

Land Management Plan

Prairie Shell Creek Preserve

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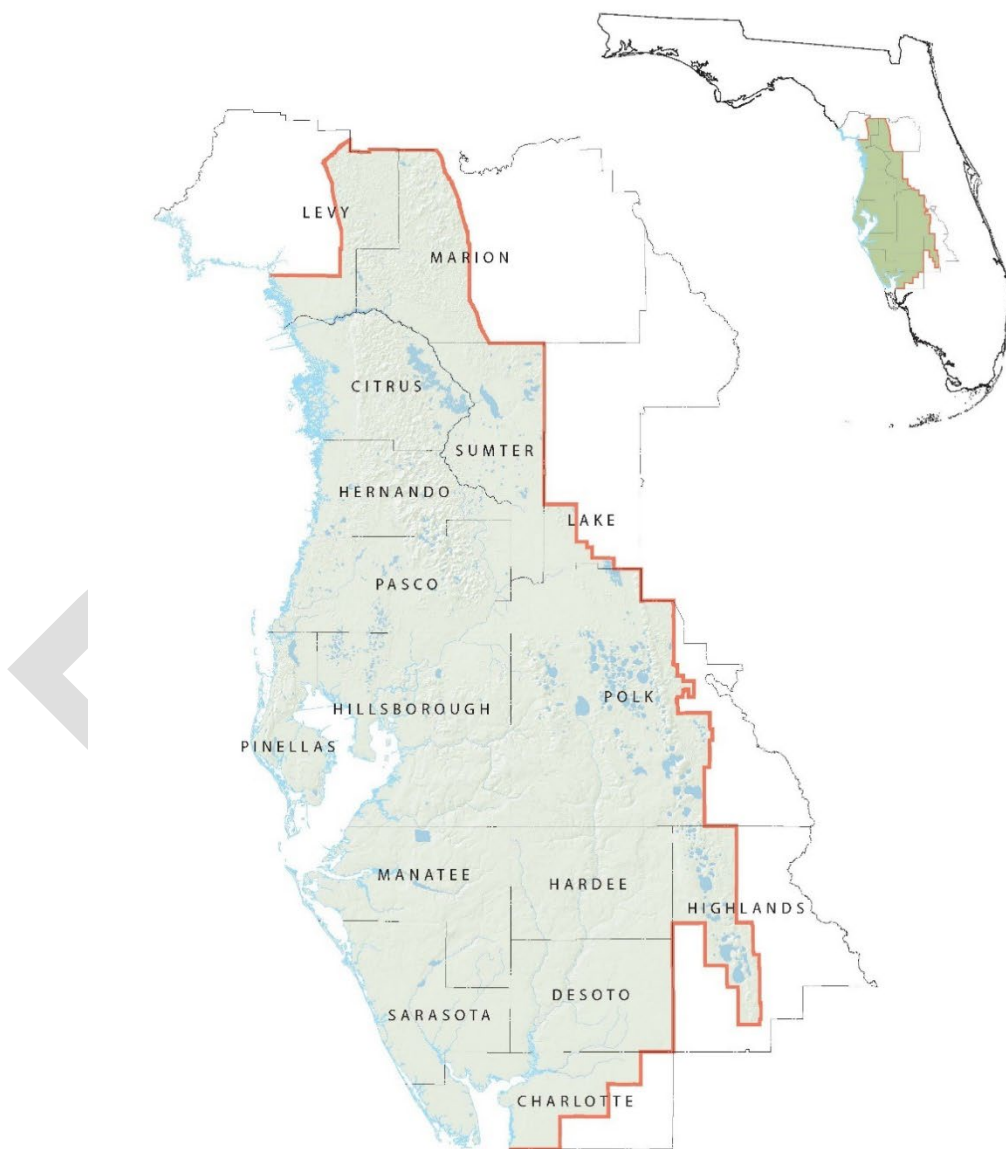
Land Resources Bureau

Southwest Florida Water Management District

July 20, 2023

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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The Southwest Florida Water Management District (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); or email 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.

Executive Summary

Acres: 609

Acquisition Date(s): 2002-2003

Plan Term: 10 Years (2023-2032)

Primary Basin: Peace River

Secondary Basins: Shell Creek

Location: Charlotte County

Funding Source: Preservation 2000 and Florida Forever

Natural Systems: The District uses the natural community classification system defined by the Florida Natural Areas Inventory (FNAI) to describe and categorize the habitat types found at the Prairie Shell Creek Preserve (Preserve). Twelve communities or land cover types have been distinguished on the property. Wetlands account for only 20 percent of the Preserve, with half the wetlands consisting of strands of hydric hammock associated with the Preserve's natural drainage features. Upland habitats include substantial areas of scrub, scrubby flatwoods, mesic flatwoods, and wet flatwoods, which account for a cumulative total of 436 acres, or 72 percent of the Preserve.

Water Resources: Water Resource benefits provided by the Preserve include flood protection and water quality enhancement. Approximately 444 acres of the Preserve, or 73 percent of the total land area, is located within the 100-year floodplain. In addition to storing storm-generated flood water, the Preserve's coastal wetlands help to buffer inland areas from storm-generated tidal surge and wave action. The Preserve's wetlands also enhance water quality by sequestering nutrients and other contaminants that drain into the property from surrounding residential development and agricultural lands.

Land Management: Management activities on the Preserve include applications of prescribed fire, habitat management, restoration, feral hog control, and control of invasive, nonnative plant species. The District aims to apply fire to all fire-dependent natural communities based on natural fire return intervals as defined by FNAI. There is a network of firelines maintained throughout the property and along its perimeter to facilitate the use of prescribed fire and to limit the potential for wildfires.

Cultural and Historical Resources: There are no known archaeological or cultural sites documented in the Florida Master Site File maintained by the Florida Department of State. Any such sites that are discovered on the Preserve will be protected and managed consistent with established guidelines.

Recreation: Recreational activities permitted at the Preserve include hiking and fishing. Approximately five miles of designated trail is available for hiking. An eight-acre, man-made lake in the northern end of the property is available for fishing. No water or restrooms are available on the property.

Special Use Authorization (SUA): A variety of special uses may potentially be permitted on the Preserve through issuance of a SUA which must be approved by the District as set forth in Florida Administrative Code §40D-9. Uses typically covered by SUAs include a variety of recreational activities, scientific research, and law enforcement training.

Access: Primary access to the Preserve is via a parking area and walk-thru entrance located at 3081 Duncan Road, Punta Gorda, Florida. It is accessed via US Highway 17 approximately four miles north of Punta Gorda in unincorporated Charlotte County. Secondary access is via Palm Shores Boulevard on the northern boundary of the property.

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 the natural features of conservation lands for the benefit of flood protection, water quality, and water supply.

Cooperative Agreements, Leases, and Easements: In 1955, three perpetual easements were granted by former landowners to the Florida Power and Light Company (FPL) for the purpose of constructing and maintaining electric transmission and distribution lines. The easements are 160 feet in width, arranged in a linear series that traverses the property in a north-south alignment 0.4 miles in length, and are now maintained as an electric transmission line right-of-way. The easements granted FPL the right to cut and clear trees or other vegetation or obstructions within the right-of-way.

An additional easement 12 feet in width was granted to FPL by the District in 2002 following its purchase of the property in order to accommodate continued ingress and egress by FPL to the aforementioned transmission line right-of-way. A license agreement was issued to Charlotte County in 2021 to provide access to the County-owned Burchers Parcel.

Table of Contents

Executive Summary	iv
Introduction and General Information.....	1
Management Plan Purpose	1
District Strategic Plan.....	2
Management Authority	2
Location.....	3
Acquisition	6
Current Land Use	9
Local Government Land Use Designation	9
Adjacent Land Uses	9
Management Challenges	9
Historical Land Use and Cultural Resources	11
Historical Land Use.....	11
Cultural and Archaeological Resources	11
Water Resources and Natural Systems.....	12
Water Quality	12
Flood Protection	14
Water Supply.....	14
Natural Systems.....	16
Soils and Topography.....	24
Land Management and Land Use	27
Land Management.....	27
Recreation.....	36
Land Use Administration	39
Land Maintenance and Operations.....	40
Goals and Objectives	41
Resource Protection and Management.....	41
Administration.....	43
Significant Management Accomplishments.....	44
References	45

List of Figures

Figure 1. General Location	4
Figure 2. Aerial Overview	5
Figure 3. Regional Conservation Network	7
Figure 4. Water Resources	13
Figure 5. Floodplain Map	15
Figure 6. Natural Communities – FNAI	17
Figure 7. Soil Types	25
Figure 8. Digital Elevation Model	26
Figure 9. Management Units	29
Figure 10. Recreation and Access	38

List of Tables

Table 1. Conservation Lands within the Vicinity of the Preserve.	8
Table 2. Summary of Natural Communities- FNAI	16
Table 3. Invasive Plants Species at the Preserve	32
Table 4. Imperiled Wildlife Species Known or Likely to Occur	33
Table 5. Imperiled plant Species Known or Likely to Occur	34

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 govern 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 to develop comprehensive management plans that are created with input from both internal and external stakeholders that will account for next 10 year planning cycle. Stakeholder input is essential and is outlined further below. Land Management Plans are designed to guide the appropriate uses on and the management of District conservation lands that are consistent with statutes, District Governing Board Policy, and Executive Director Procedures.

Management Plans are therefore 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 through a press release, on the District's website, and via social media outlets, and it is open to everyone. Additionally, the public has an opportunity to provide written 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 Land Management Plan that includes consideration of public input is presented to the District's Governing Board for approval at a regular Governing Board meeting.

Stakeholder 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 throughout the life of the Management Plan to allow stakeholders an opportunity to review management activities and hold the District accountable for the management of the property. This process assures the District is managing the land in accordance with the Land 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 land management activities and recreational uses on the property and includes a thorough review of the property by the Management Review Team. At the conclusion of the field review an evaluation is completed by each participant. These evaluations are reviewed by staff and then consolidated into a summary that is presented to the District's Governing Board.

District Strategic Plan

The District has authored a Strategic Plan that covers a five-year planning cycle covering each of its four planning regions, the Northern Region, the Tampa Bay Region, the Heartland Region, and the Southern Region. The 2023-2027 Strategic Plan outlines the District's focus in each of these four planning regions as it relates to the District's core mission of water supply, water quality, natural systems, and flood protection and establishes a goal for each of those areas of responsibility. The Strategic Plan further identifies 11 strategic initiatives to meet these four goals: Regional Water Supply Planning, Alternative Water Supply, Reclaimed Water, Water Conservation, Water Quality Assessment and Planning, Water Quality Maintenance and Improvement, Minimum Flows and Levels Establishment and Monitoring, Conservation and Restoration, Floodplain Management, Flood Protection Maintenance and Improvement, and Emergency Flood Response.

