

Land Management Plan

Chito Branch Reserve

Land Resources Bureau Southwest Florida Water Management District September 20, 2022 The Southwest Florida Water Management District (District) is a science-based organization responsible for managing and protecting water resources in west-central Florida. The District's job is to ensure there are adequate water supplies to meet the needs of current and future users while protecting and restoring water and related natural resources.

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





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Executive Summary

Acres: 5,389

Acquisition Date: 2001

Plan Term: 10 Years (2023-2032)

Primary Basin: Alafia River

Secondary Basins: Chito Branch, Carlton Branch, Doe Branch, and Long Flat Creek

Location: Hillsborough County

Funding Source: The majority of Chito Branch Reserve (Reserve) was purchased with Preservation 2000 environmental lands acquisition funds combined with funds appropriated by Tampa Bay Water (TBW). A small portion of the Reserve was also purchased in conjunction with Hillsborough County and using Florida Forever funding.

Partnerships: Tampa Bay Water

Natural Systems: The Reserve is comprised of bottomland hardwoods, freshwater marsh, cypress domes and strands, pine flatwoods, and mesic uplands. Certain portions are being restored to a functional analog of mesic flatwoods, sandhill, and dry prairie, depending on the soil type. A large portion of the Reserve consists of semi-improved pasture as a result of past land uses.

Water Resources: The C. W. Bill Young Reservoir (Reservoir) is located within the Reserve and serves as an alternative water supply for the Tampa Bay Region. The Reservoir is managed by TBW and utilizes excess surface water drawn during the rainy season to maintain adequate water supply for the region. Additionally, there are several creeks that traverse the site: Chito Branch, Long Flat Branch, Fishhawk Creek, and Doe Branch. There are 1,048 acres of wetland restoration and enhancement including upland buffers that have been conducted as mitigation for impacts from the development of the Reservoir. Other water management benefits associated with the Reserve include flood protection, water quality protection, and enhancement through maintenance of the existing natural systems.

Land Management: Land management activities at the Reserve include prescribed fire, habitat restoration, invasive species management, feral hog control, and timber management. TBW has management responsibilities within the mitigation areas.

Cultural and Historical Resources: Native Americans occupied the Alafia River watershed for millennia; however, there are no significant cultural or archaeological sites currently documented within the Reserve boundaries. The nearest feature is a "Native American trail" that tracked north-south roughly one mile west of the Reserve. More recently, the site was in agricultural use.

Recreation: The recreational activities permitted on the Reserve are all passive and resource-based activities, which include hiking, birding, biking, and equestrian trail riding on approximately six miles of designated trails.

Special Use Authorization: There are various special uses on the Reserve 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 Reserve can be categorized as recreation, research, and educational.

Access: Public access to the Reserve is provided at one location off Browning Road in the northwest portion of the tract. There are four additional access points for management activities.

Real Estate: The District will continue to consider opportunities to purchase lands adjacent to the Reserve with the goal of promoting the District's effort of protecting the natural features of conservation lands for the benefit of flood protection, water quality, and water supply. In 2016 and 2017, two outlying parcels totaling 127 acres were declared surplus and sold.

Cooperative Agreements, Leases, and Easements: The District has fee ownership over the entirety of the Reserve, but multiple agreements and perpetual easements are in place with both the Department of Environmental Protection and TBW for access and management responsibilities in the mitigation areas created onsite in response to the building of the Reservoir. There is also currently one active apiary lease on site.

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Introduction and General Information

Management Plan Purpose

This Management Plan (Plan) establishes the District's management strategy for Chito Branch Reserve for the 10-year period from 2023-2032. The process for creating, updating, and implementing the Plan is outlined by the District's Governing Board Policy titled Land Use and Management (District Policy) and the District's Executive Director Procedure titled Land Use and Management Planning (Procedure) dictates how District-owned conservation lands are to be used and managed. District-owned conservation lands are managed for the protection of water resources and natural systems through the application of effective and efficient land management practices. This Plan provides an overview of the property and its resources, a summary of past achievements, and an outline of the goals and objectives for the next 10-year planning period.

District Planning Philosophy

The District's planning philosophy ensures that Management Plans are developed and implemented with input from both internal and external stakeholders. Management Plans are designed to guide the public use and resource management of District conservation lands and incorporate input from stakeholders. They are developed through a process of planning, coordination, data review, field reconnaissance, and creation of a property-specific series of goals and objectives. Following development of a draft Management Plan, it is reviewed by an array of stakeholders including District staff, subject matter experts, relevant state agencies and local governments, partners, and key user groups.

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

The District also provides the opportunity for stakeholders and the public to provide input on management and public use during the Land Management Review process. Land Management Reviews are conducted periodically to both inform the public of the District's land management activities and to gauge the District's progress in implementation of the plan. This process helps ensure the District is managing the land in accordance with the Management Plan, and in a manner consistent with the purpose for which the property was acquired. The Land Management Review team is comprised of representatives of various state agencies, cooperative partners, private land managers, and other interested parties with expertise in resource management. The reviews culminate in an evaluation report that is submitted for review and consideration by District staff and ultimately presented to the District's Governing Board.

District Strategic Plan

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

Management Authority

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

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

Location

The Reserve is located in southeast Hillsborough County near the unincorporated communities of Lithia and Balm (**Figure 1 and Figure 2**). The Reserve is approximately 10 miles southeast of Brandon and 13 miles southwest of Mulberry. It is 10 miles east of Interstate 75 and seven miles south Highway 60. The Reserve is bounded to the west by Hobson Simmons and Boyette Roads, to the northwest by Browning Road and to the east by State Road 39 (S.R. 39).



FIGURE 1. GENERAL LOCATION



FIGURE 2. AERIAL OVERVIEW

Acquisition

Policy

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

History

The Reserve was purchased in 2001 under the Preservation 2000 program. One of the primary purposes for acquisition of the Reserve was for the development of the 1,100-acre Reservoir. In addition, this acquisition supported each of the District's AORs and contributed to the existing conservation network in the surrounding area with protection of water resources associated with the Alafia River.

The Reservoir construction was completed in 2005 and is designed to store water to support the region's drinking water needs in times of dry weather, while limiting excessive pumping in the region's wellfield system.

