Upper St. Johns River Basin
Three Forks Marsh and Blue Cypress Conservation Areas
Brevard and Indian River Counties

LAND MANAGEMENT PLAN

INTRODUCTION

This management plan provides guidelines for land management activities to be implemented within the Blue Cypress and Three Forks Marsh Conservation Areas over the next five years. Since these conservation areas are contiguous and very similar in management strategies, they have been combined in one management plan. This is the first revision to the land management plans for these two areas since 1993.

Three Forks Marsh Conservation Area encompasses approximately 53,112 acres (Figure 1) and extends south from SR 192 to Canal C-54 (a.k.a. L-74W, Fellsmere Grade/Kenansville Road), just north of the Brevard/Indian River County line in Brevard County. The conservation area includes Sawgrass Lake, Lake Hell'n Blazes, Broadmoor Marsh and T.M. Goodwin Waterfowl Management Area. This property includes four restoration projects known as water management areas and marsh conservation areas. Sawgrass Lake Water Management Area will be a treatment wetland and the C-1 Retention Area (Figure 5a) will be a large retention area used for stormwater storage These two projects have not yet been constructed. Three Forks and St. Johns Marsh Conservation Areas (MCA) are used to temporarily retain floodwater and restore and protect the floodplain marsh. Finally, there is one large canal (C-40) running north-south and a canal (C-1), which runs east-west, that terminates at C-40.

Tributaries, notably Six Mile, Ten Mile, and Jane Green Creeks, flow east from the western drainage slope. The first discernible channels (Three Forks Marsh) of the St. Johns River arise within the marsh south of Lake Hell'n Blazes.

Blue Cypress Conservation Area is comprised of approximately 50,030 acres (Figure 1) and stretches north 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 includes Kenansville Lake, Stick Marsh (contained within the St. Johns Water Management Area) and Blue Cypress Lake. Blue Cypress Conservation Area is also included in the Upper St. Johns River Marsh Type II WMA. This property includes several project areas: Blue Cypress and St. Johns (Stick Marsh) Water Management Areas and one marsh conservation area; Blue Cypress Marsh.

Three Forks Marsh and Blue Cypress Conservation Areas are two of the properties that the District acquired to meet the goals of the Upper St. Johns River Basin Project (USJRBP). . Extensive flood plain acreage has been acquired to implement USJRB restoration and/or preserve important water resources, provide water storage to reduce flooding, and provide related environmental benefits. The District has designated two

project areas within the USJRBP: Area 1 covers the headwaters region from the Fort Drum Marsh north to U.S. 192. Area 2 covers that portion of the basin from U.S. 192 north to the confluence with the Econlockhatchee River. Three Forks Marsh and Blue Cypress Conservation Areas are located within Area 1.

AREA OVERVIEW

Three Forks Marsh and Blue Cypress Conservation Areas are located within the Upper St. Johns River Basin. This basin originally encompassed over one million acres, including nearly 400,000 acres of floodplain marsh that formed the river's headwaters. Since 1900, extensive alterations to the river system occurred. By the early 1970s, 62 percent of the 100-year floodplain and 42 percent of the annual floodplain had been diked, drained, and converted to agricultural production. These alterations resulted in appreciable changes in the hydoperiod. In addition, wetland conversions south of U.S. 192 have greatly affected water quality and hydroperiod within these management units. By 1983, only 35 percent of the original floodplain remained and drainage patterns had been severely altered. The emphasis of the USJRB Project is on flood control and the restoration and preservation of historic floodplain.

All of the acquisition parcels, in both management areas, were originally floodplain marsh and forests with some uplands (flatwoods, oak/cabbage palm hammocks), lakes and the river. Most of the properties were converted for agricultural use and/or ditched and diked as part of a flood control project.

Acquisition

The approximately 53,112-acre Three Forks Marsh Conservation Area is comprised of twenty-six separate acquisition parcels (Figure 2), and one transfer parcel. Blue Cypress Conservation Area (approximately 50,030 acres) has one large transfer parcel and seven acquisition parcels. The purchase of these properties is consistent with the goals and objectives set for the Upper St. Johns River Basin Project 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 USJRB project are also identified within the General Design Memorandum approved by the USACE in August 1986. The District Governing Board authorized acquisition of several additional parcels contiguous to the lands identified by USACE, which will aid in the achievement of project objectives.

The following properties were purchased by the District using funding sources as noted and were incorporated into the management area as they were acquired:

Three Forks Marsh Conservation Area
Fellsmere Joint Venture property (LA 83-2) is a 6,595.3-acre parcel purchased in 1985 for $16,656,165.03 using Save Our Rivers (SOR) bonds. Approximately 2,533 acres occur within the Three Forks Marsh Conservation Area.

The Ida Hooker property (LA 83-20) was purchased in 1984 for $20,596.80 with funding from Save Our River Funds (SOR). This was a 10-acre outparcel within the Fellsmere Joint Venture property.

