to the area and water sheet-flowed across the property. Water was diverted from the property north to the St. Johns Marsh Conservation Area through a manmade canal. During restoration, an earthen plug was removed allowing the canal to drain into the S.N. Knight parcel. Today, the area has been reflooded. The Lake is no longer connected to BCMCA, but flows north to St Johns Marsh Conservation Area within. The property is an open water area with fringe wetlands to the west.

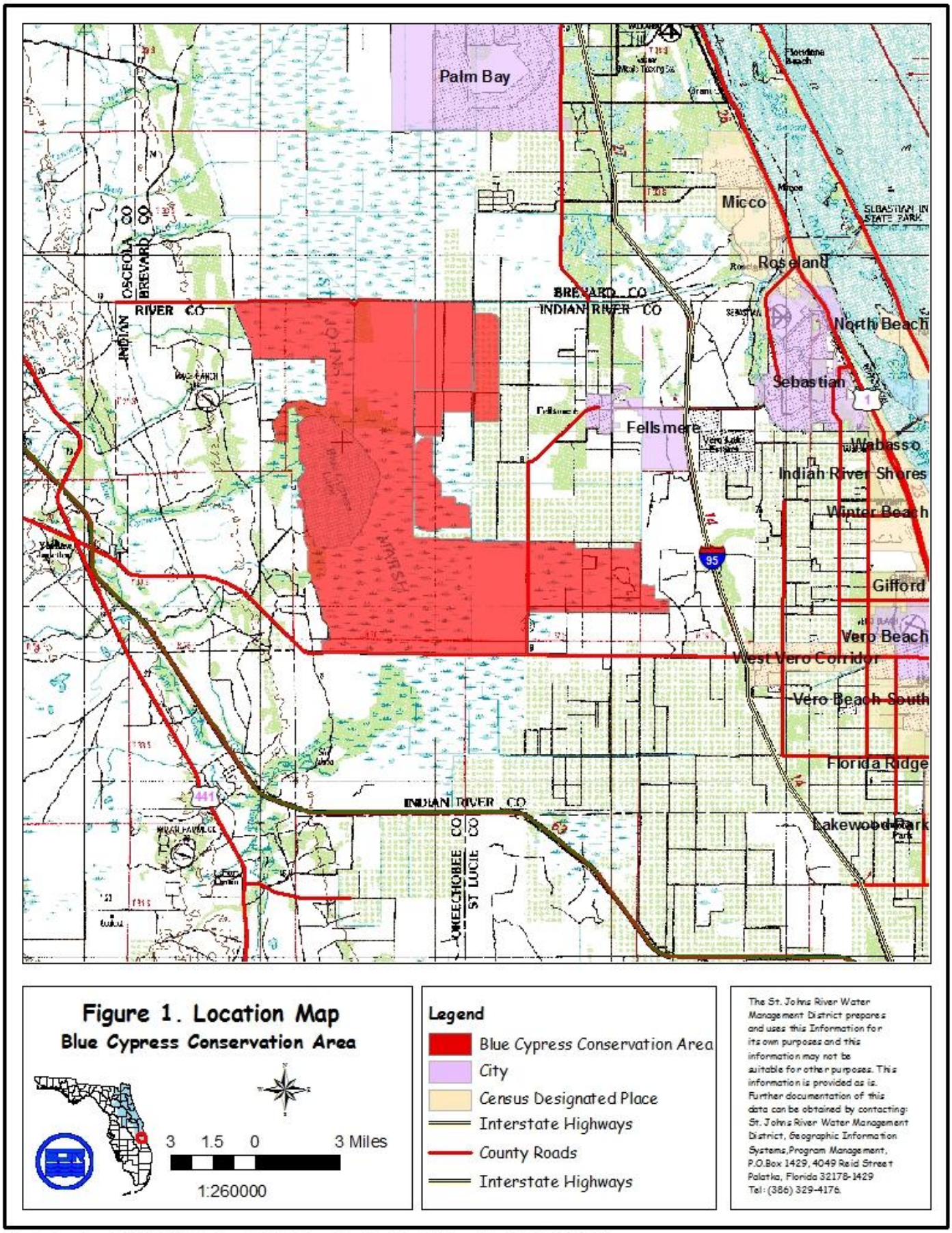
Kromhout Wetland
The Kromhout Wetland, or the White Face Acres parcel, has flooded habitat similar to the adjacent habitat within BCWMAE and has habitat conducive to support snail kite nesting.

Corrigan Wetland
The 457 acre Corrigan parcel was acquired in April 2008. This parcel is predominately wetlands. During the scope of this plan, the District will determine the goals for this newly purchased parcel.

BCCA parcels have been acquired by the District to protect water resources, provide ecological functions, and to restore the headwaters of the St. Johns River under the purview of the US Army Corps of Engineers/District Upper St. Johns River Basin Project.

Fellsmere Water Management Area
Fellsmere Water Management Area is one of the most recent acquisitions within the upper basin. The water management area is located just east of the St. Johns Water Management Area and was acquired as two separate parcels. The first parcel was purchased in July 2002 consisting of approximately 4,000 acres; the second acquisition was purchased in March 2007 consisting of around 6,000 acres. In 2007, the Natural Resources Conservation Service (NRCS) purchased a Wetland Reserve Program 30 year conservation easement on the 4,000-acre portion of the property. This purchase will aid in funding construction on the property. Both parcels have been purchased with a plan to create a Water Management Area, which will provide agricultural stormwater treatment, water supply for nearby agricultural operations and stormwater storage. A restoration plan was created for Fellsmere Water Management Area in 2007. Phase I construction has been initiated in the northern 4,000 acres of the property.

Under the purview of this Land Management Plan during the next five years, land management staff will have a role in managing the Fellsmere Water Management Area with fire, mechanical means, recreation management, and monitoring the current agricultural leases during construction. New recreational resources in Fellsmere Water Management Area will be developed with anticipated opening in 2014.



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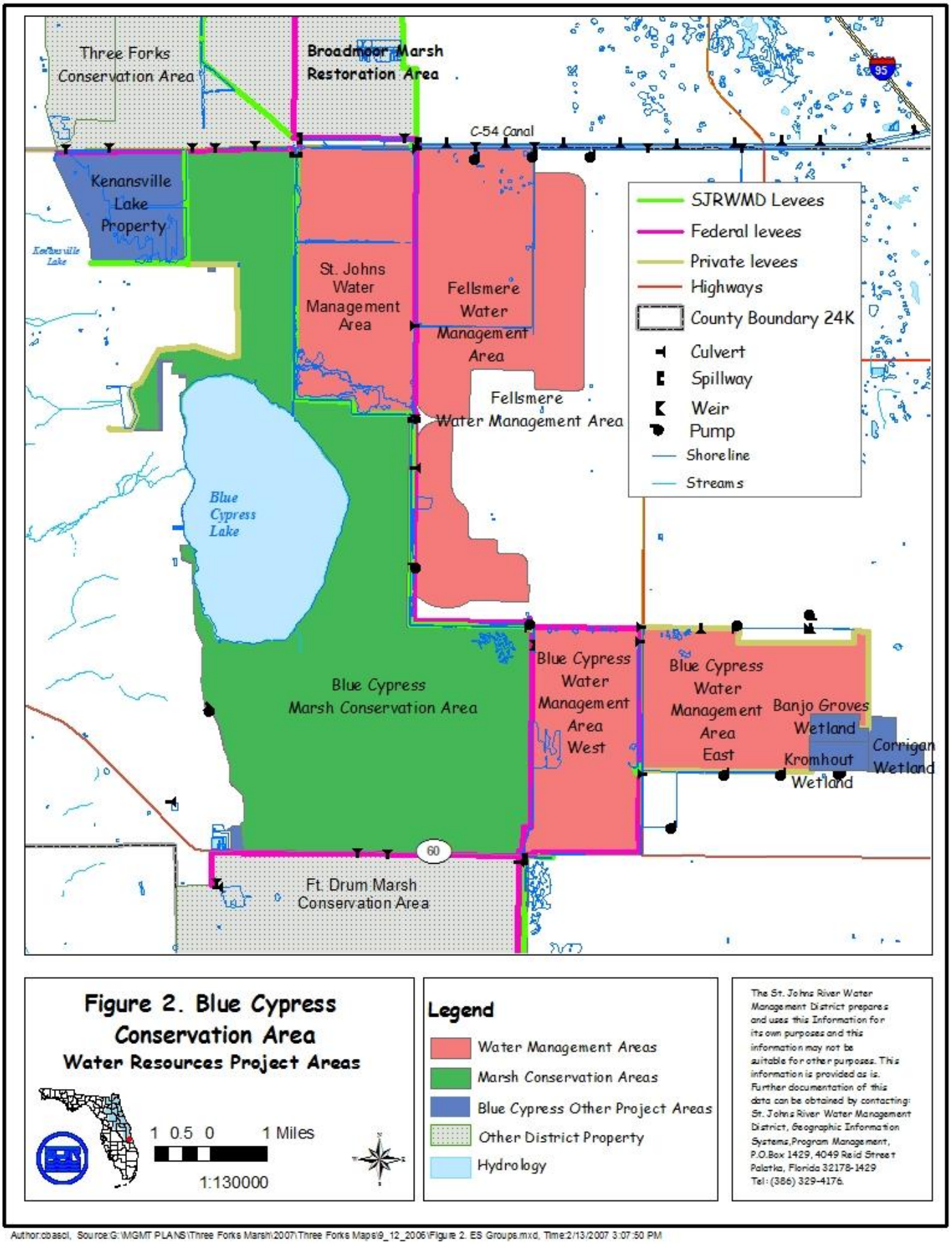

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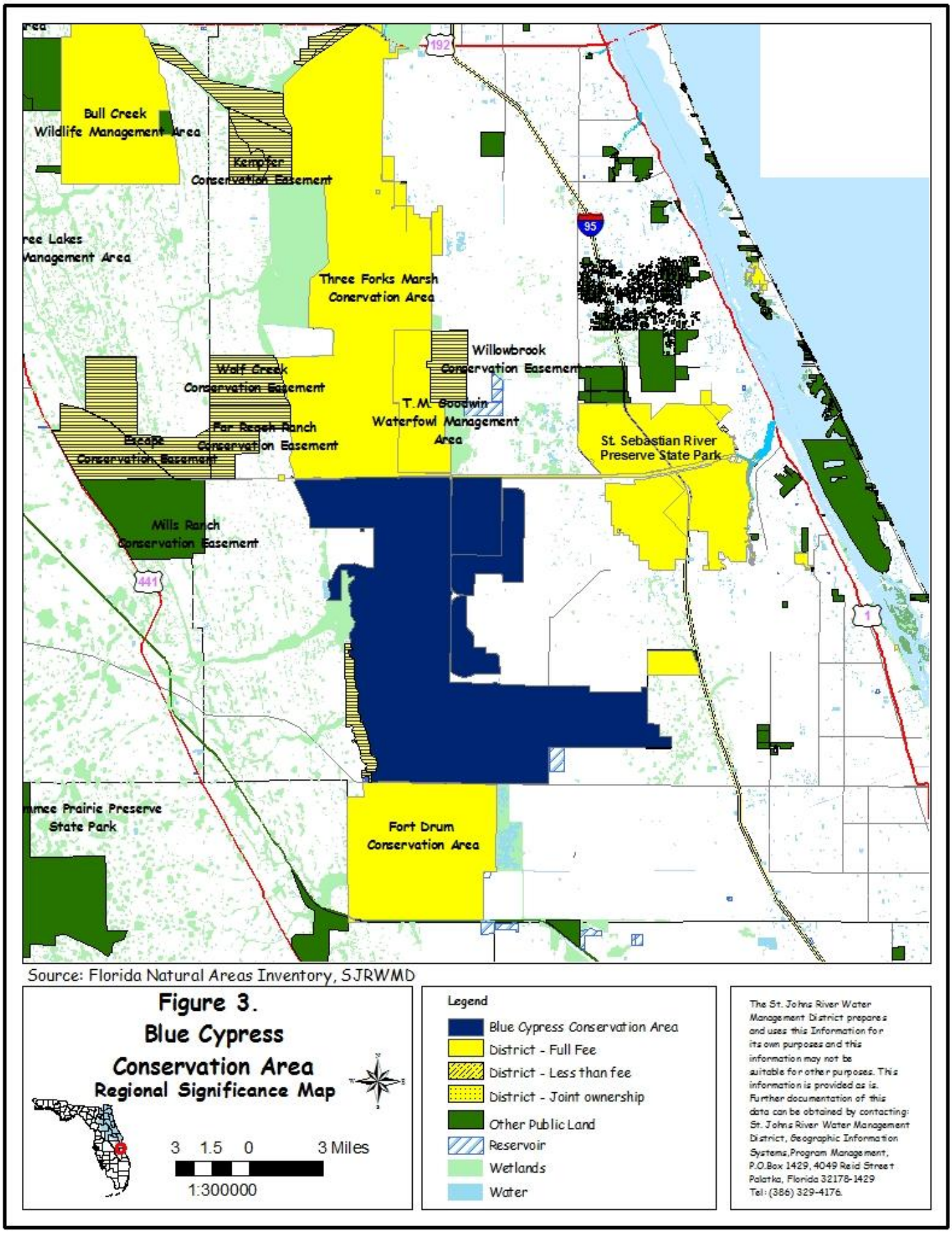
Regional Significance

The Upper St. Johns River Basin is an ecosystem of statewide and national significance. Despite the extensive loss of floodplain to development, it remains the largest freshwater marsh in the region and among the largest in the state. The Upper St. Johns River Basin Project is one of the largest wetland restoration projects in the world and includes more than 125,000 acres of restored freshwater marshes. BCCA continues to be an important component of the Upper St. Johns River Basin Project. Containing both water management and marsh conservation areas the BCCA area is managed for flood control and to provide for the wise use of water resources while protecting to the greatest extent possible its ecological values and the health of the river downstream. In addition to these goals, the area provides opportunities for a wide variety of compatible resource-based educational and recreational activities.

BCCA is part of a regional network of Conservation Areas and Conservation Easements acquired in order to reclaim the St. Johns River's headwaters (Figure 3). Almost 200,000 acres have been purchased creating a conservation corridor from SR 60 to Lake Poinsett at SR 520 designated for preservation and restoration. These areas include River Lakes Conservation Area, Three Forks Marsh Conservation Area, Fort Drum Marsh Conservation Area, St. Sebastian River Preserve State Park managed by the Florida Park Service, and Florida Fish and Wildlife Conservation Commission (FWC) managed Triple N' Ranch Wildlife Management Area and Bull Creek Wildlife Management Area. Conservation Easements in the region include Far Reach Ranch, Wolf Creek Ranch, Escape Ranch, Kempher, Willowbrook and DEP sponsored Mills Ranch. The Conservation Areas consist of around 152,565 acres of conserved lands. The Conservation easements consist of around 39,967 acres of private lands. In total 192, 532 acres in this region have been set aside for conservation. These Conservation Areas provide multiple recreational opportunities including hiking, biking, horseback riding, fishing, boating, hunting and camping.



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Acquisition History

BCCA is comprised of 20 parcels (Figure 4). Parcels within BCCA began to be acquired in 1977 with the transfer of a large parcel from the Central and Southern Florida Flood Control District and acquisitions continue (Table 1). Funding sources include Save Our Rivers Bond 85, ad valorem tax dollars, land sales dollars, mitigation donations, Preservation 2000 (P2000), Florida Forever, and NRCS Wetland Reserve Program conservation easement dollars. The District holds 100% fee title of all parcels. There are Natural Resource Conservation Service (NRCS) Wetland Preserve Program easements on the Fellsmere-Sun Ag 4,000 acre parcel and the Banjo Groves 298-acre parcel.

The purchase of these properties is consistent with the goals and objectives set for the USJRBP and the District's Five Year Plan. The objectives for acquisition in this basin are (1) Flood control, (2) restoration and enhancement of wetland habitat, (3) water quality improvement, (4) decreased interbasin diversions, and (5) improved public access and recreational opportunities.

The lands acquired for the USJRBP are also identified within the General Design Memorandum approved by the United States Army Corps of Engineers (USACOE) in August 1986. The District Governing Board authorized acquisition of several additional parcels contiguous to the lands identified by USACOE, which will aid in the achievement of project objectives.

The following is a list of parcels acquired by the District and incorporated into the Conservation Area:

(LA#1977-004-P1) - Transfer Parcel
Approximately 31,561 acres of the transfer parcel (T004) from the former Central and Southern Florida Flood Control District was incorporated into BCCA. The entire transfer parcel (53,149 acres) was acquired for $3,922,910 in 1977. A 1,522-acre flowage easement was transferred to the District along with the full fee parcel. This flowage easement is found on the Pressley Ranch property.

(LA# 1982-016-PA) – Lake Miami Ranch A
This parcel consists of 1,018 acres and was purchased with Save Our Rivers (SOR) funding for $1,399,750 on June 30, 1983.

(LA# 1982-016-PB) - Lake Miami Ranch B
This parcel consists of 902 acres and was purchased for $1,299,782 with funding from SOR on September 30, 1983.

(LA# 1982-016 - PC) - Lake Miami Ranch C
This parcel consists of 897.72-acres and was purchased on February 23, 1984 at a cost of $1,360,045.80 using SOR funding.

(LA# 1982-018) - Ansin
This 6,322.64-acre parcel was purchased on August 16, 1985 for $8,500,000. Funding for this parcel came from ad valorem tax dollars.

(LA# 1983-002) - Fellsmere Joint Venture – Blue Cypress
This parcel contains 4,060.45 acres, was acquired under option in 1985 for $9,366,887.55 using SOR funds. This parcel is the St. Johns Water Management Area, or Stick Marsh property.

(LA# 1983-007) - Fellsmere Water Control District
This parcel contains 1,912.02 acres, was acquired in 1985 for $815,625 using SOR funds. This parcel includes the right of ways and roads purchased with Fellsmere Joint Venture-Blue Cypress and is therefore mapped as part of LA#1983-002.

(LA# 1983-020) – Ida Hooker/FJV outparcel
This 10-acre parcel was purchased for $20,596.80 with funding from SOR. The parcel was purchased on June 22, 1984.

(LA# 1984-013) – Tashkede (GMJF/Wealden)
This 869-acre parcel was purchased with funding from land sales money for $608,817.86. It was purchased on June 27, 1989.

(LA# 1985-0007) – Peter C. Miller
This 2.5-acre parcel was purchased for $3,617 utilizing ad valorem tax dollars. It was purchased on July 3, 1990.

(LA# 1988-006) - Twenty Mile Bend
This 0.36-acre parcel was acquired on July 22, 1988 and consisted of an exchange of 0.36 acres in Indian River County to realign a property boundary. This transaction also came with a 71-acre flowage easement west of the Twenty Mile Bend parcel.

(LA# 1988-011) – AT&T
AT&T donated 0.18 acres to the District on October 31, 1988. The property was a reversion and the deed states that the District will not utilize the property in any manner that will conflict or compete with the telecommunications services, operations or activities of AT&T.

(LA# 1991-016) – S.N. Knight (Kenansville Lake)
The S.N. Knight property consists of 2,485 acres acquired on March 30, 1993 for $4,537,500 using P2000 funds.

(LA# 1996-110) – Tashkede
This 24.47-acre parcel was purchased for $22,000 on December 9, 2003. The parcel was purchased utilizing funding from Florida Forever.

(LA# 2001-058PB) - Fellsmere Water Control District
This 323-acre parcel was purchased on July 1, 2002 with Florida Forever funding for $749,595.60. This parcel is found in the Fellsmere Water Management Area and is included with parcel LA#2001-058PA within the 4,000 acre NRCS conservation easement. It is mapped within LA#2001-058PA.

(LA# 2001-058PA) – Fellsmere-Sun Ag
This 3,890.71-acre parcel was purchased on July 1, 2002 with Florida Forever funding for $9,104,261.40. This parcel is found within Fellsmere Water Management Area and is included with parcel LA#2001-058PB mapped area. On September 25, 2007, the District sold a conservation easement to NRCS for $8,000,000. The NRCS easement covers parcels LA#2001-058PA and LA#2001-058PB.

(LA# 2003-021) – Lindsey (Banjo Groves)
This 300-acre parcel was purchased with Florida Forever funds for $1,443,235 on December 8, 2003. The District was then reimbursed for $443,235 with funds from the Natural Resource Conservation Service (NRCS) Water Resources Development Act under the Wetland Restoration Program on November 2, 2005. The project has a NRCS conservation easement over the property.

(LA# 2003-029) – White Face Acres (Kromhout Wetland)
This 332-acre parcel was purchased for $499,000 on October 17, 2003. The total cost includes Reserve for Contingencies (ad valorem) funding of $300,000 which was divided into loss of use for $200,000 and levee repair for $100,000.

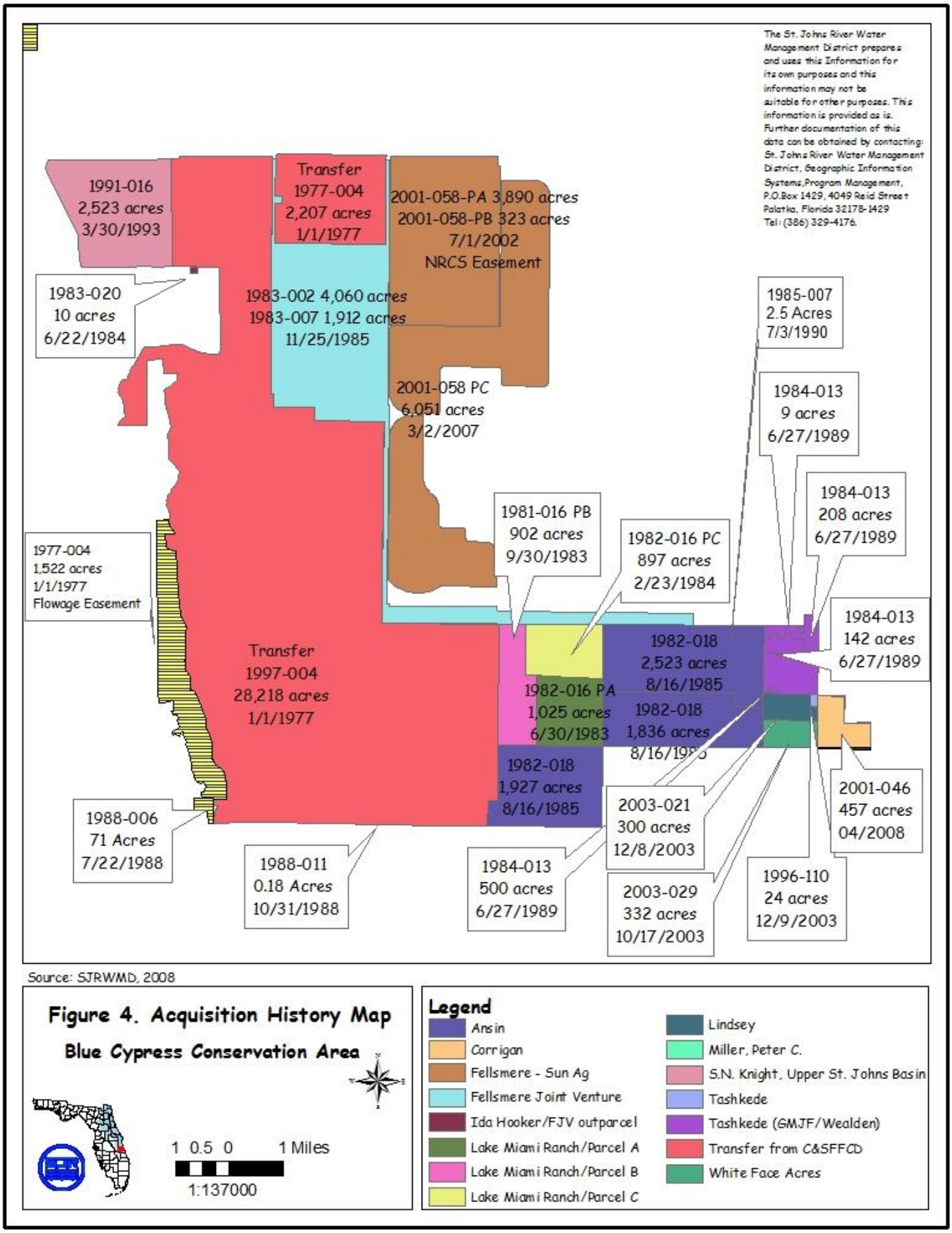
(LA# 2001-058PC) – Fellsmere-Sun Ag
This 6,020-acre parcel was purchased for $62,830,000 with Florida Forever and Florida Forever Fund Balance Exchange funds on March 2, 2007. This parcel is part of Fellsmere Water Management Area.

