

Draft Land Management Plan **Hálpata Tastanaki Preserve**



Southwest Florida
Water Management District

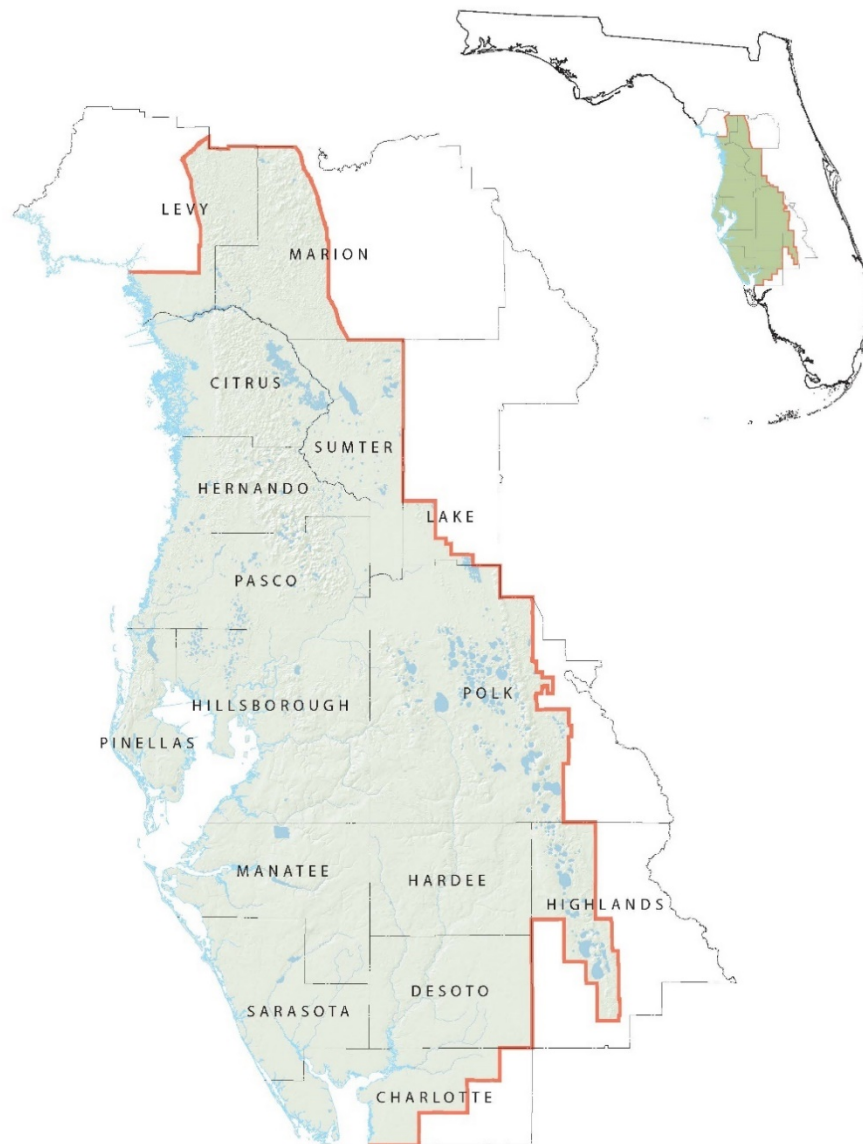


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July 2, 2021

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: 8,171 acres

Acquisition Dates: The initial acquisition of the Hálpata Tastanaki Preserve (Preserve) by the Southwest Florida Water Management District (District) occurred in 1994 with the purchase of the western portion of the Preserve (formerly known as the Pruitt parcel) followed by the purchase of the eastern portion of the Preserve in 1995 (formerly known as the Moxon parcel). During the Preserve acquisition, the Preserve and surrounding area was also referred to as the Marion 1 Project.

Plan Term: 10 years (2021-2031)

Primary Basin: Withlacoochee River

Location: The Preserve is situated in southwestern Marion County and is part of a contiguous core of protected public conservation and recreation lands (approximately 384,700 acres) within the region of the Withlacoochee River watershed.

Funding Source: The Preservation 2000 program was utilized for the primary acquisitions of the Preserve in 1994 and 1995. Smaller tracts purchased in 1997 and 1998 were purchased through the Water Management Lands Trust Fund and the most recently acquired tract was purchased in 2011 with Florida Forever funds.

Natural Systems:

Water Resources: The District's acquisition of the Preserve resulted in the preservation and protection of approximately five miles of natural shoreline of the Withlacoochee River, in addition to extensive freshwater marshes, riverine floodplain, recharge areas, and natural upland habitats.

Land Management: The District's land management practices applied on the Preserve result in healthy, natural ecosystems. Such practices include the implementation of fire management, invasive species management, restoration and enhancement efforts of pasturelands or other altered natural communities, and forest management of silvicultural zones. The implementation of these land management practices assists in promoting habitat resiliencies of its natural communities.

Cultural and Historical Resources: The Preserve is an area that is steeped in a rich history. Named after the Seminole tribe leader, Hálpata Tastanaki (translated as Chief Alligator), the Preserve contains several archaeological and historical sites. These sites are relative to the Second Seminole Indian War-era through the early 20th century, and include Camp Izard, homestead sites, and other structures associated with historical communities.

Recreation: The types of recreation that are offered at the Preserve are bicycling, horseback riding, fishing, birding, and hiking. There are approximately 17 miles of designated multi-use trails. Furthermore, the Florida Department of Environmental Protection (FDEP) Office of Greenways and Trails (OGT) maintains a parking area and a trail segment of the Florida National Scenic Trail

within the Preserve that ultimately traverses into the Cross Florida Greenways State Recreation and Conservation Area. There is no designated camping within the limits of the Preserve.

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 and research.

Access: Public access to the property is provided by two designated walkthrough access points to allow the general public to partake in the available outdoor recreation opportunities.

Real Estate: The District will continue to consider the opportunities of purchasing adjacent lands to promote its mission of protecting the natural features of conservation lands for the benefit of flood protection, water quality, water supply, and natural systems. Also, with the Preserve being a portion of a contiguous core of protected public conservation and recreation lands along the Withlacoochee River, there may be opportunities for purchase of adjoining segregated public lands to further promote protections of the natural features within the region.

Cooperative agreements, leases, and easements: There is a cooperative agreement with FDEP OGT for the management of the Cross Florida Greenways State Recreation and Conservation Area within the Preserve, in addition to a designation agreement with FDEP for the designation of the recreation trails on the Preserve that provides recognition as part of the OGT trail network. There is a memorandum between the District and the Florida Department of Transportation (FDOT) for the management of two wetland mitigation areas located on the Preserve.

There are access easements for the private inholdings that reside within or adjacent to the property boundary of the Preserve, while there are utility easements within the Preserve associated with the Sabal Trail gas pipeline. There is an existing 420' wide utility easement along the southeastern boundary for an electrical transmission line corridor.

Management Cost: Based on the District's 2018 Land Management Efficiency Exercise, the 5-year average management cost was evaluated at approximately \$11.56 per acre.

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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 goal achievements, and an outline of goals and objectives for the next 10-year planning period.

District Planning Philosophy

The District's planning philosophy was developed 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 Preserve is located. Additionally, the public has an opportunity to provide input via the District's website for a period both preceding and following the workshop. Once the 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 located in the southwestern portion of Marion County, lying within several sections of Township 17S, Range 19E and Township 17S, Range 20E, and consists of approximately 8,171 acres. It is located in the Withlacoochee River watershed with approximately 5 miles of river corridor along the southern property boundary. The Preserve is located south of SW Highway 484 (SW Hwy 484) and northwest of State Road 200 (SR 200). The Withlacoochee River makes up much of the southern boundary with private property located to the west. The property vicinity is approximately 16 miles southwest of the City of Ocala; approximately 5 miles east of the City of Dunnellon; and closely located southwest of the SR 200 and SW Hwy 484 intersection.

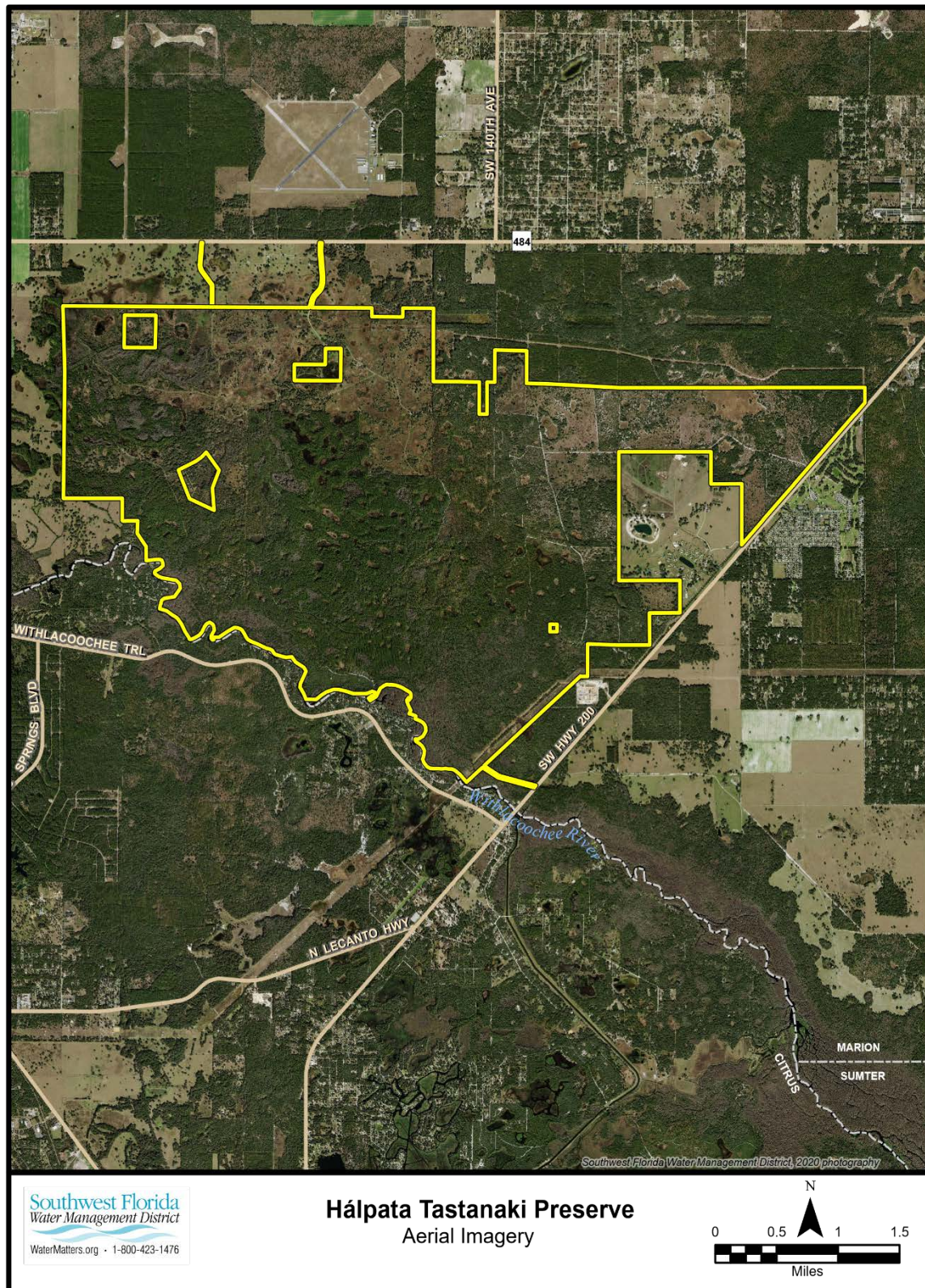


FIGURE 1. AERIAL OVERVIEW

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

The initial acquisition of the Preserve occurred in 1994, with the purchase of the western portion of the Preserve, formerly known as the Pruitt parcel, and followed by the purchase of the eastern portion of the Preserve in 1995, formerly known as the Moxon parcel. During the Preserve acquisition phase, the Preserve and surrounding area was also referred to as the Marion 1 Project. Funding of the acquisition was completed through the Florida Forever Program.

Regional Significance

The Preserve is considered a vital part of a 384,700-acre conglomerate of protected public conservation lands and conservation easements located within the Withlacoochee River watershed. Currently, the mentioned public conservation lands and conservation easements account for 32% of the total Withlacoochee River watershed. Since the Withlacoochee River is designated as an Outstanding Florida Water (OFW), the purchase of the Preserve signifies the importance of preserving the natural features of the region for the benefit of water resources and its natural communities.

Regional Conservation Network

The Preserve is a critical component of a larger network of protected public conservation and recreation lands and conservation easements within the local and regional area (Figure 2). The Preserve adds approximately 8,171 acres to the network of protected conservation land in the region. District managed conservation lands within 20 miles of Halpata include Potts Preserve, Flying Eagle Preserve, Lake Panasoffkee Preserve, Panasoffkee Outlet, Rainbow River parcel and Two Mile Prairie State Forest which is co-owned with the Board of Trustees (BOT) and managed by the Florida Forest Service. A portion of the FDEP-managed Cross Florida Greenway is owned by the District; overall, the Greenway provides an important 110-mile long recreational corridor that includes hiking, biking and equestrian trails. Other important publicly-managed conservation areas within a 20-mile radius are shown in Table 1.

Together, these publicly owned lands are an integral component to protecting the region's water quality, supply, and storage while also providing critical habitat for native flora and fauna. These lands support vital expanses of core wildlife habitat and natural areas supporting important strategic ecological networks.

