Draft Land Management Plan

Starkey Wilderness Preserve

Southwest Florida
Water Management District

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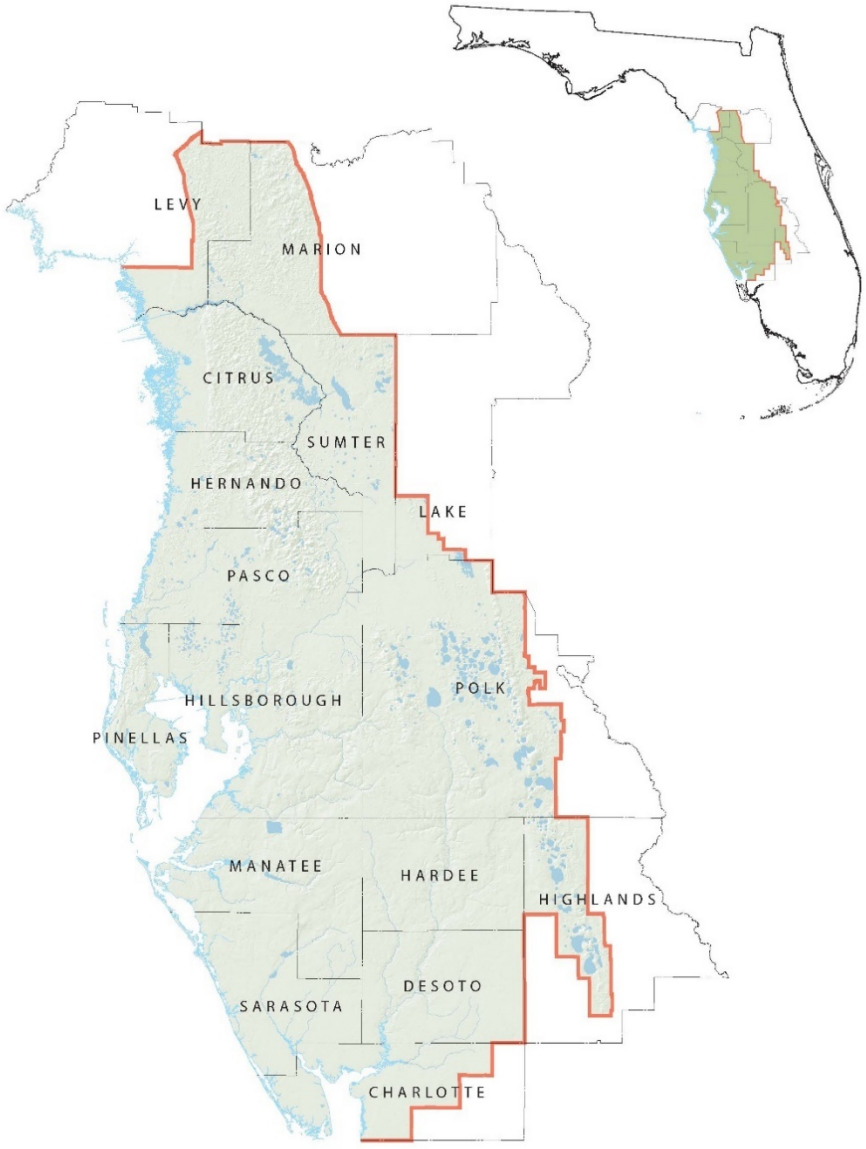
July 2, 2021

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.



Executive Summary

Acres: 19,266

Acquisition Dates: 1970-1980 & 1998

Plan Term: 10 Years (2021-2031)

Primary Basin: Anclote River

Secondary Basin: Pithlachascotee River, Five Mile Creek, and Sandy Branch

Location: Pasco County

Funding Source: Water Management Lands Trust Fund, Save Our Rivers, Preservation 2000, Mitigation

Partnerships: Tampa Bay Water (TBW) and Pasco County

Natural Systems: The Starkey Wilderness Preserve (Preserve) is dominated by pine flatwoods, scrub, scrubby flatwoods, cypress strands and domes, and forested floodplains associated with the Pithlachascotee and Anclote Rivers.

Water Resources: Water management benefits associated with the property include water supply, flood protection, and water quality protection and enhancement. Approximately half of the Preserve lies within the 100-year floodplain as delineated by the Federal Emergency Management Agency (FEMA). The Pithlachascotee and Anclote Rivers meander in a southwesterly direction across the property and are bordered by a significant zone of bottomland hardwoods (forested swamp) that infiltrates sheet flow and contributes to the water quality of the river.

Land Management: The District's land management practices applied on the Preserve result in healthy, natural systems. Management activities include prescribed fire, scrub restoration, restoration efforts of pasture lands, forest management of silvicultural zones, management and monitoring of resident wildlife to maintain existing biodiversity, feral hog control, and control of several invasive exotic (non-native) plant species.

Cultural and Historical Resources: The Preserve is an area that is steeped in a rich history. The Preserve contains approximately 70 archaeological sites that have been recorded in the Florida Master Site File of the Florida Division of Historical Resources. These sites are prehistoric campsites from the Middle to Late Archaic Period, turpentine camps, an old tramway, and a segment of the Old Dade City Road.

Recreation: The types of recreation that are offered at the Preserve provide for passive, resource-based recreation, and expansive recreation opportunities, dependent upon the area of the Preserve. These areas that provide for recreational opportunities are the Jay B. Starkey Wilderness Park (Park) central and southern portions of the Preserve, and the Serenova Tract (Serenova) northern portion of the Preserve.

The Park provides a modern outdoor experience with a variety of park amenities, an environmental education facility, and various camping opportunities. The recreational uses at the Park include bicycling, inline skating, camping, horseback riding, fishing, birding, and hiking. These amenities are managed by Pasco County.

Serenova provides for a passive, resource-based outdoor experience with bicycling, camping, horseback riding, fishing, birding, and hiking opportunities in an undisturbed, natural setting. These amenities are managed by the District.

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

Access: Public access to the property is provided at three locations. There are two access points in the Park and there is one access point in Serenova.

Real Estate: The Preserve consists of three major tracts: The Park, Serenova, and the Anclote Tract (Anclote). The District is responsible for land management activities on all three tracts and recreation activities on Serenova. Pasco County manages recreation activities on the Park and Anclote Tracts. On the Serenova, security is provided by the Florida Fish and Wildlife Conservation Commission (FWC).

Cooperative agreements, leases, and easements: The District holds a variety of agreements with TBW, Pasco County, Pasco County School Board, Florida Gas Transmission, Florida Greenways and Trails, Florida Department of Transportation, and a multi-agency agreement with the Florida Turn Pike Enterprise and the Pasco County Board of County Commissioners. Furthermore, there are multiple easements assigned to utility companies, such as Florida Gas Transmission and TBW.

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Introduction and General Information

Management Plan Purpose

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

District Planning Philosophy

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

Management Plans are developed following an extensive process of planning, coordination, data review, field review, and the 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 the review of the draft Management Plan by the key stakeholders identified above, a public workshop is held to solicit public input as to the draft Management Plan. The workshop is advertised in local newspapers, on the District's website, and via social media outlets, and is held in the region the property is located. Additionally, the public has an opportunity to provide input via the District's website for a period both preceding and following the workshop. Once the comment period has expired, a final draft of the Management Plan that considers public input received is prepared, and ultimately presented to the District's Governing Board for approval at a regular Governing Board meeting.

Public Involvement

In addition to the input from public workshops during the development of the Management Plan, the District also provides the opportunity for stakeholders to provide input during the Land Management Review process. This process occurs every five years as way to inform the public and hold the District accountable for the management of the property. This process assures the District is managing the land in accordance with the Management Plan and it is consistent with purpose for which the property was acquired. The land management review team is comprised of team members from various state agencies, cooperative partners, private land managers, and other entities involved in land management. The focus is on management activities and includes a thorough review of the property followed by an evaluation which is reviewed by the District.

Management Authority

The Preserve is considered by the District as conservation land which signifies 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 would bring parcels that were purchased originally as water control project 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 governs the use and management of these lands in accordance with Chapters 259 and 373 of the Florida Statutes.

Location

The Preserve is 19,266 acres located in west Pasco County. The Preserve is made up of three distinct tracts; Serenova, the Park, and the Anclote. The Preserve is approximately 7 miles east of Port Richey and north of the community of Odessa (Figure 1 and Figure 2). It is bounded to the north by State Road 52 (SR 52) and to the south by several residential developments along the State Road 54 (SR 54) corridor. The eastern boundary is the Suncoast Parkway (Parkway) and several residential developments. To the west are numerous residential neighborhoods along Starkey Boulevard, De Cubellis Road, and Moon Lake Road. The main public entrance to the Preserve is through the Park on Starkey Boulevard 4 miles north of SR 54. Serenova is accessed via SR 52, 1 mile west of the Parkway.

