



**LAND MANAGEMENT PLAN**

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**LAKE PANASOFFKEE  
PRESERVE**



**SEPT. 28, 2021**

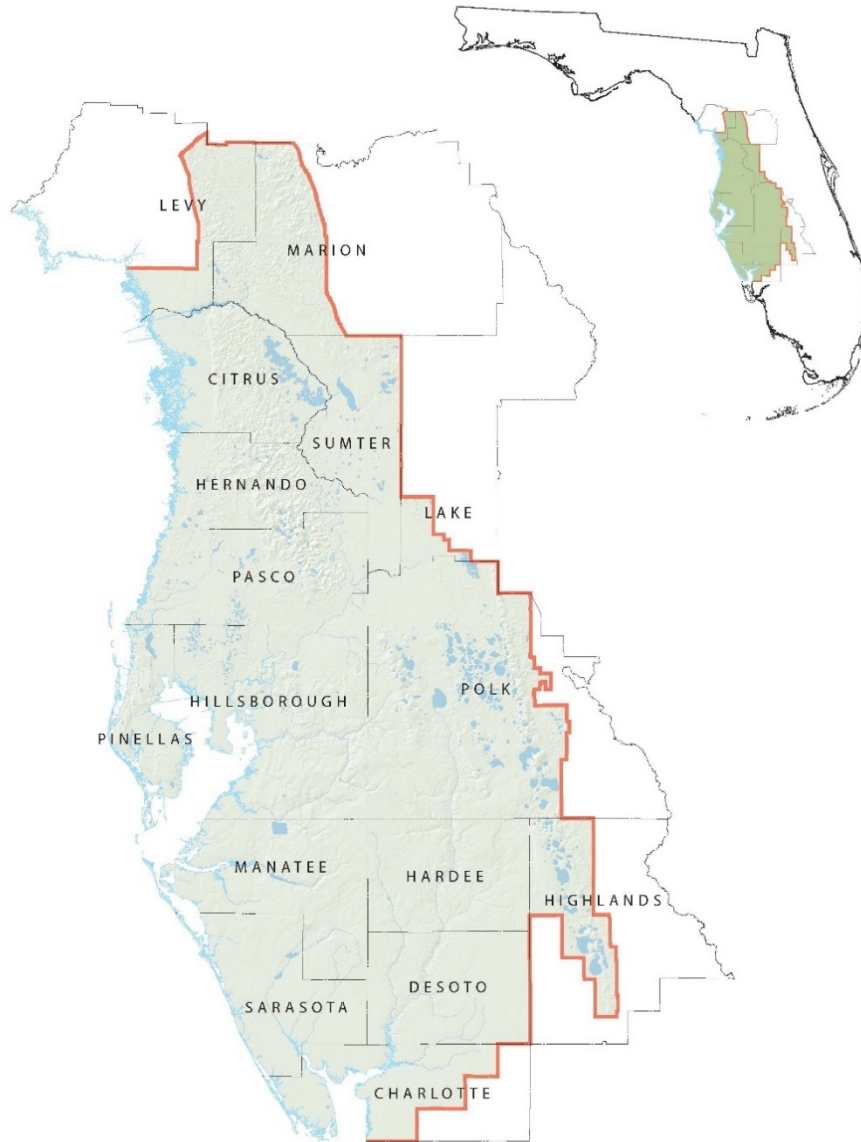
Southwest Florida  
*Water Management District*





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.



# Southwest Florida Water Management District



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## Executive Summary

Acres: 9,881

Acquisition Dates: 1990, 1993, 1996-97

Plan Term: 10 Years (2022-2031)

Primary Basin: Withlacoochee River

Secondary Basin: Big Jones and Little Jones Creek, Shady Brook, Lake Panasoffkee (Lake)

Location: Sumter County

Funding Source: Save our Rivers and Preservation 2000

Partnerships: Florida Fish and Wildlife Conservation Commission (FWC)

**Natural Systems:** The Lake Panasoffkee Preserve (Preserve) consists of floodplain swamp, with most of the remainder supporting a mixture of freshwater marsh, pine flatwoods, sandhills, oak scrub and mesic hammock forests.

**Water Resources:** A significant portion of Little Jones Creek, Big Jones Creek, and Shady Brook are located within the Preserve. It has been estimated that these three spring-fed creeks contribute up to 34 percent of the total annual input to the Lake. Protection of the Preserve will contribute to the long-term protection and management of the Lake, which is recognized as a natural resource of state-wide significance.

**Land Management:** The District's land management practices applied on the Preserve maintain the natural systems in their natural condition. Management activities on the Preserve include prescribed fire, invasive plant management, feral hog population management, forest management, range management, and restoration and enhancement efforts.

**Cultural and Historical Resources:** Evidence of Native American activities within the Preserve is evident. Currently, there are seven recorded archaeological sites of undetermined significance. Public interaction with known sites will be avoided. These sites will be monitored for looting and other disturbances.

**Recreation:** The types of recreation offered at the Preserve are bicycling, boating, camping, horseback riding, fishing, birding, hunting, and hiking. There are approximately 18 miles of designated multi-use trails. There are approximately three miles of designated hiking trails. The trail systems are also designated as part of the Florida Greenways and Trails network.

**Special Use Authorization:** There are various special uses on the Preserve which require Special Use Authorization (SUA) approval from the District as set forth in Florida Administrative Code §40D-9. The typical special use types occurring on the Preserve can be categorized as research and law enforcement training.

**Access:** Public access to the Preserve is provided by walkthrough access points to allow the general public to partake in the available outdoor recreation opportunities. The Preserve provides two separate access points, one at State Road 44 (SR 44) west of Wildwood and the other along Warm Springs Avenue near Coleman, FL.

**Real Estate:** Due to the proximity to the surface water of the Lake, as well as Big Jones Creek, Little Jones Creek, and Shady Brook flowing through the Preserve, the District will continue to consider opportunities to purchase adjacent lands to promote its Mission of protecting the natural features of the surrounding area for the benefit of flood protection, water quality, and water supply.

**Cooperative Agreements, Leases, and Easements:** The District is party to a land use agreement with the FWC for hunting opportunities, as well as a cattle lease with a private rancher.

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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 Land Use and Management Policy (District Policy) and the District's Executive Director Procedure titled Land Use and Management Planning (Procedure), which outlines the use and management of District-owned conservation lands. District 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 as to the draft Management Plan. The workshop is advertised in local newspapers, on the District's website, and via social media outlets and is held in the region the Preserve 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 considers public input received is prepared and ultimately presented to the District's Governing Board for approval at a regular Governing Board meeting.

### **Public Involvement**

In addition to the input solicited through public workshops 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 every five years as a way 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 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 which is reviewed by the District.

### **Management Authority**

The Preserve is considered by the District 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 Procedure governs the use and management of these lands in accordance with Chapters 259 and 373 of the Florida Statutes.

### **Location**

The Preserve is located in Sumter County, Florida. The Preserve is approximately 2 miles west of the City of Wildwood and 12 miles east of Inverness and is accessed via SR 44 (Figure 1). The Preserve is located within the Withlacoochee River Basin. The Lake is also located in the Panasoffkee Outlet River drainage basin in the Withlacoochee River watershed. The Preserve is bounded by SR 44 to the north, Interstate 75 (I-75) to the east, the Lake to the west, and Shady Brook to the south. The Florida Turnpike and I-75 junction is located immediately adjacent to the eastern property line. This junction serves as a major crossroad for travelers and is one of the most heavily utilized highway interchanges in the state.

The Preserves occurs within Sections 31 – 34, Township 18 South, Range 22 East; Sections 1, 12, and 13, Township 19 South, Range 21 East; Sections 3 – 10, 15 – 18, 20 – 22, 27, 28, 33, and 34, Township 19 South, Range 22 East; and Sections 2, 3, and 10 – 14, Township 20 South, Range 22 East.

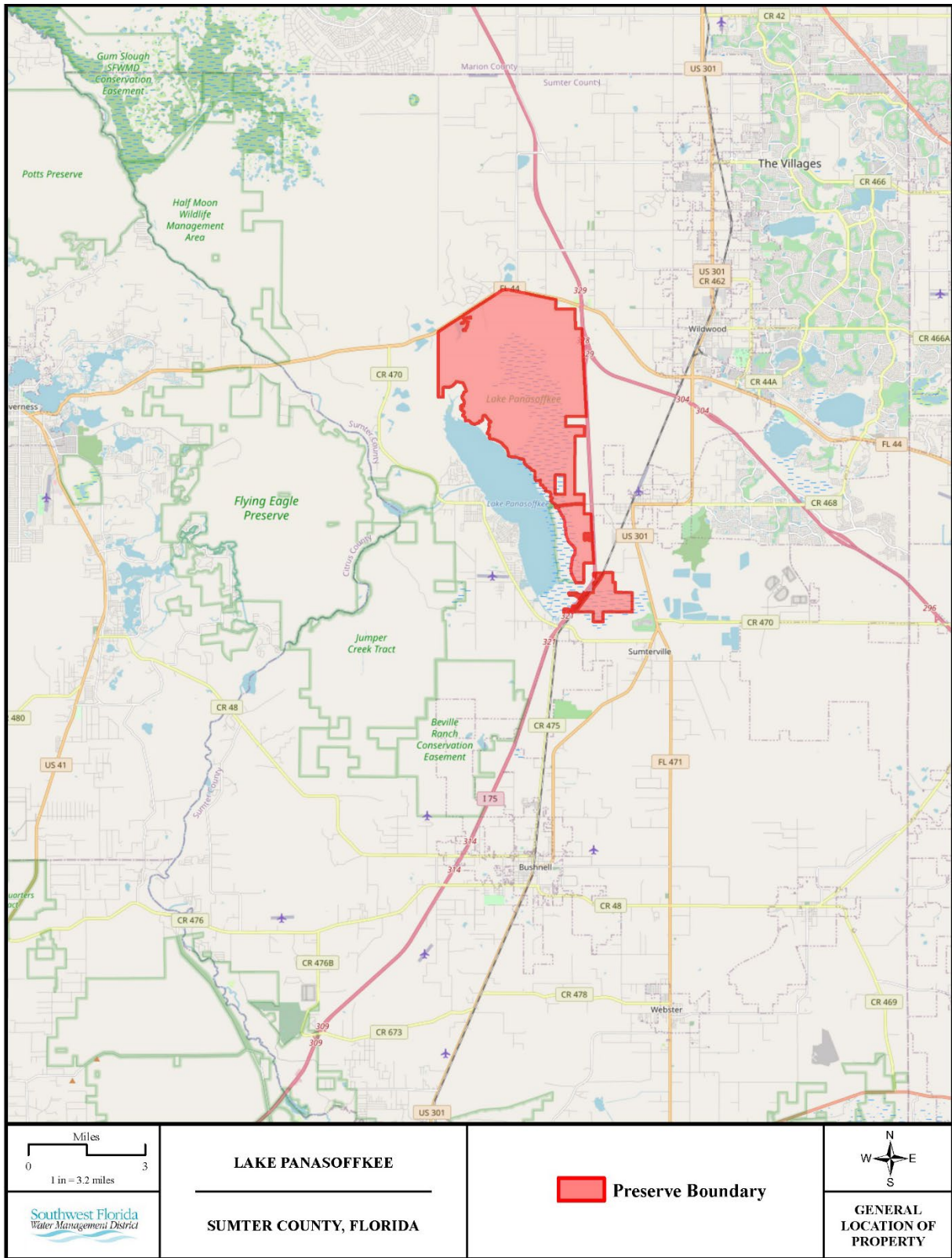
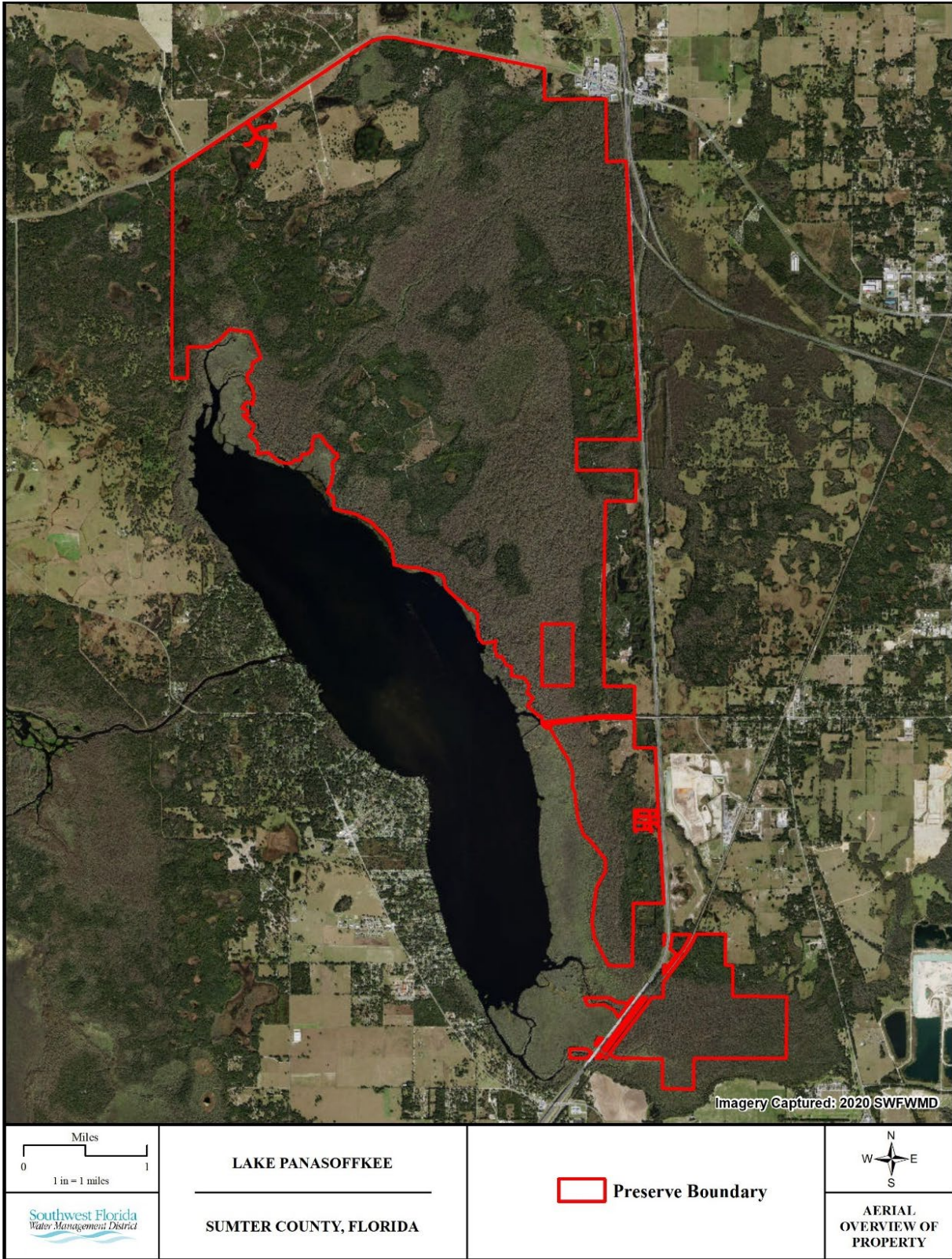