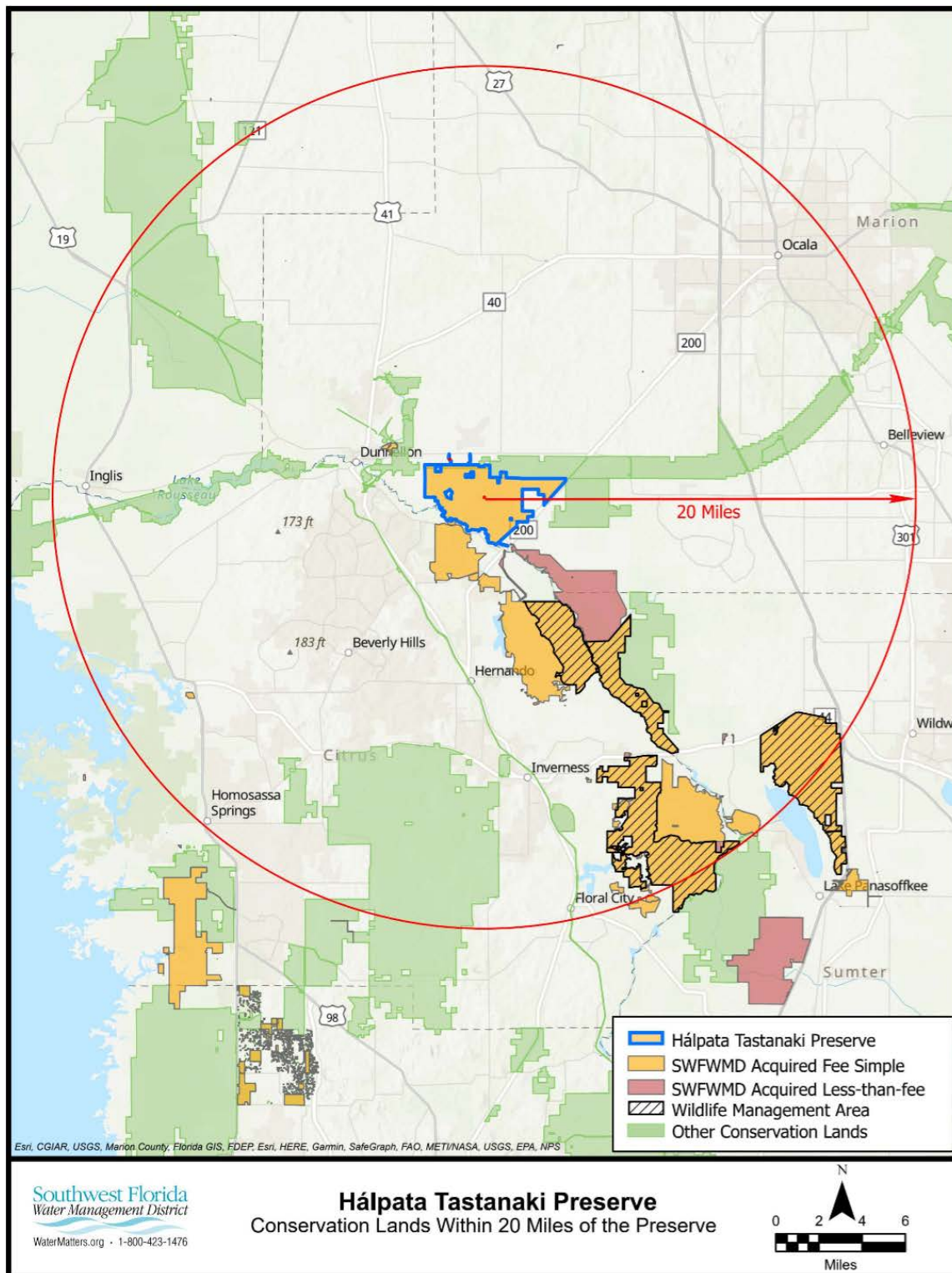


FIGURE 2. CONSERVATION LANDS WITHIN 20 MILES OF THE PRESERVE

TABLE 1. CONSERVATION LANDS WITHIN 20 MILES OF THE PRESERVE

Conservation Lands	Owner	County	Acres	Hike	Bike	Horse	Camp	Nature	Bird	Picnic	Hunt	Fishing	Paved Trails	Environ. Education
Two Mile Prairie	District/State	Citrus	2,898	✓		✓		✓	✓			✓		
Two Mile Connector	District	Citrus	462											
Potts Preserve	District	Citrus	9,379	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Ross Prairie State Forest	State	Marion	3,527	✓		✓	✓	✓	✓	✓				
Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area	State/District	Citrus Marion Levy Putnam	80,506	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Half Moon Wildlife Management Area	District/State	Sumter	9,565	✓	✓	✓		✓	✓	✓	✓	✓		
Flying Eagle Preserve	District	Citrus	16,331	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Fort Cooper State Park	State	Citrus	708	✓			✓	✓	✓	✓		✓		
Lake Panasoffkee Preserve	District	Sumter	10,320	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Withlacoochee State Forest	State	Sumter Citrus Hernando	97,052	✓	✓	✓		✓	✓	✓	✓	✓		✓
Crystal River Preserve State Park	State	Citrus Levy	30,935	✓	✓			✓	✓	✓		✓		
Waccasassa Bay Preserve State Park	State	Levy	33,991				✓	✓	✓			✓		
Goethe State Forest	State	Levy	53,090	✓	✓	✓	✓	✓	✓	✓	✓			
Rainbow Springs State Park	State	Marion	1,472	✓			✓	✓	✓	✓				
Silver River State Park	State	Marion	4,558	✓	✓	✓	✓	✓	✓	✓				✓

Current Land Use

Local Government Land Use Designation

According to the Marion County 2045 Future Land Use Map, the current and future land use of the Preserve is Preservation. The County defines the Preservation designation as a “land use intended to recognize publicly or privately owned properties intended for conservation purposes and operated by contractual agreement with or managed by a federal, state, regional or local government or non-profit agency. Development for recreation, scientific research, education and training facilities, public facilities, or services, etc. in this designation shall be limited to result in minimal impact to the preservation of the area as allowed under the contractual agreement or management plan, as further defined in the Land Development Code (LDC). This land use designation is allowed in the Urban and Rural Area.”

Adjacent Land Uses

According to the Marion County 2045 Future Land Use Map, the adjacent land uses are designated as rural land along most of the Preserve boundary line, with exception to a portion at the northeast

corner of the Preserve where there is a future land use designation of commercial land, and the southern boundary of the Marion County Urban Growth Boundary. Current and future land uses become vastly mixed on the opposite side of SR 200, SW Hwy 484, and the Withlacoochee River. The future land uses to the north of SW Hwy 484 are a combination of rural land, municipality, public, employment center, and commerce lands associated with Marion County and the City of Dunnellon. The future land uses east of SR 200 are low density residential, medium density residential, and rural lands. The future land uses west of the Preserve, beyond the land use of rural land adjacent to the Preserve, consists of an area of preservation land and a large region of municipality land. Along the south bank of the Withlacoochee River across the river from the Preserve, which is within Citrus County, the future land use designations include conservation land and a combination of residential densities and uses.

Management Challenges

The challenges associated with the management of this parcel are primarily due to increasing Wildland Urban Interface (WUI), due in part by the conversion of pasturelands and natural communities into residential and commercial developments within the region of the Preserve. These additional developments can create negative impacts on the natural systems of the Preserve and surrounding areas. These impacts can include abnormal flood events, degraded water quality, and reduced water supply. Furthermore, such impacts can severely diminish populations of native flora and fauna species.

In addition, the abundance of WUI and the increasing traffic volumes on the major highways along the boundaries of the Preserve have the possibility of increasing the complexities of prescribed fire operations. This results in an increased amount of planning to mitigate and limit impacts to smoke sensitive features.

Finally, recreational opportunities on all District conservation lands are typically passive, nature-based, outdoor activities. As the WUI becomes more prevalent near the Preserve, there is the possible challenge upon the District to manage requests for more expansive recreational opportunities. In similar past situations, the District has approved cooperative agreements with other local governing agencies to manage expansive recreational opportunities as the District does not have the staff to manage such opportunities. Prior to the District approving any cooperative agreements for expansive recreational opportunities, the District Governing Board will need to

deem such opportunities as “compatible”, as outlined in the District Policy.

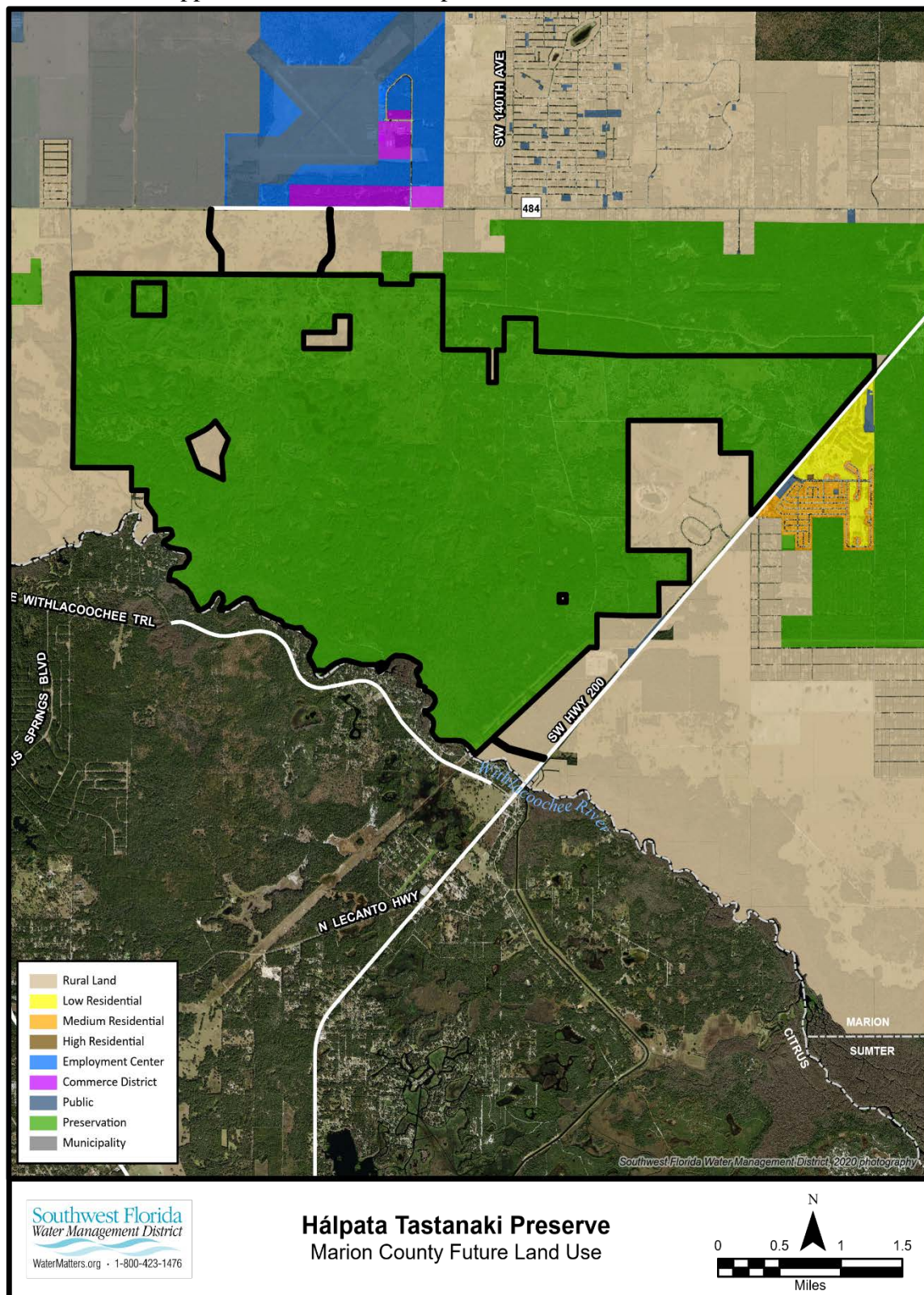


FIGURE 3. MARION COUNTY FUTURE LAND USE MAP

Water and Natural Resources

Water Resources and Core Mission

The mission of the District is to manage natural resources in a manner to ensure their continued availability while maximizing environmental, economic, and recreational benefits. Central to this mission is protecting and maintaining water resources for existing and future water supplies of the District's 16-county region, while maintaining the balance between the land use needs of current and future users. The overall mission of the District is emphasized by its AORs: water quality, water supply, flood protection, and natural systems.

Water Quality

Adequate water quality is a byproduct of a healthy ecosystem, and the District is directly involved in providing such water quality through the preservation and maintenance of natural systems. The process of natural systems, specifically for wetland ecosystems, can create an adequate water quality by way of water flowing into wetland areas where the waterflow is reduced to allow for the sedimentation of suspended particles. Furthermore, the wetland vegetation removes contaminants from the water. Finally, the completed process described above releases a water quality that is beneficial to surrounding habitats.

As part of a conglomerate of large, undeveloped, publicly owned tracts along the Withlacoochee River, the Preserve is comprised of natural uplands, extensive freshwater systems with emergent freshwater marshes, and riverine floodplain along nearly 5 miles of the Withlacoochee River. The Withlacoochee River is designated as an OFW by the FDEP due in part to its natural attributes. Such a designation is typically intended to protect and enhance water quality.

Prior to District ownership of the Preserve, past land alterations negatively impacted some of the natural surface drainage features of the property. These alterations included ditching and draining of some internal marshes, as well as construction of a 2.5-mile-long elevated roadway known as River Road. River Road was originally constructed as a logging tram to extract timber along the Withlacoochee River. Following the acquisition of the parcel, the District restored the altered drainage patterns in the marshes of the tract by filling in the internal drainage network. The result was a restored hydrological flow for the affected wetland forests. The District completed an additional project in 2009, referred to as the River Road Hydrologic and Wetlands Restoration Project, to restore the natural floodplain along the Withlacoochee River. This included the construction of flow-through areas and the removal of portions of River Road. The result was an effective hydrologic regime of the adjacent floodplain forests, previously isolated by the roadway. These two projects represented the greatest wetland restoration opportunities within the Preserve, which recovered impacted hydrologic regimes for the benefit of water quality enhancement within the Preserve.

Following completion of the wetland restoration projects, the District implemented land management practices upon the natural communities of the Preserve. These practices have

typically included prescribed fire application and maintenance to control exotic and nuisance vegetation. As a result, the enhanced water quality of the marshes is directly attributed to the natural condition of the adjacent uplands and current land management activities.

Water Supply

Water supply protection is central to the District's core mission, as water supply is crucial for public consumption. The supply is determined by the available water resources and the public demand for those resources. In this regard, the demand for water is typically of fresh groundwater that is drawn from the Upper Floridan aquifer (Aquifer) within a specific region. The Withlacoochee Regional Water Supply Authority (WRWSA) is the entity responsible for evaluating regional potable water needs within the region of the Preserve. Additionally, as part of the District's Regional Observation and Monitor-well Program (ROMP), a series of five wells (119.5 Ross Pond ROMP Well Site) were installed at the northeast part of Halpata to continuously monitor groundwater levels, quality, and supply within the region (SWFWMD, 2012).

The volume of fresh groundwater within the Aquifer is provided through the natural process of recharge. The Aquifer is a thin surficial sand aquifer underlain by thick carbonate rock. Most of the rainfall that falls within the region infiltrates quickly prior to surface runoff and percolates directly into the Aquifer. From there, groundwater flow migrates generally southwest, providing recharge to the Withlacoochee River as baseflow. The entire Preserve also lies wholly within a sensitive karst area. Average annual rainfall for the Northern Region of the District between 1915 and 2019 was 53.6 inches (M. Fulkerson, pers. comm., May 4, 2020). Aquifer recharge in this region is considered high, occurring at rates from 10-20 inches annually, and approximately 6,700 acres of the Preserve lie in this recharge zone, providing the potential for large volumes of groundwater replenishment (SSURGO Soils from the NRCS; Sepulveda 2002, GIS layer Recharge to the Floridan Aquifer System). Historical land alterations previously impaired wetlands in the Preserve and impacted the amount of recharge to the Aquifer. As mentioned in Section 2.1.1, the River Road Hydrologic and Wetlands Restoration Project restored the natural conveyance of surface flows to wetlands in the Preserve. The purpose of that project was not exclusively for water quality enhancement, but also for water supply enhancement. In result, the project provided for the opportunity of increased infiltration and the enhancement of the groundwater resources available for the multiple local groundwater users.

There are many existing users of groundwater surrounding the Preserve. Permitted withdrawal quantities of approximately 3 million gallons per day (mgd) for agricultural use and 0.9 mgd for recreation and aesthetic purposes are located within a couple miles of the Preserve. The neighboring public supply utilities of the City of Dunnellon, On Top of the World, Rio Vista, Timber Ridge, Marion County Utilities, and Citrus County Utilities are permitted for an additional combined quantity of over 14 mgd.