Fellsmere Grade was a mitigation/donation parcel of 267.11 acres donated in 1981.

The Sartori properties were acquired in 4 separate acquisitions. The properties were originally river floodplain that were converted to agriculture fields and diked.
Sartori (west) – Parcel A (LA 83-9a) contains 748.83 acres and was purchased in 1985 for $1,422,777 using SOR/BOND85 funds.
Sartori (west) – Parcel B (LA 83-9b) contains 649.83 acres and was purchased in 1985 for $1,299,660 using SOR/BOND85 funds.
Sartori (west) – addition was purchased in 1987 for $2,268,696.92 using ad valorem taxes. The property is 1,305.88 acres.
Sartori (east) (LA 83-8) – Parcels C, D, E totaled 2,803.3 acres and was purchased using SOR funds in 1985 for $8,409,900.

The Everett property (LA 85-1) is a 10-acre outparcel within the General Development Corporation property. The property was purchased using SOR/BOND85 funds for $10,000 in 1985.

The Gilbert Tucker property (LA 86-4) is a 2,089.04 acre parcel acquired in 1986 with SOR/BOND85 funds for $3,653,736.21.

The Cross Triangle Ranch property (LA 83-10):
Parcel A was purchased in 1988 using ad valorem taxes at a cost of $5,859,852.35. The property consists of 3,210.88 acres.
Parcel B is 2,610.98 acres and was purchased in 1989 using SOR funds for $4,960,853.64.

The General Development Corporation (GDC) property and the Tashkede Properties, Ltd. property were purchased together (LA83-11) in 1989.
The Tashkede property is an 869.74-acre parcel purchased for added water storage capacity at a cost of $608,817.86. This parcel is actually within the Blue Cypress Conservation Area. The GDC property (3,272.56 acres) was purchased for $3,386,650.02.

The Gould property (LA 88-16a), a 277.61-acre parcel, was acquired through eminent domain proceedings for the Upper St. Johns River Basin Project in 1990 for $126,030. A court settlement in 1992 resulted in 9.92 acres returned to the previous owner and an additional payment of $67,875.11, for a total cost of $196,905.11 for 267.69 acres.

The Daley property (LA90-79a) is a 5.24-acre outparcel within the Gould property. This was also acquired through eminent domain proceedings in 1990 at a cost of $11,528. The court settlement in 1992 required an additional payment of $24,260 and a reduction in acreage. The total cost was $35,788 for 0.4 acres.

The Cox property (LA 90-78a) was also an outparcel within the Gould property. This 5.15-acre piece was acquired through eminent domain procedures in 1990 for $11,330. A court settlement in 1992 required additional payment of $9,385 and a reduction of 3.6 acres. This resulted in a total cost of $20,715 for 1.55 acres.

The F. Carlyle Platt property (LA 83-12) is a 2,484.43-acre parcel purchased in 1991 for $4,574,770.70 using SOR funds.

The General Development Corporation additions (LA 90-82a & b) is a 2,319.32-acre parcel acquired in 1991 at a cost of $4,150,051.81 using Preservation 2000 (P2000) funds.

The 326.26-acre Frank Platt property (LA 83-14) was purchased in 1992 at a cost of $619,884.50 using P2000 funds.

The Mary “A” addition (LA 87-4 = 3,681.9 acres) was purchased in 1988 for the sum of $6,259,247 using Save Our Rivers funds.

The Clarence Engle property (LA 90-46a) was a 9.84-acre outparcel acquired in 1992 at a cost of $18,701.70.

The Inskip property (LA 90-87) was a 10.01-acre outparcel acquired in 1992 for $19,019.

The Bagby property (LA 90-45) was a 9.39-acre parcel acquired in 1992 at a cost of $17,854.30.

Lylette Woods property (LA 90-47) was a 10.19-acre parcel acquired in 1994 for $27,665.

Tomlinson (LA 90-44) – This 30-acre parcel was acquired in 1994 for $147,272.89.

V. Seng (LA 90-85) – This 20-acre parcel was acquired in 1994 for $36,662.

Meehan (LA 86-11) – This 18-acre parcel was acquired in 1995 at a cost of $49,000 (acquired through eminent domain).

Williamson-Platt (LA 90-48a) – this 20-acre parcel was acquired in 1995 for $87,551.21 (acquired through eminent domain).

Engle (LA 90-46b) – This 0.3-acre parcel was purchased in 1995 for $10,000.

Everett (LA 86-02) – This 2.87-acre parcel was purchased in 1995 for $15,000.

Willowbrook (LA 95L-17) west – This 2,800-acre parcel was acquired along with a 2,799.68-acre less than-fee-parcel in 1998 for a total price of $11,500,000. P2000 funds provided $7,301,650 and the federal Natural Resources Conservation Service Wetland Reserve Program provided $4,198,350. The 2,800-acre parcel (Broadmoor Marsh) will be managed by the FWC as a Waterfowl Management Area.