(LA# 2001-046-P1) – Corrigan (Corrigan Wetland)
The 457-acre Corrigan property was acquired by the District on April 25, 2008 from the Corrigan family for a purchase price of $3,204,670. Reservation by County for Perpetual Conservation, subordinate to the District's right to use the property for water management.

Table 1. Blue Cypress Conservation Area Land Acquisition History

Acquired	Parcel #	Parcel Name	Acreage	Total Price	SJRWMD Price	Funding Source	Comments
1/1/1977	1977-004	Transfer from C&SFFCD	31,561.40	3,922,910	0		
6/30/1983	1982-016-PA	Lake Miami Ranch Parcel A	1,018	1,399,750	1,399,750	SOR	
9/30/1983	1982-016-PB	Lake Miami Ranch Parcel B	902	1,299,782	1,299,782	SOR	
2/23/1984	1982-016-PC	Lake Miami Ranch Parcel C	897.72	1,360,045.80	1,360,045.80	SOR	
8/16/1985	1982-018	Ansin	6,322.64	8,500,000	8,500,000	ad valorem	
11/25/1985	1983-002	Fellsmere Joint Ventures	4,060.45	9,366,887.55	9,366,887.55	SOR/BOND 85	Lane purchased and mapped in conjunction with LA#1983-007.
11/25/1985	1983-007	Fellsmere Water Control District	1,912.02	$815,625	$815,625	SOR/BOND 85	Rights of way and roads purchased and mapped in conjunction with LA#1983-002.
6/22/1984	1983-020	Ida Hooker/FJV outparcel	10	$20,596.80	$20,596.80	SOR	Parcel within Fellsmere Joint Venture property.
6/27/1989	1984-013	Tashkede (GMJF/Wealden)	869	$608,817.86	$608,817.86	Land sales	
7/3/1990	1985-007	Peter C. Miller	2.5	$3,617	$3,617	ad valorem	
7/22/1988	1988-006	Twenty Mile Bend	0.36	$59.40	0	exchange	
10/31/1988	1988-011	AT&T	0.18	0	0	Donation	District shall not utilize the property in a manner that will conflict or compete with telephone company
3/30/1993	1991-016	S.N. Knight	2,485	2,537,500	2,537,500	P2000-91	
12/9/2003	1996-110	Tashkede	24.47	22,000	22,000	Florida Forever	
7/1/2002	2001-058-PB	Sun Ag/Fellsmere Water Control District	323.19	749,595.60	749,595.60	Florida Forever	Part of Fellsmere Water Management Area. Purchased and mapped in conjunction with LA#2001-058A. Holds NRCS Wetland Preserve Program 30 year conservation easement.

Acquired	Parcel #	Parcel Name	Acreage	Total Price	SJRWMD Price	Funding Source	Comments
7/1/2002	2001-058-PA	Fellsmere-Sun Ag	3,890.71	$9,104,261.40	$1,104,261.40	Florida Forever, NRCS Wetland Preserve Program	Part of Fellsmere Water Management Area. Purchased and mapped in conjunction with LA#2001-058-PB. Holds NRCS Wetland Preserve Program 30 year conservation easement.
12/8/2003	2003-021	Lindsey	300	1,000,000	556,765	Florida Forever WRDA Easement	Easement sale of $443,235 to NRCS Water Resources Development Act 2000
10/17/2003	2003-029	White Face Acres	332.52	499,000	499,000	Land Acquisition Balance Fund, Reserve for Contingencies	
3/2/2007	2001-058C	Fellsmere-Sun Ag	6,020 acres	$62,830,000	$62,830,000	Florida Forever, Florida Forever Fund Balance Exchange	Part of Fellsmere Water Management Area
8/2008	2001-046	Corrigan	457	$3,204,670	23.29% interest in Sand Lakes to Indian River County.	Exchange with Indian River County	Reservation by County for Perpetual Conservation, subordinate to the District's right to use the property for water management.



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Zoning

Blue Cypress Conservation Area is designated as C-1, Conservation –1 (publicly owned or controlled conservation areas) in the Indian River County Comprehensive Plan. This designation is defined as:

> *C-1:* This designation is applied to both intact and disturbed communities existing in Indian River County that are indicative of the ecosystems that existed before human disturbance and play a vital and essential role in the normal functioning of the county's ecosystems. All types of passive recreation are allowed. This designation includes, but is not limited to, land owned by the District for its Upper Basin Project, publicly owned spoil islands in the Indian River Lagoon, and other environmentally important land owned or controlled by public entities for conservation purposes.

History

Extensive freshwater shellfish middens and other sites give evidence of large pre-Columbian human populations and post-Archaic St. Johns cultures in the marshes of the St. Johns River. The original inhabitants were the Ais Indians who later joined other bands to become the Seminole Indians.

The area is rich in military history that began with the development of military routes and forts during the Seminole wars. In the 1830s and 1840s, the area became important for agricultural production and the region began to be developed for farming and cattle ranching.

In the early 1900s, dikes and ditches were constructed in the St. Johns River headwaters to drain the marshes for agricultural pursuits. Canal systems currently run throughout the property resulting from historical efforts to create agricultural land and provide flood control. Channeling the river's headwaters and eliminating thousands of acres of marshes caused a loss of storage areas for floodwaters from hurricanes, loss of habitat for wading birds, fish and other wildlife, and loss of marsh plants that filtered pollutants. The privately constructed dikes and canals proved inadequate during 1910 through 1950 when several hurricanes resulted in flood waters overtopping dikes causing significant damage to homes and businesses in the USJRB. Due to the failure of local efforts to sustain the dikes and canals, the federal government became involved with the project.

The U.S. Army Corps of Engineers began planning a flood control project in the 1950s. This original Upper Basin Project included flood storage reservoirs and a network of canals, including canal C-54, to divert excess floodwaters from the upper St. Johns to the Indian River Lagoon (IRL). Due to an Environmental Impact Statement reporting negative impacts on the environment, President Richard Nixon halted the project in 1973.

The study suggested negative impacts to wildlife as well as a reduction of the population of shellfish in the IRL due to the large diversion of freshwater to the saltier lagoon.

The USJRBP was delegated to the District in 1977 and redesigned in the 1980s to address environmental concerns and the role of C-54. Today the District is looking to balance water management issues with habitat quality in the USJRB. Flood protection is accomplished by restoring former floodplains where floodwaters can be stored. The project is divided into water management areas, which provide flood storage and water quality improvement to agricultural discharges, and marsh conservation areas, which are more undisturbed areas (Figure 2). The project is designed to store floodwaters and gradually release water to the St. Johns River after flood events, reducing the peak rate of flow in the river. The project also provides habitat for wildlife and a more natural regulation of water levels for sensitive species.

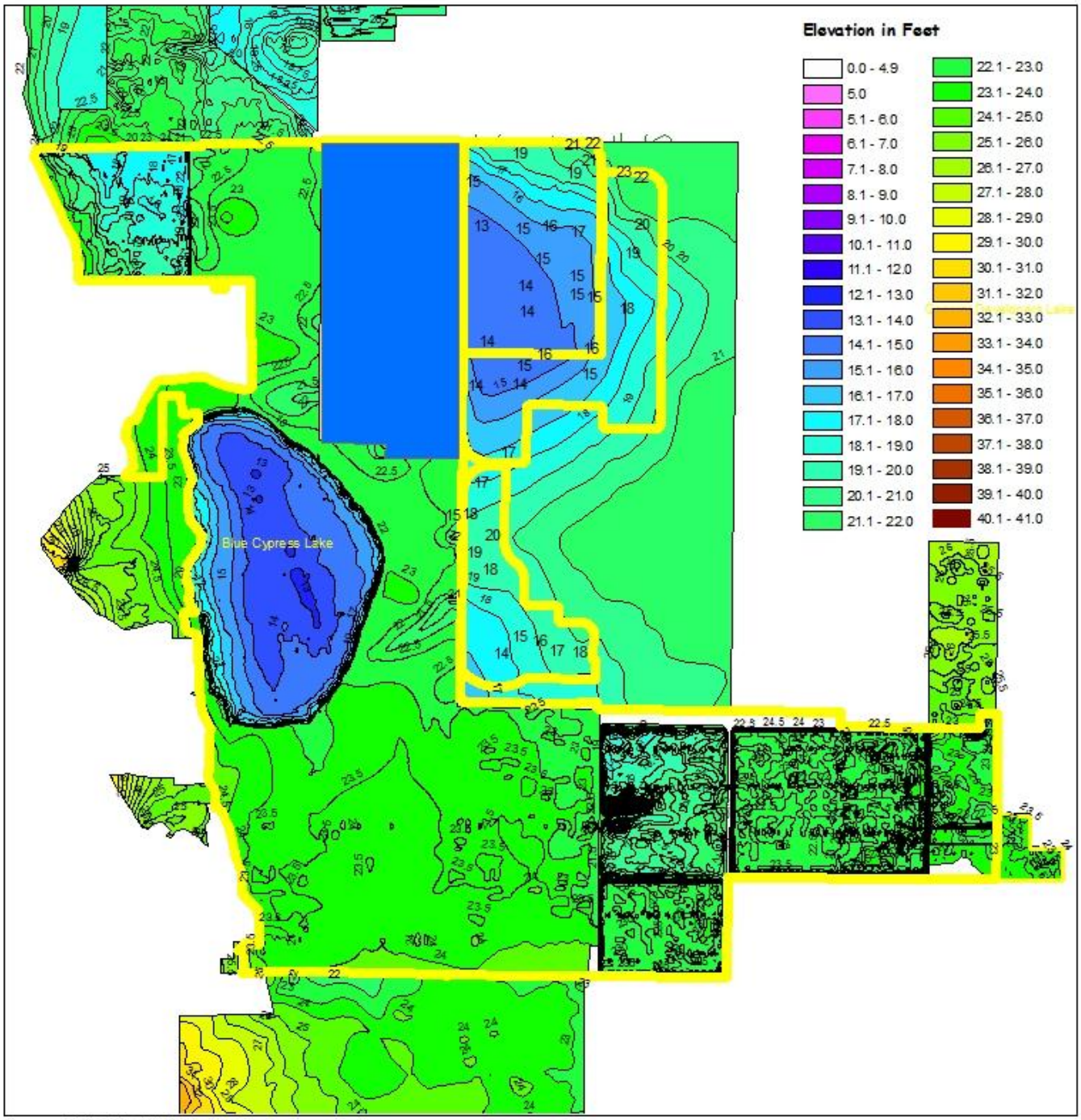
NATURAL RESOURCES OVERVIEW

Topography and Hydrology

According to the *Guide to the Physiographic Divisions of Florida*, BCCA lies within the Eastern Flatwoods District between the ten (10) mile ridge and the Osceola Plain. The property is found on ancient marine terraces created during the Pleistocene period due to fluctuating sea levels. Elevations range from 25 feet on the western and eastern boundaries, to 20 feet on the Fellsmere border, to lower elevations in the interior (Figure 5).

BCCA is found within the District's Upper St. Johns River Basin. The Upper St. Johns River Basin extends from the headwaters of the St. Johns River in Indian River and Okeechobee counties to the confluence of the St. Johns River and Econlockhatchee rivers in Seminole County. The headwaters of the St. Johns River, which flow north, are located just south of BCCA.

Within BCCA are found Blue Cypress Lake, Kenansville Lake, the Stick Marsh, and Blue Cypress Water Management Areas East and West (Figure 6). Blue Cypress Creek feeds into Blue Cypress Lake. Water flows north from Fort Drum Conservation Area into BCCA. Fellsmere Water Management Area will be restored to around 10,000 acres of a mosaic of wetland and open water communities.



Source: SJRWMD, 1991

Figure 5. Elevation Map
Blue Cypress Conservation Area

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Legend

Blue Cypress Conservation Area

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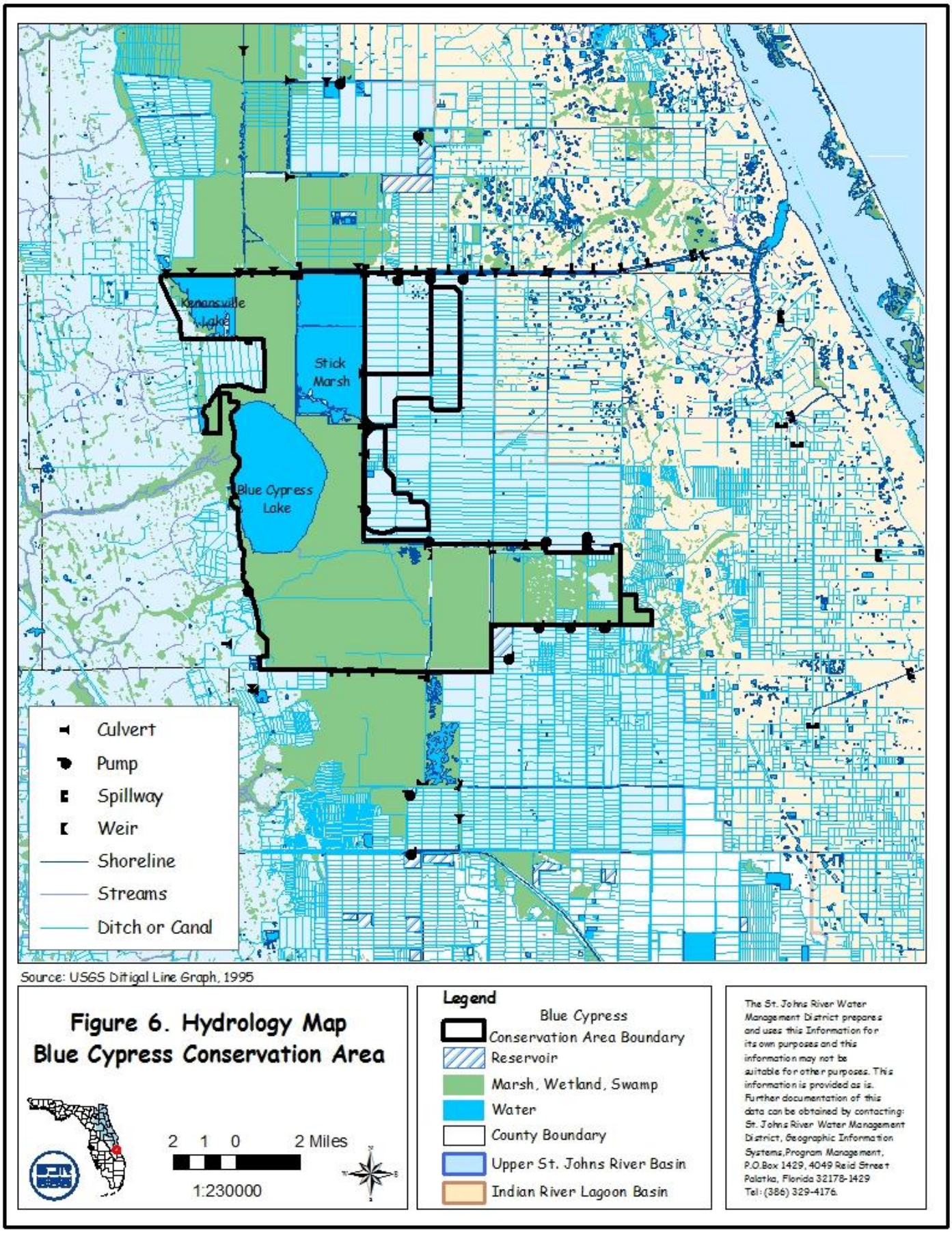
Kenansville Lake
Stick Marsh
Blue Cypress Lake
Culvert
Pump
Spillway
Weir
Shoreline
Streams
Ditch or Canal
Source: USGS Ditigal Line Graph, 1995
Figure 6. Hydrology Map
Blue Cypress Conservation Area
2 1 0 2 Miles
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Blue Cypress Conservation Area Boundary
Reservoir
Marsh, Wetland, Swamp
Water
County Boundary
Upper St. Johns River Basin
Indian River Lagoon Basin
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Wildlife

BCCA provides significant habitat for both fish and wildlife, including listed species such as the snail kite, wood stork, sandhill crane, and snowy egret. Species lists for BCCA have been documented by field notes from District Environmental Sciences staff. Snail kite census and nesting surveys are conducted annually. Wading bird surveys are conducted when funding is available.

Species observed within the Conservation Area include alligator, green anole, pig frog, green tree frog, raccoon, softshell turtle, round-tailed muskrat, Virginia opossum, white tailed deer, feral hog, bobcat, river otter, marsh rabbit, cotton rat, cotton mouse, great blue heron, little blue heron, tricolored heron, green heron, great egret, snowy egret, white and glossy ibis, wood stork, sandhill crane, osprey, snail kite, and bald eagle. Numerous species of fish are associated with Florida river systems are likely to occur within the Conservation Area including largemouth bass, warmouth, bluegill, spotted sunfish, redear sunfish, redbreast sunfish, longear sunfish and blue spotted sunfish. Species lists are found in Appendix A.

Natural Communities

Historically BCCA was part of the 800,000-acre Upper St. Johns River Basin headwaters. The area consisted of floodplain/basin marsh associated with the beginning of the St. Johns River. The 1940's historical aerial photos illustrate the high quality nature of the floodplain marsh and Blue Cypress Lake communities consisting of floodplain swamp and cypress.

Whereas alterations to hydrology, fire regime, and the amount of nutrients added to the floodplain system of the upper basin have resulted in disturbances to BCCA, the Conservation Area contains the most intact and extensive floodplain marsh in the upper basin. A mosaic of floodplain marsh plant communities dominated by sawgrass marsh and maidencane with deeper marsh sloughs interspersed with cypress heads and tree islands describes the intact marsh in BCCA. Other species include floating hearts (Nymphoides sp.), spike rush (Eleocharis sp.), cattail (Typha sp.), and cow-lily (Nuphar luteum). Periphyton, an assemblage of algae and diatoms and the presence an indicator of good biological health, is found in BCWMAE.

Human related disturbances have resulted in shrub wetlands consisting of species such as willow and primrose willow. The District began a program of aggressive treatment of these areas in 2007. Treatment consists of herbicides due to the wet nature of the property rendering mowing or chopping unfeasible.

Fire plays an important role in maintaining species diversity in these floodplain and associated communities. Historically, most fires had been naturally caused by lightning. The District has developed a prescribed fire program at BCCA to mimic the natural fire regime under a more controlled setting.

The District Environmental Sciences group for the Upper Basin coordinated a vegetation survey at the species level for BCCA in 2001. A map of this survey is found in Figure 7A. The Conservation Area has also been categorized into Florida Natural Areas Inventory natural communities groups (Figure 7B). A map of the aerial imagery from 2005 is found in Figure 8. Descriptions of these FNAI natural communities categories are presented below as found in the Florida Natural Areas Inventory Guide to the Natural Communities of Florida.

Basin Marsh/Floodplain Marsh (17,376 acres, 29%)

According to the 1940's historical aerial photos, the area where BCCA is today remained mostly undrained and was still a significant component of the St. Johns River headwaters. This area is part of the upper basin and/or considered the floodplain of the St. Johns River. Floodplain marsh consists of wetland species such as sawgrass, maidencane, and buttonbush; basin marsh species typically consist of common reed, panicum, arrowhead, willow and button bush. Both are characterized as wetlands of herbaceous vegetation and low shrubs. Both communities are maintained by fire, which supports the open herbaceous community by restricting shrub invasion either on a 1-5 year interval in floodplain and basin marsh or 1-3 year interval in areas with shorter hydroperiods. Floodplain marsh hydroperiod is typically 250 days annually; basin marsh 200 days. Basin marsh remains in BCCA in the core transfer parcel area as well as in the BCWMA east and west parcels. This community has been highly subject to shrub invasion due to changes in hydrology and lack of fire.

Basin Swamp/Floodplain Swamp (2,864 acres, 5%)

Upper Basin shrubby or forested areas are also closely classified into either basin swamp or floodplain swamp. Basin swamp is characterized as an irregularly shaped basin not associated with rivers, but vegetated with hydrophytic trees and shrubs that can withstand an extended hydroperiod; floodplain swamp is associated along stream channels in flooded soils within river floodplains. Floodplain swamp communities harbor vegetation such as cypress and tupelo; basin swamp harbors species such as black gum, cypress and slash pine as well as red maple, swamp redbay, Virginia willow, wax myrtle and button bush. Typical fire intervals may be from 5-150 years; however, infrequent fire is essential to maintain cypress dominated communities. Muck fires, however, can kill the trees, lower the ground surface, and transform a swamp into a pond or lake. Floodplain swamp species are found on the border of Blue Cypress Lake and the southern border of BCCA. Basin swamp has been categorized further into three types of basin swamp for management purposes.

Basin Swamp: Tree Islands- These islands are found throughout the BCWMA east and west parcels. They are surrounded by sawgrass and then grade into islands of cabbage palm. (414 acres, 0.70%)

Basin Swamp: Tree Islands-Cypress-These islands are found throughout the BCWMA east and west properties surrounded by sawgrass and grade into islands of trees including cabbage palm and cypress. (33 acres, 0.05%)

Basin Swamp: Willow, Primrose Willow and other shrubby species-These areas are former basin marsh/floodplain marsh communities that are succeeding into a shrub dominated community due to change in natural fire regime and altered hydrology. These areas are found in the northern area of the transfer parcel just north of Blue Cypress Lake, bordering the lake to the east and south, and on the southern border of BCCA. District land management staff has increased efforts to reduce shrubs by utilizing herbicide. The goal is to decrease shrub thickness to allow natural herbaceous species to recover. After recovery, hydrology and prescribed fire can be utilized as the primary management tools to maintain a more natural floodplain/basin marsh community type. (9,800 acres, 16.32%)

Hydric Hammock (20 acres, 0.03%)

This community is found on small areas west of Kenansville Lake. Hydric hammock consists of cabbage palm and hardwood tree species and typically grades into floodplain swamp. Normal hydrologic regime should be maintained in this area to prevent succession.

