BIG SLOUGH PRESERVE MANAGEMENT PLAN

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PRESERVE AT A GLANCE

Size	4,744 acres
Location	Central portion of Sarasota County south of State Road 72 and east of Interstate 75
Management Priority	Restore natural fire frequency and reduce invasive exotic species infestations
Management Challenge	Reintroducing prescribed fire in overgrown and frequently inundated habitats
Primary habitats	mesic flatwoods mesic hammock dry prairie basin swamp depression marsh
Imperiled species	Florida sandhill crane gopher tortoise yellow butterwort wood stork giant airplant giant wild pine cardinal airplant
Cultural Resources	No known resources
Land Uses	Passive, nature-based public recreation

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EXECUTIVE SUMMARY

Significance, size, location

Big Slough Preserve is a 4,744 acre preserve located in central Sarasota County. It is south of State Road 72 and east of Interstate 75. The parking area is located on State Road 72, but a foot bridge along the southern boundary in North Port links the preserve with Myakkahatchee Creek Environmental Park. Big Slough Preserve is jointly owned between Sarasota County and Southwest Florida Water Management District (SWFWMD). The preserve is part of the large matrix of lands that make up the terrestrial Myakka Island, which includes both publicly and privately-owned protected lands covering over 100,000 acres in the Myakka River Watershed.

Acquisition history

The preserve was purchased in December 2007 through the Sarasota County Environmentally Sensitive Lands Protection Program (ESLPP) in a joint purchase with SWFWMD and Sarasota County.

Important habitats and species

The preserve is comprised predominantly of mesic flatwoods, mesic hammock, and dry prairie with numerous interspersed freshwater wetlands. The Big Slough bisects the preserve flowing from the northeast to the southwest. These native habitats and communities support a diverse array of flora and fauna, including three plants listed by state or federal agencies as Endangered, Threatened, or some similar status, and eight confirmed listed fauna species.

Natural and cultural resource management goals

Vegetation management and the reintroduction of a natural fire frequency during appropriate seasons will be the primary methods used to revitalize the preserve's native habitats and communities. Invasive exotic species management is also a management priority. Invasive exotic plants, such as climbing fern (*Lygodium* spp.), Brazilian pepper (*Schinus terebinthifolia*), cogon grass (*Imperata cylindrica*) and feral hogs (*Sus scorfa*), pose the largest threat to native habitats and their control is necessary to minimize adverse impacts on native plants and animals.

Historical and current uses and facilities

Past land uses in the preserve were centered around cattle ranching. The Mabry Carlton Ranch, Inc. was the last tenant of the preserve and used it as part of the larger ranch operation such as those on adjacent parcels. Current land use in the preserve allows for passive, nature-based recreation, and conservation. Recreational opportunities include hiking, biking, horseback riding, and wildlife viewing. The preserve is dog friendly.

Use and facilities management goals

All current and future activities and construction of public facilities will be planned in an environmentally sensitive manner to minimize impacts to native habitats and communities. Any new construction proposed outside of the scope of this management plan will need to be approved by SWFWMD prior to construction.

Purpose of Plan

The purpose of this Plan is to preserve the health and function of native systems, protect historical resources that are part of Sarasota County's heritage, and provide appropriate nature-based public recreational opportunities. The management strategies outlined herein are intended to be used as guidelines to address the complex management needs of the preserve. This plan document will be updated in 2032 to incorporate progress towards management goals and applicable new management methodologies. Costs described in this plan are estimated for current conditions, assuming cost escalations for salary and some known funding opportunities, but not based on future optimal conditions or optimal staffing.

MANAGEMENT STRATEGY OVERVIEW

NATURAL RESOURCES	**GOAL 1**	**Restore and maintain native habitats and communities.**
	OBJECTIVE 1.1	Return fire to its natural role in fire-dependent native habitats and communities.
	OBJECTIVE 1.2	Eliminate FLEPPC Category I, and II invasive exotic plant species, or if not possible, reduce populations to levels too low to alter native communities.
	OBJECTIVE 1.3	Document and monitor imperiled species occurrences as they are identified.
	OBJECTIVE 1.4	By 2032, restore the historical hydrologic flow in the preserve to the greatest amount feasible.
	OBJECTIVE 1.5	Restore vegetation height, density, and composition to accepted levels based on habitat type.
CULTURAL RESOURCES	**GOAL 2**	**Protect, preserve, and maintain cultural resources.**
	OBJECTIVE 2.1	Survey for historic resources during resource management activities in areas without any known sites. Complete and submit a Master Site File to the Division on Historic Resources.
	OBJECTIVE 2.2	Monitor known sites bi-annually and during resource management activities. Update the Master Site File as needed.
LAND USES	**GOAL 3**	**Maintain public access and passive recreational opportunities without adversely impacting native habitats and communities.**
	OBJECTIVE 3.1	Assess current trail routes and trail connections with nearby recreational opportunities.
	OBJECTIVE 3.2	Provide for outdoor recreational amenities while still protecting and educating the public about the natural resources.
	OBJECTIVE 3.3	Assess impacts of recreational activities to ensure the health of native habitats and communities.
	GOAL 4	**Provide nature based educational and interpretive opportunities.**
	OBJECTIVE 4.1	Provide interpretive signs.
	OBJECTIVE 4.2	Provide interpretive programs and nature walks.
OPERATIONS	**GOAL 5**	**Provide administrative and fiscal support.**
	OBJECTIVE 5.1	Provide opportunities for volunteers to support operations and native systems.

1 INTRODUCTION

1.1 LOCATION AND SETTING

Big Slough Preserve is a 4,744 acre preserve located in central Sarasota County eight miles east of the Myakka River and ten miles west of the Peace River (Exhibit 1). The preserve shares its western boundary with T. Mabry Carlton, Jr. Memorial Reserve, and Myakka River State Park. On its eastern side is the Carlton Ranch Conservation Easement, which hosts a low stocking rate cattle ranch operation. The preserve's southern boundary is a mix of low-density residential properties and the Myakkahatchee Creek Environmental Park. The site contains mostly mesic flatwoods and mesic hammock with a scattering of dry prairie and freshwater wetlands.