A transfer parcel (T004), of which approximately 21,588 acres was added to Three Forks Marsh Conservation Area, was acquired from the Central and South Florida Flood Control District in 1977.

Blue Cypress Conservation Area
Lake Miami Ranch – Parcels A & B (LA 82-16a & b) – These two parcels (Parcel A = 1,018-acres and Parcel B = 902-acres) were purchased in 1983 at a total cost of $2,699,532 using SOR funds. Parcel C (LA 82-16c), 897.72-acres, was purchased in 1984 at a cost of $1,360,045.80 using SOR funds.

Ansin property (LA 82-18, LA 82-12) – This 6,322.64-acre parcel was purchased in 1985 for $8,500,000.

Fellsmere Joint Venture property (LA 83-2), containing 6,595.28 acres, was acquired under option in 1985 for $16,656,185.06 using SOR funds (approximately 4,061 acres occur within the Blue Cypress Conservation Area).

Fellsmere Water Control District property (LA 83-7), containing 1,912.02 acres, was acquired in 1985 for $815,625 using SOR funds.

The Twenty Mile Bend (LA 88-6) transaction in 1988 consisted of and exchange of 0.36 acres in Indian River County to realign a property boundary.

From AT&T, 0.18 acres was donated to the District in 1988.

S.N. Knight (LA 91-16) property consists of 2,485 acres acquired in 1993 for $4,537,500 using P2000 funds.

Finally, approximately 31,561 acres of the transfer parcel (T004) from the former Central and South Florida Flood Control District was incorporated into the Blue Cypress Conservation Area. The entire transfer parcel (53,149 acres) was acquired for $3,922,910 in1977.

Topography and Hydrography

Three Forks Marsh and Blue Cypress Conservation Areas lie within the Eastern Valley between the Ten Mile Ridge and the Osceola Plain. The conservation areas are on ancient marine terraces created during the Pleistocene period due to fluctuating sea levels. Three Forks Marsh Conservation Area slopes to the southeast and Blue Cypress Conservation Area slopes to the south; both from twenty feet to fifteen feet.

The headwaters of the St. Johns River (which flows north) are located just south of Blue Cypress Conservation Area. This is the longest river in Florida. It also contains one-third of the state's lakes, including the second largest, has numerous springs, with outflow among the largest in the world, and encompasses ten major watersheds.

Soils

The soil types found within each conservation area, although hydric in nature, are distinctly different (Figure 3).

Three Forks Marsh Conservation Area
Two major soil types are predominant in this area:

Everglades: These soils are very poorly drained organic soils that form from hydrophytic plants decomposing. They occur in freshwater swamps and marshes that flood for long periods of time.

Micco: These soils consist of nearly level, poorly drained peat in broad depressions and in freshwater marshes and swamps. They formed from fibrous non-woody vegetation over sandy and loamy marine sediments.

Other soils found on site are Floridana, Canova, Chobee, Eaugallie, and Riviera. These soils and the other minor components are nearly level, poorly drained soils typically found in floodplains.

Blue Cypress Conservation Area
Most of this conservation area contains one predominant soil type:

Terra Ceia: These are deep, very poorly drained, permeable organic soils that formed in thick deposits of hydrophytic plant material. They are nearly level soils and are found in freshwater marshes. Under natural conditions, the water table is at or above the surface. This soil series is typically found with Canova and Gator soils that are also associated with freshwater marsh systems.

Vegetation

Sawgrass (Cladium jamaicense) and maidencane (Panicum hemitomon) marshes dominate Blue Cypress Conservation Area. Other species typically found in the marshes and sloughs of this conservation area are floating hearts (*Nymphoides* sp.), spikerush (*Eleocharis* sp.), cattail (*Typha* sp.) and cow-lily (*Nuphar luteum*). Three Forks Marsh Conservation Area is typically dominated by one or several emergent species such as sand cordgrass (*Spartina bakeri*), pickerelweed (*Pontederia cordata*), water-primrose (*Ludwigia* sp.), smartweed (*Polygonum punctatum*), arrowhead (*Sagittaria* spp.), maidencane (*Panicum hemitomon*) and scattered areas of sawgrass (*Cladium jamaicense*). Dense stands of wetland shrubs are scattered along the river channel and portions of lake shorelines in both conservation areas (especially in areas where there has been significant ground disturbance).

The forested wetlands are found as fringe communities around Blue Cypress Lake and in the northwest section of Three Forks Marsh Conservation Area. Mixed wetland hardwood forests, Cypress complexes and cabbage palm – live oak hammocks are the main types of forest communities in these two conservation areas.

Alterations to hydrology, fire regime and the amount of nutrients entering the floodplain system are due to past land conversion practices and have adversely impacted the quality of many areas. Typically this is evidenced by a change from herbaceous wetland species to more terrestrial woody vegetation and dense stands of cattail. These alterations have resulted in highly disturbed wetland systems that have changed from predominantly freshwater marsh to shrub swamp (Figures 4a, b, and c). Blue Cypress Conservation Area contains the most intact floodplain marsh in the Upper Basin.