FIGURE 1. GENERAL LOCATION





**FIGURE 2. AERIAL OVERVIEW**

## Acquisition

The District purchases land for the purposes of protecting and conserving water supply, flood protection, water quality, and natural systems. These purposes are referred to as the Areas of Responsibility (AORs) of the District. 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, natural flood control and water detention, and to provide natural resource-based public recreational opportunities within the region. The specific resource management is discussed further in the proceeding sections.

## History

Lake Panasoffkee was identified as one of nine priority water bodies by the Surface Water Improvement and Management program in the early 1990s. As a result, the District sought to purchase lands to protect this priority water resource. The southern portion of the Preserve and along the Lake and Shady Brook were acquired using the Water Management Lands Trust Fund. The majority of the Preserve was acquired in 1993 from Hanover Farms Shoe, Inc. (Hanover Parcel) with funds from Preservation 2000. Following the acquisition of the Hanover Parcel, there were several small parcels acquired south of County Road 514 and along I-75 which completed acquisition of parcels in the Preserve.

## Regional Significance

Lake Panasoffkee contributes to the Withlacoochee River Basin through the Panasoffkee Outlet that connects the Lake to Withlacoochee River. The Preserve encompasses the entire eastern shoreline of the Lake which is the largest lake in Sumter County and the third largest lake in west-central Florida (Figure 2). In addition to the majority of the eastern shoreline consisting of floodplain swamp, three spring fed creeks, Little Jones Creek, Big Jones Creek, and Shady Brook, also occur predominantly within the Preserve. These three creeks are estimated to contribute up to 34 percent of the total input of water to the Lake annually. The Preserve also encompasses pine flatwoods, freshwater marshes, and oak scrub forest in addition to the vast floodplain forests.

Lake Panasoffkee is unique because the underlying surficial aquifer, and the Floridan aquifer system are all hydrologically connected. The Floridan Aquifer is directly exposed at the Lake's bottom. Throughout the late 1800s and the first half of the 1900s, the Lake was an important asset in the regional economy as a shipping port for timber, citrus, and other regional goods. In more recent years, the Lake continues to serve as an important recreational freshwater fishing resource for the region. Due to the significance of the Lake, the District has ranked it as one of the 12 priority water bodies within its Surface Water Improvement and Management Program (SWIM). In recognition of the ecological value of the Lake and adjacent floodplains, it is considered an Outstanding Florida Water (OFW) as described in Section 62-302.700 of the Florida Administrative Code (FAC). The Lake is within the OFW of the Withlacoochee River System. Protection of the Preserve directly contributes to the long-term protection and management of the Lake, in addition to the other surrounding lakes, rivers, and floodplains contributing to the Withlacoochee River System and the Floridan Aquifer.



## Regional Conservation Network

The Preserve is an integral component of a larger network of protected public conservation and recreation lands within the local and regional area. The Preserve adds approximately 9,881 acres to the network of protected conservation land in the region. Conservation lands surrounding the Preserve include the District managed Panasoffkee/Outlet Tract, Flying Eagle Preserve, Flying Eagle Ranch Conservation Easement, and Beville Ranch Conservation Easement, in addition to the Withlacoochee State Forest to the west, and the Half Moon Wildlife Management Area to the northwest (Table 1). Together, these publicly owned lands are an integral component to protecting the region's water quality, supply, and storage while also providing habitat for native flora and fauna. These lands provide vital expanses of core wildlife habitat and natural areas which provide important strategic ecological networks. The relationship between the Preserve and the Lake allows it to function as a part of a larger network of lands within the Withlacoochee River system. The network of conservation lands within 20 miles of the Preserve are summarized in Figure 3 below.