1.2 SITE SIGNIFICANCE AND PROTECTION PRIORITY

Big Slough Preserve provides important connectivity for several other conservation lands that make up the "Myakka Island" (Exhibit 2). These areas protect regionally significant conservation and recreation lands. An additional 7,630-acre conservation easement along the eastern side of the preserve increases the viable habitat for many wildlife species and further protects the area from future development. The preserve includes 13.5 miles of technical bicycle trails, 52 miles of hiking and equestrian trails and connectivity to more than 120 miles of trails through adjacent protected lands. The preserve is zoned as Open Use Agriculture (Exhibit 3).

LAND ACQUISITION PROGRAMS

The Environmentally Sensitive Lands Protection Program (ESLPP) protects lands through public acquisition of fee simple title and conservation easements from willing sellers. The program is funded by a 0.25 mill *ad valorem* tax passed by referendum in March 1999. The selection criteria are based on connectivity, water quality, manageability, and habitat rarity and quality (Resolution No. 92-272, Criteria for Evaluating Environmentally Sensitive Lands). All proposed acquisitions must be approved by the Board of County Commissioners prior to initiating a contract for purchase.

1.3 ACQUISITION HISTORY

Big Slough Preserve was acquired in a partnership with Southwest Florida Water Management District through the Environmentally Sensitive Lands Protection Program on December 20, 2007 (Appendix A). The preserve was put into a Perpetual Conservation Easement with SWFWMD on December 31, 1998, prior to acquisition under the ESLPP program.

1.4 MANAGEMENT AUTHORITY AND RESPONSIBILITY

Management is the responsibility of Sarasota County Division of Natural Areas and Trails (NAT) in the Department of Sarasota County Parks, Recreation and Natural Resources (PRNR) and is defined in the management agreement with SWFWMD (Appendix B). The County will implement this plan and coordinate with appropriate staff and internal and external agencies as required. To supplement staff capacity, some resource management activities will be contracted out to private entities working under the direction of PRNR staff.

The Environmentally Sensitive Lands Protection Program Ordinance No. 99-004, as amended later by Ordinance No. 2013-028 (Appendix C) and the provisions stated within, protects the preserve from development.

GOVERNING DOCUMENTS

Management authority is given by the following County Codes and governing documents (see Appendix C):

1. The Sarasota County Comprehensive Plan (2016)
2. Ordinance No. 97-024
3. Ordinance No. 98-045
4. Ordinance No. 98-096
5. Ordinance No. 99-004
6. Sarasota County Land Management Master Plan (2004)

1.5 FUTURE PLANS FOR THE SITE

All current and future activities and construction of public amenities shall be planned in an environmentally sensitive manner to minimize impacts to native habitats and communities. Current and continued uses at the preserve include nature-based recreation like hiking, biking, horseback riding, and wildlife viewing. Approval from SWFWMD is required prior to making significant alterations to the property.

Natural Resources Management Philosophy

Sarasota County's habitat management approach seeks to restore and maintain a natural balance which preserves the quality of diverse native landscapes for the benefit of wildlife and visitors. As part of this effort, Sarasota County's environmental professionals apply a variety of specialized methods, including mechanical treatment of vegetation, prescribed fire, invasive exotic plant and animal management, hydrologic restoration, and restoration of native communities. Regular monitoring of wildlife and habitats enables the County to gauge its effectiveness and develop responsive and proactive approaches.

With a focus on natural systems management, primary emphasis is placed on restoring and maintaining natural processes that formed the structure, function, and species composition of Sarasota County's diverse native communities as they occurred in pre-development. Single species management for imperiled species is appropriate in County parks and preserves when the maintenance, recovery, or restoration of a species or population is difficult due to the requirement of long-term restoration efforts, unnaturally high mortality, or insufficient habitat. Single species management should be compatible with the maintenance and restoration of natural processes and should not imperil other native species or compromise the preserve's values.

Prescribed fire is an essential component in native systems management in Florida. Prescribed fire is used to mimic natural lightning-set fires, which are one of the primary natural forces that shaped Florida's ecosystems. Prescribed burning increases the abundance and health of many wildlife species. Many of Florida's imperiled plant and animal species are dependent on periodic fire for their continued existence. Fire-dependent native communities gradually accumulate flammable vegetation; therefore, prescribed fire reduces wildfire hazards by reducing these wild land fuels. Parks, Recreation and Natural Resources (PRNR) makes every effort to return fire to its natural role in fire-dependent native communities. Sarasota County Fire Mitigation Specialists lead a burn team to restore fire back into the natural system. All prescribed burns in Florida are conducted with authorization from the Florida Department of Agriculture and Consumer Services, Florida Forest Service (FFS). The preserve contains several natural communities, including mesic flatwoods, scrubby flatwoods, and scrub, that rely on fire to maintain its plant composition and structure.

Invasive exotic plants and animals are a serious concern for the management of natural systems. Due to Florida's warm climate, non-native plants and animals are able to thrive. Many invasive exotic species outcompete, displace, or inhibit growth of native species and can alter native habitats. If left unchecked without natural controls from their native origin, invasive exotic plants and animals alter the character, productivity, and conservation values of the native areas they infest. The Florida Exotic Pest Plant Council (FLEPPC) supports the management of invasive exotic plants in Florida's natural areas. FLEPPC compiles invasive species lists that are revised every two years. Invasive exotic plants are termed Category I species when they alter native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. Category II species have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species (https://www.fleppc.org/). It is the aim of PRNR to eliminate, or if not possible, to reduce FLEPPC Category I and II invasive exotic plants to low ecological impact levels. PRNR utilizes the FLEPPC classification system to determine management priorities when managing invasive exotic plants.