The lakes historically supported a diversity of submerged aquatic plants such as wildcelery (*Vallisneria americana*) and pondweed (*Potomogeton* spp.). However, hydrilla, an extremely invasive, exotic aquatic plant, has infested the lakes. There is an ongoing invasive exotic plant management program run by the District's Invasive Plant Program. The project has been successful in achieving maintenance control levels of exotic and invasive plant species.

Despite the human related disturbances, most of the properties have succeeded back into somewhat intact, non-forested wetlands, mainly freshwater marshes. Within and surrounding these marshes are occasional hardwood communities such as mesic flatwoods, bay swamps, cabbage palm and live oak hammocks, various mixed hardwood swamps, and cypress communities. The wetland plant communities constitute over 75 percent of the land cover at Three Forks Marsh and Blue Cypress Conservation Areas. Blue Cypress Conservation Area is the least impacted of the two areas and has the most extensive natural marsh area within the USJRBP. A mosaic of freshwater marsh plant communities dominated mainly by sawgrass and maidencane with deeper marsh sloughs interspersed with cypress heads and tree islands describes the intact marsh in the Blue Cypress Conservation Area.

Fire plays an important role in maintaining species diversity in these floodplain and associated upland communities. Historically, most fires had been naturally caused lightening fires. The District has developed a prescribed burn program at Three Forks Marsh and Blue Cypress Conservation Areas to mimic the natural fire regime under a controlled setting.

Wildlife

These two conservation areas provide significant habitat for both fish and wildlife, including listed species such as the Florida snail kite, wood stork, sandhill crane and snowy egret. Species lists are fairly comprehensive for Three Forks Marsh Conservation Area; however, few species have been documented for Blue Cypress Conservation Area. Florida snail kite census and nesting surveys are conducted annually in the Blue Cypress Water Management Area. Wading bird surveys are conducted every few years if funding is available.

Informal wildlife surveys have been conducted on both of these properties. Species observed within the conservation areas by District staff 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, tri-colored heron, green-backed heron, great egret, snowy egret, willet, white and glossy ibis, wood stork, sandhill crane, osprey, snail kite, and bald eagle. Numerous species of fish are associated with Florida river systems and are likely occur within these two conservation areas. These species include largemouth bass, warmouth, bluegill, spotted sunfish, redear sunfish, redbreast sunfish, longear sunfish and blue spotted sunfish.

Zoning

Three Forks Marsh Conservation Area is designated as Public Conservation (PC) in the Brevard County Comprehensive Plan. This designation, which is a new designation representing lands that are in public ownership, is defined as follows:

> *Conservation:* The *conservation* land use designation includes lands intended to provide for the conservation and protection of Brevard County's natural resources and prevent any degradation of those resources. A fundamental goal of this designation is to preserve the natural water recharge and wetland areas and prohibit the draining of or impacts to natural water recharge areas and wetlands of the county. Areas under this designation typically include creeks, stream riverbanks, major drainage ways, beaches, shorelines, major wetlands, poor soil areas that are unsuitable for development, and floodplains. The *conservation* designation limits future development of this land while allowing activities such as growing plants, crops, trees, and raising livestock.

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 the 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 also 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. Extensive drainage systems were created to convert the marshes for agricultural use. Today, the District is working to restore the area to a more natural riverine/floodplain system.

Cultural Resources

In 1984, the USACE hired a consultant to conduct cultural resources surveys of the Upper St. Johns River Flood Control Project. The surveys focused on presumed high probability areas situated within the flood control project that were defined in consultation with the Florida Division of Archives History and Records Management. The results of this survey are on file with the Division of Historical Resources (DHR) in the Master Site Files. Two known sites are located within Three Forks Marsh Conservation Area and one known site is located within Blue Cypress Conservation Area.

Regional Significance

The Upper St. Johns River Basin is an ecosystem of state-wide 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 that includes more than 125,000 acres of pristine and restored freshwater marshes.

Three Forks Marsh and Blue Cypress Conservation Areas continue to be important components of the Upper St. Johns River Basin project. As conservation areas, preserving and protecting the water resources is the priority. In addition to protecting the headwaters of the St. Johns River, the conservation areas provide opportunities for a wide variety of compatible resource-based educational and recreational activities.