As part of the District's goal relating to the natural systems element of its core mission, the Conservation and Restoration strategic initiative incorporates the restoration and management of natural ecosystems for the benefit of water and water-related resources. The major components of the goal 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 beneficial and then managed to maintain ecological and hydrological functions. In addition, land management is identified in the Strategic Plan 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

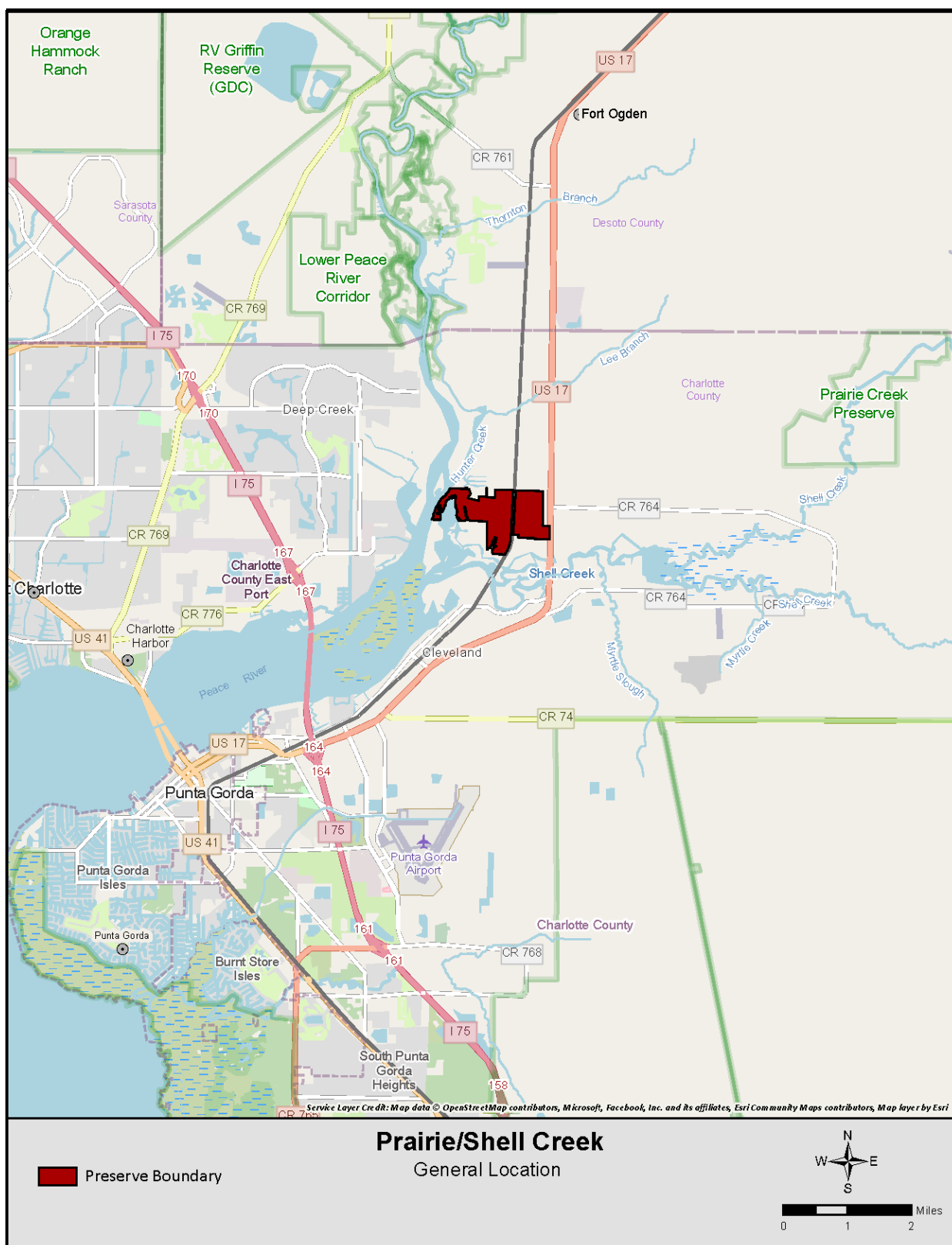
The District considers the Preserve to be conservation land which dictates the management intent for the property. Pursuant to Subsection 373.089(6)(c) of the Florida Statutes, all lands titled to the District prior to July 1, 1999, were designated as having been acquired for conservation purposes. This 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 located in Charlotte County, Florida, approximately four miles north of Punta Gorda, two miles north of the unincorporated community of Cleveland, and 18 miles south of Arcadia. It is situated north of the confluence of Shell Creek with the Peace River just north of the Charlotte Harbor estuary. It is bounded generally by US Highway 17 on the east, Palm Shores Boulevard and Royal Palm Drive on the north, the Peace River corridor on the west, and by Shell Creek on the south (**Figure 1** and **Figure 2**).

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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 supply development, and preservation of wetlands, streams, and lakes. Lands evaluated for purchase by the District are evaluated based on the District's four Areas of Responsibility (AORs): water supply, water quality, flood control, and natural systems protection. The Governing Board is interested primarily in acquiring and conserving lands that meet at least two of the four AORs.

History

The Preserve was acquired through a series of three fee simple purchases executed by the District in 2002 and 2003. The first parcel, totaling 462 acres, was purchased in February 2002 using funds from the Preservation 2000 Program. The two remaining parcels, which accounted for a combined total of 148 acres, were purchased in January 2003, using Florida Forever funds.

Regional Significance

FNAI maintains an interactive mapping tool, referred to as the Florida Forever Conservation Data Viewer ([Florida Forever Conservation Needs Assessment Interactive Map](#)), that depicts the extensive set of spatial data that collectively comprise the Florida Forever Conservation Needs Assessment (FNAI, 2022), which in turn provides the source data used by the Critical Lands and Waters Identification Project. These data provide a general characterization of the regional conservation significance of the Preserve. Most of the Preserve land area is ranked as Priority 2 for both its biodiversity and surface water protection values (FNAI, 2023). It is also distinguished as an important regional link in the Florida Wildlife Corridor, helping to bridge the gap between the Babcock-Cecil Webb Wildlife Management Area and other conservation lands to the south, and the Peace River and Myakka River corridors to the north. The presence of pine flatwoods and scrub habitats also plays an important role in elevating the Preserve's biodiversity conservation value because both are recognized as under-represented natural communities within the state's network of conservation lands. The Preserve scores a Priority 2 ranking for aggregated resource values.

Regional Conservation Network

The Preserve is part of a large network of conservation lands. Within a 20-mile radius of the property, dozens of tracts totaling more than 340,000 acres in total land area (**Figure 3**) have been acquired and dedicated to natural resource protection through the efforts of state and local government and various private entities (**Table 1**). The Preserve serves as a critical link for maintaining connectivity between the Babcock-Cecil Webb Wildlife Management Area several miles to the south, and an extensive network of conservation lands in Sarasota County to the northwest.

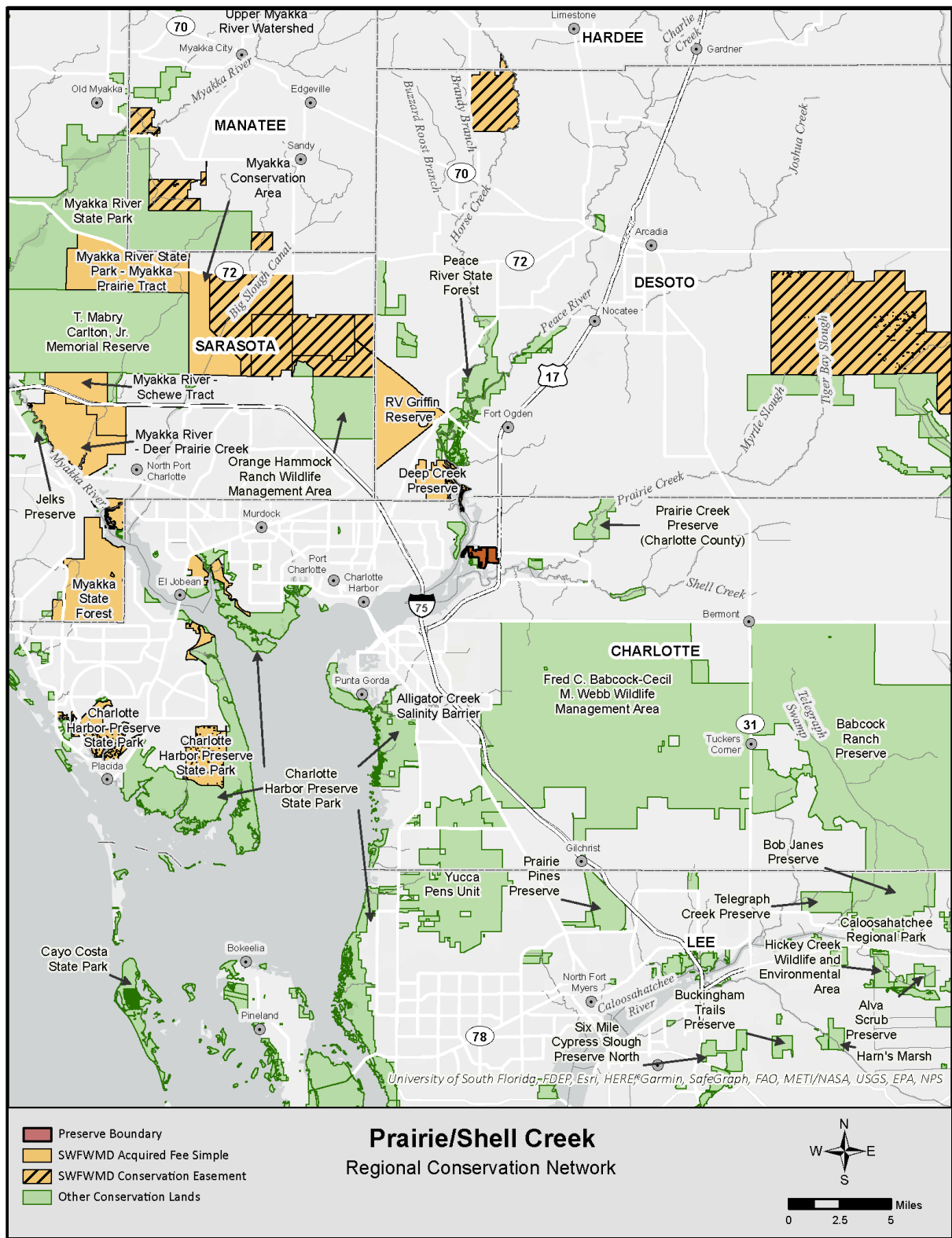


FIGURE 3. REGIONAL CONSERVATION NETWORK

TABLE 1. CONSERVATION LANDS WITHIN THE VICINITY OF THE PRESERVE.

Property	Manager	Owner	Acres	County
Deep Creek Preserve	SWFWMD	SWFWMD	2,084	Desoto
Longino Ranch Cons Easement	SWFWMD	Private	3,981	Sarasota
Myakka Prairie Cons Easement	SWFWMD	Private	2,906	Sarasota
Myakkahatchee Creek CE	SWFWMD	Private	7,630	Sarasota
RV Griffin Reserve	PRMRWA	SWFWMD	5,920	DeSoto
Myakka State Forest	FFS	SWFWMD	8,593	Charlotte
Babcock-Cecil M. Webb WMA	FWC	FWC	83,622	Charlotte
Orange Hammock Ranch WMA	FWC	TIITF	5,772	Sarasota
Yucca Pens Unit	FWC	TIITF	15,305	Charlotte; Lee
Charlotte Harbor Preserve State Park	FDEP	TIITF	45,445	Charlotte; Lee
Myakka River State Park	FDEP	TIITF/SWFWMD	37,198	Sarasota
Babcock Ranch CE	FDEP	Private	302	Charlotte
Peace River Preserve CE	FDEP	Private	771	DeSoto
Rawls Ranch CE	FDEP	Private	380	DeSoto
Babcock Ranch Preserve	FFS	TIITF	67,620	Charlotte
Candy Bar Ranch CE	FFS	Private	834	DeSoto; Sarasota
Halls Tiger Bay Ranch CE	FFS	Private	3,868	DeSoto
Peace River State Forest	FFS	TIITF	5,048	DeSoto
Alligator Creek	Charlotte	Charlotte	128	Charlotte
Biscayne Trust CE	Charlotte	Charlotte	178	Charlotte
Burcher's Parcel	Charlotte	Charlotte	82	Charlotte
Charlotte Flatwoods Environmental Park	Charlotte	Charlotte	486	Charlotte
Deep Creek Properties	Charlotte	Charlotte	420	Charlotte
Myakka Park	Charlotte	Charlotte	134	Charlotte
Prairie Creek Preserve	Charlotte	Charlotte	1,603	Charlotte
Shell Creek Preserve	Charlotte	Charlotte	382	Charlotte
Tippecanoe Environmental Park	Charlotte	Charlotte	354	Charlotte
Ainger Creek Trails	Sarasota	Sarasota	146	Sarasota
Deer Prairie Creek/Churchill and Jordyn Parcels	Sarasota	Sarasota	896	Sarasota
Myakka Islands Point	Sarasota	Sarasota	100	Sarasota
Myakkahatchee Creek Environmental Park	Sarasota	Sarasota	162	Sarasota
T. Mabry Carlton, Jr. Memorial Reserve	Sarasota	Sarasota	24,565	Sarasota
Charlotte Harbor Buffer Preserve	Lee	Lee	447	Lee
Pop Ash Creek Preserve	Lee	Lee	307	Lee
Prairie Pines Preserve	Lee	Lee	2,684	Lee
Yellow Fever Creek Preserve	Lee	Lee	339	Lee
Yucca Pens Preserve	Lee	Lee	388	Lee
Morgan Park	DeSoto	DeSoto	241	DeSoto

SWFWMD – Southwest Florida Water Management District

FWC- Florida Fish and Wildlife Conservation Commission

FDEP – Florida Department of Environmental Protection

FFS – Florida Forest Service

USFWS – United States Fish and Wildlife Service

TIITF- Trustees of the Internal Improvement Trust

Current Land Use

The Preserve is managed to conserve and protect its water resources and natural resources. The Preserve also serves as a recreational resource and will continue to be managed consistent with a multiple-use concept that encompasses water resource protection, natural systems protection, and accommodation of compatible 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 several noteworthy natural communities and species of wildlife, including federal- and state-listed species, while also offering visitors with opportunities for passive nature-based recreation. The recreational opportunities accommodated on the Preserve are discussed 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 directs where development is to be concentrated, and generally guides where agricultural, residential, commercial, and industrial land uses can be developed. Charlotte County’s Future Land Use Map has designated the Preserve as Preservation in recognition of its dedication to conservation under District ownership and stewardship.