Exotic animal species include non-native wildlife species, free-ranging domesticated pets or livestock, and feral animals. Because of the negative impacts to native systems attributed to exotic animals, PRNR actively removes exotic animals from county parks and preserves, with priority being given to those species causing the greatest ecological damage.

2 NATURAL RESOURCE MANAGEMENT COMPONENT

2.1 NATURAL RESOURCE INVENTORY

2.1.1 Topography

The preserve is in the physiographic region of the Gulf Coastal Lowlands. Topography is low relief with elevations ranging from 20–30 feet above mean sea level (Exhibit 4). Depressions in the landscape seasonally fill with water and form ephemeral ponds. Series of ponds often link together during heavy rain to create shallow and slow-moving waterways, while streams may form when flow, volume, and velocity increase. There are a few alterations from past land use activities such as ditches and channelization. Big Slough itself has also been channelized and dredged in the late 1940s altering the topography along its bounds.

2.1.2 Soils

The soils on Big Slough Preserve are predominantly composed of poorly drained sandy and loamy layers typical of mesic flatwoods, mesic hammocks, and marshes (Exhibit 5, Table 1). These sediments range in age from the Oligocene (38–22.5 million years ago) to the Holocene (10,000 years ago to present) (USDA 1991).

Table 1. Soil types in the Preserve.

Soil Type	Associated Habitat	Drainage Characteristics
EauGallie and Myakka fine sands; Pineda fine sand; Pople fine sand; Ft. Green fine sand; Ona fine sand	mesic flatwoods	poorly to somewhat poorly drained.
Bradenton Fine Sand; Malabar Fine Sand; Felda fine sand; Pineda fines sand	mesic hammock	poorly drained
Delray fine sand; gator muck; Felda fine sand, depressional	basin marsh	very poorly drained
Delray fine sand; Floridana and gator soils, depressional; Holopaw fine sand, depressional	depression marsh	very poorly drained
EauGallie and Myakka fine sands	dry prairie	poorly drained
Felda fine sand, depressional; pits and dumps	slough	very poorly drained

2.1.3 Hydrology

Most of the preserve is within the 195-square-mile Big Slough watershed drainage basin. Portions of the western boundary are within the Deer Prairie Creek basin, while the southeastern portion is in the West Cocoplum Waterway basin. The three drainage basins all are part of the larger 593.8-square-mile Myakka River Watershed. The slough empties into the Myakka River nine miles north of Charlotte Harbor. Big Slough Canal was formed by dredging and channelizing the Myakkahatchee Creek in the late 1940s to improve drainage for agriculture and rangeland (Mote 1990). The surface water of the preserve

follows the same flow as the slough in a southerly direction and will move into either the main drainage of Big Slough, westerly into Deer Prairie Slough, or easterly into Cosmic Waterway (Exhibit 6). Eventually all three drainages empty into the Myakka River.

The average annual rainfall for the preserve is about 51.2 inches based on the nearby weather station located in Myakka River State Park (USEPA 2011). The rainy season, which typically begins late May and goes through early October, leaves the preserve flooded and many trails under water. Generally, 8–10 inches of rain fall monthly throughout this period occurring in localized, heavy thunderstorms. During excessive rain events, such as a tropical cyclone, Big Slough may breach its banks and spill into the surrounding area.

2.1.4 Natural Communities

The native communities of Big Slough Preserve are identified using the Florida Natural Areas Inventory (FNAI 2010) classification system (Table 2). The condition and management recommendations for each habitat are detailed in the Natural Resource Management section of this plan.

In general, the preserve is dominated by upland communities with imbedded wetlands (Exhibit 7a). The area has been historically altered from its original native state to grazing, hydrologic alterations, and fire suppression (Exhibit 7b). Due historical land uses and disturbances, many vegetative communities do not fit within their standard FNAI natural community classifications. A goal of land management activities is to reverse some of these impacts.

Table 2. Florida Natural Areas Inventory (FNAI) communities present in the Preserve.

FNAI Communities	Acres	% of Preserve
mesic flatwoods	1745.1	37.41
mesic hammock	1001.8	21.48
basin marsh	583.6	12.51
depression marsh	478.2	10.25
dry prairie	455.7	9.77
pasture semi-improved	229.5	4.92
road	119.1	2.55
utility corridor	26.3	0.56
spoil area	13.8	0.3
canal/ditch	11.4	0.24
impoundment	0.3	0.006

FLORIDA'S NATURAL COMMUNITIES

The Florida Natural Areas Inventory (FNAI) provides a detailed guide to the standard classification system of 81 natural communities (FNAI 2010). The premise of this system is that physical factors such as climate, geology, soil, hydrology, and fire frequency determine the species configuration of an area. Areas that are similar with respect to those factors will tend to have natural communities with similar species compositions. Differences in species composition can occur, however, despite similar physical conditions and the reverse can occur. Some physical influences, such as fire frequency, may vary from FNAI's descriptions for certain natural communities in this plan.

2.1.5 Imperiled Species

Flora

As of March 2022, three plant species in the preserve are listed as threatened, endangered, or commercially exploited (Table 3). There are continued efforts to identify new plant species in the preserve, which will be added to the documented species list (Appendix D) as they are located.

Fauna

As many as eight wildlife species in the preserve are considered imperiled (Table 3). There are continued efforts to identify new faunal species in the preserve, which will be added to the documented species list (Appendix E) as they are located. New surveys will be conducted before the next scheduled update of this Plan.

Table 3. Listed flora and fauna in the preserve.

