



LAND MANAGEMENT PLAN

# DEEP CREEK PRESERVE

SEPT. 20, 2022

Southwest Florida  
*Water Management District*



# **Land Management Plan**

## **Deep Creek Preserve**

**Land Resources Bureau**

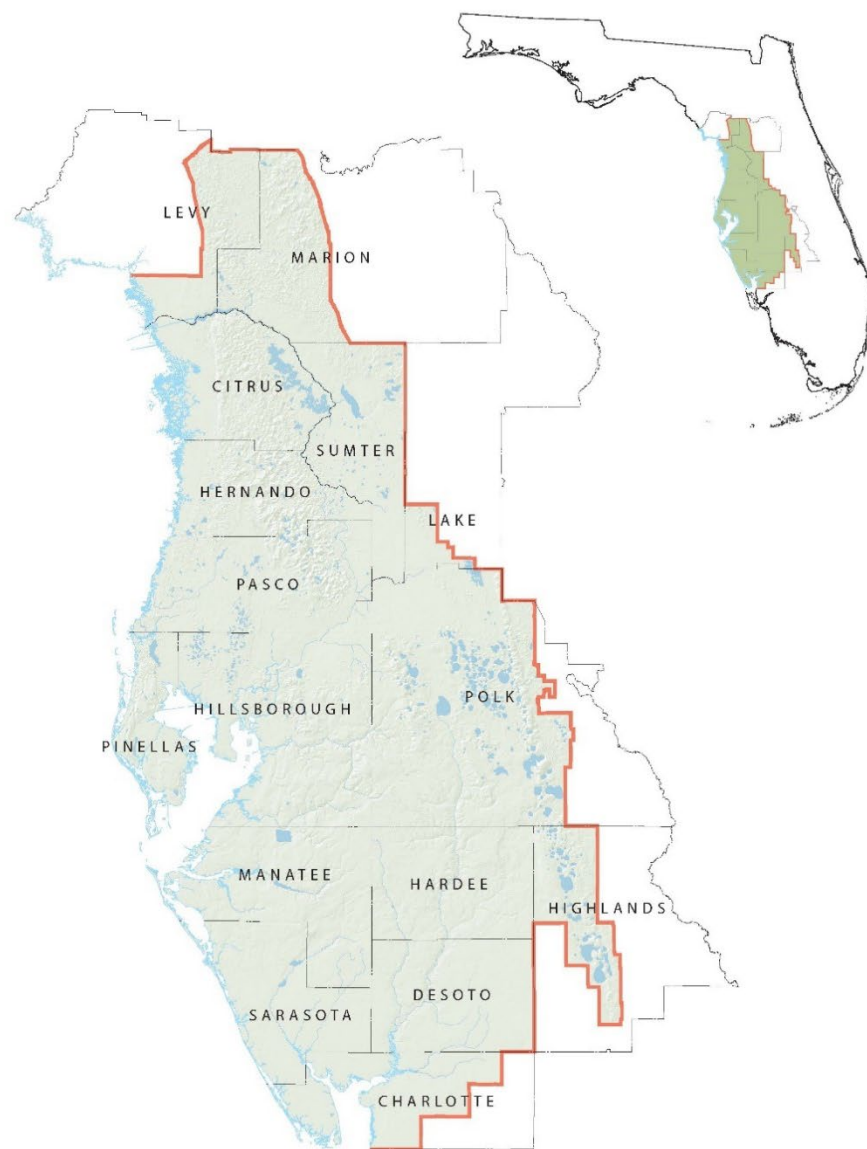
**Southwest Florida Water Management District**

**September 20, 2022**



The Southwest Florida Water Management District (District) is a science-based organization responsible for managing and protecting water resources in west-central Florida. The District's job is to ensure there are adequate water supplies to meet the needs of current and future users while protecting and restoring water and related natural resources.

The District encompasses all or part of 16 counties, from Levy County in the north to Charlotte County in the south. It extends from the Gulf of Mexico east to the highlands of central Florida. The District contains 97 local governments spread over approximately 10,000 square miles, with a total population estimated to be 5.4 million in 2020.





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## Executive Summary

Acres: 2,084

Acquisition Date: 1997

Plan Term: 10 Years (2023-2032)

Primary Basin: Peace River

Secondary Basin: Deep Creek

Location: DeSoto and Charlotte Counties

Funding Source: Water Management Lands Trust (Save Our Rivers) Funds

Partnerships: DeSoto County

**Natural Systems:** The District uses natural communities as defined by the Florida Natural Areas Inventory (FNAI) to describe habitats of the Deep Creek Preserve (Preserve). Nine natural communities were identified by FNAI; almost half of the 2,084-acre Preserve is comprised of mesic flatwoods communities. Wetlands comprise about 40 percent of the Preserve and about 400 acres are floodplain marsh and swamp associated with the Peace River floodplain. Basin and depression marshes occur in the mosaic of poorly drained flatwoods and scattered, primarily herbaceous wetlands.

**Water Resources:** Water Resource benefits provided by the Preserve include flood protection, water quality enhancement, and natural system protection. Wetlands (floodplain marsh and floodplain swamp) associated with the Deep Creek/Peace River floodplain store floodwaters and attenuate downstream effects of storm events. Protection and management of wetland communities on the Preserve will enhance water quality functions by sequestering nitrogen and removing phosphorus from urban runoff before ultimately discharging to the Peace River.

**Land Management:** Management activities on the Preserve include prescribed fire, habitat management, restoration, feral hog control, and control of invasive, exotic plant species. The District aims to apply fire to all fire-dependent natural communities based on their natural fire return intervals defined by FNAI. There is a network of firelines and natural firebreaks throughout the property that allow for successful fire management and limit the potential for wildfires.

**Cultural and Historical Resources:** The only records identified in the Florida Master Site File are cultural resources that lie outside of the Preserve boundary.

**Recreation:** The recreational activities permitted at the Preserve are hiking, equestrian trail riding, and group camping. Approximately seven miles of the nine-mile trail network are available for both hiking and equestrian use; two miles are hiking-only trails. Triangular signs depicting appropriate uses provide directions to a network of hiking and equestrian experiences across the Preserve.

**Special Use Authorization (SUA):** There are various special uses on the Preserve which require SUA approval from the District as set forth in Florida Administrative Code §40D-9. The typical

types of special uses occurring on the Preserve can be categorized as recreation, research, and law enforcement training.

**Access:** Access to the Preserve is provided at two locations along the northern property boundary on Peace River Street. The northwestern access includes parking and an information kiosk and is located just north of the primitive group camp site. Access at the northeast corner near the Peace River is through Deep Creek Park, which is maintained by DeSoto County.

**Real Estate:** The District will continue to consider opportunities to purchase lands adjacent to the Preserve with the goal of promoting the District's effort to protect of protecting the natural features of conservation lands for the benefit of flood protection, water quality, and water supply.

**Cooperative Agreements, Leases, and Easements:** The only cooperative agreement that the District has on the Preserve is a 20-year agreement with DeSoto County for the management of recreation facilities on an approximately 6.5-acre park site at the northeast corner of the Preserve. The County is responsible for management and maintenance of the facilities at the park, along with signage and security.

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# **Introduction and General Information**

## **Management Plan Purpose**

The purpose of this Management Plan is to set forth the District's management strategy for the Preserve for the next 10 years. The creation, updating, and implementation of this Management Plan is governed by the District's Governing Board Policy titled Land Use and Management (District Policy) and the District's Executive Director Procedure titled Land Use and Management Planning (Procedure) which outline the use and management of District-owned conservation lands. District-owned conservation lands are managed for the protection of water resources and natural systems through the application of effective and efficient land management practices. This Management Plan provides an overview of the property, a summary of past achievements, and an outline of goals and objectives for the next 10-year planning period.

## **District Planning Philosophy**

The District's planning philosophy is intended to identify the method in which Management Plans are developed and implemented with input from both internal and external stakeholders. Management Plans are designed to guide the use and management of District conservation lands and incorporate input from stakeholders as to the use and management.

Management Plans are developed following an extensive process of planning, coordination, data review, field review, and creation of strategic goals and objectives. Through this process, a draft Management Plan is created and reviewed by key stakeholders, including District staff, subject matter experts, state agencies, local governments, partners, non-governmental organizations, and other interest groups.

Following review of the draft Management Plan by the key stakeholders identified above, a public workshop is held to solicit public input on the draft Management Plan. The workshop is advertised in local newspapers, on the District's website, and via social media outlets, and it is held in the region the property is located. Additionally, the public has an opportunity to provide input via the District's website for a period both preceding and following the workshop. Once the public comment period has expired, a final draft of the Management Plan that includes consideration of public input is presented to the District's Governing Board for approval at a regular Governing Board meeting.

## **Public Involvement**

In addition to the input solicited through a public workshop during the development of the Management Plan, the District also provides the opportunity for stakeholders to provide input during the Land Management Review process. This process occurs periodically to inform the public and hold the District accountable for the management of the property. This process assures the District is managing the land in accordance with the Management Plan and is consistent with the purpose for which the property was acquired. The Land Management Review team is comprised of team members from various state agencies, cooperative partners, private land managers, and other entities involved in land management. The focus is on management activities

and includes a thorough review of the property, followed by an evaluation that is reviewed by the District and ultimately presented to the District's Governing Board.

## **District Strategic Plan**

The 2022 – 2026 Strategic Plan outlines the District's focus in each of the four planning regions over the next five-year planning cycle (SWFWMD, 2022). The Strategic Plan identifies 11 strategic initiatives as they relate to the District's core mission of water supply, water quality, natural systems, and flood protection. The goal for natural systems is to preserve, protect, and restore natural systems to support their natural hydrologic and ecologic functions (Natural Systems Goal). The Conservation and Restoration Strategic Initiative contained within the Strategic Plan supports the Natural Systems Goal, and the major components of this initiative include land acquisition and management, ecosystem monitoring and restoration, education, and regulation. Land acquisition and management are critical to the District's conservation and restoration objectives. If land acquired has been altered, that land may be restored if necessary and then managed to maintain ecological and hydrological functions. In addition, land management is identified as one of seven Core Business Processes critical to achieving the District's Strategic Initiatives and Regional Priorities as defined in the Strategic Plan.

## **Management Authority**

The District considers the Preserve as conservation land which dictates the management intent for the property. Pursuant to Subsection 373.089(6)(c) of the Florida Statutes, all lands titled to the District prior to July 1, 1999, were designated as having been acquired for conservation purposes. This brings parcels that were purchased originally as water control projects within the purview of conservation land management. Other parcels that were later acquired under conservation land acquisition programs are also managed for these same purposes.

Furthermore, pursuant to Section 373.1391 of the Florida Statutes, lands titled to the District should be managed and maintained, to the extent practicable, in such a way as to ensure a balance between public access, recreation, and the restoration and protection of their natural state and condition. District Policy and District Procedure govern the use and management of these lands in accordance with Chapters 259 and 373 of the Florida Statutes.

## **Location**

The Preserve is in the southwestern corner of DeSoto County, near the intersection of DeSoto, Charlotte, and Sarasota Counties, east of the city of North Port and north of the city of Punta Gorda. The Preserve lies between Interstate 75 and U.S. Highway 17, just west of the Peace River and north of Charlotte Harbor (**Figure 1** and **Figure 2**). The Preserve is approximately 15 miles southwest of the city of Arcadia and eight miles north of Punta Gorda. It lies within two miles of Interstate 75, and a few hundred feet from the recently expanded Kings Highway (County Road 769), which connects State Road 72 near Arcadia to U.S. 41 in Port Charlotte.

Most of the southern boundary of the Preserve is along the DeSoto/Charlotte County line, but an approximately 30-acre portion of the Peace River floodplain within the Preserve is in Charlotte County. Deep Creek flows west to east across the Preserve and coalesces as a channel of the Peace



River in the eastern portion of the Preserve. Hunter Creek, another channel of the Peace River, flows just east of the boundary of the Preserve. Both Creeks and the Peace River flow south into the Gasparilla Sound-Charlotte Harbor Aquatic Preserve, an Outstanding Florida Water a little more than 10 miles downstream of the Preserve.

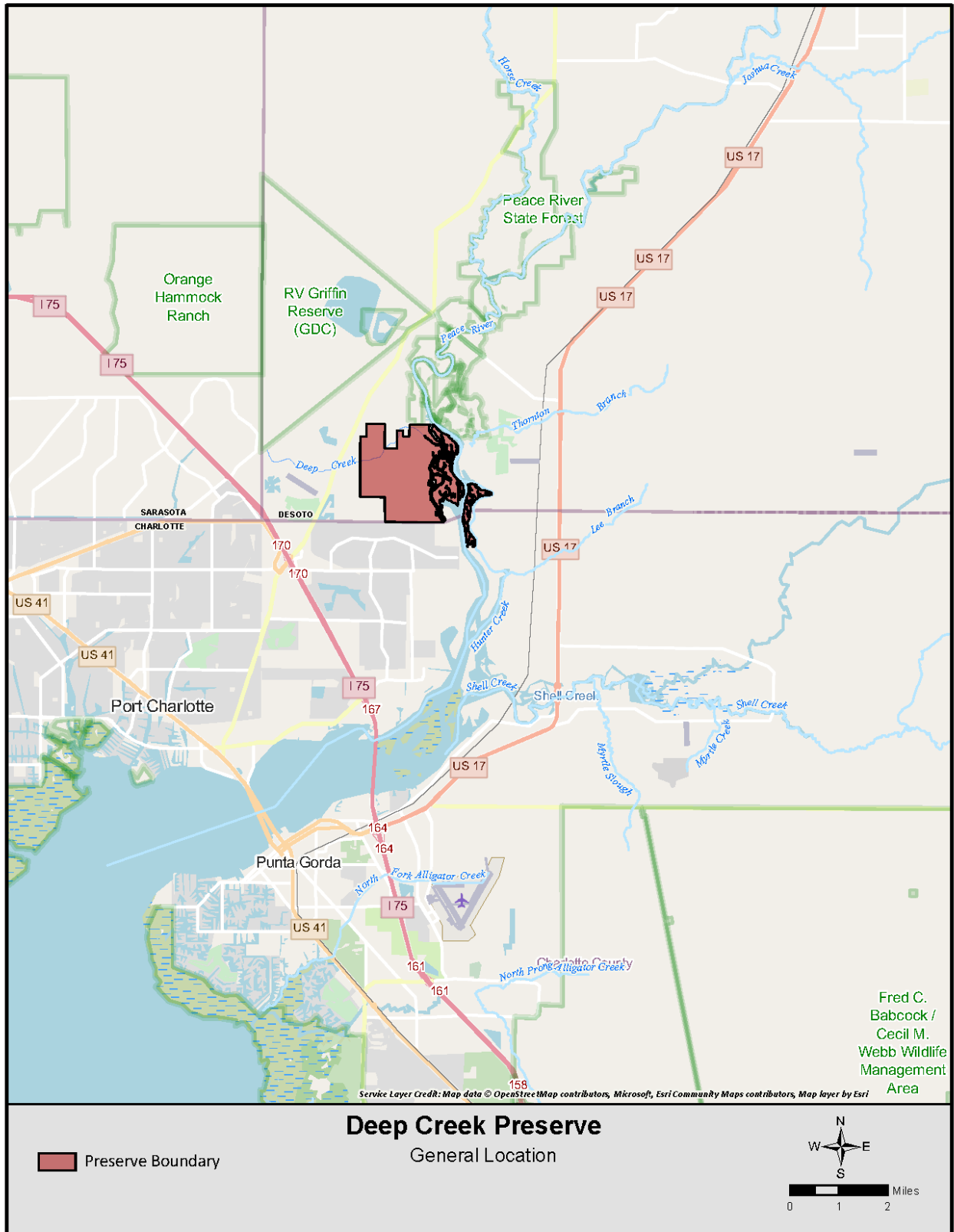


FIGURE 1. GENERAL LOCATION



FIGURE 2. AERIAL OVERVIEW



## Acquisition

### Policy

Pursuant to Section 373.139(2), Florida Statutes, the District's Governing Board is empowered and authorized to acquire title to real property for purposes of flood control, water storage, water management, conservation and protection of water resources, aquifer recharge, water resource and water supply development, and preservation of wetlands, streams, and lakes. Lands evaluated for purchase by the District shall be evaluated based on the District's four (4) Areas of Responsibility (AORs): water supply, water quality, flood control, and natural systems. The Governing Board is primarily interested in acquiring conservation lands that meet at least two (2) of the four (4) AORs.