Mesic Hammock (17 acres, 0.03%)

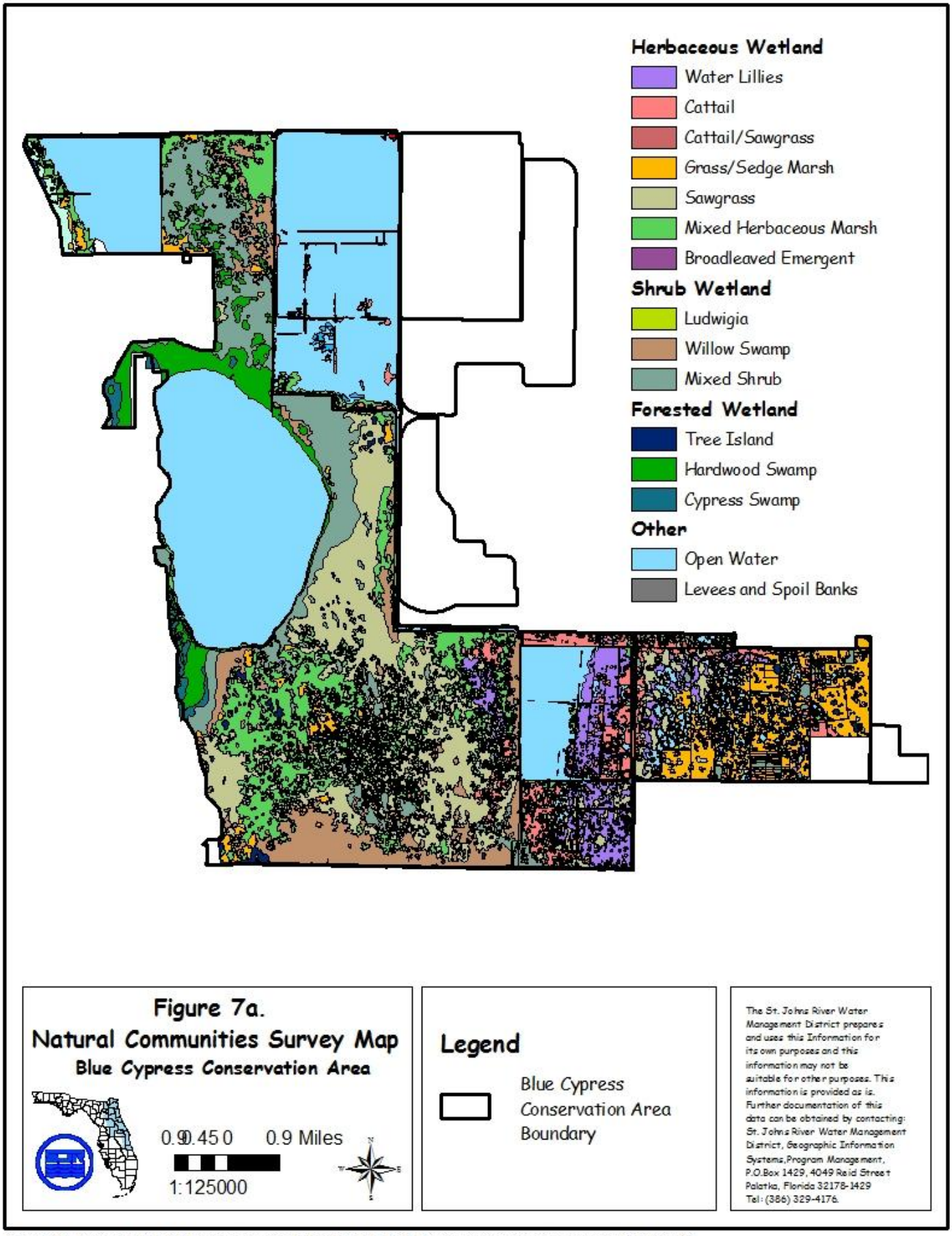
This community is found west of Kenansville Lake. It consists of oak species, saw palmetto, and wax myrtle. Fire should occur every 1-8 years for maintenance.

Agriculture Use (10,566 acres, 18%)

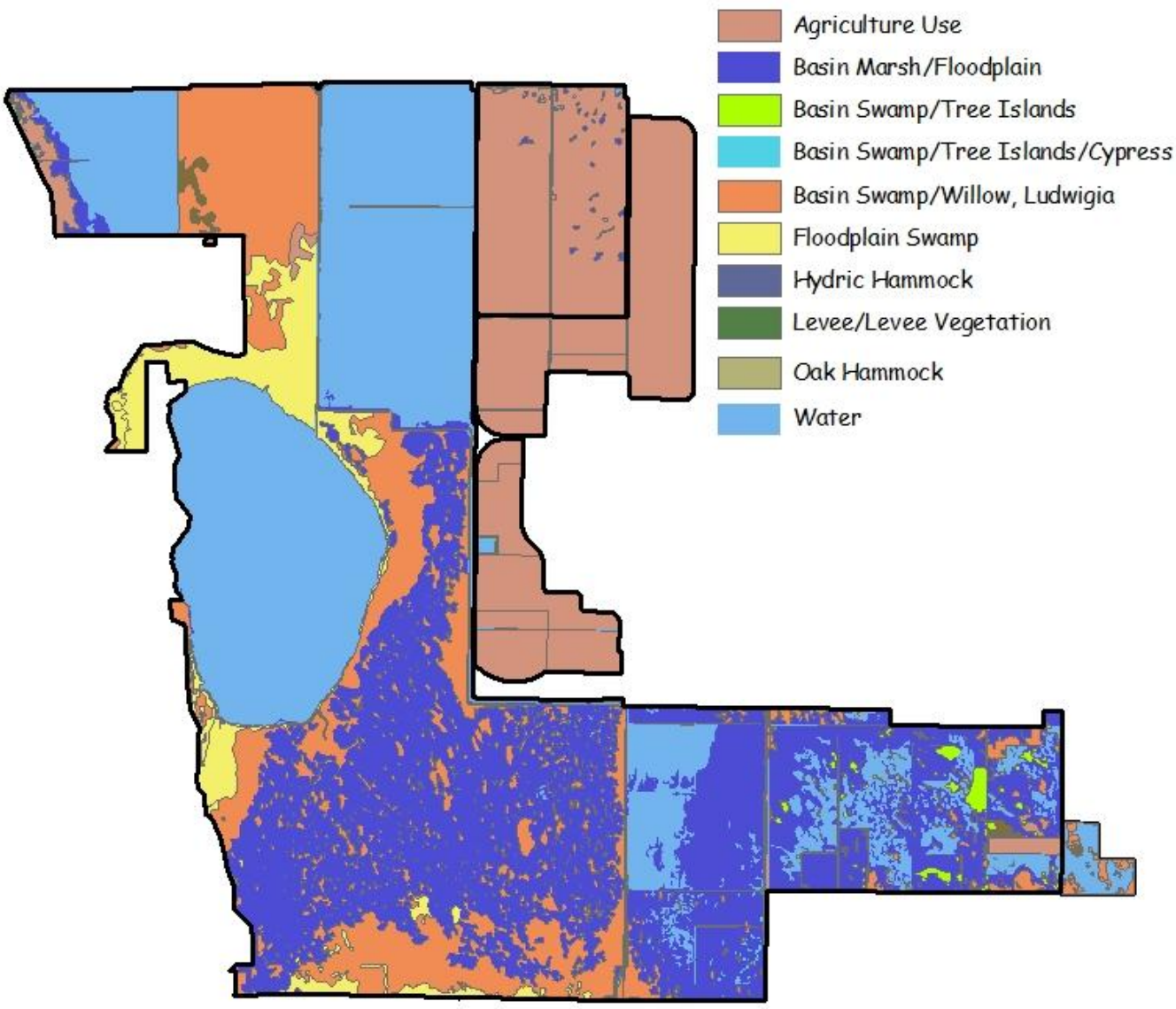
The 10,000 acres included as part of Fellsmere Water Management Area are currently in agricultural use consisting of pasture and row crops. Restoration will begin as agriculture leases are phased out on the property. The area will become part of a restoration project that will create a reservoir and other habitat.

Levees (713 acres, 1.2%)

Levees are found throughout the property (Figure 2). These areas host associated herbaceous, shrub, and tree vegetation. These levees are part of the semistructural system of water management, which is part of the Upper St. Johns Restoration Project.



Author:kponzlb, Source:G:\MGMT PLANS\Blue Cypress\2008\Blue Cypress Maps\Figure 8. Natural Communities Map 2_4_2008.mxd, Time:4/9/2008 8:59:44 AM



Source: Florida Natural Areas Inventory, 2004

Figure 7b.
Natural Communities FNAI Map
Blue Cypress Conservation Area

1 0.5 0 1 Miles

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Legend

Blue Cypress Conservation Area Boundary

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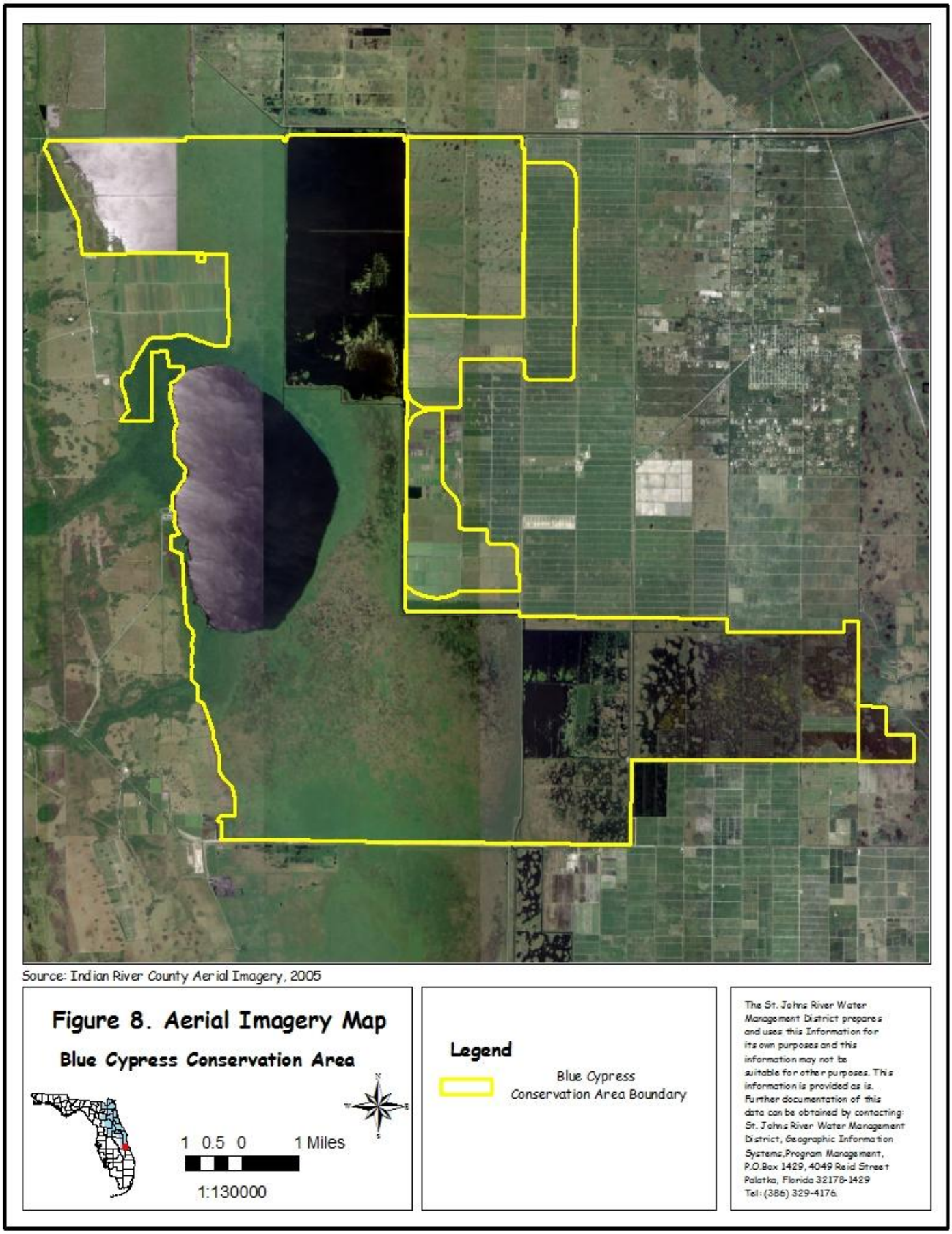
Author:kponzlo, Source:G:\MGMT PLANS\BlueCypress\2008\Blue Cypress Maps\Figure 8. Natural Communities Map 2_4_2008.mxd, Time:4/9/2008 8:59:44 AM



Source: Indian River County Aerial Imagery, 2005

Figure 8. Aerial Imagery Map

Blue Cypress Conservation Area

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Legend

Blue Cypress Conservation Area Boundary

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Author:tmashour, Source:G:\MGMT PLANS\BlueCypress\2007\Blue Cypress Maps\Figure 7. Aerial Imagry Map.mxd, Time:1/19/2007 2:00:25 PM

Soils

According to data produced from the county soil survey, 20 different soil types have been identified at BCCA (Figure 9). The United States Department of Agriculture, Soil Conservation Service, was used to gather soil information about the soil types and produce the following descriptions of the dominant soil types found on the property.

Canova – 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.

Chobee – Very deep, very poorly drained, slowly to very slowly permeable soils in depressions, flats, and occasionally on river floodplains in the Lower Coastal Plain. Formed in thick beds of loamy marine sediments. Drained areas are used for citrus, pasture, and range. Most of the soils remain in their natural state and have vegetation consisting of pickerelweed, lilies, sawgrass, and scattered swamp maples in treeless areas. Some areas have a growth of ash, gum, maple and cypress.

Delray - 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.

Floridana – 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.

Gator – 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.

Holopaw – 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 three awn.

Immokalee – These soils are 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 – 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 – 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.

Myakka – 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.

Oldsmar – Oldsmar soils consist of very deep, poorly and very poorly drained soils in flats and depressions of peninsular Florida. These soils formed in sandy marine sediments overlying loamy materials. Mean annual precipitation is 55 inches with slopes ranging from 0-2%. Native vegetation consists of cabbage palmetto, saw palmetto, live oak, slash pine and undergrowth of laurel, wax myrtle, and pine land threeawn. In depressions the trees are cypress, black gum, pond pine, loblolly bay, red maple, and sweet bay. Other plants include maidencane, blue maidencane, chalky bluestem, sand cordgrass, and bluejoint panicum.

Pineda – Deep and very deep, poorly and very poorly drained, very slowly permeable soils in depressions, low hammocks, poorly defined drainageways, 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.

Pompano – Pompano consists of very deep, very poorly drained, rapidly permeable soils in depressions, drainageways, and broad flats. They formed in thick beds of marine sands. Mean annual precipitation is about 50 inches and slopes range from 0-2%. Natural vegetation consists of palmetto, widely spaced cypress, gum, slash pine, and native grasses.

Quartzipamments – Soil usually associated with a borrow pit site.

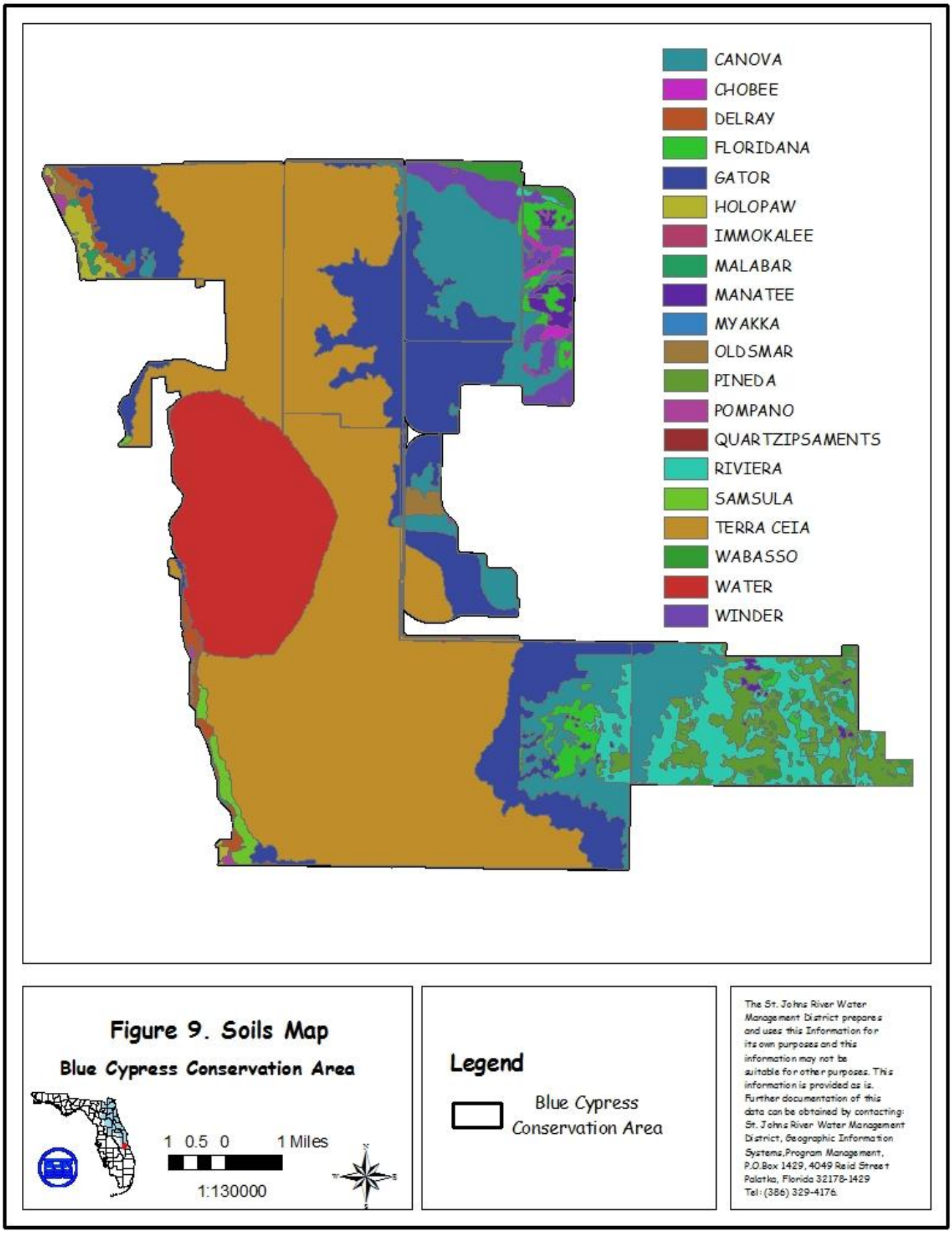
Riviera – Very deep, poorly drained, very slowly permeable soils on broad, low flats and in depressions in the lower coastal plain. They formed in stratified sandy and loamy marine sediments on the lower coastal plain. Slopes in areas where these soils are found range from 0-2%. Native vegetation consists of slash pine, cabbage, and saw palmetto, scattered cypress, maidencane, and pineland threeawn.

Samsula – Very deep, very poorly drained, rapidly permeable soils that formed in moderately thick beds of hydrophytic plant remains and are underlain by sandy marine sediments. These soils are in swamps, poorly defined drainage ways, and flood plains. Slopes are less than 2%. Natural vegetation is loblolly bay, with scattered cypress, maple, gum, and trees with a ground cover of greenbriers, ferns, and other aquatic plants.

Terra Ceia – 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.

Wabasso – 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.

Winder – Very deep, poorly drained, slowly to very slowly permeable soils on broad, low flats, and depressional areas. Formed in loamy marine sediments on the lower coastal plain. Slopes in areas where these soils are found range from 0-2%. Most areas are native vegetation and used for wildlife habitat. Natural vegetation consists of cordgrass, maidencane, cabbage palmetto, saw palmetto, and pineland threeawn.



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PAST MANAGEMENT SUMMARY

This section outlines all strategies from the year 2000 plan and summarizes management progress since then.

Security
2000 Plan Strategy: Maintain signage, fences, and gates.
Status: Signage, fences, and gates have been maintained.
2000 Plan Strategy: Continue coordinating with local law enforcement and contracted security.
Status: The District continues to coordinate law enforcement with Indian River County Sheriffs Office, FWC, and a contracted security firm. Indian River County's Ranch and Grove Security Squad also patrol the area for violations.
2000 Plan Strategy: Coordinate with FWC to establish and enforce WMA rules.
Status: The District continues to coordinate with FWC to establish and enforce WMA rules.

Restoration
2000 Plan Strategy: Complete hydrologic restoration of S.N. Knight property**.**
Status: The US Army Corps of Engineers has completed the S.N. Knight property hydrologic reconfiguration. The property was first isolated to allow agricultural nutrients to be taken up by plants. When water quality samples indicated that water in the property met state water quality standards the lake was reconnected to flow north to St Johns Marsh Conservation Area within. The property is an open water area with fringe wetlands to the west.

Fire Management
2000 Plan: Continue to develop and implement the Annual Prescribed Fire Management Plan. This plan should include burn descriptions, smoke management plans, maps, and a list of people to notify (DOF for permit and possibly assistance, city/county officials, local fire and police departments, and neighbors).
Status: Yearly prescribed fire plans are created and have been followed. Prescribed burns are conducted according to the yearly plan as time and weather conditions permit.
2000 Plan: Develop a Comprehensive Fire Management Plan for the conservation area by 2001.
Status: A Blue Cypress Conservation Area Comprehensive Fire Management Plan has been created and is found in Appendix B.