A population increase of >84,000 people, or approximately 30%, for the entire 4-county public supply service area is projected between 2015 and 2040. Such an increase in demand will significantly impact the public supply by 2040. The greatest increase in demand within District territory is in the Villages/Wildwood area and in western Hernando County. It is believed that the

water needs can be met by the Upper Floridan groundwater supplies through 2040 without exceeding spring and river Minimum Flows and Levels (MFLs). However, continuing large-scale development by The Villages in northeast Sumter county will likely require additional supply options, potentially including groundwater withdrawals from the Lower Floridan Aquifer beyond 2040.

It should be noted that the Preserve remains under consideration as a potential location for a future surface water treatment facility. The facility would consist of an intake structure on the Withlacoochee River, a storage reservoir, and a 25 mgd water treatment plant (Withlacoochee Regional Water Supply Authority, 2019). The option for a surface water treatment facility at the Preserve may be revisited beyond 2040.

Flood Protection

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

The Preserve is located within the Withlacoochee River watershed which covers approximately 2,100 square miles and receives an average rainfall of approximately 54 inches per year. Within the watershed, the Withlacoochee River plays a large role in flood protection, as it drains approximately 82% of the Green Swamp (an approximately 110,000-acre area for the headwaters of the Withlacoochee River) (SWFWMD, 2010). With the Preserve bordering nearly five miles of the river, and over 85% of the Preserve being within the 100-year floodplain, the Preserve plays an integral part in the attenuation of flood waters and downstream flood protection (SWFWMD, 1999).

The ability of the Preserve to control floodwaters within its isolated wetlands was evident during the 1997-1998 "El Niño" storm events and the 2004 hurricane season. During these periods of excessive flooding, the isolated wetlands concentrated on the northern portion of the property overfilled their basins, flowing down gradient into the adjacent 100-year floodplain and eventually discharging into three unnamed natural creeks that drain south into the Withlacoochee River. It is evident that the cumulative stormwater storage that is provided by the isolated wetlands on the Preserve assist in naturally alleviating the peak elevation of flood events associated with the Withlacoochee River.

Natural Systems

The District purchases land for the preservation and conservation of natural systems and for the benefit of the three previously discussed topics – water quality, water supply and flood protection – in addition to the natural habitats that occur within the natural systems. Natural systems can also be categorized into natural communities. These communities are identified by the Florida Natural Areas Inventory (FNAI) as the "distinct and recurring assemblage of populations of plants,

animals, fungi and microorganisms naturally associated with each other and their physical environment.”

The Preserve consists of a diverse mosaic of natural community types, totaling nearly 2,500 acres of wetland and 4,700 acres of uplands. Primary surface water features include nearly five miles of floodplain along the northern bank of the Withlacoochee River. The isolated wetlands and marshes scattered throughout the site form the internal drainage system and provide local surface water storage. Of the 14 natural communities occurring on the Preserve, as characterized by FNAI, the sandhill community is designated as imperiled at the state level and rare at the global level, while the natural scrub community is designated as imperiled at the state and global level. There are four other communities that are considered rare only at the state level, which include the basin marsh, the basin swamp, the alluvial forest, and the xeric hammock.

The pine plantations continue to be managed as Timber Management Zones (TMZ), as these communities were formerly converted for silvicultural use. Natural community types that were converted to pasture are ruderal in nature and classified as abandoned field or pasture. Together these communities are in various stages of recovery that total over 3,400 acres.

Forested wetlands occupy 1,200 acres and parallel the river channel, becoming less dominant with increasing distance from the Withlacoochee River. Floodplain swamps occupy frequently flooded areas along the river and typically support buttressed trees such as cypress and swamp tupelo. In contrast, alluvial forests occupy slightly higher and drier elevations with shorter periods of inundation, and support hardwood trees such as red maple, water oak, and water hickory. The remaining wetland forest communities – basin swamp, hydric hammock, dome swamp, and wet flatwoods – occur to the north of the river floodplain and receive water from surface runoff from adjacent uplands. Collectively, forested wetlands are in good condition at the Preserve.

Herbaceous wetlands on the Preserve occur on over 1,200 acres and include basin marsh and depression marsh. Basin marsh is primarily a herbaceous community typically occurring in large irregularly shaped depressions, and often forms in large solution depressions that were formerly lakes. Basin marshes are interspersed relatively uniformly in the pastures and pine plantations on the west side of the property; Ross Pond, located in the northeast portion of the property, is one of only three basin marshes on the east side of the Preserve. Depression marshes are shallow depressions characterized by sandy soils and concentric bands of herbaceous vegetation. The marshes regularly dry out during times of drought, with water persisting only in the deepest holes. These small wetlands occur most numerous on the south-central portion of the property.

Xeric communities total over 650 acres and consist primarily of scrub and sandhill. Xeric hammock occurs primarily in the northeast part of the Preserve near SR 200, and is likely the result of reduced fire frequency in former sandhill communities. These communities occur on well-drained, sandy soils and dominate the eastern one-third of the property. Due to prior pasture conversion, logging activity and disruption of normal fire patterns, these communities are intermingled and are difficult to delineate in the field. Historically, longleaf pine/turkey oak sandhill and scrubby flatwoods were dominant, but now scrub oak is more prevalent due to past

logging activities that removed the pine canopy. Restoration activities are ongoing in this area, and methods include removing bahia grass and increasing native plant cover while mechanically reducing height of scrub oaks.

Pine flatwoods occur on over 900 acres but are greatly under-represented on the Preserve due to man-made alterations. There are a few remnant patches of mesic flatwoods found throughout the property, and wet flatwoods occur in small, isolated regions positioned between basin swamp and other wetland communities. Much of the historical upland in the western third of the property was mesic flatwoods prior to logging and subsequent conversion to pasture.

Other upland communities totaling over 800 acres include mesic hammocks and mixed hardwood-pine forests.

There are approximately 1,930 acres classified as abandoned pasture or field on the Preserve. Ruderal areas are characterized as disturbed lands typically having a high percentage of weedy vegetation. At the Preserve, areas designated as abandoned pasture or field were historically partially planted with non-native forage grasses, but the extent of this disturbance varies across the landscape. Many of these communities in the northeastern part of the Preserve were historically sandhill and retain native plant components.

Pine plantation occupies almost 1,500 acres. Slash pine was planted prior to District acquisition, but in the intervening years from 1998 to 2017, all six plantations have undergone a third row, third pine pattern thinning. In 2009-2010, 70 acres of pine plantation were clear-cut. Based on historic aeriels and existing site conditions, it is estimated that over 1,000 acres of plantation is in native subcanopy and groundcover species.

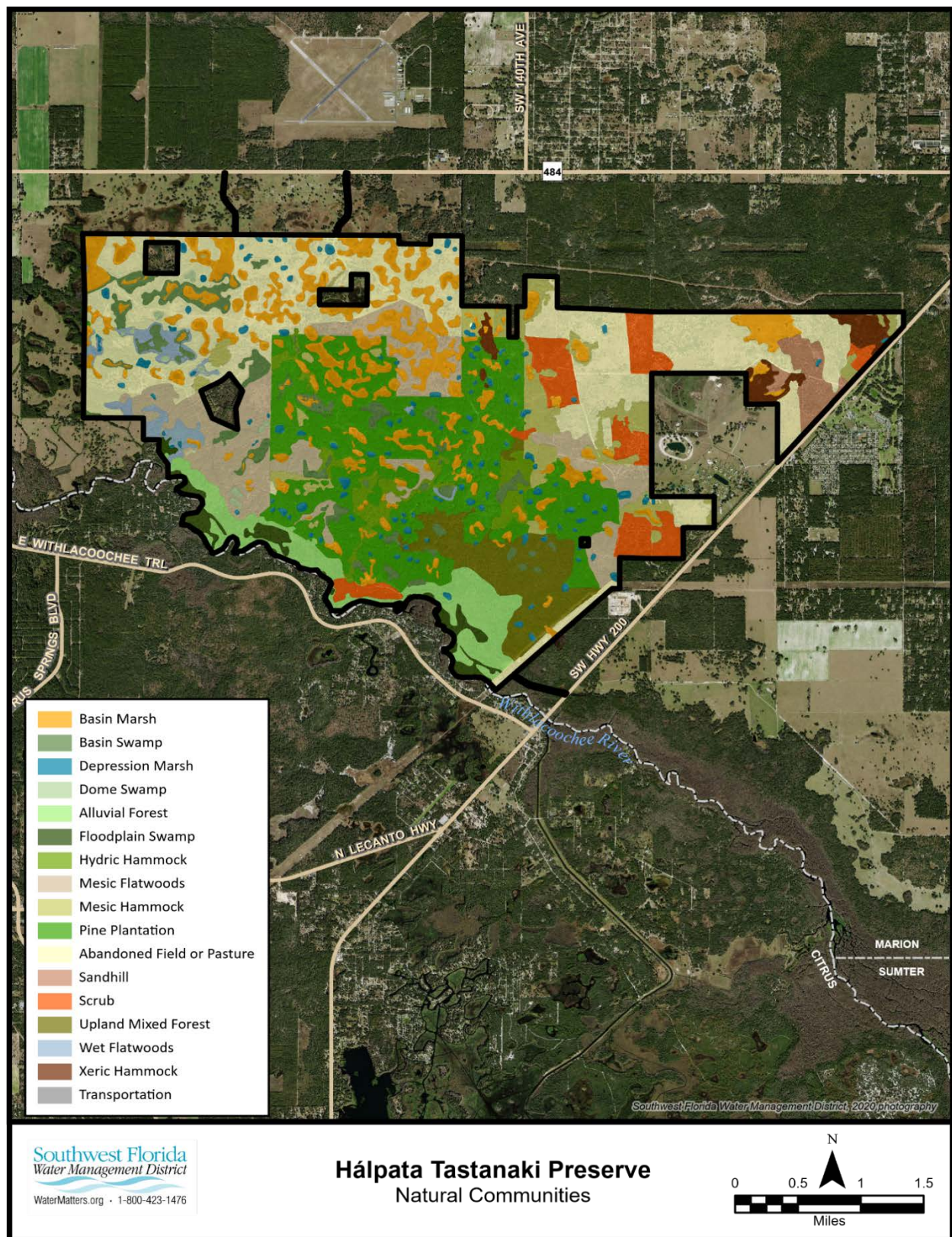


FIGURE 4. FNAI NATURAL COMMUNITIES AT THE PRESERVE

TABLE 2. FNAI NATURAL COMMUNITIES AT THE PRESERVE

Natural Communities	Acres
Basin Marsh	1,067
Basin Swamp	312
Depression Marsh	177
Dome Swamp	22
Alluvial Forest	421
Floodplain Swamp	146
Hydric Hammock	198
Mesic Flatwoods	772
Mesic Hammock	415
Pine Plantation	1,497
Abandoned Pasture or Field	1,928
Sandhill	128
Scrub	396
Upland Mixed Forest	421
Wet Flatwoods	135
Xeric Hammock	131
Access Roads	5
Total Acreage:	8,171

Soils and Topography

The gently sloping topography of the property is characterized by a dominance of poorly drained soils that support several important wetland vegetative communities. Based on the United States Department of Agriculture (USDA)/Natural Resources Conservation Service (NRCS) Soil Survey for Marion County (1979), 18 soil types are mapped within the Preserve as depicted on Figure 5.

The dominant soil type bordering the Withlacoochee River is the Anclote-Tomoka Complex, depressional. This is a poorly drained to very poorly drained soil that is present along the river where the topography is nearly flat, and the ground is covered with water for a period of two to six months per year. The frequency and duration of this inundation reflects a water table level that is located ten inches or less below the soil surface for most of the year. This area is dominated by the alluvial forest and floodplain swamp communities. In nearly level areas where the water table is slightly lower, soils including Lynne Sand, Paisley Loamy Fine Sand, and Pomona Sand are dominant. Inundation in these areas is restricted to periods of flood. The soils within the central and northwestern portions are predominantly depressional Placid Fine Sand, Placid-Pompano-Pomona Complex, and Pomona Sand. Placid sands are very poorly drained soils found in shallow depressions occurring along sandy uplands in the region. Pomona soils are poorly drained and nearly level, commonly found in flatwoods and adjacent to wet depressions on sandy ridges.

The eastern portion of the property is characterized by relatively well-drained soils. These include, in order of decreasing drainage, extremely well-drained Candler Sand, well-drained Apopka Sand, moderately well-drained Tavares Sand, and somewhat poorly drained Sparr Fine Sand, Jumper Fine Sand, and Adamsville Sand. These soil types are common in upland communities and along ridges where the water table is generally greater than five feet from the surface.

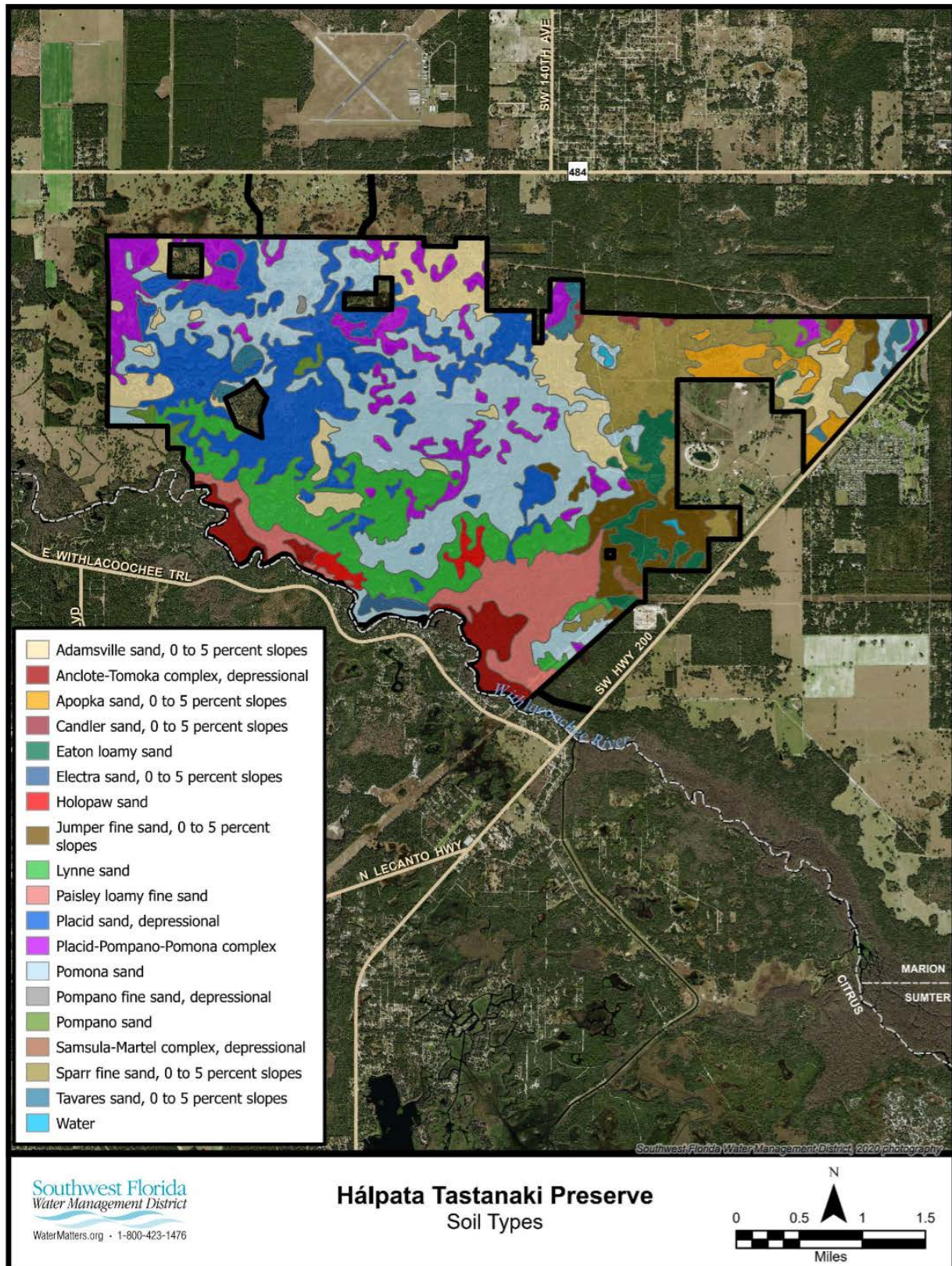


FIGURE 5. SOIL TYPES AT HALPATA TASTANKAKI PRESERVE

Hydrogeology

Hydrology

As mentioned, the Preserve is located within the Withlacoochee River Basin. Although this river and its tributaries contain numerous documented springs, no springs occur within the Preserve boundary. Water entering the site is predominantly limited to stormwater runoff through natural sheet flow. The highest elevations found within the Preserve occur in the eastern and northeastern portions of the tract, allowing water to reach the surficial aquifer quickly and significantly reducing evapotranspiration and runoff. The series of isolated wetlands concentrated on the northern portion overflow, overflowing down gradient and eventually discharging into three unnamed natural creeks that drain south into the Withlacoochee River.