As mitigation for the resources that were displaced by the Reservoir, approximately 4,500 acres surrounding the Reservoir were purchased and placed in perpetual conservation via a conservation easement and 1,048 acres of both wetlands and upland buffers were restored and/or enhanced. TBW is responsible for the management of the areas under the conservation easement and is also responsible for the wetland restoration activities (**Figure 3**). As one condition of the Reservoir construction, the U.S Army Corps of Engineers (ACOE) required that the District hold the title for all the mitigation and conservation land that comprises the Reserve. In 2005, the conservation easement transferred from the District to the State of Florida Board of Trustees and the District retained fee ownership.



FIGURE 3. AREAS OF MANAGEMENT RESPONSIBILITY

Regional Significance

The Florida Natural Areas Inventory (FNAI), the University of Florida, and the Florida Fish and Wildlife Conservation Commission's (FWC) Critical Lands and Water Identification Project (CLIP Vers. 4) is a collection of spatial data that was developed to identify those lands and waters in the state that are critical to the conservation of Florida's natural resources. The CLIP effort maps various resources of importance and prioritizes their values based on site-specific characteristics and conditions. If a site shows up in any of these maps, regardless of priority level, it is considered critical to the conservation of the state's natural resources. An aggregate map has been created, which combines the resource layers, including biodiversity, landscapes, surface water, groundwater, and marine spatial data. The Reserve is predominantly ranked as a Priority 2 on this map, with portions being mapped as Priority 1. More specifically, the site is ranked within several categories as follows:

- Biodiversity is mostly Priority Level 2 with small areas of Priority Level 1 in the flatwoods/cypress strand areas north of the Reservoir.
- > Landscape is entirely Priority Level 4.
- Surface waters has Priority Levels 2-5 with the higher Priority levels along the site's tributaries.

Regional Conservation Network

The Reserve adds 5,389 acres to the network of protected conservation land in the region (**Figure 4**). There are approximately 80,500 acres of conservation areas within Hillsborough, Manatee, and Polk Counties surrounding the Reserve (**Table 1**). The regional conservation value of these properties increases as natural areas and agricultural lands in the region are being converted to residential communities. Collectively, the conservation lands in southeastern Hillsborough County protect some of the last remaining scrub habitat and significant acreage along the Alafia River and its tributaries. These serve as a refuge for wide-ranging species and other endemic wildlife. The District owns a number of these properties and collaborates with county governments under cooperative agreements for resource management. The Reserve is also hydrologically linked along the Alafia River basin to several nearby conservation lands: including the Alafia River Corridor, the Alafia Reserve, the Alderman's Ford Nature Preserve, and the Boy Scout Camp.



FIGURE 4. REGIONAL CONSERVATION NETWORK

Nama	Managar	Ownor	County	Acros
Name	Manager	Owner	County	AUCS
Lower Hillsborough Wilderness Preserve	SWFWMD	SWFWMD	Hillsborough	16,060
Edward Chance Reserve	SWFWMD	SWFWMD	Manatee	7,932
Little Manatee River- Southfork Tract	SWFWMD	SWFWMD	Manatee	971
Edward Medard Conservation Park	Hillsborough	SWFWMD	Hillsborough	1,291
Alafia Reserve	SWFWMD	SWFWMD/Polk	Polk	334
Little Manatee River Corridor	SWFWMD	TIITF	Manatee	1,071
Alafia River State Park	FDEP	TIITF	Hillsborough	7,718
Chicora	FDEP	TIITF	Hillsborough/Po lk	7,475
Moody Branch WEA	FWC	TIITF	Manatee	960
South Fork State Park	FDEP	TIITF	Manatee	1,129
Little Manatee River State Park	FDEP	TIITF	Hillsborough	2,416
Bullfrog Creek WEA	FWC	Hillsborough	Hillsborough	833
Alafia River Corridor	Hillsborough	Hillsborough	Hillsborough	5,149
Balm-Boyette Scrub Nature Preserve	Hillsborough	Hillsborough	Hillsborough	4,871
Little Manatee River Corridor Addition	Hillsborough	Hillsborough	Hillsborough	493
Upper Little Manatee River	Hillsborough	Hillsborough	Hillsborough	1,379
Little Manatee River Corridor	Hillsborough	Hillsborough	Hillsborough	4,850
Balm Scrub Nature Preserve	Hillsborough	Hillsborough	Hillsborough	2,710
Bullfrog Creek Scrub Nature Preserve	Hillsborough	Hillsborough	Hillsborough	778
Golden Aster Scrub Nature Preserve	Hillsborough	Hillsborough	Hillsborough	1,191
Kitchen Preserve	Hillsborough	Hillsborough	Hillsborough	427
Triple Creek Nature Preserve	Hillsborough	Hillsborough	Hillsborough	904
Rhodine Scrub	Hillsborough	Hillsborough	Hillsborough	479
Bell Creek Nature Preserve	Hillsborough	Hillsborough	Hillsborough	520
Fish Hawk Creek Nature Preserve	Hillsborough	Hillsborough	Hillsborough	2,551
Boy Scout	Hillsborough	Hillsborough	Hillsborough	602
Alderman's Ford Nature Preserve	Hillsborough	Hillsborough	Hillsborough	971
Sydney Dover Conservation Park	Hillsborough	Hillsborough	Hillsborough	697
Alderman's Ford Park	Hillsborough	Hillsborough	Hillsborough	597
Headwaters at Duette Preserve	Manatee	Manatee	Manatee	2,223
Duette Preserve	Manatee	Manatee	Manatee	21,907
Total				101,489

TABLE 1. CONSERVATION LANDS WITHIN THE VICINITY

SWFWMD – Southwest Florida Water Management District FWC- Florida Fish and Wildlife Conservation Commission FDEP – Florida Department of Environmental Protection TIITF- Board of Trustees of the Internal Improvement Trust Fund

Current Land Use

The Reserve is managed for the conservation and protection of its water resources and natural resources. In addition, the Reserve offers recreational resources and opportunities to visitors. The Reserve will continue to support a multiple-use concept for environmental conservation, public water supply, and recreational access. It is the policy of the District that compatible passive public recreational opportunities are provided on District conservation lands. These opportunities are compatible with natural resource management and do not hinder protection of the water resources. This approach is consistent with Chapter 373 of the Florida Statutes, which states that "Lands titled to the governing boards of the districts shall be managed and maintained, to the extent practicable, in such a way as to ensure a balance between public access, general public recreational purposes, and restoration and protection of their natural state and condition." The Reserve is large enough to accommodate many passive recreational land uses. Passive recreational uses at the Reserve include picnicking, hiking, birding, and equestrian use. These various land uses are restricted to designated areas. Current natural resource management on the Reserve includes prescribed burning, forest management, exotic species control, infrastructure maintenance, and site security.