	Common Name	Scientific Name	Status
Plant	Cardinal airplant	*Tillandsia fasciculata*	Endangered (State)
	giant airplant	*Tillandsia utriculate*	Endangered (State)
	Catesby's lily	*Lilium catesbaei*	Threatened (State)
Bird	little blue heron	*Egretta caerulea*	Threatened (State)
	tricolored heron	*Egretta tricolor*	Threatened (State)
	wood stork	*Mycteria americana*	Threatened (Federal)
	crested caracara	*Caracara cheriway*	Threatened (Federal)
	Florida sandhill crane	*Anitgone canadensis pratensis*	Threatened (State)
	roseate spoonbill	*Platalea ajaja*	Threatened (State)
Reptile	gopher tortoise	*Gopherus polyphemus*	Threatened (State)
Mammal	Florida black bear	*Ursus americanus floridanus*	Threatened (State)

2.2 Natural Resource Management

2.2.1 Mesic Flatwoods

There are approximately 1,745 acres of mesic flatwoods in the preserve. Mesic flatwoods comprise the largest habitat type, covering more than 37 percent of the site. Soil conditions vary seasonally, alternating from wet and dry. Fire and hydrology are the driving forces in mesic flatwoods. Growing season fires are a natural and frequent occurrence and mesic flatwood native plants are adapted to these frequent fires and can recover quickly after burns (Table 4). Some plants are dependent on fires in the spring and early summer to reproduce, such as wiregrass (*Aristida stricta var. beyrichiana*). Fire minimizes the invasion of woody species such as oaks (*Quercus spp.)* that will encroach from nearby mesic hammocks. During the summer rainy season, most of the mesic flatwoods are inundated. Conversely, the area is dry in the dryer winter months. When maintained under proper conditions, either naturally or through management, mesic flatwoods communities contain one of the highest species diversities of any native habitat and community in Florida. Historically, fire intervals occurred on average every 2–4 years.

Table 4. Common plants in mesic flatwoods.

Common Name	Scientific Name
Florida slash pine	*Pinus elliotii* var. *densa*
saw palmetto	*Serenoa repens*
fetterbush	*Lyonia lucida*
gallberry	*Ilex glabra*
shiny blueberry	*Vaccinium myrsinites*
bluestem grasses	*Andropogon spp.*

Current Conditions

Mesic flatwoods vary from poor to moderately healthy. A few areas have received fire on a regular interval and have a healthy ratio of pine overstory and palmetto, shrub, and herbaceous components. Approximately 15 percent of the preserve is in maintenance condition and can be maintained with fire. The remaining areas have not received fire at a regular interval. A dense pine canopy with a basal area averaging 130 square feet per acre and a dense palmetto-gallberry understory has shaded out the herbaceous ground cover. Historical land cattle grazing has also altered some areas. The major change in conditions is evident in areas of old fencing and holding pens where excessive trampling occurred, mimicking overuse of mechanical treatment. Many plow lines exist in mesic flatwood areas.

Optimal Conditions

Optimally, an open canopy should consist predominantly of slash pine (*Pinus elliotii)*. The basal area of pines should be between 10–50 square feet per acre. The groundcover/shrub layer should be low and dense and consist of shrubs, grasses, and forbs. Native herbaceous groundcover should cover at least 50 percent of the area and be less than three feet tall. Saw palmetto (*Serenoa repens*) should comprise no more than 50 percent of total shrub cover and be no taller than two feet, with few if any large trunks running along the ground. Shrub species may include saw palmetto, gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), runner oak (*Quercus elliottii*), dwarf live oak (*Quercus minima*), shiny blueberry (*Vaccinium myrsinites*), and dwarf huckleberry (*Gaylussacia dumosa*). The herbaceous component should consist of many grasses like wiregrass (*Aristida stricta var. beyrichiana*), dropseed (*Sporobolus curtissii* and *S. floridanus*), panicgrasses (*Dichanthelium* and *Panicum spp*.) broomsedge (*Andropogon spp*.), and many showy forbs. The optimal fire return interval for this community is 2–4 years.

Management Guidelines

Apply prescribed fire during the growing season every 2–4 years. Fire is the most important tool to keep mesic flatwoods in a healthy, biologically diverse condition. Utilize mechanical treatment like roller chopping and heavy brush mowing in overgrown areas that have not received regular burning. This approach may be required to reduce the height of vegetation to a manageable level prior to reestablishing a burn regime. Thin timbers in areas with dense pine canopies to open the canopy and provide the ideal basal area per acre.

Continue persistent efforts to control invasive exotic species like cogon grass (*Imperata cylindrica*) and Old-World climbing fern (*Lygodium microphyllum*). Eradication of these species is difficult and requires a multi-layered approach. A combined strategy of in-house mapping and surveying and contracting out treatment when funds are available may eventually make headway into reducing those species to manageable levels.

2.2.2 Mesic Hammock

There are approximately 1001 acres of mesic hammocks in the preserve. Mesic hammock is characterized as a well-developed evergreen hardwood and palm forest on soils that are rarely inundated with standing water. Mesic hammock in the preserve is occasionally inundated for short durations in the wet season. The canopy is typically closed and dominated by live oak (*Quercus virginiana*) and laurel oak (*Q. laurifolia*), with cabbage palm (*Sabal palmetto*) generally common in the canopy and subcanopy. Mesic hammock may occur as an island on high ground in basin or floodplain wetlands, as a patch of oak or palm forest in dry prairie or flatwoods communities, or in an ecotone between wetlands and upland communities. Mesic hammocks are important to wildlife for cover, nesting, and food. Occasional, infrequent fire can clear dead vegetation and allow understory shrubs to grow. This helps provide for a healthy mix of hardwoods, cabbage palm, mid canopy shrubs, and groundcover (Table 5).

Table 5. Common plants in mesic hammock.