Adjacent Land Uses

Aside from the Peace River and Shell Creek frontages that adjoin the Preserve’s west and south property lines, and the County-owned Burchers parcel adjoining the southwest border, the property is surrounded by lands slated for low density residential development. Most of these lands are already in various stages of development. A narrow strip of land along the east boundary between the Preserve and US Highway 17 is owned by the Florida Department of Transportation and is currently designated as “public buildings and grounds”. Although lands immediately to the east of the Preserve, across US Highway 17, are likewise designated for low density residential development on the Future Land Use Map, most of the area east of US Highway 17 is designated as “compact growth mixed use” in order to promote clustered development and preservation of open space.

Management Challenges

The challenges associated with the management of the Preserve are centered primarily around the proximity of residential development and the US Highway 17 corridor. In addition to constraining the District’s ability to conduct prescribed burns, the wildlife-urban interface often serves as a vector for the introduction of invasive or nuisance plant and animal species. The Seminole Gulf Railway line that bisects the Preserve accounts for nearly two miles of shared property line and is known to serve as a vector for the introduction of invasive plant species. The District will coordinate with the railway ownership to ensure invasive plant control measures can be conducted

with maximum efficiency and to minimize the incidence of cross-boundary transmission of invasive plants.

The Preserve will also experience increasing levels of recreational use as surrounding development drives an increase in population. These factors all have the potential to put increasing pressure on the water resources and natural systems the Preserve seeks to protect

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Historical Land Use and Cultural Resources

Historical Land Use

The historical uses of the lands comprising the Preserve primarily included cattle grazing and the harvest of timber. The property was not subjected to any significant hydrologic alteration. In 1886, the Florida Southern Railroad completed construction of a railbed through the property which provided rail service between Arcadia and Punta Gorda. The railroad was extended to Fort Myers in 1904 and provided freight and passenger service until 1967, when passenger service ended. Now under the ownership of Seminole Gulf Railway, the line continues to serve as a major freight line serving southwest Florida.

In 1955, three easements were conveyed to the FPL to accommodate the construction and maintenance of electric transmission and distribution lines across what is now the Preserve. The easements also conveyed the right for FPL to clear trees and other vegetation or obstructions from within the easement, which is 160 feet wide and extends across the north-south breadth of the Preserve. An additional easement, consisting of a strip of land 12 feet wide and coinciding with an existing trail road, was granted to FPL by the District in 2002 to provide more effective ingress and egress to the electric transmission line corridors.

The 461-acre parent parcel of the Preserve was purchased from Samuel Burchers in 2002. Burchers was one of the developers of the nearby Punta Gorda Isles, Burnt Store and Prairie Creek development projects, and purchased the Preserve property in the late 1950s for future development.

Cultural and Archaeological Resources

The Florida Department of State's Division of Historical Resources (DHR) has confirmed that no sites of cultural or archaeological significance have been documented on the Preserve. The absence of documented sites does not mean that none are present. Staff will remain alert for evidence of undiscovered cultural sites and will implement appropriate protective measures, in consultation with DHR, in the event any are found.

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 protection. The District's mission is to protect water resources, minimize flood risks, and ensure the public's water supply needs are met. The District is one of five regional agencies directed by state law to protect and preserve water resources within its area of jurisdiction. 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 area within and surrounding 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 AOR (SWFWMD, 2021). The ability of natural systems, particularly wetlands, to improve water quality has become an important consideration in water quality issues. Wetland vegetation sequesters nitrogen, phosphorus and other pollutants through denitrification, plant uptake, accumulation of soil organic matter and through geochemical and biological processes (Widney, 2018).

Water quality on the Preserve is influenced primarily by water that drains into the property from surrounding development and agricultural operations. The only defined, non-tidal source of surface water entering the property is an unnamed drain or creek that enters the Preserve on the northern property line adjacent to the Seminole Gulf Railway right-of-way. It extends four miles northeast of the Preserve and receives drainage from a large area of improved pasture. After entering the Preserve, the water drains through a continuous strand of hydric hammock before discharging into salt marsh that borders the southern property line. The hydric hammock has the potential to sequester nutrients and other pollutants that enter the from the surrounding agricultural areas. Additional water quality enhancement potential is provided by the Preserve's salt marsh and mangrove swamp wetlands that receive tidal inputs from the Peace River and Shell Creek basins.

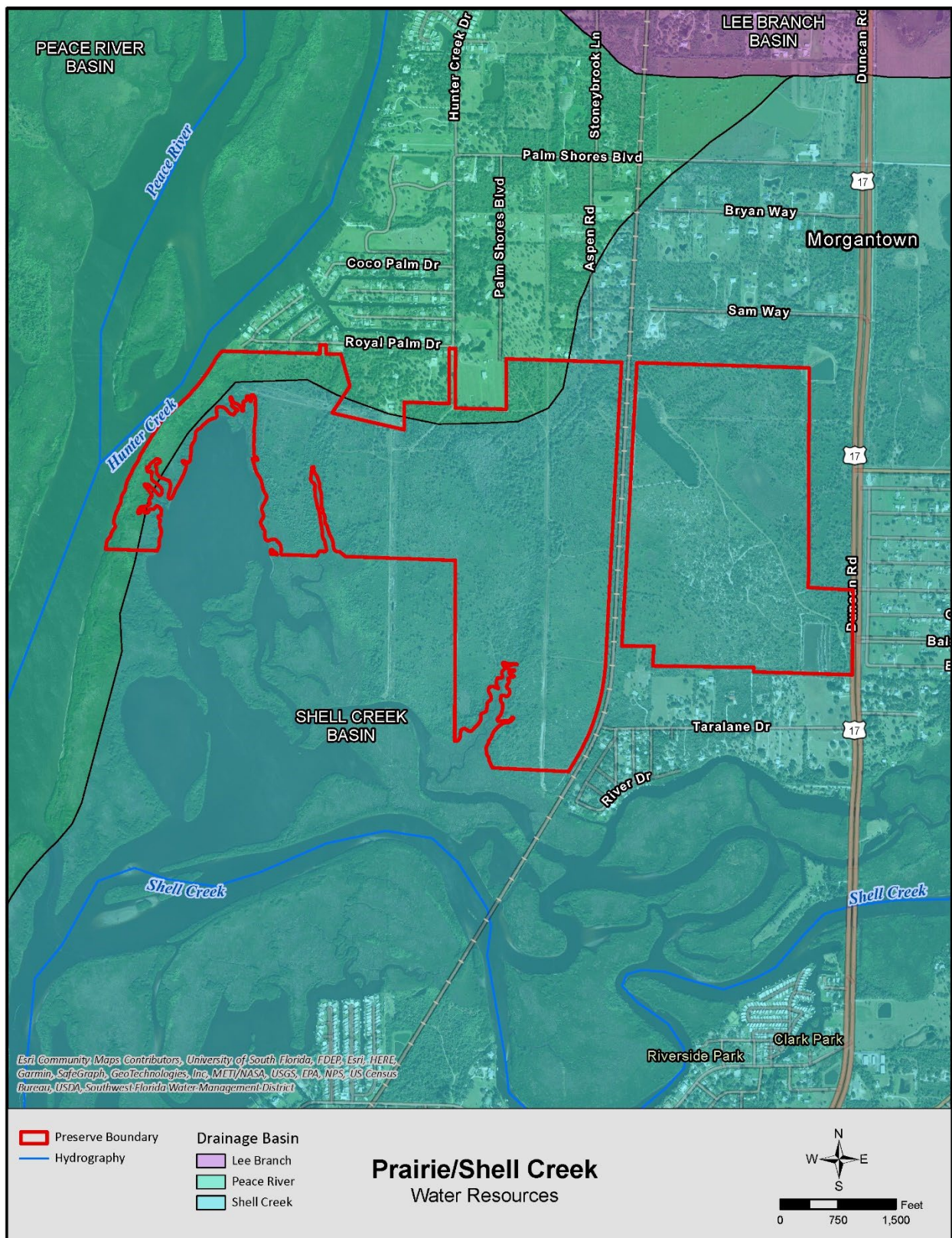


FIGURE 4. WATER RESOURCES

Flood Protection

Flood protection is another important responsibility in the District's mission. Historically, flood protection depended upon the use of structural systems and controls to provide for the storage and managed conveyance of floodwater. The current approach to flood protection relies on mimicking natural processes as a more environmentally sound and cost-effective method. The District's primary flood protection strategy depends upon identifying and preserving natural floodplains and other low-lying lands that can serve as storage areas for storm-generated floodwater. The importance of the Preserve to flood protection, as described below, is its most significant contribution to water management.

The 100-year floodplain as delineated by the Federal Emergency Management Agency accounts for 444 acres of the Preserve, or 73 percent of the total land area (**Figure 5**). The 165-acre portion of the Preserve located above the floodplain occurs as one contiguous land mass on the east side of the railroad corridor and corresponds with the highest, driest natural communities present on the Preserve. The southeastern corner of the Preserve, which fronts on US Highway 17 and is the location of the primary entrance to the property, is also in the 100-year floodplain, as is all the surrounding residential land to the north and south of the property, including the entirety of the County-owned Burcher Parcel at the southwest corner of the Preserve. Most of the flood zone within the Preserve corresponds with the riverine floodplains of the Peace River and Shell Creek.

Most of the floodplain in the western half of the Preserve is within the velocity zone and Coastal High Hazard Area. As such, the Preserve buffers residential development located east of the Preserve from storm-generated waves and tidal surge. During the rainy season, a significant proportion of the Preserve's upland natural communities is subject to occasional flooding following major rainfall events and thereby contributes to storing and attenuating the eventual downstream and offsite discharge of storm-generated water.

Water Supply

Ensuring adequate water supplies for humans and the environment is central to the District's Mission. A variety of effective water supply programs, including water use permitting, address the use and management of surface and groundwater sources. The District's regulatory efforts are balanced with other strategies, including incentives provided through the Cooperative Funding Initiative and Facilitating Agricultural Resource Management Systems (FARMS) programs. These programs support water conservation and development of alternative water supplies such as reclaimed water, surface water, brackish groundwater, seawater desalination, or other non-traditional sources.