Local Government Land Use Designation

The Hillsborough County 2008 Comprehensive Plan was developed in accordance with the requirements of Chapter 163, Florida Statutes, and Chapter 9J-5, Florida Administrative Code. This Comprehensive Plan relies upon a foundation for future planning that will maintain community quality, preserve key ecosystems, and focuses on quality-of-life issues and sustaining the livability of the community.

The Reserve is zoned as (AR), which is Agricultural Rural, portions are zoned as Agricultural Mining (AM), and some is zoned as Planned Development (PD). Since the land will be in conservation perpetually, Hillsborough County will eventually re-zone the property as Conservation Land (C). On the Hillsborough County Future Land Use Map (2025), the site is zoned as: "Significant Wildlife Habitat", AR, and "Major Wetlands", which correspond to Long Flat Branch, Fishhawk Creek, Doe Branch, and Chito Branch.

Adjacent Land Uses

The Reserve is bounded by semi-rural residential parcels primarily greater than two acres and agriculture to the west and south. The County waste management facility is located just to the south of the Reserve. To the northwest, across Boyette Road is the Fish Hawk Creek Nature Preserve, co-owned by Hillsborough County and the District. The Alafia River Corridor is adjacent to the east and Alafia River State Park is to the southeast. There is planned development to the immediate west of the property, across Hobson Simmons Road.

Management Challenges

The challenges associated with the management of the Reserve are primarily due to the location of the parcel within an increasing area of residential development. The additional residential and commercial development increases the pressure on the natural systems and could increase flood control needs in the area. In addition, the abundance of Wildland Urban Interface along the boundary of the Reserve increases the complexities of prescribed fire operations. This results in an increased amount of planning to mitigate and limit impacts to smoke sensitive features. There is also an increased demand for public use in these areas which has to be balanced with the goals of the acquisition and management for the natural systems on the property. Control of nuisance exotic plant species will be a perpetual management challenge because these plant species have extremely successful dispersal mechanisms (e.g., wind, birds), consequently permanent eradication is virtually impossible without eradication of any give species region wide. Feral hogs will also pose a perpetual management challenge and, as with nuisance plants, can re-colonize the site from adjacent open spaces.

Historical Land Use and Cultural Resources

Historical Land Use

Pre-settlement, the Reserve was predominantly pine flatwoods and dry prairie dotted with cypress domes and cypress strands. In this region, fire occurred at a high frequency and was the driving factor for shaping the natural systems. Natural fire shadows are likely to have occurred adjacent to swamp, prairie, bay galls, and ponds. These pre-settlement habitats were mapped out by Wharton (2002) using the 1958 Soil Survey for Hillsborough County (Leighty *et al.*, 1958).

Much of the land composing the Reserve was converted to various agricultural enterprises in the mid-20th Century. This included row crop planting, improved pasture, and semi-improved pasture for cattle grazing. It remained as cattle and farmland until the District purchase in 2001.

Cultural and Archaeological Resources

Although Native Americans had occupied the Alafia River watershed for millennia, there were no major cultural features reported within the Reserve (Wharton 2002). The Reserve does contain two minor archaeological sites listed in the Division of Historical Resources (DHR) master site file. Neither was determined by DHR to be significant, and they will not require special protections. Due care will be taken by Land Resources staff to utilize Best Management Practices to uphold the integrity of any historical or cultural resource located on the site. Active management of these resources consists of preventing disturbance and alerting the appropriate authorities in the case that a site is disrupted, or illegal activities have taken place.

Water Resources and Natural Systems

The acquisition of conservation lands is important for the protection of water resources and is a strategic element in the District's effort to meet its four primary AORs: flood protection, water supply, water quality, and natural systems. The District's mission is to protect water resources, minimize flood risks, and ensure the public's water needs are met. The District is one of five regional agencies directed by state law to protect and reserve water resources within its boundaries. Established in 1961 to operate and maintain several large flood protection projects, the District's responsibilities have since expanded to include managing water supply, protecting water quality, and protecting natural systems including rivers, lakes, wetlands, and associated uplands.

Water Quality

The District is actively involved in maintaining and improving water quality through both regulatory and non-regulatory programs. Protecting and improving surface and groundwater quality are the two primary objectives of the Water Quality AOR (SWFWMD 2021). The ability of natural systems, particularly wetlands, to improve water quality has become an important consideration in water quality related issues.

The Reserve is dominated by freshwater marsh, cypress strands and domes, mesic flatwoods, previously farmed upland communities in various stages of restoration, and several tributaries to the Alafia River lined with hardwood hammock (**Figure 5**). The named tributaries to the Alafia that traverse the Reserve are Chito Branch, Doe Branch, and Long-Flat Creek. These natural wetlands and tributaries collectively contribute to the quality of the groundwater and waters flowing off site by filtrating storm water and overland flows. High velocity floodwaters carry suspended particles. Sedimentation of suspended particles, which may include nutrients and other pollutants, can enter surface water. Detention of floodwaters reduce velocities and particles can be consolidated into bottom sediments or taken up through biological process of various organisms and thereby reduce nutrient loading and improve the quality of discharges to downstream portions of the rivers and ultimately, Tampa Bay and the Gulf of Mexico. Other wetland systems throughout the Reserve's uplands also collect runoff, trap sediments and pollutants, and uptake nutrients through biological processes.



FIGURE 5. WATER RESOURCES

Water Supply

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

Water supply was the primary purpose for acquisition of the Reserve. Water resource functions important on the Reserve include surface and ground water quality protection, and stormwater attenuation.

The 15.5-billion-gallon Reservoir is an integral part of TBW's Enhanced Surface Water System. During periods of higher water levels on the Tampa Bypass Canal, Alafia River, and Hillsborough River water is withdrawn for storage in the Reservoir. Water is then used from the Reservoir to augment TBW's regional water supply system. Construction on the Reservoir was completed in early 2005, with it filled and operational by November 2005 (Tampa Bay Water, 2006).