Common Name	Scientific Name
coffee plant	*Psychotria nervosa*
American beautyberry	*Callicarpa americana*
sparkleberry	*Vaccinium arboreum*
common persimmon	*Diospyros virginiana*
yaupon holly	*Ilex vomitoria*
wax myrtle	*Myrica cerifera*
panic grasses	*Panicum spp.*
witchgrasses	*Dichanthelium spp.*
sedges	*Cyperaceae*
bracken fern	*Pteridium aquilinum*
partridgeberry	*Mitchella repens*
toothpetal false rein orchid	*Habenaria floribunda Lindl.*
live oak	*Quercus virginiana*
water oak	*Quercus nigra*
laurel oak	*Quercus laurifolia*
cabbage palm	*Sabal palmetto*
Spanish moss	*Tillandsia usneoides*
cardinal air plant	*Tillandsia fasciculata*
giant wild pine	*Tillandsia utriculata*
resurrection fern	*Polypodium polypodioides var. michauxianum*
golden polypody	*Phlebodium aureum*
shoestring fern	*Vittaria lineata*
muscadine	*Vitis rotundifolia*
greenbriers	*Smilax spp.*
eastern poison ivy	*Toxicodendron radicans*
Virginia creeper	*Parthenocissus quinquefolia*

Current Conditions

Over the last several decades, mesic hammocks have intruded into pine flatwoods and expanded their coverage considerably due to fire exclusion or suppression. Most mesic hammocks are in a healthy

condition and although the structure and variety remain diverse, a growing problem is the serious decline of the giant wild pine air plant. Due to impacts from the Mexican bromeliad weevil, the numbers of the giant wild pine air plant have declined by approximately 70 percent. Widespread rooting by feral hogs causes severe soil disturbance.

Optimal Conditions

Optimally, the canopy should be dominated by live oak and laurel oak, with cabbage palm generally common in the canopy and subcanopy. The shrubby understory can be dense or open, tall or short depending on the species in that mesic hammock and the hydroperiod length. The herb layer should be sparse or patchy and consist of various grasses as well as various ferns and forbs with occasional ground orchids. Also, abundant vines and epiphytes on live oaks and cabbage palms should be a common and characteristic feature.

Management Guidelines

Monitor populations of giant wild pine air plant and continue efforts to protect and support seed production. Survey and treat Old World climbing fern in the hammock/flatwoods ecotones where it is likely to grow. Minimize soil disturbance by controlling the feral hog population and allow fire to burn naturally into hammocks to prevent further spread into the flatwoods.

2.2.3 Basin Marsh

There are approximately 583 acres of basin marsh in the preserve. Basin marshes are characterized as being regularly inundated large freshwater herbaceous wetlands. In contrast to depression marshes, they are not small or shallow inclusions in a fire-maintained community. Species composition is heterogeneous within and among marshes but can generally be grouped from deepest to shallowest into submersed, floating-leaved, emergent, and grassy zones (Table 6). Shrub patches may be present in any of these zones. Basin marshes occur in a variety of mostly isolated depressions. Some basin marshes in the preserve are large, deep inclusions in fire-adapted upland communities. They also can be part of non-fire adapted communities such as hardwood forests. They are regularly inundated with water originating from localized rainfall.

Table 6. Common plants in basin marsh.

Common Name	Scientific Name
pickerelweed	*Pontederia cordata*
waterlily	*Nymphaea odorata*
maidencane	*Panicum hemitomon*
softstem bulrush	*Scirpus tabernaemontani*
spadeleaf	*Centella asiatica*
sawgrass	*Cladium jamaicense*
bulltongue arrowhead	*Sagittaria lancifolia*
sand cordgrass	*Spartina bakeri*
coastalplain willow	*Salix caroliniana*
buttonbush	*Cephalanthus occidentalis*
wax myrtle	*Myrica cerifera*

Current Conditions

Basin marshes are frequently used as firebreaks during prescribed burns. Some have not burned in many years, allowing the encroachment of woody shrubs like wax myrtle, buttonbush, and Carolina willow. An increasing problem is the spread of Old World climbing fern into isolated tree islands in these large marshes and along the transition zone from wetland to hammock. The remoteness of the areas where the invasive Old World climbing fern occurs makes control efforts logistically difficult and time consuming. Other invasive exotic species that have encroached on several basin marshes in the preserve include torpedo grass (*Panicum repens*), Peruvian primrose willow (*Ludwigia peruviana*), and West Indian marshgrass (*Hymenachne amplexicaulis*).

Optimal Conditions

Optimally, basin marsh should be burned every 3–6 years to burn off excess peat and inhibit woody shrub encroachment. The optimal species variety includes an herbaceous layer greater than 25 percent of the area with no saw palmetto or canopy trees. Woody shrubs should be limited to five percent of the overall area and less than three feet in height.

Management Guidelines

Burn at regular intervals to help reduce encroachment of invasive exotic plants. Avoid hydrologic impacts or mitigate them as much as possible to maintain natural surface water flow.

2.2.4 Depression Marsh

There are approximately 478 acres of depression marshes in the preserve. Depression marshes are characterized as being seasonally wet depressions in pine flatwoods and dry prairie areas. These areas are very conspicuous in aerial photos and comprise approximately 10 percent of the total acreage in the preserve. Typical depression marshes are gradually deeper and wetter towards their center, resulting in concentric zones of vegetation based on plant hydrophilia (Table 7). Hydroperiods in the center are the longest and generally decrease in duration as one moves outward toward the fringe of the marsh.

Periodic fires maintain depression marshes in an open state by burning accumulated peat, trees, and shrubs. Without fire, peat will accumulate and fill in the marsh's center, trees will begin to grow, and the depression marsh will transition into a forested wetland.

Table 7. Common plants in depression marsh.

Common Name	Scientific Name
pickerelweed	*Pontederia cordata*
sagittaria	*Sagittaria spp.*
St. John's-worts	*Hypericum spp.*
maidencane	*Panicum hemitomon*
yellow-eyed grasses	*Xyris spp.*
bladderworts	*Utricularia spp.*
buttonbush	*Cephanlanthus occidentalis*
coastal plain willow	*Salix caroliniana*

Current Conditions

Many depression marshes are in fair condition. Woody shrub encroachment is a problem in at least 40 of the wetlands embedded in mesic flatwoods. Wetlands along management zone boundaries are commonly used as a natural firebreak and are not burned when the adjoining flatwoods are. Also, the invasive exotic torpedo grass (*Panicum repens*) has colonized many of the wetlands. It creates an extremely thick thatch layer that prevents other wetland plants from spreading and forms a dense layer of dead vegetation that only burns well when conditions are very dry.