### History

Deep Creek Preserve was purchased fee simple on November 18, 1997, with Water Management Lands Trust (Save Our Rivers) Funds. The acquisition was part of the District's 38,400-acre Peace River Corridor project. The primary purpose for the purchase of the Preserve was to protect, restore, and maintain the quality and natural functions of the land, water, and wetland systems, to promote natural flood control and water detention, and to provide natural resource-based public recreational opportunities within the region.

### Regional Significance

The FNAI maintains the Florida Forever Conservation Data Viewer (FNAI, 2022) which provides access to the ranking of the resource value of natural and agricultural lands across the state as outlined by the Florida Department of Environmental Protection. This database provides a general characterization of the regional significance of Deep Creek Preserve. The Preserve ranks as a Priority 3 Strategic Habitat Conservation Area, and it is an important link in the Florida Ecological Greenway in this portion of the state. The substantial areas of mesic flatwoods on the Preserve are highlighted as underrepresented communities needing protection, and the Peace River floodplain is Priority 1 for floodplain conservation. Deep Creek Preserve exists as a buffer to the urban communities of North Port and Punta Gorda within the Florida Wildlife Corridor's expansive vision for natural lands conservation in Southwest Florida.

### Regional Conservation Network

The Preserve is part of a large group of conservation lands within an approximately 20-mile radius (**Figure 3**). Dozens of tracts in this portion of the state have been acquired or dedicated to natural resource protection through efforts of federal, state, and local governments and private entities (**Table 1**). Deep Creek Preserve is a part of a large network of conservation lands that extend from the Peace to the Myakka rivers in the watershed of the Gasparilla Sound-Charlotte Harbor Aquatic Preserve. Between the Peace and Caloosahatchee rivers in the region are the expansive conservation lands associated with the Babcock Ranch Preserve and the Fred C. Babcock/Cecil M. Webb Wildlife Management Area, including the Yucca Pens Unit. Deep Creek Preserve provides an important linkage between the large conservation lands to the south and the extensive network of conservation lands in Sarasota and Manatee counties.

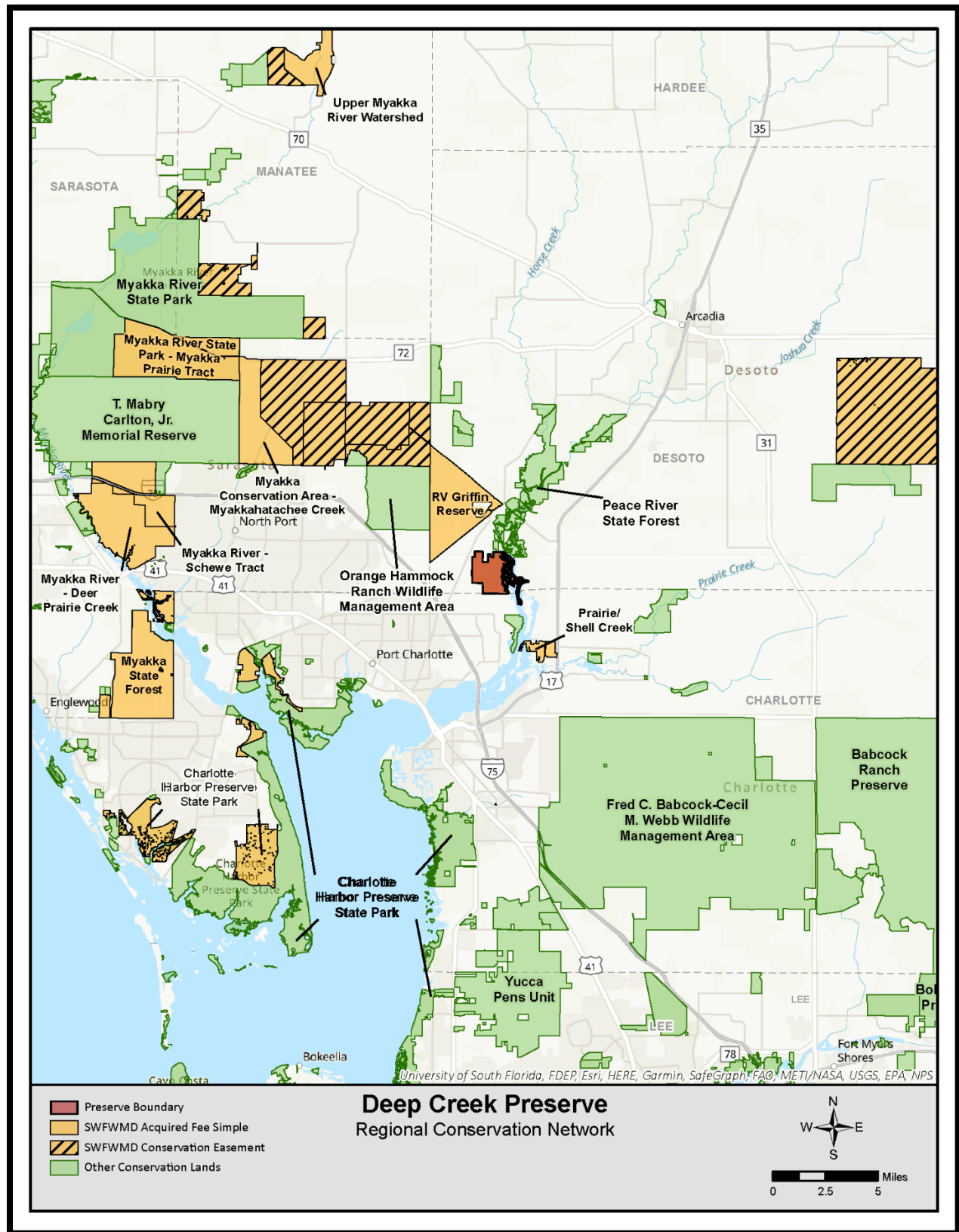


FIGURE 3. REGIONAL CONSERVATION NETWORK

**TABLE 1. CONSERVATION LANDS WITHIN THE VICINITY**

Property	Manager	Owner	Acres	County
Prairie/Shell Creek	SWFWMD	SWFWMD	610	Charlotte
Deep Creek Preserve	SWFWMD	SWFWMD	2,029	Charlotte, Desoto
Myakka River- Schewe	SWFWMD	SWFWMD	3,994	Sarasota
RV Griffin Reserve	SWFWMD	SWFWMD	5,920	Desoto, Sarasota
Deer Prairie Creek Preserve	SWFWMD	SWFWMD	6,140	Sarasota
Myakka Prairie Conservation Easements	SWFWMD	Private	2,906	Manatee
Lewis Longino Preserve	SWFWMD	Private	3,422	Sarasota
Longino Ranch Conservation Easement	SWFWMD	Private	3,981	Sarasota
Myakkahatchee Creek Conservation Easement	SWFWMD	Private	7,630	Sarasota
Bright Hour Watershed	SWFWMD	Private	31,989	Desoto
Peace River State Forest	FFS	TIITF	5,048	Desoto
Myakka State Forest	FFS	TIITF	8,593	Sarasota
Babcock Ranch Preserve	FFS	TIITF	67,620	Charlotte
Orange Hammock Ranch WMA	FWC	TIITF	5,777	Sarasota
Yucca Pens Unit	FWC	TIITF	15,305	Charlotte, Lee
Fred C. Babcock-Cecil M. Webb WMA	FWC	FWC	83,622	Charlotte
Myakka River State Park	FDEP	TIITF	37,198	Manatee, Sarasota
Charlotte Harbor Preserve State Park	FDEP	TIITF	45,389	Charlotte, Lee
Jelks Preserve	Sarasota	Sarasota	615	Sarasota
Deer Prairie Creek Parcels	Sarasota	Sarasota	895	Sarasota
Walton Ranch	Sarasota	Sarasota	3,760	Sarasota
Carlton Ranch, Inc.	Sarasota	Sarasota	4,746	Sarasota
T. Mabry Carlton, Jr. Memorial Reserve	Sarasota	Sarasota	24,565	Sarasota
Oyster Creek Regional Park	Charlotte	Charlotte	272	Charlotte
Tippecanoe Environmental Park	Charlotte	Charlotte	354	Charlotte
Shell Creek Preserve	Charlotte	Charlotte	382	Charlotte
Deep Creek Properties	Charlotte	Charlotte	420	Charlotte
Charlotte Flatwoods Environmental Park	Charlotte	Charlotte	486	Charlotte
Prairie Creek Preserve (Charlotte County)	Charlotte	Charlotte	1,603	Charlotte
Yucca Pens Preserve	Lee	Lee	388	Lee
Charlotte Harbor Buffer Preserve	Lee	Lee	447	Lee
Prairie Pines Preserve	Lee	Lee	2,684	Charlotte, Lee
<b>Total</b>			<b>378,789</b>	

SWFWMD – Southwest Florida Water Management District    FFS – Florida Forest Service  
 FWC- Florida Fish and Wildlife Conservation Commission    USFWS – United States Fish and Wildlife Service  
 FDEP – Florida Department of Environmental Protection



## **Current Land Use**

The Preserve is managed for the conservation and protection of its water resources and natural resources. In addition, the Preserve offers recreational resources and opportunities to visitors. The Preserve will continue to support a multiple-use concept for environmental conservation, public water supply, and recreational access. It is the policy of the District that appropriate public recreational use of District lands be permitted, provided the use is compatible with natural resource management and protection needs. This approach is consistent with Chapter 373 of the Florida Statutes, which states that “Lands titled to the governing boards of the districts shall be managed and maintained, to the extent practicable, in such a way as to ensure a balance between public access, general public recreational purposes, and restoration and protection of their natural state and condition.” The Preserve protects natural wetland and upland systems that provide habitat for many notable species of wildlife and plants, including federal- and state-listed species. The Preserve offers visitors opportunities for passive nature-based recreation. Various recreational opportunities that are available to the public are outlined later in this plan.

## **Local Government Land Use Designation**

Per Section 163, Florida Statutes, local governments are required to create, adopt, and maintain a Comprehensive Plan that addresses where residential and nonresidential uses occur in the area. DeSoto County’s 2040 Interim Future Land Use Map shows Deep Creek Preserve as Preservation (Desoto County, 2022).

Based on the DeSoto County Land Development Code (LDC), the Preserve is currently zoned as Agricultural 5. The County does not have a Conservation or Preservation zoning. The LDC states that the A-5 zoning district is “designed to accommodate traditional agricultural uses and conservatory measures.”

## **Adjacent Land Uses**

Deep Creek Preserve is bounded on the east by the Peace River floodplain, but most of the north, south, and west are either developed or under impending development. Kings Highway (County Road 769) lies within 500 feet of the northwestern corner of the Preserve, and Peace River Street parallels the northern boundary. The DeSoto County Future Land Use map shows an approximately 120-acre portion of the Peace River State Forest that is just west of the Peace River and north of Peace River Street as Preservation. Embedded at the northern boundary of Deep Creek Preserve is an existing residential community. Adjacent land to the west and north of the Preserve have the Future Land Use designation of Low Density Residential. To the northwest at the corner of Kings Highway and Peace River Street, privately owned parcels are designated Commercial.

The DeSoto County zoning map depicts the areas west and north of the Preserve as Planned Unit Development, Residential Multifamily, or Commercial Neighborhood. The approximately 500-acre planned residential development at the southwestern corner of Deep Creek Preserve is called “The Preserve”. South of Deep Creek Preserve in Charlotte County, all the immediately adjacent lands have been developed as residential neighborhoods.

## Management Challenges

The challenges associated with the management of the Preserve are primarily due to the location of the parcel near existing or impending development. Existing and impending development have the potential to put pressure on the natural systems and could increase flood control needs in the area. In addition, the extent of Wildland Urban Interface (WUI) and Kings Highway along the boundary of the Preserve increase the complexities of land management activities like prescribed fire operations. This results in an increased amount of planning to mitigate and limit impacts to smoke-sensitive features.

Recreational opportunities on all District conservation lands are typically passive, nature-based outdoor activities. As the WUI becomes more prevalent near the Preserve, there is the possible challenge to the District to manage requests for more expansive recreational opportunities. In similar past situations, the District has approved cooperative agreements with other local governing agencies to manage expansive recreational opportunities as the District does not have the resources to manage such expanded opportunities. Prior to the District approving any cooperative agreements for expansive recreational opportunities, the District Governing Board will need to deem such opportunities as “compatible,” as outlined in the District Policy and District Procedure.

## **Historical Land Use and Cultural Resources**

### **Historical Land Use**

Other than timber removal earlier in the last century, cattle grazing was the predominant land use on the Preserve prior to acquisition. Except for a small area of improved pasture in the northwest corner, grazing was passive resulted in few changes in vegetative community structure across the Preserve. Based on aerial photography from 1968, the channelized segment of Deep Creek carried water into the Preserve from agricultural lands west of the site. At that time, the flow-way still existed as a sinuous creek surrounded by narrow wet flatwoods or hydric hammock communities across the central and eastern portions of its run across the Preserve. There was no substantial ditching of any of the marsh systems on-site, and wetland communities on-site extended to wetland communities off-site. The development along Peace River Street was just underway, and there was no other development in the immediate vicinity of the Preserve. In the surrounding area, there were row crops and land cleared for other agricultural purposes, but only native rangeland on the Preserve at the time. The Deep Creek canal at the southern boundary was not yet constructed.

By 1985, residential development south of the boundary of the Preserve in Charlotte County had removed all natural lands adjacent to the Preserve. Land use within the Preserve persisted as native rangeland until its acquisition in 1997.

### **Cultural and Archaeological Resources**

A request was made of the Bureau of Historic Preservation within the Florida Department of State for information on known cultural and historical resources on Deep Creek Preserve. The only records identified in the Florida Master Site File were cultural resources associated with the Peace River Phosphate Mining Company and the Liverpool phosphate works. The site closest to the Preserve, DE 00478, lies in the eastern channel of the Peace River (Hunter Creek), just outside of the Preserve boundary.

Although no archaeological sites have been documented within the boundary of the Preserve, its location along the Peace River near the river's confluence with Charlotte Harbor, coupled with the on-site presence of upland sites immediately adjacent to navigable water, suggest a likelihood of aboriginal habitation.

## Water Resources and Natural Systems

The acquisition of conservation lands is important for the management of water resources and is a strategic element in the District's effort to meet its four primary Areas of Responsibility or AORs. These AORs are flood protection, water supply, water quality, and natural systems. The District's Mission is to protect water resources, minimize flood risks, and ensure the public's water needs are met. The District is one of five regional agencies directed by state law to protect and preserve water resources within its boundaries. Established in 1961 to operate and maintain several large flood protection projects, the District's responsibilities have since expanded to include managing water supply, protecting water quality, and protecting natural systems including rivers, lakes, wetlands, and associated uplands. **Figure 4** depicts the hydrography of the Peace River and its major tributaries in the vicinity of the Preserve.

### Water Quality

The District is actively involved in maintaining and improving water quality through both regulatory and non-regulatory programs. Protecting and improving surface and groundwater quality are the two primary objectives of the Water Quality Area of Responsibility (SWFWMD, 2021). The ability of natural systems, particularly wetlands, to improve water quality has become an important consideration in water quality related issues. Wetlands sequester nitrogen through denitrification, plant uptake, and accumulation of soil organic matter and remove phosphorus through geochemical and biological processes such as plant uptake and incorporation into soil organic matter (Widney, 2018).

Water quality on the Preserve is influenced by both development and agriculture around the site and in the Peace River watershed and by activities occurring within the Preserve. Development alterations include changes in water flow patterns due to construction of impermeable surfaces, changes in surface water across the watershed, and channelization. Management actions and recreation activities on Deep Creek Preserve are not expected to negatively impact water quality on- or off-site. In fact, protection and management of wetland communities will enhance their water quality functions through control of exotic plants and animals, implementing prescribed fire to sustain biological diversity, and assuring natural flow patterns are maintained.

Existing and future development west of Deep Creek Preserve will likely impact water quality discharged into the western portions of the Preserve, and the Deep Creek channel along the southern boundary has likely affected surface water flow and the surficial groundwater table of wetlands near the canal. Primary impacts from urban runoff will likely be nutrient loads from fertilizers associated with landscaping and residential lawns. Protecting wetland communities across the Preserve will allow further treatment of urban runoff prior to its ultimate discharge into surface waters of Deep Creek and the Peace River. The Peace River is classified as an Impaired waterbody (CHNEP, 2022), in part, to development, mining, and agriculture in the headwaters of the river. Protection of floodplain swamp and marsh communities and the 100-year floodplain on the Deep Creek Preserve have the potential to improve water quality through the natural processes described above.