The Reserve is located within Southern Water Use Caution Area (SWUCA), which was originally established by the District to address and slow the rate of saltwater intrusion resulting from groundwater withdrawals in the region. The Reservoir was developed as one tool in the effort to reduce groundwater withdrawals by providing an alternative water supply option that lessens the reliance on regional groundwater sources.

Recharge

The Reserve is a source of aquifer recharge. Approximately 80 percent of the surface area of the Reserve provides one to three inches per year of water recharge, while the remaining 20 percent contributes three to ten inches per year (SWFWMD GIS 2007).

Flood Protection

Flood protection is another important element of the District's mission. Historically, flood protection depended upon control structures to provide for the storage and "controlled" conveyance of floodwater. 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.

Operationally, the Reservoir is filled during the wet season when the water table, rivers, and their tributaries are at their highest level. This storage and the controlled release of waters from the Reservoir contributes to the region's flood protection.

Approximately 840 acres of the land mass of the Reserve falls within the 100-year floodplain (**Figure 6**) providing an important role in reducing impacts associated with storm waters by having the capacity to naturally store additional waters during storm events. During flood conditions, the

riverine wetlands associated with the Alafia River and its tributaries serve as natural storage areas for the detention of floodwaters. Temporary storage of floodwaters in these wetlands reduces the downstream impacts that would be associated with unattenuated release of storm-generated waters. The total volume of runoff generated by local storms may also be reduced somewhat through evaporation, transpiration, and percolation during the period of detention. Long-term preservation of these wetlands and adjacent uplands through public ownership will prevent development from encroaching upon the floodplain of these rivers and ensure that natural volumes of water storage are maintained.

The goal of upland restoration and management at the Reserve is to restore the uplands that were previously farmed to their natural state, pine flatwoods and dry prairie. These uplands, which include some patches of mesic flatwoods, account for approximately 50 percent of the Reserve's total land area. These too, collectively contribute to the property's flood protection value. The hydrology of these upland areas is strongly influenced by flat topography, sandy soils, and seasonal precipitation. These characteristics combine to produce a landform which produces little stormwater runoff. Downward percolation is retarded by poorly drained soils, and where present, an underlying clay hardpan. These factors contribute to the presence of standing water over much of the site's uplands for various amounts of time during the rainy season, which is characteristic flatwoods (Myers and Ewel, 1990).



FIGURE 6. FLOODPLAIN MAP

Natural Systems

The Reserve is comprised of a combination of freshwater marshes and mesic uplands in various stages of passive restoration. The central portion of the site that is managed by the District (**Figure 3**) is predominantly comprised of intact native habitat including pine flatwoods, cypress strands, and cypress domes.

The natural communities are primarily managed through the application of prescribed fire and exotic species control. The initial restoration efforts associated with mitigation for the Reservoir included the enlargement and enhancement of existing freshwater marshes coupled with the establishment of vegetation in the buffer zone typically found in ecotonal wetlands. The outer edges of the planting included plantings of species found in mesic flatwoods.

Below are the natural community descriptions for the Reserve which are based on FNAI Guide to Natural Communities (FNAI, 2010). The natural communities on the Reserve were mapped in 2016 using the definitions outlined by FNAI (**Figure 7**). A summary of the natural communities and the percent cover for the Reserve is provided in **Table 2**.

FNAI Communities	Acreage	Percent of Land
		Cover
Wet prairie	32.4	0.6
Depression Marsh	77.7	1.4
Basin Marsh	302.6	5.6
Dome Swamp	129.5	2.4
Basin Swamp	9.4	0.2
Bottomland Forest	494.2	9.2
Mesic Flatwoods	502.9	9.3
Mesic Hammock	176.6	3.3
Sandhill	29.0	0.5
Scrubby Flatwoods	15.4	0.3
Xeric Hammock	43.7	0.8
Semi-improved Pasture	1,890.6	35.1
Ruderal	217.4	4.0
Artificial Pond	37.6	0.7
Impoundment (Reservoir)	1,186.9	22.0
Improved Pasture	34.0	0.6
Pine Plantation	207.8	3.9
Total	5,387.7	100.0

TABLE 2. NATURAL COMMUNITY TYPE SUMMARY

Wetland Communities

Wet Prairie (32.4 acres)

Wet prairies typically hold water less frequently than basin swamps and are inundated or flooded during the latter portions of the growing (wet) season. The edges, or ecotones, of more frequently flooded marshes and domes often have characteristic features of wet prairie. Dominant species are St. John's wort, and scattered buttonbush. There are large expanses of areas that are probably best characterized as wet prairie; the large marsh in the northeast area of the property is a good example. Common in the herbaceous strata is soft rush, arrowhead, pickerelweed, bog buttons, sundew, yellow-eyed grass, red root, blue iris, smartweed, and maidencane.

Basin Marsh (302.6 acres)

Basin marshes, as the name would suggest, are basin-shaped and tend to contain standing water for the majority of the growing season and may be partially flooded or saturated after heavy rains throughout the year. They also tend to be less influenced by fire than depressional marshes due to their extended hydroperiod. Collectively, the marshes and wet prairies were created and/or enhanced as mitigation for reservoir construction.

Depressional Marsh (77.7 acres)

Depressional marshes are typically round in shape and are part of a matrix of pyrogenic habitats, most often mesic flatwoods at the Reserve. Both are populated with a preponderance of wetland species including: cattail, maidencane, pickerelweed, arrowhead, and smartweed. They also have a transitional zone where common species are St. John's wort, yellow-eyed grass, bog buttons, and spike rush.

Basin Swamp (9.4 acres)

Basin swamp is a relatively large, irregularly shaped depression vegetated with trees and shrubs that can withstand an extended hydroperiod. Fire is generally restricted to the edges of basin swamp because of their prolonged flooding. These systems are dominated by mature bald cypress, red maple, swamp tupelo, swamp laurel oak, Carolina ash, dahoon, sweetgum, and swamp bay. Sabal palm may be present as trees and saplings. The shrub cover is sparse and dominated by buttonbush and wax myrtle. Herbaceous cover may include false nettle), sawgrass, American white waterlily, maidencane, swamp smartweed, narrowfruit horned beaksedge, lizard's tail, and marsh fern. Eastern poison ivy and muscadine vines are often present.