The Preserve lies within the Southern Water Use Caution Area (SWUCA) which was established by the District's Governing Board to address, among other things, long-term decline in Upper Floridan aquifer levels that led to regional saltwater intrusion. 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, 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 flows from the Preserve to Prairie and Shell Creeks and the Peace River.

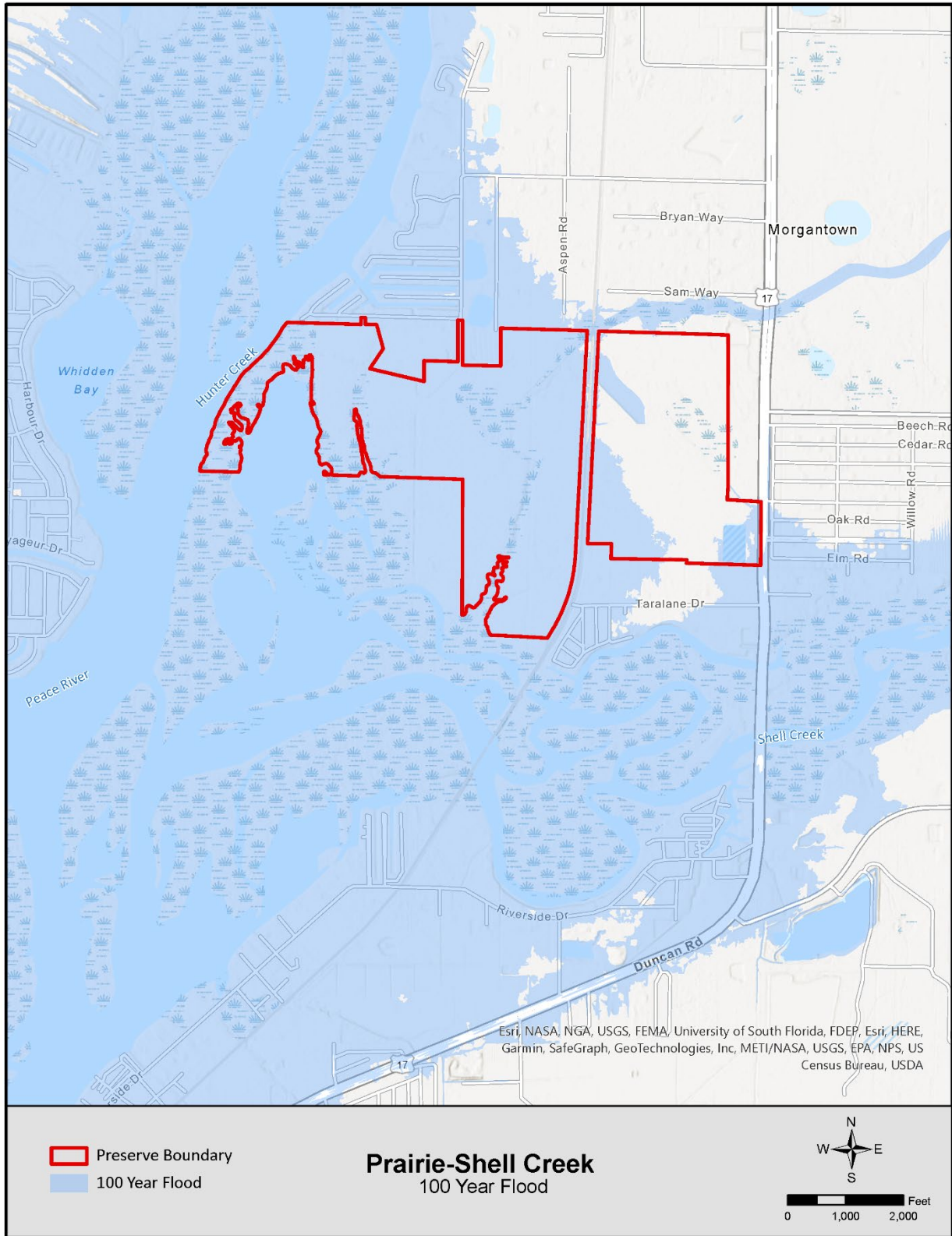


FIGURE 5. FLOODPLAIN MAP

Natural Systems

The following discussion of the Preserve's natural communities follows the classification system used by the FNAI. For a detailed discussion of the classification system, refer to FNAI's *Guide to the Natural Communities of Florida*.

The Preserve protects significant upland habitats, including pine flatwoods and scrub natural communities that serve as essential habitat for a number of critically imperiled plant and animal species. Wetland habitats account for 20 percent of the Preserve land area and include both tidal (salt marsh and mangrove swamps) wetlands and freshwater systems (e.g., hydric hammock and wet prairie). The property was not subjected to widespread or intensive alteration prior to being acquired by the District. Only 40 acres are classified as "ruderal" or altered. This consists of the two electric transmission line rights-of-way that traverse the property and an additional eight-acre artificial lake that was created in 1999.

The 12 natural community or land use categories identified on the Preserve are summarized in **Table 2**. Their distribution across the property is illustrated in **Figure 6**. Brief descriptions of each natural community or land cover type are provided below. Special management considerations are also briefly discussed where appropriate. It is important to note that thorough plant surveys have not yet been conducted on the Preserve, so natural community descriptions are generalized.

TABLE 2. SUMMARY OF NATURAL COMMUNITIES- FNAI

FNAI Natural Community	Acreage	Percentage of Community Type
Lake/artificial impoundment	8	1%
Depression marsh	4	0.6%
Hydric hammock	61	10%
Mangrove swamp	13	2%
Mesic flatwoods	275	45%
Mesic hammock	2	0.4%
Ruderal	40	7%
Salt marsh	28	5%
Scrub	73	12%
Scrubby flatwoods	44	7%
Wet flatwoods	44	7%
Wet prairie	17	3%
Total Acreage	609	100 %

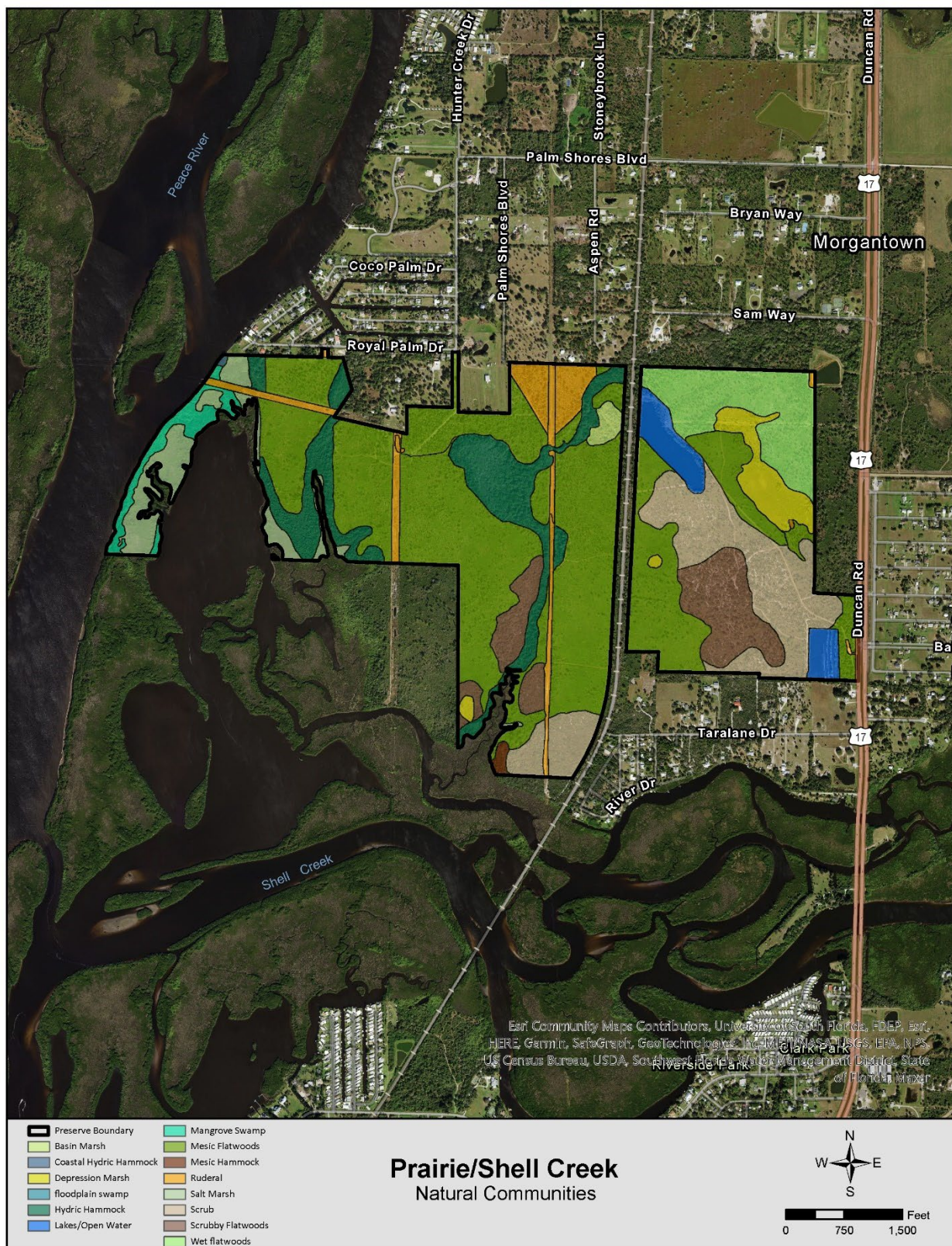


FIGURE 6. NATURAL COMMUNITIES – FNAI

Wetland Communities

Depression Marsh (4 acres)

Depression marshes develop in shallow, rounded depressions that are seasonally inundated and typically dominated by a cover of herbaceous plants. Concentric zones or bands of vegetation are often characteristic of depression marshes due to the increasing length and depth of inundation that occurs inward from the outer edge of the marsh. The presence of woody plant species is often indicative of fire exclusion in the surrounding communities, or of an altered hydroperiod. The Preserve's depression marshes appear to be in healthy condition.

Dominant species in depression marsh include maidencane, little blue maidencane, spikerush, dotted smartweed, marsh pennywort, Carolina redroot, rosy camphorweed and large flower rose gentian. Trees are generally absent, although some encroachment by red maple, slash pine or pond cypress can be observed in areas where fire has been excluded. Shrubs can include common buttonbush, peelbark St. John's wort, wax myrtle, gallberry, groundsel tree and fetterbush; however, shrub growth is typically sparse.

Little is known about the natural fire frequency in depression marshes. Generally, fires conducted in adjoining communities should be allowed to burn into depression marshes until they extinguish naturally or burn through them. Sometimes, a sparsely vegetated zone around the outside perimeter of a marsh functions as a natural firebreak.

There are only two depression marshes identified on the Preserve, accounting for only four acres. Despite its extremely limited areal extent, its presence is a significant habitat feature. Depression marshes serve as essential habitat for many amphibian species that cannot reproduce successfully in wetlands that support fish. Occasional drying of the Preserve's depression marshes precludes them from supporting fish that could prey on the vulnerable larval stages of the amphibian life cycle. One such species is the gopher frog, which is dependent on ephemeral wetlands during the tadpole stage of its lifecycle, and on the presence of nearby upland habitats inhabited by gopher tortoises during its adult stage.

Hydric Hammock (61 acres)

Hydric hammock is a forested wetland habitat that is rarely inundated. The rarity of inundation results in the growth of a very diverse canopy consisting of both deciduous and evergreen hardwoods and palms. Common tree species include cabbage palm, water hickory, red cedar, sweetgum, sweetbay and swamp laurel oak. The subcanopy can include swamp bay and swamp dogwood. Groundcover can be sparse, but include spade leaf, blue mistflower, cypress witchgrass swamp forest beaksedge, lizard's tail and marsh fern. Epiphytic species can be abundant and include resurrection fern, shoestring fern, golden polypody and Spanish moss.