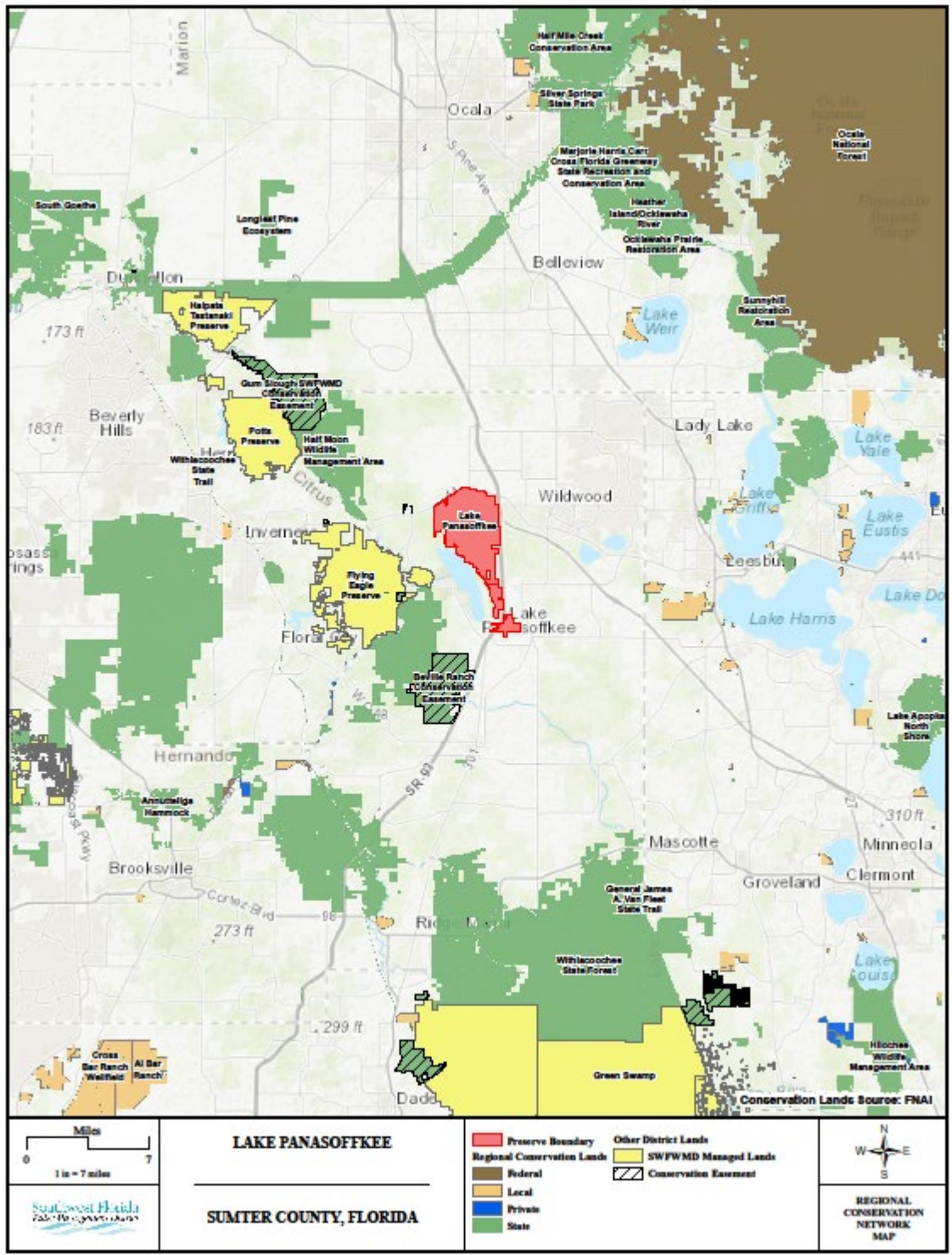


FIGURE 3. REGIONAL CONSERVATION NETWORK

**TABLE 1. CONSERVATION LANDS WITHIN 20 MILES OF THE PRESERVE**

<b>Name</b>	<b>Manager</b>	<b>Owner</b>	<b>County</b>	<b>Acreage</b>
<b>Flying Eagle Preserve</b>	SWFWMD	SWFWMD	Citrus	16,338
<b>Halpata Tastanaki Preserve</b>	SWFWMD	SWFWMD	Marion	7,889
<b>Panasoffkee Outlet Tract</b>	SWFWMD	SWFWMD	Sumter	813
<b>Potts Preserve</b>	SWFWMD	SWFWMD	Citrus	9,377
<b>Tsala Apopka/Two-Mile Prairie Connector</b>	SWFWMD	SWFWMD	Citrus	462
<b>Withlacoochee State Forest</b>	FDACS/FFS	TIITF/SWFWM D	Hernando	160,042
<b>Ross Prairie State Forest</b>	FDACS	TIITF	Marion	3,542
<b>Don McCaffrey Parcel</b>	SJRWMD	SJRWMD	Lake	42
<b>Emeralda Marsh Conservation Area</b>	SJRWMD	SJRWMD	Lake/Marion	7,329
<b>Jack R. Welling Parcel</b>	SJRWMD	SJRWMD	Lake	75
<b>Lake Harris Conservation Area</b>	SJRWMD	SJRWMD	Lake	504
<b>Ocklawaha Prairie Restoration Area</b>	SJRWMD	SJRWMD	Marion	6,404
<b>Sunnyhill Restoration Area</b>	SJRWMD	SJRWMD	Lake	7,617
<b>Withlacoochee State Trail</b>	FDEP DRP	TIITF	Citrus/Hernando	762
<b>Chinsegut Wildlife and Environmental Area</b>	FWC	TIITF/FWC	Hernando	853
<b>Half Moon Wildlife Management Area</b>	FWC	TIITF/SWFWM D	Sumter	9,554
<b>Perry Oldenburg Wildlife and Environmental Area</b>	FWC	FWC	Hernando	368
<b>Dade Battlefield Historic State Park</b>	FDEP DRP	TIITF	Sumter	81
<b>Fort Cooper State Park</b>	FDEP DRP	TIITF	Citrus	735
<b>General James A. Van Fleet State Trail</b>	FDEP DRP	TIITF	Polk/Lake/Sumter	422
<b>Lake Griffin State Park</b>	FDEP DRP	TIITF	Lake	621
<b>Lake Louisa State Park</b>	FDEP DRP	TIITF	Lake	4,595
<b>Marjorie Harris Carr Cross Florida Greenway</b>	FDEP DRP	TIITF	Marion	71,076
<b>Ocala National Forest</b>	USDA FS	USDA FS	Lake/Marion/Putnam	383,689
<b>Beville Ranch Conservation Easement</b>	SWFWMD	Private	Sumter	5,434
<b>Cannon Family Agricultural and Conservation Easement</b>	FDACS SCS	Private	Marion	406
<b>FDEP Green Swamp Conservation Easements</b>	FDEP DSL	Private	Lake/Pasco/Polk/	8,372
<b>Flying Eagle Ranch Conservation Easement</b>	SWFWMD	Private	Citrus	100
<b>Fly'n R Ranch Conservation Easement</b>	SJRWMD	Private	Marion	474
<b>Gum Slough SWFWMD Conservation Easement</b>	SWFWMD	Private	Sumter	5,801
<b>Total</b>				713,777

## **Current Land Use**

The Preserve is managed for the conservation and protection of its water resources and natural communities. In addition to protecting natural resources, the preserve boasts a variety of recreational opportunities to visitors as well. It is the policy of the District that appropriate public recreational usage of District lands be permitted, provided that the usage 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.” Current recreational uses of the Preserve are diverse. Supported activities include bird watching, picnicking, hiking, photography, biking, sightseeing, equestrian use, camping, fishing, and hunting during certain times of year. An active cattle lease exists within the northernmost pastureland south of SR 44. The District manages cattle leases to generate revenue that supplements land management funding.

## **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 non-residential uses are located in the area. Based on the Sumter County Land Development Code, the Preserve is currently zoned as General Agricultural with Conventional Housing (A10C). This zoning is outdated as it does not accurately reflect the purpose of the land. According to the Sumter County Comprehensive Plan, the Future Land Use designation for the Lake Panasoffkee Preserve is Conservation. The Conservation land use designation is designed to recognize and protect natural resources within public conservation lands or private lands dedicated to and managed by a public agency through a conservation easement. The Conservation future land use category only applies to lands that have been acquired for the purpose of conserving, preserving, or managing environmentally sensitive lands.

## **Adjacent Land Uses**

The Preserve is located within a rural area of Sumter County. The perimeter of the Preserve is bordered almost entirely by paved roadways to the north, east, and south, while the western boundary is buffered by the eastern shoreline of Lake Panasoffkee. The surrounding land uses beyond the bordering roadways are dominated by agricultural crop and pastureland. The close proximity of major roadways has led to an increase in residential housing developments surrounding Lake Panasoffkee as well. The nearest concentrated residential developments occur in the cities of Wildwood, Coleman, and Lake Panasoffkee. A limestone mine is also located just over a mile from the southeastern portion of the Preserve.

## **Management Challenges**

The challenges associated with the management of the Preserve are primarily due to the location of the parcel within an increasing area of development. This additional development puts pressure



on the natural systems and could increase flood control needs in the area. In addition, the abundance of Wildland Urban Interface and major highways along the boundary of the Preserve increase the complexities of prescribed fire operations. This results in an increased amount of planning to mitigate and limit impacts to smoke sensitive features.

## **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 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. The Preserve's water resources are outlined in Figure 4.

### **Water Quality**

Wetland vegetation has a natural ability to filter suspended sediments from the water column and to assimilate certain waterborne pollutants. These characteristics of wetlands permit them to enhance the quality of degraded or polluted waters that move through them. Forested wetland systems, such as the floodplain swamp which covers much of the property, are especially effective at enhancing water quality in this manner. Preservation of the floodplain swamp will maintain its inherent ability to enhance water quality and will also preclude any future development on a majority of the Lake Panasoffkee floodplain, thereby reducing the potential for future land uses that could degrade water quality conditions in the Lake. In addition, the aquatic vegetation of the property's freshwater marsh and willow communities which border the eastern edge of the Lake is of critical importance in maintaining or improving current water quality conditions in the Lake (CH2M Hill, 1994; SWFWMD, 1995). Maintenance of the aquatic macrophytic vegetation that fringes the eastern shoreline of the Lake, and accounts for the westernmost extent of the Preserve, will be considered a management priority.

The water quality benefits associated with preservation of the Preserve will complement the goals of the SWIM Plan that has been prepared for the Lake. As noted in a preceding section, the Lake has been designated a ranked priority waterbody of the District's SWIM Program. The maintenance or improvement of water quality in the Lake is a major emphasis of the SWIM Plan.

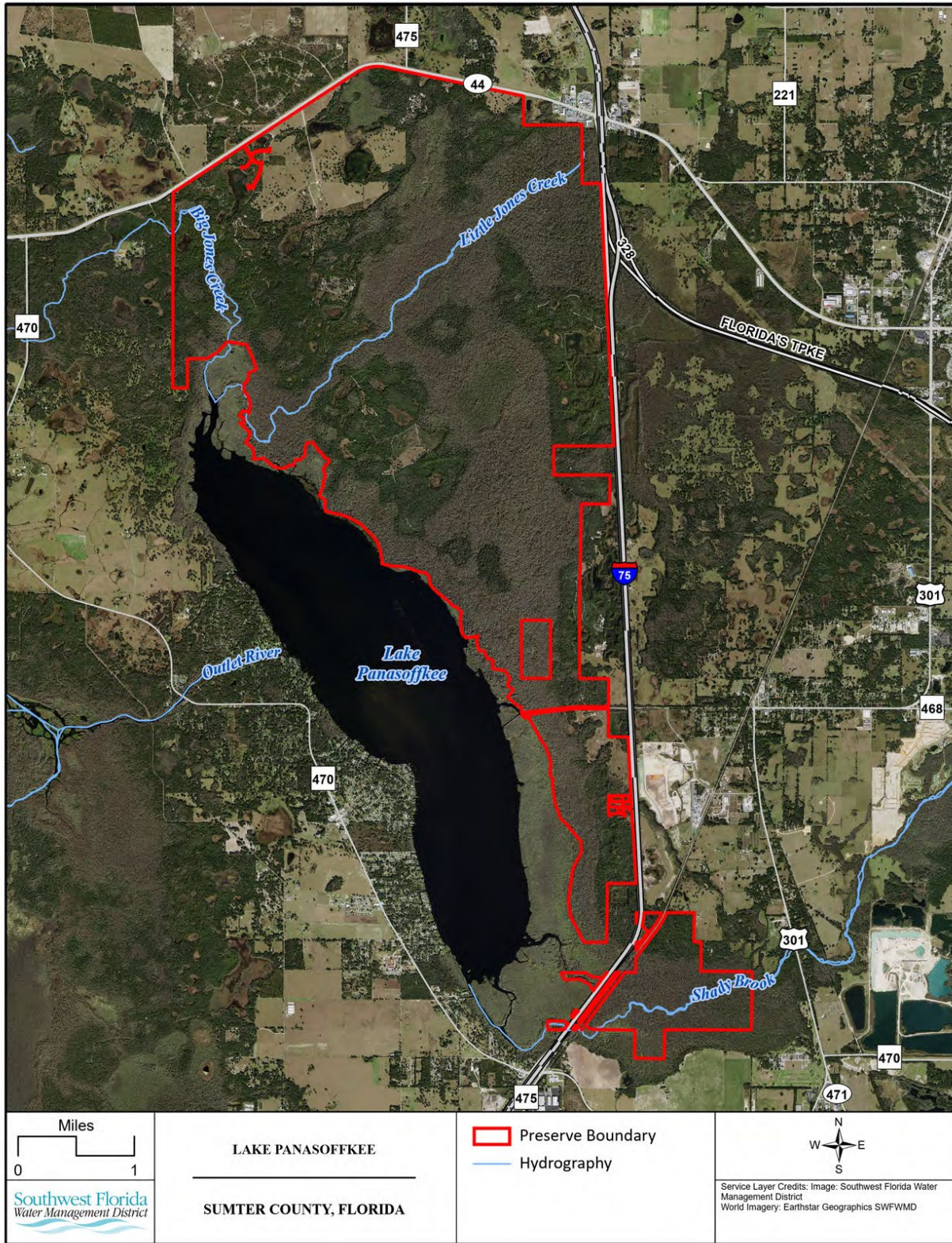


FIGURE 4. WATER RESOURCES AT LAKE PANASOFFKEE PRESERVE



## **Water Supply**

The District's lands are sometimes considered for development of public water supply sources when site-specific conditions are appropriate for such development. Hydrogeologic conditions at the Preserve are generally not conducive to the development of a large-scale water production system based on analyses previously conducted or reviewed by the District (SWFWMD, 1990).

The clear dependence of the Lake on groundwater sources lends additional emphasis to the need for careful consideration of the Preserve's water supply potential. The Lake is the largest lake in Sumter County and is recognized as a recreational and environmental resource of regional significance. Its regional significance is reflected by its designation as a ranked priority waterbody of the District's SWIM Program. In addition, the natural values of the Preserve would be greatly reduced by adverse impacts to the on-site wetlands and creeks in response to a decline in groundwater levels and ensuing changes in wetland hydroperiods and rates of spring discharge and streamflow.

The District administers rules which regulate the use of water. These regulations, promulgated as Chapter 40D-2 of the Florida Administrative Code, address the potential for adverse environmental impacts as a result of large-scale withdrawals of water. An essential element in preventing excessive impacts from any proposed development of water supply sources on the Preserve would include the collection of data on aquifer levels, wetland water levels, Wetland Assessment Protocols, hydroperiods, streamflow (Minimum Flows and Levels), drawdown assessments / modeling and spring discharge prior to initiating withdrawals. Such data would establish the baseline or pre-development condition so that resulting variations from historic conditions could be identified and addressed.