Historically, stormwater runoff from these upstream areas flows in a southwesterly direction into the river via 10 culverts under River Road. As previously mentioned, an FDOT mitigation project was completed in 2009 that included the partial removal of the fill material for River Road, construction of flow-through areas and the replacement and resizing of culverts. The result was a more normal hydrologic regime (SWFWMD, 2009).

Geology

The Preserve lies within the Ocala Karst District which encompasses a broad area from central Wakulla County in the panhandle of Florida, south to Hillsborough and Pinellas Counties and inland to nearly the center of peninsular Florida. The Ocala Karst District contains karst formations that can be described as a geological formation that contains soluble rock, particularly limestone. Carbonate sediments, including the Upper Eocene Ocala Limestone, lie at or near the land surface in this karst district. The Ocala Platform is the most prominent structure affecting the near surface depositional and post-depositional environments within the Preserve by exerting its influence on late Tertiary sediment deposition. Post-Miocene erosion has removed sediments from much of the crest of the Ocala Platform, exposing Eocene carbonates. Undifferentiated sediments consisting of residual clays and sands have subsequently been deposited on the exposed Eocene carbonates (FDEP, 2009).

The District's ROMP constructs networks of groundwater monitor-well sites for regional hydrogeologic investigations. In 2008, the 119.5 Ross Pond ROMP well site was completed on the Preserve (SWFWMD, 2012). While the majority of the site's near-surface geology is mapped as Ocala Limestone, investigations during the establishment of the ROMP 119.5 well site near Ross Pond show the area has Ocala Limestone very near surface, overlain by a thin veneer of undifferentiated surficial sand and clay (SWFWMD, 2012). The Ocala Limestone consists of biogenic marine limestone comprised largely of foraminifera, mollusks, echinoids, and bryozoans. Ocala Limestone can be subdivided into the lower and upper units. The upper unit is a white, poor to well-indurated, poorly sorted, very fossiliferous limestone. The lower portion is white to cream color, fine to medium grain, poor to moderate induration and is very fossiliferous limestone. Ocala Limestone is very permeable in this region because of karst activity. Ocala Limestone is from the Eocene geologic period, which lasted from 56 to 33.9 million years ago (FDEP, 2009).

The undifferentiated sand and clay sediments within the Preserve consist of siliciclastics and organics. The siliciclastics are light gray, tan, brown to black, unconsolidated to poorly consolidated, clean to clayey, silty, unfossiliferous, variably organic-bearing sands to blue green to olive green, poorly to moderately consolidated, sandy, silty clays. Organics occur as plant debris, roots, disseminated organic matrix and beds of peat. Freshwater carbonate sediments are buff colored to tan, unconsolidated to poorly consolidated, fossiliferous carbonate muds. Undifferentiated sediments are from the Pleistocene and Holocene geologic time periods, with the Pleistocene lasting from 2.6 million to 11,700 years ago, and the Holocene being the current geologic epoch (FDEP, 2009).

Clayey sediments form a thin confining unit between the limestone of the Upper Floridan aquifer and the overlying surficial sands where water infiltration rates are characteristically slow. Monitoring at the well site locally shows the surficial sands to be persistently dry except during periods of increased rainfall, with the water table frequently occurring within or just below the confining unit. Although the confining unit may slowly recharge to the Upper Floridan aquifer, the unit is often breached by karst processes, regionally discontinuous, and highly leaky. As such, a viable surficial aquifer is absent and the Upper Floridan aquifer is considered to be regionally unconfined (J. LaRoche, pers. comm. May 6, 2020).

Historical Land Use and Cultural Resources

Historical Land Use

Following the Second Seminole Indian War, the region of the Preserve had been historically known to be an area of citrus groves and cattle grazing. Historical aerial imagery, from at least the year 1944 through at least the year 1994, appears to represent the property as having pasture lands with undeveloped forested areas. As mentioned in Section 1.3, the District purchased the first portion of the Preserve in 1994, then the second portion in 1995. Following the purchases, the agricultural land use for the purposes of cattle grazing had ceased, and the current preservation land use classification was implemented.

Cultural Resources

Aboriginal peoples have inhabited Florida for at least 14,000 years, beginning with the earliest prehistoric cultures of the Paleo-Indian era. The proceeding cultural phases of the Archaic, Orange, Formative, Deptford, Weeden Island, Alachua, Safety Harbor, and Seminole were regionally present prior to the established settlements of the 19th century. The Seminole tribe, formerly the Creek Indians of the Georgia and Carolinas region that relocated into the Floridian region to escape the pressures of the American frontier expansion, were the last aboriginal peoples within the region of the Preserve.

The Preserve is named after the Seminole leader, Hálpata Tastanaki (translated as Chief Alligator). The leader, with other prominent historical Seminole figures such as Osceola and Jumper and approximately 1,000 warriors, took part in the largest battle of the Second Seminole Indian War in 1836. The location of the battle presumably occurred on the Preserve, also known as Camp Izard. Following the Second Seminole Indian War, the region of the Preserve succumbed to American settlement, also known as the Reconstruction period, providing citrus groves, cattle grazing, and phosphate mining.

The Preserve was the site of the community of Stockton, which was established shortly after the conclusion of the Second Seminole Indian War and was derived from the remnants of Camp Izard. According to historical studies, a post office was known to be established in 1845 under the name of Camp Izard, but later renamed to Stockton in 1885. The community was historically noted as being an area of citrus groves and had a blacksmiths shop, a hotel, several other shops, and provided a ferry service on the Withlacoochee River.

Archaeological Resources

According to the Florida Division of Historical Resources (DHR) Master Site File database, the Preserve contains multiple types of archaeological sites that are associated with prehistorical time periods continuing through the early 20th century. Sites that are eligible for the National Register of Historic Places (NHRP), include the historical sites affiliated with Camp Izard and Seminole camps of the Second Seminole Indian War, and a prehistoric farmstead, known as Slough's Edge. Camp Izard and Slough's Edge were located along the banks of the Withlacoochee River and within the boundary of the Preserve. Other prehistoric archaeological sites are categorized as "lithic scatter" sites of varying classifications, along with a documented 19th century homestead

site located east of Camp Icard on the bank of the Withlacoochee River and are all referenced as being ineligible for the NHRP.

There are other historical sites within the boundary of the Preserve that are held in private inholdings. These sites are the Cedar Grove house and cemetery that were established in 1860.

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. The District will attempt best efforts to provide protection near any known archaeological sites to prevent degradation, vandalism, and theft. District land managers will alert law enforcement when necessary, as illegal archaeological digs have been a reoccurring issue at the Preserve.

Land Management and Land Use

Land Management

This aspect of the plan contains specific actions required to ensure the continued integrity of the Preserve as an important part of the overall ecological landscape. Emphasis is placed on maintaining and restoring to the greatest degree feasible the natural communities that form the vegetative and animal species composition of the Preserve. Ecosystem management principles are employed to maintain natural systems compatible with the District's mission and values.

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 Preserve includes Mesic Flatwoods, Sandhill, Scrub, Depression Marsh, Basin Marsh and Wet Flatwoods. Pine Plantations in general are managed similarly to Mesic Flatwoods in terms of fire return interval while other altered lands may require additional management (periodic mechanical or chemical operations followed by fire) to achieve objectives. Since 2009, over 10,700 acres have been treated with prescribed fire, with an average burn acreage per year of 973 acres. The fire management zones (burn units), and 10-year burn history are depicted on Figure 6.

The purpose of the Condition Class Evaluation Program is to provide an accurate representation of the condition of lands managed by the District with fire. It is the District's goal to preserve, protect, and restore natural systems to support their natural hydrologic and ecological functions.

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.

Figure 7 illustrates the Condition Classes for the Preserve for fiscal year (FY) 2019. These maps are updated annually for fire planning. The fire management units established are defined by the dominant community type and the management objectives for that unit. As a result, these unique management units represent spatially explicit units defined along their boundaries by existing fire lines, roads, ditches, wetlands, or other suitable breaks. This process also allows other community types that are not fire maintained or have some other designation that does not require fire management to be accounted for and represented.

The fire return interval demonstrates the amount of time between disturbances that resets succession within a natural community. Condition Class 1 would be within one fire return interval and Condition Class 2 would be within two fire return intervals. Condition Class 3 would represent any unit that is at three or more intervals since the last disturbance. Condition Class 4 represents any system that has had fire excluded for so long that it is beyond recovery through reintroduction of fire without implementing cost-prohibitive measures. Condition Class 5 was developed to represent systems that are not regularly fire-maintained, such as hydric hammock. Condition Classes 1-5 represent the majority of the program aside from special circumstances that have been identified and treated separately for a variety of reasons. Please note that the TMZ’s within the Preserve may follow different fire return intervals as necessary although attempts are made to burn on a 4-year cycle.

The District strives to maintain a majority of the Preserve’s natural communities in Condition Class 1 by burning a minimum of 75% of the acreage in management units that are on the verge of becoming Condition Class 2 per year. Approximately 30% of the primary wildlife habitat in Condition Classes 2 and 3 should be burned per year over the next four years. Nearly 75% of burn units or 85% of the total burnable acres (6,300 acres) would ideally be on a 4-year fire return interval. Minimum burn acreage needed annually would be 1,600 acres. At the end of FY 2019, 3,577 acres (51% of burnable acres) were in Condition Class 1. Several units are due for fire with 1,961 acres (31%) in Condition Class 2 and 765 acres (12%) in Condition Class 3. These acres include nearly 400 acres of altered habitat with prime to marginal scrub jay habitat as well as scrub and remnant sandhill. Approximately 1,100 acres of TMZ acreage are due for fire. Prescribed fire efforts will focus on maintaining sensitive wildlife habitat on altered and natural community types and bringing TMZ’s with the highest timber and ecological value back on schedule. Those units that are degraded to a higher degree will be burned as time provides.