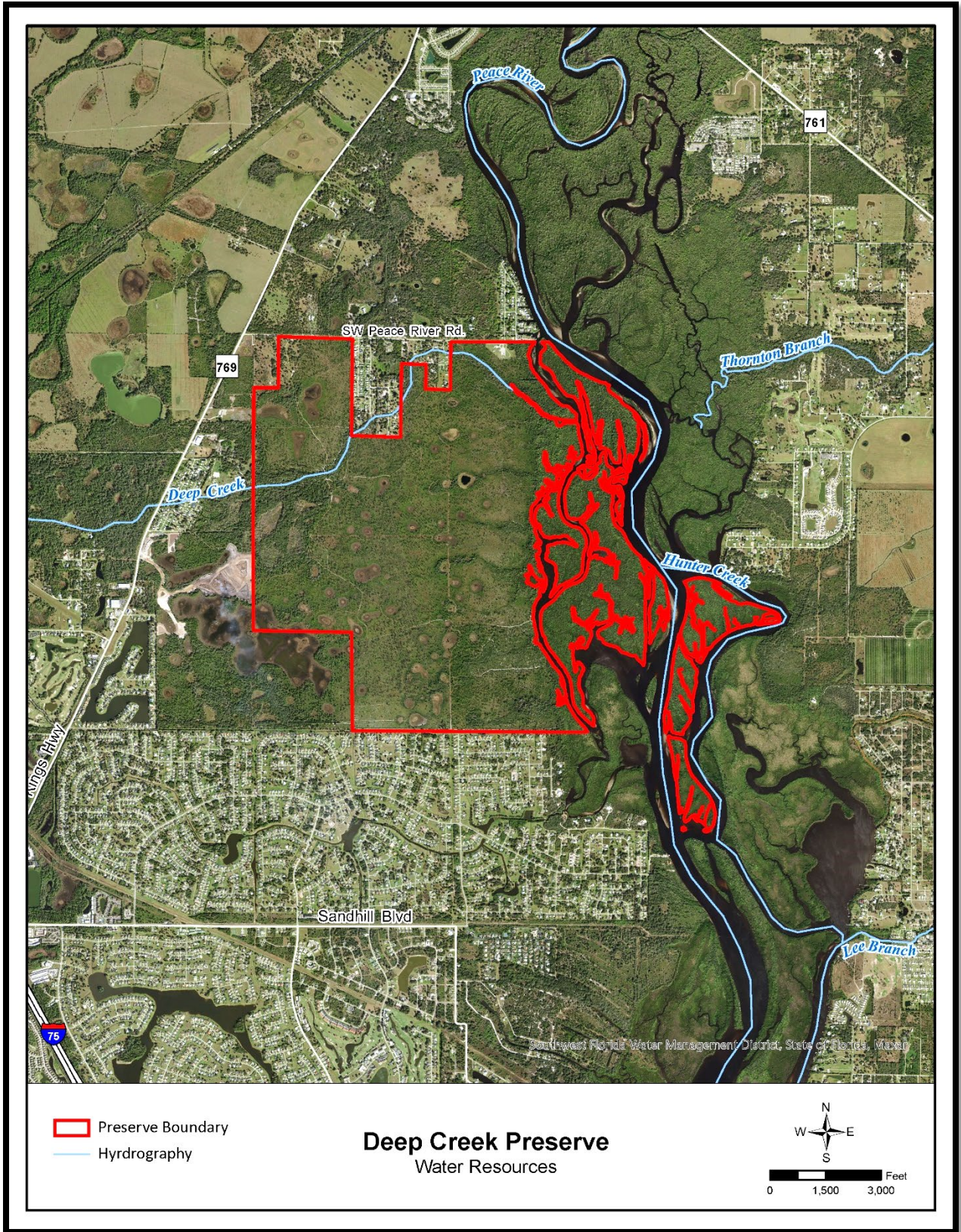


FIGURE 4. WATER RESOURCES



## Water Supply

Ensuring adequate water supplies for humans and for the environment is central to the District's Mission. Deep Creek Preserve lies in the Southern Water Use Caution Area, or SWUCA, established by the District's Governing Board in 1992 to address long-term decline in Upper Floridan aquifer levels that has led to regional saltwater intrusion, impacts to upper Peace River flow, and water level decline along some Lake Wales Ridge lakes. Due to the confined nature of the intermediate and Upper Floridan aquifers, little or no aquifer recharge is expected to occur in the region of the Preserve (SWFWMD 1990), so there is little potential to improve aquifer water levels on-site. However, protection of wetlands and the 100-year floodplain on the Preserve sustains surface water quantity and the flow from the Preserve to the Peace River.

The Deep Creek Preserve is less than a mile from the RV Griffin Reserve, which was purchased by the District in 1992 to help meet future water supply needs of Charlotte, DeSoto, Manatee, and Sarasota counties. The RV Griffin Reserve is managed by the Peace River Manasota Regional Water Supply Authority, and it includes surface water reservoirs and an aquifer storage and recovery (ASR) system, both of which are part of a regional water supply project for participating municipalities.

## Flood Protection

Flood protection is another important element of the District's mission. Historically, flood protection depended upon control structures to provide for the storage and "controlled" conveyance of floodwater. The current approach mimics natural processes and is a more environmentally sound and cost-effective method. The District's primary flood protection strategy depends upon identifying and preserving natural floodplains and other land that can serve as storage areas for storm-generated floodwater.

The 100-year floodplain on Deep Creek Preserve includes the swamps and marshes associated with the Peace River, the marsh systems embedded within flatwoods, and marsh/swamp/hydric hammock complexes in the western portion of the Preserve (**Figure 5**). Wetlands (floodplain marsh, and swamp) associated with the Deep Creek/Peace River floodplain store floodwaters and attenuate downstream effects of storm events. Depression marshes and basin marshes collect rainfall from on site, and to a lesser extent off site, and slowly discharge toward Deep Creek and the Peace River via intermittent streams within hydric hammocks and wet flatwoods communities during the rainy season.

The hydrology of mesic flatwoods, the dominant natural community on the Preserve, is strongly influenced by flat topography, sandy soils, and seasonal precipitation. These characteristics combine to produce a landform that produces little stormwater runoff. Downward percolation is retarded by poorly drained soils and, where present, an underlying clay hardpan (Cowherd et al. 1989). These factors contribute to the presence of standing water over much of the site's flatwoods during the rainy season (Abrahamson and Hartnett 1990). Very little of that stormwater runs off, and the rest is stored in the soils until it evaporates or is transpired by pine trees during the dry season (Riekerk and Korhnak 2000, Sumner 2001). These characteristics of the expansive

flatwoods on the Preserve reduce the rush of floodwaters into the floodplain during the rainy season and are a passive element of flood protection.

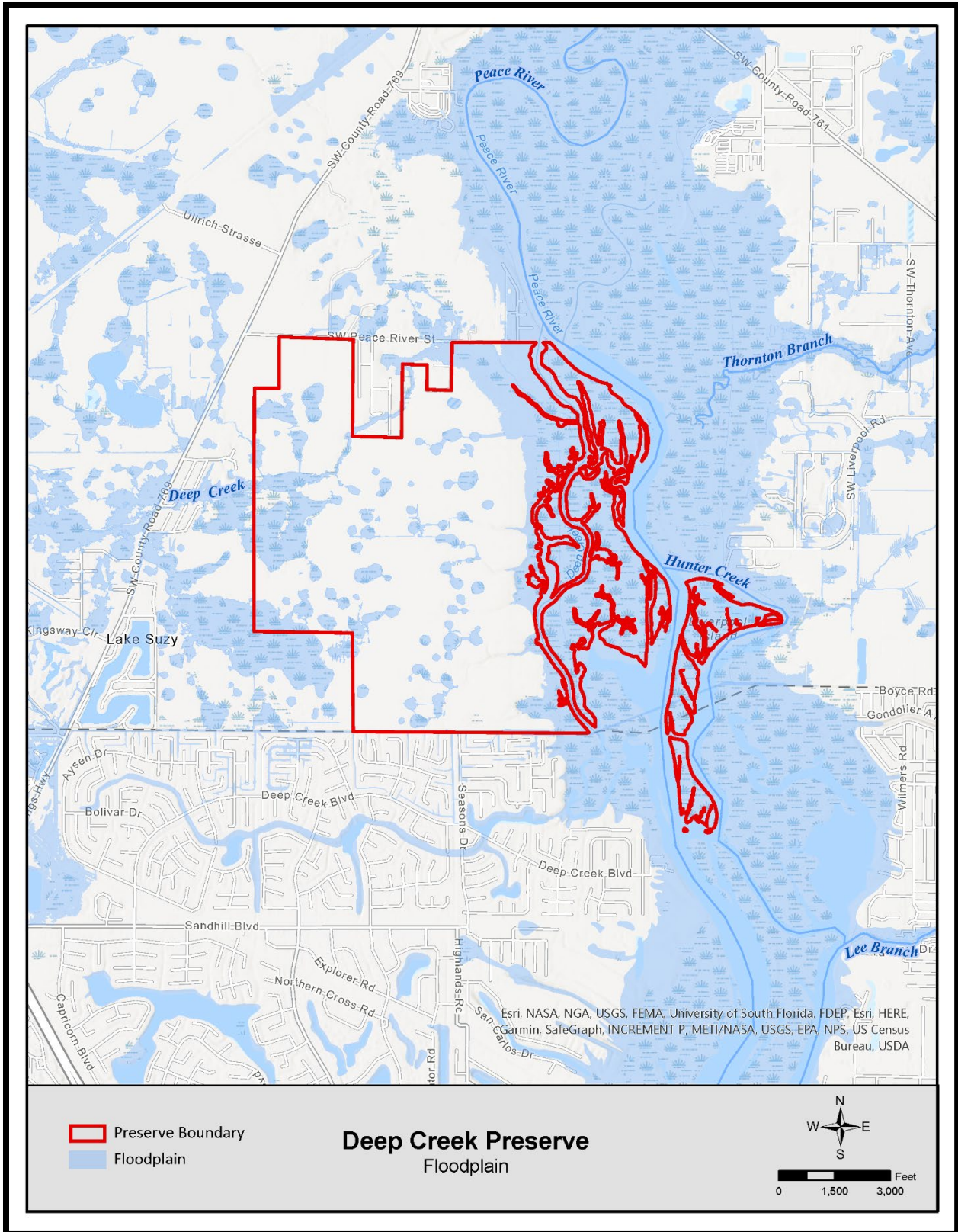


FIGURE 5. FLOODPLAIN MAP

## Natural Systems

The District uses natural communities as defined by the FNAI to describe habitats of the Preserve. (FNAI 2010). Nine natural communities were identified by FNAI to occur within the Preserve (**Figure 6**). **Table 2** summarizes the acreage and percent cover of each type (96.5 acres of the Deep Creek/Peace River floodplain were not surveyed by the FNAI). The FNAI compiled an extensive database of plants observed in each natural community (except floodplain swamp) based on fieldwork conducted in 2009. Additional fieldwork was conducted in December 2021 as a part of this Management Plan update to verify current conditions and to evaluate the effects of land management on each natural community. An excerpt of the FNAI community descriptions and a representative group of the plants observed are provided below for each natural community. **Appendix A** provides a list of all plants (and their scientific names) documented by the FNAI during its field work in 2009. The Florida Invasive Species Council's (FISC) designation for Category I and II invasive plants (Iannone et al. 2020, FISC 2019) and the status of any state or federal listing are also provided in the Appendix.

**TABLE 2. NATURAL COMMUNITY TYPE SUMMARY**

FNAI Natural Community	Acreage	Percentage of Community Type
<b>Basin Marsh</b>	73.6	3.5 %
<b>Depression Marsh</b>	105.7	5.1 %
<b>Floodplain Marsh</b>	57.7	2.8 %
<b>Floodplain Swamp</b>	300.3	14.4 %
<b>Hydric Hammock</b>	102.2	4.9 %
<b>Wet Flatwoods</b>	164.5	7.9 %
<b>Mesic Flatwoods</b>	1,012	48.6 %
<b>Ruderal</b>	54.1	2.6 %
<b>Scrubby Flatwoods</b>	117.4	5.6 %
<b>Not Surveyed</b>	96.5	4.6 %
<b>Total Acreage</b>	2,084	100 %

## Wetland Communities

### *Basin Marsh (73.6 acres)*

Basin marshes are freshwater herbaceous wetlands regularly inundated with water originating from localized rainfall. These wetlands exist as larger landscape features positioned within pyrogenic communities or as inclusions in infrequently burned communities. Basin marshes on the Deep Creek Preserve are restricted to the western portion of the site. These communities are predominantly herbaceous; among the diverse assemblage of herbs in the communities on the Preserve are little blue maidencane, wiregrass, sawgrass, slender flattop goldenrod, maidencane, combleaf mermaidweed, bulltongue arrowhead, and sand cordgrass. Woody plants are occasional to infrequent components. Short shrubs are uncommon, except for peelbark St. John's wort. Tall shrubs include red maple, groundsel tree, and wax myrtle. The FISC Category I invasive air potato was observed in the basin marsh community.

Natural seasonal and longer-term fluctuations in water level are important for maintaining the diversity of marsh vegetation in basin marshes. Though alterations to the surface watershed around Deep Creek Preserve have occurred off-site and there are small, narrow ditches into and out of the basin marsh communities on-site, they appear to exhibit relatively natural hydroperiods. While few studies have indicated the natural fire interval for basin marshes, it is likely that natural fires occasionally burned through portions of this community at the end of the dry season. The frequency of fire varies, depending on marsh hydrology and its exposure to fire from surrounding areas. Prescribed burns in basin marshes should be conducted with caution to avoid peat fires, especially in areas where the water table has been artificially lowered.

### *Depression Marsh (105.7 acres)*

Depression marshes are shallow, usually rounded depressions. They are seasonally inundated communities characterized primarily by a cover of herbaceous plants. The concentric zones or bands of vegetation that are sometimes observed within depression marshes are related to hydroperiod length, depth of flooding, and fire-carrying characteristics of the marsh vegetation. An increase in woody plant cover is often attributable to fire exclusion in surrounding communities, periodic droughts, or altered hydrologic processes. Though alterations to the surface watershed around Deep Creek Preserve have occurred off-site and there are small, narrow ditches into and out of the depression marsh communities on-site, they appear to exhibit relatively natural hydroperiods.

Depression marshes at Deep Creek Preserve occur within a fire-maintained flatwoods landscape. Woody plant cover is therefore typically low in this community. The diverse herb cover includes little blue maidencane, broomsedge bluestem, tenangle pipewort, maidencane, rosy camphorweed, yellow milkwort, combleaf mermaidweed, Tracy's beaksedge, and sand cordgrass. Tall shrubs are not common but include red maple, common persimmon, wax myrtle, swamp laurel oak, winged sumac, and cabbage palm. Small shrubs are not a dominant component of depression marshes but occur more consistently across the community. Observed species include red maple, groundsel tree, common buttonbush, and peelbark St. John's wort. FISC Category I plants observed in depression marsh include Peruvian primrose-willow and torpedograss.



There is little data on natural fire frequency in depression marshes. However, fires in surrounding communities should be allowed to burn into depression marshes and extinguish naturally or burn through them. The sparse outer zone of some marshes may act as a natural firebreak.

#### *Floodplain Marsh (57.7 acres)*

Floodplain marshes are herbaceous- and/or shrub-dominated wetland communities occurring along river courses and in river floodplains influenced by river flow, even if only during high flood stages. The vegetation and structure of floodplain marshes is otherwise like that of other freshwater marshes, including depression marshes and basin marshes. Flood-tolerant trees are widely scattered in floodplain marshes. Flood pulses provide oxygenated water to the system, and the rising and receding water levels help create a variable mosaic of plant communities. Floodplain marshes burn periodically, with the fire frequency somewhat dependent on the dominant vegetation.