The proximity of the northern end of the Preserve to a large, intensely active highway interchange complex may also prove to be problematic for the future placement of public supply wells at this site. Wellhead protection regulations require appropriate setbacks, generally of at least 500 feet, from land uses that may represent possible sources of groundwater contamination. The concentration of truck and automobile service centers at the interchange and extensive areas of impermeable surfaces and associated stormwater treatment basins may affect the future placement or configuration of wellheads in the immediate area.

## **Flood Protection**

Wetland areas and floodplains have a natural ability to store or detain water generated by storm events. A recognition of this innate characteristic of wetlands was one of the factors that motivated contemporary efforts to preserve wetlands, which had long been viewed as useless wastelands to be filled or drained.

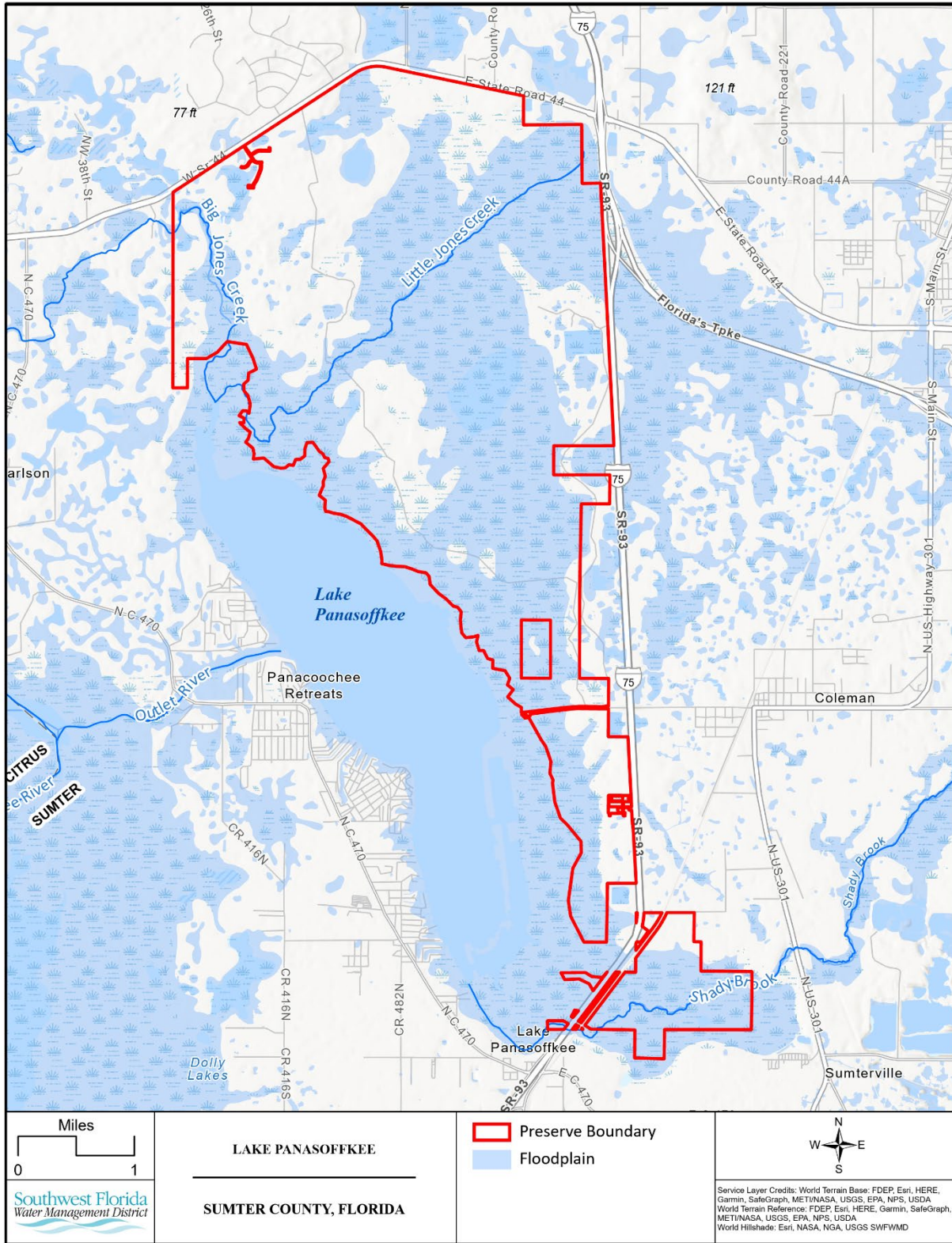
The Preserve plays a key role in minimizing flood risk for several area water bodies. Approximately 6,650 acres of the property, or over 67 percent of the total land area, support wetland communities. The northern and eastern portions of the Preserve form the border of the Lake which is designated an OFW by the State of Florida. Willow and other emergent marsh



vegetation are present along these sides of the lake and the land helps store floodwaters when lake levels naturally rise. Other on-site wetland communities consist of either isolated marshes, wet prairies, or floodplain swamps.

Most of the wetland area is floodplain swamp, which can store considerable volumes of stormwater runoff (Figure 5). This includes the land bordering Little Jones Creek, which flows from a second magnitude spring through the center of the property and ultimately into the Lake. During dry season months, this creek conveys high quality ground water along a four-mile-long channel that meanders through the floodplain swamp. An additional spring run flows from the east under the Florida Turnpike and I-75, joining with Little Jones Creek near the northeast portion of the property. During the wet season, these creeks and their adjacent wetlands help store floodwaters and release them slowly through the property and into the Lake. The natural function of these wetlands is critical to minimizing flood risk for the many homes along the west side of the Lake and for ensuring flows that exit the Lake to the Withlacoochee River do not impact downstream areas.

Preserving the property's flood protection values will be dependent upon maintaining the storage capacity of the natural wetlands and swamps. Any future development on the Preserve will be designed to avoid filling and will be consistent with District regulations that control stormwater discharges and impacts to wetlands. In addition, alterations that would accelerate or impede natural surface flows through the swamp, including road improvements or construction of recreational amenities, should be avoided.



**FIGURE 5. FLOODPLAIN MAP**

## Natural Systems

Eleven natural communities and two altered communities occur on the Preserve, as defined by the Florida Natural Areas Inventory (FNAI) Guide to the Natural Communities of Florida (FNAI, 2010), as depicted on Figure 6 and summarized in Table 2. The dominant natural community within the Preserve is basin swamp, accounting for 43 percent, with subdominant natural communities (>5 percent cover) including mesic hammock, hydric hammock, and mesic flatwoods. Approximately 10 percent of the Preserve consists of ruderal lands, considered as an altered land cover type by FNAI. This portion of altered lands within the Preserve was previously used for cattle grazing or agriculture, and portions of this land cover type continue to be used for cattle in present day. The natural communities and land cover types are summarized below.

**TABLE 2. NATURAL COMMUNITY TYPE SUMMARY**

Natural Community Type	Acreage	Percent Cover
<b>Basin Swamp</b>	4,237	43%
<b>Mesic Hammock</b>	1,627	16%
<b>Hydric Hammock</b>	1,425	14%
<b>Ruderal</b>	1,015	10%
<b>Mesic Flatwoods</b>	505	5%
<b>Scrubby Flatwoods</b>	334	3%
<b>Basin Marsh</b>	262	3%
<b>Scrub</b>	211	2%
<b>Xeric Hammock</b>	118	1%
<b>Depression Marsh</b>	64	1%
<b>Sandhill</b>	56	1%
<b>Pine Plantation</b>	13	0.10%
<b>Dome Swamp</b>	12	0.10%
<b>Total</b>	<b>9,879</b>	<b>100%</b>

### *Basin Marsh (262 acres)*

This natural community is described as a basin that is seasonally inundated, with occasional fire. Within the Preserve, basin marshes make up approximately 3 percent of the landscape. This marsh system typically has a long hydroperiod. These systems are largely herbaceous and include species such as maidencane, sawgrass, bulltongue arrowhead, pickerelweed, cordgrass, and white-water lily.

### *Basin Swamp (4,237 acres)*

Basin swamps are the largest natural community within the Preserve, accounting for 43 percent of the total land use. Typically, a large basin wetland with peat substrate that is seasonally inundated with still water or with water output. Within these systems, fire is rare or occasional. The forested system is made up of species including cypress, tupelo, and mixed hardwoods.

### *Depression Marsh (64 acres)*

Depression marshes are small, isolated, and often rounded depressions. This land use only accounts for less than 1 percent of the Preserve. Depression marshes typically have a long hydroperiod and are often surrounded by fire-maintained communities. Depression marshes are

seasonally inundated with still water. They are largely herbaceous and include species such as maidencane, sawgrass, pickerelweed, longleaf threeawn, sand cordgrass, and peelbark St. John's wort.

*Dome Swamp (12 acres)*

This natural community makes up less than 1 percent of the land use within the Preserve, and includes small or large, shallow, isolated depressions. Within the Preserve, they occur within a fire-maintained community and area seasonally inundated with still water. These forested systems often have the tallest canopy in the center and are dominated by cypress and swamp tupelo.

*Hydric Hammock (1,425 acres)*

Hydric hammocks are lowlands in mesic-hydric areas. This natural community comprises approximately 14 percent of the Preserve. Species often include live oak, cabbage palm, red cedar, and mixed hardwoods. Fire is occasional to rare in this system.

*Mesic Flatwoods (505 acres)*

This natural community encompasses approximately 5 percent of the Preserve and is flatland with mesic soils. In these communities, fire is frequent. The canopy is dominated by open pine, with a layer of low shrubs and herbs. Canopy can be either longleaf pine and/or slash pine, with a shrub layer of saw palmetto, gallberry, swarf live oak, and wiregrass.

*Mesic Hammock (1,627 acres)*

Mesic hammocks are flatlands with mesic soils, with occasional or rare fire. This land use describes approximately 17 percent of the Preserve. There is a closed evergreen canopy made up of live oak, cabbage palm, southern magnolia, and pignut hickory, with a shrub layer of saw palmetto.

*Pine Plantation (13 acres)*

Pine plantations are areas altered by silvicultural activities. Pine plantations in Florida are often dominated by even-aged slash pine. The understory is typically sparse to absent herbaceous vegetation as a result of shading or deep pine needle duff. This altered community constitutes a very small portion of the Preserve, less than 1 percent.

*Ruderal (1,015 acres)*

Ruderal areas are characterized as anthropogenically altered lands, primarily due to the historic conversion of these areas to pasture or agricultural lands. This altered land use describes approximately 10 percent of the habitat within the Preserve. These ruderal areas are mixed grasslands with a variety of native and non-native grasses. Much of this land use still functions as cattle pasture today.

*Sandhill (56 acres)*

Sandhill communities are uplands with deep sand substrate and xeric soils. Sandhill habitats occur infrequently and in small pockets within the Preserve, accounting for less than 1 percent of the Preserve. These habitats benefit from frequent fire. The canopy is widely spaced longleaf pine and/or turkey oak with a wiregrass understory.



*Scrub (211 acres)*

This natural community describes approximately 2 percent of the Preserve and is an upland land use with deep sand substrate and xeric soils. Fire is occasional or rare, and the habitat is open or dense shrubs with or without a pine canopy, sand pine, or scrub oaks. Florida rosemary is a common herbaceous species observed in scrub.

*Scrubby Flatwoods (334 acres)*

Scrubby Flatwoods are flatlands with xeric to mesic soils. This land use accounts for approximately 3 percent of the Preserve. Fire in this natural community is occasional. The habitat often includes widely scattered pine with an understory of saw palmetto and scrub oaks. Longleaf pine, sand live oak, myrtle oak, Chapman's oak, saw palmetto, and wiregrass are all commonly observed species in scrubby flatwoods.