Optimal Conditions

Optimally, virtually no woody shrubs or trees should exist in the marsh. This can be maintained if surrounding natural communities are burned frequently, since fire will periodically pass through the marsh unless it is inundated. Ideally, at least 30 percent of the ground area should be covered in herbaceous species such as maidencane (*Panicum hemitomon*), panicgrass (*Panicum spp*.), beaksedge (*Rhynchospora spp*.), and St. John's-wort (*Hypericum spp*.), with bare ground comprising less than 20 percent of the area. Depression marshes should serve as important breeding habitat for several species of frogs and salamanders and feeding habitat for numerous bird species in the preserve. Optimal interval is 2–5 years.

Management Guidelines

Allow fire to burn into depression marshes that have gone beyond the maximum burn interval. Use fire to reduce the rapid spread of torpedo grass. Using herbicide is not advised, given the density and scope of coverage. Reroute trails that currently utilize wetland edges, where possible. Promptly restore plow lines created during wildfires to avoid impacting surficial hydrologic flow. Continue to remove feral hogs

2.2.5 Dry Prairie

There are approximately 455 acres of dry prairie in the preserve. Designated a globally imperiled habitat (FNAI 2010), dry prairies are similar to pine flatwoods but contain virtually no pine trees. Though habitats resembling Florida's dry prairie occur elsewhere in the world, similar plant associations don't exist outside of Florida. Characteristically, Florida's dry prairies appear as vast prairie-like expanses of saw palmettos, grasses, herbaceous plants, and low shrubs (Table 8). Trees are conspicuously absent but do occur at very low densities in some areas. Where they do occur, trees in the preserve are generally scattered South Florida slash pines and occasional cabbage palms. Frequent fires during the growing season are important to prevent invasion by trees. Other factors may also limit tree densities, though the reasons for this are not yet fully understood.

Pine lily (*Lilium catesbaei*) is a state threatened wildflower living in dry prairie and mesic flatwoods in the preserve. Both the Florida burrowing owl (*Athene cunicularia floridana*) and Audubon's crested caracara (*Polyborus plancus audubonii*), two species that exist nowhere east of the Mississippi River except Florida, require healthy dry prairie to survive. There have been no documented burrowing owl sightings, but caracara have been observed frequently.

Table 8. Common plants in dry prairie.

Common Name	Scientific Name
dwarf live oak	*Quercus minima*
saw palmetto	*Serenoa repens*
dwarf huckleberry	*Gaylussacia dumosa*
gallberry	*Ilex glabra*
fetterbush	*Lyonia lucida*
slash pine	*Pinus elliottii*
cabbage palm	*Sabal palmetto*
pine lily	*Lilium catesbaei*

Current Conditions

Due to fire exclusion and past cattle grazing, most of the dry prairie community is fragmented and overgrown and is in poor to fair condition. Approximately 15 percent is in good but not optimal condition and is burned on a regular fire interval of 2–3 years. Saw palmetto is lower than three feet and is less than 50 percent in density, giving herbs, grasses, and shrubs space to grow. The remaining 85 percent is not within the desired fire regime. Density of saw palmetto is greater than 50 percent and height is greater than three feet. Most of these areas also have a medium density of slash pines. Some have encroaching hardwoods and woody shrubs like live oak and wax myrtle. Cogon grass (*Imperata cylindrica*) is the most prolific invasive exotic species. Eradication is difficult and requires a multi-year approach.

Optimal Conditions

Ideally, South Florida slash pine should be present, but in very low densities. Saw palmetto height should be less than three feet with coverage of 25–50 percent. Shrub layers should be less than three feet in height, with an average coverage of 25 percent or less. Herbaceous ground cover should be 50–75 percent coverage with a high diversity and species richness that includes forbs and grasses.

Management Guidelines

Burn dry prairie every 18–24 months, mainly during growing season. Prescribed fire is the most important tool used to keep dry prairie in a healthy, biologically diverse condition. Reduce the current pine basal area to less than 10. Once infestations are identified, eradicate cogon grass and climbing ferns.

2.2.6 Pasture, semi-improved

Semi-improved pasture is characterized by being dominated by a mix of planted non-native forage species and native groundcover. This mix usually results from an incomplete conversion to pasture or non-native species not regenerating over time. Typically, significant percentages of native vegetation have been cleared and that area is then planted in non-native forage species such as bahiagrass (*Paspalum notatum*) but will still retain areas of native vegetation with natural species structure and composition in the pasture area (Table 9).

Table 9. Common plants in semi-improved pasture.

Common Name	Scientific Name
bahiagrass	*Paspalum notatum*
bluestem	*Andropogon spp.*
saw palmetto	*Serenoa repens*
sedges	*Cyperaceae spp.*

Current Conditions

There are 229.5 acres of semi-improved pasture along the Big Slough canal. They have gone to fallow and native vegetation has slowly moved in on the edges from adjacent native habitats. Almost all are surrounded by mesic hammock with small pockets of depression marshes in the pastures. Due to their separation from mesic flatwoods by mesic hammocks, the pastures are not regularly burned. Overall, semi-improved pastures are lacking a canopy except occasional large live oak (*Quercus virginiana*) trees left as shade for livestock.

Optimal Conditions

Optimally, semi-improved pasture should be restored to the native habitat that existed prior to conversion to pasture.

Management Guidelines

Continue to reduce invasive exotic plants and feral hogs. Use prescribed burns to rejuvenate the seed bank and remove dead thatch from the herbaceous species. Conduct studies to determine the historical native habitat, including soil surveys, topography, and analyses of historical aerials.

2.2.7 Management Zones

To coordinate management efforts and maintain records of prescribed fire, restoration activities, and invasive exotic plant management, the preserve is divided into 18 management zones (Exhibit 8, Table 10).