The floristic diversity of hydric hammock makes them attractive habitat for a large variety of wildlife species. The large number of oaks that can be present means these habitats can also generate abundant oak mast, which attracts feral hogs. The Preserve's hydric hammocks are a favored habitat for feral hogs and some areas have been subjected to severe rooting. Rooting alters surface hydrology and the resulting soil disturbance also invites invasion by nonnative plant

species. Hydric hammock is not a fire-maintained natural community; the primary management need for these areas is to control feral hogs.

Mangrove Swamp (13 acres)

Mangrove swamp is a forested wetland community that is easily distinguished from other forested wetlands by its coastal location and restriction to the inter-tidal zone. The inter-tidal location is the primary factor dictating the species composition and ecology of the community, which features regular cycles of inundation in response to tidal fluctuations, high soil salinity, and exposure to wave action. Dominant tree species include red mangrove, black mangrove, white mangrove, and buttonwood. Although they can occur in mixed stands, the trees more often occur in distinct zones based on tolerance of inundation, salinity, and wave action, with red mangrove occupying the leading edge experience the most frequent inundation. Black mangrove typically is aligned behind the red mangrove, with white mangrove and buttonwood being upgradient of black mangrove. A shrub layer and groundcover are usually lacking; however, a number of epiphytic species are associated with mangrove, including several rare fern and orchid species, although none are known to occur on the Preserve.

Mangrove swamp is not a fire-adapted natural community and mangroves are not fire-tolerant. As tropical species, the distribution of mangrove swamp is restricted largely to the southern half of the state. The Preserve's mangrove swamp is present solely along the Peace River shoreline and contributes to the property's flood protection value by absorbing and dispersing storm-generated waves and tidal surge.

Salt Marsh (28 acres)

Salt marsh is a largely herbaceous community that occurs in the portion of the coastal zone affected by tides and seawater and protected from large waves, either by the broad, gently sloping topography of the shore, by a barrier island, or by location along a bay or estuary. Saltmarsh cordgrass is usually dominant in the deepest and most frequently inundated areas. Black needle rush becomes dominant in areas slightly higher in elevation. On coastlines where the tidal range is narrow, as at the Preserve, needle rush is typically more expansive with saltmarsh cordgrass limited to narrow bands at the leading edge of the marsh. In the highest areas, where the exposure to saline water is lowest, sawgrass may become dominant. Several salt-tolerant shrub species, including saltbush, marsh elder, and Christmas berry, may occur in the high areas where inundation is infrequent. At the other extreme, perched depressions within salt marsh may become hypersaline as water pooled within them evaporates during low tide. Such areas support species uniquely adapted to hypersalinity, including glasswort and saltwort.

The low diversity of plant species found in salt marsh belies its natural systems value. A large number of aquatic and terrestrial animal species are dependent on salt marsh habitats, which also serve as a nursery for estuarine and marine species, including many commercially valuable fish and shellfish species. Salt marsh also plays an important role in buffering adjoining uplands from the full impact of storm-generated waves and tidal-surge, thereby contributing to the Preserve's role in providing flood protection.

No natural fire-return interval has been established for salt marsh; however, fires occur naturally in response to lightning strikes or fire entering the marsh from adjoining uplands. Needle rush and many other salt marsh plant species resprout vigorously following fire, and tidal creeks and open water form natural firebreaks that can confine fire. Although the District's fire management program may not specifically incorporate salt marsh into prescribed burns, its tolerance of fire may provide flexibility when planning and conducting burns on adjoining uplands.

Wet Prairie (17 acres)

Wet prairies are grass and sedge-dominated wetlands often maintained by a high or perched water table and frequent fires. There is only one discrete, 17-acre occurrence of wet prairie on the Preserve, restricted to a band of saturated soils lying downgradient from a large stand of scrub and flatwoods habitat that occupy the property's highest elevations. Wet prairie sometimes grades into depression marsh, and the two communities share many of the same species. These include maidencane, little blue maidencane, Carolina redroot, and pale meadow beauty. Species more restricted to wet prairie include fewflower milkweed, dogfennel, and yellow-eyed grass. A few shrubs may be present, including queens delight, peelbark, St. John's wort, and gallberry. Wet prairie can often be distinguished from depression marsh by the presence of wiregrass. Similar to depression marsh, fires ignited on surrounding lands should be permitted to burn into the wet prairies until they extinguish naturally.

Upland Communities

Mesic Flatwoods (275 acres)

Mesic flatwoods is the most extensive natural community occurring on the Preserve. These forested communities occur on low, sandy flatlands across the Southeastern coastal plain and are characterized by an open canopy of pines, little or no midstory vegetation, and a lush, highly diverse groundcover composed of a mixture of shrubs and grasses. The open overstory allows abundant sunlight to reach the forest floor, and frequent fires (the fire return interval ranges from two to five years) maintain the open canopy. This combination of factors maintains the open, highly diverse plant composition typical of mesic flatwoods.

The canopy is primarily South Florida slash pine, with longleaf pine also present. The Preserve is located near the southern limit of longleaf pine's natural range, where South Florida slash typically replaces it. The presence of a subcanopy layer comprised of such species as red maple, laurel oak, and water oak are indicative of areas from which fire has been excluded. Characteristic shrubs include saw palmetto and gallberry, with occasional pawpaw, huckleberry, shiny blueberry, staggerbush, fetterbush, and wax myrtle. The groundcover in a healthy mesic pine flatwoods community is diverse and is often dominated by wiregrass and other herbaceous species, including bushy bluestem, chalky bluestem, needleleaf witchgrass, tall elephantsfoot, button rattlesnakemaster, slender flattop goldenrod, blackroot, pale meadow beauty, sand blackberry, lopsided Indiangrass, and little bluestem. Common vines include Elliott's milkpea, sensitive plant, earleaf greenbrier, and muscadine.

Most of the mesic flatwoods that were present historically at the Preserve still remain. Although somewhat degraded by the presence of invasive plants, the Preserve's mesic flatwood remain in good condition due to the District's invasive plant control program and use of prescribed fire. Management of the mesic flatwoods will continue to focus on controlling invasive plants and applying prescribed fire within the natural fire-return interval for the community.

Mesic Hammock (2 acres)

Mesic hammocks are forests of broadleaved evergreen trees that become established in areas that are naturally protected from fire, or in areas where fire has been excluded. Fires occur very rarely in mesic hammock due to the combination of incombustible fuels, relatively high humidity, and the presence of natural firebreaks. Mesic hammock is rare in the Preserve given the overwhelming predominance of fire-adapted natural communities. The only sizable occurrence is on the southern boundary of the Preserve where much of it adjoins salt marsh habitat.

The canopy in mesic hammock consists primarily of live oak and laurel oak. Other tree species can include southern magnolia, sand live oak, and water oak. Occasional slash pine or cabbage palm may also be present. Shrubs are usually sparse and include American beautyberry, fetterbush, wax myrtle, saw palmetto, and persimmon. Epiphytes can be common, including Bartram's airplant, ballmoss, and Spanish moss. The density and diversity of herbaceous species varies depending on the degree of shading by trees and shrubs, but is typically low and includes low panic grasses, dogfennel, and Carolina yellow-eyed grass.

Scrub (73 acres)

Scrub is a shrub-dominated community that is restricted to well-drained sands, usually on ridges or at high elevations. In addition to the shrubby sand live oak, myrtle oak, and Chapman's oak that distinguish scrub, a canopy of pines, usually sand pine, may also be present. Other shrub species may include rusty lyonia and saw palmetto. Sandy openings among the oaks support a relatively sparse groundcover of three-awns, hair sedges, pinweed, jointweed, and a variety of lichens. Some scrubs support "balds" dominated by a dense growth of Florida rosemary at the highest elevations.

The fire-return interval for scrub is estimated to range from five-20 years. Scrubs featuring a moderate-to-dense canopy of sand pine usually reflect a prolonged absence of fire since sand pine is usually killed by fire. The Preserve's scrub does not show signs of long-term fire suppression, potentially as a result of logging activities or mechanical disturbance during the mid-90s.

Scrub is a natural community that is restricted to Florida and is considered an imperiled community due to its limited natural occurrence and history of loss to development. It has been designated an under-represented natural community within Florida's network of conservation lands, so its presence on the Preserve is a noteworthy environmental feature. Like scrub, the Federally threatened Florida scrub-jay is endemic to Florida, and its occurrence is restricted to scrub and scrubby flatwoods habitat. Several family groups have been documented on the Preserve, and in the adjacent Burchers Parcel owned by Charlotte County. Burning within the proper fire-return interval and controlling the growth of invasive plant species are the most important management needs for the Preserve's scrub habitat.

Scrubby Flatwoods (44 acres)

Scrubby flatwoods occur on elevated sites underlain by well-drained sands, and often in close association with scrub, and on rises within mesic flatwoods or transitional areas between scrub and mesic flatwoods. It is similar to mesic flatwoods in terms of structure and species composition, with widely spaced pines and dense shrubs. The natural fire return interval for scrubby flatwoods is likely five to eight years; however, in stands where fire has been excluded, more frequent burning may be required in order to reduce fuel loads and restore the natural structure, which should include scattered sandy openings in the vegetation. Over the long term, introducing variability in the season and the frequency of prescribed fires would generate a mosaic of burned and unburned patches which is preferable for maintaining the high species diversity and wildlife habitat values characteristic of scrubby flatwoods.

The scrubby flatwoods canopy in the Preserve consists primarily of South Florida slash pine, with longleaf pine also represented. Shrubs can be patchy and occasionally dense, and include sand live oak, myrtle oak, blue huckleberry, shiny blueberry, tar flower, gallberry, wax myrtle, fetterbush, netted pawpaw, red bay, and saw palmetto. The natural abundance of grasses and forbs in scrubby flatwoods can be reduced where shrubs are dense, but dense patches of herbaceous vegetation can grow where large gaps in the shrub layer occur, including broomsedge bluestem, wiregrass, fringed yellow stargrass, bracken fern, blackroot, Florida dropseed, and Adam's needle.

Scrubby flatwoods is designated as an under-represented natural community within the state's network of protected conservation lands and is associated with a large number of imperiled wildlife species, many of which are endemic to Florida. Most notable among these on the Preserve is the Florida scrub jay. The beautiful pawpaw is Federally listed as Endangered, is narrowly endemic, and may be present on the Preserve.

Wet Flatwoods (44 acres)

Wet flatwoods in the Preserve is confined to one contiguous stand in the northeast corner of the property. It features a canopy dominated by South Florida slash pine, and have an understory dominated by such small trees and shrubs that include dahoon holly, gallberry, fetterbush, wax myrtle, and saw palmetto. Groundcover consists of herbaceous species like wiregrass, bushy bluestem, broomsedge bluestem, dogfennel, Carolina redroot, pale meadow beauty, cinnamon fern, and Virginia chain fern.

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. Wet flatwoods require frequent fires to prevent hardwood encroachment and encourage the perpetuation of herbaceous species. The natural fire-return interval for wet flatwoods can range widely from three to ten years and would occur naturally primarily during the late spring/early summer lightning season. The District's approach to fire management will seek to mimic this natural cycle.

Invasion by nonnative plant species, particularly downy rose-myrtle, is a continuing challenged in the Preserve's upland habitats. As noted elsewhere in the plan, the railway line that bisects the

property serves as a continuing vector for introduction of these species, and more effective control may be achieved by coordinating efforts with the Seminole Gulf Railway.

Ruderal (40 acres)

The ruderal classification refers to areas within the Preserve where the native vegetation has been disturbed to such an extent that it no longer resembles the pre-existing natural community. The Preserve's ruderal areas are comprised of areas that were converted to a variety of land uses, including electric transmission line corridors. The primary entrance to the Preserve is also classified as ruderal. These areas are characterized by a mixture of bahiagrass, common ragweed, bushy bluestem, broomsedge bluestem, chalky bluestem, silverling, persimmon, dogfennel, and wax myrtle.