Water Resources
2000 Plan Strategy: Continue to evaluate and acquire additional lands deemed important for water quality improvements.
Status: The District has identified properties to acquire as part of the Five Year Land Acquisition and Management Plan. In July 2001 the District purchased the Fellsmere Water Management Area 4,000 acres. In August 2007 the District acquired 6,000 acres of property, known as part of the Fellsmere Water Management Area. These parcels will

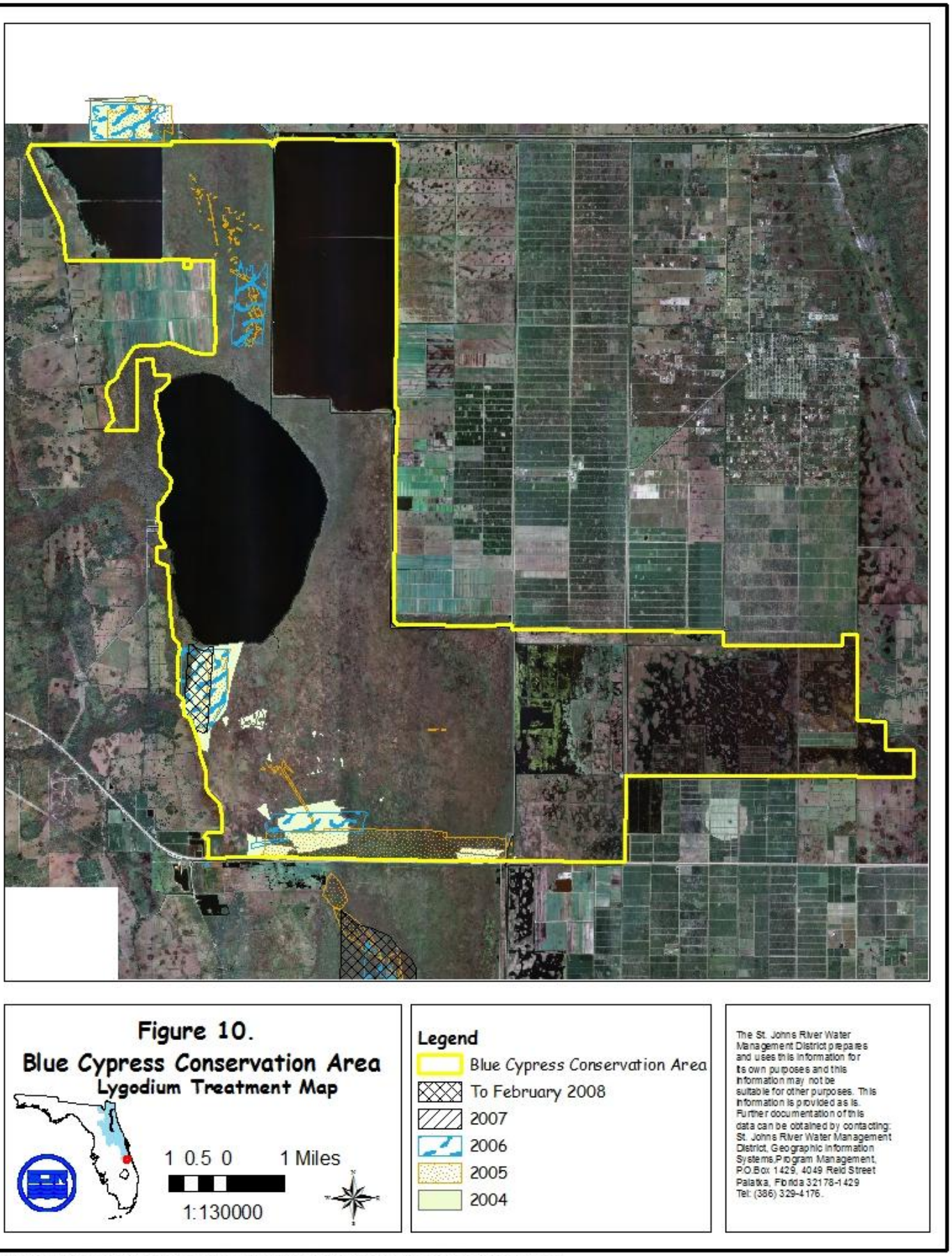
be restored to open water and wetlands, and provide water quality improvement as well as water supply. In October 2003 the District purchased the Kromhout wetland. In December 2003 the District purchased the Banjo Groves property. In April 2008, the District added the Corrigan parcel, which consists of 457 acres of wetlands.
2000 Plan Strategy: Continue monitoring water quality in the Conservation Area.
Status: Water quality monitoring is conducted to detect trends, assess the effects of management actions, and to calculate pollutant loading. Dissolved oxygen is also being monitored. Total Maximum Daily Loads have been developed by the District in order to achieve the Pollutant Load Reduction Goal for the lakes as accepted by DEP.

Listed Species
2000 Plan Strategy: Continue surveying wading birds and snail kite populations.
Status: Wading bird and snail kite population surveying continues at BCCA. Lead division at the District is the Division of Environmental Sciences with cooperation by Division of Land Management.
2000 Plan Strategy: Identify special protection measures and management strategies for listed species and communities.
Status: Special protection measures and management strategies for listed species are completed when necessary.
2000 Plan Strategy: Begin survey to identify presence/absence of listed species.
Status: The District has conducted various surveys in the Upper Basin including in house surveys, outside research, and District staff observations.

Exotic Species
2000 Plan Strategy: Monitor and continue to treat exotic vegetation.
Status: The District's Invasive Plant Management Program treats exotics on an ongoing basis at BCCA. Species treated include hydrilla, water hyacinth, water lettuce, Brazilian pepper, cogon grass, melaleuca, air potato, lygodium, cattail and tropical soda apple. Lygodium, or old world climbing fern, has become a serious concern at BCCA. The District treated 1,305 acres of lygodium in 2003-2004, 1,500 acres 2004-2005, 1,660 acres 2005-2006, 1,575 acres 2006-2007, and 1,000 acres 2007-2008 (Figure 10) and will continue to treat this species.
2000 Plan Strategy: Continue agreement with DEP for the treatment of exotic/invasive species in the Upper St. Johns River and associated lakes.
Status: The contract with DEP is ongoing. The Florida Department of Environmental Protection (DEP) provides funding and the District is contracted to treat water hyacinth, water lettuce and hydrilla from Blue Cypress Lake north to Lake Washington, ending at the Lake Washington weir.

Access
2000 Plan Strategy: Continue regular maintenance on access areas.
Status: Access areas have been maintained.
2000 Plan Strategy: Maintain signs and kiosks within the area.
Status: Signs and kiosks within the area have been maintained.
2000 Plan Strategy: Coordinate with USACE and Indian River County on the implementation of recreational improvements at Blue Cypress Lake County Park.

Status: Recreational improvements at Blue Cypress Lake County Park include restrooms installed through a grant from Florida DEP, two boat ramps with floating docks installed by FWC, parking, and camping.



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Recreation
2000 Plan Strategy: Continue coordinating with USACE and/or local governments to lower the cost of development of recreation sites while adhering to the Local Cooperation Agreement.
Status: The District has coordinated with USACE and local governments to develop recreation sites including Fellsmere Grade Recreation Area, Kenansville Road access, Blue Cypress Lake County Park, State Road 60 access, and Blue Cypress Recreation Area.
2000 Plan Strategy: Coordinate with USACE and Indian River County on the implementation of recreational improvements at Blue Cypress Lake County Park.
Status: Blue Cypress Lake County Park has been upgraded to include parking, boat ramps, restrooms, and camping. FWC built the boat ramp for the park and Indian River County maintains and manages the park.

Cultural Resources
2000 Plan Strategy: Monitor sites for any disturbance.
Status: Two historic archaeological sites exist at BCCA according to the Master Site File. Any construction or restoration projects that may impact these resources will be evaluated and modified to minimize impacts.
2000 Plan Strategy: Coordinate with the Florida Division of Historical Resources and take action to reduce any potential disturbance of any sites identified.
Status: Upon any potential disturbance to historical sites, the District coordinates with Florida Division of Historical Resources to reduce disturbance.

Environmental Education
2000 Plan Strategy: Evaluate potential for developing environmental education opportunities on the property.
Status: The District offers many environmental education programs in the form of workshops, online information and materials, or by requesting speakers or specific programs.

Cooperative Agreements
2000 Plan Strategy: Maintain agreements to assist with the management and maintenance of the conservation area.
Status: District agreements have been monitored and are maintained to continue implementing distribution of responsibility as well as providing services to the public utilizing the conservation area.

LAND MANAGEMENT GOALS

BCCA is classified as a Conservation Area, designed for water resource conservation, plant community and hydrologic restoration where feasible, and natural resource management and protection. Environmental goals include reestablishment of the natural hydrological regime, reestablishment of the natural fire regime, preservation of rare species and plant communities, restoration of marsh ecosystems and water quality

improvements. Brief summaries of these goals as they apply to the conservation area are found below:

1. Promote semi-structural flood protection.
2. Restore and maintain natural hydrologic regimes and water quality.
3. Restore, maintain, and protect native vegetation, fish and wildlife communities, and their diversity.
4. Protect prehistoric and historic resources.
5. Provide opportunities for public recreation where compatible with the goals listed above.

IMPLEMENTATION

The following sections outline land management strategies for resource protection, land use, and administration for the next five years.

RESOURCE PROTECTION AND MANAGEMENT

Restoration

Restoration projected to occur within BCCA over the next 5 years includes the Banjo Groves restoration, natural communities restoration, and Fellsmere Water Management Area restoration. These projects are discussed below.

Banjo Groves Restoration

The Banjo Groves restoration project (Appendix C) aims to restore a 323 acre citrus grove. The goal is to return the site to a mosaic of wetland plant communities similar to those that currently exist in the adjacent marsh within Blue Cypress Water Management Area – East (Hall et al. 2005). At the time of this plan, citrus trees and the associated irrigation piping, interior ditches, and exterior levee shrubs have all been removed. At the point interior phosphorus levels decrease to acceptable levels, the exterior levees and culverts will be removed to reconnect the property to the surrounding marsh.

Natural Communities Restoration Project

Some areas of the marsh within the Upper Basin have converted from an open herbaceous condition to a closed woody condition (Figure 7). This is likely a result of past impacts to the natural hydrologic and/or fire regimes. In an effort to reverse this conversion, the District is treating areas of shrub-dominated marsh with chopping or mowing and herbicide where the former are not possible. Approximately 1,000 to 2,000 acres will be treated annually. Due to the anticipated need for re-treatment, and the variability of weather, it is anticipated that a total of 5,000 acres, over the entire upper basin, will be treated during the term of this document.

Herbicides will be applied aerially to shrub dominated areas in hopes that remnant herbaceous vegetation can re-colonize the site and fire can again become the tool controlling species composition and/or natural community succession. The Division of

Environmental Sciences will cooperatively develop a list of priority sites and shall monitor the progress and accomplishments.

Fellsmere Water Management Area Restoration

The Fellsmere Water Management Area Restoration Plan (Appendix D) is designed to restore approximately 10,000 acres of prior converted wetlands to a mosaic of wetland open water communities in order to provide environmental, water quality, water supply, and flood protection benefits in the St. Johns River Basin (Lee et al. 2007). Due to existing agricultural leases over portions of the site, the restoration plan will be implemented in phases extending from 2008-2015. Phase I will include shallow flooding of around 6,000 acres in the northern portion of the site to allow wetland vegetation to develop. This phase is aimed to be completed in 2009. In Phase II, levees and water control structures will be designed and constructed until 2013 when the agricultural leases are terminated. Phase III will begin in 2013 when the entire project area will be flooded. Due to specific circumstances related to the restoration project, certain management may be restricted to this area.

During restoration and/or construction, conservation areas may periodically close to public access including recreation, hunting, and other uses. The District will inform the public at Recreational Public Meetings, onsite, and on hunt brochures.

Restoration Strategies

- Complete Banjo Groves restoration project when phosphorus concentrations fall to appropriate levels.
- Continue to treat woody vegetation at BCCA.
- Begin Fellsmere Water Management Area restoration.

Water Resource Protection

In the early 1900s, dikes and ditches were constructed in the St. Johns River headwaters to drain the marshes for agricultural purposes. Canal systems currently run throughout the property resulting from historical efforts to create agricultural land and provide flood control (Figure 6). Channeling the river's headwaters and eliminating thousands of acres of marshes caused a loss of storage areas for floodwaters from hurricanes, loss of habitat for wading birds, fish and other wildlife, and loss of marsh plants that filtered pollutants.

Today, the District has partnered with the USACE to engineer a semistructural system of water management areas, marsh conservation areas, and marsh restoration areas within Brevard and Indian River Counties. The system is designed to reduce damage from floods, improve water quality, reduce freshwater discharges to the Indian River Lagoon, provide water supplies, and restore or enhance wetland habitat while also considering ecological factors. Through land acquisition, wetland restoration, and land management, the District is working closely with USACE to accomplish these goals.

Water quality monitoring continues within BCCA. This monitoring is used to detect trends and assess the effects of management actions, as well as to calculate pollutant loading. The District has initiated a dissolved oxygen-monitoring project, which will aid

in the understanding of the timing and possible causes of low dissolved oxygen levels in this area.

A Pollutant Load Reduction Goal (PLRG) for phosphorous was developed by the District for Upper Basin Lakes, including those within BCCA. The concentration determined to achieve the PLRG is 0.09-mg/l total phosphorus (TP). This PLRG was accepted by DEP and is the basis for the phosphorus Total Maximum Daily Load (TMDL) that was established in 2006.

Hydrology is monitored in the Upper Basin in order to assess how well flood protection requirements and environmental criteria are being met through the regulation of water levels. Within BCWMAE, water levels will be managed for maintenance of snail kite habitat.

The February 2008 Southern Recreation Public Meeting brought a public request to evaluate water levels in the Blue Cypress Marsh Conservation Area East and Blue Cypress Lake. Water levels within the Blue Cypress Marsh Conservation Area are managed by a regulation schedule that maximizes flood storage during the rainy season. Lower water levels created by this type of regulation schedule likely effect the ecological interactions that occurred historically between the lake and the marsh. When not being managed for flood control, water levels in the marsh conservation area are managed to the greatest extent possible to re-create the natural hydrologic conditions the area experienced historically. Water management strategies that meet environmental goals for the conservation area are being adaptively implemented by the District's Water Resource Department. Most of these strategies center around developing operational guidelines for making discharges from Structure S-96C, which is the primary structure that discharges to the river downstream. The District Water Resources Department is currently evaluating the operational guidelines for discharges from Structure S-96C and will report to the Recreation Public Meeting group within a two-year time frame.

Water Resource Protection Strategies

- Continue to partner with USACE to construct and manage water management and marsh conservation areas.
- Continue water quality and dissolved oxygen monitoring.
- Contribute to DEP-led effort to develop a basin management plan to achieve established TMDLs.
- Continue managing water levels to maintain snail kite habitat.
- Evaluate the operational guidelines for discharges from Structure S-96C and report back to the Recreation Public Meeting group within a two-year time frame.

Fire Management

Many of the natural communities at BCCA are either fire-dependent or fire-influenced, making prescribed fire one of the most important land management tools used in the restoration and maintenance of wetland and upland communities. Prescribed fire promotes community diversity, maintains ecotones, prevents the succession of wetland areas into hardwood species, and reduces potentially hazardous fuel loads.

The primary use of fire in wetlands, and therefore the Upper Basin, is to mimic the effects of the natural fire regime in order to prevent the encroachment of woody vegetation, manage fuel loads, aid in the control of invasive exotic plants, and manage vegetation for wildlife (McPherson 2008). Fire at BCCA is conducted predominately through the use of aerial burning over large marsh or grassy acreages. Known fire history is found in Table 2 and correspond with Figure 10a. Burn Units Past. Figure 10b. illustrates Burn Units Future.

Though prescribed fire is the preferred restoration and maintenance tool used within the Conservation Area, in certain circumstances it may be necessary to implement alternative methods. During periods of prolonged drought, or in areas where implementing prescribed fire safely is not feasible, the District may mechanically treat natural communities with chemical treatments. Additionally, the District will remove trees as needed in the case of insect infestations, disease, damage from severe weather, or other occurrences that could jeopardize the health of the natural communities. Firebreaks may be constructed as needed to accomplish prescribed burning goals.

A Comprehensive Fire Management Plan for BCCA is found in Appendix B. Annual burn plans will be adapted from the Comprehensive Plan to guide yearly prescribed burning plans.

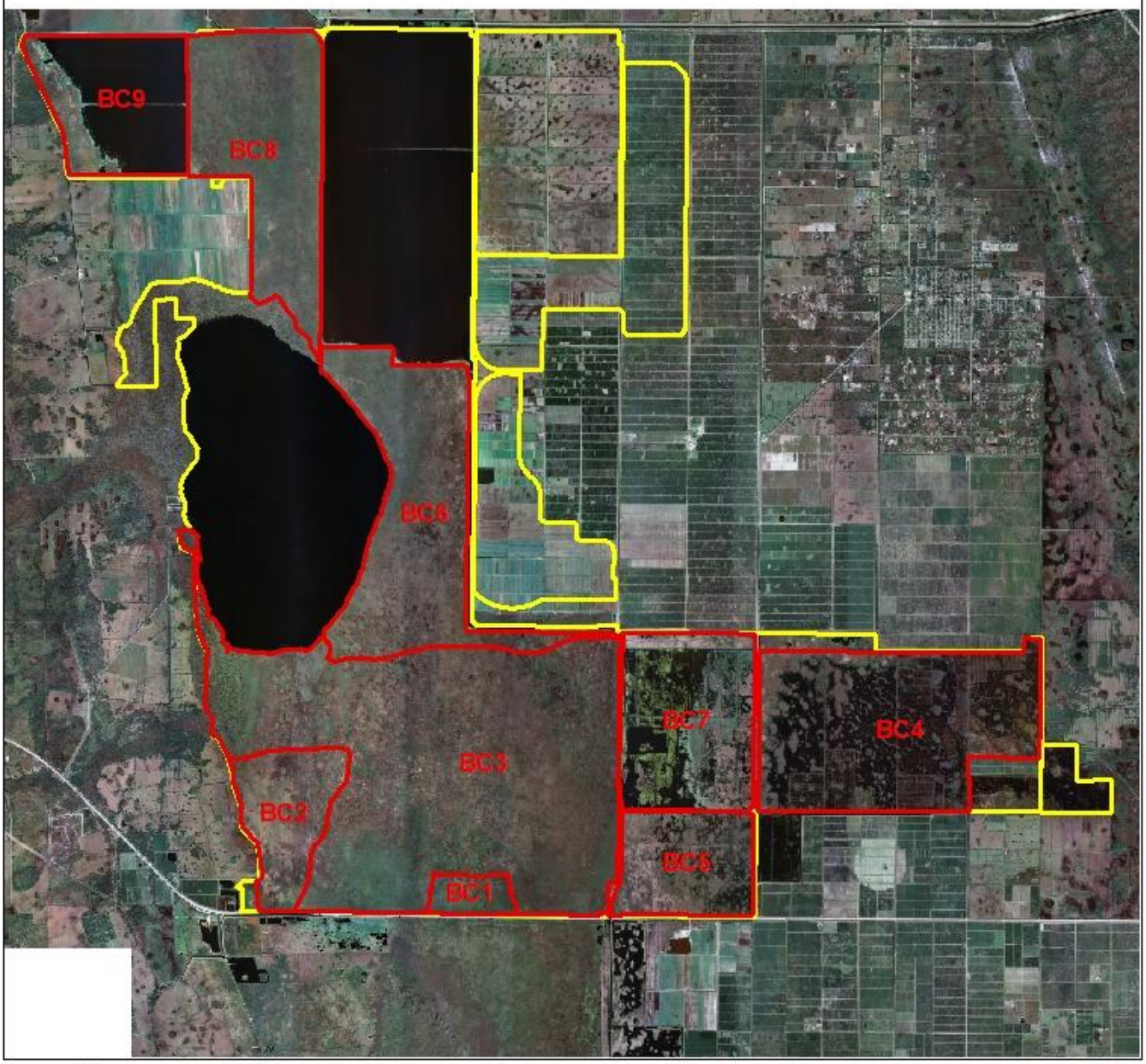
Table 2. BCCA Known Fire History

Type of Fire	Zone	Month	Year	Size (Acres Burned)
Prescribed Burn	BC 1	June	1993	117
Arson	BC 1	May	1994	5
Prescribed Burn	BC 2	June	1994	783
Arson	BC 3	May	1994	982
Arson	BC 3	October	1994	352
Lightning	BC 6	June	1994	2407
Arson	BC 3	June	1995	13
Arson	BC 3	March	1995	59
Prescribed Burn	BC 1	October	1996	365
Arson	BC 1	March	1997	14
Arson	BC 2	March	1997	56
Arson	BC 3	March	1997	5550
Arson	BC 6	March	1997	2028
Arson	BC 3	March	1999	230
Arson	BC 6	March	1999	2206
Prescribed Burn	TF 8	February	2000	3,700
Lightning	BC 3	August	2000	3710
Lightning	BC 4	July	2000	0
Arson	BC 2	January	2001	1429

Arson	BC 3	January	2001	50
Arson	BC 3	January	2001	2421
Arson	BC 6	January	2001	128
Arson	BC 6	January	2001	2611
Prescribed Burn	BC 2, 3, 6	February	2001	5,800
Lightning	BC 4	June	2001	3.1
Arson	BC 3	October	2002	4.7
Prescribed Burn	BC 6	February	2006	1,020
Prescribed Burn	BC 3, 6	March	2008	11,000
Prescribed Burn	BC 3	May	2008	600

Fire Management Strategies

- Follow the Comprehensive Fire Management Plan.
- Implement the Annual Prescribed Fire Management Plan. These yearly plans should include burn prescriptions, smoke management plans, maps, and a list of entities to notify (DOF for permit and possibly assistance, city/county officials, local fire and police departments, and neighbors).



Source: Indian River County Aerial Imagery, 2005; District, 2008

Figure 11a.

Burn Units Past Map

Blue Cypress Conservation Area

1 0.5 0 1 Miles

1:130000

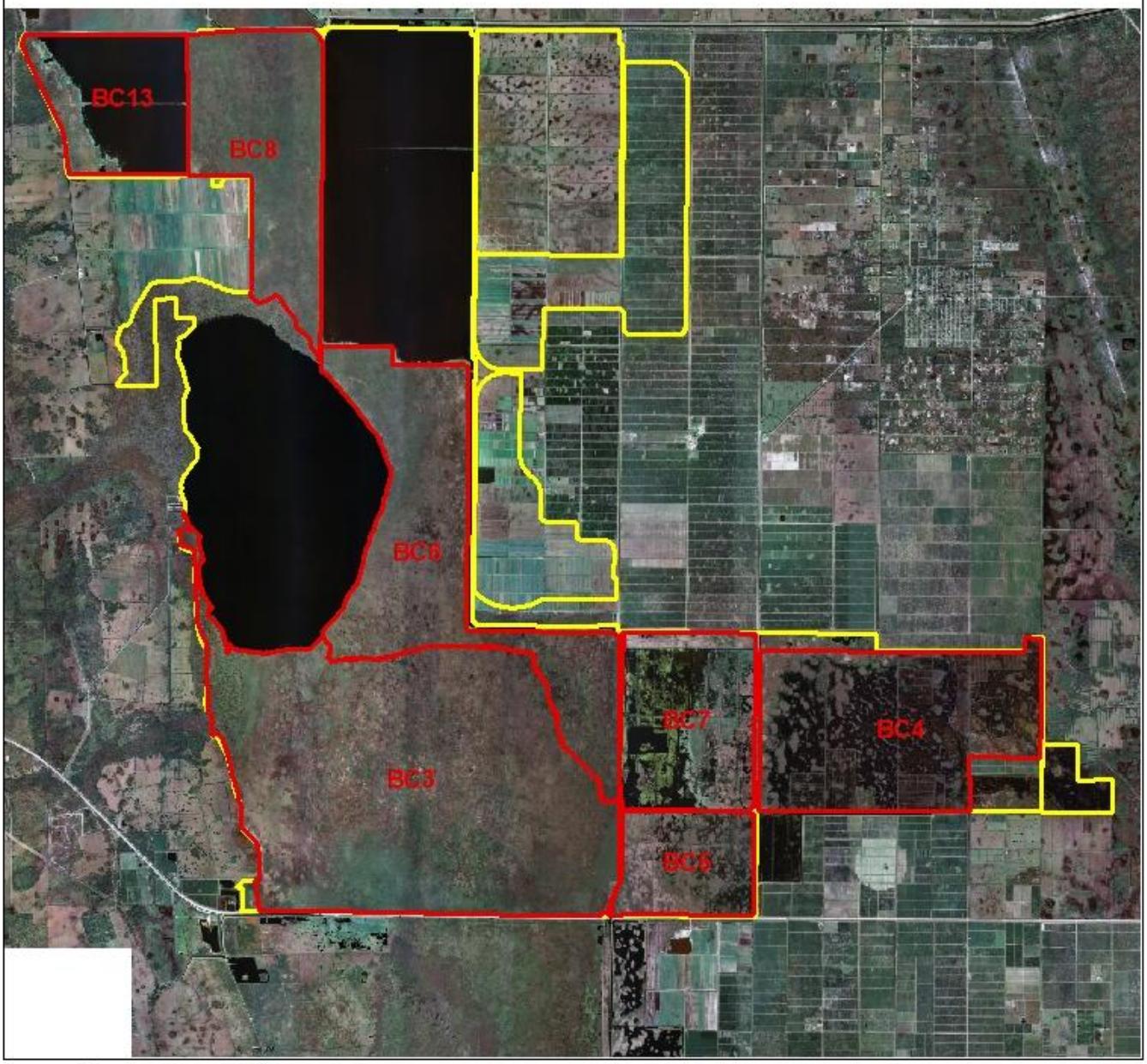
Legend

Blue Cypress Conservation Area Boundary

Blue Cypress Burn Units

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.