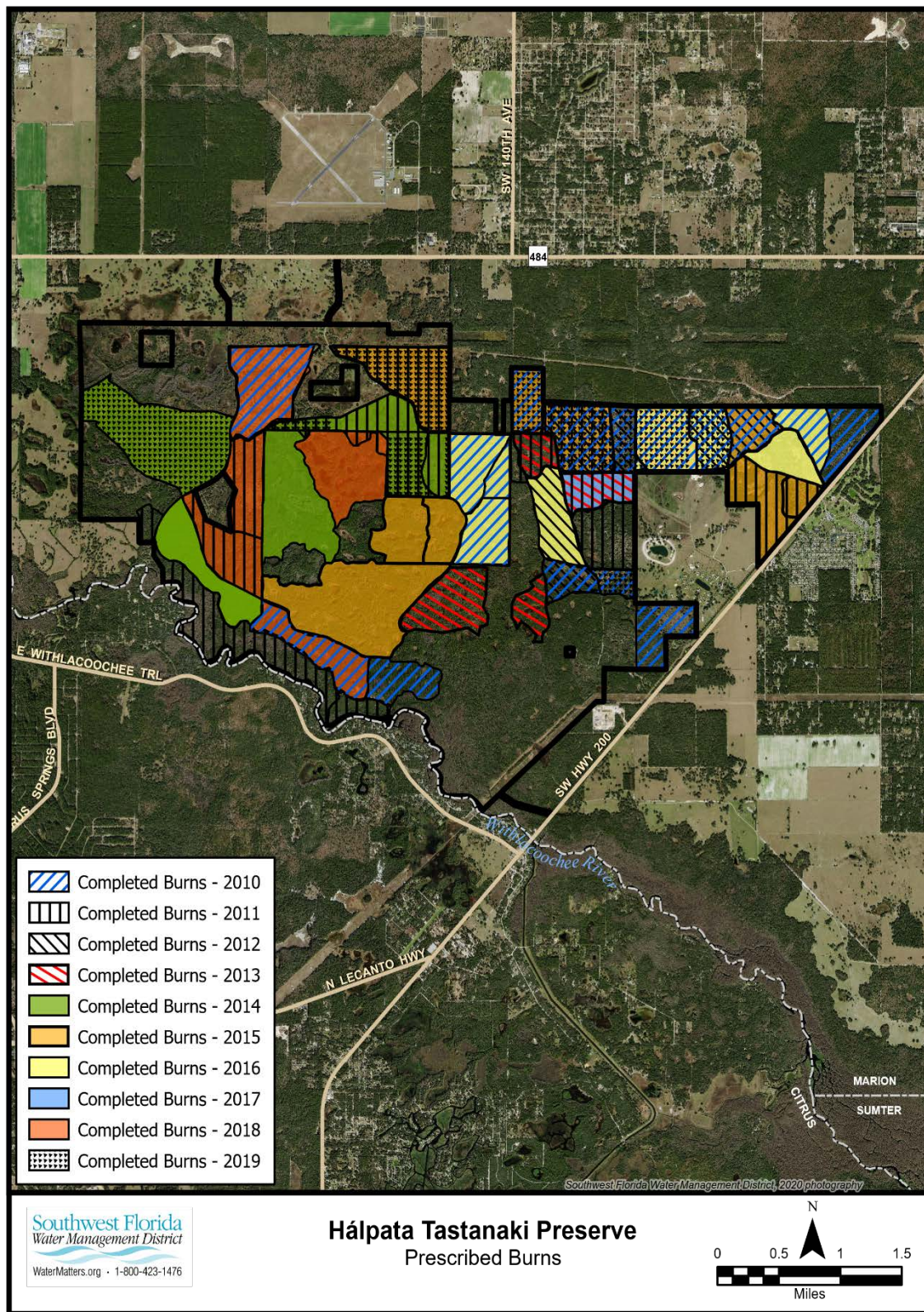


FIGURE 6. 10-YEAR BURN HISTORY

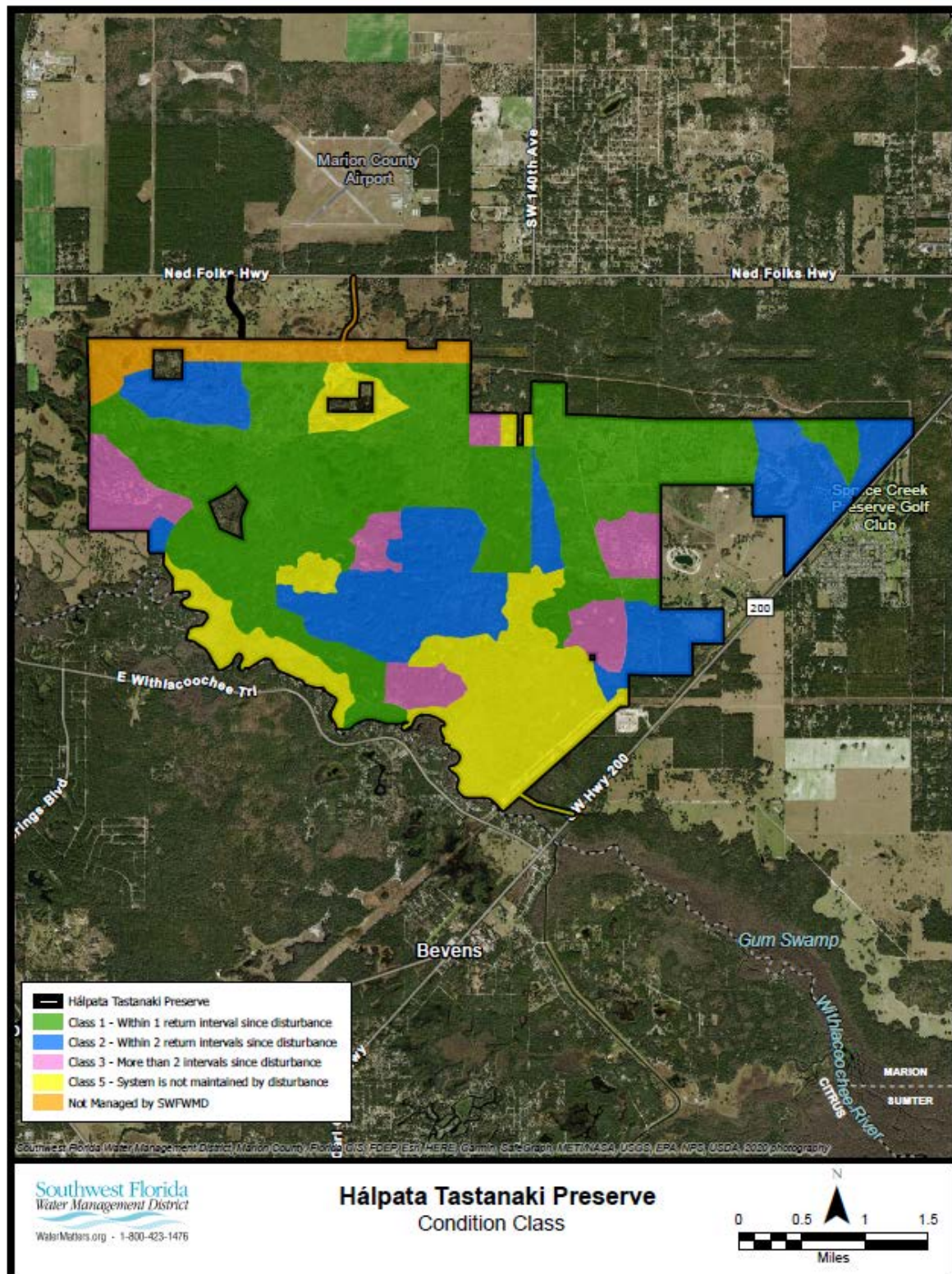


FIGURE 7. LAND MANAGEMENT CONDITION CLASS (2019)

Forest Management

The Preserve contains six unique pine plantations managed under the District's Timber Management Program (Figure 8). These slash pine (*Pinus elliottii*) plantations were established prior to the District's ownership and incorporated into the overall land management objectives for the Preserve. The District utilizes the Timber Management Program to achieve several objectives; including, sustainable forest management, support of District land management goals, restoration of natural communities and revenue generation to offset the cost to manage District conservation lands.

The District has managed these pine plantations using standard silvicultural practices and timber harvests to ensure forest health and sustainability. There are 1,235 acres of planted pine in six separate pine plantations established between 1983 and 1994. Since then, the District has conducted various timber harvests to manage stand structure and composition while maintaining the native understory species through periodic application of prescribed fire. Each of these units received an initial third row thinning with selection, approximately fifteen years from the establishment date. Based on stand assessments and the timeframe since the first thinning, a second timber harvest is scheduled using a marked selection method. This harvest prescription focuses on reserving the highest quality timber and removing poor, deformed, forked or otherwise undesirable trees and targeting a residual basal area of 40-60 ft²/acre. The primary objective at this stage is to encourage natural pine regeneration, and the establishment of multiple age classes while maintaining a consistent fire return interval every four years until the next scheduled harvest. To date, two plantations have had a second harvest or 50% Select Thin.

Overall, there have been a total of eight timber harvests on a cumulative 1,655 acres for \$848,754 in revenue since the District acquired the property. In the last ten-year period, there have been three timber harvests in the Preserve. Each of these were selection harvests that generated a total of \$365,143. According to the current Ten-Year Timber Management Plan, approximately 915 acres in four separate stands are scheduled for second harvests between 2020 and 2025. Table 3 summarizes the last ten years and Table 4 outlines the upcoming scheduled harvests with estimated revenue based on current market values. At this time, there are no plans for establishing new timber management zones; however, there are opportunities to conduct pine plantings on select restoration sites within the Preserve.

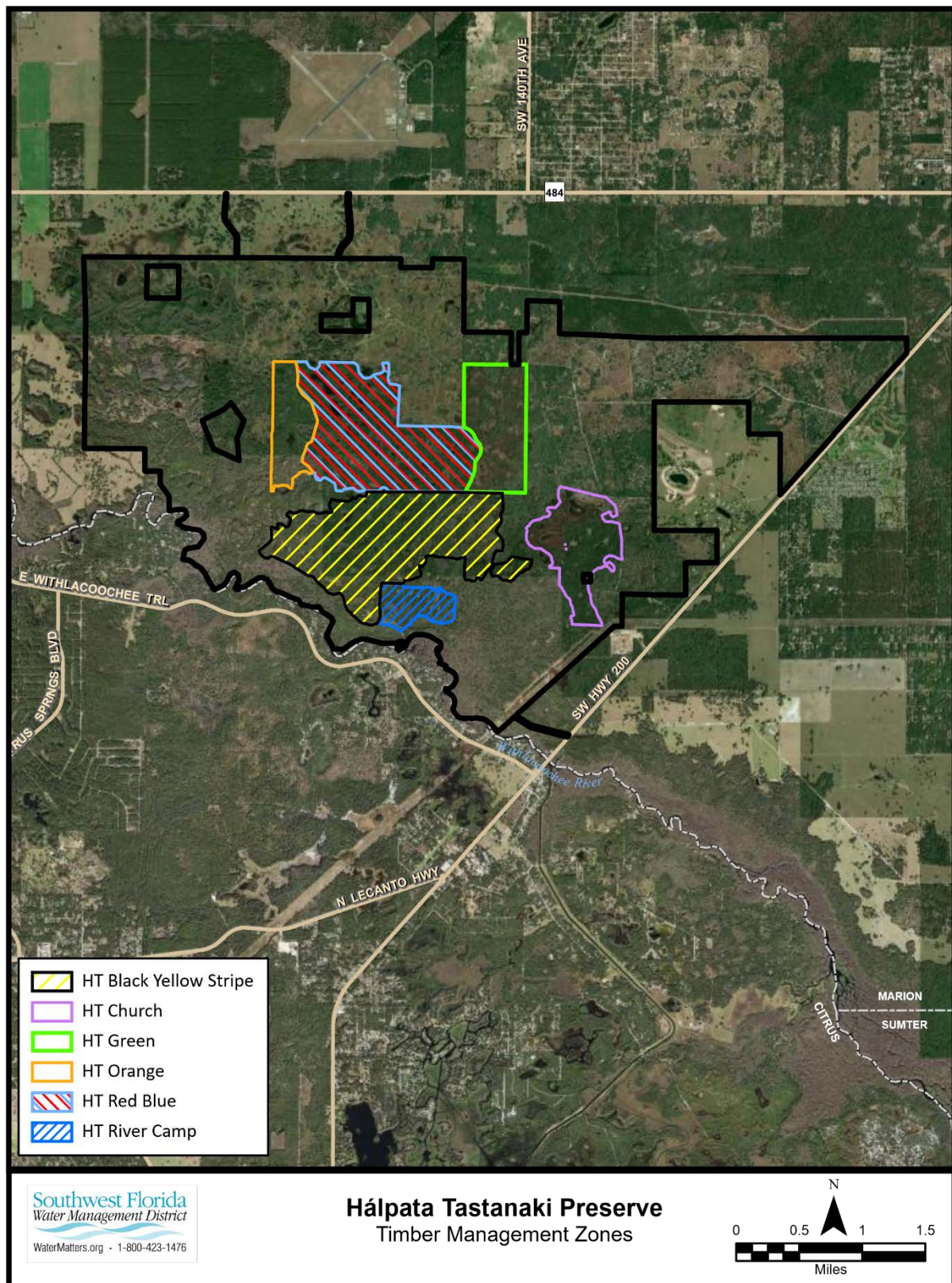


FIGURE 8. TIMBER MANAGEMENT ZONES AT THE PRESERVE

TABLE 3. 10-YEAR HISTORICAL TIMBER HARVEST SUMMARY

Timber Management Zone	Harvest Year	Acres Planted	Year Established	Prescription	Revenue
HT Church	FY 2010	225	1994	Third Row Thin	\$ 65,087
HT Green	FY 2014	185	1983	50% Select Thin	\$ 211,131
HT Orange	FY 2017	125	1985	50% Select Thin	\$ 88,925

TABLE 4. PLANNED TIMBER HARVEST

Timber Management Zone	Harvest Year	Acres Planted	Year Established	Prescription	Revenue
HT Black Yellow Stripe	FY 2021	360	1987	50% Select Thin	\$ 237,600
HT Red Blue	FY 2022	245	1986	50% Select Thin	\$ 161,700
HT River Camp	FY 2023	95	1989	50% Select Thin	\$ 62,700
HT Church	FY 2025	215	1994	50% Select Thin	\$ 141,900

Restoration and Maintenance

Several mitigation and restoration projects have been conducted on the Preserve (Figure 9). There were two mitigation projects associated with FDOT for the purposes of compensation for wetland impacts from offsite FDOT road construction projects. The first mitigation project was the FDOT Marion 1 Regionally Sustainable Mitigation Project, which was conducted in 1998 and consisted of restoring 461 acres of land that had been cleared, ditched, and drained for agricultural purposes. Restoration consisted of backfilling ditches to restore depression marshes and re-vegetating former bahia pasture and forested wetlands. The second mitigation project was the Hálpata Tastanaki River Road FDOT mitigation project, which was completed in December 2009. This project entailed the partial removal of a road that paralleled the Withlacoochee River, which impeded natural flow of the river. The removal of the fill material and the replacement of culverts has enhanced approximately 103 acres of natural floodplain function, with secondary upland enhancement of approximately 110-150 acres.

The Cowpens-Riverside Upland Restoration project was conducted in 2006-2007 and consisted of restoring two adjacent parcels of more than 600 acres of former agricultural lands. The Cowpens site, located at the westerly portion of the Preserve had a predominate land cover of bahia grass pasture and a dense monoculture of 10-15 feet tall wax myrtle. A combination of mechanical reduction (hydro axe), growing season burns, herbicide application, and disking and seeding were used to restore this area. Similar restoration practices were utilized on the Riverside site, located easterly of the Cowpens site and north of the Withlacoochee River, to reduce hardwood encroachment and to revegetate the pasture with native grasses. Over the past 12 years, wax myrtle has increased dramatically within the project areas, and the District will evaluate possibilities for future mechanical reduction.

Restoration and Maintenance in Select Community Types

Managing altered lands on conservation tracts often necessitates additional management activity, especially if fire dependent communities can no longer carry fire at the necessary time (seasonality) or intensity. Bahia grass often does not carry fire well, except for conditions where it has been allowed to accumulate thatch following a heavy frost, or in early spring during dry, breezy conditions. Where Scrub and Sandhill communities have been converted to pasture, these ruderal, or abandoned field or pasture, communities cannot be burned effectively to maintain short stature shrubs or encourage herbaceous growth. Sand live oaks, bluejack oaks and turkey oaks proliferate and can shade out ground cover or become too dense or tall to support imperiled species that utilize these habitats (i.e. scrub-jay). In such cases, mechanical treatment may have to be employed to physically cut down woody debris, or herbicide treatment to chemically set back the oaks and other woody species to maintain open habitat required by imperiled species.

Several enhancement projects have been conducted to facilitate the recovery of Scrub and Sandhill, which are imperiled natural communities. The River Scrub project completed in 2000 included the mechanical reduction and burning of approximately 32 acres of late-stage scrub adjacent to the Withlacoochee River. The East Scrub and Sandhills project included approximately 560 acres on the easternmost portion of the Preserve. Within these areas, high intensity burns often followed mechanical treatment and were conducted to reduce height and abundance of laurel, bluejack, turkey, and sand live oak species. A laurel oak hammock reduction project was conducted in 2004 and included the fire treatment and hydro axing of 57 acres. By 2008, scrub-jays were observed nesting within this restored area.