Aquatic Communities

Lake/Artificial Impoundment (15 acres)

Prior to the District's purchase of the property, two sites were mined for sand. The first "borrow pit", approximately seven acres in size, was created circa 1985 in the southeast corner of the Preserve, immediately adjacent to the main entrance and parking area. Mining at the second location commenced in 1999 and culminated in creation of the eight-acre artificial lake that is open for recreational fishing. The lake lacks a natural littoral zone and other shallow-water habitat features characteristic of natural lakes; however, it serves as an important habitat feature by providing a perennial source of freshwater to resident wildlife. Although the lake is open for fishing by recreational users, its ability to serve as a productive fishery is questionable. The older borrow pit appears to be considerably shallower and may be subject to seasonal drying or low water levels. As such, it may more closely resemble a freshwater marsh in form and function.

Soils and Topography

Soils

Soils as mapped by the Natural Resources Conservation Service (NRCS) are depicted in **Figure 7**. Additional information on the Preserve's soils was derived from the online Web Soil Survey maintained by NRCS (USDA, 1984) and ([NRCS Websoil Survey Tool](#)). The soils were consolidated into three categories based on prevailing soil moisture levels: xeric, mesic, and hydric.

Xeric soils are excessively well-drained to well-drained sands, confined to the highest elevations on the Preserve, and coincide with the presence of the Preserve's scrub and scrubby flatwoods natural communities. The xeric soils mapping units include Orsino and Daytona fine sand. These soils occur on areas with zero to five percent slopes and a seasonal saturation depth at or below a depth of 80 inches. These areas are conducive to gopher tortoises and their burrows.

The hydric soils consist of very poorly drained to poorly drained with the seasonal saturation depth occurring at land surface to a depth of ten inches below land surface for a major portion of the wet season, and occur at the lower elevations or in depressional areas. These soils correspond with the property's coastal wetlands, hydric hammock, and wet prairie. Wulfert muck is a soil found in inter-tidal zones, and is frequently flooded and is typically saline. It occurs within the mangrove swamp and salt marsh. Malabar fine sand is associated with the property's hydric hammocks, and high-water table and Myakka fine sand occurs within the wet prairie areas.

Mesic soils are somewhat poorly to poorly drained soils and occur within the Preserve's mesic flatwoods. Immokalee, Oldsmar, and Myakka sands dominate these areas, and occupy more than 65 percent of the Preserve, within the mesic and somewhat wet pine flatwoods habitats. There are two locations onsite where sand was borrowed prior to District ownership and now function as seasonal open water features.

Topography

The Preserve is located within the Southern Gulf Coastal Lowland physiographic region. Elevations range from a high point of 16 feet above sea level near the northeast corner of the Preserve (**Figure 8**), to below sea level in the tidal creek and tidal basin in the southwest portion of the property. Despite the narrow topographic range represented on the property, the elevation gradients are sufficient to produce dramatic changes in the soils and natural communities, resulting in the close proximity of tidal wetlands and well-drained scrub and scrubby flatwoods habitats.

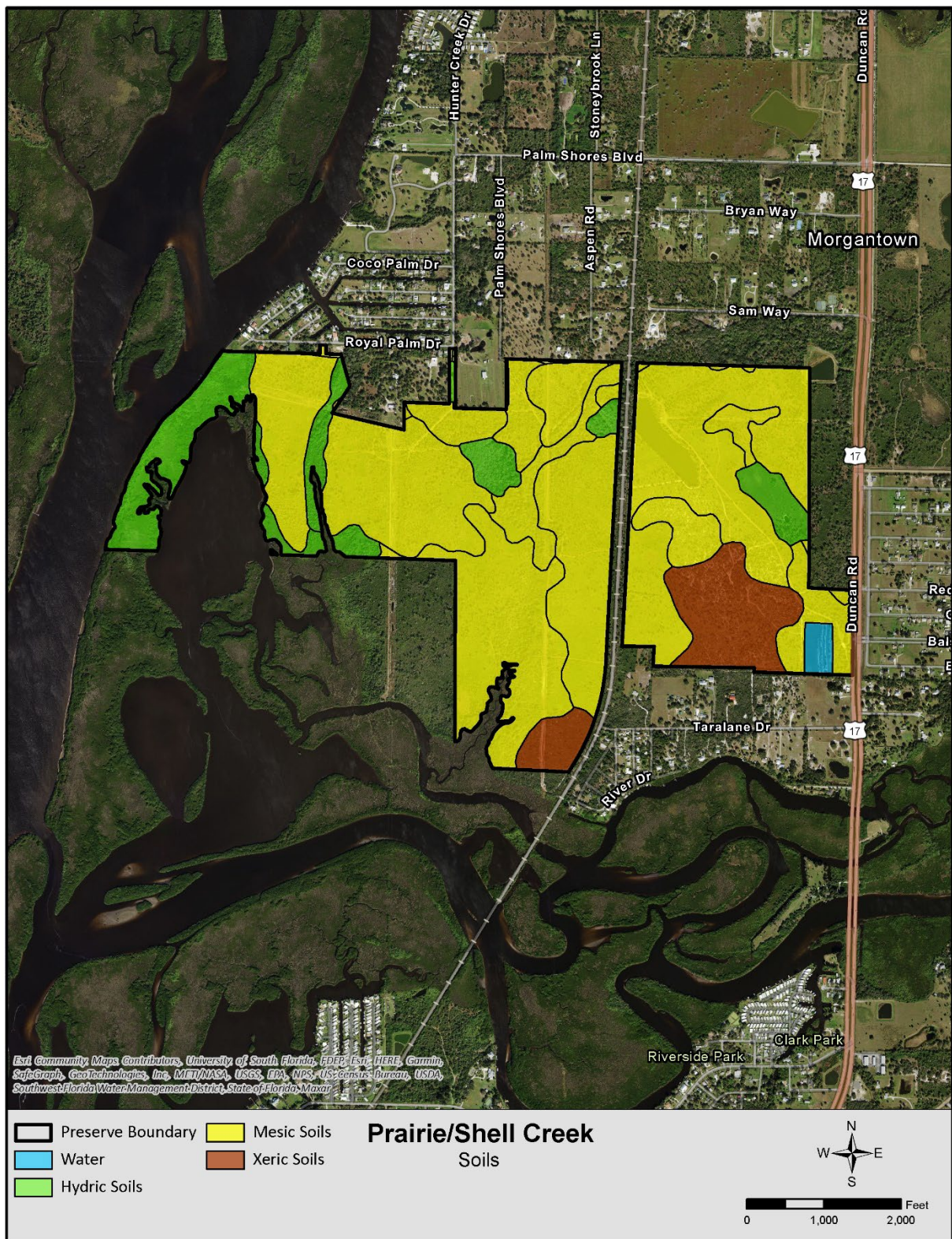


FIGURE 7. SOIL TYPES

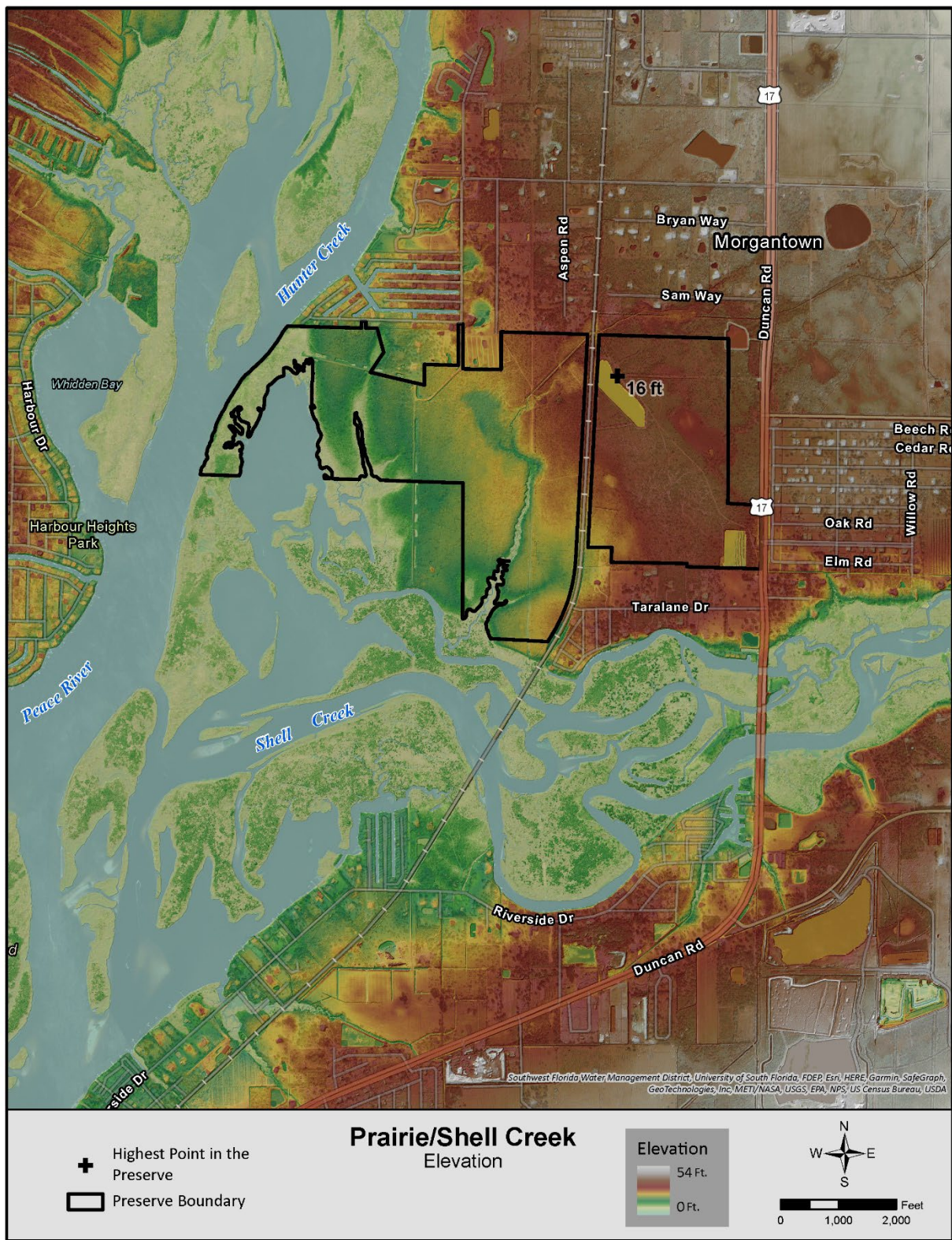


FIGURE 8. DIGITAL ELEVATION MODEL

Land Management and Land Use

Land Management

The District is responsible for the protection of water resources and natural systems on the lands under its ownership. The District successfully meets this responsibility through the application of proven, effective land management practices. The primary land management practices employed by the District include the use of prescribed fire, forest management, habitat restoration, control of nonnative and invasive species, and imperiled species management. The application of prescribed fire is the primary land management tool used by the District. It is the most cost-effective and environmentally beneficial method to maintain or restore fire-dependent natural communities that have been degraded by decades of persistent fire suppression. The ultimate goal of the District's land management program is to maintain and restore natural systems to their historic condition, as described in FNAI's Guide to the Natural Communities of Florida.

Fire Management

The District's use of prescribed fire is designed to apply fire to all fire-dependent natural communities based on natural fire return intervals as defined through years of intensive research. A thorough review and explanation of fire dependence and fire return intervals is provided in the FNAI Guide to the Natural Communities of Florida (FNAI 2010).

Natural fires in Florida historically occurred during the "growing" season, which corresponds with the spring and summer months during which lightning strikes are most common. Research has demonstrated that burning during the growing season has the most beneficial impact on native plant communities because it most closely mimics the natural incidence of fire. Many native plant species respond more vigorously to growing season fires than to fires conducted during the "dormant" season, as evidenced by heavier flowering and fruit development following growing season fires. Additionally, the fire-sensitive hardwood species that typically invade fire-dependent natural communities after an extended period of fire suppression are more effectively eliminated by growing season fires than dormant season fires.