Floodplain marshes at Deep Creek Preserve vary from mainly herbaceous to a tall shrubby community. Canopy-sized trees are sparse, but include red maple, live oak, swamp bay, and cabbage palm. The herbaceous layer typically includes giant leather fern, groundnut, toothed midsorus fern, false nettle, sawgrass, string lily, lateflowering thoroughwort, royal fern, and Virginia chain fern. Shrubs in this community include red maple, groundsel tree, silverling, common buttonbush, wax myrtle, swamp bay, saw palmetto, and the FISC Category I invasive Brazilian pepper. Vines are abundant and include peppervine, Virginia creeper, laurel greenbrier, eastern poison ivy, and muscadine.

#### *Floodplain Swamp (300.3 acres)*

The FNAI did not provide a description or plant list for floodplain swamp communities at Deep Creek Preserve, but the descriptions in the Guide to the Natural Communities of Florida (FNAI 2010) generally characterize the community. The following is summarized from that publication. Floodplain swamp is a closed canopy forest of hydrophytic trees occurring on frequently or permanently flooded hydric soils adjacent to stream and river channels. Due to the complex nature of dynamic riverine systems, Floodplain swamps are variable in canopy dominance and understory composition depending on their placement in the landscape. This produces a variable assemblage of canopy and subcanopy species with less flood tolerant trees and shrubs found on small hummocks and ridges within the swamp. In Floodplain swamps located within tidal influence, flooding patterns, tidal range, and storm events are major driving factors. These swamps are subject to daily freshwater inundation associated with tidal fluctuations. Periodic events such as storms and hurricanes may push saltwater into the normally freshwater swamp. Low river flows during droughts also lead to more saltwater intrusion.

Soils are variable mixtures of alluvial and organic materials, sometimes with layers of sand in the subsoil. Floodplain swamp is usually too wet to support fire; however, large cypress trees are somewhat fire resistant, and thus infrequent fires during very dry conditions may contribute to cypress dominance. Fires may greatly damage the understory.

### *Hydric Hammock (102.2 acres)*

Hydric hammocks are typically well-developed evergreen hardwood and/or palm forests occurring on low, flat sites with moist soils. The density of understory plants in hydric hammocks is variable and often dominated by palms and ferns. Species composition is influenced by flooding patterns and the frequency and depth of inundation. Soil moisture is kept high mainly by rainfall accumulation on poorly drained soils. Hydric hammock is inundated only for short periods following heavy rains, and hydroperiods seldom exceed 60 days.

Canopy trees within hydric hammock on the Deep Creek Preserve are swamp laurel oak, live oak, and cabbage palm with bald cypress, common persimmon, and sweetbay. The subcanopy contains smaller canopy species including red maple, groundsel tree, common buttonbush, Carolina ash, swamp bay, and American elm. Representative tall shrubs include red maple, groundsel tree, common buttonbush, common persimmon, dahoon, Virginia willow, sweetbay, and the FISC Category I invasive Brazilian pepper. Short shrubs are relatively sparse in the hydric hammock community at Deep Creek Preserve, but they include silverling, St. Andrew's cross, dahoon, gallberry, wild coffee, saw palmetto, and Brazilian pepper.

The diverse cover of herbs in hydric hammocks includes giant leather fern, groundnut, toothed midsorus fern, climbing hempvine, cinnamon fern, royal fern, lizard's tail, Virginia chain fern, and the FISC Category I invasive old world climbing fern and tropical soda apple. Observed species of epiphytes and vines included golden polypody, resurrection fern, Bartram's air-plant, ballmoss, southern needleleaf, giant air-plant, shoestring fern, peppervine, Virginia creeper, laurel greenbrier, eastern poison ivy, and muscadine.

Effective conservation management of this community primarily consists of restoring and maintaining natural hydrology, minimizing soil disturbances, and controlling exotic plant invasion. Fire is not considered an important component of hydric hammock dynamics, although occasional fires are normal. Natural fire frequency is dependent on the hammock size and how often the surrounding community burns.

### *Wet Flatwoods (164.5 acres)*

Wet flatwoods are open pine forests with a sparse or absent midstory and a dense groundcover of low shrubs, hydrophytic grasses, and herbs. Wet flatwoods on the Deep Creek Preserve occur in the ecotones between mesic flatwoods and basin marshes or hydric hammocks. Canopy trees within wet flatwoods include south Florida slash pine, longleaf pine, swamp bay, live oak, and cabbage palm. Among subcanopy trees are dahoon, south Florida slash pine, and swamp laurel oak.

Shrub densities within Deep Creek Preserve generally exceed 50 percent of cover. Grasses and herbs subsequently account for a small amount of groundcover, usually less than 30 percent. Shrubs include groundsel tree, at least four species of St. John's wort, dahoon, gallberry, netted pawpaw, coastalplain staggerbush, fetterbush, runner oak, wax myrtle, saw palmetto, shiny blueberry, coontie, and the FISC Category I invasive Brazilian pepper.

Herbaceous plants in wet flatwoods include broomsedge bluestem, wiregrass, toothed midsorus fern, tall elephantsfoot, roundleaf thoroughwort, slender flattop goldenrod, Elliott's milkpea,

narrowleaf sunflower, muck sunflower, bracken fern, blackroot, and Virginia chain fern. FISC Category I invasive plants include rosary pea, cogongrass, Peruvian primrosewillow, old world climbing fern, and rose natalgrass.

Soils, hydrology, fire frequency, and burn season all influence the relative density of shrubs and herbs in wet flatwoods. Shrubs tend to dominate where fire has been absent for a long period or where cool season fires predominate, while herbs are more common in locations that are frequently burned. Naturally shrubby wet flatwoods may have fire return intervals of five to seven years, while grassy wet flatwoods may burn as frequently as every one to three years.

## Upland Communities

### *Mesic Flatwoods (1012.0 acres)*

Mesic flatwoods are characterized by an open canopy of tall pines and a dense, ground layer of low shrubs, grasses, and forbs. These are fire-dependent communities in which constituent plant species have evolved to recover rapidly from fire. Mesic flatwoods are the primary natural communities on Deep Creek Preserve, covering nearly one half of the site. The soil map unit for this community is almost exclusively deep, nearly level, and poorly drained Farmton fine sand. The mesic flatwoods community is peppered with numerous depression marshes and small inclusions of wet flatwoods.

Field surveys conducted by FNAI biologists in 2009 yielded a single occurrence of one rare plant – giant orchid – in mesic flatwoods near the northern property boundary. The plant was growing approximately 200 feet west of a parking lot (at the intersection of SW Peace River Street and SW Riverview Circle).

Canopy pines are lacking in some mesic flatwoods because of past land management practices. Where present, canopy trees are south Florida slash pine and longleaf pine. Pines also are present as subcanopy trees, infrequently including sand live oak. The generally low cover of tall shrubs includes gallberry, coastalplain staggerbush, fetterbush, wax myrtle, swamp bay, Chapman's oak and, in small scrubby inclusions, myrtle oak, live oak, and winged sumac.

Short shrub densities in mesic flatwoods generally exceed 35 percent. Species include netted pawpaw, tarflower, dwarf huckleberry, blue huckleberry, at least four species of St. John's wort, gallberry, coastalplain staggerbush, fetterbush, wild pennyroyal, runner oak, saw palmetto, shiny blueberry, and coontie. The herb cover includes broomsedge bluestem, bottlebrush threeawn, wiregrass, coastalplain honeycomb-head, partridge pea, tall elephantsfoot, Elliott's milkpea, whitetop aster, blackroot, giant orchid, lopsided indiagrass, and yellow hatpins. FISC Category I exotic invasive herbs include torpedograss, rose natalgrass, tropical soda apple, and paragrass.

Frequent fire on a two- to four-year interval is necessary for controlling hardwoods and increasing herbaceous plant abundance and diversity. Controlled burns in this community will indirectly determine fire frequency and season for included communities, such as depression marsh, scrubby flatwoods, and wet flatwoods.

### *Ruderal (54.1 acres)*

The ruderal classification refers to those areas within Deep Creek where native vegetation has been disturbed to such an extent that it no longer resembles the natural community. Areas within Deep Creek that are identified as ruderal include clearings, canals/ditches, developed areas, abandoned fields, and agricultural areas. These lands, representing approximately 2.6 percent of the site, were mesic flatwoods historically.

Canopy trees in ruderal areas include south Florida slash pine, live oak, and cabbage palm. South Florida slash pine and live oak are also present as subcanopy trees, along with the exotic invasive queen palm. Shrubs include wax myrtle, swamp laurel oak live oak, cabbage palm, groundsel tree, winged sumac, saw palmetto and the invasive caesarweed. Grasses are the primary herbaceous



element of the ruderal communities of Deep Creek, and most are introduced forage species. These include Bermudagrass, bahiagrass, and smutgrass. Other herbs and include the FISC Category I air-potato, torpedograss, and rose natalgrass.

#### *Scrubby Flatwoods (117.4 acres)*

Scrubby flatwoods communities generally have an open canopy of widely spaced pine trees and a low, discontinuous, shrubby understory of scrub oaks and saw palmetto, often interspersed with small areas of barren white sand. The shrub layer typically consists of one or more of the four scrub oaks – sand live oak, myrtle oak, Chapman’s oak, and scrub oak – as well as shrubs characteristic of mesic flatwoods. Scrubby flatwoods typically occur on rises within mesic flatwoods and in transitional areas between scrub and mesic flatwoods.

Scrubby flatwoods at Deep Creek Preserve are restricted to the southeastern quarter of the site. Soils are moderately well-drained sands with or without a spodic horizon. Soil types include Pomello and Satellite sands. Canopy and subcanopy trees are sparse and pine cover is low. Canopy trees include South Florida slash pine, longleaf pine, sand live oak, and scrub oak. Shrubs include tarflower, coastalplain staggerbush, fetterbush, Chapman’s oak, sand live oak, myrtle oak, live oak, prickly pear, wild pennyroyal, saw palmetto, shiny blueberry, deerberry, hog plum, and coontie.

Herbaceous plants found in scrubby flatwoods at Deep Creek Preserve include wiregrass, coastalplain honeycomb-head, coastalplain chaffhead, roundleaf thoroughwort, Elliott’s milkpea, bracken fern, sweet goldenrod, lopsided indiangrass and the invasive caesarweed. FISC Category I exotic invasive herbs include air-potato and cogongrass.

Scrubby flatwoods burn less readily than mesic flatwoods. Ground fires in the surrounding mesic flatwoods tend to enter the scrubby flatwoods and extinguish, leading to a patchwork of recently burned and unburned portions. The optimal fire interval for scrubby flatwoods varies between five and 15 years. Variability in the season and the frequency of prescribed fires that produces a mosaic of burned and unburned patches is desirable for maintaining high biotic diversity in scrubby flatwoods.

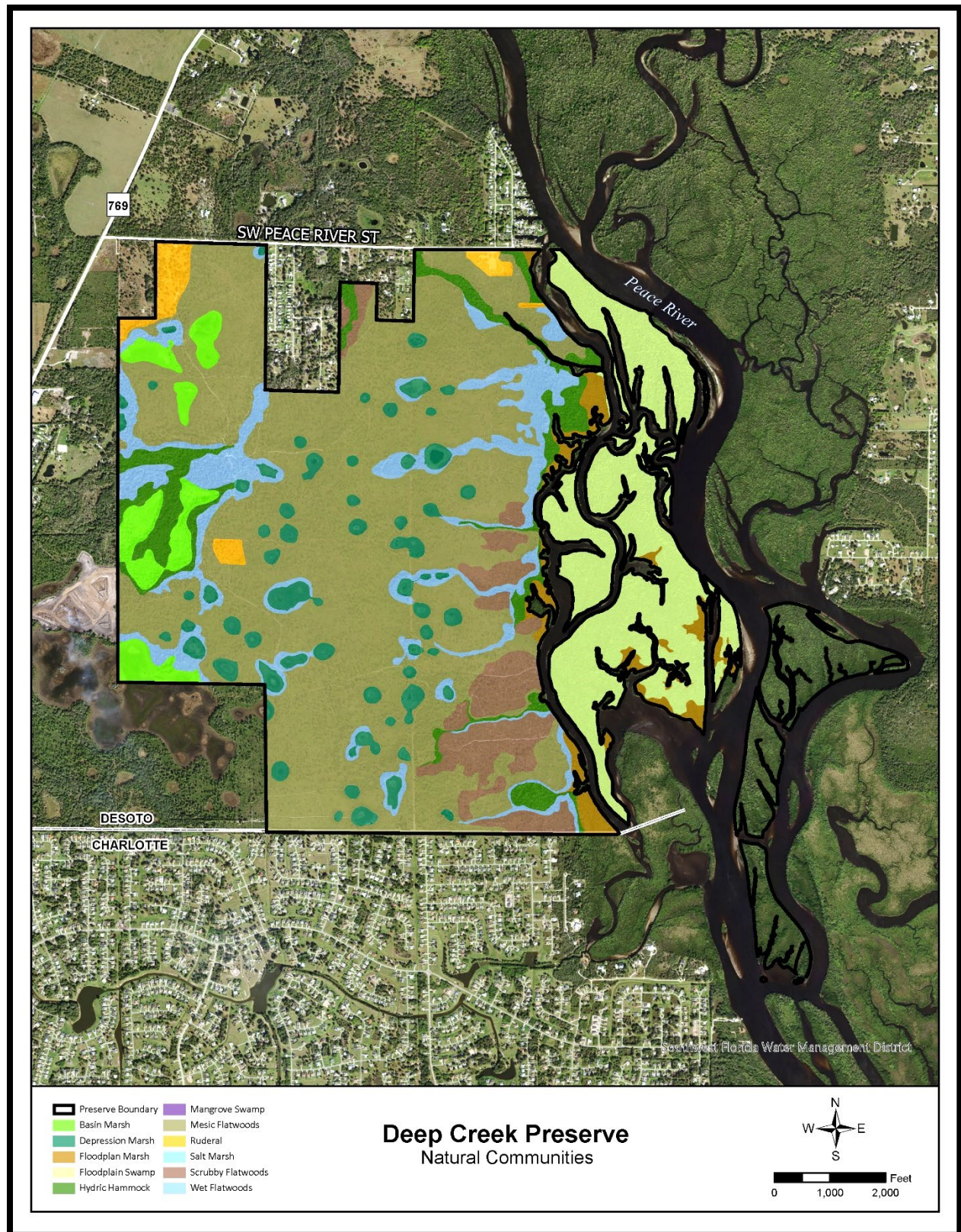


FIGURE 6. NATURAL COMMUNITIES – FNAI



## Soils and Topography

### Soils

Soils mapped by the Natural Resource Conservation Service are depicted in **Figure 7**. Generally, there are three distinct soil groupings based on soil moisture: xeric, mesic, and hydric. Xeric soils are located on higher and drier areas, capable of supporting scrub, sandhill, scrubby flatwoods, and xeric hammock. Mesic soils are located in areas that seasonally retain moisture and are capable of supporting pine flatwoods and mesic hammock habitat types. Hydric soils are located in lower, wetter areas and support riverine swamp and other wetland communities. Data on soil types on Deep Creek Preserve were derived from the Soil Survey of DeSoto County, Florida (USDA, 1989).

The only xeric soil on the Preserve is Pomello fine sand, and it occurs in association with the scrubby flatwoods communities in the southeastern portion of the site. It constitutes only 37 acres (1.9 % of the site). This soil is deep, nearly level, moderately drained, and characterized by a high water table at 24 to 42 inches for only one to four months per year, and a permeability rate of greater than 20 inches per hour.

Mesic soils occur on more than 1,300 acres (64%) of Deep Creek Preserve. The predominant mesic soils include Farnton fine sand (which underlies almost half of the site), EauGallie fine sand, Immokalee fine sand, and Myakka fine sand. These soils are characterized by a slow permeability and a high-water table within 12 - 42 inches of the surface for one to four months per year. They are associated with mesic flatwoods and wet flatwoods communities.

Approximately 750 acres (36%) of Deep Creek Preserve are underlain by hydric soils. Hydric soils include Durbin and Wulfert mucks (over 400 acres), Basinger fine sand, and Felda fine sand. Basinger fine sand and Felda fine sand are deep, nearly level, and poorly drained, with a water table above the surface for six months or more. They are scattered within the expansive mesic soils associated with flatwoods communities. Basinger fine sand and Felda fine sand underlie basin and depression marsh communities on the Preserve. Durbin and Wulfert muck soils occur on the tidally influenced portion of the Preserve associated with the Deep Creek/Peace River floodplain. These areas are regularly inundated during high tides. Durbin and Wulfert mucks underlie floodplain swamp and floodplain marsh communities.