Dome Swamp (129.5 acres)

Dome swamp is a forested wetland primarily of deciduous trees found in depressions. Trees in the center are generally taller than those on the edges, giving the swamp a dome-shaped profile. Dome swamps require fire to prevent hardwood invasion. Fires are more frequent along the periphery and less frequent in the center of the swamp, where the natural fire return interval may be as long as 100 or more years.

Bottomland Forest (494.2 acres)

These extend along the creeks on site. They are comprised of an overstory of slash pine, laurel oak, red maple, and cabbage palm. The shrub component is relatively sparse, but where sunlight permeates the canopy, clumps of saw palmetto, wax myrtle, and inkberry may be present. Caesar's

weed is a major nuisance component of the understory, which is also typically sparse. Bottomland forests are typically saturated or flooded for extended periods throughout the growing season.

Upland Communities

Mesic Flatwoods (502.9 acres)

Mesic Flatwoods are the most common upland community and historically was one of the most common upland habitat types in west central Florida. The mesic flatwoods on site are characterized with a sparse longleaf pine and South Florida slash pine overstory. They may actually be dry prairie but are probably cut-over flatwoods. Natural dry prairie is a result of a fire-return frequency so frequent that pines cannot become established. The shrub strata are dominated by saw palmetto, runner oak, shiny blueberry, and fetterbush. The herbaceous strata are dominated by wiregrass, lopsided Indiangrass, rabbit tobacco (blackroot), and beaksedges. These areas may be on rare occasions flooded and the water table may be at or near the surface in the latter portions of the growing season.

Mesic Hammock (176.6 acres)

These habitats on site are likely to be the result of fire suppression in mesic flatwoods. They are typically characterized by a canopy of scattered longleaf or slash pine, live oak, southern magnolia, and cabbage palm. The shrub stratum is often sparse but beautyberry, saw palmetto, and patches of bramble dominated by shrub species that are adapted to xeric conditions. These often include rusty lyonia, stagger bush, sand live oak, and Feay's palafox. The ground cover includes grasses (wiregrass, broomsedge bluestem, little bluestem), and dwarf shrubs (runner oak, gopher apple, and shiny blueberry).

Sandhill (29 acres)

The sandhill on site is restricted to a small patch north of the paved access road. Historically, the mowed areas adjacent to the western access road were probably sandhill; they all occur on xeric soils. The sandhill on site exhibits vegetation typical of sandhill; there are scattered turkey oaks, chapman oaks, and sand live oaks in the overstory. Saw palmetto, cabbage palm, and beautyberry are common shrubs. There are also scattered wiregrass, lopsided Indiangrass, other three-awns, gopher apple, yucca, broom sedge, dog fennel, and Caesar's weed. Depending upon the applications of fire in sandhill, which is often spotty, these areas are often interspersed with areas of xeric hammock. One quick way to distinguish sandhill from scrub is the prevalence of turkey oak and wiregrass, both common components of sandhill, and virtually nonexistent in scrub.

Scrubby Flatwoods (15.4 acres)

There is one small patch of scrubby flatwoods in the north central portion of the site, in the area managed by TBW. It's slightly elevated in comparison to the surrounding terrain, which is being restored to some functional analog of mesic flatwoods. The soils are sandier, and the dominant vegetation is comprised of a variety of species common in scrubby flatwoods, scrub, and sandhill. There are scattered longleaf pines in a very sparse overstory. Dominant shrubs are saw palmetto, Faey's palafox, garberia, rusty lyonia, and sand live oak. There is a significant amount of wiregrass in the herbaceous strata.

Xeric Hammock (43.7 acres)

Fire suppressed scrubby flatwoods, scrub, and sandhill can eventually evolve into xeric hammock. Fire was probably not introduced into these areas because of their close proximity to roadways. Without fire, tree species can form a dense canopy that shades out understory species, which is the primary fuel source for wildland fire. Consequently, xeric hammocks typically have a dense canopy comprised of shade trees, including live oak and sand live oak, and a sparse understory that includes those species that thrive in shade without fire, including beautyberry and the nuisance exotic Ceasar's weed. Xeric hammock interspersed with other pyrogenic habitats provides an increased habitat diversity to a site. The concern of managers, however, is to make sure that xeric hammock does not become too prevalent. This often happens when the window of opportunity to apply fire becomes smaller, often as a consequence of encroaching new development. Some xeric hammock over the expanse of any landscape is quite natural; natural fire shadows often associated with flooded areas are common and were common Pre-settlement.

Ruderal Communities, Improved and Semi-improved Pasture. (217.4 acres)

Areas mapped as ruderal or semi-improved pasture include uplands in various stages of restoration. These areas are a patchy network of indigenous upland species such as scattered longleaf pine, palmetto, and inkberry, interspersed with remnant pasture grasses and scattered pioneer species, both woody and herbaceous including, but not limited to bramble, wax myrtle, broomsedge, and dog fennel. For the most part, these areas are managed with fire, which favors native, pyrogenic species.

Pine Plantation. (207.8 acres)

The areas mapped as "Pine Plantation" were, in fact, historically dominated with planted slash pine. Currently, they are partially dominated by rows of mature pine trees which are close to being large enough for harvesting. Where pines have been cleared, there is a dense shrub area dominated by wax myrtle, bramble, fetterbush, and inkberry. Small, isolated wetlands dot the area but are below the minimum mapping unit of this land use mapping effort.

Artificial Pond. (37.6 acres)

This 37+ acre peanut-shaped pond was excavated to create fill for the access road to the reservoir facilities. It has no littoral zone and virtually no submerged or aquatic vegetation due to its depth.

Impoundment (Reservoir). (1186.9 acres)

This is the 1,187-acre reservoir that is the site's central feature. The reservoir is elevated and lined but does provide some wildlife habitat value.



FIGURE 7. NATURAL COMMUNITIES- FNAI

Soils and Topography

Soils

Soils as mapped in the Natural Resource Conservation Service (NRCS) are shown in **Figure 9**. There are four generalized soil mapping groups based on soil moisture: xeric, mesic, hydric, and disturbed soils (man-made/ disturbed soils). Xeric soils are located on the slightly higher elevated, drier sites, supporting scrub, sandhill, scrubby flatwoods and dry or xeric hammocks. Mesic soils are located in seasonal moist areas supporting pine flatwoods and mesic oak/hardwood hammocks. Hydric soils are those mapping units that occur in wetter areas supporting wetland vegetative communities. Disturbed soil mapping units are characteristic of soils areas disturbed by past phosphate mining activities in this part of Hillsborough County, resulting is a highly disturbed soil profile or variable soil matrix conditions. Data on individual soil mapping units within the Reserve were derived from the *Soil Survey of Hillsborough County* (USDA 1989) and FNAI natural community descriptions (FNAI 2009b).