LAND MANAGEMENT GOALS

These areas are classified as conservation areas, designed for water resource conservation, plant community and hydrologic restoration where feasible, and natural resource management and protection. Environmental goals include re-establishment of the natural hydrologic regime, re-establishment of the natural fire regime, preservation

of rare species and plant communities, restoration of marsh ecosystems and water quality improvements. The land management goals for the Three Forks Marsh and Blue Cypress Conservation Areas are:

Goals:

I. Promote non-structural flood protection.

II. Restore and maintain natural hydrologic regimes and water quality.

III. Restore, maintain and protect native vegetation, fish and wildlife communities, and their diversity.

IV. Provide opportunities for public recreation where compatible with the goals listed above.

V. Protect archaeological and cultural resources.

Rules and Regulations

Two sets of rules govern the use of these properties. *The Water Management Lands Acquisition and Management Rule*, Chapter 40C-9 of the Administrative Code, is authorized by Section 373.59, Florida Statutes (F.S.), to establish District policies and procedures for management of lands held by the St. Johns River Water Management District. The Florida Wildlife Code, Title 39 FA.C. also applies to these properties since they are a Type II Wildlife Management Area. In situations where Chapter 40C-9 and Title 39 do not agree, Title 39 overrides Chapter 40C-9.

The Type II Wildlife Management area designation allows for hunting, fishing and frogging on the two conservation areas. All general laws pertaining to fish and wildlife must be followed and appropriate stamps and licenses must be obtained from the Florida Fish and Wildlife Conservation Commission. The District prints and sells the Type II WMA permits through the county tax collector's offices.

RESOURCE PROTECTION AND MANAGEMENT

The protection and management of the conservation areas' resources are directly impacted by issues related to access within the property.

Management Issues and Strategies

SECURITY

The Florida Fish and Wildlife Conservation Commission officers patrol the area during hunting season, as it is included as a Type II Wildlife Management Area. The properties were posted just after the original survey work was done. 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. Occasionally, Plantation Security, a private security contractor hired by the District, also provides security and assists the public. The Indian River County Sheriff's Department routinely patrols areas such as Stick Marsh where there is intense public use. The

Ranger Grove Agricultural Police also patrol the area for violations. The District is in the process of establishing a security residence at Three Forks Marsh Conservation Area.

Strategies
- Maintain signage, fences, and gates.
- Continue coordinating with local law enforcement and contracted security.
- Establish security residence at Three Forks Marsh Conservation Area.
- Coordinate with FWC to establish and enforce WMA rules.

RESTORATION
Restoration activities within the Upper Basin are ongoing. Numerous restoration projects within Three Forks and Blue Cypress Conservation Areas are underway. All of the restoration projects share the same goal: to restore the natural hydrologic regime which will facilitate the return of more natural plant communities and soil types, which in turn will benefit wildlife. The following is a list and description of several of the primary projects:

Three Forks Marsh Conservation Area Projects:
Sixmile Creek Marsh Restoration Project – This 2,800-acre project will re-establish the vegetative community to a mosaic of wetland habitats. Phase I will involve site preparation including installation of a pump, which will be used during Phase II to control water levels, and stabilizing the surrounding levees. During this phase, the area will be shallowly flooded to facilitate establishment of native marsh vegetation still remaining in the seed bank. Finally, Phase III will be to reconnect this impoundment with the St. Johns Marsh Conservation Area. This completion of this project is expected to be in 2001/2002.

Broadmoor Marsh Restoration Area – This project area will be developed into a Waterfowl Management Area with an 800-acre reservoir and seven 200-acre impoundments. NRCS is funding the project and Ducks Unlimited is designing and managing the construction with technical assistance from the District and FWC. The District will enter into an inter-governmental agreement with FWC, establishing FWC as the responsible agency for all management activities on the site.

Three Forks Marsh Conservation Area project – In 1985, as part of a General Design Memorandum with the USACE for flood control, habitat enhancement and stormwater management, a restoration project was established for this 13,740-acre area. Since then, several modifications have been proposed and approved. A final revised plan was completed in 1999. Due to the changes in the scope of the restoration plan, and according to the National Environmental Policy Act, the USACE is currently developing an Environmental Impact Statement (EIS) with assistance from the District. The public will have an opportunity to comment on the project in a series of public meetings to be arranged by the USACE. A final version of the EIS is expected in 2001.

Blue Cypress Conservation Area Project:
S.N. Knight Property (Kenansville Lake area) – This 2,526-acre lake will be reconfigured to maximize marsh flooding through hydrologic reconnection to the Blue Cypress Marsh Conservation Area. The USACE will be responsible for this project.

In support of these restoration projects, the District is currently in the process of mapping vegetation communities for the entire Upper Basin.

Strategies
- Complete hydrologic reconnection of Sixmile Creek area.
- Develop inter-governmental agreement with FWC for Broadmoor Marsh.
- Complete EIS draft and schedule public meetings for Three Forks Marsh Conservation Area project.
- Continue vegetation mapping of Upper Basin.

FIRE MANAGEMENT
Fire is a significant factor controlling the character of vegetation in Florida. The primary use of fire in the Upper Basin is to mimic the natural fire regime in order to maintain and manage vegetation patterns and succession. The use of fire is important for wildlife, management and restoration of ecosystems, and to control fuel levels.

Strategies
- Continue to develop and implement the Annual Prescribed Fire Management Plan. This plan should include burn prescriptions, 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).
- Develop a Comprehensive Fire Management Plan for the both conservation areas by 2001.