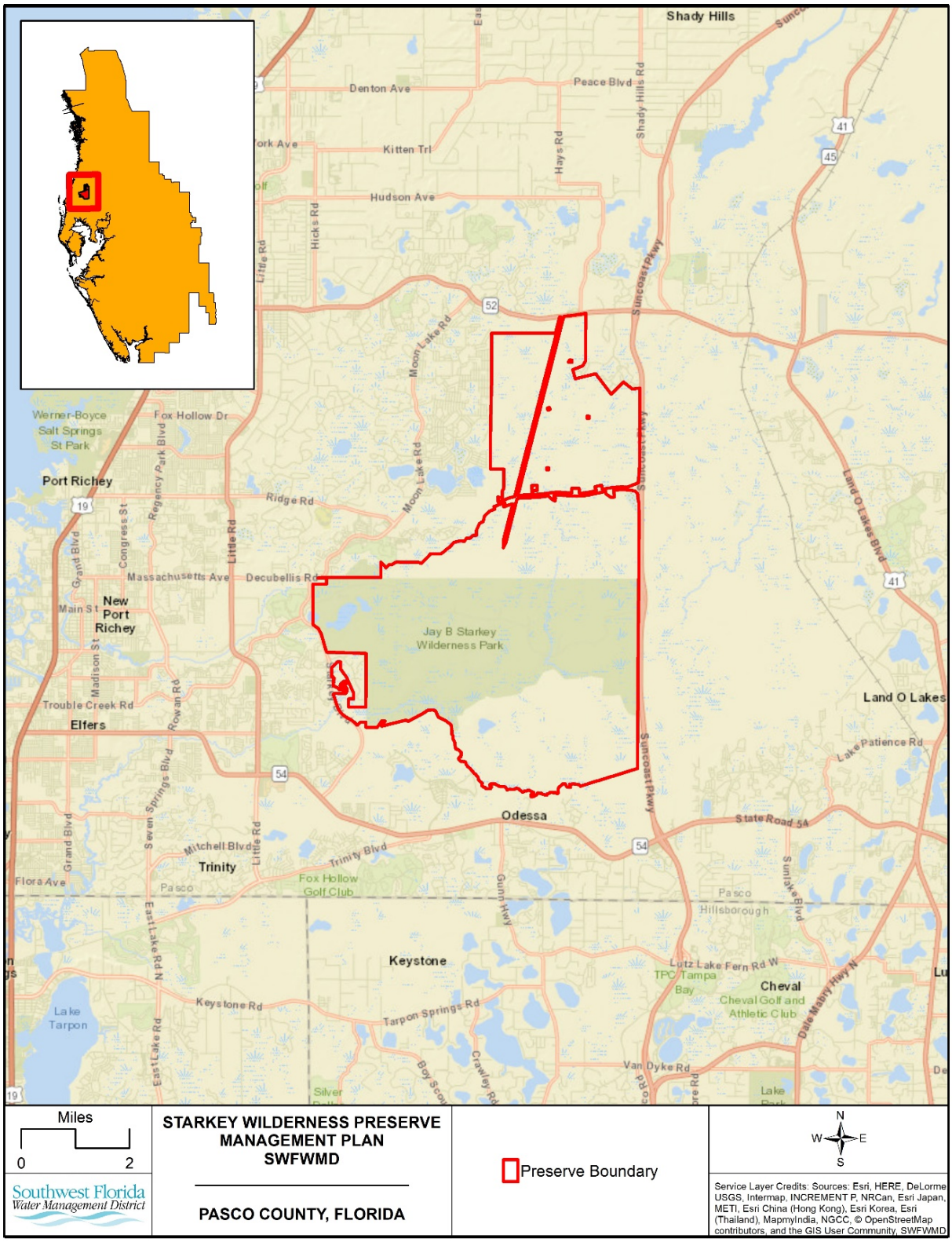

FIGURE 1. GENERAL LOCATION

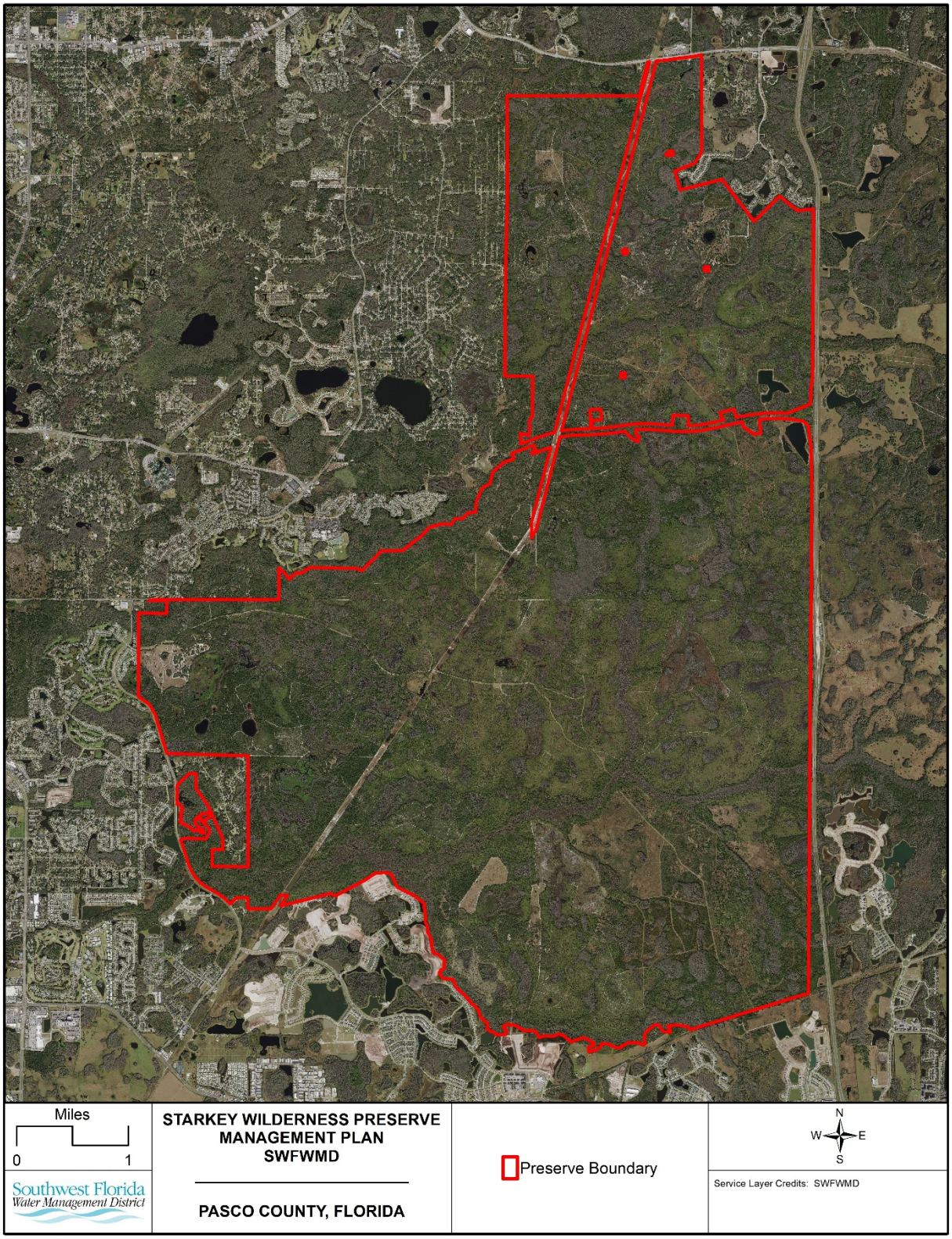

FIGURE 2. AERIAL OVERVIEW

Acquisition

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

History

In 1922, Jay Starkey quit his job at the post office in Pinellas County, established a 300-acre cattle ranch, and named it Ulmerton Ranch. In 1937, due to rising land prices and developmental pressures in Pinellas County coupled with the Great Depression, Jay Starkey, and his partner Dave Cunningham, drove their 300 head of cattle up to 16,000-acres of land in southwest Pasco County traversed by the Pithlachascotee and Anclote Rivers. The area was predominantly open flatwoods dotted with cypress strands and domes. In 1940, at the end of the open range era, they barb-wired the site's perimeter and established the CS Ranch. In 1956, after the passing of the Cunningham brothers, Jay Starkey was the sole owner of the Ranch and changed the name to the Anclote River Ranch.

In 1965, Jay sold the cattle on the ranch to his son Jay B. Starkey, Jr. Because Jay (Sr.) wanted to see wild Florida preserved, he sold several tracts of land to the District. Over the course of the next 3 decades, Jay Starkey and his heirs sold additional tracts of land, which today compromise the majority of the Preserve.

The "Anclote River Storage Lands", which comprised what is now the Park, became a wellfield (Starkey Wellfield) and pumping began in 1974. The pumps were operated by the West Coast Regional Water Supply Authority, which changed their name to Tampa Bay Water in 1998.

In 1994, the Parkway, which defines the eastern boundary of the Preserve, was permitted for development. Mitigation for the environmental impacts resulting from the construction of the Parkway included two significant additions to the Preserve: The Serenova Tract and the Anclote Tract.

The Anclote River Ranch was part of the original CS Ranch, which later became the Starkey Ranch. The Serenova Tract was once owned by the Otto Pottberg Trust and referred to as the Pottberg Tract. The Pottberg Tract was slated for development and had an approved "Development of Regional Impact" (DRI) for the construction but was later acquired by the District.

The District began purchasing parcels from the Starkey Family as early as the 1970s. Through a series of acquisitions over a 10-year period, the District ultimately acquired most of the parcels that today makeup the Park component of the Preserve. Later, in the late 1990s, through mitigation for the Parkway, the District received what are known as the Anclote and Serenova Tracts. As a result of these multiple acquisitions spanning several decades, the District was able to achieve significant water resource protection of the several different features, which includes a large

portion of the Anclote and Pithlachascotee Rivers, and portions of the Five Mile Creek, Sandy Branch, and South Branch. Along with the protection of significant water resources, the Preserve has long served a public water supply wellfield.

Regional Significance

The Preserve is considered a Priority 1 Florida Natural Areas Inventory (FNAI) resource priority in areas of landscape, integrity, and surface water resources according to the Critical Lands and Water Identification (CLIP) Technical report (Oetting *et al.*, 2016). The latest version of the CLIP analysis ranks all of the Preserve as the following:

- Biodiversity Resource Category: Priority 1 and 2 (Priority 1 is the highest)
- Landscape Resource Category: Priority 4
- Surface Water Resource Priorities: Priority 1, 2, and 3
- Aggregate Resource Priorities: Priority 1 and 2

The Preserve serves as a public water supply wellfield and supports all the District Core Missions of flood protection, water supply, water quality and natural systems. Within the Pasco County Comprehensive Plan, the Preserve comprises the majority of the Anclote/Pithlachascotee Watershed Ecological Planning Unit.

The Preserve also provides opportunities for camping, horseback riding, biking (trail and pavement), hiking, picnicking, and nature appreciation. It is the largest preservation area within the region that provides all of these recreational opportunities.

Regional Conservation Network

The Preserve adds 19,266 acres to the network of protected conservation land in the region (Table 1). There are approximately 230,000 acres of conservation areas within Pasco, Hillsborough, Pinellas, Hernando, and Citrus counties surrounding the Preserve (FNAI, March 2021). The District holds and owns approximately 39,000 acres of conservation easements in the area. (Figure 3) The Preserve is also linked to Connor Preserve via Five-Mile Creek and Cross Bar Ranch via the Pithlachascotee River.

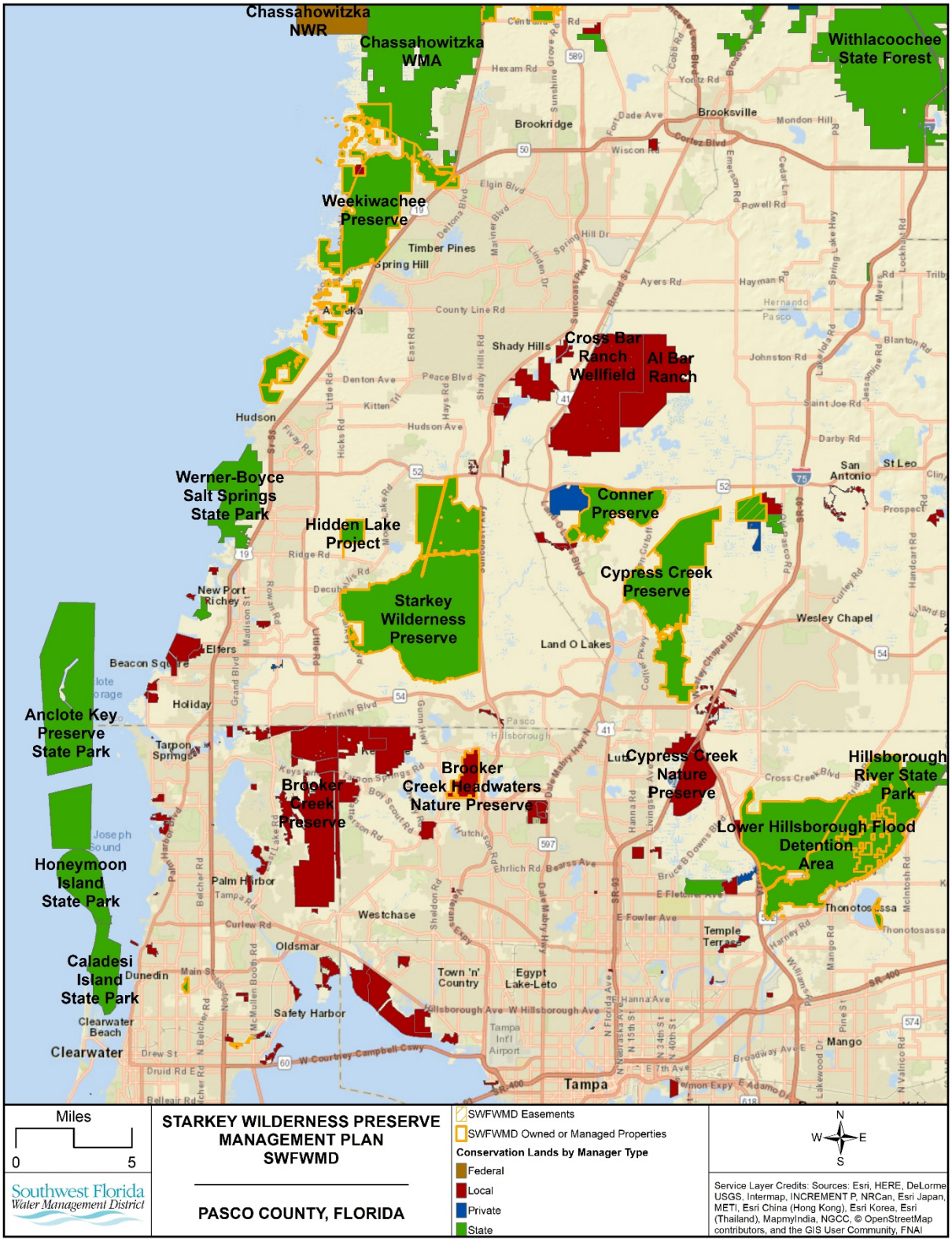

FIGURE 3. REGIONAL CONSERVATION NETWORK

TABLE 1. CONSERVATION LANDS WITHIN THE VICINITY

Name	Owner	Manager	County	Acreage
Weekiwachee Preserve	SWFWMD	SWFWMD	Hernando/Pasco	11,237
Cypress Creek Preserve	SWFWMD	SWFWMD	Pasco	7,475
Conner Preserve	SWFWMD	SWFWMD	Pasco	3,488
Lower Hillsborough FDA	SWFWMD	SWFWMD	Hillsborough	16,063
Hidden Lake	SWFWMD	SWFWMD	Pasco	589
Brooker Creek Headwaters	SWFWMD	Hillsborough	Hillsborough	1,111
Chassahowitzka WMA	State	FWC	Hernando	27,183
Werner-Boyce State Park	State	FDEP	Pasco	3,999
Hillsborough River State Park	State	FDEP	Hillsborough	3,319
Anclote Key Preserve State Park	State	FDEP	Pasco/Pinellas	12,177
Honeymoon Island State Park	State	FDEP	Pinellas	2,824
Jumping Gully Preserve	Pasco	Pasco	Pasco	1,707
Upper Pithlachascotee River Preserve	Pasco	Pasco	Pasco	129
Eagle Point Park	Pasco	Pasco	Pasco	678
Cypress Creek Preserve	Hillsborough	Hillsborough	Hillsborough	2,683
Brooker Creek Buffer Preserve	Hillsborough	Hillsborough	Hillsborough	490
Lake Dan Nature Preserve	Hillsborough	Hillsborough	Hillsborough	1,172
Lake Frances Preserve	Hillsborough	Hillsborough	Hillsborough	1,664
Lake Rogers Park	St. Petersburg	Hillsborough	Hillsborough	275
All-Bar Ranch	Pinellas	Pinellas	Pasco	4,253
Cross Bar Ranch	Pinellas	Pinellas	Pasco	8,181
Brooker Creek Preserve	Pinellas	Pinellas	Pinellas	8,746
Chassahowitzka NWR	USFWS	USFWS	Citrus/Hernando	111,545

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

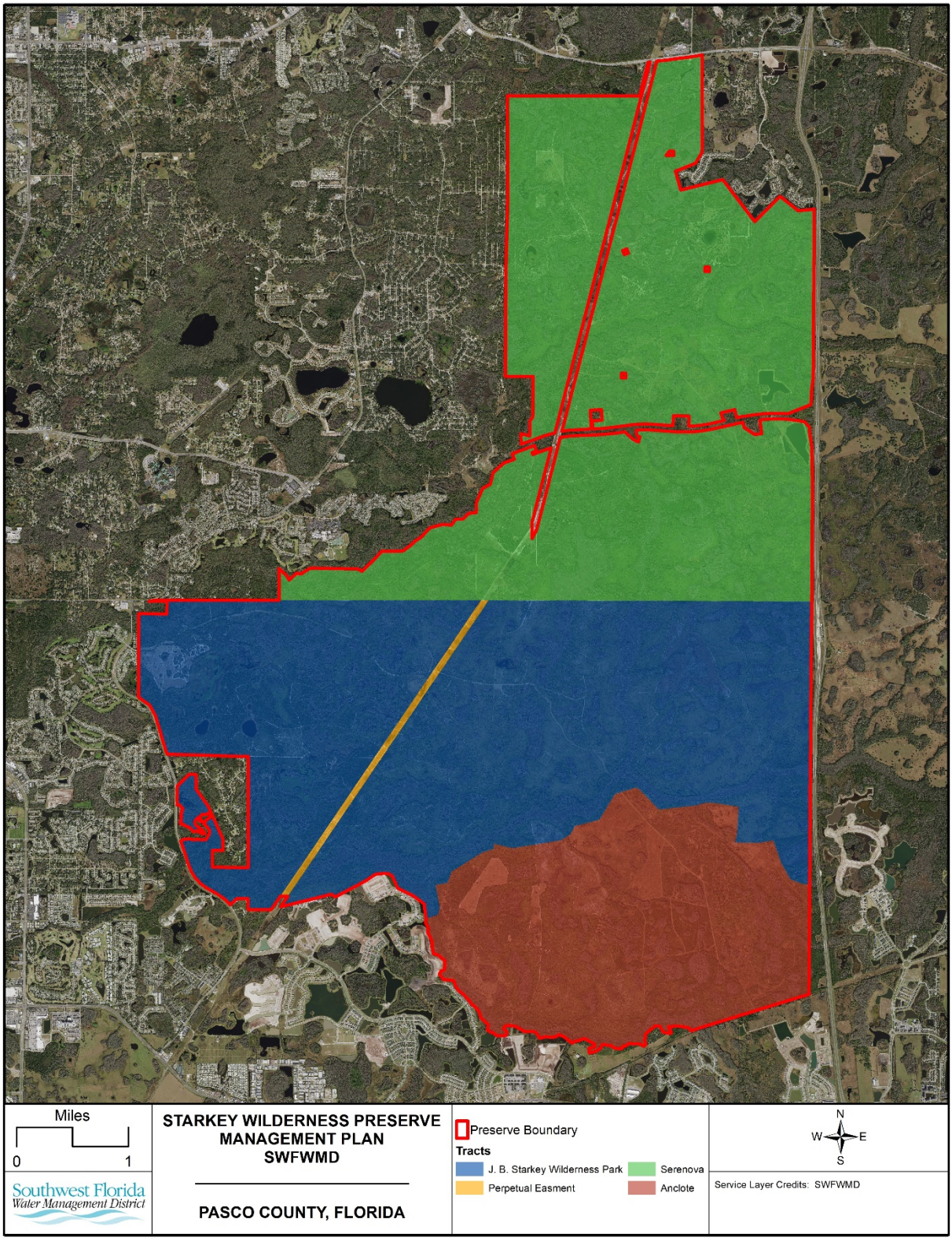

FIGURE 4. ACQUISITION MAP AT STARKEY WILDERNESS PRESERVE

Current Land Use

The Preserve protects natural resources and offers recreational resources to visitors. The Preserve will continue to support a multiple-use concept for environmental conservation, public water supply, and recreational access. The Preserve is large enough to accommodate many land uses which require various supporting infrastructures. A more detailed description of these various recreational land uses will be discussed later in the plan. Passive recreational uses at the Preserve include: tent/RV camping, primitive camping, picnicking, hiking, off-road biking, equestrian use and supporting infrastructure, road biking, and nature center facilities/usage. Current natural resource management on the preserve includes prescribed burning, forest management, exotic species control, trail and firebreak maintenance, and site security.