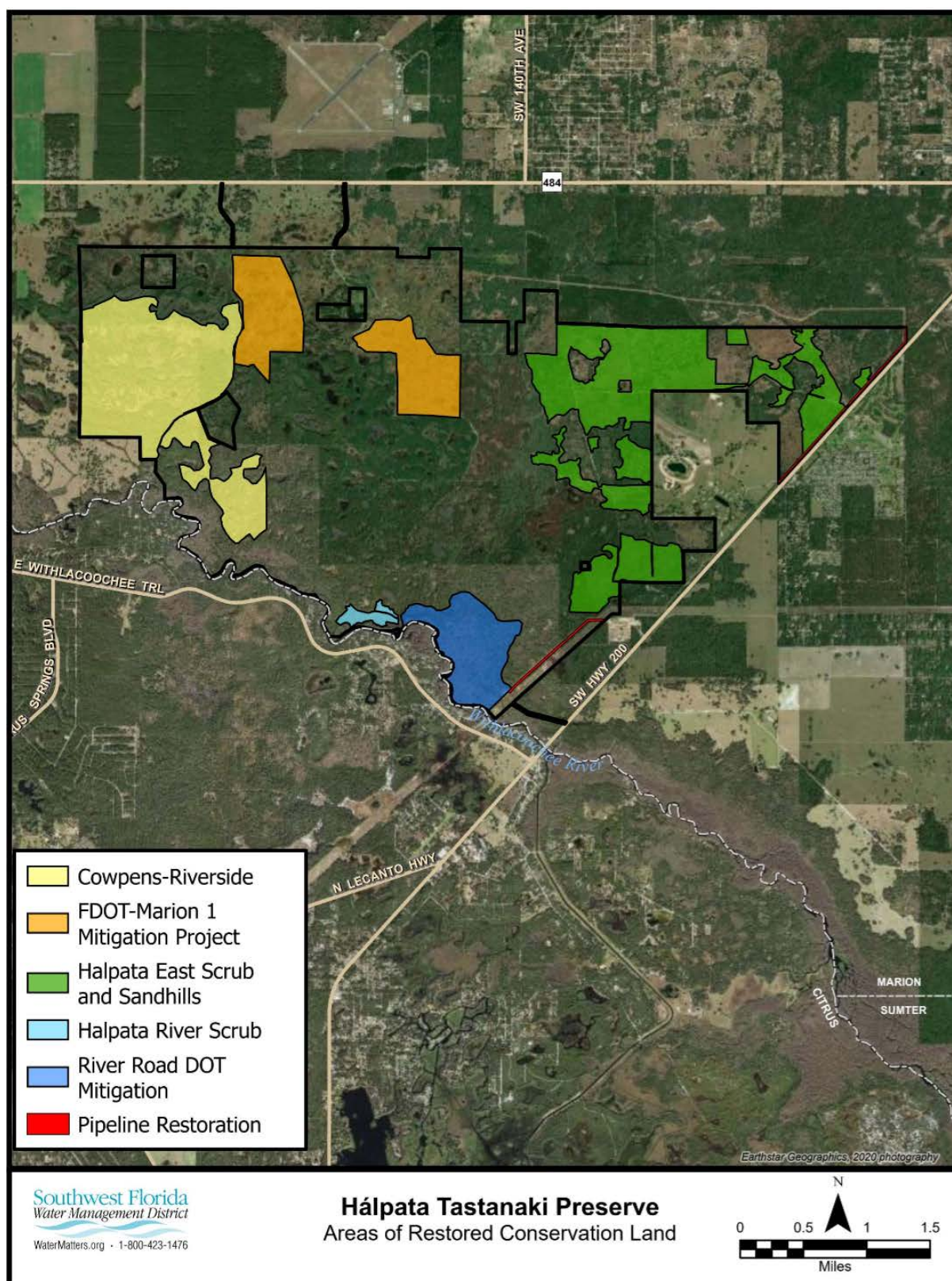


FIGURE 9. MITIGATION AND RESTORATION PROJECTS AT THE PRESERVE

Between 2009 and 2019, additional mechanical or chemical treatments totaling nearly 600 acres were implemented to reduce oak growth in the eastern part of the Preserve (Table 5). Groundcover restoration has recently been initiated in imperiled sandhill communities on portions of two ruderal old field units, totaling 54 acres. The intent is to re-establish native wiregrass and other native plant species to more reliably carry fire to maintain this important and rare habitat.

Small linear restoration projects were undertaken on the Sabal Trail pipeline corridor once pipeline installation was complete. The pipeline impacts two separate sections of the Preserve: (1) the area along SR 200 and continuing to the north along the easternmost boundary to the Greenway, and (2) the northwest portion of the powerline corridor to the Withlacoochee River. As partial compensation for impacts to District land, staff worked closely with Sabal Trail to develop a restoration plan. Approximately 7 acres of impacted pipeline corridor along SR 200 were either seeded and plugged, or only seeded, with native herbaceous species. Additionally, just over 10 acres of pipeline corridor along the powerline right-of-way were planted with native plugs and tubelings in spring/summer 2017. Contractors for Sabal Trail are required to periodically treat exotic and nuisance native species on these restored areas.

As part of a gopher tortoise exclusion study conducted by Florida Fish and Wildlife Conservation Commission (FWC), vegetation transects were established and sampled at intervals along the course of the restored pipeline corridor on the Preserve, as well as along the associated buffers adjacent to the FDOT right-of-way and the Cross Florida Greenway. The intercept and quadrat sampling were conducted in late summer 2018 and again in late summer 2019. Results in just two years since establishment showed a slight increase in weedy “pioneer” species between 2018 and 2019 to a near doubling and dominance of desirable, or “characteristic” species in the Preserve and FDOT sections. Importantly, wiregrass (seeded and plugged) ended up in the top 10 species for frequency of occurrence and Elliott’s lovegrass (primarily plugs) had the highest single species cover at 15% (K. Williges, unpubl. rept., 2019).

TABLE 5: RESTORATION AND MAINTENANCE COSTS

Fiscal Year	Habitat Type	Treatment Type	Acres	Total Cost	Cost/Acre	Internal or Contracted
FY 2009	Scrub, Oldfield	Restoration-Roller Chop, Mulch/Mow	102	N/A	N/A	Internal
FY 2010	Scrub	Restoration-Mulch/Mow	11	\$1,464.98	\$133.18	Internal
	Scrubby Flatwoods	Maintenance Mulch/Mow	32	\$4,261.75	\$133.18	Internal
FY 2011	Scrub, Oldfield	Restoration-Mulch/Mow	56	\$4,435.62	\$79.21	Internal
	Scrubby Flatwoods	Restoration-Roller Chop	273.5	\$11,885.37	\$43.46	Internal

FY 2012	Scrub	Maintenance Mulch/Mow	60	\$6,468.01	\$107.80	Internal
FY 2014	Sandhill, Oldfield	Maintenance Mulch/Mow	27	N/A	N/A	Internal
FY 2015	Sandhill, Scrub, Oldfield	Maintenance Mulch/Mow	112	\$8,240.17	\$73.57	Internal
	Sandhill, Oldfield	Restoration- Mulch/Mow	22	\$1,618.61	\$73.57	Internal
FY 2018	Sandhill, Scrub, Oldfield	Restoration- Chemical (Special Project)	20	\$21,651.60	\$1,082.58	Contracted
FY 2019	Sandhill	Restoration- Chemical (Special Project)	29	\$12,309.00	\$425.92	Contracted
Total- Restoration (acres with cost info)			484.5 (411)	\$53,364.88	\$129.84	Internal and Contracted
Total- Maintenance (acres with cost info)			231 (204)	\$18,969.93	\$92.99	Internal
Total for Known Cost Acres			586.5	\$60,025.81	\$102.35	Internal and Contracted

Exotic and Invasive Species

The invasion of native communities by invasive, exotic and nuisance species is widely recognized as one of the primary threats to the integrity of Florida's remaining natural areas. One of the primary goals of land management is the eradication or management of these species' population. At a minimum, exotic and invasive species at the Preserve will receive periodic treatment to contain and reduce spread.

Invasive Plant Management

Strategies of the Vegetation Management section include (1) identifying and treating Early Detection, Rapid Response (EDRR) invasive exotics; (2) identifying additional high priority species or sites requiring control; and (3) coordinating with Land Management section staff to identify recent or planned disturbances such as burning or mechanical treatment that may encourage establishment or spread of invasives.

Several Florida Exotic Pest Plant Council (FLEPPC) Category I species occur on the Preserve (Figure 9). Fortunately, most infestations of invasive exotic plants on the Preserve are considered to be at a level where they are not widely scattered throughout the area, although potential for rapid expansion is high. The most widespread area of established cogon grass (*Imperata cylindrica*) infestation is in the northwest part of the Preserve near the boundary with the Cross Florida Greenway. This species occurs sporadically throughout the Preserve. An established infestation of air potato (*Dioscorea spp.*) is found near the southeast boundary near SR 200 along the fence and near the disk line due to influence from the adjacent private property. In August of 2016, air potato beetles were released in the area and generated some success, but the infestation re-established the following year and was treated with herbicide in August 2018. Chinese tallow-tree (*Triadica sebiferum*) is found primarily in the Withlacoochee River floodplain.

A very large infestation of Caesar's weed (*Urena lobata*) occurs just west of the fish hatchery inholding and continues to expand. This disturbed area also includes scattered occurrences of cogon grass, skunk vine (*Paederia foetida*), chinaberry (*Melia azaderach*) and tropical soda apple (*Solanum viarum*). There is a small infestation of Japanese climbing fern (*Lygodium japonicum*) in the southeast portion of the property which has been reduced with periodic treatments. The northern-most units on the west side of the Preserve are managed as part of the Cross Florida Greenway for which the FDEP is responsible for exotic plant treatments. These units contain cogon grass, camphor tree (*Cinnamomum camphora*) and Caesar's weed. Small, scattered infestations of sword fern (*Nephrolepis cordifolia*) occur throughout the property. Septic weed (*Senna occidentalis*), though not listed by FLEPPC, is becoming an emerging issue property-wide (M. Busacca, pers. comm., May 11, 2020).

EDRR species would include significant invasive plants that occur near but not on the listed property or species that are significantly invasive and occur at very low levels where it is possible to treat all known infestations as they are detected. Under the general strategy for managing invasives, EDRR species are considered the highest priority for control and known infestations are to be treated as soon as is feasible. Primary EDRR invasive exotics identified for the Halpata Preserve include Old World climbing fern (*Lygodium microphyllum*), natal grass (*Melinis repens*), kudzu (*Pueraria montana*), and coral ardisia (*Ardisia crenata*). In January 2021, Old World Climbing Fern was discovered and treated by District Vegetation Management staff. Subsequently, Halpata was added to the list for annual overflight surveillance via helicopter and was checked aurally in February 2021. No additional infestations were observed at that time.

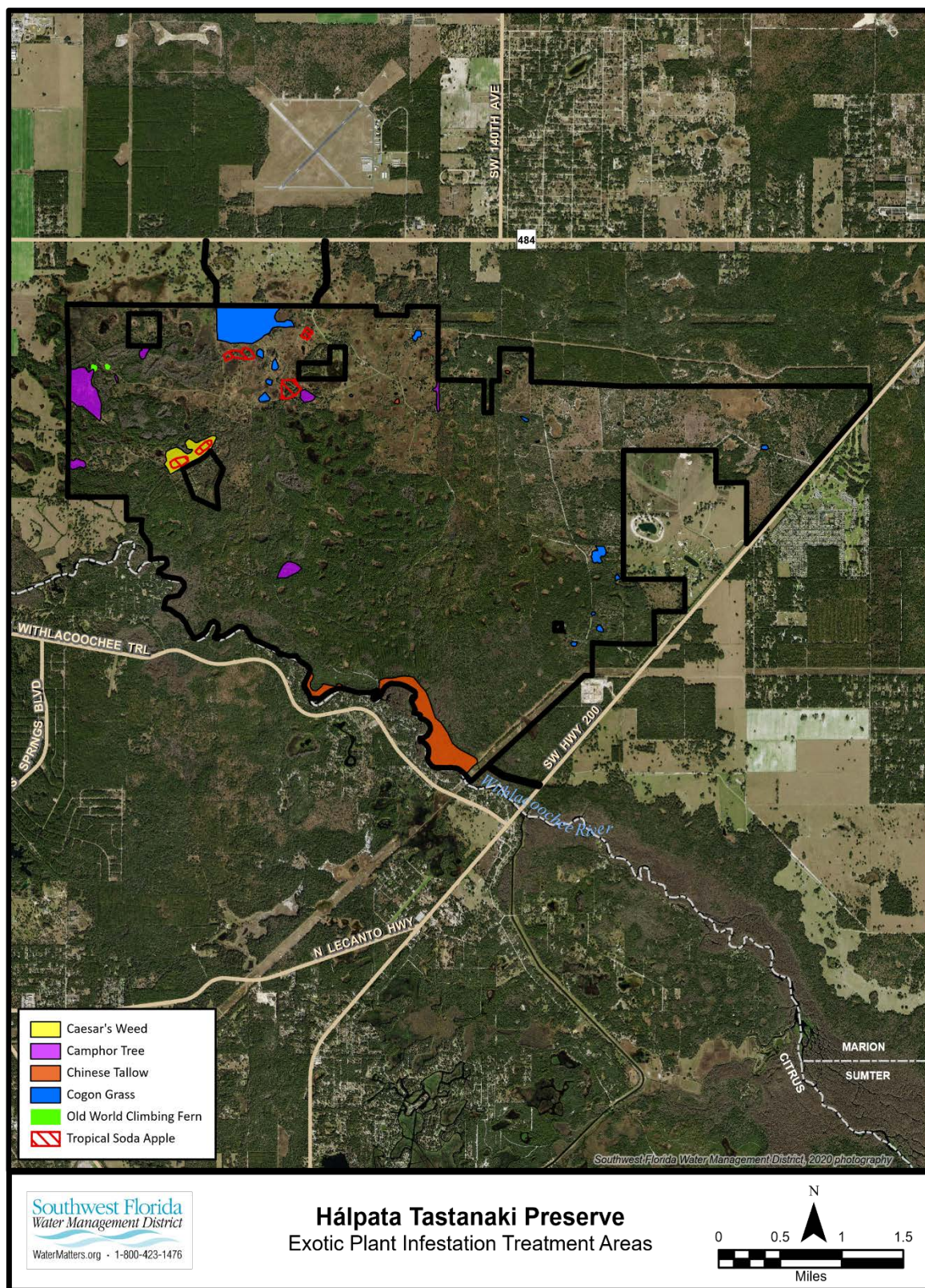


FIGURE 10. EXOTIC PLANT INFESTATION TREATMENT AREAS

Invasive Wildlife Management

The most prevalent exotic animal species on the Preserve is the feral hog. Feral hogs continue to be a major issue in terms of damage to natural systems throughout much of Florida. Often the most impacted natural systems include floodplain areas and depression/basin marshes, creating vegetation changes by rooting which can result in a decline in water quality. Upland oak communities are also often heavily damaged when acorns are available as forage. Feral hogs compete with other wildlife species for food sources and may act as disease reservoirs for pseudorabies, brucellosis and leptospirosis, which have the potential to be transferred to domestic livestock and humans. Hog rooting can also result in plant removal, creating open areas for colonization by exotic species, sedimentation and runoff, and water quality changes. Eradication is not possible, but measures should continue to be implemented and potentially expanded to reduce the population. Efforts to control hog abundances have been ongoing since 1995, with the inclusion of annual public hunts, trapping by staff, and historical trapping efforts by private contractors and the U.S. Department of Agriculture Wildlife Services. Feral hog removal between 2009 and 2019 resulted in 149 animals trapped and 726 taken during District-managed hunts for a total of 875 hogs (Table 6).

TABLE 6: FERAL HOG CONTROL SUMMARY FY 2009 - FY 2019

Fiscal Year	Trapping Total	District Hunt Total	Total for Year
2009	70	44	114
2010	0	52	52
2011	3	33	36
2012	0	0	0
2013	0	57	57
2014	0	155	155
2015	0	95	95
2016	0	48	48
2017	43	114	157
2018	33	44	77
2019	0	84	84
11-year Total	149	726	875

Imperiled Species

For the purposes of this Management Plan, the statement “Imperiled Species” refers to plant and animal species that are designated as Endangered or Threatened by the FWC, or that are designated as Endangered or Threatened by the U.S. Fish and Wildlife Service. The diversity and intensity of restoration at the Preserve is a function of managing an altered landscape for a multitude of vegetation and wildlife species that have specific, yet unique habitat needs. For instance, Florida scrub-jays, a shrubland species, occur within an altered longleaf pine sandhill community where pine removal and lack of fire resulted in conversion to shrubs. As surrounding areas become developed and native communities lost, wildlife species are forced into remaining managed areas

like Halpata. However, the importance of proper land management will further provide a long-term refuge. To maintain a landscape structure that can continue to support high species diversity, management activities need to be conducted in coordination with monitoring. Consequently, the Preserve serves as a unique opportunity for studying and understanding the effects of fire management and restoration upon habitats of imperiled wildlife species.