### Topography

The Preserve is within the Southern Coastal Plain Ecoregion (Sayler et al. 2016); specifically, the Southwestern Florida Flatwoods Subregion (Griffith et al. 1994), which covers parts of northern Florida and most of central Florida. The subregion includes barrier islands and peninsulas, Gulf Coastal Lowlands, and valleys. The Gulf Coastal Lowlands in southwestern DeSoto County includes scarps and terraces and the entrenched Peace River Valley (USDA 1989). These upland terraces lie as much as 30 feet above the floodplain of the Peace River in this physiographic subregion.

The Preserve is gently sloping with elevations ranging from the high of 31 feet in the northwestern corner to elevations near sea level along the Peace River (**Figure 8**). The topographic slope is generally parallel to the Peace River and grades from west to east across mesic flatwoods

communities and into the Floodplain Swamps associated with the Peace River. The hydrology of the Preserve is strongly influenced by the flat topography and slow permeability of underlying soils.



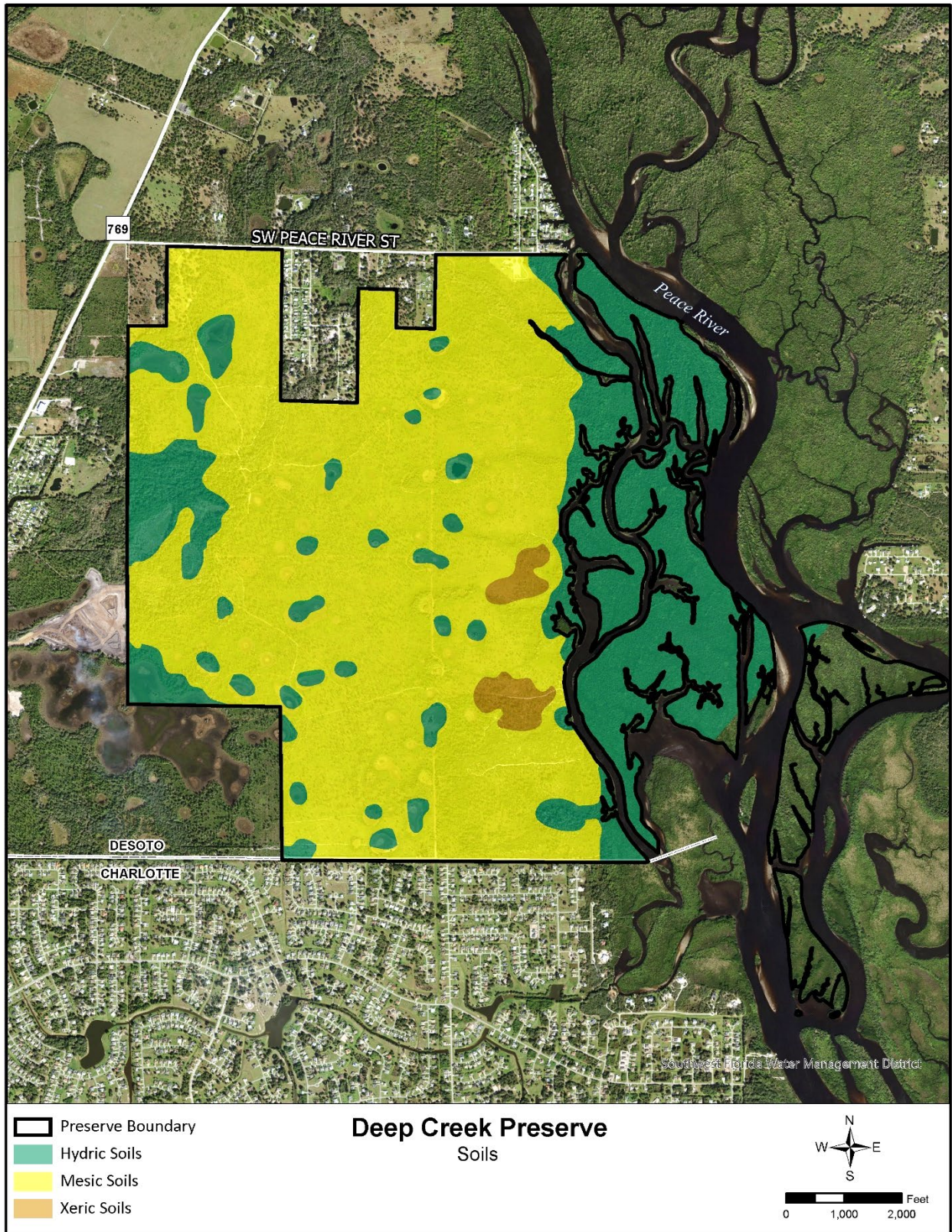


FIGURE 7. SOIL TYPES



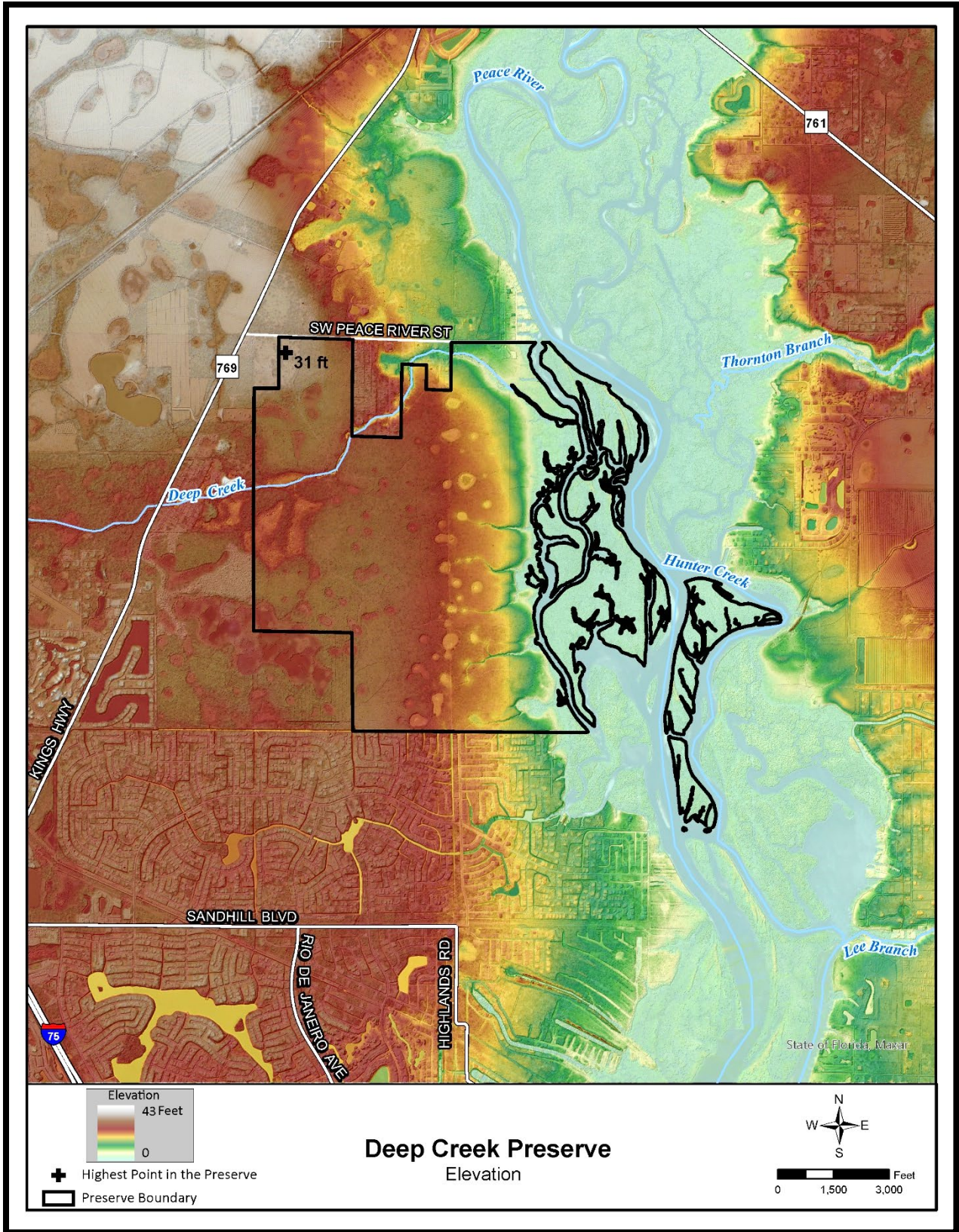


FIGURE 8. DIGITAL ELEVATION MODEL

# Land Management and Land Use

## Land Management

As part of ownership of conservation lands, the District is responsible for protection of water resources and natural systems through the application of effective and efficient land management practices. These land management practices include prescribed fire, forest management, habitat restoration, exotic and invasive species control, and habitat maintenance. The primary land management tool that land managers utilize is the application of prescribed fire. This is the most cost-effective method to maintain the Preserve's natural communities in their natural condition. Along with prescribed fire, the District uses some of the other common land management techniques referenced above to achieve specific land management objectives. The goal of the District's land management program is to maintain and restore natural systems according to their natural community descriptions outlined by the FNAI Natural Communities Guide.

### Fire Management

Prescribed fire is the primary tool for management of District conservation lands. Fire is a natural process that has occurred on Florida's landscape for thousands of years. The goal of the District's fire program is to mimic that natural process and apply prescribed fire in a safe, efficient, and effective manner to maintain the natural function of the plant and animal communities. Many of the plant and animal species that occur on the Preserve are specifically adapted to fire to maintain a healthy and successful population. As a result, the District aims to apply fire to all fire-dependent natural communities based on their natural fire return intervals defined by FNAI (FNAI 2010).

The program targets the natural fire season, or the "growing" season, which occurs during the spring and summer. Research indicates that burning during the growing season has the most beneficial impact on native plant communities but maintaining a consistent burn frequency can be just as valuable. Therefore, the District conducts prescribed burns throughout the year to achieve various objectives.

The District's fire management program seeks to achieve the following:

- Maintain and restore natural systems.
- Promote water resource benefits.
- Reduce hazardous fuel loads and minimize wildfire risk.
- Promote native plant diversity and habitat function.
- Maintain wildlife habitat quality.
- Support forest management activities.
- Maintain aesthetics and access for recreation.

The Preserve is divided into 22 distinct management units covering approximately 1,300 acres of fire-dependent natural communities. These management units are illustrated in **Figure 9**. District burn managers always take precautions to limit potential impacts from prescribed burns and target specific weather conditions. There is a network of firelines and natural firebreaks throughout the property that allow for successful fire management and limit the potential for wildfires.

The term “condition class” is a reference to the status of District-owned and managed lands relative to a historic fire return interval described in the natural history of each community type. The fire return interval demonstrates the amount of time between disturbances that resets succession within a natural community. Condition Class 1 would be within one fire return interval and Condition Class 2 would be within two fire return intervals. Condition Class 3 would represent any unit that is at three or more intervals since the last disturbance. Condition Class 4 represents any system that has had fire excluded for so long that it is beyond recovery through reintroduction of fire without implementing cost-prohibitive measures. Condition Class 5 was developed to represent systems that are not regularly fire-maintained, such as hydric hammock. Condition Classes 1-5 represent most of the prescribed burn program aside from special circumstances that have been identified and treated separately for a variety of reasons.

The primary objective of the Land Management Condition Class Evaluation Program is to assign a Condition Class value to all fire management units based on the natural fire return interval of the targeted community type. The purpose of the Condition Class Evaluation Program is to provide an accurate representation of the condition of lands managed by the District with fire. It is the District’s goal to preserve, protect, and restore natural systems to support their natural hydrologic and ecological functions.



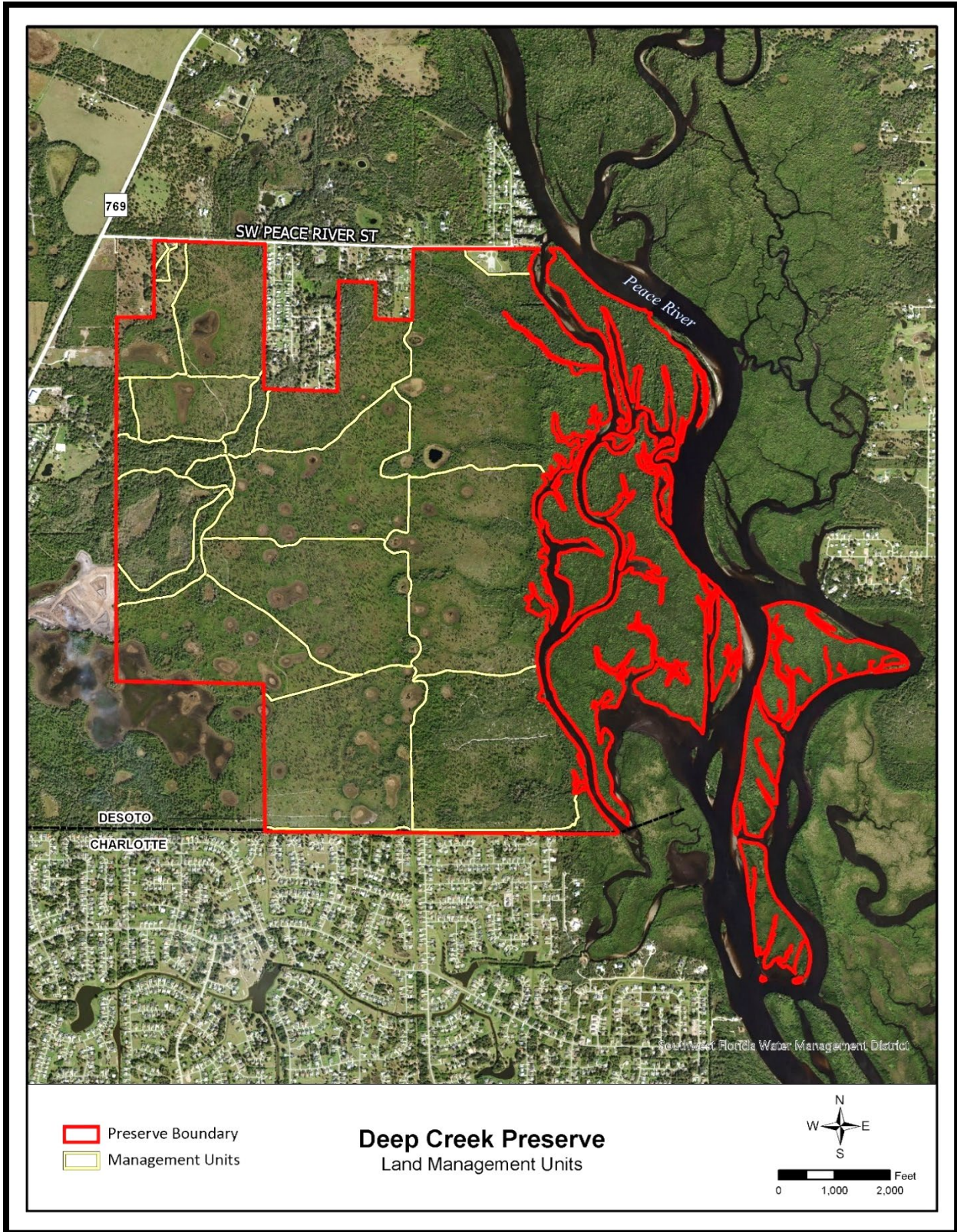


FIGURE 9. MANAGEMENT UNITS



## Forest Management

Deep Creek Preserve does not have any Timber Management Zones actively managed by the District. On other District lands, plantations were created to restore the pine overstory in previously altered areas and improve habitat. The goal is to manage these areas using standard silvicultural practices to maintain forest health, provide habitat, support local economies, and generate revenue to offset the cost to manage these properties. At the Preserve, there are no suitable sites for pine plantations; however, there may be some value in planting ruderal areas with site appropriate pine species to restore mesic flatwoods communities with forest-source pines.

## Restoration and Maintenance

Managing altered lands on conservation tracts often necessitates additional management activity, especially if fire-dependent communities can no longer carry fire at the necessary time (seasonality) or intensity. The primary tool to restore natural communities to their historical diversity and structure is prescribed fire. Additional maintenance activities ongoing at the Preserve include control of exotic species and maintenance of roads, firebreaks, and recreational facilities.