Local Government Land Use Designation

The Pasco County 2025 Comprehensive Plan was developed in accordance with the requirements of Chapter 163 of the Florida Statutes, and the Chapter 9J-5 of the Florida Administrative Code. This Comprehensive Plan relies upon a foundation for future planning that will maintain community quality, preserve key ecosystems, and focuses on quality of life issues and sustaining the livability of the community.

Zoning

The Preserve is zoned as Agriculture (AC). Smaller portions of the Preserve along SR 52 are zoned as Agriculture-Residential (AR) (LDC, Chapter 500., Zoning Standards, Section 505). This zoning data ranges back to the 1980s and 1990s and has not been recently updated. The Pasco County 2025 Comprehensive Plan designates the Preserve as a Conservation Area. The site is within the Pasco Count Ecological Planning Unit, Anclote/ Pithlachascotee Watershed.

Adjacent Land Uses

The Preserve is bounded by subdivisions to the south and west. To the north, is SR 52 and to the east is the Parkway. Beyond SR 52 and the Parkway, are areas that are currently being developed or likely to be developed in the future. The Ridge Road extension is currently under construction and will traverse the Serenova tract from west to east and intersect with the Parkway.

Management Challenges

The challenges associated with the management of this parcel are primarily due to the location of the parcel within an increasing area of residential development. The additional residential and commercial development coupled with new roadways and road widening projects increases the pressure on the natural systems and could increase flood control needs in the area. In addition, the abundance of Wildland Urban Interface and major highways along the boundary of the Preserve increase the complexities of prescribed fire operations. This results in an increased amount of planning to mitigate and limit impacts to smoke sensitive features. There is also an increased demand for public use in these areas which has to be balanced with the goals of the acquisition and management for the natural systems on the property.

Water and Natural Resources

Water Resources and Core Mission
Water Quality
Water Supply
Flood Protection
Hydrogeology

THESE SECTIONS ARE UNDER DEVELOPMENT

Natural Systems

The Preserve is comprised of forested floodplain that extends along the two major water courses, and a mosaic of upland and wetland communities, which are structurally defined by fire. The broad, flat mesic habitats that extend outward from the river systems are predominantly comprised of mesic flatwoods, wet flatwoods, and wet prairie. Embedded in these upland areas are slightly higher elevations which contain sandhill, oak scrub, and scrubby flatwoods.

Throughout the Preserve are wetlands that are periodically influenced by fire management activities and also provide habitat for a wide variety of wildlife species. This network of basin marshes, wet prairies, cypress domes, and cypress strands eventually drain down to larger river systems and often exclude fire except under very dry conditions. Hardwood hammocks and bottomland hardwood forest make up most the river corridors within the preserve and serve critical water resource functions.

Below are the natural community descriptions developed by the Florida Natural Areas Inventory (FNAI) Guide to Natural Communities (FNAI, 2010). The Preserve has been surveyed by FNAI and each of these descriptions also exist in the District's geographic information systems database (Figure 2). A summary of the natural communities and the percent cover for the Preserve is provided in Table 2.

TABLE 2. NATURAL COMMUNITY TYPE SUMMARY

Natural Community Type	Acreage	Percentage Cover
Clastic Upland Lake	27	0.1%
Wet Prairie	101	0.5%
Depressional Marsh	122	0.6%
Basin Marsh	250	1.3%
Floodplain Forest	1,849	9.4%
Wet Flatwoods	199	1.0%
Hydric Hammock	69	0.4%
Dome Swamp	590	3.0%
Basin Swamp	3,623	18.5%
Mesic Flatwoods	7,593	38.7%
Dry Prairie	2	0.0%
Scrubby Flatwoods	828	4.2%
Xeric Hammock	589	3.0%
Scrub	54	0.3%
Oak Scrub	178	0.9%
Sand Pine Scrub	509	2.6%
Sandhill	682	3.5%
Semi-improved Pasture	35	0.2%
Improved Pasture	2,010	10.2%
Ruderal	251	1.3%
Pine Plantation	55	0.3%
Total Acreage	**19,616**	**100%**

Wetland Communities

Wet Prairie (101 acres)

Wet prairies typically hold water less than basin swamps and are inundated or flooded during the latter portions of the growing (wet) season. The edges, or ecotones, of more frequently flooded marshes and domes often have characteristic features of wet prairie. Dominant species are St. John's wort, and scattered buttonbush. Common in the herbaceous strata is arrowhead, pickerelweed, bog buttons, sundew, yellow-eyed grass, red root, smartweed, and maidencane.

Basin Marsh (250 acres) and Depressional Marsh (122 acres)

Basin marshes, as the name would suggest are basin-shaped and tend to contain standing water for the majority of the growing season and may be partially flooded or saturated after heavy rains throughout the year. They also tend to be less influenced by fire than depressional marshes due to their extended hydroperiod. Depressional marshes are typically round in shape and are part of a matrix of pyrogenic habitats – most often mesic flatwoods at the Preserve. Both are populated with a preponderance of wetland obligate species including: cattail, maidencane, pickerelweed, Sagittaria, and smartweed. They also have a transitional zone where common species are St. John's wort, yellow-eyed grass, bog buttons, and spike rush.

Floodplain Forest (1,849 acres)

This is a closed-canopy mixed hardwood/coniferous forest or swamp that occurs in floodplains along perennial and intermittently flowing streams, creeks, and rivers. The canopies typically consist of cypress, water tupelo, green ash, red maple, and laurel oak. The subcanopy stratum is often sparse; cinnamon, royal, and chain fern are common as is lizard's tail and string lily.

Wet Flatwoods (199 acres)

These are often referred to as "hydric flatwoods". They are sparsely forested, typically with slash pine and have little to no shrub strata. The ground cover consists of scattered clumps of saw palmetto, wax myrtle, and inkberry, with a dominant herbaceous component dominated by maidencane, blue maidencane, spikerush, bog buttons, and yellow-eyed grass. These areas are typically saturated or flooded for extended periods throughout the growing season.

Hydric Hammock (69 acres)

In Florida, hammocks typically refer to areas where fire has been naturally suppressed, like natural fire shadows, where an area doesn't burn because of its proximity to wetlands. These are forested, typically densely canopied swamps that are often associated with drainageways. They are dominated by a mix of bald cypress and hardwoods, including loblolly bay, sweetbay, swamp laurel oak, water oak, red maple, and sweet gum. Understory species include dahoon, wax myrtle, fetterbush, and highbush blueberry. If the shrub strata is sparse, there is often a significant fern component that may include royal, cinnamon, and chain ferns. These areas typically stay saturated or flooded throughout most of the growing season.

Basin Swamp (3,623 acres) and Dome Swamp (590 acres)

These habitats are very similar; basin swamps typically have more biological diversity and are larger. They also have a deeper peat mat than dome swamps. Dome swamps are always surrounded

by pyrogenic (fire-adapted) communities; basin swamps are usually surrounded by pyrogenic communities. Pond cypress is typically dominant in these swamps, but both may have a hardwood component; tupelo, red maple, sweetbay, and loblolly bay are common. Associated with the organic buttressed "islands" created by the cypress are often fetterbush, chain fern, cinnamon fern, and royal fern.

Upland Communities

Mesic Flatwoods (7,593 acres) and Dry Prairie (2 acres)

These areas are the most common upland community and probably historically was one of the most common upland habitat types in west central Florida. The mesic flatwoods at the Preserve represent some of the best examples of mesic flatwoods communities that have been properly managed (FNAI, Exemplary Site, Mesic Flatwoods, Starkey Wilderness Preserve). The mesic flatwoods on site are characterized with a sparse longleaf pine and southern slash pine overstory. The shrub strata is dominated by saw palmetto, runner oak, shiny blueberry, and fetterbush. The herbaceous strata is dominated by wiregrass, lopsided indiangrass, rabbit tobacco (blackroot), and beaksedges. These areas may be on rare occasions flooded; the water table may be at or near the surface in the latter portions of the growing season. Dry prairie often is very similar to mesic flatwoods accept there is no tree component. Often areas described as dry prairie are simply flatwoods where the trees have been harvested. Natural dry prairie is a result of a fire-return frequency so frequent that pines cannot become established.

Scrubby Flatwoods (828 acres)

These habitats occur on slightly elevated ridges that extend through the mesic flatwoods areas. Their soils are sandy and xeric. Longleaf pine dominates the sparse overstory. The shrub stratum is dominated by shrub species that are adapted to xeric conditions. These often include rusty lyonia, stagger bush, sand live oak, and Feay's Palafox. The ground cover includes grasses (wiregrass, broomsedge bluestem, little bluestem), and dwarf shrubs (runner oak, gopher apple, and shiny blueberry).

Xeric Hammock (589 acres)

Fire suppressed scrubby flatwoods, scrub, and sandhill can eventually evolve into xeric hammock. Without fire, tree species can form a dense canopy that shades out growth in the understory, which is the primary fuel source for fire. Consequently, xeric hammocks typically have a dense canopy comprised of shade trees, including live oak and sand live oak, and a sparse understory that includes those species that thrive in shade without fire, including beautyberry and the nuisance exotic Ceasarweed. Shade and the lack of fire favors species that prefer shade and the lack of fire. Xeric hammock interspersed with other pyrogenic habitats provides an increased habitat diversity to a site. The concern of managers, however, is to make sure that xeric hammock does not become too prevalent. This often happens when the window of opportunity to apply fire becomes smaller, often as a consequence of encroaching new development.

Scrub (54 acres), Oak Scrub (178 acres), and Sand Pine Scrub (509 acres)

The scrub communities occur in areas of white, well-drained soils. They are dominated by the shrub strata, which typically is comprised of several oak species including sand live oak, Chapman

oak, and myrtle oak. Other common species include rusty lyonia, Feays Palafox, and stagger bush. There is little to no herbaceous growth, the ground cover is usually dominated by bare sand, leaf litter, scattered broom sedge, and gopher apple. There are areas of the scrub where sand pine is flourishing. As a general rule, managers try and keep the sand pine in check in scrub through the application of fire. Sand pine unchecked can proliferate very quickly and change the character of the scrub. A co-dominant to dominant sand pine overstory is often mapped as sand pine scrub.

Sandhill (682 acres)
Most of the sandhill is in Serenova to the north. This is a xeric community with widely spaced longleaf pine trees and a subcanopy of hardwoods including turkey oak, sand live oak, and bluejack oak. Shrub species include saw palmetto, sparkleberry, and gopher apple. Wiregrass and other three-awns, lopsided Indiangrass, and several species of bluestems are common in the herbaceous strata. Depending upon the applications of fire in sandhill, which is often "spotty", these areas are often interspersed with areas of xeric hammock. One quick way to distinguish sandhill from scrub is the prevalence of turkey oak and wiregrass, both common components of sandhill, and virtually nonexistent in scrub.

Ruderal Communities. Includes: Ruderal (251 acres), Improved Pasture (2,010 acres), Semi-improved Pasture (35 acres), and Pine Plantation (55 acres)
Ruderal communities comprise areas that have been disturbed. This includes areas where the natural vegetation has been cleared and converted into either pasture or pine plantation. At the Preserve, areas mapped as any of the categories above reflect past land use more accurately than current land use. The areas mapped as semi-improved and improved pasture are passively returning to their natural state; either sandhill or mesic flatwoods, depending on their soil type.