*Xeric Hammock (118 acres)*

Xeric hammocks are uplands with deep sand substrate and xeric soils, where fire is very rare. Within the Preserve, this natural community is 1 percent of the total land use onsite. The canopy is often closed with a mixture of evergreen hardwoods, sand live oak, and a shrub layer of saw palmetto.

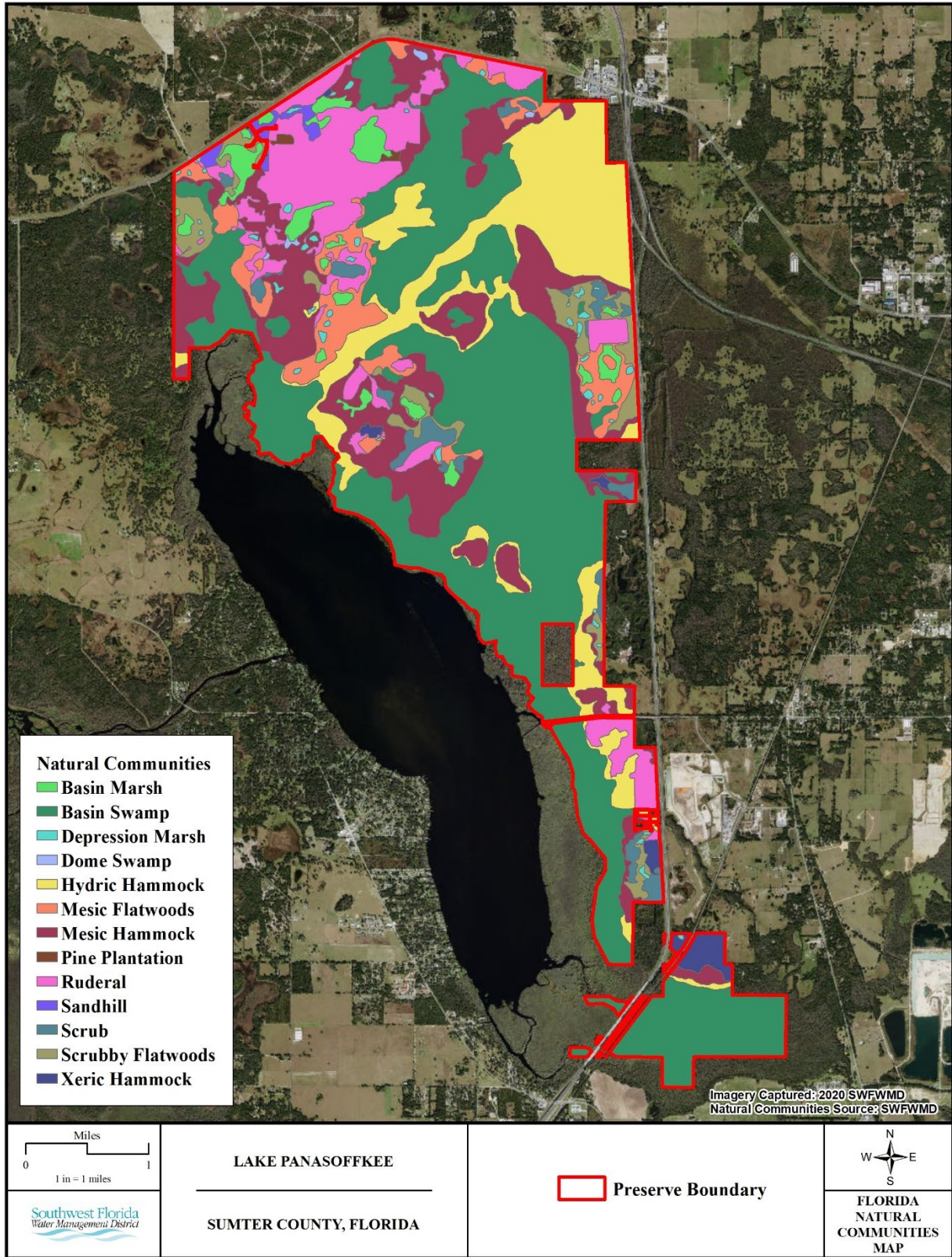


FIGURE 6. NATURAL COMMUNITIES- FNAI

## Soils and Topography

The Preserve is relatively flat with elevations (Figure 8) ranging from approximately 60 feet National Geodetic Vertical Datum (NGVD) within a few small, scattered upland pockets along the perimeter of the Preserve, to 45 feet NGVD within a majority of the wetlands onsite, which is reflected in its dominance of hydric soils throughout the site. The relatively low-lying topography of the Preserve is characterized by a dominance of poorly drained soils that support a variety of wetland vegetative communities. Based on the United States Department of Agriculture (USDA)/Natural Resources Conservation Service (NRCS) Soil Survey for Sumter County (1988), 36 soil types are mapped within the Preserve as depicted on Figure 7. Of these 36 soil types, 17 are considered hydric according to the Hydric Soils of Florida Handbook, accounting for approximately 57 percent of the Preserve. Hydric soils typically occur in low-lying areas, and all wetlands have hydric soils. Gator muck, frequently flooded, a hydric soil, is the dominant soil type and accounts for 36 percent of the soil within the Preserve, while Immokalee sand, a mesic soil, and Terra Ceia muck, frequently flooded, a hydric soil, are sub-dominant and account for approximately 11 percent and 10 percent, respectively. Mesic soils typically occur in flat areas that are at higher elevations relative to hydric soils. Within the Preserve, 14 soils are classified as mesic, and are often associated with pine flatwoods and mesic hammock. These mesic soils account for approximately 28 percent of the soils within the Preserve. Xeric soils are at the highest relative elevation. They are typically sandy, and the water table is typically well below the surface. Four xeric soils occur within the Preserve, and account for approximately 14 percent.

In addition to Gator Muck, frequently flooded, Terra Ceia muck, frequently flooded, and Nittaw muck, frequently flooded, underlie the floodplain swamp that encompasses a majority of the Preserve. These soils are all very poorly drained, with high levels of organic content and typically found in areas subject to frequent flooding. The dominant soil type bordering the shoreline of the Lake is Everglades muck, frequently flooded. This soil is also very poorly drained and prone to frequent flooding. The additional wetlands occurring within the Preserve are herbaceous systems, and are distinguished by Basinger fine sand, Placid fine sand, depressional, Wabasso fine sand, depressional, and Montechoa fine sand, depressional. One depressional marsh in the center of the Preserve is dominated by Okeelanta muck, frequently flooded. These poorly drained sands are found in depressional areas that are ponded for at least six to eight months annually.

The mesic hammocks and flatwoods occurring within the Preserve are composed of a combination of Immokalee, Myakka, Smyrna, and Oldsmar fine sands. These sands are poorly drained and are typically found in areas with higher water tables. Mesic soils typically occur on flat areas that are at higher elevations relative to hydric soils. Xeric soils are at the highest relative elevation and are typically sandy with a low water table. The limited pockets of sandhill habitat are underlain by either Candler sand, 0 to 5 percent slopes, or Tavares fine sand, 0 to 5 percent slopes. Both soils are xeric and are well drained or excessively drained with a low water table and rapid permeability.