Table 10. Management Zones used to track prescribed fire, restoration activities, and invasive exotic plant management in the preserve.

Management Zones Acreage								
Zone	Acres		Zone	Acres		Zone	Acres
1	298.9		7	421.0		13	480.1
2	406.6		8	284.6		14	92.7
3	183.6		9	352.8		15	107.6
4	199.0		10	364.6		16	116.8
5	216.1		11	134.6		17	269.3
6	158.2		12	370.9		18	207.5

Each year, management zones are selected to create the annual burn plan based on the recommended fire return interval for the pyrogenic natural communities (Table 11a). Annual burn target acreage of the entire preserve is 729.5—1,456.3 acres. Zones are selected to burn in a way that maintains rotation and removes others from backlog.

Table 11a. Annual burn plan intervals and targets.

Native Community	Acres	Interval (years)	Annual Target (acres)
mesic flatwoods	1745.1	2—4	436.3—872.6
basin marsh	583.6	5—7	83.4—116.7
depression marsh	478.2	2—5	95.6—239.1
dry prairie	455.7	2—4	113.9—227.9

For the purposes of invasive exotic plant management (IPM), the preserve is divided into three regions with a three-year rotation (Exhibit 9, Table 11b). Techniques and chemicals used are dependent on the targeted plant and current best management practices. The regions will be surveyed for invasive exotic plants on a three-year rotation minimum. GPS coordinates of plants will be recorded, followed by treatment. Even though the IPM Treatment regions have been identified, the IPM plan for the preserve allows for flexibility by land managers to take advantage of unique conditions including seasonality, recent prescribed burns, and mechanical vegetation treatments to reduce overall costs associated with chemical use and labor.

Table 11b. Annual invasive exotic plant management rotation intervals and targets

Invasive Plant Treatment Regions	Acres to be Surveyed and Treated (as needed)	Rotation Year
Region 1: Zones 1-6	1,462.1	2022, 2025, 2028, 2031
Region 2: Zones 7-12	1,928.5	2023, 2026, 2029, 2032
Region 3: Zones 13-18	1,275	2024, 2027, 2030, 2033

2.2.8 Special Considerations

The long-term management goal is to restore the form and function of mesic flatwoods and dry prairie. When these communities are in optimal condition, the use of prescribed fire and the occasional mechanical treatments are enough to keep the area in maintenance condition. As of March 2022, these natural communities are overgrown and have a dense canopy of pines. An agreement with the Florida Forest Service (FFS) has been established to assist with planning, administering, and supervising timber harvest in a preserve-wide pine thinning project. Roughly 2,200 acres have been identified for this project and a contract will bid out in 2022. The FFS has established Best Management Practices (BMPs) for Silviculture in Florida. These practices are designed as the minimum actions necessary for protecting and maintaining the State's water quality as well as certain wildlife habitat values during forestry activities. All timber thinning operations in the preserve will conform to these BMPs. Any potentially harmful activities, such as driving heavy machinery through saturated soils, will be avoided or mitigated.

Once thinning is complete, the project area will be allowed to sit for one growing season before prescribed fire is reintroduced to the site. During the project, areas where trails and firelines can be rerouted will be identified. When appropriate. new routes will be established and the old tracks will be restored to native habitat. The preserve will be maintained using prescribed fire. Historical land uses and hydrologic alterations will be corrected where possible.

2.2.9 Research and Monitoring

Adaptive management is a process wherein lessons learned from previous management are applied to future management decisions. To practice adaptive management, land managers must understand the effects of past management, and this knowledge usually comes from monitoring native communities for changes in diversity, total populations, and demographics of resident fauna. Monitoring wildlife in these communities lets managers know if they are providing the habitat that each community should contain when in a native, healthy state.

Baseline inventory data are lacking for certain key species. For example, the gopher frog may inhabit the preserve, but no surveys have been done and no sightings have been recorded. This species may be inventoried by sound during the breeding season and by using a gopher tortoise burrow scope. The scope may also be used to inventory other gopher tortoise commensals.

A general species inventory is also needed for the site and would include surveys for species diversity and populations in major groups, such as birds, reptiles, amphibians, and mammals. A variety of methods may be used, including track plots and live traps to inventory reptiles, amphibians, and small mammals. Track plots and remote cameras are recommended to inventory large mammals.

No current research projects occur in the preserve, although Sarasota County is open to future research conducted by researchers affiliated with a college, university, or research organization. Researchers must apply for a permit to conduct research on County lands. Research must be relevant to the preserve and all findings must be provided to the County.

3 CULTURAL RESOURCE MANAGEMENT COMPONENT

3.1 CULTURAL RESOURCE INVENTORY

3.1.1 Archeological Sites

The preserve has not been surveyed for archeological or historical sites. The site should be surveyed by fiscal year 2026 and if archeological sites are found, these sites shall be preserved and protected.

3.1.2 Historical Structures and Uses

There are no structures on the property.

3.2 CULTURAL RESOURCE MANAGEMENT

There are no known cultural resources in Big Slough Preserve. If an archaeological survey discovers cultural resources on the site, protective measures will be taken.

4 LAND USE COMPONENT

4.1 CURRENT LAND USES, AMENITIES, AND FACILITIES

4.1.1 Agriculture

Not applicable

4.1.2 Public Access and Recreational Uses

The preserve is open daily for public recreation during standard operation hours. There are many sections of trail that may be flooded during heavy rain events and during the rainy season. The preserve has three entrances (Exhibit 10). The main entrance and the only parking lot is accessible from State Road 72, which has ample space for horse trailers and vehicles. Picnic tables are located in the parking area under a shade tree. Access can also be gained via the South Powerline trail from T. Mabry Carlton, Jr. Memorial Reserve, or by crossing the foot bridge that connects to Myakkahatchee Creek Environmental Park (MCEP). Preserve maps are in map boxes at the main entrance parking lot and on the kiosk at the bottom of the foot bridge with MCEP. There is a small kiosk at the start of the LiveLong and the Prosper trails that are maintained by Sarasota County Off-Road Riders (SCORR).