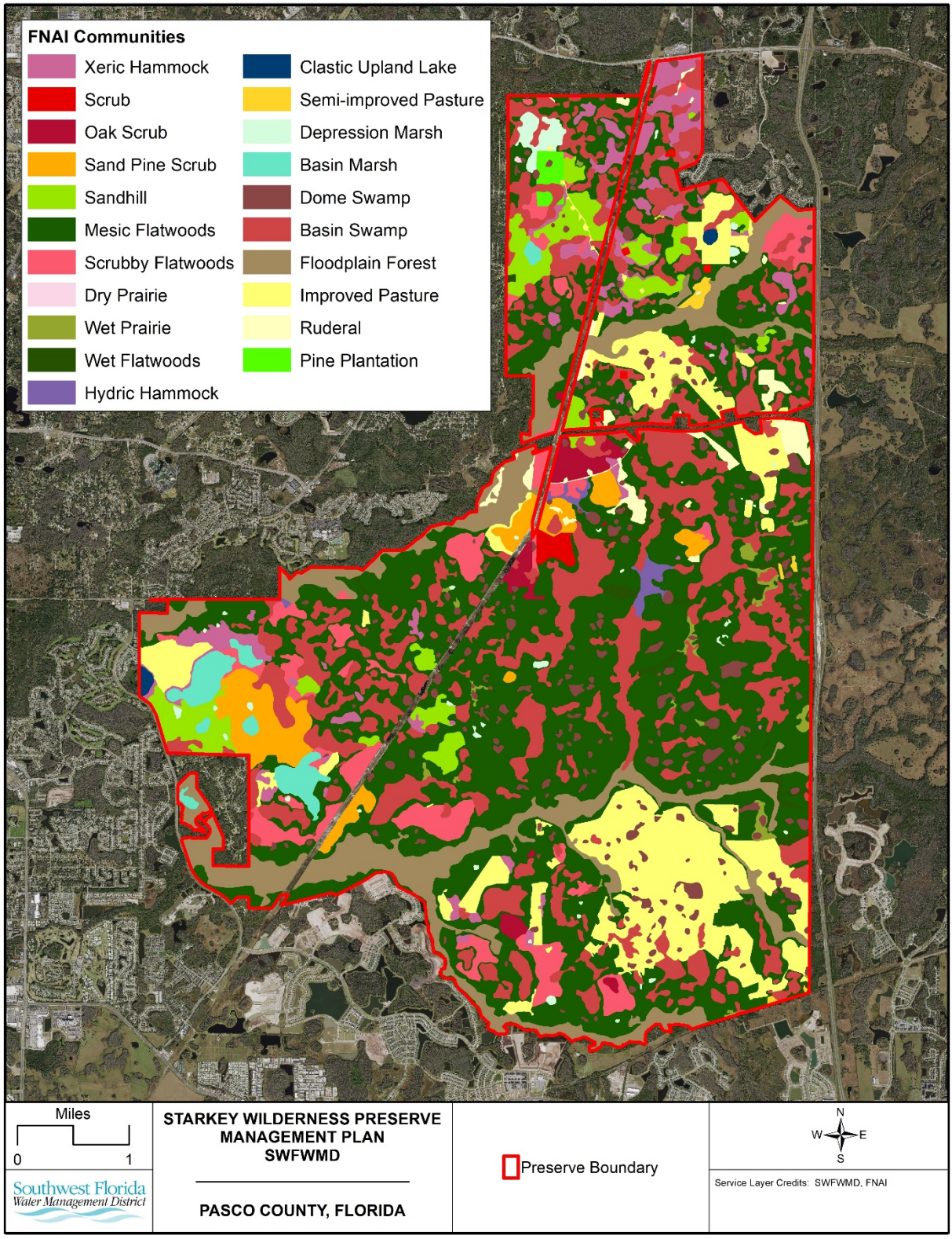

FIGURE 5. NATURAL COMMUNITIES- FNAI

Soils and Topography

The soils provide an excellent blueprint for the site's topography. Figure 6 depicts the Preserve's soils based on their hydrologic composition and are categorized into Hydric, Mesic, and Xeric soil types. Hydric soils typically occur in low-lying areas and often along linear features, such as rivers, creeks, and streams. All wetlands have hydric soils. Hydric soils on site are Basinger, Chobee, Eaugallie, Pineda, Pomona, Sellers, and Zephyr muck. Mesic soils typically occur on flat areas that are at higher elevations relative to hydric soils. At Starkey, these soil types are most often associated with pine flatwoods and mesic hammock. Mesic soil types present on site are Adamsville, Immokalee, Myakka, Cassia, Narcoossee, Paisley, Smyrna, and Vero fine sands. Xeric soils are at the highest relative elevation. They are typically sandy, and the water table is typically well below the surface. Areas with xeric soils typically support scrub, sandhill, scrubby flatwoods, and xeric hammock. Xeric soil types on site are: Astatula, Paola, Pomello, and Tavares fine sands (Soil reference: Stankey *et al.*, 1982).

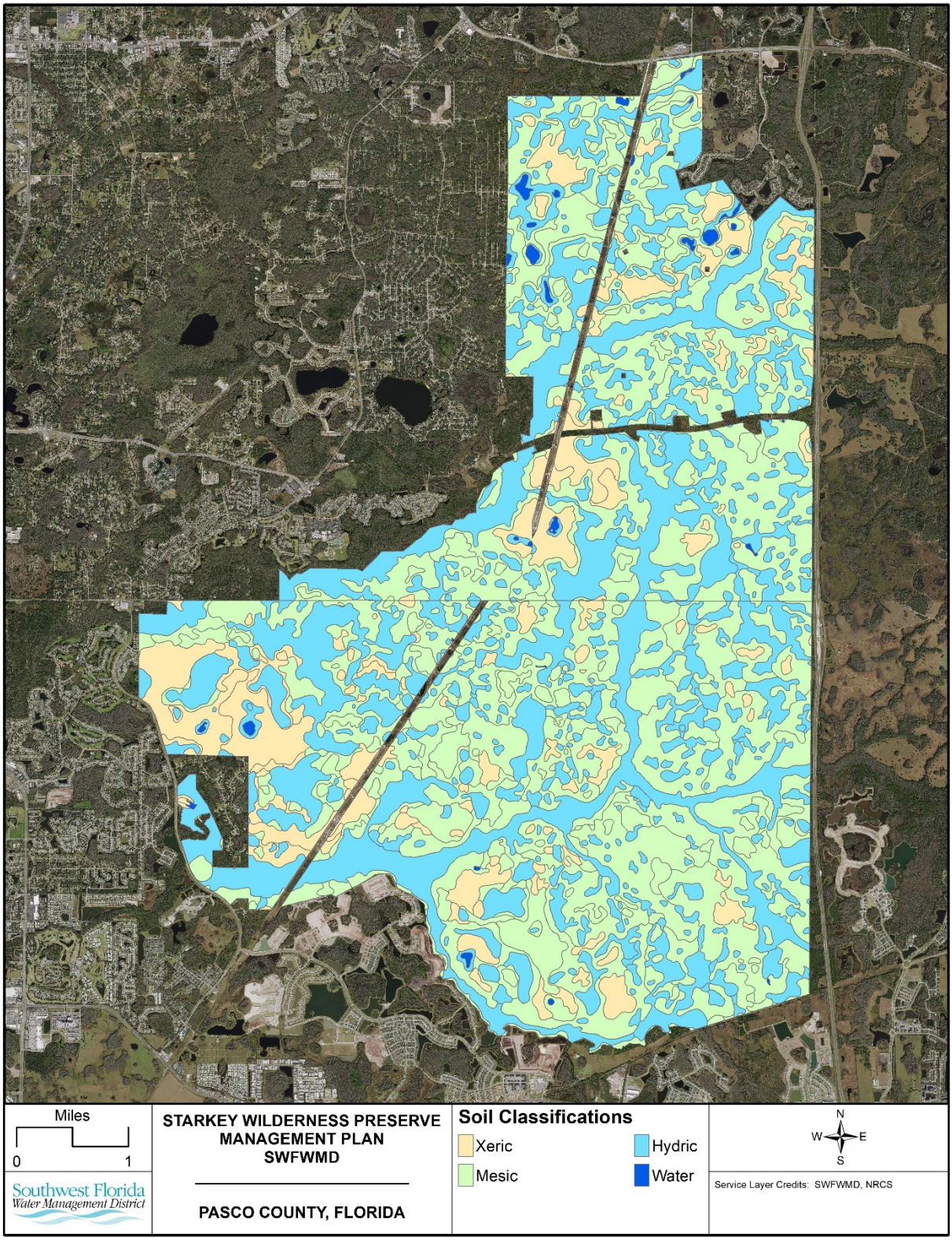

FIGURE 6. SOIL TYPES AT STARKEY WILDERNESS PRESERVE

Historical Land Use and Cultural Resources

Historical Land Use

Features of local historical significance have been documented on the Preserve. Artifacts on the Preserve date to the Middle to Late Archaic Period (6000-1000 B.C.), a period during which the interior of the west-central peninsular Florida was utilized by aboriginal groups. There are old turpentine camps dating to the early 1900's. An old tramway that was used to transport harvested timber from Starkey property to the Lyon Pine Company's mill in Odessa remains as an elevated roadbed that traverses the middle of the property. The predominant timber yield was cypress and pine. A five-mile segment of the Old Dade Road traverses the Preserve. This 41-mile, one-lane sand road was constructed in 1910, to link the coastal communities of Pasco County with the county seat in Dade City. While not on the property, the former Seaboard Coastline Railroad borders the southeastern boundary of the Preserve. When J.B. Starkey moved his cattle to the site and claimed ownership, the property was ranchland where cattle grazed in native range.

Cultural and Archaeological Resources

The Preserve contains approximately 71 archaeological sites and one linear feature that have been recorded in the Florida Master Site File of the Florida Division of Historical Resources. Sites include small prehistoric campsites used by coastal dwellers during seasonal hunting and fishing treks (Weisman and Marquardt, 1988) and turpentine camps. The prehistoric campsite findings support the early hypothesis that near-coastal areas in this region served as hinterland for the exploitation of select resources by aboriginal Floridians residing on the coast (Wharton, 1982).

Three of the documented archaeological sites are designated as significant on the basis of artifactual yield, the ability to place a date on the find, and the presence of buried deposits.

The District will provide the Best Management Practices for upholding the integrity of the historical and cultural resources that are documented within the confines of the Preserve. District staff will alert law enforcement when necessary, as illegal activities have historically occurred at the Preserve. Management of these archaeological and historical resources will consist primarily of preventing disturbance. The sites may be made available for supervised study by archaeological researchers.

Land Management and Land Use

Land Management

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

Fire Management

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

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

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

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

The mesic pine flatwoods, oak scrub, sand pine scrub, scrubby flatwoods, xeric hammock, sandhill, freshwater marsh systems, and cypress dome communities at the Preserve are fire-maintained systems that are dependent upon recurring fire for their long-term maintenance and viability. Consequently, there is an aggressive strategy to maintain the natural habitats within the

appropriate fire-return intervals which are outlined in Table 3 (Robbins and Myers, 1989). As a general rule, the pine flatwoods that dominate the Park have been maintained at an appropriate burn interval. They are so well managed that the flatwoods at Starkey is considered an "Exemplary Site" for mesic flatwoods by FNAI, meaning it is an excellent example of well-managed mesic flatwoods.

In the prolonged absence of fire, the vegetative structure and species composition of these communities would gradually change and be of reduced value to wildlife. To the north in the Serenova Tract, burning fire-return frequencies are more varied. There are areas of sandhill that are in varied degrees of fire-suppression.

Firebreaks have already been established throughout the Preserve where uplands lie adjacent to the site's perimeter. These breaks are maintained through regular discing or other mechanical methods. The Preserve's network of firebreaks is complemented by natural firebreaks, such as the sites' numerous cypress strands and domes, as well as the Anclote and Pithlachascotee Rivers and their tributaries. Wetlands, particularly herbaceous marsh, only serve as firebreaks in the wet season.

Condition Class Evaluation Program is a tool the District uses to provide an accurate representation of the condition of lands managed by the District with fire. It is the District's goal to preserve, protect, and restore natural systems to support their natural hydrologic and ecological functions. The term "condition class" is a reference to the status of District-owned and managed lands relative to a historic fire return interval described in the natural history of each community type. The 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.

TABLE 3. FIRE REGIMES FOR HABITATS AT STARKEY WILDERNESS PRESERVE

Habitat	Fire Frequency
Sandhill	Annually to 7 years
Dry Priairie	Annually to 7 years
Swale	3-25 years
Hydric Flatwoods	3-7 years
Mesic Flatwoods	Annually to 7 years
Scrubby Flatwoods	8-25 years
Scrub	26-100 years
Bay gall	26-110 years
Bog	26-100 years
Strand Swamp	8-100 years
Wet Prairie	Annually to 7 years

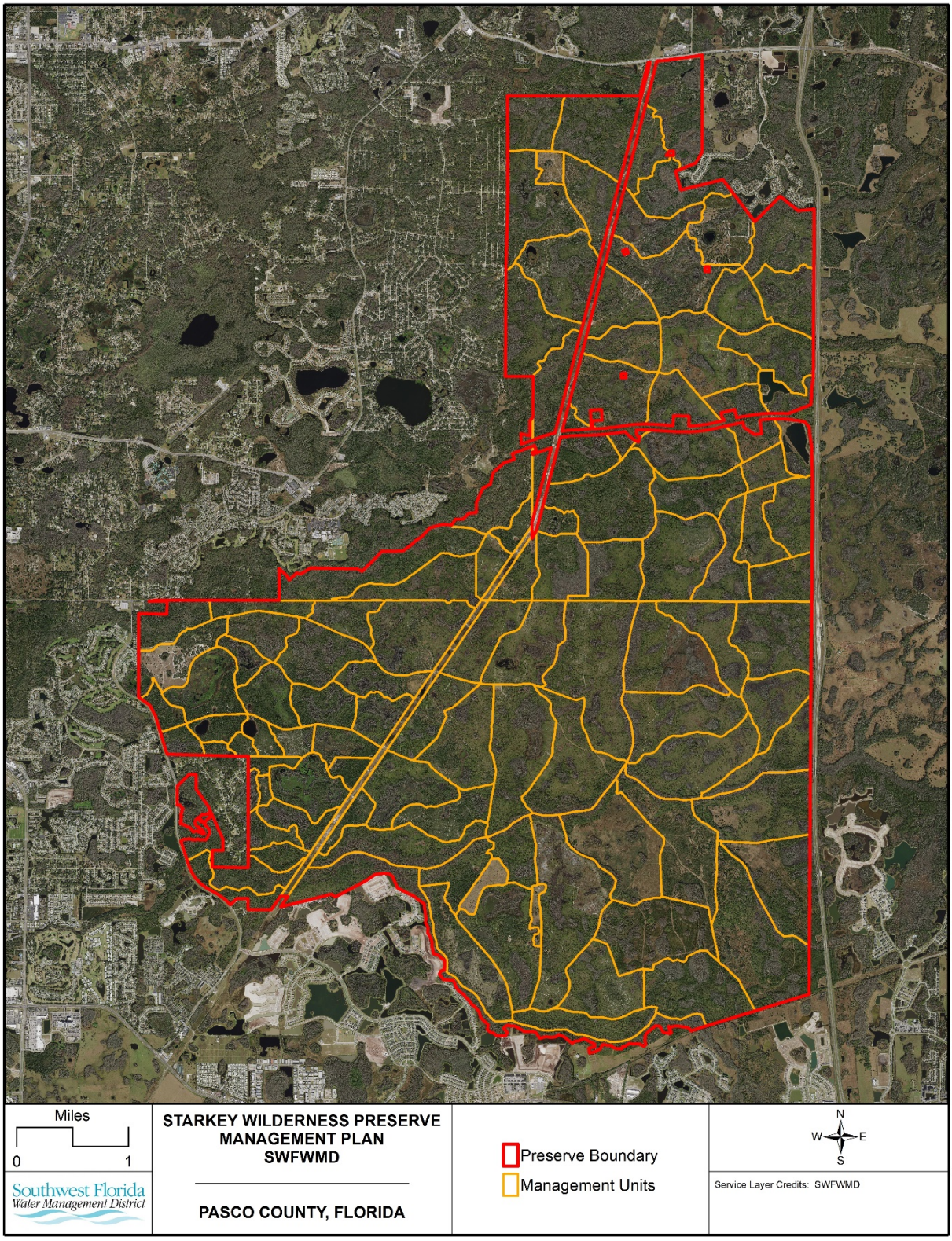

FIGURE 7. MANAGEMENT UNITS AT STARKEY WILDERNESS PRESERVE

Forest Management

The Preserve contains 11 Timber Management Zones (TMZs) located in the northern and southeastern portion of the Preserve. These plantations were created to restore the pine overstory in previously altered areas, in this case, improved pasture. The goal is to manage these areas using standard silvicultural practices to maintain forest health, provide habitat, support local economies, and generate revenue to offset the cost to manage these properties. The District uses planted pine and timber harvesting as a tool for land management, forest health, restoration, and to salvage timber lost to fire, insects, or disease.