Federal or state-listed imperiled wildlife species currently documented within the Preserve include the Florida scrub-jay and gopher tortoise. Another important sandhill/scrub species that is no longer listed but still considered a “Species of Greatest Conservation Need” by FWC is the gopher frog. See Appendix, Addendum 1, for a list of wildlife species known to occur on the Preserve.

Florida Scrub-Jay

The Preserve is within the Northern Gulf Coast Sub-region, which provides for the prime habitat for the federal and state threatened Florida scrub-jay (*Aphelocoma coerulescens*). Scrub-jays are endemic to the peninsular Floridian scrub community, living in scrub oaks that are ideally three to ten feet tall. Following the acquisition of the Preserve, removal of planted pines and an aggressive prescribed fire program resulted in attracting Florida scrub jays to the area beginning in the late 1990s. In 1997, two groups were known to occupy the Preserve. Over time, the scrub jay population increased to several individuals supporting several family groups and likely peaked around the mid to late 2000s when 30 family groups were documented. Between 2003 and 2006, 82 jays were banded on the Preserve.

Beginning in 2012, the District partnered with Audubon of Florida and the FWC to initiate Jay Watch, a volunteer program that monitors scrub jays following the annual nesting season from select points or stations located in known or potentially suitable habitat. Under this program, staff and volunteers conduct a three consecutive day survey between June 15 and July 15 using pre-recorded jay playback calls. At the Preserve, 40 permanent stations have been established within known or former scrub-jay habitat. Calls are played to lure birds to each station to determine number of adults and juveniles. Response data is also used to help determine number of family groups on a given tract. These annual 3-day surveys can provide important trend information on scrub jay use and recruitment. Peak numbers were reached in 2015 (31 adults and 10 juveniles) with a potential of 13 family groups. Unfortunately, numbers have been in steady decline since 2015, reaching a low of 20 total birds and only 8 family groups sighted in 2019. Average total number of jays observed (adults and juveniles) with 40 survey points for the period 2014-2019, is 31. The average number of family groups for that period is 11.

Over the years, there have been fluctuating population levels of scrub-jays on site; however, they have consistently utilized the eastern portion of the site for nesting and several individuals having colonized other nearby public lands.

Gopher Tortoise

The gopher tortoise (*Polyphemus gopherus*) is listed as Threatened by the State of Florida; additionally, it is a candidate for Federal listing. Gopher tortoises occur within several communities throughout the Preserve. Point data collected by District staff in the mid-2000s

indicated large numbers of gopher tortoise burrows, particularly in the eastern part of the Preserve, in xeric communities where the highest concentration of suitable soils occurs. Smaller concentrations of burrows were found in the FDOT mitigation-restored grasslands in the west-central part of the property and a small concentration occurs on Adamsville soils in the far western part of the Preserve.

Previous gopher tortoise burrow surveys suggest healthy densities of gopher tortoises throughout the ruderal, sandhill, and scrub communities. The FWC has been actively working with public land management agencies to rank tortoise populations on protected lands by using more intensive surveys to determine population viability. In 2018 and 2019, Line Transect Distance Surveys (LTDS) were conducted within the Preserve and adjoining Cross Florida Greenway lands by FNAI under contract with the FWC (Florida Natural Areas Inventory 2019). Results showed an estimated total population of 1,966 tortoises with a density of 1.1 tortoise per hectare, or 1.1 tortoise per 2.47 acres, with a burrow occupancy rate of nearly 68%. These results meet FWC's criteria for a minimum viable population. Studies such as these provide valuable habitat and management information for the District and for the FWC's state-wide gopher tortoise protection program.

Florida Gopher Frog

The District works to facilitate amphibian surveys of depression marshes and artificially created ephemeral ponds by FWC staff. FWC staff conducted state-wide surveys of potential breeding ponds for winter-breeding amphibians under a Florida State Wildlife Grant in 2010, which resulted in the discovery of Florida gopher frog (*Lithobates capito*) tadpoles within eight ponds on the Preserve (K. Enge, 2014 FWC report). In 2015, the FWC sampled numerous ponds around the state to conduct genetic sampling using gopher frog tadpoles to compare peninsular lineages versus panhandle lineages. Six known gopher frog ponds on Halpata were again sampled for tadpoles as part of a range-wide genetics study (Enge et al., Final Rept., 2017) as identified in the Species Action Plan for this species (FWC, 2013). Periodic fire is the primary tool to maintain depression marshes located within a matrix of mesic flatwoods, sandhill, scrub, and ruderal habitat.

Rare Plant Species

Eleven state-listed plant species have been documented on the Preserve, and several others are likely to occur due to on-site habitat and proximity to other occurrences (J. Deangelis, pers. comm., August 2, 2018). Several orchid species have been found on the Preserve including giant orchid and little ladies' tresses; numerous occurrences of giant orchid have been noted in existing or former sandhill and scrub habitat in the eastern part of the Preserve; little ladies' tresses is also recorded from these general habitat types and locations. Other orchid species include leafless beaked ladies' tresses, found typically in moist edges of ponds and wet to mesic flatwoods, yellow-fringed orchid, found in wet flatwoods and boggy areas, and threebirds orchid, found in hardwood hammocks. The commercially exploited Florida butterfly orchid grows as an epiphyte in oak hammocks. Plumed rockcap fern, which can be epiphytic or terrestrial, is found in mesic hammock. Sandhill spiny pod, of the milkweed family, and the legume, sand butterfly pea, have

been observed in remnant scrub and sandhills habitat at Halpata. *Garberia*, a shrub of the Asteraceae family, is found primarily in scrub habitat at the Preserve (Table 7).

The District intends to continue to stay connected with FNAI, FWC, Florida Native Plant Society, Audubon Society, and universities for the purposes of conducting wildlife or plant surveys. In addition to species specific surveys, the District strives to continue compiling current incidental listed species or rare species sightings within the Preserve (Addendum 1).

TABLE 7. IMPERILED FLORA SPECIES FOUND AT PROPERTY

Common Name	Species Name	State Listing
Giant Orchid	<i>Orthochilus ecristatus</i>	Threatened
Little Ladies' Tresses	<i>Spiranthes tuberosa</i>	Threatened
Leafless Beaked Ladies' Tresses	<i>Sacoila lanceolata</i>	Threatened
Yellow Fringed Orchid	<i>Platanthera ciliaris</i>	Threatened
Threebirds Orchid	<i>Triphora trianthophora</i>	Threatened
Florida Butterfly Orchid	<i>Encylia tampensis</i>	Commercially Exploited
Plumed Rockcap Fern	<i>Pecluma plumula</i>	Endangered
Cardinalflower	<i>Lobelia cardinalis</i>	Threatened
Garberia	<i>Garberia heterophylla</i>	Threatened
Sandhill Spiny Pod	<i>Matelea pubiflora</i>	Endangered
Sand Butterfly Pea	<i>Centrosema arenicola</i>	Endangered

Recreation

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

For some District properties, there are cooperative agreements associated with other public agencies to provide for a more expansive recreational use. Currently, there are no such agreements on the Preserve.

The recreational activities permitted at the Preserve are bicycling, horseback riding, fishing, and hiking. Public access to the property is provided at two walkthrough access points. An access to the northern portion of the Preserve, managed by the FDEP Office of Greenways and Trails (OGT), is provided by a gate and parking area near the south side of SW Hwy 484. This access point is also referred to as the Pruitt Trailhead, which is a trail that links to the Florida National Scenic Trail within the Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area situated along the north portion of the Preserve. The District provides walkthrough access to the main Preserve south of the Greenway parking area. Another access point is located on the eastern portion of the Preserve and is provided by a gate and parking area on the west side of SR 200, south of the SR 200 and SW Hwy 484 intersection. There are informational kiosks located at the two District designated public access points, which contain a large trail map of the property and trail map brochures. Motorized access on the Preserve is restricted to authorized personnel directly affiliated with the District, and any other non-affiliated personnel that are held in cooperative agreement with the District.

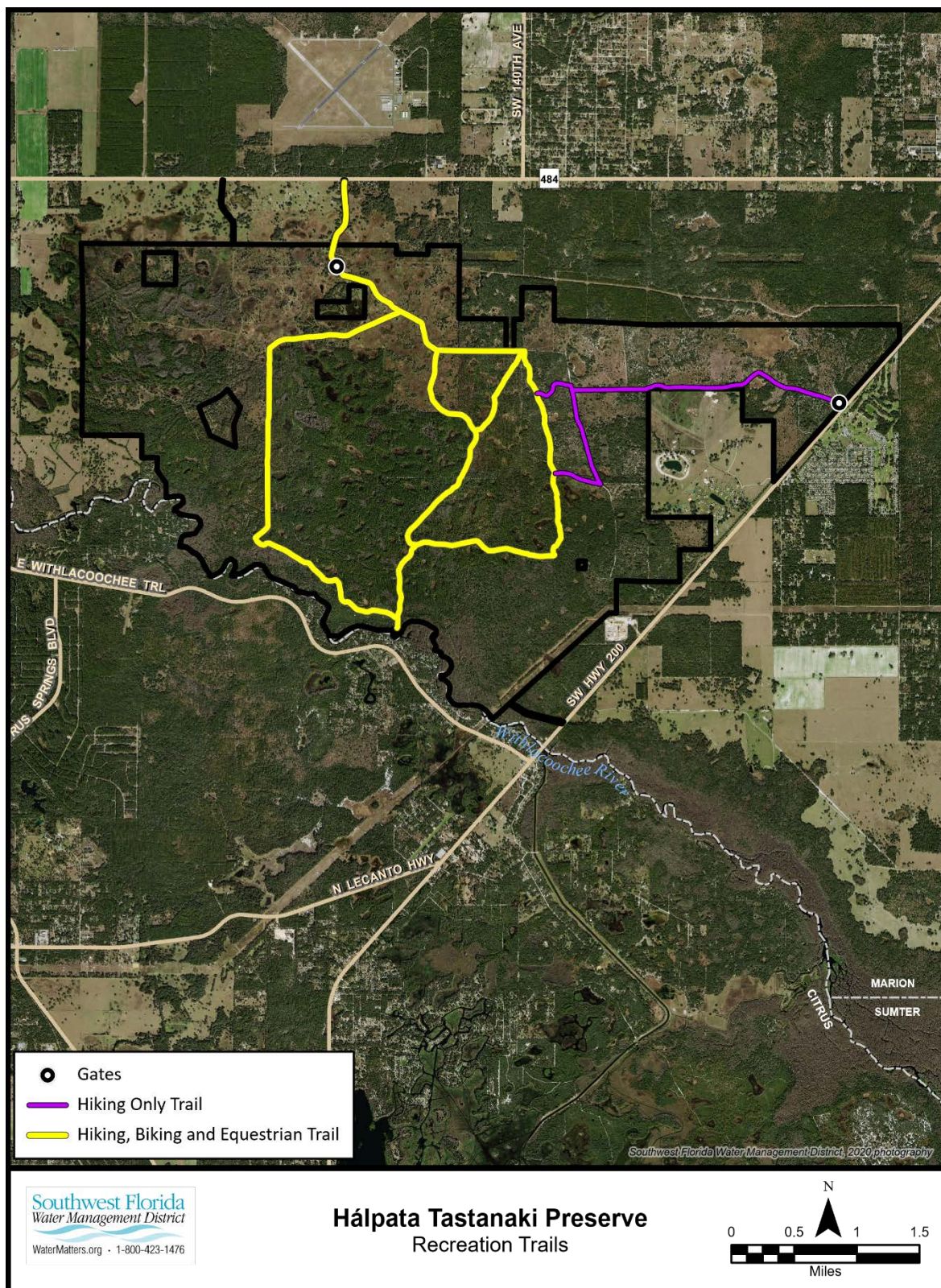


FIGURE 11. RECREATION TRAILS AT THE PRESERVE

Trails

The Preserve provides for approximately 17 miles of multi-use trails. These trails are also promoted under the designation of the Florida Greenways and Trails network. Trails give nature-based experiences while minimizing impacts to the lands and natural systems. 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.

Of the 17 miles of multi-use trails, approximately 13 miles of the unpaved hiking trails provide for the additional uses of bicycling and horseback riding. These trails are only accessible from the SW Hwy 484 access point. For equestrian use, it is required that each rider must carry proof of their horse's current negative Coggins test results.

Camping

As part of the 2021 – 2031 land management plan interval, the Preserve will not provide for any designated camping opportunities. [Wildlife Viewing, Hunting, Fishing and Boating](#)

The Preserve has a wide variety of wildlife viewing opportunities. The Withlacoochee River flows along the southern property boundary and provides for observing an abundance of bird species. The property contains many other species of wildlife, such as deer, gopher tortoises, turkeys, sandhill cranes and scrub jays. This positive species richness is indicative of proper land management practices which have created flourishing natural habitats throughout the Preserve.

The District provides an annual SUA to the FWC for providing youth hunting opportunities on the Preserve. Additionally, the District manages feral hog population management hunts. The Preserve is closed to the public during these hunt times.

Fishing is typically open along the banks of the Withlacoochee River at the southern portion of the property. Fishing is regulated by FWC and a license may be required.

Although the Withlacoochee River watercourse may appear to be suitable for canoeing or kayaking, there is no designated launch site. 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 are no formal environmental educational facilities at the Preserve. However, there are scientific research studies that are conducted by environmental consultants, not-for-profit organizations, private recreational clubs, state agencies, and universities. These types of activities require a Special Use Authorization.

Land Use Administration

The land uses administered on District conservation lands are governed by 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. The specific public recreation uses at the Preserve are discussed in the previous Section 4.2. 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 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

There is a cooperative agreement with the FDEP OGT for the management of the Cross Florida Greenways State Recreation and Conservation Area within the Preserve, in addition to a designation agreement with the FDEP for the designation of the recreation trails on the Preserve that provides recognition as part of the OGT trail network. Finally, there is a memorandum between the District and FDOT for the management of two wetland mitigation areas located on the Preserve.

The District holds access easements and utility easements. The access easements are for the private inholdings that reside within or adjacent to the property boundary of the Preserve, while the utility easements within the Preserve are associated with the Sabal Trail gas pipeline and the Duke Energy powerline.

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

The Preserve has been a frequented location for bird surveys of various avian species, gopher tortoise studies and feral swine research.

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 general granted access allowances. Recreational uses have typically been for private events that included, but are not limited to, equestrian events, and FWC-managed youth hunts. As mentioned in the previous section, the research opportunities have included, but are not limited to, the study of the scrub jay, gopher tortoise, other various wildlife surveys and youth hunting events. Additional granted accesses have typically been for current, adjacent property owners to traverse the Preserve to access private adjacent properties.

Future Land Conservation

The District will continue to consider the opportunities for 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 being a portion of a contiguous core of protected public conservation and recreation lands within the Withlacoochee River floodplain, it would be advantageous to seek possible opportunities for acquiring fee simple and less-than-fee properties to further promote protections of the natural features within the region.

Land Maintenance and Operations

District conservation lands include a variety of infrastructure elements that include, but not limited to, road culverts, fencing, and the occasional facility which are all required to be properly maintained. The District typically depends on its Field Operations personnel to provide such maintenance; however, dependent upon the property, the District will hold cooperative agreements with third parties to provide any required maintenance for specific infrastructure elements.