Author:tmashour, Source:G:\MGMT PLANS\BlueCypress\2007\Blue Cypress Maps\Figure 7. Aerial Imagry Map.mxd, Time:1/19/2007 2:00:25 PM



Source: Indian River County Aerial Imagery, 2005; District, 2008

Figure 11b.
Burn Units Future Map
Blue Cypress Conservation Area

1 0.5 0 1 Miles

1:130000

Legend

Blue Cypress Conservation Area Boundary

Blue Cypress Burn Units

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.

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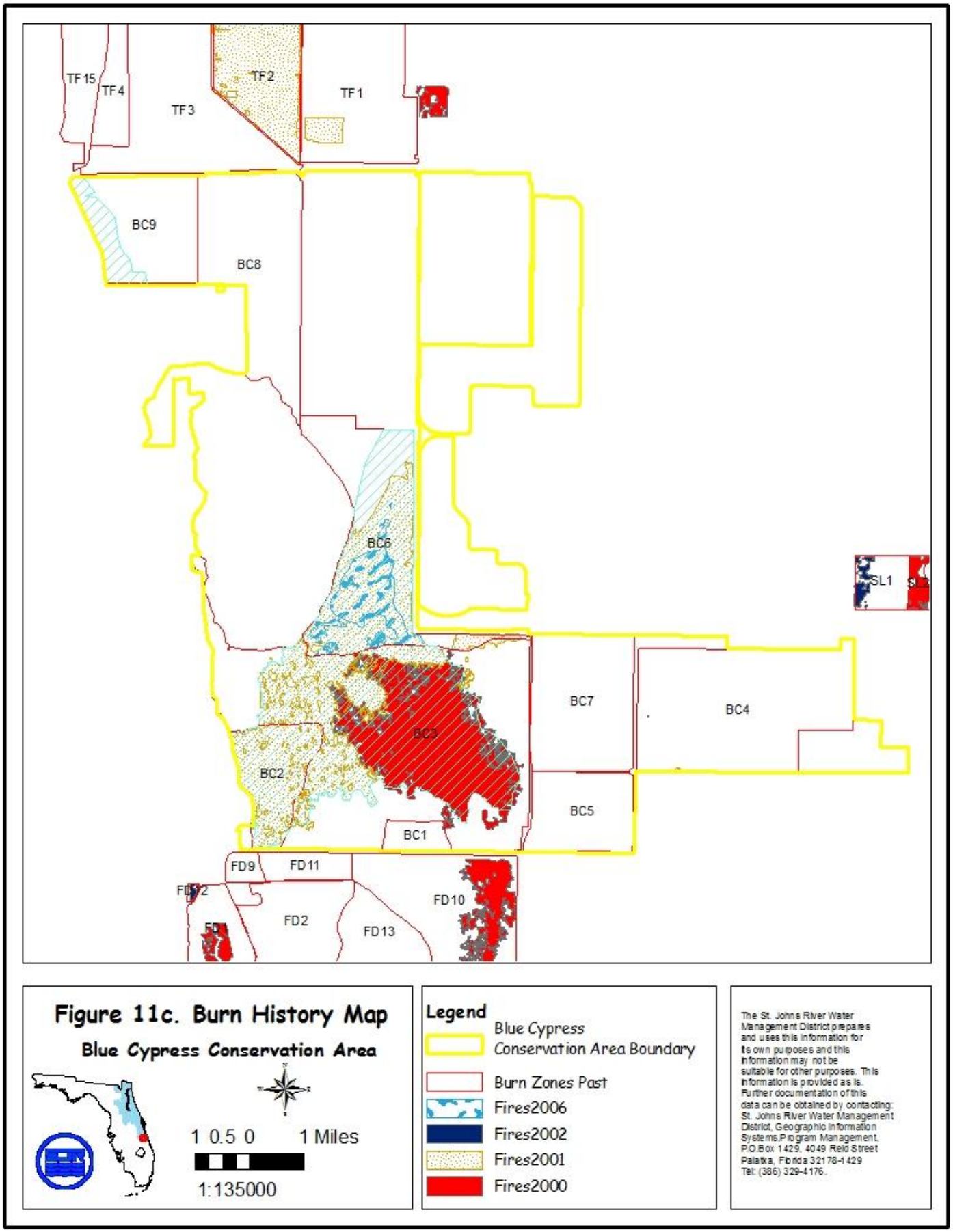

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Forest Management

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 management requirements of BCCA do not require the harvesting of marketable timber due to the wetland nature of the Conservation Area.

Wildlife

Observations by District staff indicate BCCA provides habitat for a variety of plant and animal species including river otter, grey squirrel, deer, shrimp and crayfish, several species of fish, and numerous species of birds. In addition, several plant and animal species determined to be rare, endangered, or threatened have been identified within the Conservation Area. These species include sandhill crane, snail kite, and woodstork. Data collected by FWC biologists indicate that at least one bald eagle nest is located within the Conservation Area has been active within the past five years.

BCCA is included in the District's Avian Protection Plan written in coordination with FWS. Special action will be afforded to limit construction during nesting season.

Investigation into identifying rookery and nursery sites of birds is ongoing. Aerial surveys of wading bird rookeries and snail kite surveys continue. An annual census and determination of nesting success of the endangered snail kite, as required by US Fish and Wildlife Service (USFWS), on the property is ongoing.

Fellsmere Water Management Area is included in the District Avian Protection Plan. District staff will also coordinate the necessary permits to conduct the restoration construction activities to protect threatened and endangered species found on the site.

The District's Environmental Sciences staff has conducted a project to survey for listed species within the upper basin. Species lists for these properties are being built upon. The current species lists are found in Appendix A.

Wildlife Strategies

- Follow bald eagle guidelines when conducting prescribed burns.
- Conduct surveys of wading birds if funding is available.
- Continue annual census of nesting success of the snail kite per US Fish and Wildlife Service regulations.
- Coordinate permits for Fellsmere Water Management Area restoration construction.

- Continue to follow Avian Protection Plan during construction projects.

Exotic Species

Aquatic vegetation control is ongoing at BCCA. The District's Invasive Plant Program is responsible for treating invasive exotics found on the properties such as hydrilla, water hyacinth, water lettuce, Brazilian pepper, cogon grass, melaleuca, air potato, lygodium and tropical soda apple. Cattail and woody species such as Carolina willow, both native species, have become invasive in areas where hydrologic disruption and fire suppression have occurred. Lygodium, or old world climbing fern, has become a major issue at BCCA. Since 2003, the District has treated 7,040 acres (Figure 10) and will continue to treat this species.

Although it is unlikely that staff will completely eradicate invasive plant populations in the conservation area, populations are being held at a "maintenance" level. At this level the property is regularly monitored, and herbicide treatments are applied as necessary in order to keep the populations from spreading.

In addition to maintenance level treatment, the District has begun an aggressive treatment of shrub dominated marsh areas utilizing chopping/mowing or herbicide treatments. Approximately 1,000 to 2,000 acres will be treated annually. Due to the anticipated need for retreatment and the variability of the weather, it is anticipated that a total of 5,000 acres will be treated during the term of this document.

The District has an annual contract with FWC (formally Florida Department of Environmental Protection, Bureau of Invasive Plants) to treat water hyacinth, water lettuce and hydrilla from Blue Cypress Lake north to the Lake Washington weir. FWC provides funding and contracts with the District to conduct this treatment. The District is responsible for vegetation control in all other areas of BCCA including any uplands.

Feral hogs are a destructive species and are found in all types of habitats. Their effect on native plant communities can be severe, as they are opportunistic feeders and create substantial ground disturbance. While feral hogs have been observed at BCCA, they are not considered a serious problem on-site. BCCA has hog trapping agents that are focused on removing hogs from the levee system. These animals are also taken during the seasonal hunts in the marshes.

Exotic Species Strategies

- Monitor and continue to treat exotic vegetation.
- Continue agreement with FWC for funding to contract the District to treat exotic/invasive species in the Upper St. Johns River and associated lakes.
- Continue hog trapping agents and seasonal hunts to manage feral hog population.

Cultural Resources Protection

A review of the Department of State, Division of Historical Resources indicates six (6) registered cultural sites within the conservation area. If any additional sites are located, District staff will document and report the sites to the Division of Historical Resources.

District land management and restoration activities that may affect these resources will be evaluated and modified to reduce any potential disturbance of identified sites. Due to District and State policy, the location of the sites is not identified on public maps.

Cultural Resources Strategies

- Protect known cultural resources.
- Identify and report any new sites to Florida Division of Historical Resources.

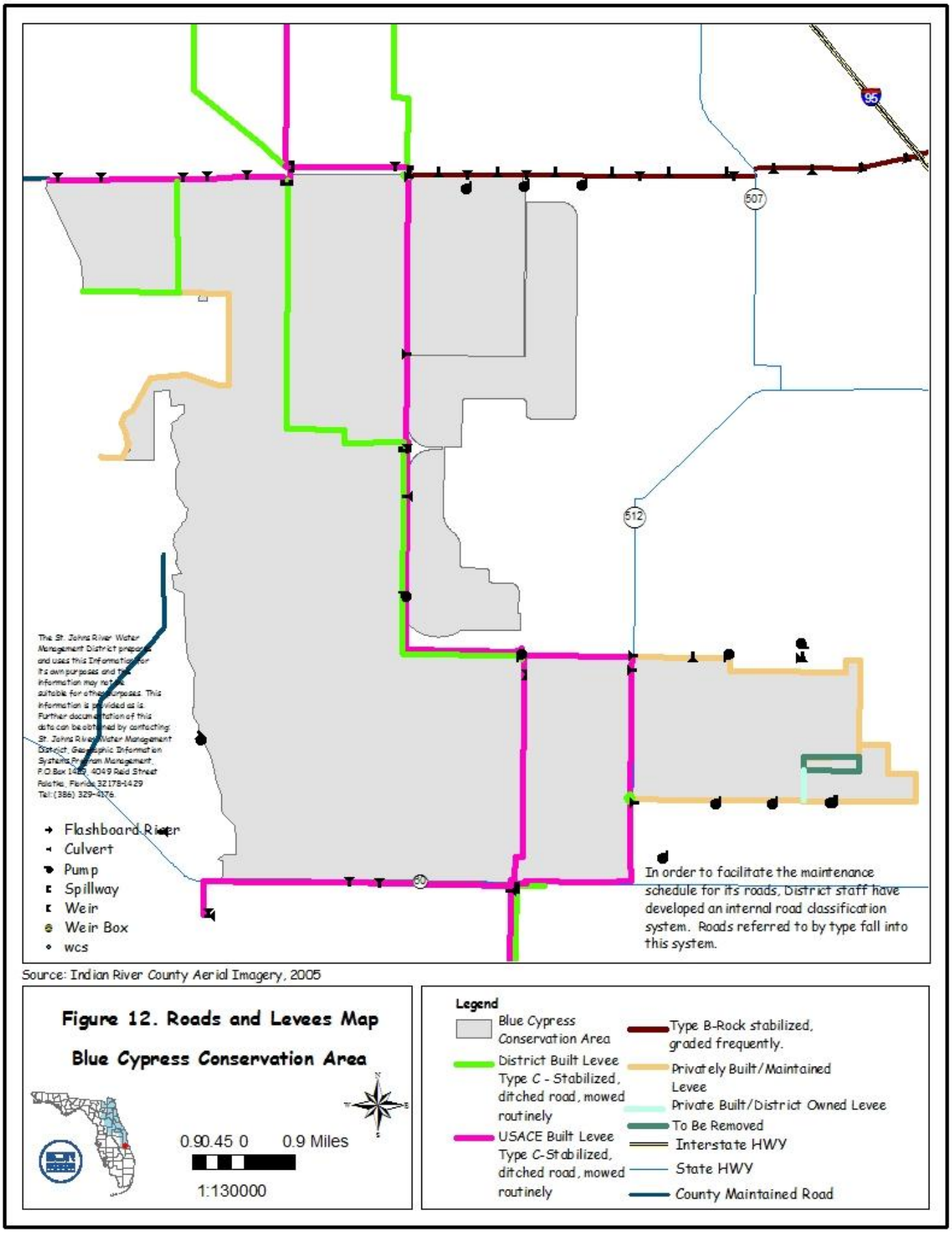
LAND USE MANAGEMENT

Access

The public can access BCCA at seven (7) points. Most accesses are for vessels and some are access to levees for hiking and biking. On the northeast side of the property, Fellsmere Grade Recreation Area is off Fellsmere grade from CR 507/Babcock Road. This area has parking, restrooms, a boat ramp, a graded area and fishing platform that are wheelchair accessible. A second access is Blue Cypress Recreation Area off CR 512 just north of State Road 60 with one access for camping and an additional access to a boat launch. This access has parking, restrooms, boat access, a canoe launch to a paddling trail, and wheelchair access. Off State Road 60, there are two parking areas. Off State Road 60 and north onto Blue Cypress Lake Road is the Blue Cypress County Park with boat ramp access, parking, restrooms, and camping. The last access is off Kenansville Road at Kenansville Lake. This access has parking, and a boat ramp along with picnic tables. Access points will be repaired as necessary with potential closing to access during times of construction. District staff can access the eastern levee of the Stick Marsh from an access off Fellsmere Grade and an additional District access off State Road 60 for land management and construction purposes only. The District is evaluating a no wake zone at the Stick Marsh boat ramp. A BCCA roads map is found in Figure 11.

Access Strategies

- Continue regular maintenance on levee system and interior road system.
- Maintain parking areas, including entrance signs and kiosks.



Source: Indian River County Aerial Imagery, 2005

Figure 12. Roads and Levees Map

Blue Cypress Conservation Area

0.90.45 0 0.9 Miles

1:130000

Legend

- Blue Cypress Conservation Area
- District Built Levee Type C - Stabilized, ditched road, mowed routinely
- USACE Built Levee Type C-Stabilized, ditched road, mowed routinely
- Type B-Rock stabilized, graded frequently.
- Privately Built/Maintained Levee
- Private Built/District Owned Levee
- To Be Removed
- Interstate HWY
- State HWY
- County Maintained Road

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Recreation

The District is legislatively directed to evaluate a number of resource-based activities on District lands for possible implementation. The District may restrict use of District owned lands as necessary for flood control, water supply, and protection of natural resources to avoid conflicting uses or to provide alternative hunting and other recreational opportunities.

Recreation Opportunities

BCCA currently offers hiking, biking, and bank fishing on the levees, seasonal hunting with the appropriate licenses, fishing, primitive camping at designated sites, airboating, boating, canoeing and wildlife viewing (Figure 13). Fellsmere Grade Recreation Area, off Fellsmere Grade on the eastern side of BCCA, houses a boat launch for access to the Stick Marsh. Kenansville Grade parking area, on the western side of the property, has a boat launch for access to Kenansville Lake. Blue Cypress Recreation Area is an access off CR 512 with a boat ramp accessing the wetlands and airboat trails in the Blue Cypress Water Management Areas East and West. Blue Cypress County Park provides camping and a boat ramp with access to Blue Cypress Lake. Additional parking is found off State Road 60. BCWMA west has a zone with a restriction of up to10 horsepower motor use only and airboats are prohibited (Figure 12). The District is in the process of considering the implementation of a no wake zone area at the Fellsmere Recreation Area boat ramp into the Stick Marsh per a request at a 2008 Recreational Public Meeting.

Camping and Shelters

BCCA houses a shelter within the Stick Marsh and two within Blue Cypress Water Management Area-West. The shelters are for day-use only and can be utilized for picnicking or protection from the weather. Platform camps are available for primitive camping. They are located on the Zig-Zag canal, the farm levee within Blue Cypress Water Management Area-West and three are located within Blue Cypress Water Management Area-East, including the North Camp. Camping is also found at Blue Cypress County Park. The District is in the process of considering the installation of a shelter on the northwest border of Blue Cypress Lake per a request at a 2008 Recreational Public Meeting.

Regulations

Off road vehicles (including motorcycles and all-terrain or track vehicles) are not allowed on the property. Special protection areas include water control structures, levees, and rookeries for wading birds. Public access to hunting, recreation and other uses is also restricted in certain areas under construction or undergoing restoration projects, as posted. The BCWMA west parcel is restricted to 10 horsepower or less and airboats are prohibited. The Banjo Groves and Kromhout parcels are closed to public access. The District will inform the public at Recreational Public Meetings, onsite, and on hunt brochures.

Wildlife Management Area

Areas of BCCA are designated as part of the Upper St. Johns River Marsh Wildlife Management Area (Figure 12) that is managed by FWC. Rules and regulations designated by FWC are updated yearly. Hunting on District property is also subject to District rules and regulations. Visit www.myfwc.com for hunt brochures and additional information.

District/US Army Corps of Engineers Recreation Partnership

In 1987, the District and the USACOE entered into a Local Cooperation Agreement in which one of the provisions was to share the cost (50/50) of developing recreation sites within the Upper St. Johns River Basin Project. In 1991, the District's Governing Board approved a Recreation Master Plan that was developed by the USACOE and the District. Recreation sites within BCCA have been constructed as required by this agreement including Fellsmere Grade Recreation Area, Kenansville Grade Access, Blue Cypress Recreation Area and Blue Cypress County Park.

Recreational Public Meetings

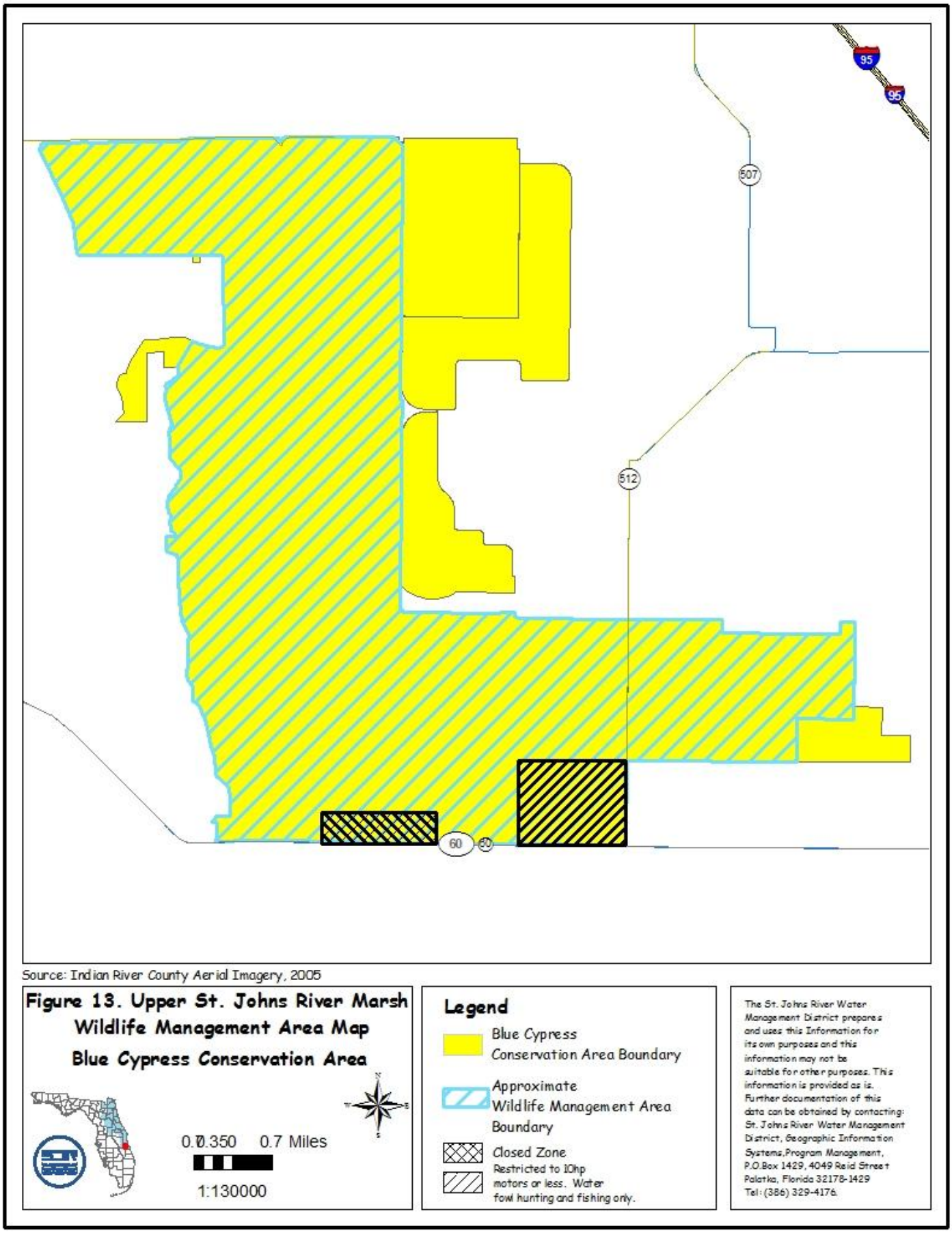
The District holds Recreational Public Meetings in the Southern Region as a means to convey information to the public as well as to create opportunities for the public to have input on recreation and management. These meetings are offered at least twice a year and are advertised in Florida Administrative Weekly and displayed on the District's website at www.sjrwmd.com. In addition, approximately 150 mailings and over 60 emails invite the public to each meeting.

Fellsmere Water Management Area

Public access is prohibited in Fellsmere Water Management Area during the construction period. New recreational resources in Fellsmere Water Management Area will be developed with anticipated opening in 2014.

Recreation Strategies

- Continue regular maintenance on camping platforms and shelters.
- Continue coordinating with Indian River County on management of the Blue Cypress County Park.
- Update trail guides as needed.
- Maintain recreation parking areas.
- Maintain agreement with FWC designating BCCA a Wildlife Management Area.
- Continue coordinating with FWC for updates on Upper Basin hunting regulations.
- Consider the implementation of a no wake zone at the Stick Marsh as well as the installation of a shelter on the northwest corner of Blue Cypress Lake.