Approximately 457 acres of the property, or 75 percent of the total Preserve land area, supports fire-maintained plant communities. To the greatest extent possible, the District will emphasize the use of growing season fires, conducted within the proper fire return interval established for the respective natural community. However, the importance of fire frequency, or return interval, is so critical to maintaining natural habitat structure and plant composition that fire frequency will take precedence over seasonality when planning and conducting prescribed burns. The unpredictability of seasonal variations in weather patterns, and the commitment of staff and other resources that must be deployed to safely conduct prescribed burns, require that the District also employ dormant season burns, as necessary, in order to maintain proper fire return intervals across the entirety of the lands it manages.

The Preserve's salt marsh and ruderal land cover types are not included in the fire-maintained category; however, they may also benefit from occasional incursions of fire when burns are conducted on adjacent fire-maintained habitats. Occasional fire can promote the regeneration of

native vegetation within the altered ruderal habitats and prevent accumulations of hazardous fuel loads. Fires burning into the periphery of salt marsh may also be beneficial, provided conditions are sufficiently wet to prevent the ignition of organic soils, or “muck fires”.

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

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

The Preserve is divided into 22 distinct management units. These management units are delineated in **Figure 9**. Many are based on the presence of roads or other features that can act as firebreaks, and thereby divide the property into logical burn units. The District’s fire managers must take precautions to avoid potentially negative impacts from prescribed burns and target specific weather conditions as part of each fire’s prescription parameters. The network of firelines and natural firebreaks that delineate the management units allow for successful fire management and limit the potential for wildfires. As discussed in the section of this plan addressing imperiled species management, the configuration of some existing management units may be reassessed to account for the habitat needs of the resident Florida scrub jays.

Condition Class

The term “condition class” is a reference to the status of District-owned and managed lands relative to a historic fire return interval established for each community type. The fire return interval estimates the ideal amount of time between successive fires within a natural community. Condition Class 1 distinguishes areas within one fire return interval of the ideal, and Condition Class 2 those areas within two fire return intervals. Condition Class 3 represents 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 considered beyond recovery through reintroduction of fire without implementing potentially 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 full range of variation within the prescribed burn program, aside from special exceptions based on unusual circumstances.

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. In turn, this allows the District to provide an accurate representation of the condition of all lands managed with fire.

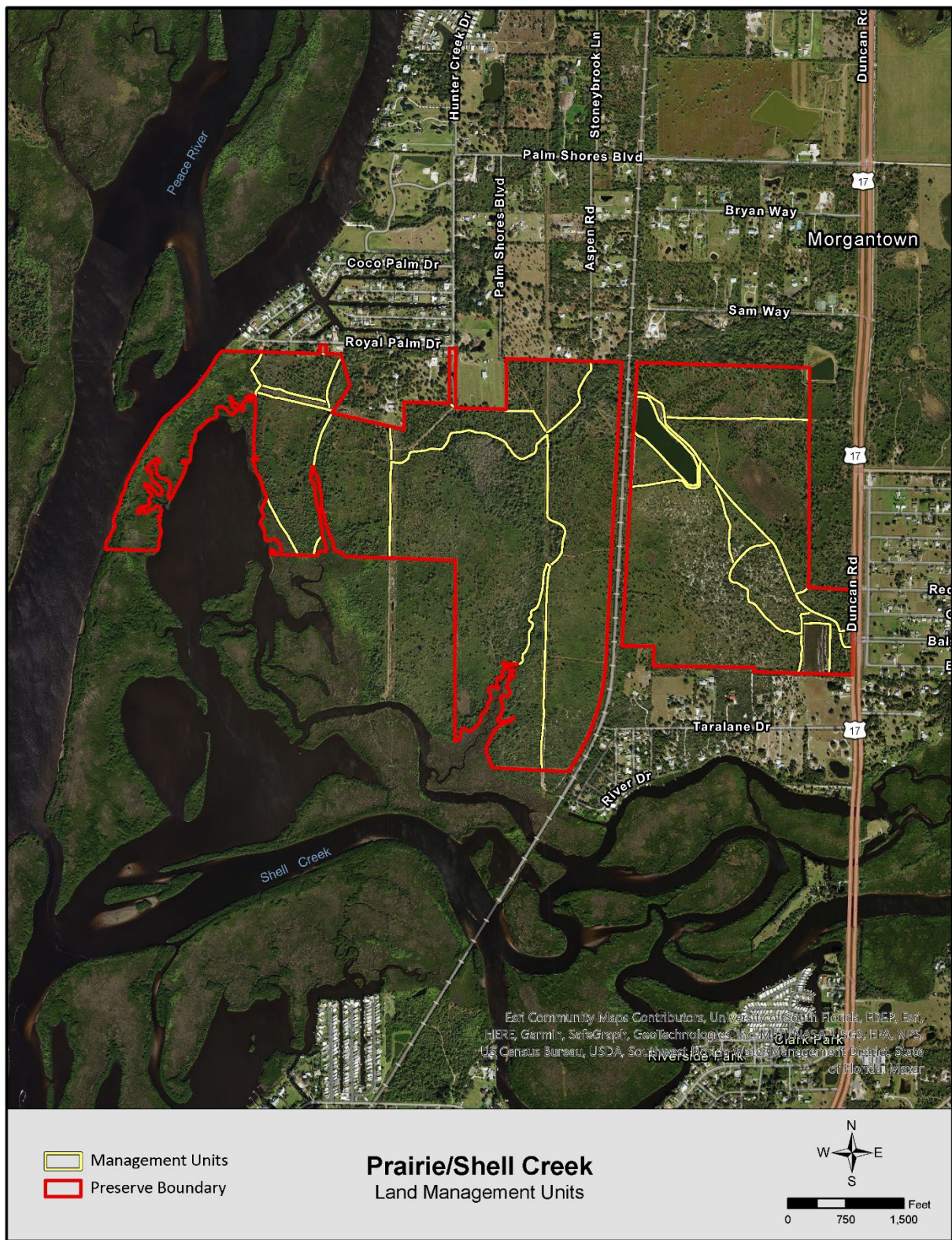


FIGURE 9. MANAGEMENT UNITS

Forest Management

The Preserve does not have any Timber Management Zones. The previously discussed prescribed burning program should be sufficient to maintain the health and habitat values of the forested natural communities present on the property. However, in the instance that there is a need to conduct forest management activities to improve habitat or minimize the risk from wildfires, the District would employ forest management strategies to achieve the management objectives for the Preserve.

Habitat Restoration

The vast majority of the Preserve remains in an essentially natural, undisturbed condition. The ongoing fire management program has reversed most of the residual impacts (e.g., hardwood invasion) of the period of fire exclusion that preceded District ownership. There have been mechanical habitat enhancement projects that have sought to improve the condition of the flatwoods and also reduce risk along the portions of the Preserve that contain wildland urban interface. Continuation of the fire management program, and of efforts to control invasive species, will be sufficient to maintain the Preserve's habitat values. The only areas that may be considered for directed habitat restoration efforts are the open water features, which may benefit from contouring to create littoral shelves, or from other strategies that could enhance fishery value.

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, subtropical climate and the many ports of entry through which plants are imported. A high rate of introduction, combined with the subtropical climate, increases the likelihood that introduced non-native plant species will escape into the wild and establish self-perpetuating populations. As a result, Florida is home to many non-native plant species that have become aggressive invaders which are severely impacting natural systems.

The Florida Invasive Species Council (FISC) identifies non-native plant species that have become invasive in the state, compiles species lists, and categorizes the species based on their observed impact to natural systems. Category I species are the most aggressive and have been determined to disrupt 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 been determined to alter natural plant communities to the extent shown by Category I species. At present, the FISC list includes 81 species designated as Category I and 85 species designated as Category II. Many species on the FISC list also appear on the Florida Department of Agriculture and Consumer Service's (FDACS) Noxious Weed List, which identifies plant species that are prohibited from being propagated, cultivated or sold commercially.

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 staff dedicated to surveying, prioritizing, and treating

occurrences of invasive plants on District conservation lands. The District focuses its management efforts on species that FISC has designated Category I or II plants as set forth above. The Vegetation Management Section also uses The Nature Conservancy's Site Weed Management Plan Template as a framework for analyzing and prioritizing 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 of 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 focused where they will have the greatest benefit to the ecosystem.

Downy rose-myrtle (*Rhodomyrtus tomentosa*) has been identified as the highest priority for invasive plant control operations on the Preserve. Its level of infestation is considered to be moderately heavy and is especially concerning because it is prevalent in the Preserve's scrub and scrubby flatwoods natural communities, which FNAI has designated as imperiled natural communities based on both rarity of occurrence and the large number of imperiled species that are dependent on those habitats. Successful control of downy rose-myrtle is complicated by its presence within the Seminole Gulf Railway railroad right-of-way that bisects the property and serves as a vector for continuous reintroduction. The District will coordinate with Seminole Gulf Railway to ensure they are aware of the species' presence and inform them of effective control measures, or to develop a cooperative approach to management of any priority or EDRR invasive plant species that may be present in the right-of-way.

The District has also implemented an Early Detection Rapid Response (EDRR) strategy to identify and rapidly treat occurrences of invasive species that are not currently present or are not widespread but have the potential to become widespread if they become firmly established. EDRR species at the Preserve include sisal hemp, nightflowering jessamine, grand eucalyptus, Torell's eucalyptus, water-spinach, and giant salvinia. **Table 3** lists the invasive plant species known to be present on the Preserve, their priority level for control if applicable and FISC status, and the EDRR species identified as most relevant to the Preserve.

The District employs a variety of measures to control invasive plant species including thorough surveys, chemical treatments (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 SPECIES AT THE PRESERVE

Common Name	Scientific Name	FISC Status	Priority Level for Control
Rosary pea	<i>Abrus precatorius</i>	Category 1	7
Sisal hemp	<i>Agave sisalana</i>	Category II	EDRR
Nightflowering jessamine	<i>Cestrum nocturnum</i>		EDRR
Aair potato	<i>Dioscorea bulbifera</i>	Category 1	6
Grand eucalyptus	<i>Eucalyptus grandis</i>		EDRR
Torell's eucalyptus	<i>Eucalyptus torelliana</i>		EDRR
Cogongrass	<i>Imperata cylindrica</i>	Category 1	6
water-spinach	<i>Ipomoea aquatica</i>	Category I	EDRR
Old World climbing fern	<i>Lygodium microphyllum</i>	Category I	6
Melaleuca	<i>Melaleuca quinquenervia</i>	Category I	6
Downy rose-myrtle	<i>Rhodomyrtus tomentosa</i>	Category I	5
Giant salvinia	<i>Salvinia molesta</i>		EDRR
Brazilian pepper	<i>Schinus terebinthifolius</i>	Category I	7
Caesar's weed	<i>Urena lobata</i>	Category I	10

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 District's primary focus for invasive wildlife management is on control of feral hogs (*Sus scrofa*). Feral hogs have the ability to adapt to a wide variety of habitats, exhibit a high reproductive rate (Dzieciolowski et al. 1992), and lack significant natural predators. The result has been rapidly increasing population densities throughout North America over the last several decades (West, Cooper and Armstrong, 2009).

Feral hogs are the most destructive nonnative animal species in the United States and some areas of the Preserve exhibit evidence of damage caused by their rooting activities. The soil disturbance associated with rooting also invites invasion by nonnative plants. Hogs are known to carry and transmit such diseases as brucellosis, leptospirosis, and pseudorabies, and they have the potential to be aggressive if startled or angered. Feral hogs also compete with native species for forage and have been documented preying on ground-nesting birds and reptiles (Coblentz and Baber 1987).

In recognition of the serious threats posed by feral hogs, the District has developed and implemented an integrated feral hog control plan. Due to the adaptive nature of wild hogs and their reproductive fecundity, a multi-faceted approach is required. 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 (USDA) - Wildlife Services Program.