WATER RESOURCES
Three Forks Marsh and Blue Cypress Conservation Areas are continuously monitored for water quality changes. There are three major water quality-sampling efforts in these conservation areas.

The first consists of long-term monitoring of several water quality parameters, both to detect trends and to assess the effects of management actions. These monitoring stations include marsh, lake, and river habitats.

The second effort is to obtain sufficient water quality data to calculate pollutant loading to the system and measure the system's responses to these loads. This information allows water quality modeling used to evaluate management strategies and to determine Pollutant Load Reduction Goals (PLRGs) that will achieve the water quality goals in these areas. To meet the needs of this effort, tributaries, inflows and outflows

of lakes and stormwater are sampled in addition to the permanent monitoring stations. PLRG recommendations are expected for Three Forks Conservation Area in FY-01/02.

The final sampling effort is concentrated in Blue Cypress Conservation Area. This effort involves specialized and coordinated sampling not only of water quality but also soil chemistry, microbial community and activity, molecular genetics, fungal community, and biogeochemical cycling of nutrients. This effort is predominantly funded through a $500,000 Environmental Protection Agency grant awarded to the University of Florida and the District to identify sensitive and affordable indicators of ecosystem integrity. In particular, this work focuses on nutrient effects on wetlands and recovery from nutrient impacts. This information will also be invaluable in determining appropriate nutrient goals for wetlands.

Strategies
- Continue to evaluate and acquire additional lands deemed important for water quality improvements.
- Continue monitoring water quality in these two conservation areas.

LISTED SPECIES
Some ecological communities and listed species require additional management measures to protect them. Identifying those resources requiring special attention and monitoring are integral parts of managing the properties. This area is rich with wildlife, especially wading birds. Investigation into identifying rookery and nursery sites is ongoing. Aerial surveys of wading birds have been conducted from 1993-95 and 1998-2000, annually. Species lists for these properties are being built upon. Several listed species have been identified in the two conservation areas, including Florida snail kite, Florida sandhill crane, wood stork and crested caracara.

An annual census and determination of nesting success of the endangered Florida Snail Kite in the Blue Cypress Water Management Area is ongoing. This activity is required by the United States Fish and Wildlife Service (USFWS).

In 2001, the District's Environmental Sciences Staff will begin a project to survey for listed species within the entire Upper Basin. The scope of the plan is not yet written.

Strategies
- Continue surveying wading birds and Florida snail kite populations.
- Identify special protection measures and management strategies for listed species and communities.
- Begin survey to identify presence/absence of listed species.

EXOTIC SPECIES
Exotic species control is necessary to prevent proliferation of exotic and nuisance species. Control of these species is problematic but vital to maintaining ecological integrity of natural communities. The goal of the District's Invasive Plant Program is to

achieve maintenance control of exotic and invasive plant populations present on District properties. Monitoring and treatment of exotic species is an on-going process.

Plants

Aquatic vegetation control is ongoing at Three Forks Marsh and Blue Cypress Conservation Areas. The District's Invasive Plant Program is responsible for treating exotics found on the properties such as Hydrilla (*Hydrilla verticillata.*), water hyacinth (*Eichornia crassipes*) and water lettuce (*Pistia stratiotes*), Brazilian pepper (*Schinus terebinthifolius*), cogon grass (*Imperata cylindrica*), Melaleuca (*Melaleuca quinquenervia*), air potato (*Dioscorea bulbifera*) and Lygodium (*Lygodium* sp.).

Tropical soda apple, TSA (*Sida* sp.), is an extremely invasive and exotic species. The seeds are spread through the digestive systems of bovines. TSA is found mainly on levees.

The District has an annual contract with the Department of Environmental Protection (DEP) to treat water hyacinth, water lettuce and hydrilla from Blue Cypress Lake north to Lake Washington, ending at the low level weir. The District is responsible for vegetation control in all other areas including the uplands.

Strategies

- Monitor and continue to treat exotic vegetation.
- Continue agreement with DEP for the treatment of exotic/invasive species in the Upper St. Johns River and associated lakes.

Animals

The spread of non-native species in Florida has become a serious problem. Wild pigs or feral hogs are an extremely destructive species and are found in all types of habitats. Their effect on native plant communities and animals has been severe, as they are opportunistic feeders and create substantial ground disturbance. While feral hogs have been observed in the conservation areas, they are not considered a serious problem on site. These animals are taken during the seasonal hunts.

LAND USE MANAGEMENT

Assessment

The District is legislatively directed to evaluate a number of resource-based activities on District lands for possible implementation. Of these, fishing, hunting, camping, hiking, horseback riding, canoeing, boating, air boating, biking and nature study are available within the Three Forks Marsh and Blue Cypress Conservation Areas (Figures 5a and 5b). The District may restrict use of District-owned lands as necessary for flood control, water supply, protection of natural resources, to avoid conflicting uses, or to provide alternative hunting and other recreational opportunities.