The 11 TMZs on the Preserve are the Serenova Watermelon, Serenova Hunt Camp Longleaf, Anclote Burnt Pond, Anclote Fire Well, Starkey 8 A, Starkey 8 B, Starkey 8 C, Starkey 8 D, Starkey 8 E, Sandy Branch Longleaf, and the Sandy Branch Slash plantations which are outlined in Figure 9. The Serenova Watermelon is 38 acres of longleaf pine planted in 2013. The Serenova Hunt Camp Longleaf is 33 acres of longleaf pine planted in 2000. The Anclote Burnt Pond is 50 acres of longleaf pine planted in 2016. The Anclote Fire Well is 28 acres of longleaf pine planted in 2013. The Starkey 8 A is 156 acres of longleaf pine planted in 2013. The Starkey 8 B is 176 acres of longleaf pine planted in 2014. The Starkey 8 C is 235 acres of longleaf pine planted in 2011. The Starkey 8 D is 75 acres of slash pine planted in 2015. The Starkey 8 E is 36 acres of longleaf pine planted in 2015. The Sandy Branch Longleaf is 20 acres of longleaf pine planted in 2015. The Sandy Branch Slash is 61 acres of slash pine planted in 2015.

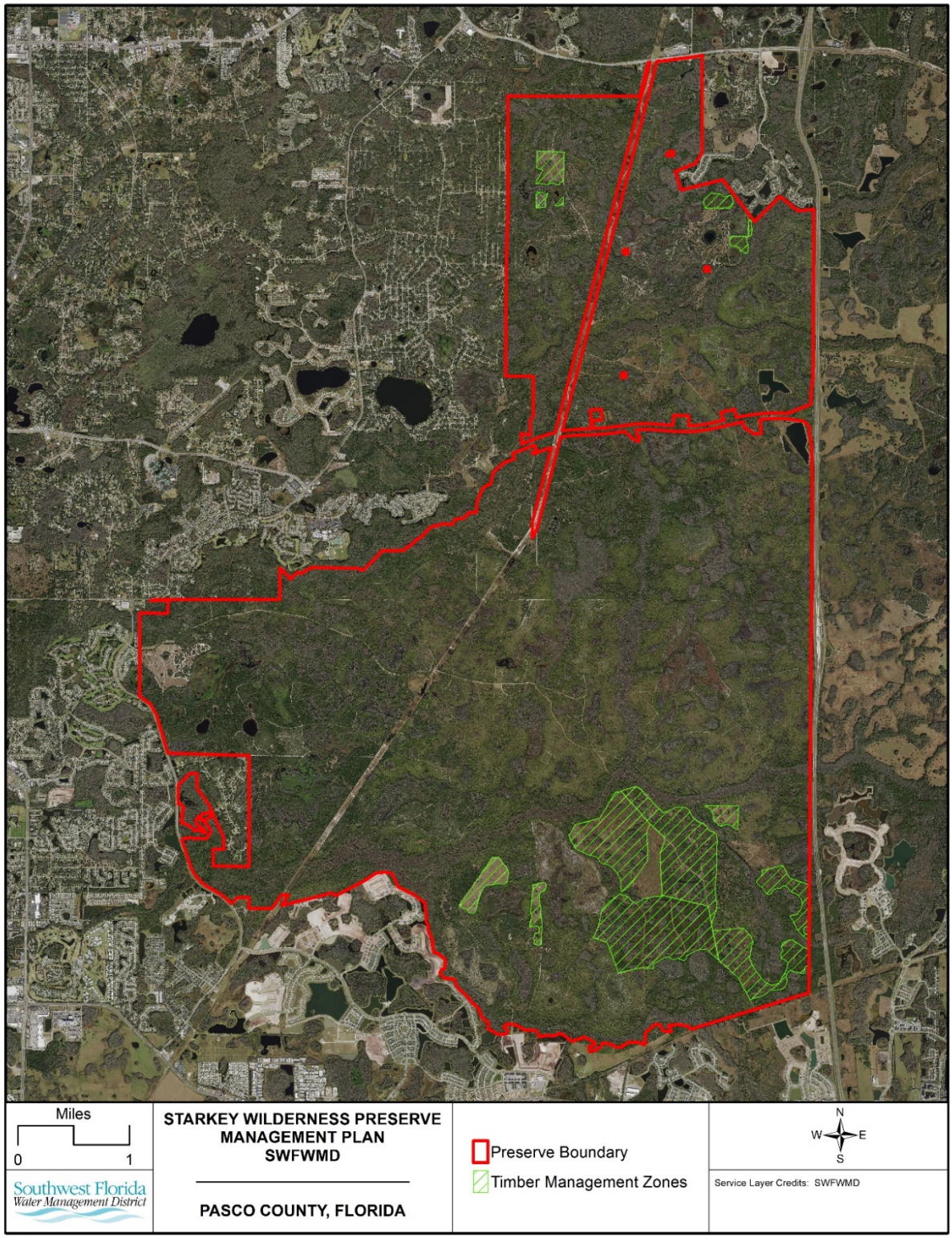

FIGURE 8. TIMBER MANAGEMENT ZONES AT STARKEY WILDERNESS PRESERVE

Restoration and Maintenance

The District has actively been working to reduce the effects of fire suppression from areas that have been overgrown with sand pine (*Pinus clausa*). These overgrown areas have a dense canopy that suppress the growth of subcanopy species that provide fuel for burning. By mechanically thinning the sand pine in areas where fire has been suppressed, the understory vegetation flourishes resulting in the accumulations of fuel loads that will carry fire. Once thinning and regrowth occurs, the restoration sites can be managed with fire. Between 2008-2009, 230 acres of slash pine was harvested on the Preserve for restoration. In 2011, 55 acres of off-site slash pine was harvested. Areas of improved pasture in Serenova and Anclote were planted with longleaf and slash pine between 2011-2016, to restore a forest overstory.

Previous wellfield withdrawal impacted wetlands in the Preserve. Impacts to wetlands include the lowering of the water table and reducing hydroperiods. In 1998, TBW entered into an agreement with the District to reduce groundwater withdrawals from the region. All TBW central system wellfield permits were combined into a consolidated permit. In 1998, total permitted annual average groundwater withdrawal was 192 million gallons per day (mgd) for the 11 wellfields in the area, including the wellfields on the Preserve. Once the permits were consolidated, withdrawals were reduced to 158 mgd and by 2008, the withdrawals were reduced to 90 mgd. Reduction in groundwater withdrawals has resulted in lakes and wetlands in the Preserve significantly improving.

In addition to the impacts from groundwater withdrawal, several surface water conveyance systems within the Preserve have been altered by past land use practices. These alterations include fill roads with culverts, drainage ditches, and logging trams. These restrict natural flow into the Pithlachascotee River and its tributary creeks. Within the Serenova Tract, several wetland crossings have been improved and restored. Portions of District managed lands that have been altered from a natural state and condition are restored to a natural condition, whenever practical.

Exotic and Invasive Species

Invasive Plant Management

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

The Florida Exotic Pest Plant Council (FLEPPC) tracks non-native plant species in the state, compiles species lists, and categorizes these species based on their impact to natural systems. Category I species are the most aggressive and can impact natural communities by displacing native species, changing community structure or ecological functions, or by hybridizing with native species. Category II species are those that are increasing in abundance but have not yet altered Florida plant communities to the extent shown by Category I species (FLEPPC, 2019).

Many species on the FLEPPC lists also appear on the Florida Department of Agriculture and Consumer Service's (FDACS) Noxious Weed List.

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

1. their infestation levels,
2. the current and potential impacts of the species,
3. the value of habitat that the species does or could infest, and
4. the difficulty controlling the species.

This prioritization scheme ensures that the District's resources are spent where they will have the greatest impact on the ecosystem. Additionally, the District has implemented an Early Detection Rapid Response (EDRR) strategy which identifies and rapidly treats occurrences of exotic species that are not currently present or are not widespread on the property but have the potential to become invasive if they get established. Table 4 outlines the FLEPPC invasive exotic plant species found on the Preserve and their priority control level.

TABLE 4. INVASIVE PLANT LIST FOR STARKEY WILDERNESS PRESERVE

Common Name	Scientific Name	FLEPPC Category	Priority Level for Control
Old world climbing fern	Lygodium microphyllum	1	4
Bamboo	Nandina domestica	1	4
Chinese tallow-tree	Triadica sebifera	1	4
Tropical soda apple	Solanum viarum	1	5
Japanese climbing fern	Lygodium japonicum	1	6
Cogongrass	Imperata cylindrica	1	7
Chinaberry tree	Melia azedarach	2	7
Camphor-tree	Cinnamomum camphora	1	7
Mimosa	Albizia julibrissin	1	7

Castor bean	Ricinus communis	2	8
Air potato	Dioscorea bulbifera	1	9
Castor bean	Ricinus communis	2	8
Brazilian pepper	Schinus terebinthifolia	1	7
Caesar weed	Urena lobata	1	15
Hydrilla	Hydrilla verticillate	1	N/A
Peruvian Primrosewillow	Ludwigia peruviana	1	N/A
Water Hyacinth	Eichhornia crassipes	1	N/A

The District employs a variety of measures to control invasive exotic plant species including thorough surveying, chemical treatment (basal-bark treatment, cut-stump applications, hack-and-squirt methods, and foliar applications), mechanical treatment, the use of biological control agents or some combination thereof, which are done with both in-house and contracted labor. Table 5 outlines the species and the control methods employed by the District. Upland treatments are often scheduled to occur in the year following a prescribed burn because access to a site is easier and visibility is increased at this time. Treatments utilizing herbicides comply with instructions found on the herbicide label and employ the Best Management Practices for their application. Experimental trials are being conducted on many invasive exotic plant species to identify more effective control techniques, such as the development of biological control agents. Biological control agents are most commonly insects that prey exclusively on the target exotic species and have been used effectively to control several invasive species statewide. An example of a successful and widely used biological control agent is the beetle, *Lilioceris cheni,* which exclusively feeds on the foliage of the air potato vine.

TABLE 5. COMMON NUISANCE EXOTIC SPECIES AT STARKEY WILDERNESS PRESERVE[1].

Common Name	Scientific Name	FLEPPC Category	Habitats	Preferred Treatment Methods
Air Potato	Dioscorea bulbifera	1	All habitats	Foliar application, cut-stump, hand removal, biological
Brazilian peppertree	Schinus terebinthifolia	1	Wetland edge and mesic hammock	Foliar application, basal bark, cut-stump, biological
Caesar's weed	Urena lobata	1	Prefers hammocks	Foliar application, mechanical tilling, hand removal
Camphor-tree	Cinnamomum camphora	1	Mesic habitats	Foliar application, hack-and-squirt, cut-stump, basal bark
Chinese tallow	Triadica sebifera	1	Mesic habitats	Foliar application, basal bark, cut-stump

[1] As defined by the Florida Native Pest Plant Council (FLEPPC 2019)

Cogongrass	Imperata cylindrica	1	Xeric and mesic habitats, edges of wetlands	Foliar application, mechanical tilling, prescribed burning
Hydrilla	Hydrilla verticillata	1	Submerged in water	Foliar application, mechanical harvestors, biological
Japanese climbing fern	Lygodium japonicum	1	All habitats	Foliar application, cut-stump, hand removal
Natalgrass	Melinis repens	1	Xeric and mesic habitats	Foliar application, mechanical tilling, prescribed burning
Old World climbing fern	Lygodium microphyllum	1	All habitats	Foliar application, cut-stump, hand removal
Peruvian Primrosewillow	Ludwigia peruviana	1	Prefers wetlands	Foliar application, cut-stump, hack-and-squirt, Mechanical chopping
Skunk vine	Paederia foetida	1	All habitats	Foliar application, hand removal, biological
Torpedo grass	Panicum repens	1	Prefers wetlands	Foliar application mechnical tilling, prescribed burning
Tropical soda apple	Solanum viarum	1	Open fields	Foliar application, mechanical tilling, hand removal
Rosary pea	Abrus precatorius	1	All habitats	Foliar application, cut-stump, hand removal, mechanical tilling
Water hyacinth	Eichhornia crassipes	1	Open water	Foliar application, hand removal, mechanical harvestors and chopping machines

Invasive Wildlife Management

The Preserve is host to several invasive wildlife species. This includes greenhouse frogs, Cuban treefrogs, cane toads, brown anoles, and feral hogs. The primary invasive wildlife species that the District focuses eradication efforts on is the feral hog (*Sus scrofa)*. Feral hogs are the most conspicuous and destructive exotic animal species found throughout the conservation lands owned and managed by the District. The species' ability to readily adapt to a wide variety of habitats, combined with their high reproductive rates, and a lack of significant natural predators has led to rapidly increasing population densities throughout North America (West, Cooper and Armstrong, 2009).

Feral hogs cause millions of dollars in damages to lawns, ponds, natural areas, flood control structures, and rights-of-way each year (Guiliano, 2016). Feral hogs are capable of carrying multiple zoonotic and epizootic diseases, including brucellosis, leptospirosis, and pseudorabies. They also have the potential to be aggressive if startled or angered and are vectors for many invasive plant species on site. Furthermore, feral hogs compete with native species for forage and have also been documented preying on native species themselves; specifically, ground-nesting birds.

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

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

Imperiled Species

Wildlife

The term 'Imperiled Species' refers to plant and animal species that are designated as Endangered or Threatened by the FWC or the U.S. Fish and Wildlife Service. Fourteen species of imperiled wildlife have either been documented or potentially occur at the Preserve (Table 6). Examples include the gopher tortoise (*Gopherus polyphemus*), Eastern indigo snake (*Drymarchon couperi*), and the Southeastern American kestrel (*Falco sparverius Paulus*) which can be found in

the Preserve's upland communities. In and around the Preserve's wetlands, are the American alligator (*Alligator mississippiensis*), little blue heron (*Egretta caerulea*), roseate spoonbill (*Platalea ajaja*), tricolored heron (*Egretta tricolor*), and wood stork (*Mycteria americana*). The District employs a holistic approach to land management that prioritizes the maintenance of healthy, functioning ecosystems and natural processes as the basis for meeting the habitat requirements of the greatest number of native species, including those imperiled species that occur on the Preserve.

Although exhaustive wildlife surveys have not been conducted, the District coordinates with other agencies, Universities, and non-governmental organizations interested in conducting wildlife surveys including the West Pasco Audubon Society, which conducts an annual bird count.