## Invasive Species Management

### Invasive Plant Management

Invasive, non-native plants are a threat to ecosystems worldwide and are an especially serious issue in Florida due to the state's warm, amenable climate and many ports of entry which import non-native plants. This high rate of introduction, combined with the sub-tropical climate, makes it more likely for non-native plant species to be introduced into the wild and to establish successful self-propagating populations. As a result, Florida is home to many non-native plant species that have become aggressive invaders severely impacting natural systems.

The Florida Invasive Species Council (FISC) tracks non-native plant species in the state, compiles species lists, and categorizes these species based on their impact to natural systems. Category I species are the most aggressive and can impact natural communities by displacing native species, changing community structure or ecological functions, or by hybridizing with native species. Category II species are those that are increasing in abundance but have not yet altered Florida plant communities to the extent shown by Category I species. Many species on the FISC lists also appear on the Florida Department of Agriculture and Consumer Service's Noxious Weed List.

The District is committed to the management of invasive plant species and uses an adaptive management strategy to control their establishment and spread on the Preserve. The District has a Vegetation Management Section with dedicated staff who spearhead control efforts by surveying, prioritizing, and treating invasive plant populations on District conservation lands. The District focuses management efforts on invasive plant species that the FISC has deemed Category I or II plants as set forth above. Furthermore, the Vegetation Management Section uses the framework set out in The Nature Conservancy's Site Weed Management Plan Template to analyze and prioritize invasive plant species for treatment based on several factors, including:

1. their infestation levels;
2. the current and potential impacts of the species;

3. the value of habitat that the species does or could infest; and
4. the difficulty controlling the species.

Under this system the species that are the highest priority for control efforts receive a score of 4, while the lowest priority species receive a score of 16. This prioritization scheme ensures that the District's resources are spent where they will have the greatest impact on the ecosystem.

Three species have been identified to be the highest priority for invasive plant control operations on Deep Creep Preserve: cogongrass (*Imperata cylindrica*), old world climbing fern (*Lygodium microphyllum*), and Brazilian pepper (*Schinus terebinthifolius*). Additionally, the District has implemented an Early Detection, Rapid Response (EDRR) strategy which identifies and rapidly treats occurrences of exotic species that are not currently present or are not widespread on the property but have the potential to become invasive if they become established. EDRR species for Deep Creek Preserve include sisal (*Agave* sp.), nightflowering jessamine (*Cestrum nocturnum*), grand eucalyptus (*Eucalyptus grandis*), Torell's eucalyptus (*Corymbia torelliana*), and swamp morning glory (*Ipomoea aquatica*). **Table 3** lists the most common or problematic invasive plant species found on Deep Creek Preserve, their priority level for control if applicable and their FISC status.

The District employs a variety of measures to control invasive plant species including thorough surveying, chemical treatment (basal-bark treatment, cut-stump applications, hack-and-squirt methods, and foliar applications), mechanical treatment, and the use of biological control agents or some combination thereof, which are done with both in-house and through contracted labor. Upland treatments are often scheduled to occur in the year following a prescribed burn because access to a site is easier and visibility is increased at this time. Personnel using herbicides comply with instructions found on the herbicide label and employ Best Management Practices (BMPs) for their application.

**TABLE 3. INVASIVE PLANTS KNOWN TO OCCUR**

Common Name	Scientific Name	FISC Status	Priority Level for Control
<b>Rosary pea</b>	<i>Abrus precatorius</i>	Category I	
<b>Air-potato</b>	<i>Dioscorea bulbifera</i>	Category I	
<b>Cogongrass</b>	<i>Imperata cylindrica</i>	Category I	5
<b>Peruvian primrosewillow</b>	<i>Ludwigia peruviana</i>	Category I	
<b>Old world climbing fern</b>	<i>Lygodium microphyllum</i>	Category I	8
<b>Torpedograss</b>	<i>Panicum repens</i>	Category I	
<b>Natal grass</b>	<i>Rhynchelytrum repens</i>	Category I	
<b>Brazilian pepper</b>	<i>Schinus terebinthifolius</i>	Category I	10
<b>Tropical soda apple</b>	<i>Solanum viarum</i>	Category I	
<b>Wedelia</b>	<i>Sphagneticola trilobata</i>	Category II	
<b>Queen palm</b>	<i>Syagrus romanzoffiana</i>	Category II	
<b>Caesarweed</b>	<i>Urena lobata</i>	Category II	
<b>Paragrass</b>	<i>Urochloa mutica</i>	Category I	

## Invasive Wildlife Management

The monitoring and control of non-native animal species statewide is overseen by the Florida Fish and Wildlife Conservation Commission (FWC). The District obtains annual control permits through FWC to track and conduct invasive wildlife removal practices on District-owned properties.

The primary invasive wildlife species that the District focuses control efforts on is the feral hog (*Sus scrofa*). Feral hogs are the most conspicuous and destructive exotic animal species found throughout the conservation lands owned and managed by the District. The species' ability to readily adapt to a wide variety of habitats, combined with their high reproductive rates and a lack of significant natural predators, has led to rapidly increasing population densities throughout North America (West et al. 2009).

Feral hogs cause millions of dollars in damages to lawns, ponds, natural areas, flood control structures, and rights-of-way each year (Giuliano 2016). Feral hogs can carry multiple zoonotic and epizootic diseases, including brucellosis, leptospirosis, and pseudorabies. They also have the potential to be aggressive if startled or angered and are vectors for many invasive plant species on site; specifically, caesarweed. Feral hogs are known to consume young from nests of reptiles and ground nesting birds (Coblentz and Baber 1987). They are prolific breeders capable of producing three litters per year (Dzieciolowski et al. 1992), and they are renowned for impacts caused by rooting, resulting in destabilized soil surfaces and disruption of native vegetation (Singer et al. 1984).

Recognizing the severe ecological threat posed by this exotic species, the District first developed and implemented a feral hog population control plan in 1995. Due to the adaptive nature of feral hogs, the District has since taken a multi-faceted approach to their removal. Current control methods include trapping, FWC-administered Wildlife Management Area hog hunts, special District administered hog hunts, and on select properties, aerial operations conducted by the United States Department of Agriculture – Wildlife Services program. The use of electronically controlled hog traps in targeted areas has also proven highly effective.

Given the current array of practical, environmental, and social constraints, it is generally recognized that the complete eradication of feral hogs from District conservation lands is an unattainable goal. Therefore, the overall goal of the feral hog management strategy is to reduce the number of feral hogs on District conservation lands to a maintenance level, thus reducing the overall ecological damage resulting from feral hog rooting. This is done using a comprehensive and scientifically based management strategy that is humane, cost-effective, and compatible with ecologically sustainable land management.

## Imperiled Species Management

For the purposes of this Plan, the term ‘Imperiled Species’ refers to plant and animal species that are designated as Endangered or Threatened by the FWC or the U.S. Fish and Wildlife Service (USFWS). The diverse natural communities within the Preserve provide significant habitat for a variety of imperiled and locally important species. The continued land management efforts within the property maintain important ecosystem functions and landscape structure that can support a mix of species.

### Imperiled Wildlife

The District manages the Preserve in a comprehensive fashion with an overall objective to sustain the vegetative community structure and diversity, hydrologic regime, and fire return intervals characteristic of the defined natural communities on the Preserve. This approach is believed to benefit a wide array of native plant and animal species, including those that are considered imperiled. Numerous imperiled species are known to exist on the Preserve.

The FNAI Biodiversity Matrix Map Server is a screening tool that provides site-specific lists of the rare species that are known to occur or are likely to occur on a given parcel of land. According to the FNAI Biodiversity Matrix Report for the Preserve, five federal and/or state listed wildlife species have been documented or are likely to occur (**Table 4**).

**TABLE 4. IMPERILED WILDLIFE SPECIES KNOWN OR LIKELY TO OCCUR**

Common Name	Scientific Name	Federal Status*	State Status*
<b>Eastern indigo snake</b>	<i>Drymarchon couperi</i>	FT	FT
<b>Florida scrub-jay</b>	<i>Aphelocoma coerulescens</i>	FT	FT
<b>Gopher tortoise</b>	<i>Gopherus polyphemus</i>	C	ST
<b>West Indian manatee</b>	<i>Trichechus manatus</i>	FT	FT
<b>Wood stork</b>	<i>Mycteria americana</i>	FT	FT

\*FT=Federally Threatened, ST=State Threatened, C=Candidate species

### **Eastern indigo snake (*Drymarchon couperi*)**

Eastern indigo snakes occur in a variety of habitat types that are present on the Preserve, including mesic pine flatwoods, scrubby flatwoods, freshwater and saltwater marshes, and swamps (USFWS, 2018). A combination of both natural upland and wetland habitats likely provides the best matrix to support resilient populations of eastern indigo snakes (USFWS, 2018). Habitat destruction, habitat degradation due to inadequate fire management, and fragmentation from paved roads are key factors influencing the viability of the eastern indigo snake (Enge et al. 2013, USFWS 2018). The *Species Status Assessment Report for the Eastern Indigo Snake* (USFWS, 2018) shows the area surrounding Deep Creek Preserve as one of the Conservation Focus Areas for Peninsular Florida. But that same report, and Moler (1992), emphasize that small patches of

habitat (less than 2,500 acres) may have low resiliency to disturbances because of the snake's large home range and other behavioral traits. Assuring the protection of native habitats and implementing prescribed fire across pyrogenic communities provide the best contributions to long-term viability of the eastern indigo snake on Deep Creek Preserve.

### **Florida scrub-jay (*Aphelocoma coerulescens*)**

The Federally Threatened Florida scrub-jay was confirmed to occur on the Preserve during site reviews conducted in December 2021. Groups of the Florida scrub-jay were observed in the mesic flatwoods in the extreme southwestern corner, and in the largest tract of scrubby flatwoods habitat in the southeastern portion of the Preserve. Florida scrub-jay ecology and habitat requirements will continue to be a consideration of land management, particularly the use of fire, across the Preserve. With guidance from the *Draft Revised Recovery Plan for the Florida Scrub-Jay* (USFWS 2019), and the body of knowledge about scrub-jays and fire (Breininger et al. 2014, Kent and Kindell 2009, Breininger 2004, Fitzpatrick et al. 1991), the District will continue to implement the FNAI-recommended fire return intervals for scrubby flatwoods and mesic flatwoods on the Preserve.

### **Gopher tortoise (*Gopherus polyphemus*)**

Gopher tortoises and their burrows were also observed in the scrubby flatwoods and mesic flatwoods communities across the site. Gopher tortoises are listed as a Threatened species by the FWC. The life history and management guidelines for gopher tortoises and their commensals are well documented in the expansive *Gopher Tortoise Management Plan* published by the FWC in 2012, with updates (FWC, 2012). The FWC Management Plan provides a comprehensive statement (pages 38–39) for consideration by public entities charged with managing conservation lands with gopher tortoises:

Xeric uplands and natural communities that support the gopher tortoise will be managed to achieve/maintain vegetative parameters comparable to those found in comparable reference sites. Frequent prescribed fire is the preferred tool, but other treatments will be used when necessary. Maintaining these communities in a manner that replicates their natural form and function helps ensure they meet the needs of the gopher tortoise and the other species dependent on these communities.

Reference sites have been established by the FNAI and serve as models for vegetative parameters and fire return intervals for natural communities. These intervals are used by the District as the goals for implementing prescribed fire. Implementation of prescribed fire at frequencies recommended by FNAI for each pyrogenic community is understood to be beneficial for tortoises and their commensals and burning to meet these return intervals will continue to be an objective on Deep Creek Preserve.

### **West Indian manatee (*Trichechus manatus*)**

The Florida manatee (*T. m. latirostris*) is a native species found in many of Florida's waterways, and it is currently listed as a Threatened species under the federal Endangered Species Act. Deep Creek Preserve lies in the Southwest Regional Management Unit for the manatee – the management unit with the lowest adult manatee survival rate, likely due to the combined effects



of mortality from watercraft and episodes of red tide (FWC 2007). Aerial surveys conducted by Mote Marine Lab, the Fish and Wildlife Research Institute, and the FWC between 1987 and 2011 confirmed the use of the Peace River by manatees within the area of Deep Creek Preserve (Charlotte County Parks & Natural Resources Division 2017). Based on a review of these data, the Upper Peace River was determined to be a High-Use Area for manatees in Charlotte County (Charlotte County Parks & Natural Resources Division 2017). With respect to Deep Creek Preserve, the District does not have a direct role in implementing actions to meet the objectives of statewide or local manatee protection plans, but the District will cooperate with Charlotte and DeSoto Counties and the FWC on their efforts to protect seagrasses and minimize mortality from strikes by watercraft.

### **Wood stork (*Mycteria americana*)**

There has been a nesting colony of the federally Threatened wood stork in the Peace River (Hunter Creek) in the eastern portion of Deep Creek Preserve. The colony (# 42, Morgantown North) was known to be active in 2019 based on the USFWS 2010–2019 data on active nesting colonies of wood storks (FDEP, 2020). The Wood Stork Recovery Plan (USFWS 1997) lists protection of occupied habitat and acquisition of nesting sites as primary objectives. The Habitat Management Guidelines for the Wood Stork in the Southeast Region (Ogden 1990) specify the need for protecting vegetation, sustaining hydrology, protecting wetlands, and limiting construction in the primary and secondary protection zones around the nesting colony. All these provisions are basic tenets of the District’s acquisition program and embodied in the objectives of this management plan.

### **Imperiled Plants**

The only species of imperiled plant known to occur or likely to occur on the Preserve is the state-Threatened giant orchid (FDACS, 2021) which was documented on-site (**Appendix A**).

### **Giant orchid (*Orthochilus ecristatus* syn. *Eulophia ecristata* and *Pteroglossaspis ecristata*)**

The FNAI field team identified the state-Threatened giant orchid (non-crested eulophia) in mesic flatwoods habitat on Deep Creek Preserve in 2009. The FNAI Field Guide summary for the giant orchid (FNAI, 2018) identifies suitable habitat as sandhill, scrub, pine flatwoods, pine rocklands, and occasionally old fields. The greatest threat to the species is the destruction of habitat from conversion to urban, suburban, or agricultural uses. Management objectives for giant orchid are to use prescribed fire to create openings and reduce competition from woody species, and to avoid soil-disturbing activities such as bedding and plowing fire lanes. Protection of habitat and the current focus on prescribed fire on Deep Creek Preserve are consistent with the management needs of the giant orchid.

### Arthropod Management

In compliance with Section 388.4111, Florida Statutes and in Section 5E-13.042, Florida Administrative Code, land within Deep Creek Preserve in DeSoto County has been evaluated and subsequently designated as environmentally sensitive and biologically highly productive. Such designation is appropriate and consistent with the previously documented natural resources and ecosystem values and affords the appropriate protection for these resources from arthropod control practices that could impose a potential hazard to fish, wildlife, and other natural resources existing on this property.

## Recreation

Part of the District Policy governs the authority of the District to provide passive, natural resource-dependent recreational uses on its conservation lands, as well as appropriate public access. The compatibility for such recreational uses and public access points considers the environmental sensitivity and the suitability of the property. Compatible uses generally consist of outdoor recreation and educational activities, while public access points are minimal and only allow for walkthrough foot traffic. The District Governing Board holds authority to determine the compatibility of recreational uses on District conservation lands, as based upon the purpose of the property acquisition.

For some District properties, there are cooperative agreements associated with other public agencies to provide for a more expansive recreational use. These agreements are discussed further in ‘Partnerships and Cooperative Agreements’ below.

The recreational activities permitted at the Preserve are hiking, equestrian trail riding, and equestrian and group primitive camping (**Figure 10**).

### Trails

Nature trails give nature-based experiences while minimizing impacts to natural systems. The Preserve provides approximately nine miles of multi-use trails. Approximately seven miles of the trail network are available for both hiking and equestrian use; two miles are hiking-only trails. White, triangular signs depicting appropriate uses provide directions to a network of hiking and equestrian experiences across the Preserve. These trails are also promoted under the designation of the Florida Greenways and Trails network.

Access to the Preserve is provided at two locations along the northern property boundary on Peace River Street. The northwestern access includes parking and an information kiosk, and it is located just north of the primitive group camp site. Access at the northeast corner near the Peace River is through Deep Creek Park, which is maintained by DeSoto County. Facilities at this approximately 6.5-acre county park include restrooms; informational kiosks; parking, including trailer parking; and a pavilion/picnic area.