In 1987, the District and the USACE 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 USACE and the District. Four of the recreation sites at Three Forks Marsh and Blue Cypress Conservation Areas were developed as part of this project:

- Thomas O. Lawton Recreation Area
- Fellsmere Grade Recreation Area
- Highway 512 Recreation Area
- Blue Cypress County Park

Management Issues and Strategies

ACCESS

Three Forks Marsh Conservation Area

Three access points have been established in this conservation area. Two access points are located off of SR 192, and are limited to boat access only. The Thomas O. Lawton Recreation Area on Malabar Road (CR 514) provides parking and restrooms. A multi-use trail is accessible from this area and, following the completion of the flood control project, the boat ramp will be functional.

Blue Cypress Conservation Area

This property contains five access points. The Kenansville Lake site is located along the C-54 canal on the northeastern corner of the property and contains boat ramps and parking areas (Kenansville Road/Fellsmere Grade). Fellsmere Grade Recreation Area is located in the northwestern section of the property, along the C-54 canal, and has both a boat ramp and parking. Blue Cypress County Park is located on the west side of Blue Cypress Lake, off of Blue Cypress Lake Road, and provides a boat ramp. Blue Cypress Water Management Area is located on the west side of Highway 512 and provides parking and a boat ramp.

Strategies

- Continue regular maintenance on access areas.
- Maintain signs and kiosks within the area.
- Coordinate with USACE and Indian River County on the implementation of recreational improvements at Blue Cypress Lake County Park.

RECREATION

Three Forks Marsh and Blue Cypress Conservation Areas are currently open to the public for hunting, fishing, boating (all types), hiking, biking, and primitive camping at designated sites (Figures 5a & b). Three Forks Marsh Conservation Area offers trails for horseback riding. The two conservation areas are included in the Upper St. Johns River Marsh Type II Wildlife Management Area.

A linear bike path has been developed starting from the Thomas O. Lawton Recreation Area in Three Forks Marsh Conservation Area and ending near the Zig-Zag camp site in the Blue Cypress Conservation Area.

District staff have constructed two inclement weather shelters in Three Forks Marsh Conservation Area and two inclement weather shelters and a sheltered camp in Blue Cypress Conservation Area to provide protection during adverse weather conditions.

A recreation use survey was conducted in 1994-1995 to determine recreational use patterns in the marshes of the Upper St. Johns River Basin (Appendix A).

Strategies

- Continue coordinating with USACE and local governments to lower the cost of development of recreation sites while adhering to the Local Cooperation Agreement.
- Coordinate with USACE and Indian River County on the implementation of recreational improvements at Blue Cypress Lake County Park.

CULTURAL RESOURCES

District policy #90-11 establishes management policies for archaeological and cultural sites on District property. There are two known sites at Three Forks Marsh Conservation Area and one at Blue Cypress Conservation Area; both are registered in the Master Site File with the Florida Division of Historical Resources. Any construction or restoration projects that may impact these resources will be evaluated and modified to minimize impacts. Appropriate protection of identified or suspected sites will be implemented.

Strategies

- Monitor sites for any disturbance.
- Coordinate with the Florida Division of Historical Resources and take action to reduce any potential disturbance of any sites identified.

Environmental Education

Currently, there are no plans to establish a Legacy Program, the District's environmental education program for middle and high school students. Implementing a Legacy Program for these two conservation areas will be re-evaluated in the future.

Strategies

- Evaluate potential for developing environmental education opportunities on the property.

COOPERATIVE AGREEMENTS

In accordance with District Policy #90-16, the District promotes inter-agency coordination in the management of District lands for increased efficiency, protection of natural resources, and improved recreation opportunities. The District believes these agreements are vital for proper stewardship of public lands, and those cooperators

should be acknowledged and recognized for their contributions. An agreement is in place with the FWC for assistance in these management areas.

The T.M. Goodwin Waterfowl Management Area located within the Three Forks Marsh Conservation Area is leased to the FWC to manage as a waterfowl hunting area. The District retains the right to control water levels within the management area during flood conditions.

District staff continue to work with USACE on the implementation of the Local Cooperative Agreement for the joint development of recreation sites within the Upper St. Johns River Basin. This includes the development of Blue Cypress County Park, which is targeted for completion by 2001.
Although no formal agreement exists, the District's Division of Land Management works closely with the Florida Division of Forestry to manage both wildfires and prescribed burning efforts.

The District coordinates with DEP for invasive and exotic plant removal in the St. Johns River and adjoining lakes. This agreement is renewed annually.

A contract for mowing the levee systems within these two conservation areas is held by Emerson Agricultural Services. This is a 12-month contract with two options of renewal.

Strategies
- Maintain agreements to assist with the management and maintenance of the two conservation areas.