Xeric soil mapping units consist of Candler, Orlando, Tavares, Millhopper, Pomello, and Zolfo fine sands. They have a seasonal saturation depth of 2.5 feet to greater than six feet during the dry season. They are characterized as excessively well-drained, well-drained, moderately well-drained, and somewhat poorly well-drained of internal permeability with low soil fertility.

Mesic soil units consist primarily of Immokalee, Myakka, Smyrna, Ona, St. Johns, and Seffner fine sands. These somewhat poorly, to poorly to very poorly drained soils with a seasonal saturation depth within 10 inches of the surface during the wet season and greater than 40 to 48 inches below land surface during the dry season. Mesic soils are associated with flatwoods, mesic hammock, and pasture communities.

Hydric soils include Basinger, Felda, Malabar, Paisley, Winder fine sands, Holopaw mucky fine sands, and Samsula mucks. These are depressional, frequently flooded soil units that are very poorly drained and have a seasonal saturated depth at over the land surface for the major portion of the wet season and a portion of the early dry season. Internal permeability of these soils is low. Hydric soils are associated with depressional wetlands, bottomland forested and wet flatwoods communities.

The disturbed or anthropogenic soil units found onsite are typically the result of past phosphate mining that has occurred over the past 80 to 100 years. These soils are the result of strip mining of the phosphatic ore material and its activities such as overburden removal, ore excavation, or indirect reclamation activities. Some areas were actually mined while other areas were left idle or used for material/overburden storage, which in turn has disturbed the natural soil profile or surface geological column. The altered soils within Hillsborough County consist of mixed overburden (Arents), waste clays (Haplaquents or Hydraquents), and washed sand tailings (Neilhurst sands). Within the Reserve, these mixed, primarily Arents soils have no distinct soil profile characteristics and occur along the southern property border and have been further disturbed during the existing reservoir construction.

Topography

The Reserve occurs in the Florida Atlantic Coastal Plain physiographic region, which is characterized as Pleistocene-epoch marine terraces and plains (Cooke 1945). Within the reserve, elevations range from 86 feet NGVD on the west side to approximately 100 feet NGVD in the northeastern portion of the property, while the artificial Reservoir is documented as high as 147 feet (**Figure 8**). The mix and distribution of the Reserve's natural communities is a direct reflection of elevation and the related distribution of soils.



FIGURE 8. DIGITAL ELEVATION MODEL



FIGURE 9. SOIL TYPES

Land Management and Land Use

Land Management

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

Fire Management

Prescribed fire is the primary tool for management of District conservation lands. Fire is a natural process that has occurred on Florida's landscape for thousands of years. The goal of the District's fire program is to mimic that natural process and apply prescribed fire in a safe, efficient, and effective manner to maintain the natural function of the plant and animal communities. Many of the plant and animal species that occur on the Reserve 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 Guide to the Natural Communities of Florida (FNAI, 2010).

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

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

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

The mesic flatwoods, sandhill, scrubby flatwoods, mesic hammock, xeric hammock, freshwater marsh systems, and cypress dome communities at the Reserve are fire-maintained systems that are dependent upon recurring fire for their long-term maintenance and viability. In addition, prescribed burning is the primary tool used to facilitate restoration of the upland communities. Consequently, there is an aggressive strategy to maintain the natural habitats within the appropriate fire-return

intervals which are outlined in **Table 3** (FNAI, 2010). As a general rule, the mesic flatwoods that are the dominant natural community in the Reserve have been maintained at an appropriate burn interval. The areas that are labeled ruderal are predominantly managed by TBW. These communities vary in composition due to their response to upland restoration. For the most part, they are managed with fire with the long-term objective of re-establishing mesic flatwoods. Repetitive burning favors the desirable pyrogenic floral species adapted to fire. Firebreaks have already been established throughout the Reserve where uplands lie adjacent to the site's perimeter. These breaks are maintained through regular disking or other mechanical methods. The District maintains the network of trails used for recreation as well as some of the primary trails within the Reserve. The Reserve's network of firebreaks is complemented by natural firebreaks, such as the site's numerous cypress strands and domes, as well as the many creeks that traverse the Reserve. Wetlands, particularly herbaceous marsh, only serve as firebreaks in the wet season (**Figure 10**).



FIGURE 10. MANAGEMENT UNITS

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

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

Habitat	Fire Frequency
Sandhill	1-3 years
Dry Prairie	1-2 years
Wet Prairie	2-3 years
Wet Flatwoods	2-4 years
Mesic Flatwoods	2-4 years
Scrubby Flatwoods	5-15 years
Scrub	5-20 years
Depression Marsh	Variable
Basin Marsh	Variable
Dome Swamp	5-100 years

TABLE 3. FIRE RETURN INTERVALS

Forest Management

The Reserve contains two Timber Management Zones (TMZ) that total over 300 acres. The western TMZ is located in the northwestern corner of the Reserve; the eastern TMZ is north of the eastern paved access road that leads to the Reservoir near C.R. 39. These plantations were created to restore the pine overstory in a previously altered area, in this case, improved pasture.

The goal is to manage these management units using standard silvicultural practices to maintain forest health, provide habitat, support local economies, and generate revenue to offset the cost to manage the property. In addition to managing the District's TMZs, there could be opportunities to conduct timber stand improvement harvest in native pine stands to meet the land management objectives of a particular management unit.

Restoration

When the site was originally purchased, it was comprised of several freshwater marshes, some natural mesic flatwoods, some cypress strands and domes, and the rest was in agricultural use. Over the past two decades, to mitigate the impacts resulting from the construction of the Reservoir, the freshwater wetlands have been enhanced, the hydrology has been restored, and there has been a significant commitment to the restoration of the uplands that were historically sod farms, pasture, and citrus.

Several surface water conveyance systems within the Reserve have been altered by past land use practices. These alterations include fill roads with culverts and drainage ditches. Where practicable, these alterations have been restored or, to maintain management access, wet water crossings have been installed. These are swales lined with rock or gravel to facilitate passage during the wet season without impeding the conveyance water.