TABLE 6. IMPERILED WILDLIFE SPECIES THAT ARE KNOWN TO OR LIKELY TO OCCUR

Verified	Species	FWC	USFWS	Management Recommendations
X	American alligator *Alligator mississippiensis*		FT (S/A)	Protect from illegal take; manage wetlands.
X	Eastern indigo snake *Drymarchon corais couperi*		FT	Manage habitats holistically; maintain appropriate fire-return frequencies in pyrogenic communities.
X	Florida pine snake *Pituophis melanoleucus mugitus*	ST		Manage as prescribed for gopher tortoise.
X	Gopher tortoise *Gopherus polyphemus*	ST		Manage areas with tortoise populations and/or xeric soils by maintaining <40% canopy using fire or mechanical thinning.
	Short-tailed snake *Lampropeltis extenuatum*	ST		Manage as prescribed for gopher tortoise.
	Florida burrowing owl *Athene cunicularia floridana*	ST		Maintain open areas in xeric patches. If a burrowing owl is documented, install perch adjacent to burrow.
X	Florida sandhill crane *Antigone canadensis pratensis*	ST		Maintain nesting habitats (marsh); periodically burn marsh habitat to discourage the encroachment of woody species.
X	Florida scrub-jay Aphelocoma coerulescens		FT	Hasn't been observed on site since 2004. Maintain scrub areas with oak height between 1 and 3 m. Eliminate any trees (predator perches).
X	Red-cockaded woodpecker *Picoides borealis*		FT	Hasn't been documented on site since 1980's (M. Lopez, pers. com.). Continue to manage flatwoods with appropriate fire-return frequency. Starkey is a potential candidate for translocation.
X	Southeastern American kestrel *Palco sparverius paulus*	ST		Continue to maintain flatwoods with appropriate prescribed burn fire-return frequency. Kestrels prefer open habitats for foraging and nesting.
X	Listed Wading Birds*	See Below	See Below	Protect rookeries and manage foraging sites as prescribed in Management Section.

*Imperiled wading birds are: the State Threatened (ST): Little Blue Heron (*Egretta caerulea*), Roseate Spoonbill (*Platalea ajaja*), Tricolored Heron (*Egretta tricolor*), and the Federally Threatened (FT) Wood Stork (*Mycteria americana*)

FE = Federally Endangered FT - Federally Threatened ST = State-designated Threatened
FT (S/A) Federally-designated Threatened species due to similarity of appearance (to other crocodilians)

Plants

The FDACS maintains the "Florida Regulated Plant Index" which lists all plants considered endangered, threatened, or commercially exploited in the state. There are 15 plant species included on this list that are known to occur or are likely to occur in the Preserve as listed in Table 7 below.

TABLE 7. IMPERILED PLANT SPECIES KNOWN OR LIKELY TO OCCUR AT STARKEY WILDERNESS PRESERVE

Scientific Name	Common Name	FDACS	Habitat	Mgmt. Recommendations
Encyclia tampensis	Florida butterfly orchid	CE	Mesic/hydric hammocks	Protect mesic and hydric hammocks. Prevent commercial exploitation.
Epidindrum conopseum	green-fly orchid	CE	Mesic/hydric hammocks	Protect mesic and hydric hammocks. Prevent commercial exploitation.
Garberia heterophylla	garberia	ST	Sand pine scrub	Manage areas with garberia with habitat appropriate burn regimes.
Lilium catesbaei	Catesby's lily	ST	Pine flatwoods and wet prairies	Manage areas with lilly using habitat-appropriate burn regimes.
Litsea aestivalis	pondspice	ST	Cypress strands and swamps	Allow dome swamp canopy species to mature.
Lobelia cardinalis	cardinal flower	ST	Forested creek and river edges	Sustain riparian habitats. Often pollenated by hummingbirds.
Osmunda cinnamomea	cinnamon fern	CE	Forested wetlands	Protection of forested wetlands.
Pinguicula lutea	yellow butterwort	ST	wet prairie, saturated soils	wet prairie, saturated soils
Pteroglossaspis ecristata	giant orchid	ST	Sandhill, scrub, pine flatwoods	Use of prescribed fire to create sunny openings and reduce competition of woody species.
Sarracenia minor L.	hooded pitcher plant	ST	Flatwoods/cypress dome econtones	Manage Flatwoods with fire, take care in positioning firebreaks in dome/flatwoods ecotones.
Spiranthes laciniata	lacelip ladiestresses	ST	Pine flatwoods, wet/dry prairies	Manage areas with ladiestresses with habitat appropriate burn regimes.

Tillandsia utriculata	spreading airplant	SE	Mesic/hydric hammocks, cypress swamp	Occurs in areas with infrequent fire-return intervals. Threatened by Mexican bromeliad weevils, illegal collection, and habitat destruction
Zamia pumila	coontie	CE	Mesic flatwoods, mesic hammock	Protect mesic flatwoods and mesic hammock. Prevent commercial exploitation.
Zephyranthes atamasca	Treat's rainlily	ST	Flatwoods, wet prairie, wet roadside ditches	Protection and proper management of habitat w/ appropriate burn regime.

Florida Department of Agriculture and Consumer Services Categories:
ST: State Threatened
E: Endangered
CE: Commercially Exploited

[2]Sources:
Documented during the course of this Plan
Documented by Land Management Staff
E. Ferguson. 2004. UF Thesis.

Arthropod Management

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

Recreation

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

The types of recreation that are offered at the Preserve provide for passive, resource-based and expansive recreation, dependent upon the area of the Preserve. The Preserve has three areas within its boundaries: The Park and the Anclote to the south, and the Serenova to the north. The Park is held under a cooperative agreement for the management of the Park facilities and the future recreational development of the Anclote, also referred to as the “Park Addition”.

The Park, with an adjacent parcel affiliated with the Park owned by Pasco County, provides for a modern campground setting with park amenities, such as a playground area, volleyball courts, athletic fields, pavilions, picnic tables, grills, fire rings, environmental education facility, and campgrounds for modern and primitive opportunities. The recreational uses at the Park include bicycling, inline skating, camping, horseback riding, fishing, birding, and hiking. There are approximately 13 miles of designated multi-use trails, which are also designated as part of the Florida Greenways and Trails network. Additionally, the Park is directly connected to the Suncoast Trail. Currently, the Anclote does not have any designated recreational activities. However, the District will be working with the County to develop and approve a master recreation plan for the Park Addition.

The Serenova provides for a passive, resource-based outdoor experience with bicycling, camping, horseback riding, fishing, birding, and hiking opportunities in a natural setting. There are approximately 21 miles of designated multi-use trails, which are also designated as part of the Florida Greenways and Trails network. The District is responsible for the management of the Serenova.

Public access is via a primary entrance located on the west side of the Park off Wilderness Road. A parking area and the park facilities are located near this access point. A secondary access point located at the north end of the property off SR 52 provides a grassed parking area that is designed to provide access to camping and picnicking areas. A third access point is located where the Starkey Trail meets the Suncoast Trail and can only be accessed on foot or on bicycle by users of the trail.

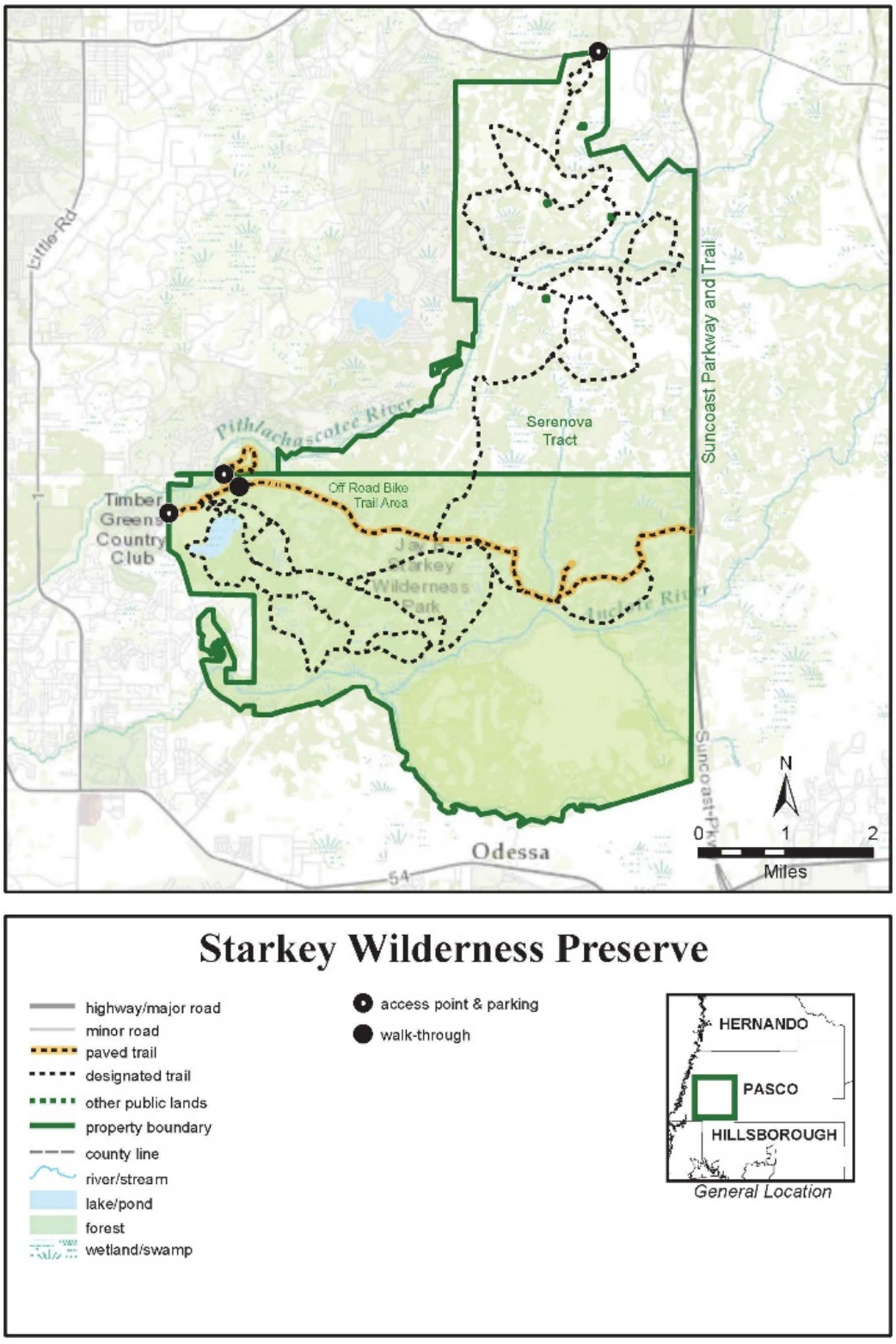

FIGURE 9. RECREATION TRAILS AT STARKEY WILDERNESS PRESERVE

Trails

The Park provides approximately a total of 42 miles of multi-use, hiking, equestrian, and off-road bike trails. Of the trails, 13 miles of multi-use and hiking trails, which are also designated as part of the Florida Greenways and Trails network, and a portion of the trails being part of the State of Florida's Great Florida Birding Trail. Additionally, the Park is directly connected to the Suncoast Trail. The trails are accessible from the main Park entrance at Wilderness Park Boulevard. Trail markers identify the type of recreational use and the arrows indicate the direction of the trail. The main trail intersections are numbered, which coincide with the trail map brochure.

There are 42 miles of trails and approximately 7.6 miles of paved trails that provide for the additional uses of bicycling and inline skating. There are 12.6 miles of hiking trails that provide nature-based experiences while minimizing impacts to the lands and natural systems. Furthermore, approximately 4.9 miles provide for equestrian use. It is required that each rider must carry proof of their horse's current negative Coggins test results. A 17.3-mile off-road bike trail area connects to the designated multi-use trails.

Serenova provides approximately 21 miles of designated multi-use trails. Like the Park, the Serenova trails are also part of the Florida Greenways and Trails network. Of the 21 miles of multi-use trails, there are approximately 20 miles of trails that provide for bicycling use. Furthermore, approximately 18 miles of the multi-use trails provide for equestrian use. The trails are accessible from the SR 52 access point.

Camping

The Park provides primitive cabins, primitive tent camping, and backcountry camping opportunities. The County collects a fee for the primitive cabins and camp sites. These opportunities are accessible from the main Park entrance. Serenova also provides primitive and equestrian camping opportunities. There are two camping sites that are accessible from the SR 52 access point. Each of the sites are equipped with picnic tables, fire rings and portable toilets. Potable water is not provided on the property. Primitive camping at the Serenova is available at no cost to the user, but a free reservation must be made through the WaterMatters.org/Reservation website prior to camping at a site.

Wildlife Viewing, Hunting, Fishing and Boating

The Preserve has a wide variety of wildlife viewing opportunities. The Pithlachascotee and Anclote Rivers that flow through the property provide for observing an abundance of bird species. The property contains many other species of wildlife, such as deer, gopher tortoises, hogs, turkeys, sandhill cranes, and bald eagles. This positive species richness is indicative of proper land management practices which have created flourishing natural habitats throughout the Preserve. A bird blind at the end of a boardwalk is located on the northeastern side of Grassy Lake and is accessible from the equestrian trail.

Currently under the SUA process, the District provides for youth and Americans with Disabilities Act hunting opportunities of deer, turkey, and hogs within the Serenova Tract.

Fishing is typically open along the rivers throughout the Preserve, or at the numerous lakes within the Serenova. Fishing is regulated by the FWC and a license may be required.

Although the Pithlachascotee River, the Anclote River and their associated tributaries may appear to be suitable for canoeing or kayaking, there is no designated launch site, and the waterway is not maintained for boating recreation. Currently, boating is not a designated recreational use on the Preserve.

Americans with Disabilities Act

The District does not discriminate on the basis of disability. This nondiscrimination policy involves every aspect of the District's functions, including access to and participation in the District's programs, services, and activities. Anyone requiring reasonable accommodation, or who would like information as to the existence and location of accessible services, activities, and facilities, as provided for in the Americans with Disabilities Act, should contact the Human Resources Office Chief, at 2379 Broad St., Brooksville, FL 34604-6899; telephone (352) 796-7211 or 1-800-423-1476 (FL only), ext. 4747; or email ADACoordinator@WaterMatters.org. 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.

Environmental Education

There is an environmental educational facility at the Preserve within the confines of the Park, known as Starkey Environmental Education Center. This facility is under agreement between the District and Pasco County for the purposes of conservation outreach regarding the watershed, freshwater features, and natural areas of the "Springs Coast". Additionally, there are scientific research studies that are conducted at the Preserve by environmental consultants, not-for-profit organizations, private recreational clubs, state agencies, and universities. These additional types of activities require a SUA, which is discussed below.

Land Use Administration

The land uses administered on District conservation lands are governed by the District Policy. According to policy, appropriate land use types are separated into two categories: public recreation use and non-recreational public use. Public recreation uses vary by property, and compatibility is based upon the environmental sensitivity and suitability of the property. Furthermore, some District conservation lands hold cooperative agreements with other public agencies to administer the responsibilities for any expansive recreational opportunities that the District may deem as compatible on its conservation land. Cooperative agreements meet the District and other government entities core missions of protecting water resource and providing nature-based recreation to the greatest extent practicable. The specific public recreation uses at the Preserve are discussed in the previous Section. Non-recreational public uses include, but are not limited to, linear facilities, scientific research opportunities, water resource development projects, sustainable forestry, and environmental education. Like cooperative agreements for expansive recreational uses, the District holds a variety of agreements with private entities and various agencies for the

allowance of the aforementioned use types. The administration of non-recreational and recreational public uses for the Preserve is discussed in the subsequent sections.