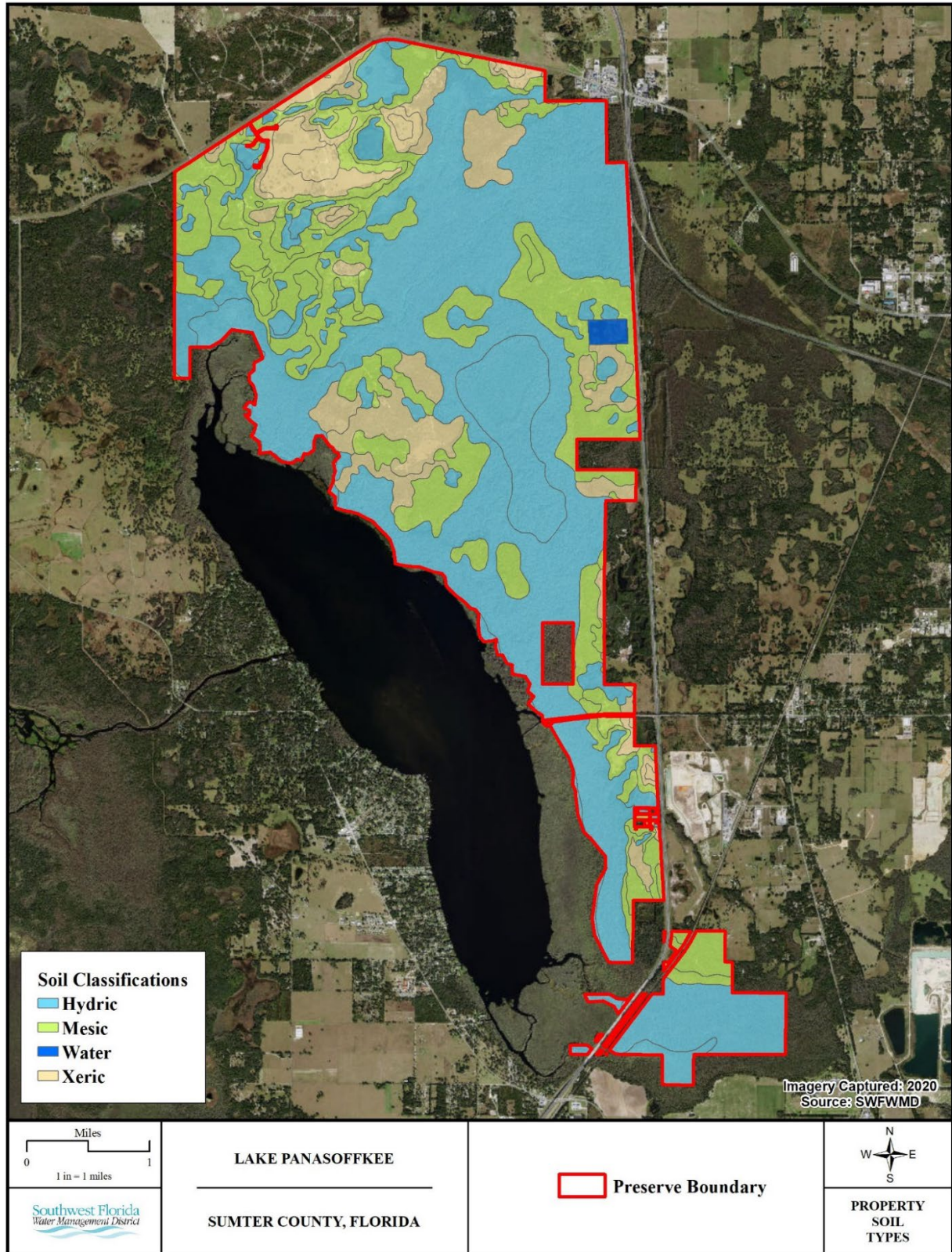


FIGURE 7. SOIL TYPES AT LAKE PANASOFFKEE PRESERVE



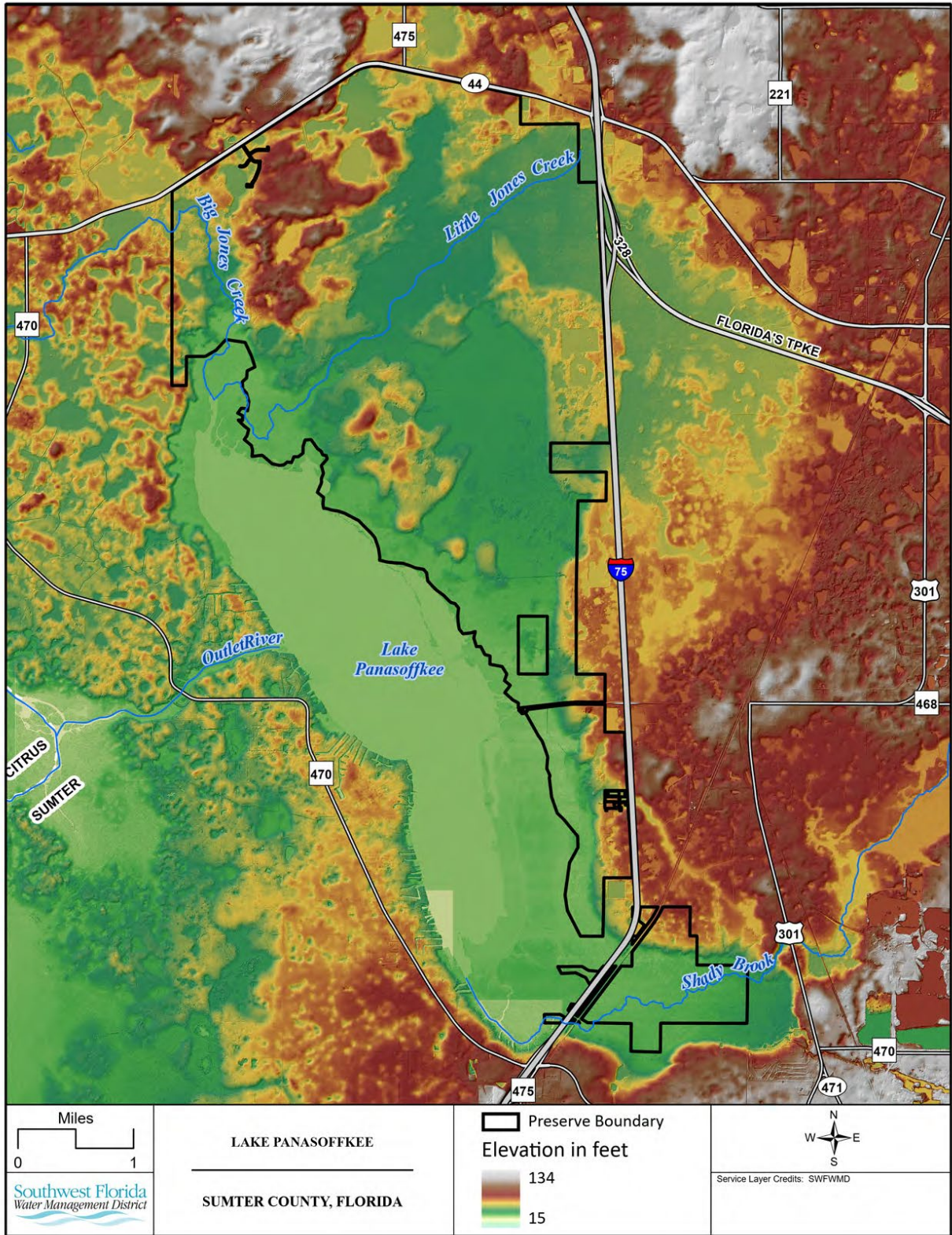


FIGURE 8. DIGITAL ELEVATION MODEL OF LAKE PANASOFFKEE PRESERVE

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

### **Historical Land Use**

The Preserve historically was utilized for a variety of agricultural purposes. From the 1830s through the 1880s, the Lake (in combination with the Withlacoochee River) provided a convenient transportation network for steamships to travel between the town of Panasoffkee and the west coast of Levy County. In addition to water access, a railroad was also built in 1883 connecting the town of Lake Panasoffkee to Jacksonville. These transportation options led to a thriving local agricultural industry. Within the Preserve, citrus was the primary export, along with some vegetable crops. In addition, the old-growth bald cypress trees that dominated the lake floodplains supported an active timber industry during the 1880s and 1890s. The timber operations lasted until 1904, when the timber industry collapsed as the last of the cypress was harvested. The surrounding town of Lake Panasoffkee also suffered from the collapsed industry, and the population of the town drastically decreased.

The historical agricultural uses of the present-day Preserve have left a lasting impact on the land. The citrus cultivation was concentrated on the northern upland portions of the Preserve, and large expanses of native upland forested habitats were cleared and planted in citrus. While some of the historical citrus areas have regenerated into forests, a majority of these cleared lands (approximately 1,100 acres) were later converted into pasture for cattle production.

Within the floodplain swamps, the only evidence of the past old-growth bald cypress trees are the remnant cypress stumps. The remaining canopy has very few remaining or regenerated cypress trees and is now instead dominated by hardwood tree species.

### **Cultural and Archaeological Resources**

The Florida Master Site File, which is maintained by the Division of Historical Resources (DHR), has documented the presence of at least seven archaeological sites within the Preserve. The significance of these sites has not been determined.

## Land Management and Land Use

### Land Management

As part of the ownership of conservation lands, the District is responsible for the 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 managers utilize is the application of prescribed fire. This is the most cost-effective method to maintain the natural communities in their natural condition. Along with prescribed fire, the District uses other common land management techniques 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 in the FNAI Natural Communities Guide.

The District engages in a variety of land management activities designed to protect or enhance the natural resource values of its properties and to ensure public safety. This aspect of the plan contains specific actions required to ensure the continued integrity of the Lake as an important part of the overall ecological landscape. Emphasis is placed on restoring and maintaining, to the greatest degree possible, the natural communities that formed the vegetative and animal species composition within the Preserve.

### 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 the 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:

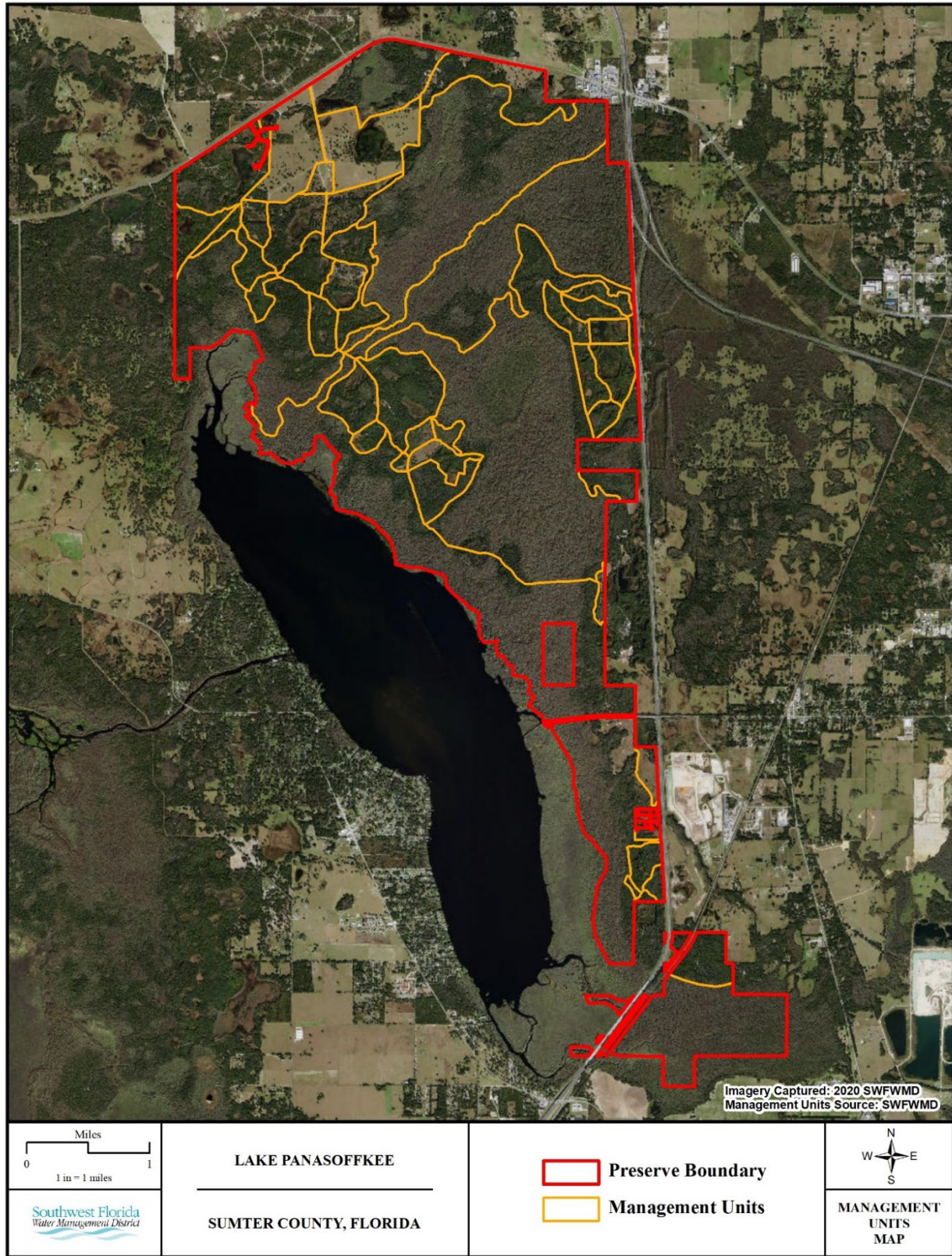
- Maintain and restore natural systems.
- Promote water resource benefits.
- Reduce hazardous fuel loads and minimize wildfire risk.
- Promote native plant diversity and habitat function.
- Maintain wildlife habitat quality.
- Support forest management activities.
- Maintain aesthetics and access for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

On the Preserve, there are 43 management units with approximately 2,218 acres of fire-dependent natural communities. 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 Preserve that allow for successful fire management and limit the potential for wildfires. These management units are outlined in Figure 9.

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 the majority of the 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, and 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 AT LAKE PANASOFFKEE PRESERVE**

## Forest Management

The Preserve does not have any Timber Management Zones actively managed by the District. District 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 have been some efforts to restore longleaf pine by planting some smaller altered areas with forest source longleaf.

## Restoration and Maintenance

Several restoration projects have been conducted within the Preserve, using a combination of fire application, mechanical treatments, and chemical methods. Managing altered lands on conservation tracts often necessitates additional management activity if an evolved community type no longer carries fire at the necessary time (seasonality) or intensity. Within the Preserve, the District has conducted multiple restoration projects through cooperative efforts with non-profit organizations such as the National Wild Turkey Federation (NWTF). Recent projects have involved restoring upland areas and thinning trees in overgrown uplands, to provide fuel and aid in the success of prescribed burns. Within the Preserve, the locations of the scrub and sandhill habitats create management challenges. The scrub occurs secluded on islands surrounded by floodplain. The isolation, along with the proximity to major highways, limits the ability to burn in these areas. Maintenance activities within the scrub and sandhill habitats is limited to mechanical thinning to physically cut down woody debris, or herbicide treatment to chemically set back oaks and other woody species to maintain open habitat.

## Exotic and Invasive Species

The invasion of native communities and ecosystems by non-native and exotic species of plants and wildlife is one of the primary threats to the integrity of Florida's remaining natural areas. Non-native species, growing in a novel environment free of the population controls typically imposed by natural predators and pathogens, can often displace native species, and greatly diminish habitat value of the affected areas. The District utilizes multiple methods and has formal procedures to address the control of exotic species within the Preserve to minimize encroachment into natural systems.

### 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 once there. As a result, Florida is home to many non-native plant species that have become aggressive invaders that severely impact natural systems.



The Florida Exotic Pest Plant Council (FLEPPC) 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 (FLEPPC, 2019). Many species on the FLEPPC 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 exotic 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 that spearhead control efforts by surveying, prioritizing, and treating invasive exotic plant populations on District conservation lands. The District focuses management efforts on invasive exotic plant species which the FLEPPC has deemed Category I or II plants, as discussed 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 exotic 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.