Invasive Species Management

Invasive Plant Management

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

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

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

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

Under this system the species that are the highest priority for control efforts receive a score of 4, while the lowest priority species receive a score of 16. This prioritization scheme ensures that the District's resources are spent where they will have the greatest impact on the ecosystem. Additionally, the District has implemented an Early Detection Rapid Response (EDRR) strategy which identifies and rapidly treats occurrences of exotic species that are not currently present or are not widespread on the Reserve but have the potential to become invasive if they get established.

Table 4 lists the_most common or problematic invasive plant species found on Reserve, their priority level for control if applicable and their FISC status.

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

Common Name	Scientific Name	FISC Category	Priority Level for Control
Lead tree	Leucaena leucocephala	Π	4
Old World climbing fern	Lygodium microphyllum	Ι	4

TABLE 4. INVASIVE PLANTS WITH PRIORITY LEVEL FOR CONTROL

Popcorn tree, Chinese tallow tree	<u>Triadica sebifera</u> (<u>Sapium</u> <u>sebiferum)</u>	Ι	4
Air-potato	Dioscorea bulbifera	Ι	5
Tropical soda apple	Solanum viarum	Ι	5
Cogon grass	Imperata cylindrica	Ι	6
Creeping signalgrass	Brachiaria platyphylla		6
Limpograss	Hemarthria altissima	II	6
Guinea grass	Megathyrus maximus	II	7
Japanese climbing fern	Lygodium japonicum	Ι	7
Skunk vine	Paederia foetida	Ι	7

Invasive Wildlife Management

The Reserve is host to several invasive wildlife species. This includes greenhouse frogs (*Eleutherodactylus planirostris*), Cuban treefrogs (*Osteopius septentrionalis*), brown anoles (Anolis sagrei), feral hogs (*Sus scrofa*), the Argentine black and white tegu (*Tupinambis merianae*), and nutria (Myocastor coypus).

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

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

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

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

There has also been a collaborative effort between Hillsborough County and FWC to remove the large reptilian Tegu from the natural areas within southeast Hillsborough County. Several have been trapped on adjacent lands and they have been documented at the Reserve, but if in residence and not just traversing the site, their numbers are low. Tegus are problematic because they often predate nests of ground nesting species like northern bobwhites and reptilians like snakes and tortoises. This species also utilizes tortoise burrows for shelter.

Imperiled Species Management

For the purposes of this Plan, the term Imperiled Species refers to plant and animal species that are designated as Endangered or Threatened by the U.S. Fish and Wildlife Service (USFWS), the FWC or the Florida Department of Agriculture and Consumer Services (FDACS). The natural communities within the Preserve provide habitat for a variety of imperiled and locally important species.

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

Imperiled Wildlife

According to the FNAI Biodiversity Matrix Report and observations by District staff, seven federally and/or state listed wildlife species have been documented or are likely to occur on the Reserve. **Table 5** lists the species and their status.

Common Name	Scientific Name	Status	Management Recommendations
Eastern indigo snake	Drymparchon corais couperi	FT	Manage habitats holistically; maintain appropriate fire- return frequencies in pyrogenic communities.
Gopher tortoise	Gopherus polyphemus	ST	Manage areas with tortoise populations and/or xeric soils by maintaining <40% canopy using fire or mechanical thinning.

TABLE 5. IMPERILED WILDLIFE SPECIES KNOWN OR LIKELY TO OCCUR

Florida sandhill crane	Antigone canadensis pratensis	ST	Maintain nesting habitats (marsh); periodically burn marsh habitat to discourage the encroachment of woody species.
Southeastern American kestrel	Palco sparverius paulus	ST	Nesting pairs documented on site. Continue to maintain flatwoods with appropriate prescribed burn fire-return frequency. Kestrels prefer open habitats for foraging and nesting.
Listed Wading Birds*		See Below	Protect rookeries and manage foraging sites as prescribed in Management Section.

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

FE = Federally Endangered FT - Federally Threatened ST = State Threatened

Imperiled Plants

The Florida Department of Agriculture and Consumer Services (FDACS) regulates imperiled plant species in the state. Plant species can be considered threatened or endangered at either a federal or state level. There are four plant species that are identified as imperiled on this list that are known to occur or are likely to occur in the Reserve as listed in **Table 6** below.

TABLE 6. IMPERILED PLANT SPECIES KNOWN OR LIKELY TO OCCUR

Plant Common Name	Plant Species	Status
Britton's beargrass	Nolina brittaniana	FE
Sand butterfly pea	Centrosema arenicola	SE
Giant orchid	Orthochilus ecristata	ST
Beaked orchid	Sacoila lanceolata	ST

FE = Federally Endangered FT - Federally Threatened ST = State Threatened

Arthropod Management

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

Recreation

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

The types of recreation that are offered at the Reserve provide for passive, resource-based opportunities and include hiking, biking, and equestrian trails.

Trails

Trails provide multiple opportunities for nature-based activities while minimizing the impacts to the natural systems. The trails at the Reserve can be accessed from the designated access point at Browning Road, where there is a parking area and a kiosk (**Figure 11**). Approximately six miles of multi-use trails can be utilized for hiking, wildlife viewing, biking, and equestrian use. Daytime access to the equestrian parking area can be obtained by contacting the District's recreation department.

Horseback riders must be prepared to show proof of a current negative Coggins test, and riders under the age of 16 are required to wear helmets. The mixed-use trail is also available for use by horse-drawn buggies provided the recreator(s) has secured a free day-use permit that allows access through the locked gate at entrance off Browning Road. All other trail users must enter via the walk-through entrance.

Camping

There is no camping currently available at the Reserve.

Hunting, Fishing and Boating

Currently, the Reserve is not open to hunting with the exception of the specially administered public feral hog population management hunts conducted by the District. There are no meaningful fishing or boating opportunities on the Reserve.



FIGURE 11. RECREATION

Land Use Administration

The land uses administered on District conservation lands are governed by District Policy and Rules established in Florida Administrative Code. According to policy, appropriate land use types are separated into two categories: public recreation use and non-recreational public use. Public recreation uses vary by property, and compatibility is based upon the environmental sensitivity and suitability of the property. Furthermore, some District conservation lands are subject to cooperative agreements with other public agencies to administer the responsibilities for any expansive recreational opportunities that the District may deem as compatible on its conservation land. Cooperative agreements support the District's efforts to protect water resources and provide nature-based recreation to the greatest extent practicable by working together to create partnerships with other agencies to streamline management.