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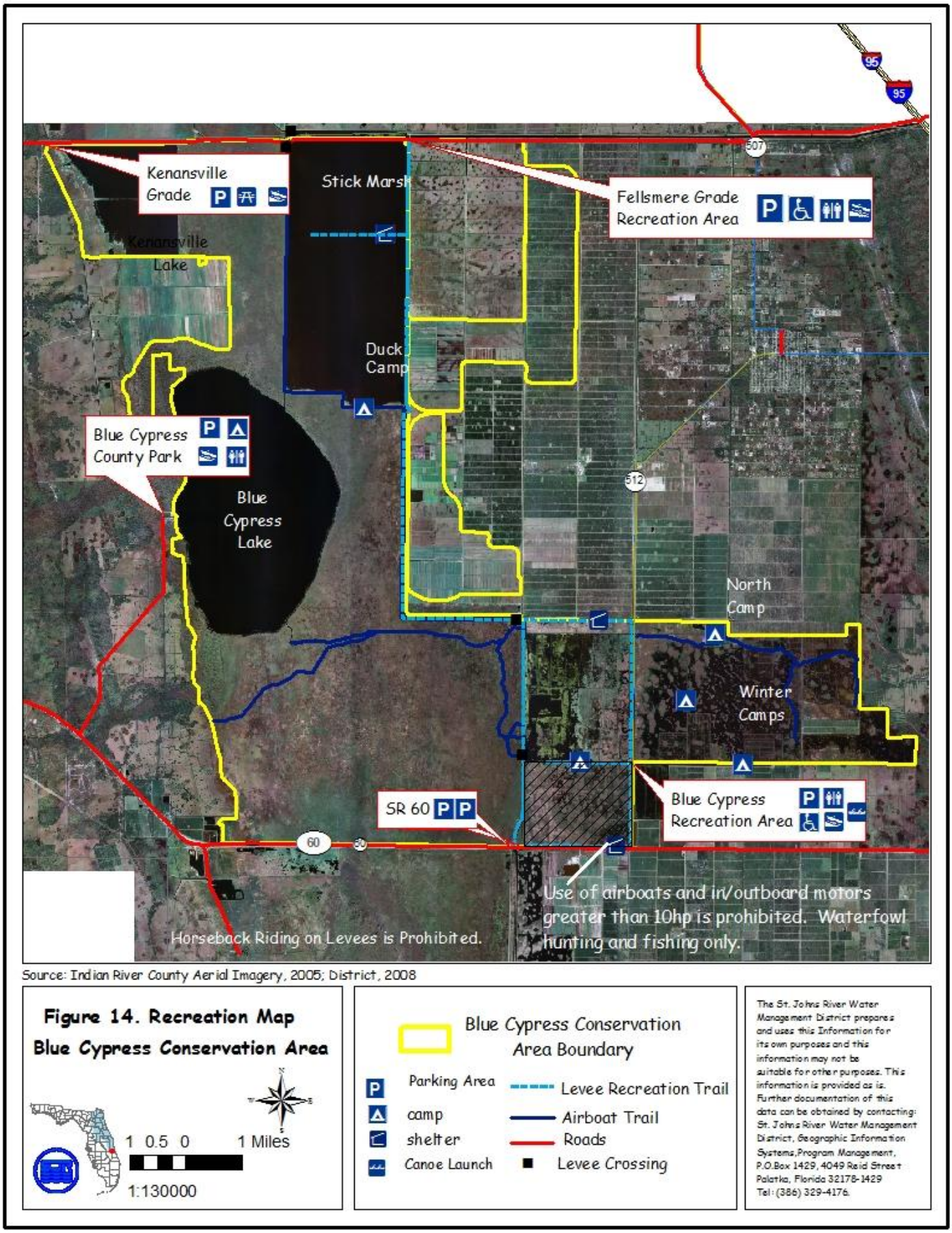
Kenansville Grade
Stick Marsh
Fellsmere Grade Recreation Area
Kenansville Lake
Duck Camp
Blue Cypress County Park
Blue Cypress Lake
North Camp
Winter Camps
SR 60
Blue Cypress Recreation Area
Use of airboats and in/outboard motors greater than 10hp is prohibited. Waterfowl hunting and fishing only.
Horseback Riding on Levees is Prohibited.
95
507
512
60
Source: Indian River County Aerial Imagery, 2005; District, 2008
Figure 14. Recreation Map
Blue Cypress Conservation Area
1 0.5 0 1 Miles
1:130000
Blue Cypress Conservation Area Boundary
Parking Area
camp
shelter
Canoe Launch
Levee Recreation Trail
Airboat Trail
Roads
Levee Crossing
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.
Author:tmashour, Source:G:\MGMT PLANS\BlueCypress\2007\Blue Cypress Maps\Figure 7. Aerial Imagry Map.mxd, Time:1/19/2007 2:00:25 PM

Environmental Education

The District offers many environmental education programs that are provided in the form of workshops, online materials, or by requesting speakers or specific programs. New programs include the Great Water Odyssey and Project Wet Workshops. The Great Water Odyssey is an interactive, multidisciplinary educational experience available free of charge to educators in the District. Project Wet is a program designed to teach educators about water resources and is based on FCAT standards. Project Wet Workshops are offered at various times during the year in many counties, including Indian River County. Indian River County historically utilized the property for the Legacy Program, the District's environmental education program for middle and high school students. Current use of the property for a Legacy Program for this conservation area will be re-evaluated in the future.

Environmental Education Strategies

- Continue to offer environmental education programs for educators and students throughout the District.

Security

The properties were posted just after the original survey work was completed. Fencing has been erected where possible (some areas are inaccessible) and gates are located at key access sites. Maintenance of the fence lines and replacement of boundary signs is ongoing. Indian River County's Ranch and Grove Security Squad patrol the area for violations. Fish and Wildlife Conservation Commission officers patrol the area as part of the wildlife management area regulation. A contracted security firm provides routine security services for the property as needed.

Security Strategies

- Maintain signage, fences, and gates.
- Continue coordinating with local law enforcement and contracted security.
- Coordinate with FWC to establish and enforce WMA rules.

ADMINISTRATION

Acquisition

No additional land acquisition is being pursued for this project area.

Cooperative Agreements

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. The following are cooperative agreements found at BCMCA. These agreements will be reevaluated at the time of renewal.

Table 3. Cooperative Agreements at BCCA

Agreement #	Agency/ Individual	Begin	Term	Acres	Expiration
# 290 CR 512 Rec Pad Maintenance	Indian River County	June 2, 1992	20 years	Rec Pad	June 1, 2012
# 289 Blue Cypress Lake County Park	Indian River County	November 8, 1995	50 years	County Park	November 7, 2045
# 291 Blue Cypress Recreation and Education	Indian River County School Board	March 8, 1995	3 years, autorenewal every 3 years	Blue Cypress Conservation Area	Until terminated by either party.
# 455 Upper St. Johns River Marsh WMA	FWC	July 2, 1981	5 years, then autorenewal	Specified areas of Blue Cypress, Three Forks, and River Lakes	Until terminated by either party.
# 75 Blue Cypress Marsh Project	FWC	June 10, 1998	20 years	Kenansville Lake Boat Ramp	February 16, 2018
# 355, Fellsmere Grade Maintenance	Indian River County, Brevard County, Osceola County, District	February 17, 2003	1 year auto renewals at each fiscal year	Fellsmere Grade from SR 441 to Kenansville Lake	February 16, 2004
# 303 Upper Basin Local Cooperation Agreement	USACE	December 17, 1987		Upper Basin Project	Until Project is Completed.
# 431 Easement-Banjo Groves	NRCS	October 12, 2005	Perpetuity	300	Perpetual
#314 Banjo Groves Cost Share	NRCS	September 24, 2004	One year	300	September 30, 2008, Maintenance 12 months after restoration is completed.
# 192 Fellsmere Joint Venture Occupancy Agreement	Fellsmere Joint Venture	June 28, 2002	Amended to expire 2008	4,000 cattle and sod	June 30, 2008
#459 Fellsmere Joint Venture Amended and Restated Occupancy Agreement	Fellsmere Joint Venture	March 1, 2007	From Closing until September 30, 2013	10,000, cattle, sod and possible renewal of citrus, outside leases	September 30, 2013
# 324 Fellsmere Water Management Area	Fellsmere Joint Venture	February 10, 2006	50 years	10,000	2056

Memorandum of Understanding					

Cooperative Agreement Strategies

- Monitor agreements and evaluate as they come up for renewal.

Leases, Easements, Special Use Authorizations and Concessions

According to District policy #83-01, Leasing Lands for Cattle Grazing and District policy #84-02 Special Use Authorizations, the District is authorized to enter into cattle leases and special use authorizations on District land. The following are leases, easements, and special use authorizations associated with BCMCA. These documents will be evaluated at the time of renewal.

Leases, Special Use Authorizations, and Easement Agreement Strategies

- Monitor leases, special use authorizations, and easement agreements and evaluate as they come up for renewal.

Table 4. Leases, Easements and Special Use Authorizations at BCCA

Agreement #	**Agency/ Individual**	**Begin**	**Term**	**Acres**	**Expiration**
#460 Easement Fellsmere Water Management Area	NRCS Wetland Preserve Program Conservation Easement	September 21, 2007	Perpetuity	4,000	Perpetual
# 408 Fellsmere Water Management Area	NRCS Wetland Preserve Program Conservation Easement	September 18, 2006	9 years	4,000 cost share	September 30, 2015
Corrigan County Deed	Indian River County	April 8, 2008	Perpetuity	457	Perpetual
R & G Fellsmere Water Management Area Lease	R & G	Assigned to District	Until 2013	1,560	September 30, 2013
B & W Fellsmere Water Management Area Lease	B & W	Assigned to District	Option to Extend Until 2011	724.66	6/30/2007 with option to extend until 2011
Pressley Flowage Easement	Pressley Family	1977	Perpetuity	1,522	Perpetual
Twenty Mile Bend Flowage Easement	Twenty Mile Bend Groves	1988	Perpetuity	71	Perpetual
Contract, Exotic/Invasive Plant Removal	FDEP	Yearly	Yearly	Upper Basin Lakes	Funding dependent.

IMPLEMENTATION CHART

The following chart lists specific strategies and completion dates for tasks at BCCA.

Table 5. Blue Cypress Conservation Area Management Implementation Chart

TASK	RESPONSIBLE LEAD	DUE DATE	COOPERATORS
RESOURCE PROTECTION AND MANAGEMENT			
Restoration			
Complete Banjo Groves restoration project when phosphorus concentrations fall to appropriate levels.	ES	Ongoing	DLM
Continue to treat woody vegetation at BCCA.	DLM	Ongoing	ES
Begin Fellsmere Water Management Area restoration.	DWR	Ongoing	DLM
Water Resources			
Continue to partner with USACE to construct and manage water management and marsh conservation areas.	DPM	Ongoing	ES, DLM
Continue water quality and dissolved oxygen monitoring.	ES	Ongoing	
Continue managing water levels for maintenance of snail kite habitat.	ES	Ongoing	DLM
Monitor and evaluate the effects of the water pattern related to zig zag canal and Blue Cypress Lake and report to the Recreation Public Meeting group within a two-year timeframe.	ES	2010	DLM
Fire Management			
Follow the Comprehensive Fire Management Plan.	DLM	Annually	DOF
Implement the Annual Prescribed Fire Management Plans. These yearly plans should include burn prescriptions, smoke management plans, maps, and a list of entities to notify (DOF for permit and possibly assistance, city/county officials, local fire and police departments, and neighbors).	DLM	Annually	DOF
Wildlife			
Follow bald eagle guidelines when conducting prescribed burns.	DLM	Ongoing	ES/DPM
Conduct surveys of wading birds if funding is available.	ES	Ongoing	
Continue annual census of nesting success of the snail kite per US Fish and Wildlife Service regulations.	ES	Ongoing	DLM
Coordinate permits for Fellsmere Water Management Area restoration construction according to the Avian Protection Plan.	DPM	As needed	ES
Continue to follow Avian Protection Plan during construction projects.	DPM, ES	As needed	DLM

TASK	RESPONSIBLE LEAD	DUE DATE	COOPERATORS
Exotic Species			
Monitor and continue to treat exotic vegetation.	DLM	Ongoing	FWC
Continue agreement with DEP for funding to contract the District to treat exotic/invasive species in the Upper St. Johns River and associated lakes.	DLM	Ongoing	DEP
Continue hog trapping agents and seasonal hunts to manage feral hog population.	DLM	Ongoing	FWC
Cultural Resources			
Protect known cultural resources.	DLM	Ongoing	FDHR
Identify and report any new sites to Florida Division of Historical Resources.	DLM	Ongoing	FDHR
LAND USE MANAGEMENT			
Access			
Continue regular maintenance on levee system and interior road system.	DLM	Ongoing	
Maintain parking areas, which include entrance signs and kiosks.	DLM	Ongoing	
Recreation			
Continue regular maintenance on camping platforms and shelters.	DLM	Ongoing	
Continue coordinating with Indian River County on management of the Blue Cypress County Park Blue Cypress Recreation Area off CR 512.	DPW/DLM	Ongoing	USACOE, Indian River County
Update trail guides as needed.	DLM	Ongoing	FWC
Maintain recreation parking areas.	DLM	Ongoing	
Maintain agreement with FWC designating BCCA a Wildlife Management Area.	DLM	Ongoing	
Continue coordinating with FWC for updates on Upper Basin hunting regulations.	DLM	Ongoing	
Consider the implementation of a no wake zone at the Stick Marsh as well as the installation of a shelter on the northwest corner of Blue Cypress Lake.	DLM	Ongoing	
Environmental Education			
Continue to offer environmental education programs for educators and students in the District.	OC	Ongoing	DLM
Security			
Maintain signage, fences, and gates.	DLM	Ongoing	Contracted Security, local law enforcement, Indian River County Ranch and Grove Squad
Continue coordinating with local law enforcement and contracted security	DLM	Ongoing	Contracted Security, local law enforcement,

TASK	RESPONSIBLE LEAD	DUE DATE	COOPERATORS
			Indian River County Ranch and Grove Squad
Coordinate with FWC to establish and enforce WMA rules.	DLM	Ongoing	FWC
ADMINISTRATION			
Cooperative Agreements			
Monitor agreements and evaluate as they come up for renewal.	DLM	Ongoing	FWC, Osceola County, IRC, BC, DEP, USACOE
Leases, Easements, and Concessions			
Monitor leases, special use authorizations, and easement agreements and evaluate as they come up for renewal.	DLM	Ongoing	

IMPLEMENTATION CHART KEY

BC	Brevard County
DLA	Division of Land Acquisition
DLM	Division of Land Management
DOF	Florida Division of Forestry
DPM	Division of Project Management
DPW	Division of Public Works
DWR	Division of Water Resources
ES	Division of Environmental Sciences
FDHR	Florida Division of Historical Resources
FWC	Florida Fish and Wildlife Conservation Commission
IRC	Indian River County
OC	Office of Communication
USACE	United States Army Corps of Engineers

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APPENDIX A: SPECIES LISTS

Plants

Scientific Name	Common Name
Acer rubrum	Red Maple
Acrostichum danaeifolium	Giant Leather Fern
Alternanthera philoxeroides	Alligatorweed
Ampelopsis arborea	Peppervine
Andropogon virginicus	Broomsedge Bluestem
Annona glabra	Pond Apple
Azolla caroliniana	Carolina Mosquito Fern
Baccharis halimifolia	Saltbush; Sea Myrtle; Groundsel Tree
Bacopa caroliniana	Lemon Bacopa; Blue Waterhyssop
Bacopa monnieri	Herb-Of-Grace
Blechnum serrulatum	Swamp Fern; Toothed Midsorus Fern
Boehmeria cylindrica	False Nettle; Bog Hemp
Cardamine sp.	
Cephalanthus occidentalis	common Buttonbush
Chara sp.	
Cladium jamaicense	Jamaica Swamp Sawgrass
Commelina diffusa	Common Dayflower
Crinium americanum	Seven-sisters; String-lily
Cyperus elegans	Royal Flatsedge
Cyperus haspan	Haspan Flatsedge
Cyperus ligularis	Swamp Flatsedge
Cyperus odoratus	Fragrant Flatsedge
Cyperus surinamensis	Tropical Flatsedge
Echinochloa crusgalli	Barnyardgrass
Eclipta prostrata	False Daisy
Eichhornia crassipes	Common Water-hyacinth
Eleocaris cellulosa	Gulf Coast Spikerush
Eleocharis sp.	Spikerush
Eleocharis baldwinii	Baldwin's Spikerush
Eleocharis elongata	Slim Spikerush
Eleocharis flavescens	Yellow Spikerush; Pale Spikerush
Eleocharis geniculata	Canada Spikerush
Eleocharis interstincta	Knotted Spikerush
Erechtites hieracifolia	American Burnweed; Fireweed
Eriocaulon sp.	
Eupatorium capillifolium	Dogfennel
Eupatorium leptophyllum	Falsefennel
Eupatorium sp.	
Fuirena scirpoidea	Southern Umbrellasedge
Hibiscus sp.	
Hydrocotyle umbellata	Manyflower Marshpennywort
Hypericum sp.	
Itea virginica	Virginia Willow; Virginia Sweetspire
Juncus effusus	Soft Rush
Juncus megacephalus	Bighead Rush
Juncus polycephalos	Manyhead Rush
Kosteletzyka virginica	Virginia Saltmarsh Mallow

Lachnanthes caroliniana	Carolina Redroot
Lemna valdiviana	Valdivia Duckweed
Ludwigia alata	Winged Primrosewillow
Ludwigia leptocarpa	Anglestem Primrosewillow
Ludwigia octovalvis	Mexican Primrosewillow
Ludwigia peruviana	Peruvian Primrosewillow
Ludwigia repens	Creeping Primrosewillow
Ludwigia sp.	
Luziola fluitans	Southern Watergrass
Lygodium japonicum	Japanese Climbing Fern
Lygodium microphyllum	Small-leaf Climbing Fern
Melothria pendula	Creeping Cucumber
Mikania scandens	Climbing Hempvine
Myrica cerifera	Wax Myrtle; Southern Bayberry
Nuphar advena	Spatterdock
Nymphaea odorata	American White Waterlily
Nymphaea sp.	
Nymphoides sp.	
Nymphoides aquatica	Big Floatingheart
Osmunda regalis	Royal Fern
Panicum dichotomiflorum	Fall Panicgrass
Panicum hemitonum	Maidencane
Panicum repens	Torpedograss
Peltandra sp.	
Peltandra virginica	Green Arrow Arum
Persea borbonia	Red Bay
Phragmites australis	Common Reed
Phyla nodiflora	Turkey Tangle Fogfruit; Capeweed
Pinus elliottii	Slash Pine
Pluchea camphorata	Camphorweed
Pluchea foetida	Stinking Camphorweed
Pluchea odorata	Sweetscent
Polygala violacea	Showy Milkwort
Polygonum glabrum	Denseflower Knotweed
Polygonum punctatum	Dotted Smartweed
Polygonum sp.	
Pontedaria cordata	Pickerelweed
Ptilimnium capillaceum	Mock Bishopsweed
Quercus laurifolia	Laurel Oak; Diamond Oak
Quercus virginiana	Live Oak
Rhynchospora decurrens	Swampforest Beaksedge
Rhynchospora inundata	Narrowfruit Horned Beaksedge
Rhynchospora nitens	Shortbeak Beaksedge; Baldrush
Rumex sp.	
Sabal palmetto	Cabbage Palm
Saccharum giganteum	Sugarcane Plumegrass
Sacciolepis striata	American Cupscale
Sagittaria sp.	Arrowhead
Sagittaria lancifolia	Bulltongue Arrowhead
Salix caroliniana	Carolina Willow; Coastalplain Willow

Salix sp.	Willow
Salvinia minima	Water Spangles
Salvinia sp.	
Sarcostemma clausum	White Twinevine
Schinus terebinthifolius	Brazilian Pepper
Scirpus californicus	Giant Bulrush; California Bulrush
Scleria lacustris	Wright's Nutrush
Scoparia dulcis	Sweetbroom; Licoriceweed
Setaria sp.	
Sium suave	Hemlock Waterparsnip
Spirodela polyrhiza	Common Duckweed
Sporobolus sp.	
Symphyotrichum carolinianum	Climbing Aster
Taxodium distichum	Bald-Cypress
Thalia geniculata	Alligatorflag; Fireflag
Thelypteris interrupta	Hottentot Fern; Willdenow's Fern
Typha domingensis	Southern Cattail
Typha latifolia	Broadleaf Cattail
Urena lobata	Caesarweed
Utricularia foliosa	Leafy Bladderwort
Utricularia gibba	Humped Bladderwort
Utricularia sp.	Bladderwort
Vitis rotundifolia	Muscadine
Xyris sp.	Yelloweyed Grass

Birds

Common Name	**Scientific Name**
Anatidae – Ducks, Geese, Swans	
Mottled duck	(*Ana fulvigula*)
Blue-winged teal	(*Anas discor*)
Ringed-necked duck	(*Aythya collaris*)
Podicipedidae – Grebes	
Pied-billed grebe	(*Podilymbus podiceps*)
Pelecanidae - Pelicans	
American White Pelican	*(Pelecanus erythrorhynchos)*
Phalacrocoracidae – Cormorants	
Double-crested cormorant	(*Phalacrocorax auritas*)
Anhingidae – Darters	
Anhinga	(*Anhinga anhinga*)
Ardidae – Herons, Bitterns & Allies	
American bittern	(*Botaurus lentiginosus)*
Least bittern	(*Ixobrychus exilis*)
Great blue heron	(*Ardea herodias*)
Great egret	(*Casmerodius albus*)
Black-crowned night heron	(*Nycticorax nycticorax*)
Cattle egret	(*Bulbulcus ibis*)

Green-backed heron (*Butorides striatus*)
Little blue heron (*Egretta caerulea*)
Snowy egret (*Egretta thula*)
Tricolored heron (*Egretta tricolor*)
Yellow-crowned night heron (*Nyctanassa violacea*)

Threskiornithidae – Ibises & Spoonbills
Glossy ibis (*Plegadis falcinellus*)
White ibis (*Eudocimus albus*)
Roseate Spoonbill (*Platalea ajaja)*

Ciconiidae - Storks
Wood stork (*Mycteria americana*)

Cathartidae – New World Vultures
Turkey vulture (*Cathartes aura*)
Black vulture (*Coragyps atratus*)

Accipitridae – Hawks, Kites & Eagles
Bald eagle (*Haliaeetus leucocephalus*)
Osprey (*Pandion haliaetus*)
Red-shouldered hawk (*Buteo lineatus*)
Snail kite (*Rostrhamus sociabilis plumbeus*)
American swallow-tailed kite (*Elanoides forficatus*)
Northern harrier (*Circus cyaneus*)
Cooper's Hawk (*Accipiter cooperii)*

Falconidae – Caracaras & Falcons
American kestrel (*Falco sparverius*)
Merlin (*Falco columbarius)*
Peregrine falcon (*Falco peregrinus*)

Rallidae – Rails, Gallinules & Coots
King rail (*Rallus elagans*)
Sora rail (*Porzana carolina*)
Common moorhen (*Gallinula chloropus*)
Purple gallinule (*Porphyrula martinica*)
American coot (*Fulica americana*)
Virginia Rail (*Rallus limicola)*

Aramidae – Limpkins
Limpkin (*Aramus guarauna*)

Gruidae – Cranes
Sandhill crane (*Grus canadensis*)

Charadriidae – Lapwings & Plovers
Killdeer (*Charadrius vociferus*)

Recurvirostridae – Stilts and Avocets
Black-necked stilt (*Himantopus mexicanus*)

Scolopacidae – Sandpipers, Phalaropes & Allies

Greater yellowlegs (*Tringa melanoleuca*)
Lesser yellowlegs (*Tringa flavipes*)
Least sandpiper (*Calidris minulilla*)
Wilson's snipe (*Gallinago delicate)*

Laridae – Gulls and Terns
Caspian Tern (*Sterna caspia)*
Black Skimmer *(Rynchops niger)*

Columbidae – Pigeons & Doves
Common Ground-Dove (*Columbina passerine)*
Mourning Dove (*Zenaida macroura)*
White-winged Dove (*Zenaida asiatica)*

Cuculidae – Cuckoos & Anis
Yellow-billed Cuckoo (*Coccyzus americanus)*

Strigidae – Typical Owls
Barred Owl (*Strix varia)*
Great Horned Owl (*Bubo virginianus)*

Caprimulgidae – Nightjars
Common Nighthawk (*Chordeiles minor)*

Alcedinidae – Kingfishers
Belted Kingfisher (*Ceryle alcyon)*

Picidae – Woodpeckers and Allies
Pileated Woodpecker (*Dryocopus pileatus)*
Red-bellied Woodpecker (*Melanerpes carolinus)*

Tyrannidae – Tyrant Flycatchers
Eastern Kingbird (*Tyrannus tyrannus)*
Great Crested Flycatcher (*Myiarchus crinitus)*
Tropical Kingbird *(Tyrannus melancholicus)*

Laniidae – Shrikes
Loggerhead Shrike (*Lanius ludovicianus)*

Vireonidae – Vireos
White-eyed vireo (*Vireo griseus*)

Corvidae – Crows and Jays
Fish crow (*Corvus ossifragus*)
Blue Jay (*Cyanocitta cristata)*

Hirundinidae – Swallows
Barn swallow (*Hirundo rustica*)
Tree swallow (*Tachycineta bicolor*)

Troglodytidae – Werns
Carolina wren (*Thryothorus ludovicianus*)
Marsh wren (*Cistothorus palustris*)
Sedge wren (*Cistothorus platensis*)

House wren (*Troglodytes aedon)*

Sylvidae – Gnatcatchers
Blue-gray gnatcatcher (*Polioptila caerulea*)

Turdidae – Thrushes
American Robin (*Turdus migratorius)*

Mimidae – Mockingbirds and Thrashers
Gray Catbird (*Dumetella carolinensis)*
Brown Thrasher (*Toxostoma rufum)*

Sturnidae – Starlings
European Starling (*Sturnus vulgaris)*

Parulidae – Wood Warblers
Palm warbler (*Dendroica palmarum*)
Yellow-rumped warbler (*Dendroica coronata*)
Common yellowthroat (*Geothlypis trichas*)
Black-throated Blue Warbler (*Dendroica caerulescens)*
Cape May Warbler (*Dendroica tigrina)*
Prairie Warbler (*Dendroica discolor)*
Northern Waterthrush (*Seiurus noveboracensis)*
American Redstart (*Setophaga ruticilla)*
Emberizidae – Emberizids
Eastern Towhee (*Pipilo erythrophthalmus)*

Cardinalidae – Cardinals and Allies
Northern cardinal (*Cardinalis cardinalis*)
Indigo Bunting (*Passerina cyanea)*
Painted Bunting (*Passerina ciris)*

Icteridae – Blackbirds
Boat-tailed grackle (*Quiscalus major*)
Red-winged blackbird (*Agelaius phoeniceus*)
Bobolink (*Dolichonyx oryzivorus)*

Shrimp and crayfish

Scientific Name	Common Name
Palaemonetes paludosus	Riverine Grass Shrimp
Procambarus alleni	Florida Crayfish
Procambarus fallax	Deceitful Crayfish

Insects

Scientific Name	Common Name
Midges	
Ablabesmyia rhamphe	
Ablabesmyia sp.	
Apedilum sp.	
Axarus sp.	