### Camping

The Preserve provides group camping in a previously altered area near the primary access point. Campsite includes a grill, fire ring, and picnic tables. Reservations for camping at Deep Creek Preserve are available through a free Special Use Authorization (SUA).



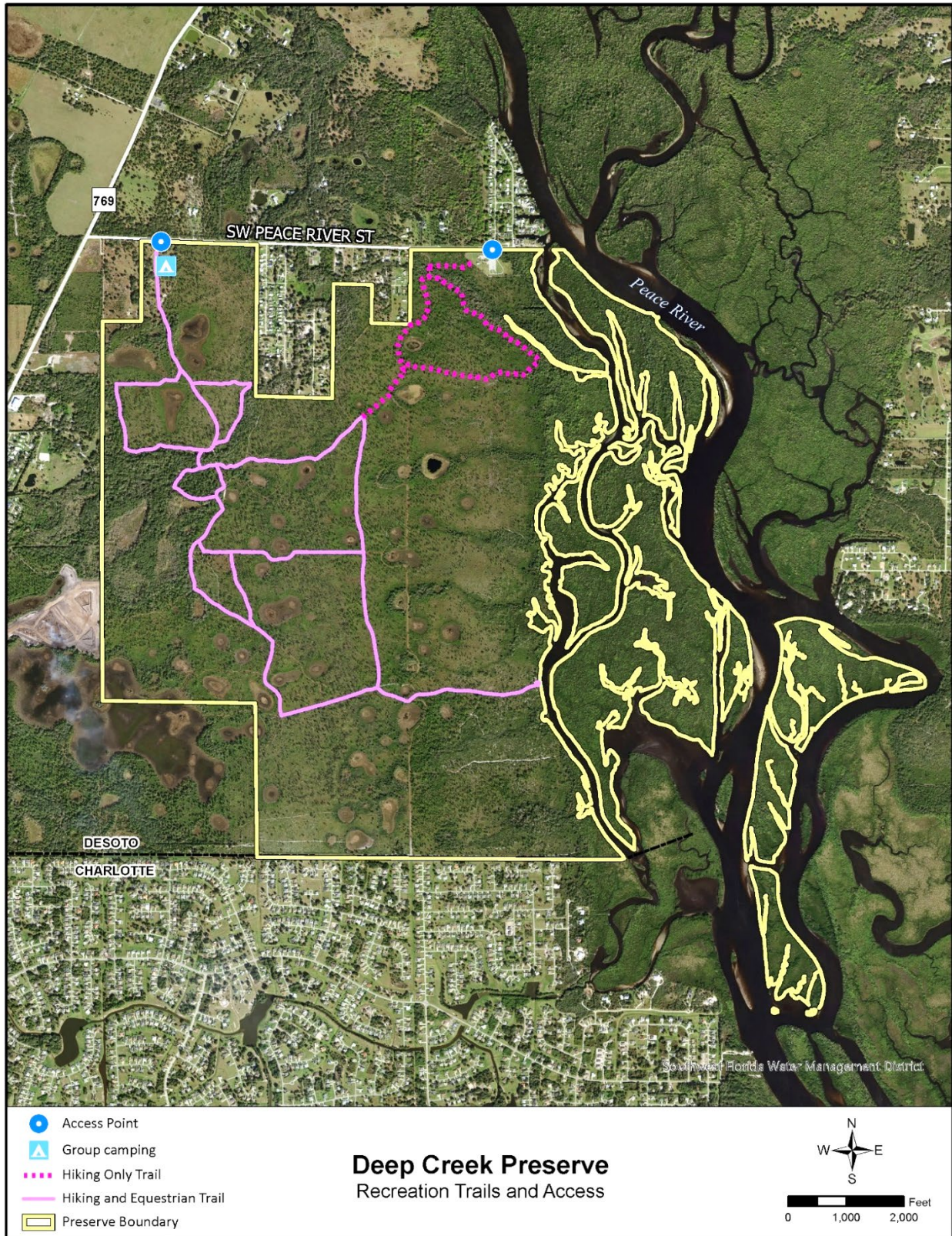


FIGURE 10. RECREATION TRAILS



## Wildlife Viewing, Hunting, Fishing, and Boating

The Preserve has a wide variety of wildlife viewing opportunities. Deep Creek flows through the property and provides the opportunity for observing an abundance of bird species. The property contains many other species of wildlife such as gopher tortoise, eastern ratsnake (*Pantherophis alleghaniensis*), white-tailed deer (*Odocoileus virginianus*), wild hog, and bobcat (*Lynx rufus*). This species richness is indicative of land management practices that provide habitat for a diverse abundance of wildlife in natural communities managed for their historical vegetative structure, fire regime, and hydrology.

Currently, the Preserve is open to limited hunting opportunities. These primarily consist of feral hog population management hunts administered by the District. Additionally, the District would consider a time limited Special Use Authorization hunt for youth, veteran, or disabled hunters. Access to the Peace River for fishing is available through the public boat ramp at Deep Creek Park. Private businesses north of Deep Creek Park on Peace River Street provide kayak and airboat ecotours, charter boats, and fishing bait and tackle.

## Land Use Administration

The land uses administered on District conservation lands are governed by District Policy and Rules established in Florida Administrative Code. According to District Policy, appropriate land use types are separated into two categories: public recreation use and non-recreational public use. Public recreation uses vary by property and compatibility is based upon the environmental sensitivity and suitability of the property. Furthermore, some District conservation lands are subject to cooperative agreements with other public agencies to administer the responsibilities for any expansive recreational opportunities that the District may deem as compatible on its conservation land. Cooperative agreements support the District's efforts to protect water resources and provide nature-based recreation to the greatest extent practicable by working together to create partnerships with other agencies to streamline management. The specific public recreation uses at the Preserve are discussed in the previous section. Non-recreational public uses include, but are not limited to, linear facilities, scientific research opportunities, water resource development projects, sustainable forestry, and environmental education. Like cooperative agreements for expansive recreational uses, the District is a party to a variety of agreements with private entities for the allowance of the aforementioned use types. The administration of non-recreational and recreational public uses for the Preserve is discussed in the subsequent sections.

## Partnerships and Cooperative Management

The District has a 20-year agreement with DeSoto County for the management of recreation facilities on the approximately 6.5-acre park site at the northeast corner of the Preserve. The agreement was made in January 2004 and runs for 20 years with an option for renewal for another 20 years. The park site may only be used for vehicle and boat trailer parking, hiking, nature-study, environmental education, picnicking, bicycling on paved roads, fishing, and other passive recreational activities that can be enjoyed on foot. DeSoto County is responsible for management and maintenance of the facilities at the park, along with signage and security. No other agreements or partnerships on Deep Creek Preserve exist at the time of writing this Management Plan.

## Special Use Authorizations (SUA)

An SUA from the District's Land Resources Bureau (LRB) is required for any use of District property not authorized through statute or rule, and are available upon approved application. When an application for the SUA is made to the LRB, its staff reviews the application to determine the compatibility of the requested special use with the specified District conservation lands. If LRB staff determine the requested special use is compatible and no other conflict exists, the SUA is issued for the time period necessary to accommodate the requested use.

The types of approved SUAs on the Preserve can be categorized under recreational uses, research opportunities, training, and general granted access allowances. As previously mentioned, the approval for obtaining accommodations to the designated trails for a mobility impaired person is completed through the SUA process.

District properties provide for a variety of research opportunities for the benefit of natural resource conservation and preservation efforts and advancements. These opportunities can consist of wildlife surveys, groundwater sampling, natural communities research or wetland studies. Overall, District properties provide an abundance of research opportunities due to the proper management of healthy ecosystems.

## Future Land Conservation

The District will continue to consider the opportunity to purchase lands adjacent to the Preserve with the goal of promoting the District's efforts to protect the natural features of conservation lands for the benefits of flood protection, water quality, and water supply. It would be advantageous to seek possible opportunities for acquiring fee simple and less-than-fee properties to further promote protections of the natural systems within the region.

## Land Maintenance and Operations

### Roads and Boundaries

The District is responsible for maintaining the infrastructure on District lands for access to conduct management activities, to provide recreational opportunities, and to provide site security. This includes roads, trails, firelines, culverts, wet-crossings, recreational amenities, and perimeter fencing that requires periodic maintenance which occurs throughout the year. Properly established and maintained roads are required to provide access for management activities and public use. Well-maintained roads minimize erosion, sedimentation, and minimize water quality impacts. These roads also provide quick access for wildfire protection and serve as firelines for prescribed fires. Continuous observation will ensure that roads remain clear and that they are suitable for vehicles essential for management and public use.

Motorized access on the Preserve is restricted to authorized personnel only. As part of the general road maintenance, the District maintains a network of culverts and wet crossings to ensure the conveyance of water. Culverts are periodically replaced based on the results from a culvert inspection process, which identifies culverts that are damaged or are nearing the end of their expected service life. Wet crossings are utilized, where feasible, to mimic the natural conveyance of water and to provide limited disturbance in wet areas. These low water crossings are typically

at ground level and are improved with rock or other suitable material to limit erosion while allowing for the natural flow of water to occur.

Properly marked and maintained boundaries of District conservation lands help to minimize disputes, encroachments, trespassing, and other unwanted impacts from adjoining properties. Well-marked boundaries also aid in proper placement of firelines for wildfire protection and prescribed fire application. Boundaries on the Preserve are identified by perimeter fencing and District boundary signs.

District staff secure the Preserve by maintaining perimeter fencing, removing unauthorized access gates, posting appropriate boundary signage, identifying frequent points of unauthorized access, documenting evidence of illegal activities, and placing entry barriers at designated points to stop unauthorized vehicle access. The District also contracts with FWC law enforcement for site security.

### Facilities and Infrastructure

Consistent with legislation that was adopted by the state in 1999, lands acquired through state-funded acquisition programs can be used for a variety of public facilities. These include utility lines and other linear facilities, stormwater management projects, and water supply development projects. Approval of such uses is contingent upon several criteria, such as compatibility with the natural resource values of the property, compensation provided for the use, location of the proposed use within the Preserve, and consistency with the Management Plan.

The only facilities on the Preserve are those associated with the park managed by DeSoto County in the northeast corner of the Preserve. The facilities, including boat trailer parking, restrooms, and a picnic pavilion are maintained by DeSoto County under the provisions of a 20-year agreement signed in January 2004. One of the two access points into the Preserve is through the County-managed park. The facilities on the park site are the only facilities that occur or are anticipated to occur on the Preserve.

# Goals and Objectives

## Overview

The following represents a general overview of the goals and objectives over the next 10-year planning period for the Preserve. This set of goals will serve as an outline of management expectations and provide direction over the management activities for the life of this plan. These goals are not an annual work plan, which is beyond the scope of this Plan.

## Resource Protection and Management

### Hydrologic Management

Goal: Protect water resources within the Preserve and associated tributaries.

- Objective 1: Continue to observe and assess water resources within the Preserve to ensure desired hydrologic function and develop restoration projects, as necessary.
- Objective 2: Continue monitoring water quality and wetland conditions through the data collection network and periodic wetland assessments.
- Objective 3: Protect water resources during management activities by continued implementation of Silvicultural and Agricultural Best Management Practices.

### Fire Management

Goal: Maintain and restore function of natural systems through application of prescribed fire as the primary management tool.

- Objective 1: Develop and implement an annual burn plan and apply prescribed fire according to the District's Fire Management Guidelines.
- Objective 2: Conduct the majority of prescribed burns during the growing and dormant seasons to support development of native fire-dependent species and habitat function.
- Objective 3: Update and maintain a Condition Class database to track management activities on specific management units.
- Objective 4: Maintain perimeter firelines on an annual basis and disc strategic internal management lines supporting the seasonal needs of prescribed fire program and to support wildfire protection.

### Restoration and Natural System Maintenance

Goal: Evaluate individual management units and develop restoration projects to recover historic natural communities.

- Objective 1: Assess habitat conditions and develop restoration strategy to recover historic natural communities on previously altered sites targeting imperiled natural communities.
- Objective 2: Utilize information obtained from historic imagery, FNAI Natural Communities Mapping, and on-site investigations to implement site specific restoration projects that support the District's restoration goals.
- Objective 3: Develop annual workplan to implement these restoration and enhancement projects.



Goal: Maintain and enhance natural system structure and function.

- Objective 1: Continue to maintain existing habitat enhancement projects over the long-term to achieve desired future conditions outlined in the FNAI Natural Community Guide.
- Objective 2: Evaluate and develop habitat enhancement projects to improve habitat quality and function.
- Objective 3: Implement habitat management projects that support the improvement and development of native plant and animal communities, including imperiled species.

### Forest Management

Goal: Manage the forest resources on the Preserve by applying sound silvicultural techniques, with consideration for maintenance of sustainable forest resources to achieve the District's land stewardship goals.

- Objective 1: Manage the forest resources in accordance with the District's 10-Year Timber Management Plan and conduct timber harvests as scheduled.
- Objective 2: Evaluate and develop forest management projects to support specific restoration and enhancement objectives developed for the Preserve.
- Objective 3: Conduct annual inspections of forest resources for indication of disease, insect infestations, or damage from fire to promote forest health and sustainability.

### Imperiled Species Management

Goal: Manage and maintain natural systems to support development of imperiled, threatened, or endangered plant and animal species.

- Objective 1: Implement land management strategies and techniques that support development of habitat required for known imperiled species.
- Objective 2: In cooperation with other agencies and partners, implement survey and monitoring protocol where feasible for imperiled species and identify strategies for their recovery.
- Objective 3: Work with other state agencies, conservation organizations, and landowners to maintain habitat connectivity.

### Invasive and Exotic Species Management

Goal: Manage the populations of exotic and invasive plants and animals found on the Preserve at a maintenance level.

- Objective 1: Implement the District's Invasive Plant Management Plan for the Preserve.
- Objective 2: Employ an early detection rapid response methodology on new infestations identified in the Invasive Plant Management Plan.
- Objective 3: Implement the feral hog control plan and manage the feral hog population on the Preserve.

## Infrastructure and Maintenance

Goal: Manage and maintain the infrastructure to protect the water resources and support the District's management objectives.

- Objective 1: Annually inspect and maintain roads and trails according to their designated maintenance schedule.
- Objective 2: Monitor and maintain culverts, bridges, and low water crossings to prevent adverse impacts on hydrology.
- Objective 3: Periodically inspect boundary fencing and gates to assure adequate protection and site security of resources and repair, as needed.

## Administration

### Land Acquisition

Goal: Pursue land acquisition projects that support the Florida Forever acquisition plan and seek to obtain conservation easements to maintain critical habitat linkages.

- Objective 1: Consider acquisition of inholding parcels to complete project boundary and improve management.
- Objective 2: Evaluate opportunities to acquire fee interest of parcels within the District's optimal boundary and Florida Forever work plan.
- Objective 3: Pursue acquisition of less-than-fee interests through strategic conservation easements that complement the District's existing network of fee interests and less-than-fee acquisitions.

### Land Use and Recreation

Goal: Manage District lands for multiple-use purposes through the administration of leases, easements, and various types of agreements.

- Objective 1: Routinely review and update as necessary agreements, easements, and leases.
- Objective 2: Review special requests and issue SUAs for uses that are consistent with the District policies.
- Objective 3: Maintain cooperative relationships with state, local, and other governmental entities along with stakeholders.

Goal: Provide quality, resource-based passive recreational opportunities for the public's enjoyment.

- Objective 1: Maintain appropriate public access and quality compatible recreational opportunities.
- Objective 2: Evaluate requests for additional compatible public access and recreational opportunities.

### Archaeological and Cultural Resources

Goal: Manage cultural and historical resources to protect and preserve natural and cultural history.

- Objective 1: Coordinate and follow the Division of Historical Resources' recommendations for protection on known sites. Continue to monitor, protect, and preserve as necessary any identified sites.
- Objective 2: Take precautions to protect these sites from potential impacts resulting from looting, management or maintenance activities.
- Objective 3: Maintain qualified staff as an Archaeological Site Monitor.

## Security

Goal: Provide site security and resource protection.

- Objective 1: Identify, document, and address security issues, including encroachments and unauthorized access.
- Objective 2: Maintain and inspect boundary fences, boundary lines, and gates to deter encroachment and unauthorized access. Post and maintain rule and boundary signage.
- Objective 3: Maintain and as needed, update the law enforcement agreement with FWC or other agencies as appropriate.