The specific public recreation uses at the Reserve are discussed in the previous Section. Nonrecreational public uses include, but are not limited to, linear facilities, scientific research opportunities, water resource development projects, and environmental education. Like cooperative agreements for expansive recreational uses, the District is a party to a variety of agreements with private entities and various agencies for the allowance of the aforementioned use types. The administration of non-recreational and recreational public uses for the Reserve is discussed in the subsequent sections.

Partnerships and Cooperative Management

Tampa Bay Water

The District and TBW have a cooperative arrangement where they share management responsibilities. Currently, the District is responsible for the management of the recreational facilities, maintenance of the recreational trails, maintenance of a perimeter firebreak (where practicable), and resource management in the District-managed areas (Figure 3). TBW is responsible for resource management in all of the mitigation areas. The operation of the Reservoir and its associated facilities is the responsibility of TBW. This includes, but is not limited to, the maintenance of the paved roadways that lead to the reservoir facilities.

Special Use Authorizations (SUAs)

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

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

District properties provide for a variety of research opportunities for the benefit of natural resource conservation and preservation efforts and advancements. These opportunities can consist of wildlife surveys, groundwater sampling, natural communities research or wetland studies.

Future Land Conservation

The District will continue to consider opportunities to purchase inholdings or lands adjacent to the Reserve with the goal of promoting the District's efforts to protect the natural features of conservation lands for the benefit of flood protection, water quality, and water supply. With the Reserve becoming pressured by urban sprawl, it would be advantageous to seek possible opportunities for acquiring fee simple and less-than-fee properties to further promote protections of the natural features within the region.

Land Maintenance and Operations

Roads and Boundaries

The District is responsible for managing the roads and trails on the Reserve to conduct management activities, provide public access, and provide access for recreational opportunities. This network of roads and trails require periodic maintenance which occurs throughout the year. Well-maintained roads minimize erosion, sedimentation, and minimize water quality impacts. These roads also provide quick access for wildfire protection and serve as firelines for prescribed fires. Continuous observation will ensure that roads remain clear and that they are vehicle worthy for management and public use. Motorized access on the Reserve is restricted to authorized personnel only.

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

District staff secure the Reserve by maintaining fence lines and removing unauthorized access gates, posting appropriate boundary signs along the property boundaries, identifying frequent points of unauthorized access, documenting evidence of illegal activities, and placing entry barriers at designated points to stop unauthorized vehicle access. Security on the Reserve is provided by the FWC and TBW contractors for protection of the Reservoir.

Facilities and Infrastructure

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

The Reserve contains significant infrastructure associated with the Reservoir. In addition to the Reservoir itself, there are several buildings and pipelines as part of the operation of the Reservoir. There is also extensive fencing and numerous retention ponds and stormwater treatment areas that hold runoff temporarily before it enters the surrounding portions of the Reserve. There also paved entrances to TBW water facilities.

Goals and Objectives

Overview

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

Resource Protection and Management

Hydrologic Management

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

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

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

- Objective 1: Coordinate with TBW on mitigation projects within the region that may serve to enhance on site natural resources.
- Objective 2: Maintain existing cooperative management agreement with TBW to share responsibilities for Reserve natural resource management and maintenance/ management of recreational facilities (trails, kiosk, and parking area). Fire

Fire Management

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

- Objective 1: Develop and implement an annual burn plan and apply prescribed fire according to the District's Fire Management Guidelines.
- Objective 2: Conduct majority prescribed burns during the growing season to support development of native fire-dependent species and habitat function.
- Objective 3: Update and maintain a Condition Class database to track management activities on specific management units.

Objective 4: Maintain perimeter firelines (where practicable) on an annual basis and establish strategic internal management lines supporting the seasonal needs of the prescribed fire program and to support wildfire protection.

Restoration and Natural System Maintenance

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

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

Goal: Maintain and enhance natural system structure and function.

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

Forest Management

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

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

Imperiled Species Management

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

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

Invasive and Exotic Species Management

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

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

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 trails according to their designated maintenance schedule.
- Objective 2: Monitor and maintain culverts and low water crossings to prevent adverse impacts on hydrology.
- Objective 3: Continually inspect boundary fencing and gates to assure adequate protection of District resources and repair as needed.

Administration

Land Acquisition

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

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

Land Use and Recreation

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

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

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

- Objective 1: Maintain appropriate public access and quality compatible recreational opportunities.
- Objective 2: Evaluate requests for additional compatible public access and recreational opportunities, specifically in the Anclote Tract.

Archaeological and Cultural Resources

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

- Objective 1: Coordinate and follow the Division of Historical Resources' recommendations for protection on known sites; currently there are no recommendations. Continue to monitor, protect, and Reserve as necessary any identified sites.
- Objective 2: Take precautions to protect sites from potential impacts resulting from looting, management, or maintenance activities.

> Objective 3: Maintain qualified staff as an Archaeological Site Monitor.

Security

Goal: Provide site security and resource protection.

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

Significant Management Accomplishments

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

Land Management

- > Developed and implemented annual burn plans.
- > Completed prescribed burns on approximately 1,791 acres.
- Maintained perimeter and internal firelines on an annual basis for prescribed fire application and wildfire mitigation.
- Performed maintenance of internal roads and trails along with mowing twice per year on primary and secondary roads.
- Removed 579 feral hogs.
- Surveyed over 5,000 acres for invasive plants and any invasives found within the surveyed area were treated.

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Water Resources

- All Tampa Bay Water wetland mitigation projects were released in the past 10 years.
- > Tampa Bay Water reservoir, groundwater, and water level monitoring continues.
- Performed regular measurements on data collection network to monitor hydrologic conditions.

Recreation

- The Browning Road recreational access point was rebuilt to accommodate increasing recreational usage and unauthorized nighttime access and vandalism issues.
- ▶ Recreational trail system off Browning Road maintained.

Acquisition

Two separate parcels totaling approximately 127 acres were sold as surplus land in 2016 and 2017.

Administration

- > Authorized seven SUAs for recreational uses, research opportunities, and training.
- Entered into one apiary lease agreement in 2016, which is ongoing.

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