Partnerships and Cooperative Management

The District and TBW entered into a partnership agreement for the purpose of providing public water supply from multiple wellheads and facilities located within the Preserve.

For the recreational opportunities on the Preserve, the District holds two cooperative agreements with Pasco County for the management of the facilities associated with the Park. There is a management agreement with the Florida Turnpike Enterprise and the Pasco County Board of County Commissioners for the management of the Suncoast Scenic Parkway Corridor. There is a designation agreement with the Florida Department of Environmental Protection (FDEP) Office of Greenways and Trails (OGT) for the designation of the recreation trails on the Preserve for the purpose of providing recognition as part of the OGT trail network.

For the purposes of environmental education, there is a land use agreement with the Pasco County School Board for the management of the Starkey Education Center.

The District also holds license agreements and utility easements with Pasco County, TBW, Florida Gas Transmission, and the Florida Department of Transportation for varying responsibilities upon the Licensee.

Research Opportunities

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

The Preserve has been a frequent location for bird surveys, feral hog research, gopher tortoise research, and soil investigations.

Special Use Authorizations

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

The types of approved SUAs on the Preserve can be categorized under recreational uses, research opportunities, and training. As previously mentioned, the approval for obtaining access to the designated trails for a mobility disabled person is completed through the SUA process. Recreational uses have typically included, but not limited to, hunting events, marathons, and charity events. As mentioned in the previous section, the specific research opportunities have included, but not limited to, bird surveys, feral hog research, gopher tortoise research, and studies of natural communities.

Future Land Conservation

The District will continue to consider the opportunities of purchasing adjacent lands to the Preserve to promote the District's mission of protecting the natural features of conservation lands for the benefit of flood protection, water quality, and water supply. With the Preserve becoming pressured by urban sprawl, it would be advantageous to seek possible opportunities for acquiring fee simple and less-than-fee properties to further promote protections of the natural features within the region.

Land Maintenance and Operations

Roads and Boundaries

The District is responsible for managing the roads and trails on District lands to conduct management activities, provide public access, and provide access for recreational opportunities. This network of roads and trails require periodic maintenance which occurs throughout the year. Well-maintained roads will provide quick access for wildfire protection and serve as firelines for prescribed fires. Continuous observation will ensure that roads remain clear and that they are vehicle worthy for management and public use.

Motorized access on the Preserve is restricted to authorized personnel only. The paved trail, was paved and is maintained by TBW to support access and management of the Starkey Wellfield. It also serves multiple-use trail within the recreational trails network. Several management roads are utilized as service roads to support management activities. Since the acquisition of the Preserve, most of the unnecessary roads have been closed and are being allowed to revegetate naturally.

As part of the general road maintenance, the District maintains a network of culverts and low water crossings to ensure the conveyance of water. Culverts are periodically replaced based on the results from the culvert inspection process which identifies culverts that are damaged or are nearing the end of their expected service life. Low water crossings are utilized, where feasible, to maintain the natural conveyance of water and to provide limited disturbance in wet areas. These low water crossings are typically at ground level and are improved with rock or some other material to limit erosion while allowing for the natural flow of water.

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

District staff secure the property by maintaining all fence lines and removing unauthorized access gates, posting appropriate boundary signs along the property boundaries, identifying frequent points of unauthorized access, documenting evidence of illegal activities, and placing entry barriers at designated points to stop unauthorized vehicle access. Security on the Preserve is provided by the Pasco County Sheriff's Office and the Florida Fish and Wildlife Conservation Commission's Division of Law Enforcement.

Facilities and Infrastructure

Consistent with legislation that was adopted by the state in 1999, lands acquired through state-funded acquisition programs can be used for a variety of public facilities. These include utility lines and other linear facilities, stormwater management projects, and water supply development projects. Approval of such uses is contingent upon a number of criteria, including: the use must be compatible with the natural resource values of the property, reasonable compensation must be provided to the titleholder of said lands, the proposed use must be located appropriately on the lands, with due consideration given to use of other lands, and the proposed use must not be inconsistent with the management plan for the property.

The Preserve supports a number of public facilities and utilities lines. A Duke Energy right-of-way, which is a 295-foot wide 500 killowatt power transmission corridor, bisects the Preserve. This right-of-way begins at SR 52 north of the Serenova unit and travels south through the Preserve. The Florida Gas Transmission Company currently has a 40-foot easement that parallels the Duke transmission corridor for the operation and maintenance of a 30-inch natural gas pipeline. TBW has a 16-inch water transmission line from the Starkey Wellfield. These utilities form a utility corridor that bisects the Preserve from SR 52 south through the Property. This concentration of linear infrastructure is the basis for the District's concept of co-location. The co-location of these utility lines provides benefits to both the environment and to the utility companies. This concept reduces environmental impacts by decreasing the amount of lands that have to be crossed, thereby decreasing disruption to natural communities and associated flora and fauna, and also reduces the financial impacts to companies that must piece together corridors to accommodate such facilities.

The Preserve also has a number of utilities that exist outside of the utility corridor. TBW maintains 18 production wells (14 wells at Starkey Wellfield and 4 wells at North Pasco Wellfield), 18 monitoring wells for the Upper Floridan Aquifer, and 34 monitoring wells for the Surficial Aquifer System as part of a monitoring program developed in response to the District water use permit. The purpose of the program is to monitor changes in water levels and water quality associated with changes in rainfall, off-site public supply withdrawal activities, and wellfield operational activities. Also existing on the Property is the County constructed 24-inch reclaimed water pipeline, which is part of the West Pasco Reuse System transmission loop that stretches from the Duke Energy right-of-way in the Starkey Wellfield north to Hays Road. The County also has a 20-foot utility easement for maintenance and operation of the pipeline that states it may be utilized for water, sewer, and general-purpose utilities.

The District provides public access in the most efficient, cost-effective manner with minimal impact on the natural resources. Development and construction of recreational facilities on the Preserve will be kept to the minimum required to provide access for resource-based recreational activities and to administer and manage the Preserve. Utility lines on the property provide service exclusively to on-site facilities. Utility easements, which enter the property and provide service to the on-site facilities, include Withlacoochee River Electric Cooperative power line easements, Duke Energy power line easement, and a fiberoptic line.

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 Best Management Practices.

Goal: Continue to support regional watershed initiatives and maintain agreements with regional water authorities for water supply functions.

- Objective 1: Coordinate with TBW on mitigation projects within the wellfield to enhance hydrologic conditions in wetlands.
- Objective 2: Maintain existing agreement with TBW for operation of the Starkey Wellfield for public water supply.

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 prescribed burns during the growing season to support development of native fire-dependent species and habitat function.
- Objective 3: Update and maintain condition class database to track management activities on specific management units.
- Objective 4: Maintain perimeter firelines on an annual basis and establish strategic internal management lines supporting the seasonal needs of prescribed fire program.

Restoration and Natural System Maintenance

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

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

Goal: Maintain and enhance natural system structure and function.

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

Forest Management

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

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

Imperiled Species Management

*Goal: Manage and maintain natural sy*stems 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: Mana*ge 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: Continually inspect boundary fencing and gates to assure adequate protection of District resources and repair as needed.

Administration

Land Acquisition

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

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

Land Use and Recreation

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

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

Goal: Provide quality, resource-based 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, specifically in the Anclote.
- Objective 3: Continue cooperation with Pasco County to provide multi-use 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 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

THIS SECTION IS UNDER DEVELOPMENT

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Appendices

Appendix A. Species known to occur or could occur on the Preserve

Table A-1. Amphibians known or likely to occur at Starkey Wilderness Preserve.

		Habitat[2]							
Common Name	*Scientific Name*[1]	Xeric Hammock	Scrub	Sandhill	Pine Flatwoods	Swamp	Hydric Hammock	Pond	Marsh
Oak toad	*Bufo quercicus*	X	X	X	X	X		X	
Southern toad	*Bufo terrestris*				X		X	X	X
Florida cricket frog	*Acris gryllus dorsalis*					X	X	X	X
Green treefrog	*Hyla cinerea*		X		X	X		X	X
Squirrel treefrog	*Hyla squirella*	X	X	X	X	X		X	
Pinewoods treefrog	*Hyla femoralis*		X	X	X	X	X		
Barking treefrog	*Hyla gratiosa*	X	X	X	X	X		X	X
Cuban treefrog - Ex.	*Osteopilus septentrionalis*				X	X		X	X
Little grass frog	*Limnaoedus ocularis*				X	X		X	
Florida chorus frog	*Pseudacris nigrita verrucosa*				X	X		X	
Eastern spadefoot toad	*Scaphiopus holbrooki*	X	X	X				X	X
Eastern narrowmouth toad	*Gastrophryne carolinensis carolinensis*	X		X	X	X		X	
Bullfrog	*Rana catesbeiana*					X			X
Pig frog	*Rana grylio*					X			X
Southern leopard frog	*Rana utricularia*				X	X	X	X	X
Gopher frog	*Rana capito*		X	X				X	X
Marine toad - Ex.	*Bufo marinus*					X	X	X	X
Two-toed amphiuma	*Amphiuma means*					X		X	X
Southern dusky salamander	*Desmognathus auriculatus*					X	X		
Peninsula newt	*Notopthalmus viridescens piaropicola*					X	X	X	X
Narrow-striped dwarf siren	*Pseudobranchus striatus axanthus*					X		X	X
Eastern lesser siren	*Siren intermedia intermedia*					X			X
Greater siren	*Siren lacertina*					X			X
Greenhouse frog - Ex.	*Eleutherodactylus planirostris planirostris*		X	X	X	X		X	X

[1] Crother, B. I. (ed.). 2017. Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding 8th Edition. 102. SSAR Herpetological Circular 43.

Ex= exotic, P = Protected

Table A-2. Reptiles known or likely to occur at Starkey Wilderness Preserve.

		Habitat								
Common Name	Scientific Name[1]	Xeric Hammock	Scrub	Sandhill	Pine Flatwoods	Dry Prairie	Swamp	Hydric Hammock	Temp. Pond	Marsh
American alligator	*Alligator mississippiensis*						X		X	X
Florida worm lizard	*Rhineura floridana*	X								
Eastern slender glass lizard	*Ophisaurus attenuatus longicaudus*	X			X					
Eastern glass lizard	*Opisaurus ventralis*				X					X
Southeastern five-lined skink	*Eumeces inexpectatus*				X		X			
Southern fence lizard	*Sceloporus undulatus undulatus*	X	X	X	X					
Ground skink	*Scincella lateralis*				X	X	X	X		
Six-lined racerunner	*Cnemidophorus sexlineatus sexlineatus*	X	X	X	X					
Green anole	*Anolis carolinensis*	X	X	X	X	X	X	X		X
Cuban anole	*Anolis sagrei*	X	X	X	X	X	X	X		
Florida chicken turtle	*Deirochelys reticularia*									
Florida box turtle	*Terrapene carolina bauri*				X			X		
Striped mud turtle	*Kinosternon baurii*				X		X	X		
Florida mud turtle	*Kinosternon subrubrum steindachneri*				X		X	X		
Stinkpot	*Sternotherus odoratus*				X		X	X		
Florida snapping turtle	*Chelydra serpentina osceola*						X			X
Florida softshell	*Apalone ferox*						X	X		X
Red-eared slider - Ex.	*Pseudomys scripta elegans*								X	X
Peninsular cooter	*Chrysemeys floridana peninsularis*						X			X
Florida red-bellied turtle	*Chrysemys nelsoni*						X			
Gopher tortoise - P	*Gopherus polyphemus*	X	X	X	X	X				
Florida scarlet snake	*Cemophora coccinea coccinea*				X		X			
Southern black racer	*Coluber constrictor priapus*	X	X	X	X	X	X	X		
Southern ring-necked snake	*Diadophis punctatus punctatus*				X		X			
Corn snake	*Elaphe guttata guttata*		X	X	X	X	X			
Yellow rat snake	*Elaphe obsoleta quadrivittata*	X			X		X			
Eastern mud snake	*Farancia abacura abacura*						X			X

Table A-2. Reptiles (continued)

		Habitat								
Common Name	Scientific Name[1]	Xeric Hammock	Scrub	Sandhill	Pine Flatwoods	Dry Prairie	Swamp	Hydric Hammock	Temp. Pond	Marsh
Eastern hognose snake	*Heterodon platyrhinos*	X	X	X	X					
Southern hognose snake	*Heterodon simus*	X	X	X	X					
Common kingsnake	*Lampropeltis getulus*				X					X
Scarlet kingsnake	*Lampropeltis triangulum elapsoides*	X	X	X	X		X			
Eastern coachwhip	*Masticophis flagellum flagellum*	X	X	X						
Florida green water snake	*Nerodia floridana*						X			X
Florida banded watersnake	*Nerodia fasciata pictiventris*						X		X	X
Mangrove salt marsh snake	*Nerodia fasciata compressicauda*									
Brown water snake	*Nerodia taxispilota*						X			X
Rough green snake	*Opheodrys aestivus*				X		X		X	X
Florida pine snake - P	*Pituophis melanoleucus mugitus*		X	X	X					
Striped crayfish snake	*Regina alleni*						X			X
Pine woods snake	*Rhadinaea flavilata*		X	X	X					
Short-tailed snake	*Stilosoma extenuatum*	X	X	X						
South Florida swamp snake	*Seminatrix pygaea cyclas*						X		X	X
Florida brown snake	*Storeria dekayi victa*				X		X			
Florida crowned snake	*Tantilla relicta*	X	X	X						
Peninsula ribbon snake	*Thamnophis sauritus sackenii*						X		X	
Eastern garter snake	*Thamnophis sirtalis sirtalis*				X		X	X	X	
Florida cottonmouth	*Agkistrodon piscivorus conanti*				X		X	X	X	X
Eastern indigo snake - P	*Drymarchon corais couperi*	X	X	X	X		X	X		
Eastern coral snake	*Micrurus fulvius fulvius*	X	X	X						
Dusky pygmy rattlesnake	*Sistrurus miliarius barbouri*	X	X	X	X					
Eastern diamondback snake	*Crotalus adamanteus*	X	X	X	X					

[1] Crother, B. I. (ed.). 2017. Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding 8th Edition. 102. SSAR Herpetological Circular 43.

Ex = exotic, P = Protected

Table A-3. Birds known or likely to occur at Starkey Wilderness Preserve.