This prioritization scheme ensures that the District's resources are spent where they will have the greatest impact on the ecosystem. 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 Preserve but have the potential to become invasive if they get established.

Overall, there are very low levels of exotic and invasive species throughout the Preserve. The most problematic invasive plant species found at the Preserve are listed in Table 3 along with their priority level for control, with lower numbers indicating a higher priority and vice versa. Species of primary concern on the Preserve include cogon grass (*Imperata cylindrica*), tropical soda apple (*Solanum viarum*), air potato (*Dioscorea bulbifera*), Chinese tallow-tree (*Triadica sebifera*), and Caesar weed (*Urena lobata*). Infestations of invasive exotic plant species at the Preserve are most commonly found in historically disturbed sites such as pastures and old home sites and adjacent to roadways and housing developments.

The District employs a variety of measures to control invasive exotic 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 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. Treatments utilizing herbicides comply with instructions found on the herbicide label and employ the Best Management Practices for their application.

**TABLE 3. INVASIVE PLANTS FOUND AT LAKE PANASOFFKEE PRESERVE**

Common Name	Scientific Name	FLEPPC Category	Priority Level for Control
<b>Cogongrass</b>	<i>Imperata cylindrica</i>	1	4
<b>Tropical soda apple</b>	<i>Solanum viarum</i>	1	4
<b>Air potato</b>	<i>Dioscorea bulbifera</i>	1	4
<b>Chinese tallow-tree</b>	<i>Triadica sebifera</i>	1	4
<b>Caesar weed</b>	<i>Urena lobata</i>	1	4
<b>Sword fern</b>	<i>Nephrolepis cordifolia</i>	1	7
<b>Japanese climbing fern</b>	<i>Lygodium japonicum</i>	1	7
<b>Skunk vine</b>	<i>Paederia foetida</i>	1	7
<b>Camphor-tree</b>	<i>Cinnamomum camphora</i>	1	7
<b>Ear pod tree</b>	<i>Enterolobium cyclocarpum</i>	N/A	7
<b>Chinaberry tree</b>	<i>Melia azedarach</i>	2	8

### Invasive Wildlife Management

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

The Preserve is host to several invasive wildlife species. The primary invasive wildlife species that the District focuses eradication 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, Cooper, and Armstrong, 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 are capable of carrying 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, Caesar's weed. Furthermore, feral hogs also compete with native species for forage and have been documented preying on native species themselves; specifically, ground-nesting birds.

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 wild 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 hogs on selected District conservation lands to a maintenance level, thus reducing the overall ecological damage resulting from feral hog rooting. This is done through the use of a comprehensive and scientifically based management strategy that is humane, cost-effective, and compatible with ecologically sustainable land management.

### Imperiled Species

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 Preserve maintain important ecosystem functions and landscape structure that can support a mix of species.

#### *Wildlife*

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. The District manages the Preserve in a holistic fashion and according to Best Management Practices which benefit a wide array of native plant and animal species, including those that are considered imperiled. Although exhaustive plant and animal surveys have not been conducted, numerous imperiled species are known to exist on the Preserve.

The FNAI Biodiversity Matrix Map Server is a screening tool which 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, 10 federally and/or state listed wildlife species are likely to occur or have the potential on the Preserve (Table 4). Additionally, numerous federal and state listed plant species are likely to occur or have the potential to occur there as well and are listed in Appendix A.

**TABLE 4. IMPERILED WILDLIFE SPECIES KNOWN OR LIKELY TO OCCUR AT LAKE PANASOFFKEE PRESERVE**

Scientific Name	Common Name	Federal Status*	State Listing**
<i>Alligator mississippiensis</i>	American alligator	SA	SA
<i>Antigone canadensis pratensis</i>	Florida sandhill crane	N	ST
<i>Aphelocoma coerulescens</i>	Florida scrub-jay	LT	FT
<i>Drymarchon couperi</i>	Eastern indigo snake	LT	FT
<i>Egretta caerulea</i>	Little blue heron	N	ST
<i>Egretta tricolor</i>	Tricolored heron	N	ST
<i>Gopherus polyphemus</i>	Gopher tortoise	LC	ST
<i>Mycteria americana</i>	Wood stork	LT	FT
<i>Picoides borealis</i>	Red-cockaded woodpecker	LE	FE
<i>Pituophis melanoleucus</i>	Florida pine snake	N	ST

\*N=Not federally listed, LT=Federally Threatened, LE=Federally Endangered, LC=Candidate species

\*\* ST=State Threatened, FT=Federally Threatened, FE=Federally Endangered

### Arthropod Management

In compliance with Section 388.4111 Florida Statutes and in Section 5E-13.042, Florida Administrative Code, all lands in Lake Panasoffkee Preserve in Sumter County have 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.

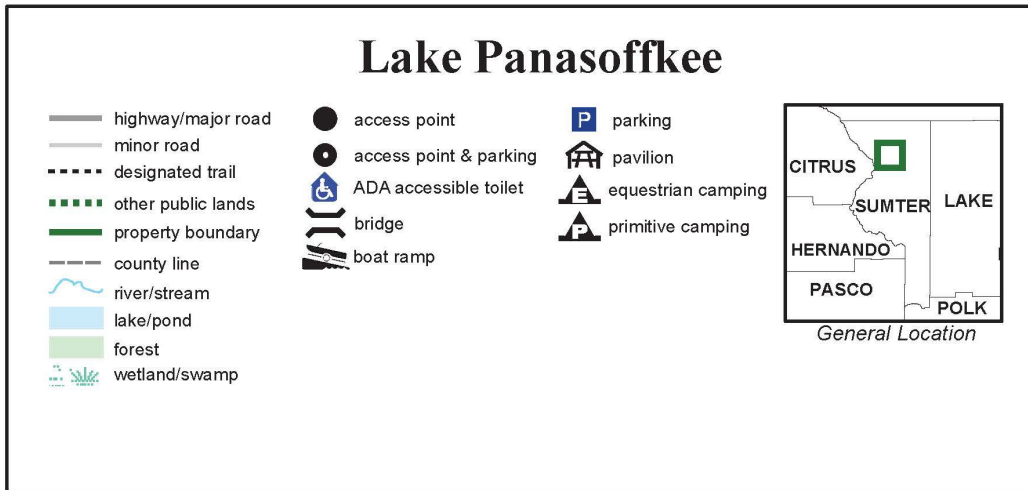
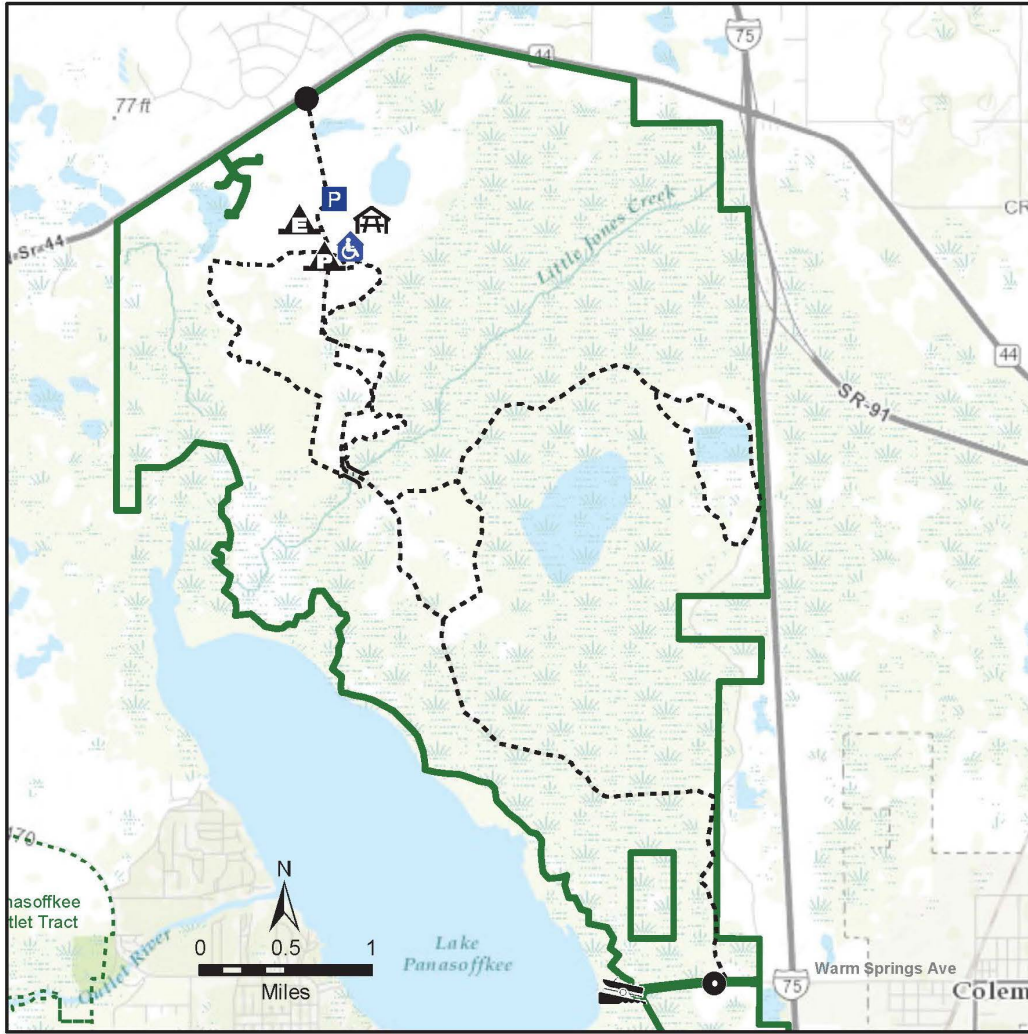
## Recreation

Part of the District's Policy and Procedure 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.

The types of recreation that are offered at the Preserve include bicycling, boating, camping, horseback riding, fishing, birding, hunting, and hiking (Figure 10). Public access to the Preserve is provided by two walkthrough access points. An access to the northern portion of the Preserve is provided by a gate and parking area south of SR 44 and west of I-75. A second access for the southern portion of the Preserve is also provided by a gate and parking area at County Road 514 (CR 514), just west of I-75.

Motorized access on the Preserve is restricted to authorized personnel directly affiliated with the District, and any other non-affiliated personnel pursuant to cooperative agreements with the District.





**FIGURE 10. RECREATION TRAILS AT LAKE PANASOFFKEE PRESERVE**

## Trails

The Preserve provides approximately 18 miles of designated multi-use trails. The trails are also designated as part of the Florida Greenways and Trails and the Florida Birding and Wildlife Trail. The trails give nature-based experiences while minimizing impacts to the lands and natural systems. The designated uses for the 18 miles of trails are hiking, horseback riding, and bicycling. Trail markers identify the type of recreational use and the arrows indicate the direction of the trail. The main trail intersections are numbered, which coincide with the trail map brochure. It is required that each equestrian must carry proof of their horse's current negative Coggins test results.

## Camping

The Preserve provides primitive and equestrian camping opportunities. There are two camping sites that are accessible from the SR 44 access point. Each of the sites are equipped with picnic tables, picnic pavilion(s), fire rings, horse stalls, and portable toilets. Non-potable water is provided on the Preserve. Camping at the Preserve is available at no cost to the user, but a free reservation must be made through the [WaterMatters.org/Reservation](http://WaterMatters.org/Reservation) website prior to camping at a site.

## Wildlife Viewing, Hunting, Fishing, and Boating

The Preserve has a wide variety of wildlife viewing opportunities. Observing an abundance of bird species is possible due to the proximity of the Lake, in addition, Big Jones Creek, Little Jones Creek, and Shady Brook flow through the Preserve. The property contains many other species of wildlife, such as deer, gopher tortoises, hogs, turkeys, sandhill cranes, and bald eagles. This positive species richness is indicative of proper land management practices which have created flourishing natural habitats throughout the Preserve.