Specific to the Preserve, there are several miles of unpaved roadways and fire lines; culverts and seasonal low crossings; perimeter fencing; access roadways for ingress and egress at SR 200 and SW Hwy 484 for the public and authorized personnel; and infrastructure that is affiliated with the public parking area and the Sabal Trail pipeline.

Road Maintenance

The Preserve has approximately 34 miles of unpaved roadways, and approximately 18 miles of annual fire lines. The typical maintenance of the existing roadways may include adding fill material to the roadway, grading, and compacting the roadway surface, and mowing of the roadsides. Fire line maintenance typically includes removal of fuels (i.e. duff, needle cast, ground cover, excessive limbs, snags, etc.) and a rough grading of the fire line to allow containment of fire.

Culverts and Low Crossings

The Preserve contains roughly twenty culverts and nine seasonal low crossings. Culverts and low water crossings are strategically placed to allow vehicle and equipment access while protecting flow ways and sensitive wetland areas. Culverts may be placed beneath a roadway to maintain a permanent, positive hydric flow between wetland areas. The placement of a low crossing can typically occur in areas where large, seasonal hydric flows can freely convey throughout a drainage area. Field verification and proper management practices are utilized by District staff to determine the most efficient option.

Fencing and Access

The Preserve has 4-foot-high wire fencing with wooden posts encompassing the full perimeter of the property. There are two designated public access points, previously mentioned in Section 4.2, that also include a vehicular access gate for the use of authorized personnel and SUA-approved users. Furthermore, there are ten additional vehicle access gates scattered along the perimeter and within the interior of the property for the exclusive use of authorized personnel.

Facilities and Infrastructure

The Preserve does not contain any facilities that would require maintenance; however, the Preserve does contain infrastructure elements. The District is responsible for the maintenance of any parking areas that are affiliated with the public access points, with exception to the Pruitt Trailhead parking area and all affiliated facilities and infrastructure which are under the management of the OGT. These locations typically consist of a mix of semi-improved, unpaved surfaces and grassy surfaces for parking vehicles. Furthermore, there are signs affiliated with the Preserve that also require

periodic maintenance. Lastly, the Sabal Trail pipeline traverses through a section of the Preserve; however, the pipeline is maintained by Sabal Trail through an agreement with the District.

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 quality and quantity, restore hydrology to the extent feasible and maintain the restored condition.

- Objective 1: Continue to observe and assess water resources within the Preserve to ensure desired hydrologic function.
- Objective 2: Continue monitoring water quality and wetland impacts through the District's Data Collection Network.
- Objective 3: Develop and implement hydrological restoration projects as needed.
- Objective 4: Protect water resources during management activities by implementation of Best Management Practices.

Fire Management

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

- Objective 1: Develop and implement an annual burn plan and apply prescribed fire according to the District's Fire Management Guidelines.
- Objective 2: Conduct majority of prescribed burns within native natural communities during the growing season to support development of native fire-dependent species and habitat function while promoting water resource benefits.
- Objective 3: Update and maintain condition class database to track management activities on specific management units.
- Objective 4: Maintain perimeter and strategic firelines on an annual basis while establishing internal units as necessary based on seasonal needs of prescribed fire program and wildfire mitigation.

Restoration and Habitat 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, especially imperiled communities, on altered sites.

- Objective 2: Utilize information obtained from historic imagery and on-site investigations, to implement site specific restoration projects that support the District's restoration goals.
- Objective 3: Implement habitat management projects that support the improvement and development of native plant and animal communities, including imperiled species.

Goal: Maintain and enhance natural community structure and function.

- Objective 1: Continue to maintain existing habitat enhancement projects over the long-term to achieve desired conditions based on representative community site descriptions outlined in FNAI's Guide to the Natural Communities of Florida.
- Objective 2: Evaluate and plan habitat enhancement projects to improve habitat function.
- Objective 3: Implement habitat management projects that support the protection, improvement and development of native plant and animal communities, including imperiled species.

Forest Management

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

- Objective 1: Manage the forest resources in accordance with the District's 10-Year Timber Management Plan and conduct timber harvests as scheduled.
- Objective 2: Evaluate and develop harvest plans or pine planting projects to support restoration 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 habitat to support development of imperiled, threatened, or endangered plant and animal species.

- Objective 1: Implement land management strategies and techniques that support development and maintenance 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 state agencies, conservation organizations, and landowners to maintain habitat connectivity.
- Objective 4: Officially designate the Preserve as "environmentally sensitive and biologically highly productive" under F.S. Chapter 388.4111. Work with Marion County Mosquito Control District regarding the implementation of an Arthropod Management Plan program if requested.

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 EDRR measures on new species 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. Routinely evaluate feral hog impacts on the property and modify control methods to maximize control efforts.

Infrastructure and Maintenance

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

- Objective 1: Annually inspect and maintain the roads according to their designated maintenance schedule.
- Objective 2: Continue to inventory, monitor, and maintain culverts and low water crossings, as necessary.
- Objective 3: Periodically inspect boundary fencing and gates to assure adequate protection and site security of resources and repair, as needed.

Administration

Goal: Develop the "Accomplishments from Previous Plan" section for the 2031-2041 Land Use and Management Plan based on the current goals and objectives.

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

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

- Objective 1: Routinely review agreements, easements, and leases. Routinely review and update as necessary agreements, easements, and leases.

- Objective 2: Review special requests and issue SUAs for uses that are compatible and consistent with the District Policy.
- Objective 3: Maintain cooperative relationships with state, local, and other governmental entities along with stakeholders.

Recreation

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

- Objective 1: Maintain existing public access locations and recreational opportunities.
- Objective 2: Evaluate the need for additional public access and recreational opportunities.
- Objective 3: Continue cooperation with FWC to provide guidance on seasonal youth hunts.
- Objective 4: Continue cooperation with DEP at the Pruitt Trailhead to provide parking and recreational amenities.

Archaeological and Cultural Resources

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

- Objective 1: Coordinate with the Division of Historical Resources regarding any updates to known existing sites. Follow the Division's recommendations on protection and monitoring on known significant sites.
- Objective 2: Take precautions to protect these sites from potential impacts resulting from management or maintenance activities.
- Objective 3: Maintain qualified staff as an Archaeological Site Monitor.

Security

Goal: Provide site security and resource protection.

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

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Appendices

Appendix 1: Species known to occur or could occur on the Preserve

Common Name	Scientific Name	Status
Birds		
Wood Duck	<i>Aix sponsa</i>	
Hooded Merganser	<i>Lophodytes cucullatus</i>	
Bufflehead	<i>Bucephala albeola</i>	
Great Blue Heron	<i>Ardea herodias</i>	
Great Egret	<i>Ardea alba</i>	
Little Blue Heron	<i>Egretta caerulea</i>	ST
Snowy Egret	<i>Egretta thula</i>	*
Cattle Egret	<i>Bubulcus ibis</i>	
Purple Gallinule	<i>Porphyria martinica</i>	
Wood Stork	<i>Mycteria americana</i>	FT
Sandhill Crane	<i>Antigone canadensis</i>	
Florida Sandhill Crane	<i>Antigone canadensis pratensis</i>	ST
White Ibis	<i>Eudocimus albus</i>	*
Killdeer	<i>Charadrius vociferus</i>	
Wild Turkey	<i>Meleagris gallopavo</i>	
Northern Bobwhite	<i>Colinus virginianus</i>	*
Swallow-tailed Kite	<i>Elanoides forficatus</i>	*
Mississippi Kite	<i>Ictinia mississippiensis</i>	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	
Cooper's Hawk	<i>Accipiter cooperii</i>	
Northern Harrier	<i>Circus hudsonius</i>	
Red-tailed Hawk	<i>Buteo jamaicensis</i>	
Red-shouldered Hawk	<i>Buteo lineatus</i>	
Broad-winged Hawk	<i>Buteo platypterus</i>	

Bald Eagle	<i>Haliaeetus leucocephalus</i>	
Osprey	<i>Pandion haliaetus</i>	
Turkey Vulture	<i>Cathartes aura</i>	
Black Vulture	<i>Coragyps atratus</i>	
American Kestrel	<i>Falco sparverius</i>	
Southeastern American Kestrel	<i>Falco sparverius paulus</i>	ST
Merlin	<i>Falco columbarius</i>	
Eastern Screech-Owl	<i>Megascops asio</i>	
Great Horned Owl	<i>Bubo virginianus</i>	
Barred Owl	<i>Strix varia</i>	
Barn Owl	<i>Tyto alba</i>	
Mourning Dove	<i>Zenaida macroura</i>	
Common Ground Dove	<i>Columbina passerina</i>	*
Common Nighthawk	<i>Chordeiles minor</i>	*
Belted Kingfisher	<i>Megaceryle alcyon</i>	
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	*
Pileated Woodpecker	<i>Dryocopus pileatus</i>	
Northern Flicker	<i>Colaptes auratus</i>	*
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	
Downy Woodpecker	<i>Picoides pubescens</i>	
Hairy Woodpecker	<i>Picoides villosus</i>	
Eastern Kingbird	<i>Tyrannus tyrannus</i>	
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	
Eastern Phoebe	<i>Sayornis phoebe</i>	
Purple Martin	<i>Progne subis</i>	
Tree Swallow	<i>Tachycineta bicolor</i>	
Chimney Swift	<i>Chaetura pelagica</i>	

Fish Crow	<i>Corvus ossifragus</i>	
American Crow	<i>Corvus brachyrhynchos</i>	
Blue Jay	<i>Cyanocitta cristata</i>	
Florida Scrub-Jay	<i>Aphelocoma coerulescens</i>	FT
Carolina Chickadee	<i>Poecile carolinensis</i>	
Tufted Titmouse	<i>Baeolophus bicolor</i>	
House Wren	<i>Troglodytes aedon</i>	
Carolina Wren	<i>Thryothorus ludovicianus</i>	
Sedge Wren	<i>Cistothorus platensis</i>	
Ruby-crowned Kinglet	<i>Regulus calendula</i>	
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	
Brown Thrasher	<i>Toxostoma rufum</i>	
Gray Catbird	<i>Dumetella carolinensis</i>	
Northern Mockingbird	<i>Mimus polyglottos</i>	
Eastern Bluebird	<i>Sialia sialis</i>	
American Robin	<i>Turdus migratorius</i>	
Loggerhead Shrike	<i>Lanius ludovicianus</i>	*
Cedar Waxwing	<i>Bombycilla cedrorum</i>	
White-eyed Vireo	<i>Vireo griseus</i>	
Northern Parula	<i>Setophaga americana</i>	
Yellow-throated Warbler	<i>Setophaga dominica</i>	
Black-and-White Warbler	<i>Mniotilta varia</i>	
Yellow-rumped Warbler	<i>Setophaga coronata</i>	
Pine Warbler	<i>Setophaga pinus</i>	
Palm Warbler	<i>Setophaga palmarum</i>	
Common Yellowthroat	<i>Geothlypis trichas</i>	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	

Brown-headed Cowbird	<i>Molothrus ater</i>	
Common Grackle	<i>Quiscalus quiscula</i>	
Boat-tailed Grackle	<i>Quiscalus major</i>	
Eastern Meadowlark	<i>Sturnella magna</i>	*
Orchard Oriole	<i>Icterus spurius</i>	
Summer Tanager	<i>Piranga rubra</i>	
Northern Cardinal	<i>Cardinalis cardinalis</i>	
House Finch	<i>Haemorhous mexicanus</i>	
American Goldfinch	<i>Spinus tristis</i>	
Blue Grosbeak	<i>Passerina caerulea</i>	
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	
Indigo Bunting	<i>Passerina cyanea</i>	
Painted Bunting	<i>Passerina ciris</i>	*
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	
Chipping Sparrow	<i>Spizella passerina</i>	
Swamp Sparrow	<i>Melospiza georgiana</i>	
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	
Bachman's Sparrow	<i>Peucaea aestivalis</i>	*
Song Sparrow	<i>Melospiza melodia</i>	
Vesper Sparrow	<i>Pooecetes gramineus</i>	
Savannah Sparrow	<i>Passerculus sandwichensis</i>	
Henslow's Sparrow	<i>Ammodramus henslowii</i>	*
Reptiles		
Eastern Indigo Snake	<i>Drymarchon couperi</i>	FT
Scarlet Kingsnake	<i>Cemophora coccinea</i>	
Southern Hognose Snake	<i>Heterodon simus</i>	
Eastern Hognose Snake	<i>Heterodon platirhinus</i>	

Coral Snake	<i>Micrurus fulvius</i>	
Cottonmouth	<i>Agkistrodon piscivorus</i>	
Red Rat Snake	<i>Pantherophis guttatus</i>	
Eastern Rat Snake	<i>Pantherophis alleghaniensis</i>	
Florida Pine Snake	<i>Pituophis melanoleucus mugitus</i>	ST
Eastern Coachwhip	<i>Masticophis flagellum</i>	
Black Racer	<i>Coluber constrictor priapus</i>	
Eastern Garter Snake	<i>Thamnophis sirtalis</i>	
Eastern Diamondback Rattlesnake	<i>Crotalus adamanteus</i>	
Gopher Tortoise	<i>Gopherus polyphemus</i>	ST-
Eastern Box Turtle	<i>Terrapene carolina</i>	
Peninsula Cooter	<i>Pseudemys peninsularis</i>	
Striped Mud Turtle	<i>Kinosternon baurii</i>	
Chicken Turtle	<i>Deirochelys reticularia</i>	
Musk Turtle	<i>Sternotherus odoratus</i>	
Common Snapping Turtle	<i>Chelydra serpentina</i>	
American Alligator	<i>Alligator mississippiensis</i>	
Eastern Glass Lizard	<i>Ophisaurus ventralis</i>	
Green Anole	<i>Anolis carolinensis</i>	
Six-lined Racerunner	<i>Aspidoscelis sexlineata</i>	
Amphibians		
Two-toed Amphiuma	<i>Amphiuma means</i>	
Gopher Frog	<i>Lithobates capito</i>	*
Pig Frog	<i>Lithobates grylio</i>	
Southern Leopard Frog	<i>Lithobates sphenocephalus</i>	
Pinewoods Treefrog	<i>Hyla femoralis</i>	
Squirrel Treefrog	<i>Hyla squirrela</i>	

Mammals		
Bobcat	<i>Lynx rufus</i>	
Coyote	<i>Canis latrans</i>	
Raccoon	<i>Procyon lotor</i>	
Florida black bear	<i>Ursus americanus floridanus</i>	
River Otter	<i>Lutra canadensis</i>	
Opossum	<i>Didelphis marsupialis</i>	
Striped Skunk	<i>Mephitis mephitis</i>	
Florida Mouse	<i>Peromyscus floridanus</i>	*
Oldfield mouse	<i>Peromyscus polionotus</i>	
Cotton Rat	<i>Sigmodon hispidus</i>	
Southeastern Pocket Gopher	<i>Geomys pinetis</i>	*
Marsh rabbit	<i>Sylvilagus palustris</i>	
Eastern Cottontail	<i>Sylvilagus floridanus</i>	
Southern Fox Squirrel	<i>Sciurus niger niger</i>	*
Gray Squirrel	<i>Sciurus carolinensis</i>	
White-tailed Deer	<i>Odocoileus virginianus</i>	
Armadillo	<i>Dasypus novemcinctus</i>	
Feral Pig	<i>Sus scrofa</i>	*

ST=State-threatened

FT = Federal-threatened

* = Florida's Species of Greatest Conservation Need-Taxa of Concern

** = Exotic