Agreement	Agency/Individual	Term	Acres	Expires	Conservation Area
WMA Type II	FWC	open	103,142	open	TFMCA/BCCA
T.M. Goodwin Waterfowl Management Area	FWC	30 years, renewable on a five year basis thereafter	3,870	2021	TFMCA
Invasive/Exotic Aquatic Plant Removal	DEP	Annual	103,142	September 30, annually	TFMCA/BCCA
Levee Mowing	Emerson Agricultural Services	Annual	103,142	September 30, annually	TFMCA/BCCA
Local Cooperative Agreement	USACE	50 years	103,142	2037	TFMCA/BCCA

ADMINISTRATION AND IMPLEMENTATION

Summary

These management units comprise a large part of the USJRB Project within Project Area 1 and are included within the St. Johns River Type II Wildlife Management Area, a cooperative effort between the District and the FWC. However, the District is the principal managing entity for these lands (except T.M. Goodwin Waterfowl Management Area and, potentially, Broadmoor Marsh Waterfowl Management Area). The Division of

Land Management will continue to develop, coordinate, and implement work orders, budgets, and plans to address management needs.

Land management efforts will focus on coordinating effectively with the FWC and other law enforcement entities to insure compliance with established regulations in order to provide acceptable levels of resource protection.

Land management staff will coordinate recreational development and appropriate uses through the Land Resources Committee (District staff) and the Southern Region Recreation Advisory Council (public/interagency membership), as both groups serve to provide recommendations regarding recreational use on and access to District lands.

The District's Division of Environmental Sciences conducts restoration activities on both properties and also assists the Division of Land Management by reviewing plans and evaluating natural system functions. The Division of Land Acquisition purchases those lands established through the Five Year Plan for acquisition within a project area.

An implementation chart of activities and responsibilities follows.

Three Forks Marsh and Blue Cypress Conservation Areas
Management Activity Implementation Chart

TASK	RESPONSIBLE LEAD	DUE DATE	COOPERATORS
RESOURCE PROTECTION AND MANAGEMENT			
Security			
Maintain signs, fences and gates.	DLM	ongoing	FWC, security contractor, local law enforcement, agricultural police
Continue coordinating with local and private law enforcement.	DLM	ongoing	
Establish security residence at Three Forks Conservation Area.	DLM	2001	Local law enforcement.
Coordinate with FWC to establish and enforce WMA rules.	DLM	ongoing	FWC
Restoration			
Complete hydrologic reconnection of Sixmile Creek area.	ES	2001	
Develop inter-governmental agreement with FWC for Broadmoor Marsh.	DLM	12/2000	FWC
Complete EIS draft and schedule public meetings for Three Forks Marsh Conservation Area	USACE	2001	ES
Continue vegetation mapping of Upper Basin.	ES	Ongoing	
Fire Management			
Develop and implement Annual Prescribed Fire Management Plan	DLM	Annually	DOF
Develop a Comprehensive Fire Management Plan for the entire conservation area by 2001.	DLM	2001	
Water Resources			
Continue to evaluate and acquire additional lands deemed important for water quality improvements.	DLA	ongoing	DLM
Continue monitoring water quality in these two conservation areas.	ES	Ongoing	DLM
Listed Species			
Continue surveying wading birds and Florida snail kite populations.	ES	ongoing	DLM
Identify special protection measures and management strategies for listed species and communities.	DLM	as needed	ES
Begin survey to identify presence/absence of listed species.	ES	2001	
Exotic Species			
Monitor and continue to treat exotic vegetation.	DLM	ongoing	FWC

TASK	RESPONSIBLE LEAD	DUE DATE	COOPERATORS
Continue coordinating with DEP for the treatment of exotic/invasive species in the Upper St. Johns River..	DLM	ongoing	DEP
LAND USE MANAGEMENT			
Access			
Continue regular maintenance on access areas.	DLM	ongoing	
Maintain signs and kiosks within the area.	DLM	ongoing	
Recreation			
Continue coordinating with USACE and local governments to lower the cost of development of recreation sites while adhering to the Local Cooperation Agreement.	DPWSR, DLM	ongoing	USACE, local governments
Coordinate with USACE and Indian River County on the implementation of recreational improvements at Blue Cypress Lake County Park.	DLM	2001	USACE, Indian River County
Cultural Resources			
Monitor sites for any disturbance.	DLM	ongoing	FWC
Coordinate with the Florida Division of Historical Resources and take action to reduce any potential disturbance of any sites identified.	DLM	ongoing	FDHR
Environmental Education			
Evaluate potential for developing environmental education opportunities on the properties.	OC	ongoing	DLM
Cooperative Agreements			
Maintain agreements to assist with the management and maintenance of the conservation area.	DLM	ongoing	FWC, mowing contractor, USACE

KEY

DLA	Division of Land Acquisition
DLM	Division of Land Management
DPWSR	Division of Public Works, Southern Region
DRM	Division of Resource Management
DWR	Department of Water Resources
ES	Division of Environmental Sciences
FDHR	Florida Division of Historical Resources
FWC	Florida Fish and Wildlife Conservation Commission
NRCS	Natural Resources Conservation Service
OC	Office of Communication