Common Name	Scientific Name[1]	Season	Habitat[2]									
			Xeric Hammock	Scrub	Sandhill	Mesic Hammock	Pine Flatwoods	Dry Prairie	Swamp	Hydric Hammock	Pond/ Lake	Marsh
Double-crested Cormorant	*Phalacrocorax auritus*	y							X		X	X
Anhinga	*Anhinga anhinga*	y							X		X	X
Pied-billed grebe	*Podilymbus podiceps*	y									X	X
Brown pelican	*Pelecanus occidentalis*	y										
Great Blue Heron	*Ardea herodias*	y							X		X	X
Great Egret	*Casmerodius albus*	y							X		X	X
Snowy Egret - P	*Egretta thula*	y							X		X	X
Cattle Egret	*Bubulcus ibis*	y						X	X		X	
Tricolored Heron - P	*Egretta tricolor*	y									X	X
Little Blue Heron - P	*Egretta caerulea*	y							X		X	X
Green Heron	*Butorides striatus*	y							X		X	X
Reddish Egret	*Egretta rufescens*	y										
Black-crowned Night-Heron - P	*Nycticorax nycticorax*	y							X		X	X
Yellow-crowned Night-Heron - P	*Nyctiorax violacus*	y							X		X	X
American bittern	*Botaurus lentiginosus*	y										X
Least bittern	*Ixobrychus exilis*	y										X
Limpkin - P	*Aramus guarauna*	y							X		X	X
Wood Stork - P	*Mycteria americana*	y							X		X	X
White Ibis - P	*Eudocimus albus*	y							X		X	X
Glossy Ibis	*Plegadis falcinellus*	y							X		X	X
Black-bellied Whistling Duck	*Dendrocygna autumnalis*	y									X	X
Wood Duck	*Aix sponsa*	y							X		X	
Muscovy Duck	*Cairina moschata*	y									X	
Mallard	*Anas platyrhynchos*	y									X	X
Mottled Duck	*Anas fluvigula*	y									X	X
American black duck	*Anas rubripes*	w									X	X
Green-winged Teal	*Anas crecca*	w									X	X
Blue-winged Teal	*Anas discors*	w									X	X

Table A-3. Birds (continued).

Common Name	Scientific Name[1]	Season	Habitat[2]									
			Xeric Hammock	Scrub	Sandhill	Mesic Hammock	Pine Flatwoods	Dry Prairie	Swamp	Hydric Hammock	Pond/ Lake	Marsh
Northern pintail	*Anas acuta*	w									X	X
Northern Shoveler	*Anas clypeata*	w									X	X
Gadwall	*Anas strepera*	w									X	X
American wigeon	*Anas americana*	w									X	X
Redhead	*Aythya americana*	w									X	X
Canvasback	*Aythya valisineria*	w										X
Ring-necked duck	*Aythya collaris*	w									X	X
Lesser Scaup	*Aythya affinis*	w									X	X
Hooded Merganser	*Lophodytes cucullatus*	w							X		X	X
Red-breasted merganser	*Mergus serrator*	w									X	
Common goldeneye	*Bucephala clangula*	w									X	
Black Vulture	*Coragyps atratus*	y	X	X	X	X	X	X	X	X		
Turkey Vulture	*Cathartes aura*	y	X	X	X	X	X	X	X	X		
Northern Harrier	*Circus cyaneus*	w						X				
Bald Eagle - P	*Haliaeetus leucocephalus*	y					X	X	X		X	X
Cooper's Hawk	*Accipiter cooperii*	y		X	X	X	X					X
Sharp-shinned Hawk	*Accipiter striatus*	w		X	X	X	X					X
American swallow-tailed kite	*Elanoides forficatus*	y		X		X	X		X			X
Red-tailed Hawk	*Buteo jamaicensis*	y		X	X	X	X	X	X	X		X
Red-shouldered Hawk	*Buteo lineatus*	y		X	X	X	X		X			X
Short-tailed hawk	*Buteo brachyurus*	y				X	X	X	X	X		X
Osprey	*Pandion haliaetus*	y									X	X
Peregrine falcon	*Falco peregrinus*	w						X				X
American kestrel	*Falco sparverius*	y		X	X			X				
Wild turkey	*Meleagris gallopavo*	y		X		X			X			
Northern Bobwhite	*Colinus virginianus*	y	X	X	X	X	X		X	X		
Sandhill crane - P	*Grus canadensis*	y						X				X
King Rail	*Rallus elegans*	y										X

Table A-3. Birds (continued).

Common Name	Scientific Name[1]	Season	Habitat[2]									
			Xeric Hammock	Scrub	Sandhill	Mesic Hammock	Pine Flatwoods	Dry Prairie	Swamp	Hydric Hammock	Pond/ Lake	Marsh
Clapper rail	*Rallus longirostris*	y										
Virginia rail	*Rallus limicola*	w										X
Black rail	*Laterallus jamaicensis*	y										X
Sora	*Porzana carolina*	w										X
Common Moorhen	*Gallinula chloropus*	y							X		X	X
American Coot	*Fulica americana*	w							X		X	X
Purple gallinule	*Porphyrula martinica*	y									X	X
American avocet	*Recurvirostra americana*	w										X
Killdeer	*Charadrius vociferus*	y						X				X
Black-necked Stilt	*Himantopus mexicanus*	y										X
Greater Yellowlegs	*Tringa melanoleuca*	w									X	X
Lesser yellowlegs	*Tringa flavipes*	w									X	X
Solitary sandpiper	*Tringa solitaria*	w							X			X
Spotted Sandpiper	*Actitis macularia*	w							X		X	X
Least Sandpiper	*Calidris minutilla*	w									X	X
Western sandpiper	*Calidris mauri*	w										X
Common Snipe	*Gallinago gallinago*	w										X
American Woodcock	*Scolopax minor*	w				X	X		X			X
Dunlin	*Calidris alpina*	w										X
Ring-billed Gull	*Larus delawarensis*	w									X	X
Herring Gull	*Larus argentatus*	w									X	X
Laughing Gull	*Larus atricilla*	y									X	X
Forster's Tern	*Sterna forsteri*	w									X	X
Least Tern	*Sterna antillarum*	s									X	X
Mourning Dove	*Zenaida macroura*	y		X		X	X	X				
Common ground-dove	*Columbina passerina*	y		X	X		X	X				
Mangrove Cuckoo	*Coccyzus minor*	y										
Yellow-billed Cuckoo	*Coccyzus americanus*	s				X	X		X			

Table A-3. Birds (continued).

Common Name	Scientific Name[1]	Season	Habitat[2]									
			Xeric Hammock	Scrub	Sandhill	Mesic Hammock	Pine Flatwoods	Dry Prairie	Swamp	Hydric Hammock	Pond/ Lake	Marsh
Smooth-billed ani	*Crotophaga ani*	y						X				X
Eastern Screech-Owl	*Otus asio*	y		X	X	X	X		X	X		
Great Horned Owl	*Bubo virginianus*	y			X	X	X	X	X	X		X
Barn Owl	*Strix varia*	y			X	X	X	X		X		X
Barred Owl	*Stix varia*	y		X	X	X	X		X	X		X
Burrowing owl	*Athene cunicularia*	y						X				
Whip-poor-will	*Caprimulgus vociferus*	w		X	X	X	X			X		X
Chuck-will's Widow	*Caprimulgus carolinensis*	y		X		X	X			X		X
Common Nighthawk	*Chordeiles minor*	s		X		X	X		X	X		X
Chimney Swift	*Chaetura pelagica*	s		X	X	X	X		X		X	
Ruby-throated Hummingbird	*Archilochus colubris*	s			X	X	X					
Belted Kingfisher	*Cerryle alcyon*	w									X	X
Pileated Woodpecker	*Dryocopus pileatus*	y		X	X	X	X		X	X		
Northern Flicker	*Colaptes auratus*	y		X	X	X	X		X			
Red-bellied Woodpecker	*Melanerpes carolinus*	y				X	X		X	X		
Yellow-bellied Sapsucker	*Sphyrapicus varius*	w				X	X		X	X		
Hairy Woodpecker	*Picoides villosus*	y				X	X		X	X		
Downy Woodpecker	*Picoides pubescens*	y				X	X		X	X		
Great Crested Flycatcher	*Myiarchus crinitus*	y				X	X		X	X		
Eastern Kingbird	*Tyrannus tyrannus*	s				X	X			X		X
Eastern Phoebe	*Sayornis phoebe*	w					X					X
Barn Swallow	*Hirundo rustica*	y					X					X
Tree Swallow	*Tachycineta bicolor*	w					X					X
Purple Martin	*Progne subis*	w					X					X
Blue Jay	*Cyanocitta cristata*	y				X	X		X	X		
Fish Crow	*Corvus ossifragus*	y							X			
American Crow	*Corvus brachyrhynchos*	y				X	X		X			
Tufted Titmouse	*Parus bicolor*	y				X	X		X	X		

Table A-3. Birds (continued).

			Habitat[2]									
Common Name	Scientific Name[1]	Season	Xeric Hammock	Scrub	Sandhill	Mesic Hammock	Pine Flatwoods	Dry Prairie	Swamp	Hydric Hammock	Pond/ Lake	Marsh
Carolina Chickadee	*Parus carolinensis*	y				X	X		X	X		
Brown Thrasher	*Toxostoma rufum*	y				X	X			X		
Northern Mockingbird	*Mimus polyglottos*	y				X	X		X	X		
Gray Catbird	*Dumetella carolinensis*	w				X	X		X	X		
House Wren	*Troglodytes aedon*	w				X	X		X	X		
Carolina Wren	*Thryothorus ludovicianus*	y				X	X		X	X		
Hermit Thrush	*Catharus guttatus*	w				X	X			X		
American Robin	*Turdus migratorius*	w				X	X		X	X		
Ruby-crowned Kinglet	*Regulus calendula*	w				X	X		X			
Blue-gray Gnatcatcher	*Polioptila caerulea*	y				X	X		X	X		
Loggerhead Shrike	*Lanius ludovicianus*	y					X					
Cedar Waxwing	*Bombycilla cedrorum*	w					X		X			
Blue-headed Vireo	*Vireo solitarius*	w				X	X		X			
Yellow-throated Vireo	*Vireo flavifrons*	s				X	X		X			
Red-eyed Vireo	*Vireo olivaceus*	s				X	X		X	X		
White-eyed Vireo	*Vireo griseus*	y				X	X		X	X		
Black-whiskered Vireo	*Vireo altiloquus*	y										
Black-and-white Warbler	*Mniotilta varia*	w				X	X		X			
Yellow-rumped Warbler	*Dendroica coronata*	w				X	X		X			
Northern Parula	*Parula americana*	s				X	X		X			
Yellow-throated Warbler	*Dendroica dominica*	s				X	X		X			
Palm Warbler	*Dendroica palmarum*	w					X		X			
Pine Warbler	*Dendroica pinus*	y				X	X					
Common Yellowthroat	*Geothlypis trichas*	y					X		X			X
Ovenbird	*Seiurus aurocapillus*	w				X	X		X			
American Redstart	*Setophaga ruticilla*	w				X	X		X			
Boat-tailed Grackle	*Quiscalus major*	y				X	X		X			X
Brown-headed Cowbird	*Molothrus ater*	y										X

Table A-3. Birds (continued).

			Habitat[2]									
Common Name	Scientific Name[1]	Season	Xeric Hammock	Scrub	Sandhill	Mesic Hammock	Pine Flatwoods	Dry Prairie	Swamp	Hydric Hammock	Pond/ Lake	Marsh
Common Grackle	*Quiscalus quiscula*	y				X	X					X
Summer Tanager	*Piranga rubra*	s				X	X					
Northern Cardinal	*Cardinalis cardinalis*	y				X	X		X			
American Goldfinch	*Carduelis tristis*	w							X			
White-throated Sparrow	*Zonotrichia albicollis*	w				X	X					
Swamp Sparrow	*Melospiza georgiana*	w				X	X					

[1]Gill, Donsker, and Rasmussen 2020

Table A-4. Mammals known or likely to occur at Starkey Wilderness Preserve.

		Habitat[2]									
Common Name	*Scientific Name*[1]	Xeric Hammock	Scrub	Sandhill	Mesic Hammock	Coastal Hammock	Pine Flatwoods	Swamp	Hydric Hammock	Salt Marsh	Mangrove
Virginia opossum	*Didelphis virginiana*	X	X	X	X	X	X		X		
Southeastern shrew	*Sorex longirostris*	X			X	X			X		
Least shrew	*Cryptotis parva*		X	X			X				
Sohtheastern short-tailed shrew	*Blarina carolinensis*		X	X	X	X	X		X		
Eastern mole	*Scalopus aquaticus*	X	X	X	X	X	X		X		
Florida black bear	*Ursus americanus floridana*	X	X	X	X	X	X	X	X		
Raccoon	*Procyon lotor*	X	X	X	X	X	X	X	X	X	X
Long-tail weasel	*Mustela frenata*	X	X		X	X	X	X	X		
River otter	*Lutra canadensis*							X			
Spotted skunk	*Spilogale putorius*	X	X	X			X				
Striped skunk	*Mephitis mephitis*	X	X	X			X				
Coyote	*Canis latrans*	X	X	X	X	X	X	X	X	X	X
Red fox	*Bulpes vulpes*	X	X	X	X	X	X				
Gray fox	*Uracyon cinereoargenteus*	X	X	X	X	X	X				
Bobcat	*Lynx rufus*	X	X	X	X	X	X				
Sherman's fox squirrel	*Sciurus niger shermanii*				X	X	X				
Gray squirrel	*Sciurus carolinensis*	X			X	X	X	X			
Southern flying squirrel	*Glaucomys volans*	X		X	X	X	X	X			
Southeastern pocket gopher	*Gemys pinetis*		X	X			X				
Eastern harvest mouse	*Reithrodontomys humulis*						X				
Oldfield mouse	*Peromyscus poliunotus*										
Cotton mouse	*Peromyscus gossypinus*		X	X			X				
Golden mouse	*Ochrotomys nuttalli*	X	X								
Florida mouse	*Podomys floridanus*		X	X			X				
Eastern woodrat	*Neotoma floridana*				X	X	X	X	X		
Marsh rice rat	*Oryzomys palustris*										
Hispid cotton rat	*Sigmodon hispidus*		X	X			X				
Round-tailed muskrat	*Neofiber alleni*										
Eastern cottontail	*Sylvilagus floridanus*		X	X			X				
Marsh rabbit	*Sylvilagus palustris*										X
White-tailed deer	*Odocoilus virginianus*	X	X	X	X		X	X	X		
Feral hog	*Sus scrufa*	X	X	X	X		X	X	X	X	X
Nine-banded armadillo	*Dasypus novemcinctus*	X	X	X	X		X	X	X		

[1]Robert D. Bradley, Loren K. Ammerman, Robert J. Baker, Lisa C. Bradley, Joseph A. Cook, Robert C. Dowler, Clyde Jones, David J. Schmidly, Frederick B. Stangl, Jr., Ronald A. Van DenBussche, and Bernd Wursig. 2014. Revised checklist of North American mammals north of Mexico, 2014. Occasional Papers, Volume 327, Museum of Texas Tech. University, Lubbock, TX

Bats are not included.