Currently, the Preserve is open to hunting, pursuant to a land use agreement between the District and the FWC. These hunts are managed by the FWC and the rules and regulations for the available hunts can be found on the FWC website.

Fishing opportunities are available within the Preserve along Little Jones Creek. Fishing is regulated by the FWC and a license may be required.

Currently, boating is not a designated recreational use on the Preserve. Boating is available at other adjoining public parks. The Coleman Landing Boat Ramp is located near the southern portion of the Preserve.

## Americans with Disabilities Act

The District does not discriminate on the basis of disability. This nondiscrimination policy involves every aspect of the District's functions, including access to and participation in the District's programs, services, and activities. Anyone requiring reasonable accommodation, or who would like information as to the existence and location of accessible services, activities, and facilities as provided for in the Americans with Disabilities Act should contact the Human Resources Office Chief, at 2379 Broad St., Brooksville, FL 34604-6899; telephone (352) 796-

7211 or 1-800-423-1476 (FL only), ext. 4747; or email [ADACoordinator@WaterMatters.org](mailto:ADACoordinator@WaterMatters.org). If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1-800-955-8771 (TDD) or 1-800-955-8770 (Voice). If requested, appropriate auxiliary aids and services will be provided at any public meeting, forum, or event of the District. In the event of a complaint, please follow the grievance procedure located at [WaterMatters.org/ADA](http://WaterMatters.org/ADA).

### Environmental Education

There are no formal environmental educational facilities at either of the properties. However, there are scientific research studies that are conducted by environmental consultants, not-for-profit organizations, private recreational clubs, state agencies, and universities. These types of activities require a SUA, which is discussed below.



## Land Use Administration

The land uses administered on District conservation lands are governed by District Policy and Procedure. According to the 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. 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 and various agencies 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 is party to a land use agreement with the FWC for the purpose of providing hunting opportunities on the Preserve. There are license agreements with an apiary farmer for the private production of honey, and there is a cattle lease held with a private rancher.

Historically, the District has completed cooperative land management projects with the NWTf for the benefit of wildlife habitat enhancement on the Preserve.

### Research Opportunities

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, soil sampling, or wetland studies. Overall, District properties provide an abundance of research opportunities due to the proper management of healthy ecosystems.

The Preserve has been a frequent location for natural community studies and amphibian surveys.

### Special Use Authorizations (SUAs)

For any requests for undesignated uses on District property, it is required to apply for an SUA from the District's Land Resources Bureau. The SUA application will be reviewed by the District to determine the compatibility of the requested use on District conservation lands.

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

### Future Land Conservation

The District will continue to consider opportunities to purchase lands adjacent to the Preserve with the goal of promoting the District's Mission of protecting the natural features of conservation lands for the benefit of flood protection, water quality, and water supply. With the Preserve being a portion of a contiguous core of protected public conservation and recreation lands within the Withlacoochee River floodplain, it would be advantageous to seek possible opportunities for acquiring simple fee and less-than-fee properties to further promote protections of the natural features within the region.

## Land Maintenance and Operations

### Roads and Boundaries

The District is responsible for maintaining 27 miles of land management roads and 15 miles of trails currently at the Preserve. This network of roads and trails require periodic maintenance which occurs throughout the year. Well-maintained roads will 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 vehicle worthy for management and public use.

Motorized access on the Preserve is restricted to authorized personnel only. The Preserve entrance is a limerock road off of SR 44, located at 7519 N.W. 18th Street Way, Wildwood, FL 34785. Several management roads are utilized as service roads to support management activities. Since the acquisition of the Preserve, most of the unnecessary roads have been closed and are being allowed to revegetate naturally.

As part of the general road maintenance, the District maintains a network of culverts and low water crossings to ensure the conveyance of water. Currently, there are 21 culvert locations and no wet crossings. 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. Low water crossings are utilized, where feasible, to maintain 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 some other material to limit erosion while allowing for the natural flow of water.

Properly marked and maintained boundaries will minimize disputes, encroachments, trespassing, and other unwanted impacts from adjoining properties. Well-marked boundaries will also aid in proper placement of firelines for wildfire protection and prescribe fire use. Boundaries on the Preserve are identified by District boundary signs.

District staff secure the property by maintaining all fence lines, posting appropriate boundary signs along the property boundaries, identifying frequent points of unauthorized access, documenting evidence of illegal activities. Currently there are approximately 16 miles of boundary fence around the Preserve.

### 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 developments projects. Approval of such uses is contingent upon a number of criteria, such as the use must be compatible with the natural resource values of the property, reasonable compensation must be provided to the titleholder of said lands, the proposed use must be located appropriately on the lands, with due consideration given to use of other lands, and the proposed use must not be inconsistent with the management plan for the property.



The District provides public access in the most efficient, cost-effective manner with minimal impact on the natural resources. Development and construction of recreational facilities on the Preserve will be kept to the minimum required to provide access for resource-based recreational activities and to administer and manage the Preserve.

The Preserve does support recreational facilities that were constructed by the previous landowner. These facilities include a horse barn containing eight stalls with non-potable water, a bathroom facility, and a large open-air pavilion with picnic tables and grills. The pavilion can be reserved for events / functions for free with a reservation that is made at [WaterMatters.org/Reservation](http://WaterMatters.org/Reservation).

# 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.
- Objective 4: Continue to observe and monitor recreational uses on Little Jones Creek for water quality issues and erosion.

### 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 majority of prescribed burns during the growing season 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 establish strategic internal management lines supporting the seasonal needs of prescribed fire program.

### 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.

*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 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 EDRR 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, trails, and bridges 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: Continually inspect boundary fencing and gates to assure adequate protection of District 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 in 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 agreements, easements, and leases and update as necessary.
- 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.
- Objective 3: Continue cooperation with FWC to provide guidance on seasonal hunts.

#### Archaeological and Cultural Resources

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

- Objective 1: Coordinate and follow the DHR recommendations for protection on known sites. Continue to monitor, protect, and preserve as necessary any identified sites.
- Objective 2: Take precautions to protect sites from potential impacts resulting from 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 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 ten 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 ten years.

### Land Management

- Developed annual burn plans.
- Completed prescribed burns on approximately 2,366 acres.
- Completed approximately 42 acres of mechanical treatment of scrub units in partnership with the NWTF, the FWC, and the District for habitat restoration.
- Maintained perimeter firelines on an annual basis for prescribe fire and wildfire mitigation.
- Maintained approximately 16 miles of boundary fence.
- Maintained over 27 miles of management roads for access and hunting.
- Maintained and inspected 21 culverts and low crossings on an annual or as-needed basis.
- Performed road and trail mowing twice per year on primary and secondary roads.
- Over 1,615 acres surveyed for invasive exotic plants and invasives found within the surveyed area were treated.

### Recreation

- Volunteers performed 2,100 hours of recreation and campground maintenance.
- In cooperation with FWC, provided 8,920 total hunter days.
- Removed 551 feral hogs through FWC hunts on the WMA.
- Maintained 17.6 miles of hiking, biking, and equestrian trails each year.
- Provided 2,338 camping reservations

### Administration

- Authorized 20 SUAs for research, education, training, and access.
- Renewed cattle lease in 2017 for 466 acres.



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## Appendix A

### Imperiled Plant Species Known to Occur or Likely to Occur at Lake Panasoffkee Preserve

Common Name	Scientific Name	Federal Status*	State Listing**
<b>Pinewoods bluestem</b>	<i>Andropogon arctatus</i>	N	ST
<b>Curtiss's milkweed</b>	<i>Asclepias curtissii</i>	N	SE
<b>Auricled spleenwort</b>	<i>Asplenium auritum</i>	N	SE
<b>Delicate spleenwort</b>	<i>Asplenium verecundum</i>	N	SE
<b>Many-flowered grass pink</b>	<i>Calopogon multiflorus</i>	N	ST
<b>Chapman's sedge</b>	<i>Carex chapmannii</i>	N	ST
<b>Pineland butterfly pea</b>	<i>Centrosema arenicola</i>	N	SE
<b>Piedmont joint grass</b>	<i>Coelorachis tuberculosa</i>	N	ST
<b>Longspurred Mint</b>	<i>Dicerandra cornutissima</i>	LE	FE
<b>Scrub Buckwheat</b>	<i>Eriogonum longifolium</i> var. <i>gnaphalifolium</i>	LT	FT
<b>Non-crested eulophia</b>	<i>Eulophia ecristata</i>	N	ST
<b>Godfrey's swamp-privet</b>	<i>Forestiera godfreyi</i>	N	SE
<b>Garberia</b>	<i>Garberia heterophylla</i>	N	ST
<b>Wild cotton</b>	<i>Gossypium hirsutum</i>	N	ST
<b>Threadroot orchid</b>	<i>Harrisella porrecta</i>	N	ST
<b>Crested coral-root</b>	<i>Hexalectris spicata</i>	N	SE
<b>Cooley's Water-willow</b>	<i>Justicia cooleyi</i>	LE	FE
<b>Scrub pinweed</b>	<i>Lechea cernua</i>	N	ST
<b>Catesby's lily</b>	<i>Lilium catesbaei</i>	N	ST
<b>Cardinal flower</b>	<i>Lobelia cardinalis</i>	N	ST
<b>Sandhill spiny-pod</b>	<i>Matelea pubiflora</i>	N	SE
<b>Low peperomia</b>	<i>Peperomia humilis</i>	N	SE
<b>Blue-flowered butterwort</b>	<i>Pinguicula caerulea</i>	N	ST
<b>Yellow-flowered butterwort</b>	<i>Pinguicula lutea</i>	N	ST
<b>White-fringed orchid</b>	<i>Platanthera blephariglottis</i> var. <i>conspicua</i>	N	ST
<b>Yellow-fringed orchid</b>	<i>Platanthera ciliaris</i>	N	ST
<b>Southern tubercled orchid</b>	<i>Platanthera flava</i>	N	ST
<b>Snowy orchid</b>	<i>Platanthera nivea</i>	N	ST
<b>Rose pogonia</b>	<i>Pogonia ophioglossoides</i>	N	ST
<b>Widespread polypody</b>	<i>Polypodium dispersum</i>	N	SE
<b>Plume polypody</b>	<i>Polypodium plumula</i>	N	SE
<b>Swamp plume polypody</b>	<i>Polypodium ptilodon</i>	N	SE
<b>Leafless beaked orchid</b>	<i>Sacoila lanceolata</i> var. <i>lanceolata</i>	N	ST
<b>Hooded pitcherplant</b>	<i>Sarracenia minor</i>	N	ST
<b>Levy pinkroot</b>	<i>Spigelia loganioides</i>	N	SE
<b>Lacelip ladiestresses</b>	<i>Spiranthes laciniata</i>	N	ST

<b>Longlip ladiestresses</b>	<i>Spiranthes longilabris</i>	N	ST
<b>Lesser ladiestresses</b>	<i>Spiranthes ovalis</i>	N	SE
<b>Little ladiestresses</b>	<i>Spiranthes tuberosa</i>	N	ST
<b>Giant airplant</b>	<i>Tillandsia utriculata</i>	N	SE
<b>Florida bristle fern</b>	<i>Trichomanes punctatum</i>	N	SE
<b>Craighead's orchid</b>	<i>Triphora craigheadii</i>	N	SE
<b>Treat's zephyrlily</b>	<i>Zephyranthes atamasca</i> var. <i>treatiae</i>	N	ST
<b>Simpson's zephyrlily</b>	<i>Zephyranthes simpsonii</i>	N	ST