Chironomus sp.
Cladotanytarsus sp.
Coelotanypus sp.
Cryptochironomus sp.
Djalmabatista pulcher
Fittkauimyia serta
Glyptotendipes sp. F
Kiefferulus dux/pungens
Labrundinia sp.
Parachironomus carinatus
Paramerina sp.
Polypedilum beckae
Polypedilum tritum
Tanytarsus limneticus
Tanytarsus sp.

Beetles

Acalymma vinctum
Agonum sp.
Ahasverus rectus
Anomala sp.
Aphodius sp.
Ataenius sp.
Bembidion sp.
Berosus infuscatus
Berosus sp.
Celina grossula
Celina sp.
Cercyon sp.
Chrysobothris sp.
Chrysomela scripta
Clivina sp.
Conoderus amplicollis
Conoderus scissus
Copelatus sp.
Cybister fimbriolatus
Cybister sp.
Cycloneda sanguinea
Derallus altus
Donacia sp
Elaphidion mucronatum
Enochrus sp.
Gyrinus sp.
Helobata larvalis
Hemipeplus microphthalmus
Hydaticus bimarginatus
Hydrobiomorpha casta
Hydrobiomorpha sp.
Hydrocanthus sp.
Ips sp
Laccodytes sp.

Limnichus sp.
Listronotus sp.
Longitarsus sp.
Matus ovatus blatchleyi
Neochetina sp.
Neolema sp.
Olla v-nigrum
Pelonomus obscurus
Peltodytes sp.
Phaenonotum sp.
Platypus sp
Ptilodactyla sp.
Scirtes sp.
Stenocrepis sp.
Stenolophus sp.
Suphisellus sp.
Thermonectus basillaris
Thermonectus sp.
Tropisternis sp.
Tropisternus blatchleyi
Tropisternus lateralis nimbatus

Butterflies and Moths

Anartia jatrophae	White Peacock
Ascia monuste	Great Southern White
Basilarchia archippus floridensis	Florida Viceroy
Heliconius charitonius	Zebra Longwing
Limenitis archippus	Viceroy
Papilio glaucus	Eastern Tiger Swallowtail
Phoebis sennae	Cloudless Sulphur
Phyciodes tharos	Pearl Crescent

Dragonflies and Damselflies

Anax longipes	Comet Darner
Anax sp.	
Arigomphus pallidus	Gray-green Clubtail
Brachymesia gravida	Four-spotted Pennant
Brachymesia sp.	
Celithemis fasciata	Banded Pennant
Celithemis ornata	Ornate Pennant
Celithemis sp.	
Coryphaeschna ingens	Regal Darner
Coryphaeschna sp.	
Epitheca princeps regina	Prince Baskettail
Epitheca sp.	
Erythemis simplicicollis	Eastern Pondhawk; Green Clearwing
Erythrodiplax minuscula	Little Blue Dragonlet
Ischnura posita	Fragile Forktail
Ischnura ramburii	Rambur's Forktail

Ladona deplanata	Blue Corporal
Libellula auripennis	Golden-winged Skimmer
Libellula incesta	Slaty Skimmer
Pachydiplax longipennis	Blue Dasher
Tramea carolina	Carolina Saddlebags
Tramea sp.	

Bugs

Belostoma flumineum
Belostoma lutarium
Belostoma sp.
Belostoma testaceum
Hydrometra australis
Hydrometra martini
Lethocerus americanus
Lethocerus griseus
Lethocerus sp.
Lethocerus uhleri
Mesovelia mulsanti
Pelocoris carolinensis
Pelocoris femoratus
Pelocoris sp.
Ranatra australis
Ranatra nigra
Ranatra sp.

Mayflies

Caenis diminuta
Callibaetis sp.

Other Flies

Odontomyia sp.
Tabanus sp.

Other Insects

Myrmeleon sp.	Ant Lion
Romalea microptera	Lubber Grasshopper

Amphibians

Scientific Name	Common Name
Hyla cinerea	Green Treefrog
Notopthalmus viridescens	Eastern Newt
Rana grylio	Pig Frog
Acris gryllus	Southern Cricket Frog

Reptiles

Scientific Name	Common Name
Alligator mississippiensis	American Alligator
Anolis carolinensis	Green Anole
P. nelson	Florida red-bellied turtle
Apalone ferox	Florida soft shelled turtle
Chelydra serpentine	Florida snapping turtle

Fish

Scientific Name	Common Name
Ameiurus natalis	Yellow Bullhead
Amia calva	Bowfin
Aphredoderus sayanus	Pirate Perch
Astronotus oscellatus	Oscar
Cichlasoma bimaculattum	Black Acara
Clarias batrachus	Walking Catfish
Elassoma evergladei	Everglades Pygmy Sunfish
Enneacanthus gloriosus	Bluespotted Sunfish
Erimyzon succeta	Lake Chubsucker
Esox americanus	Redfin Pickerel
Etheostoma fusiforme	Swamp Darter
Fundulus chrysotus	Golden Topminnow
Gambusia holbrooki	Mosquitofish
Heterandria formosa	Least Killifish
Hoplosternum littorale	Brown Hoplo
Jordanella floridae	Flagfish
Labidesthes sicculus	Brook Silverside
Lepisosteus platyrhincus	Florida Gar
Lepomis gulosus	Warmouth
Lepomis macrochirus	Bluegill
Lepomis marginatus	Dollar Sunfish
Lepomis microlophus	Redear Sunfish
Lepomis punctatus	Spotted Sunfish
Lucania goodei	Bluefin Killifish
Micropterus salmoides	Largemouth Bass
Notemigonus crysoleucas	Golden Shiner
Noturus gyrinus	Tadpole Madtom
Poecilia latipinna	Sailfin Molly

Annelids

Scientific Name	Common Name
Bratislavia unidentata	
Dero digitata	
Dero sp.	
Eclipidrilus sp.	
Haemonais waldvogeli	
Helobdella triserialis	
Nais communis	
Pristina breviseta	
Pristinella longisoma	

Snails

Scientific Name	Common Name
Laevapex peninsulae	Peninsula Ancylid

Physella cubensis	Carib Physa
Planorbella trivolvis	Marsh Rams-horn
Planorbella duryi	Seminole Rams-horn
Planorbella scalaris	Mesa Rams-horn
Pomacea paludosa	Florida Applesnail
Pseudosuccinea columella	Mimic Lymnaea

Mammals

Scientific Name	Common Name
Lutra canadensis	River Otter
Sus scrofa	Feral Pig
Sciurus carolinensis	Gray Squirrel
Procyon lotor	Raccoon
Odocoileus virginianus	White-tailed Deer

APPENDIX B: BLUE CYPRESS CONSERVATION AREA COMPREHENSIVE FIRE MANAGEMENT PLAN

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BLUE CYPRESS CONSERVATION AREA
Fire Management Plan

INTRODUCTION

Blue Cypress Conservation Area (BCCA) is comprised of approximately 61,114 acres within the St. Johns River Upper Basin (Figure 1). The property stretches from SR 60 to Canal C-54 (a.k.a. L-74W, Fellsmere Grade/Kenansville Road) just south of the Brevard/Indian River County line in Indian River County. Ft. Drum Conservation Area lies contiguous to the south of the property and Three Forks Conservation Area lies contiguous to the north. The Conservation Area contains a mosaic of wetland communities dominated by maidencane, sawgrass, willows and buttonbush including open water systems and floodplain marsh, with scattered tree islands and cypress domes. BCCA is the most undisturbed area in the Upper Basin and contains the largest remnant marsh of its type in the region.

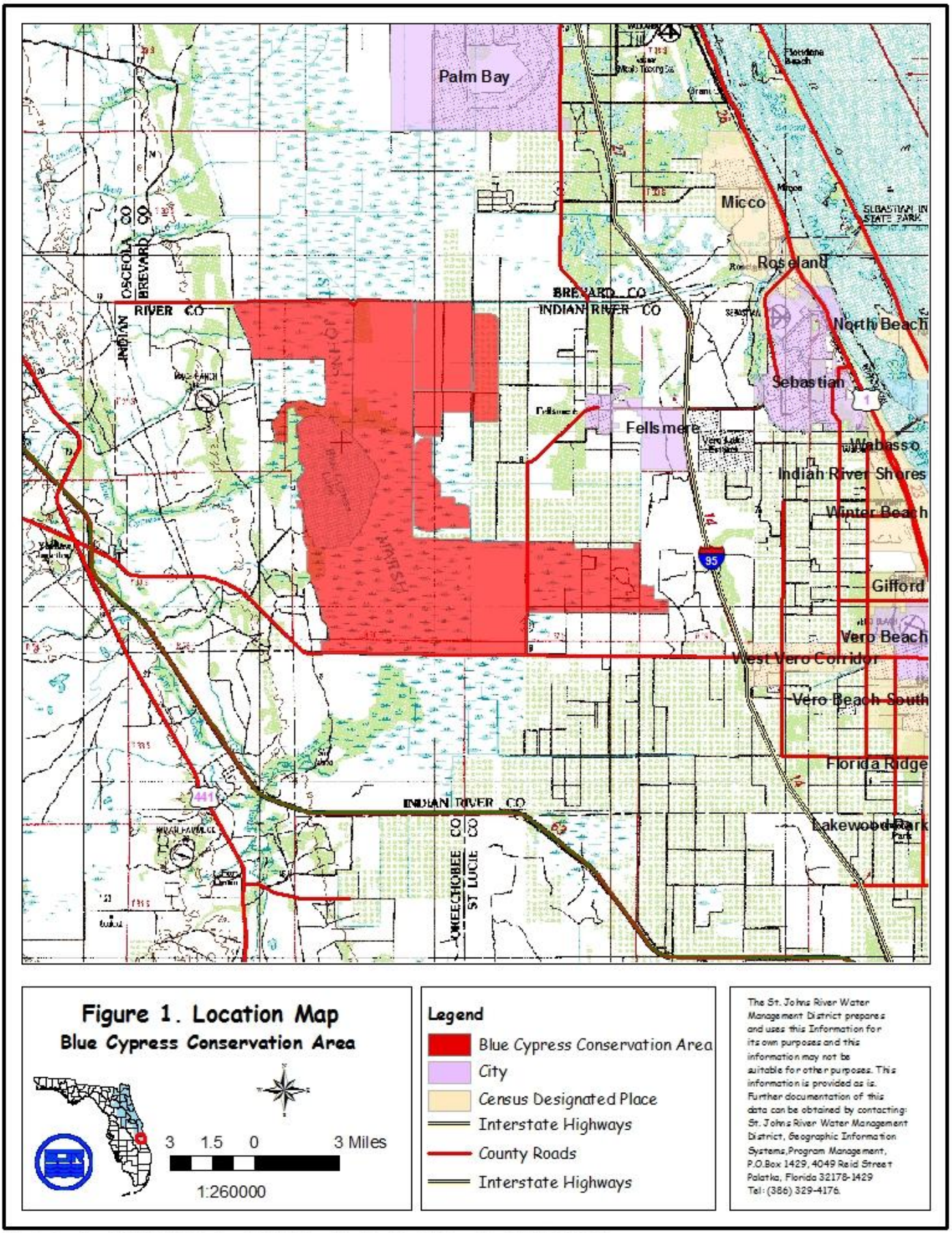
BCCA lies within the Upper St. Johns River Basin. The majority of the management area falls within the 10-year floodplain of the river. The lands within the conservation area were purchased to support the Upper St. Johns River Basin restoration project, a semi-structural flood protection, water quality improvement, and environmental restoration project. Since the turn of the century, the property has undergone extensive alterations to the St. Johns River system. By the early 1970's 62 percent of the 100-year flood plain and 42 percent of the annual flood plain had been diked, drained, and converted to agricultural production. These alterations resulted in changes in the hydroperiod and therefore the species composition of the marshes. These changes in species, and therefore change in fire fuels, have altered the effectiveness of fire as a management tool. In addition, the fire regime has also been impacted by the construction of highways and development near the conservation area. Since marshes are maintained by a combination of hydrology and fire, these alterations have impacted the environmental quality of the marshes within the conservation area in its entirety.

Due to lightening fires being limited in the management role they naturally played, prescribed fire is used to mimic the natural role of fire. With more strict regulations regarding smoke management and because of urbanization in proximity to the area, the window of opportunity for prescribed burning has decreased dramatically. This plan will outline the roles, responsibilities, opportunities, for managing fire within Blue Cypress Conservation Area

PURPOSE AND OBJECTIVES

The objective of prescribed burning at Blue BCCA is to mimic the effects of the natural fire regime in order to prevent the encroachment of woody vegetation, manage fuel loads,

aid in the control of invasive exotic plants, and manage vegetation for wildlife (McPherson 2008). The use of prescribed burning can maintain and improve wildlife habitat, perpetuate fire dependent communities, promote species diversity, and reduce the accumulation of hazardous fuel loads and associated wildfire risks (Main 1999, Van Lear 2000, Vogl 1973, Wade 1989). In the utilization of prescribed burning, smoke impacts to adjoining or nearby urbanized areas, roads and highways should be minimized and/or excluded.



Author:tmashour, Source:G:\MGMT PLANS\BlueCypress\2007\Blue Cypress Maps\Figure 1. Location Map.mxd, Time:11/20/2007 4:21:08 PM

The overall goal is to use prescribed fire to achieve the restoration and maintenance of basin/floodplain marsh habitat of the St. Johns River Upper Basin headwaters. Some areas of the marsh within the Upper Basin have converted from an open herbaceous condition to a closed woody condition. This is likely a result of past impacts to the natural hydrologic and/or fire regimes. Historical photos indicate these areas were originally basin/floodplain marsh communities consisting of sawgrass and maidencane species, tree islands, and emergent aquatic vegetation. The District's objective is to achieve a reduction of shrub dominated areas in the hopes that remnant herbaceous vegetation can re-colonize the site through the use of mechanical and chemical means so fire can again become the tool of controlling species composition. The District aims to treat up to 5,000 acres of woody vegetation within the next 5 years. A burn regime that will maintain the current intact marsh habitat and assist in reducing the current woody species are the objectives.

Fires in Blue Cypress Water Management Area-East are also burned to prevent woody encroachment, but this objective serves a dual purpose. Habitat in this area is maintained to protect habitat for the endangered snail kite. Burns in this area should be conducted outside of the nesting season.

Smoke management is of utmost concern since roads and other urbanization will continue to sprawl in the Upper Basin. Burns will be conducted to minimize off-site impacts, by maneuvering smoke plumes away from residential areas and roads and by ensuring adequate smoke dispersal.

SEASON AND ROTATION

The fire season coincides with the lightning season, which is generally from May to July. Before the influx of settlers, lightning fires would burn unimpeded through fire adaptive communities and landscapes until extinguished via changes in weather and/or fuel characteristics (Johnson 2000, Robbins and Myers 1992).

Prescribed burns in the marsh should take place primarily during the growing season, as many plant species respond favorably to fire during this time. However, different desired effects can be achieved during different seasons and should be considered when planning burn rotations for each unit. For example, spring burns may help to control the spread of woody species. Some units will need to be burned at different times due to smoke management issues.

The Guide to Natural Communities of Florida recommends that the natural fire interval is 1-5 years under natural conditions in the floodplain marsh community type. Other experts suggest a three to five year burn rotation for the floodplain marsh. It has been found that marshes may not accumulate enough dead matter to carry a significant fire until three years after a burn. Although there has been no definitive answer to the natural fire rotations in herbaceous marshes fire managers throughout the state commonly accept

a 3-5 year rotation. It is felt that drier areas should be burned at the short end of the range. Deeper water areas, or areas near the river channel itself, should burn with a 5-8 year fire interval[i].

COMMUNITY TYPE AND FUEL MODEL

The dominant vegetation within the conservation area is sawgrass, however, willow and maple, which are difficult to burn, are intruding north of SR 60. Lygodium is also intruding the Conservation Area. The District is treating the lygodium, a highly invasive plant, which makes fires burn at a higher temperature and shades out native species. The matrix of marsh grasses include sawgrass (*Cladium jamaicense*), *Spartina bakeri* (sand cordgrass, switchgrass), and maidencane (Panicum hemitomon. Spartina grows to an average of 3 to 4 feet tall but can grow to 6 feet. It is densely tufted and accumulates considerable dead matter. Saw grass typically grows in dense stands that exceed 3 feet in height within three years post fire. Both Spartina and sawgrass are chemically volatile and can be burned at high humidities. Maiden cane typically grows to 2-3 feet in height and takes longer after a fire to reach its prefire height and density. Maiden cane is less volatile than the other grasses and is more reliant upon dead thatch to carry a fire. These marsh grasses are well described by fuel model 3, the tall grass group within the 13 fuel models used by the Behave Fire Behavior Prediction System (Anderson 1983). Cypress is found around Blue Cypress Lake. Cypress hardwood swamp communities hold a very long fire interval. This community burns dependent on lake levels, but must burn so as to hold back hardwood encroachment.

WEATHER PARAMETERS

To ensure a safe and effective burn, a burn prescription should be carefully planned indicating weather parameters, seasonality, burn purpose, desired effects, site description, smoke management concerns, and contingency plans. When conditions get too dry, chances for completing a safe burn become less and chances of causing undesirable and potentially dangerous muck fires increase. However, with differing weather conditions come differing fire behavior and effects, enabling various fire management objectives to be achieved. Recording and monitoring of these parameters allows the fire manager to become familiar with subsequent fire behavior, and resultant fire effects, thus improving upon the efficacy of the burn program.

In the summer, effects from the Bermuda High and the sea breeze are at their maximum as the Atlantic Ocean waters are cooler than land. The Bermuda high brings southerly winds to the eastern U.S. The sea breeze effect can influence wind directions by late morning to afternoon causing winds to be from the east. Sea breezes can push 20-30 miles inland in Florida. A combination of both effects tends to bring winds out of the southeast throughout most of the summer. Frontal storms tend to track to the north of Florida during summer, as they are too weak to overcome the Bermuda High. However, during winter and spring the Bermuda high weakens due to warmer ocean waters. Advances in the Jet Stream improve conditions for passage of cold fronts. Northerly winds prevail through late fall, winter and early spring in central Florida due to the passage of cold fronts.

Temperature- Since this is a non-forested wetland, scorching, charring, or killing trees is not a concern except for units containing cypress. It is possible to attempt a burn at a higher temperature in order to eradicate woody shrubs. Temperatures of 85°-90°F are preferred in summer burns as caution must given to burning under hotter temperatures because of increased potential for heat stress to burn crews.

Relative Humidity- Fine fuels may reach their moisture of extinction levels when relative humidity is greater than 65%, causing fuel ignition to be low. Relative humidity of 35% or lower may increase spotting potential, cause erratic fire behavior, and increase control problems. Relative humidity of 40-65% may provide optimal burning conditions and minimize control problems.

Midflame Wind Speed- the wind speeds may be from 3 to 15 miles/hour. Winds of less speed may cause smoke management problems and may also cause control problems as fire-generated winds can overcome weak prevailing winds. Wind speeds of greater than 15 mph can increase spotting potential and other control problems.

Transport Wind Speed- The preferred transport wind speeds is from 9 mph to 20 mph. Winds of less than 9 mph may cause smoke management problems. Winds of greater than 20 mph indicates the potential for erratic fire behavior, and can cause control problems. Lower speeds may be sufficient to transport smoke if dispersion index and mixing height are above average

Wind Direction- Prescribed burns will be conducted when winds will direct smoke plumes away from or cause minimal impact to developed areas, residences, roads, and highways. Most units will require a northerly and/or an easterly component to the wind due to proximity to SR 60, Interstate 95, and the City of Fellsmere to the north and Fellsmere to the east. See smoke management.

Fine Fuel Moisture (1 hour)- Preferred one-hour fuel moisture is from 10-20%. Fuel moistures of less than 10% may cause control problems. Fuel moisture of greater than 20% may cause ignition problems. A value on the lower end of the range may aid in achieving goals of reducing shrub encroachment.

Dispersion Index- Preferred values will range from 40 to 69. Indices of less than 40 indicate potential smoke management problems while indices higher than 69 indicate potential control problems and erratic fire behavior. DI's of greater than 69 may be utilized when other weather conditions permit i.e., higher relative humidity, recent significant rain, and fine fuel moisture on the higher side. However, careful planning should take place so that burn objectives are met.