Given the array of practical, environmental, and social constraints on hog management, it is generally recognized that the complete eradication of feral hogs from District lands is an unattainable goal. Therefore, the overarching goal of feral hog management at the Preserve will be to keep hog numbers at a maintenance level, thus minimizing the ecological damage resulting from feral hog rooting. This will be accomplished using a comprehensive, science-based strategy as explained above, and that is designed to be humane, cost-effective, and compatible with Preserve management.

Imperiled Species Management

For purposes of this Plan, “imperiled species” refers to plant and animal species that have been formally listed as Endangered or Threatened by the FWC, the United States Fish and Wildlife Service (USFWS), or the FDACS. The District’s comprehensive approach to land management places a priority on restoring or maintaining the natural structure, function and species composition of the Preserve’s natural communities. This approach generally ensures the habitat needs of the Preserve’s entire slate of resident species will be met. In some instances, special measures may need to be implemented to account for the imperiled status of a particular species.

Imperiled Wildlife

Several imperiled wildlife species have been documented at the Preserve in association with various surveys, and through the day-to-day observations accumulated by staff over the course of managing the Preserve. The most significant imperiled wildlife species known to be present on the Preserve is the Florida scrub-jay (*Aphelocoma coerulescens*), which is Federally listed as Threatened. Scrub jays are also present on the County-owned Burchers Parcel adjacent to the Preserve. Other rare species are likely or potentially present, but not yet documented. FNAI developed the Biodiversity Matrix tool to identify rare species that are known or likely to occur within a specified land area based on a statewide geographic database. **Table 4** lists all the imperiled wildlife species known or expected to be present on the Preserve based on surveys, direct observations, and application of a Biodiversity Matrix analysis.

TABLE 4. IMPERILED WILDLIFE SPECIES KNOWN OR LIKELY TO OCCUR

Common Name	Scientific Name	Listing Status*	Management Comments
Florida Scrub-Jay	<i>Aphelocoma coerulescens</i>	FT	Burn scrub and scrubby flats in rotation.
Florida Sandhill Crane	<i>Antigone canadensis pratensis</i>	ST	Maintain marshes by burning in rotation.
Little Blue Heron	<i>Egretta caerulea</i>	ST	Maintain natural hydroperiods.
Tricolored Heron	<i>Egretta tricolor</i>	ST	Maintain natural hydroperiods.
Southeastern American kestrel	<i>Falco sparverius paulus</i>	ST	Burn in rotation and preserve snags.
Gopher Tortoise	<i>Gopherus polyphemus</i>	ST	Burn in rotation

Wood Stork	<i>Mycteria americana</i>	FT	Maintain hydrology.
Blue-Tailed Mole Skink	<i>Plestiodon egregious lividus</i>	FT	Burn in rotation.
Sand Skink	<i>Plestiodon reynoldsi</i>	FT	Burn in rotation; no xeric soil disturbance.

* FT = Federally Threatened ST = State Threatened

The Florida scrub-jay poses a special challenge to land managers in many areas where it is present, due to the challenges associated with managing scrub habitat especially in the wildland urban interface. The majority of the Preserve's scrub and scrubby flatwoods are in satisfactory condition and can be maintained by simply burning within the prescribed fire-return interval. Any areas that do exhibit evidence of fire suppression can be subjected to mechanical treatments to expedite restoration to conditions suitable for scrub-jays. Additional analysis will be necessary to identify areas where mechanical treatments of overgrown scrub and scrubby flatwoods would be effective and practical.

The District's comprehensive approach to habitat management has generally proven to be sufficient to meet the needs of the Preserve's full range of resident native wildlife species, including the suite of imperiled species listed in **Table 4**, and habitat conditions are expected to improve progressively over time in response to the District's management practices. The District remains open to cooperative efforts or other new approaches that could make its management program even more effective.

Imperiled Plants

Although no imperiled plant species have been documented on the Preserve, **Table 5** lists four species that are likely or potentially present based on the Preserve's variety of habitat types and location within the documented range of the species. It is important to note that no thorough plant surveys have been conducted on the property, and most of these species are relatively inconspicuous and easily overlooked.

TABLE 5. IMPERILED PLANT SPECIES KNOWN OR LIKELY TO OCCUR

Common Name	Scientific Name	Listing Status*	Management Comments
Beautiful pawpaw	<i>Asimina pulchella</i>	FE/SE	Burn flatwoods in rotation; survey for presence March-April
Many-flowered grasspink	<i>Calopogon multiflorus</i>	ST	Burn flatwoods in rotation. rotation
Nodding pinweed	<i>Lechea cernua</i>	ST	Burn scrub and scrubby flats in rotation.
Giant Orchid	<i>Pteroglossapsis ecristata</i>	ST	Scrubby and mesic pine flatwoods; burn in rotation.

* FE = Federally Endangered SE = State Endangered ST = State Threatened

The potential presence of the beautiful pawpaw (*Asimina pulchella*) is especially significant given its Federal listing as an Endangered species. It is a narrow endemic, known only from Charlotte

and Lee Counties, with a separate occurrence in Orange County. It appears restricted to mesic and wet flatwoods and can be eliminated from areas where regular fire is suppressed. Given this species critically imperiled status, and the healthy condition of the Preserve's flatwood habitats, opportunities to conduct a survey for the species could be explored in partnership with Charlotte County's Natural Resources Division, or the Mangrove Chapter of the Florida Native Plant Society. The best time of the year to survey for beautiful pawpaw is from March through April, when it is most likely to be in flower.

Management guidelines for all four imperiled plant species call for burning within recommended fire return intervals, which is consistent with the District's fundamental approach to land management and will promote persistence of those species that are present, or immigration by those that may currently be absent.

[Arthropod Management](#)

In compliance with Chapter 388.4111 of the Florida Statutes and Section 5E-13.042 of the Florida Administrative Code, all lands comprising the Preserve have been designated as "environmentally sensitive and biologically highly productive". Such designation is appropriate and consistent with the natural resources and ecosystem values of the Preserve and requires that an Arthropod Control Plan be developed for the property to ensure any ongoing or future mosquito control practices implemented on the Preserve will be not pose a hazard to fish, wildlife, and other natural resources protected on the property.

Recreation

District Policy directs the provision of passive, resource-based recreational uses on conservation lands under its ownership. Only uses that are compatible with natural values and environmental sensitivity of the particular property are allowed. Compatible uses generally consist of passive outdoor recreational and educational pursuits that are dependent on the natural resources and surroundings the property provides. Public access points are restricted to locations that can accommodate the parking and other infrastructure necessary to accommodate the permitted uses. Site-specific determinations about the compatibility of uses are based on ensuring the property will be able to satisfy the purposes for which it was acquired.

The mix of recreational uses accommodated at the Preserve includes hiking, bird watching, and nature study conducted within a network of marked and designated trails (**Figure 10**). Fishing is also permitted by individuals properly licensed by the State of Florida. No restrooms are available on the property.

The primary access point for recreational users is located at 3081 Duncan Road, Punta Gorda, Florida. This site is accessed via US Highway 17 approximately two miles north of Cleveland in unincorporated Charlotte County. A parking area and walk-thru entrance are provided. No water or restrooms are available on the property.

A secondary access point is provided on Palm Shores Boulevard along the northern boundary of the property. Although the location features a walk-thru entrance, no parking area is provided.

Trails

A trail network totaling five miles in length is maintained on the Preserve. It is reserved for foot traffic only. Other recreational trail values of the Preserve are the nearby tidal creeks and bays in the Charlotte County Blueway network of kayaking trails, including the Outer Shell Creek Trail and Harbor Heights Trail. These kayaking trails are not accessible from the Preserve.

Environmental Education

The Preserve does not have any developed facilities to accommodate usage for environmental education purposes. However, Special Use Authorizations can be submitted for review and approval by the District, on a case-by-case basis, to allow for compatible environmental education uses.

Americans with Disabilities Act

The Southwest Florida Water Management District (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); or email 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.

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FIGURE 10. RECREATION AND ACCESS

Land Use Administration

The land uses administered on District conservation lands are governed by established District policy. The policy recognizes two separate categories of public use: recreational uses and non-recreational uses. Allowable recreational uses vary by property, based on site-specific considerations related to environmental sensitivity and compatibility. A discussion of recreational use at the Preserve was provided in the preceding section of the Plan. Non-recreational public uses that could be considered potentially include, but are not limited to, linear facilities, scientific research opportunities, water resource development projects, sustainable forestry, and environmental education.

Partnerships and Cooperative Management

There are not currently any partnerships or cooperative management agreements in place for the Preserve.

Research Opportunities

District properties provide a variety of research opportunities to benefit natural resource conservation and preservation efforts. Such projects can include wildlife surveys, wetland studies, natural resource monitoring projects, and archaeological surveys or investigations. The natural resources conserved at the Preserve can serve as outstanding living laboratories or outdoor classrooms for environmental studies and may be made available for such use upon request.

Special Use Authorizations

Special Use Authorizations (SUAs) can be issued by the District to accommodate uses or access that are not otherwise permitted. Applications for SUAs must be submitted for review by the District's Land Resources Bureau, which is responsible for determining whether the requested use or access can be conducted in a manner that is compatible with the District's resource protection mission and management objectives.

Examples of activities that may be permitted by SUAs include vehicular access for recreational use by groups or individuals that are mobility-impaired, or who require other special accommodation to engage in activities that would otherwise be considered compatible; environmental, biological or cultural research projects; and training exercises by law enforcement or military personnel.

License Agreements

License agreements can be issued to allow for access or uses that are more expansive, or cover a more protracted time span, than those addressed by SUAs. The District entered into a license agreement with Charlotte County in 2021 to allow access across the property to the Burcher's Parcel that borders the Preserve's southern boundary.

Land Maintenance and Operations

Roads and Boundaries

The District is responsible for managing the roads and trails on the Preserve to provide access for conducting routine management activities and to accommodate the public's recreational use. The existing network of roads and trails must also be sufficient to ensure ready access for wildfire response teams and to function as effective firebreaks when conducting prescribed burns. District staff engages in continuing maintenance of the road network to ensure it remains clear of obstructions and to repair or enhance impaired sections of the road and trail network.

The Preserve boundary is posted and fenced as necessary to prevent unauthorized access and use, and to minimize the potential for encroachment by neighboring landowners. Firebreaks are maintained along the Preserve's perimeter to help ensure prescribed burns and wildfires can be contained within the Preserve, and to prevent fires on adjoining lands from entering the Preserve.

District staff will remain alert for evidence of illegal activities, including unauthorized vehicular access and boundary incursions, and will respond accordingly to ensure the Preserve remains secure.

Facilities and Infrastructure

Consistent with legislation 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 a number of criteria, including compatibility with the natural resource values of the property, commensurate compensation provided for the use, location of the proposed use within the Preserve, and consistency with this Plan.

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 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 disk 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.

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 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 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, any agreements, easements, or leases.
- Objective 2: Review special requests and issue special use authorizations 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 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 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 ten years.

Land Management

- Developed annual burn plans.
- Completed prescribed burns on approximately 120 acres.
- Maintained perimeter firelines on an annual basis for prescribed fire and wildfire mitigation.
- Performed maintenance of internal roads and trail along with mowing twice per year on primary and secondary roads.
- Removed 80 feral hogs through District trapping and managed hunts.
- Conducted approximately 50 acres of mechanical fuel reduction on the Preserve for habitat improvement and wildfire mitigation.
- Over 4,430 acres surveyed for invasive exotic 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 Road access point.
- Maintained parking and day use areas for public access.
- Inspected recreational signage such as kiosk maps, trail markers, and interpretive signs for damage and replaced as needed.
- Performed regular maintenance of public trail system.

Administration

- Authorized four SUAs for recreational uses, research opportunities, utility maintenance, and training.
- Authorized one license agreement for ingress/egress to facilitate access for Charlotte County.

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