## Significant Management Accomplishments

Below is a summary of the significant management accomplishments over the last 10 years for the Preserve. This is not an exhaustive list of all the management activities that have occurred, but a brief highlight of the significant accomplishments over the last 10 years.

### Land Management

- Developed annual burn plans.
- Completed prescribed burns on approximately 1,545 acres.
- Maintained perimeter firelines on an annual basis for prescribed fire and wildfire mitigation.
- Performed maintenance of internal roads and trails along with mowing twice per year on primary and secondary roads.
- Removed 81 feral hogs.
- Surveyed over 2,064 acres for invasive plants and any invasives found within the surveyed area were treated.

### Water Resources

- Performed regular measurements on data collection network to monitor hydrologic conditions.

### Recreation

- Created parking area for improved public access at the Peace River Street access point.
- Made 771 camping reservations at the campgrounds.
- 40 volunteer hours were logged to help with trail maintenance, trash cleanup, amenities maintenance, and invasive plant removal.

### Acquisition

- The parcel was acquired through Water Management Lands Trust (Save Our Rivers) Funds, totaling 2,084 acres along the west side of the Peace River.
- An approximate 21-acre parcel, along the north side of the Preserve, was sold as Surplus Land in 2018.

### Administration

- Conducted a Land Management Review in 2014.



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## Appendix A

### PLANT SPECIES KNOWN TO OCCUR OR LIKELY TO OCCUR

Common Name	Scientific Name
Air-potato	<i>Dioscorea bulbifera</i>
American beautyberry	<i>Callicarpa americana</i>
American elm	<i>Ulmus americana</i>
American pokeweed	<i>Phytolacca americana</i>
Aster	<i>Symphotrichum sp.</i>
Asthmaweed	<i>Conyza bonariensis</i>
Atlantic St. John's wort	<i>Hypericum reductum</i>
Bahiagrass	<i>Paspalum notatum</i>
Bald cypress	<i>Taxodium distichum</i>
Ballmoss	<i>Tillandsia recurvata</i>
Bartram's air-plant	<i>Tillandsia bartramii</i>
Beaksedge	<i>Rhynchospora sp.</i>
Bedstraw St. John's wort	<i>Hypericum galioides</i>
Bermudagrass	<i>Cynodon dactylon</i>
Blackroot	<i>Pterocaulon pycnostachyum</i>
Blue huckleberry	<i>Gaylussacia frondosa var. tomentosa</i>
Blue mistflower	<i>Conoclinium coelestinum</i>
Blueberry	<i>Vaccinium sp.</i>
Bluestem	<i>Andropogon sp.</i>
Bluestem	<i>Schizachyrium sp.</i>
Bogbutton	<i>Lachnocaulon sp.</i>
Bottlebrush threeawn	<i>Aristida spiciformis</i>
Bracken fern	<i>Pteridium aquilinum</i>
Brazilian pepper	<i>Schinus terebinthifolius</i>
Broomsedge bluestem	<i>Andropogon virginicus</i>
Bulltongue arrowhead	<i>Sagittaria lancifolia</i>
Bushmint	<i>Hyptis sp.</i>
Cabbage palm	<i>Sabal palmetto</i>
Caesarweed	<i>Urena lobata</i>
Camphorweed	<i>Pluchea sp.</i>
Camphorweed	<i>Pluchea camphorate</i>
Candyroot	<i>Polygala nana</i>
Carolina ash	<i>Fraxinus caroliniana</i>
Chaffhead	<i>Carphephorus sp.</i>
Chapman's oak	<i>Quercus chapmanii</i>
Cinnamon fern	<i>Osmunda cinnamomea</i>
Clearweed	<i>Pilea sp.</i>



<b>Climbing aster</b>	<i>Symphyotrichum carolinianum</i>
<b>Climbing hempvine</b>	<i>Mikania scandens</i>
<b>Clustered bushmint</b>	<i>Hyptis alata</i>
<b>Coastalplain chaffhead</b>	<i>Carphephorus corymbosus</i>
<b>Coastalplain honeycomb-head</b>	<i>Balduina angustifolia</i>
<b>Coastalplain milkwort</b>	<i>Polygala setacea</i>
<b>Coastalplain staggerbush</b>	<i>Lyonia fruticosa</i>
<b>Cogongrass</b>	<i>Imperata cylindrica</i>
<b>Combleaf mermaidweed</b>	<i>Proserpinaca pectinata</i>
<b>Common buttonbush</b>	<i>Cephalanthus occidentalis</i>
<b>Common persimmon</b>	<i>Diospyros virginiana</i>
<b>Coontie</b>	<i>Zamia pumila</i>
<b>Crabgrass</b>	<i>Digitaria sp.</i>
<b>Crowngrass</b>	<i>Paspalum sp.</i>
<b>Dahoon</b>	<i>Ilex cassine</i>
<b>Deerberry</b>	<i>Vaccinium stamineum</i>
<b>Dogfennel</b>	<i>Eupatorium capillifolium</i>
<b>Dropseed</b>	<i>Sporobolus sp.</i>
<b>Dwarf huckleberry</b>	<i>Gaylussacia dumosa</i>
<b>Dwarf live oak</b>	<i>Quercus minima</i>
<b>Dwarf wax myrtle</b>	<i>Myrica cerifera var. pumila</i>
<b>Earleaf greenbrier</b>	<i>Smilax auriculata</i>
<b>Eastern gamagrass</b>	<i>Tripsacum dactyloides</i>
<b>Eastern poison ivy</b>	<i>Toxicodendron radicans</i>
<b>Elderberry</b>	<i>Sambucus nigra ssp. canadensis</i>
<b>Elliott's beaksedge</b>	<i>Rhynchospora elliottii</i>
<b>Elliott's blueberry</b>	<i>Vaccinium elliottii</i>
<b>Elliott's milkpea</b>	<i>Galactia elliottii</i>
<b>Elliott's yellow-eyed grass</b>	<i>Xyris elliottii</i>
<b>False nettle</b>	<i>Boehmeria cylindrica</i>
<b>Fascicled beaksedge</b>	<i>Rhynchospora fascicularis</i>
<b>Fetterbush</b>	<i>Lyonia lucida</i>
<b>Fimbry</b>	<i>Fimbristylis sp.</i>
<b>Fireweed</b>	<i>Erechtites hieraciifolius</i>
<b>Flatsedge</b>	<i>Cyperus sp.</i>
<b>Florida alicia</b>	<i>Chapmannia floridana</i>
<b>Florida white-top sedge</b>	<i>Rhynchospora floridensis</i>
<b>Fourpetal St. John's wort</b>	<i>Hypericum tetrapetalum</i>
<b>Foxtail</b>	<i>Setaria sp.</i>

<b>Fragrant eryngo</b>	<i>Eryngium aromaticum</i>
<b>Gallberry</b>	<i>Ilex glabra</i>
<b>Giant air-plant</b>	<i>Tillandsia utriculata</i>
<b>Giant leather fern</b>	<i>Acrostichum danaeifolium</i>
<b>Giant orchid</b>	<i>Eulophia ecristata</i>
<b>Golden polypody</b>	<i>Phlebodium aureum</i>
<b>Goldenrod</b>	<i>Solidago sp.</i>
<b>Grape</b>	<i>Vitis sp.</i>
<b>Groundcherry</b>	<i>Physalis sp.</i>
<b>Groundnut</b>	<i>Apios americana</i>
<b>Groundsel tree</b>	<i>Baccharis halimifolia</i>
<b>Hairsedge</b>	<i>Bulbostylis sp.</i>
<b>Hog plum</b>	<i>Ximenia americana</i>
<b>Ironweed</b>	<i>Vernonia sp.</i>
<b>Lateflowering thoroughwort</b>	<i>Eupatorium serotinum</i>
<b>Laurel greenbrier</b>	<i>Smilax laurifolia</i>
<b>Lespedeza</b>	<i>Lespedeza sp.</i>
<b>Lesser Florida spurge</b>	<i>Euphorbia polyphylla</i>
<b>Licoriceweed</b>	<i>Scoparia dulcis</i>
<b>Little blue maidencane</b>	<i>Amphicarpum muhlenbergianum</i>
<b>Live oak</b>	<i>Quercus virginiana</i>
<b>Lizard's tail</b>	<i>Saururus cernuus</i>
<b>Longleaf pine</b>	<i>Pinus palustris</i>
<b>Lopsided indiangrass</b>	<i>Sorghastrum secundum</i>
<b>Maid marian</b>	<i>Rhexia nashii</i>
<b>Maidencane</b>	<i>Panicum hemitomon</i>
<b>Marsh seedbox</b>	<i>Ludwigia palustris</i>
<b>Marshpennywort</b>	<i>Hydrocotyle sp.</i>
<b>Milkpea</b>	<i>Galactia sp.</i>
<b>Millet beaksedge</b>	<i>Rhynchospora miliacea</i>
<b>Mohr's thoroughwort</b>	<i>Eupatorium mohrii</i>
<b>Muck sunflower</b>	<i>Helianthus simulans</i>
<b>Muscadine</b>	<i>Vitis rotundifolia</i>
<b>Myrsine</b>	<i>Rapanea punctata</i>
<b>Myrtle oak</b>	<i>Quercus myrtifolia</i>
<b>Myrtleleaf St. John's wort</b>	<i>Hypericum myrtifolium</i>
<b>Narrowleaf sunflower</b>	<i>Helianthus angustifolius</i>
<b>Natal grass</b>	<i>Rhynchelytrum repens</i>
<b>Netted pawpaw</b>	<i>Asimina reticulata</i>

<b>Nutrush</b>	<i>Scleria sp.</i>
<b>Nuttall's meadowbeauty</b>	<i>Rhexia nuttallii</i>
<b>Old world climbing fern</b>	<i>Lygodium microphyllum</i>
<b>Panic grass</b>	<i>Panicum sp.</i>
<b>Paragrass</b>	<i>Urochloa mutica</i>
<b>Partridge pea</b>	<i>Chamaecrista fasciculata</i>
<b>Peelbark St. John's wort</b>	<i>Hypericum fasciculatum</i>
<b>Peppervine</b>	<i>Ampelopsis arborea</i>
<b>Peruvian primrosewillow</b>	<i>Ludwigia peruviana</i>
<b>Piedmont roseling</b>	<i>Callisia rosea</i>
<b>Pinebarren beaksedge</b>	<i>Rhynchospora intermedia</i>
<b>Pinweed</b>	<i>Lechea sp.</i>
<b>Pricklypear</b>	<i>Opuntia humifusa</i>
<b>Primrosewillow</b>	<i>Ludwigia sp.</i>
<b>Queen palm</b>	<i>Syagrus romanzoffiana</i>
<b>Red maple</b>	<i>Acer rubrum</i>
<b>Resurrection fern</b>	<i>Pleopeltis polypodioides</i> var. <i>michauxiana</i>
<b>Rosary pea</b>	<i>Abrus precatorius</i>
<b>Rosegentian</b>	<i>Sabatia sp.</i>
<b>Rosemallow</b>	<i>Hibiscus sp.</i>
<b>Rosy camphorweed</b>	<i>Pluchea rosea</i>
<b>Rough hedgehyssop</b>	<i>Gratiola hispida</i>
<b>Roundleaf thoroughwort</b>	<i>Eupatorium rotundifolium</i>
<b>Roundpod St. John's wort</b>	<i>Hypericum cistifolium</i>
<b>Royal fern</b>	<i>Osmunda regalis</i> var. <i>spectabilis</i>
<b>Runner oak</b>	<i>Quercus elliotii</i>
<b>Rush</b>	<i>Juncus sp.</i>
<b>Saltmarsh fingergrass</b>	<i>Eustachys glauca</i>
<b>Sand blackberry</b>	<i>Rubus cuneifolius</i>
<b>Sand cordgrass</b>	<i>Spartina bakeri</i>
<b>Sand live oak</b>	<i>Quercus geminata</i>
<b>Sandyfield beaksedge</b>	<i>Rhynchospora megalocarpa</i>
<b>Sarsaparilla vine</b>	<i>Smilax pumila</i>
<b>Saw greenbrier</b>	<i>Smilax bona-nox</i>
<b>Saw palmetto</b>	<i>Serenoa repens</i>
<b>Sawgrass</b>	<i>Cladium jamaicense</i>
<b>Sawtooth blackberry</b>	<i>Rubus argutus</i>
<b>Shiny blueberry</b>	<i>Vaccinium myrsinites</i>
<b>Shoestring fern</b>	<i>Vittaria lineata</i>

<b>Shortleaf skeletongrass</b>	<i>Gymnopogon brevifolius</i>
<b>Silverling</b>	<i>Baccharis glomeruliflora</i>
<b>Slender flattop goldenrod</b>	<i>Euthamia caroliniana</i>
<b>Smartweed</b>	<i>Polygonum sp.</i>
<b>Smutgrass</b>	<i>Sporobolus indicus</i>
<b>South Florida slash pine</b>	<i>Pinus elliottii</i> var. <i>densa</i>
<b>Southern needleleaf</b>	<i>Tillandsia setacea</i>
<b>Spadeleaf</b>	<i>Centella asiatica</i>
<b>Spanish moss</b>	<i>Tillandsia usneoides</i>
<b>Spikerush</b>	<i>Eleocharis sp.</i>
<b>Spurge</b>	<i>Euphorbia sp.</i>
<b>St. Andrew's cross</b>	<i>Hypericum hypericoides</i>
<b>St. John's wort</b>	<i>Hypericum sp.</i>
<b>String lily</b>	<i>Crinum americanum</i>
<b>Sunflower</b>	<i>Helianthus sp.</i>
<b>Swamp bay</b>	<i>Persea palustris</i>
<b>Swamp laurel oak</b>	<i>Quercus laurifolia</i>
<b>Sweet goldenrod</b>	<i>Solidago odora</i>
<b>Sweetbay magnolia</b>	<i>Magnolia virginiana</i>
<b>Tall elephantsfoot</b>	<i>Elephantopus elatus</i>
<b>Tarflower</b>	<i>Bejaria racemosa</i>
<b>Tenangle pipewort</b>	<i>Eriocaulon decangulare</i>
<b>Thoroughwort</b>	<i>Eupatorium sp.</i>
<b>Threeawn</b>	<i>Aristida sp.</i>
<b>Toothed midorus fern</b>	<i>Blechnum serrulatum</i>
<b>Torpedograss</b>	<i>Panicum repens</i>
<b>Tracy's beaksedge</b>	<i>Rhynchospora tracyi</i>
<b>Tread softly</b>	<i>Cnidoscolus stimulosus</i>
<b>Tropical soda apple</b>	<i>Solanum viarum</i>
<b>Umbrellasedge</b>	<i>Fuirena sp.</i>
<b>Virginia buttonweed</b>	<i>Diodia virginiana</i>
<b>Virginia chain fern</b>	<i>Woodwardia virginica</i>
<b>Virginia creeper</b>	<i>Parthenocissus quinquefolia</i>
<b>Virginia willow</b>	<i>Itea virginica</i>
<b>Walter's viburnum</b>	<i>Viburnum obovatum</i>
<b>Wax myrtle</b>	<i>Myrica cerifera</i>
<b>Wedelia</b>	<i>Sphagneticola trilobata</i>
<b>Whitehead bogbutton</b>	<i>Lachnocaulon anceps</i>
<b>Whitetop aster</b>	<i>Oclemena reticulata</i>
<b>Whitetop aster</b>	<i>Sericocarpus tortifolius</i>



<b>Wild coffee</b>	<i>Psychotria nervosa</i>
<b>Wild pennyroyal</b>	<i>Piloblephis rigida</i>
<b>Willow</b>	<i>Salix sp.</i>
<b>Winged sumac</b>	<i>Rhus copallinum</i>
<b>Wiregrass</b>	<i>Aristida stricta</i> var. <i>beyrichiana</i>
<b>Witchgrass</b>	<i>Dichanthelium sp.</i>
<b>Woodsgrass</b>	<i>Oplismenus hirtellus</i>
<b>Yaupon</b>	<i>Ilex vomitoria</i>
<b>Yellow hatpins</b>	<i>Syngonanthus flavidulus</i>
<b>Yellow milkwort</b>	<i>Polygala rugelii</i>
<b>Yellow-eyed grass</b>	<i>Xyris sp.</i>