Mixing Height- Mixing heights for prescribed burns will range between 1,650- 6,500 feet. Altitudes lower than 1,650 feet will cause smoke management problems. Heights of greater than 6,500 feet may indicate potential fire control problems and increased possibility of erratic fire behavior. Heights of 3,500-5,500 feet may allow the fire

manager to successfully meet objectives of the burn, provide for good smoke dispersion, and conduct a safe burn.

SMOKE MANAGEMENT

There are smoke sensitive areas that surround the property and effect the smoke management of each burn unit according to their location and distance from each unit. Before an authorization is obtained from the Florida Division of Forestry, a fire weather forecast is obtained and evaluated for suitable burning conditions and smoke management objectives. A wind direction is chosen that will transport smoke away from urbanized areas and/or impact these smoke sensitive areas in the least possible way.

A smoke screening process will be completed with each prescription to plot the direction of the smoke plume, to allow for horizontal dispersion and wind shifts, and to identify critical smoke sensitive areas[ii]. A critical area is a smoke sensitive area within one mile downwind of the burn unit. If a critical smoke sensitive area is downwind from the projected smoke plume, then the burn should not be conducted. A more suitable wind direction should be plotted.

Burn prescriptions should also take into account the atmospheres ability to ventilate smoke. The dispersion index, which is a numerical index that estimates the atmospheres capacity to disperse smoke should not be lower than 40. The mixing height, defined as the height at which thorough mixing of the atmosphere occurs, should not be less than 1,650 ft[iii]. Transport winds should be at least nine mph to effectively minimize residual smoke. Lower transport wind speeds can be utilized if dispersion index and mixing heights are above average.

The smoke sensitive areas near Blue Cypress Conservation Area include: SR 60, I-95, and the Cities of Fellsmere and Vero Beach.

MANAGEMENT CONCERNS AND CHALLENGES

Managing for smoke is always considered. Smoke sensitive areas include SR 60 to the south, I-95 to the east and the Cities of Melbourne and Palm Bay also to the east (Figure 1).

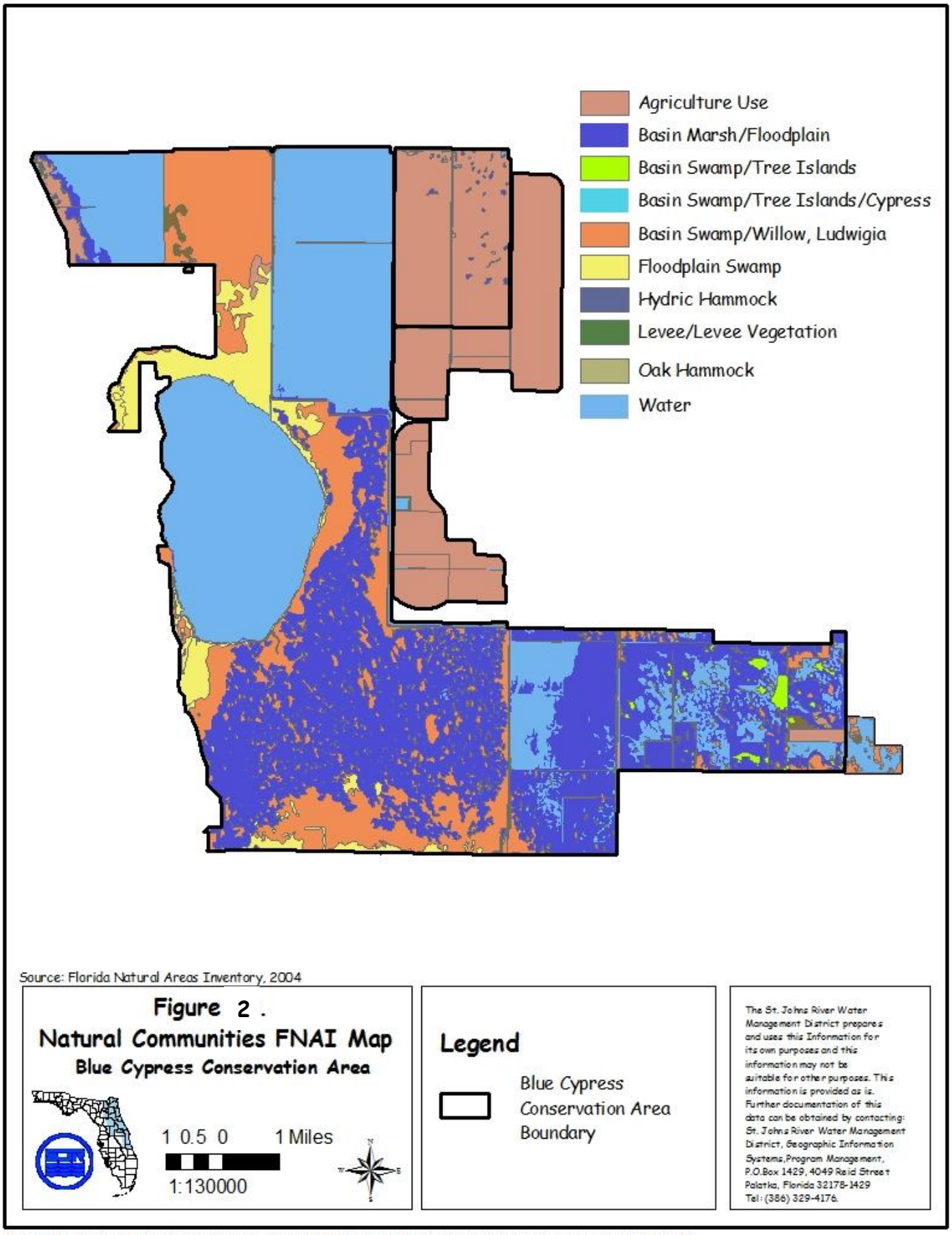
The window of opportunity for prescribed burning is limited by many factors including weather, season, scheduling, and resource availability. Ideal burning conditions are temporary and conditions change daily. Prescribed burning is ceased when the Keetch-Byram Drought Index reaches 500 as the chance of wildfire may increase. Fire only percentage of the workload and other projects will conflict with good burning days. Resource availability may be limited on good burning days as land managers in all five regions of the District have similar fire management objectives. Helicopters are not always available for large units that require aerial ignition.

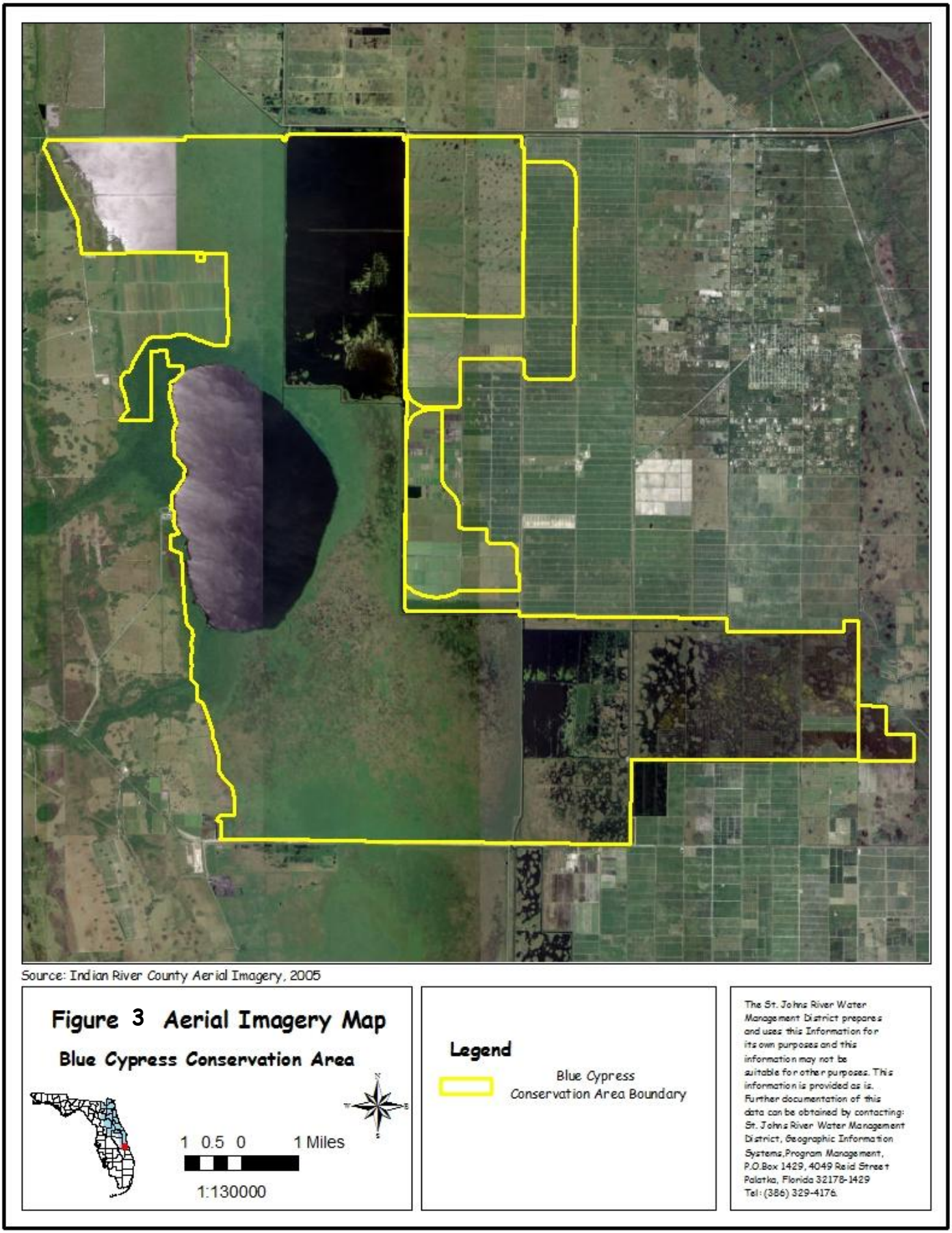
VEGETATION AND WILDLIFE

The FNAI community type that is most prevalent in the surrounding area is floodplain marsh, dominated by sawgrass and willow (Figures 2 and 3). Due to lack of fire and

altered hydrology throughout the property, there was a succession from marsh to a shrub-dominated system via random woody encroachment. Plants include cabbage palm, wax myrtle, willow, Maple, salt bush, cat-tail, glasswort, marsh pink, marsh mallow, bulrushes, spikerush, etc. Brazilian pepper occurs in several of the units near to or along levees.

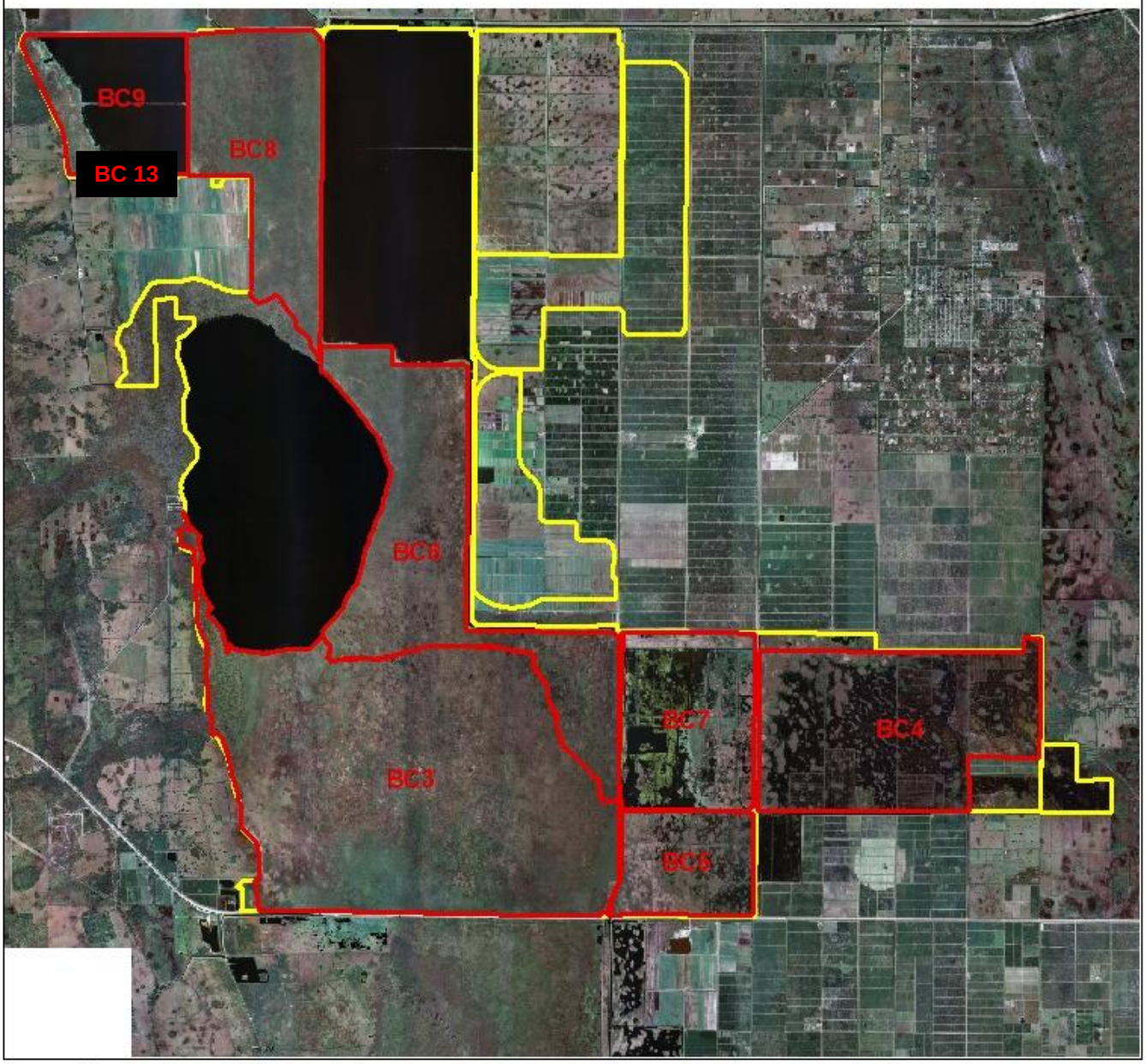
Typical wildlife include leopard frog, pig frog, cricket frog, American alligator, eastern mud snake, banded water snake, snail kite, herons, sandhill crane, sparrow sp., wren sp., warbler sp., river otter, black rail, round tail muskrat, white tailed deer, marsh rabbit, etc. Feral hogs are also present on the property, mainly on the levees.


Agriculture Use
Basin Marsh/Floodplain
Basin Swamp/Tree Islands
Basin Swamp/Tree Islands/Cypress
Basin Swamp/Willow, Ludwigia
Floodplain Swamp
Hydric Hammock
Levee/Levee Vegetation
Oak Hammock
Water
Source: Florida Natural Areas Inventory, 2004
Figure 2.
Natural Communities FNAI Map
Blue Cypress Conservation Area
1 0.5 0 1 Miles
1:130000
Legend
Blue Cypress Conservation Area Boundary
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.
Author:kponzlb, Source:G:\MGMT PLANS\Blue Cypress\2008\Blue Cypress Maps\Figure 8. Natural Communities Map 2_4_2008.mxd, Time:4/9/2008 8:59:44 AM


Source: Indian River County Aerial Imagery, 2005
Figure 3 Aerial Imagery Map
Blue Cypress Conservation Area
1 0.5 0 1 Miles
1:130000
Legend
Blue Cypress Conservation Area Boundary
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.
Author:tmashour, Source:G:\MGMT PLANS\BlueCypress\2007\Blue Cypress Maps\Figure 7. Aerial Imagry Map.mxd, Time:1/19/2007 2:00:25 PM

FIRE MANAGEMENT UNIT DESCRIPTIONS AND BURN HISTORY

Fire management units have been divided incorporating as many natural firebreaks as possible (Figure 4). Some fire management units and man-made firelines established by previous landowners have been integrated into the fire management plan to minimize impacts to the land. Unnecessary firelines have been excluded.



Source: Indian River County Aerial Imagery, 2005; District, 2008

Figure 4
Burn Units Future Map
Blue Cypress Conservation Area

1 0.5 0 1 Miles

1:130000

Legend

Blue Cypress Conservation Area Boundary

Blue Cypress Burn Units

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.

Author:tmashour, Source:G:\MGMT PLANS\BlueCypress\2007\Blue Cypress Maps\Figure 7. Aerial Imagry Map.mxd, Time:1/19/2007 2:00:25 PM

Table 1. BCCA Known Fire History

Type of Fire	Zone	Month	Year	Size (Acres Burned)
Prescribed Burn	BC 1	June	1993	117
Arson	BC 1	May	1994	5
Prescribed Burn	BC 2	June	1994	783
Arson	BC 3	May	1994	982
Arson	BC 3	October	1994	352
Lightning	BC 6	June	1994	2407
Arson	BC 3	June	1995	13
Arson	BC 3	March	1995	59
Prescribed Burn	BC 1	October	1996	365
Arson	BC 1	March	1997	14
Arson	BC 2	March	1997	56
Arson	BC 3	March	1997	5550
Arson	BC 6	March	1997	2028
Arson	BC 3	March	1999	230
Arson	BC 6	March	1999	2206
Prescribed Burn	TF 8	February	2000	3,700
Lightning	BC 3	August	2000	3710
Lightning	BC 4	July	2000	0
Arson	BC 2	January	2001	1429
Arson	BC 3	January	2001	50
Arson	BC 3	January	2001	2421
Arson	BC 6	January	2001	128
Arson	BC 6	January	2001	2611
Prescribed Burn	BC 2, 3, 6	February	2001	5,800
Lightning	BC 4	June	2001	3.1
Arson	BC 3	October	2002	4.7
Prescribed Burn	BC 6	February	2006	1,020
Prescribed Burn	BC 3, 6	March	2008	11,000
Prescribed Burn	BC 3	May	2008	600

EQUIPMENT AND PERSONNEL NEEDS

It is recommended that a helicopter with PREMO Mark III be used to ignite all units or an aerial teratorch. At least one dozer crew or a marsh accessible vehicle should standby on site or at least be accessible for all burns. Two to three engines with crews of two should be on site for most units. Airboats may be needed for several zones. The airboats would notify the public, light the lines, and check for spot overs. At least one portable pump should be set up to fill engines. An ATV should be on-site for patrolling perimeter.

FIRING PLAN AND IGNITION TECHNIQUES

In general, District staff tries to reserve the use of aerial ignition to units that are at least 300 acres or larger, which is typically the case at Blue Cypress Conservation Area. Although some objectives may require the use of aerial ignition in fire management units of lesser acreage, this constraint helps to maintain the cost effectiveness of this technique within the burn program. Aerial ignition allows burn managers to meet both resource management objectives, and smoke management objectives for large acreage burns. Blue Cypress Conservation Area burns are typically ignited aerially with 6-8 people. The first step in the aerial burn is to ignite a backfire on the downwind side (holding line) of the unit. When the holding line is lit completely and is secure then fire can be grid into the unit with the helicopter, or by other means, progressing from the holding line, into the wind and through the unit. Spacing of the grid can be manipulated according to intensity of fire needed to achieve objectives and current and expected fire behavior. A widely spaced grid pattern will increase fire intensity and burn "hotter" because it increases the ratio of the fuel bed that spots will consume before burning out. Tight grids enable spots to burn together more rapidly, decreasing intensity with a resultant "cooler" burn.

MAPS

The prescription should contain a map of the unit that shows fire lines, staging areas, special concern areas, escape routes and safety units. The prescription should also include a smoke map(s) showing the projected path of the smoke plume.

CREW BRIEFING AND SAFETY BRIEFING

During the briefing the burn boss should explain the objectives of the burn. Maps should be distributed to the burn crew to discuss the burn area, crew assignments, identify areas of special concern, to show safety zones and escape routes, and to explain the firing plan. The forecasted weather should be given to the crew during the briefing. The contingency plan should be discussed at this time. Additional safety concerns such as required PPE, venomous snakes, snags and other hazards should be discussed at this time.

If necessary, the aerial burn safety plan should be assigned and discussed at this time as well. This plan should include all hazards associated with aerial burning and are related to working with the helicopter and the aerial ignition machine. The following Aerial Burn Safety Plan should be included in the prescriptions for all Hal Scott aerial burns:

Aerial Burn Safety Plan

BLUE CYPRESS CONSERVATION AREA

The hazards associated with this type of burning are related to working with the helicopter, the sphere dispenser, and dealing with active fire. All helicopter safety procedures and all district fireline policies and procedures will be followed.

1. **BRIEFING -** During the operational briefing the safety plan will be reviewed with all personnel on the burn.
2. **HELICOPTER SAFETY -** The pilot will give a helicopter safety briefing at the morning operational briefing.
3. **AIDS SAFETY –** The operator will review the operation and cleaning procedures for the dispenser at the morning briefing.
4. **PERSONAL PROTECTIVE EQUIPMENT –** The incident commander will ensure that all personnel have the required PPE.
5. **HIGH HAZARD AREAS –** All high hazard areas such as power lines shall be designated on the map and attached to the burn plan.
6. **EMERGENCY LANDING ZONES –** These should be confirmed with the pilot and indicated on the burn map designated at the time of briefing.

CRASH RESCUE PLAN

In the even of an accident involving the helicopter the following procedures will be followed.

INCIDENT COMMANDER or BURN BOSS

1. Call 911.
2. Assume responsibility of the Rescue Operation.
3. Notify National Transportation Safety Board (305-957-4610 OR 404-462-1666)
4. Delegate responsibility of fire control to the second in command or the most qualified.

SECOND IN COMMAND

1. Assume responsibility of the burn.
2. Assist the Incident Commander or Burn Boss with resource and personnel needs for the rescue operation.
3. If the Incident Commander is in the helicopter, second in command will assume rescue operation responsibilities and assign the most qualified to fire control.

Emergency Phone Numbers

AIR RESCUE UNITS

1. Life Flight Holmes Regional Trauma Center **321-434-7296**
2. Orlando Regional Medical Center
   Air Services **407-843-5783 OR 800-895-4615**

BURN UNIT LOCATIONS

1. Orlando Regional Medical Center – Burn Unit **407-237-6398**

DIVISION OF FORESTRY

1. Orlando Dispatch	**407-856-6512**

NATIONAL TRANSPORTATION AND SAFETY BOARD

1. Southeast Regional Office	**305-957-4610**
2. Southeast Field Office	**404-462-1666**

PUBLIC RELATIONS

This section includes cooperating agencies, residents/homeowners associations, adjacent landowners, and other relevant agencies that should receive a courtesy call on the day of burn. A simple courtesy call can aid tremendously in mitigating concerns, questions and complaints from the public, the press and local agencies. The local entities to be given notice of any burns on Blue Cypress Conservation Area include: the Florida Highway Patrol (Lantana Office), the Indian River County Sheriff's Office, Florida Wildlife and Fish Commission, Indian River County Emergency Management. Since the phone numbers on the call out list tend to change over the years, the current numbers will be listed and updated on the burn prescription.

The District Office of Communications should be informed of potential burn dates and of essential information regarding the burn. The Regional Communications Specialist should be given as much notice as possible prior to burn.

AGREEMENTS

The District is the lead manager for Blue Cypress Conservation Area.

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[i] Myers
[ii] Black cover USDA publication
[iii] ibid