Current use provides for passive, nature based recreational use without adversely impacting native habitats and species. A variety of improvements exist to facilitate responsible use of the preserve (Table 12). Recreational opportunities include hiking, horseback riding, offroad bicycling, birdwatching, and wildlife viewing. There are a range of potential or known unauthorized uses that require monitoring and enforcement (Table 13). The preserve is dog friendly.

Table 12. Current condition and maintenance requirements of facilities and amenities.

Type	Improvement	Condition Assessment	Maintenance Goal
public	parking area	good	Coordinate with contractor for regular mowing
	trails	good	mow trails and trim adjacent shrubs as needed
	Foot bridge	good	blow off debris and pressure wash as needed
	picnic tables/benches	good	clean and repair/replace as needed
	signs/kiosk	good	clean and repair/replace as needed
support	NA	NA	

Table 13. Potential or known unauthorized uses. Potential unauthorized uses/activities are set forth in the County Facility Rules, in addition to applicable rules in Chapter 90 of the Sarasota County Code of Ordinances.

Unauthorized Use	Potential	Known
unauthorized vehicles, ATVs, UTVs, dirt bikes		X
poaching or hunting		X
Removal of plants	X	
cultural resource damage and removal	X	
unauthorized fires		X
camping		X
dogs off leash		X
littering		X

4.1.3 Outreach and Education

Environmental education is important to help protect native habitats and the wildlife they support. Kiosks with educational and interpretive messaging are being developed. There will be a two-sided kiosk with an overview map and interpretive messaging. The kiosks will be installed at the main parking lot off State Road 72 and at the foot bridge by MCEP. The SCORR off-road bike club has a kiosk at the intersection of the South Powerline Trail with both the Livelong and Prosper single track trails that provide information about the trails and their conditions.

4.1.4 Land Use on Adjacent Lands

The 5.1-mile western boundary is protected by adjacent conservation lands; Myakka River State Park sharing 1.2 miles and T. Mabry Carlton, Jr. Memorial Reserve making up the remaining 3.9 miles (Exhibit 3). The Mabry Carlton Ranch, Inc. surrounds the preserve to the north and east; with the eastern portion protected by a conservation easement jointly owned by Sarasota County and SWFWMD. Myakkahatchee Creek Environmental Park and North Port Estates make up the southern boundary. These 3–5-acre lots are privately owned ranchettes with a few undeveloped lots remaining.

4.2 Proposed Land Uses, Amenities, and Facilities

There will be no major change to the current land use of the preserve. Planning for trail management shall occur during development of annual work plans. During planning, the County will evaluate existing trails – including firelines, access, and utility trails – and identify trails requiring restoration, upgrading, rerouting, use restrictions, or closing. Many existing trails were constructed through wetlands or their ecotones. Whenever possible, these trails should be diverted around wetlands. New trails must avoid impacting wetlands.

4.3 Current and Proposed ADA Components

Trails are composed of natural substrate. They feature occasional steep terrain and are subject to ground disturbance from wildlife and prescribed fire activities. Sarasota County Parks, Recreation and Natural Resources is conducting accessibility surveys at parks and preserves. Big Slough Preserve has not been evaluated as of February 2022. The County will continue to look for opportunities to provide

reasonable accessibility while balancing the need for security and maintaining the integrity of the native environment.

4.4 Visitor Use Management And Carrying Capacity

As of 2021, the carrying capacity of the preserve for visitor use has not been identified. Understanding carrying capacity is useful for avoiding negative impacts to native plants and animals and the visitor experience. Complaints and issues will be addressed as they arise. If a specific use or activity has a negative effect on native habitats and communities or the experience of the other preserve visitors, that use, or activity will be reviewed and may be deemed inappropriate for the preserve.

5 Operations Component

Land management activities are accomplished using a combination of County staff and resources and outside contractors. The County will be responsible for all property maintenance activities. Key activities include administrative duties, trash removal, trail and fence maintenance, recreational amenities maintenance, and habitat management. Staff of PRNR or their designee will conduct these activities weekly.

5.1 Current Staff

PRNR NAT is responsible for the management of the preserve. Currently NAT assigns responsibility to one full time employee (FTE) Environmental Specialist III with assistance from one FTE Trades Worker, who are both responsible for managing multiple additional preserves, including the Carlton Reserve.

5.2 Optimal Staff

Ideally, staff assigned to Big Slough Preserve would have fewer other responsibilities allowing for greater attention to the preserve. To ensure optimal management capability, 10–20 hours per week would be spent managing the natural resources of the preserve. Time would be spent on invasive exotic plant surveys and treatments, resource monitoring, contract management, and outreach and education. Time is also needed for trail maintenance, administration, and other concerns.

5.3 Agency and NGO Partners

Land management activities routinely involve interagency and public coordination. Prescribed burns, invasive exotic plant control, and other major projects will continue to require careful coordination with adjoining public and private landowners, including SWFWMD, Florida Park Service, and City of North Port to ensure efficiency and to request assistance.

Coordinating partners include:

- Sarasota County Emergency Services
- Florida Park Service
- Florida Forest Service
- SWFWMD
- City of North Port
- Florida Power and Light
- SCORR

5.4 Volunteers

The preserve benefits from additional assistance from the Sarasota County Volunteer Program. The preserve has a few volunteers to assist with listed bromeliad monitoring. The single tract trails are maintained by SCORR.

5.5 Law Enforcement/Security

Sarasota County is responsible for providing security. It is hoped that vandalism is deterred by providing a visible presence during visits and activities. The public is informed of the hours of operation and county ordinances governing appropriate use and behavior through signs. All illegal activities are immediately reported to the Sarasota County Sheriff's office, which is the entity responsible for providing regular patrols and enforcing trespass ordinances.

5.6 Funding

Primary funding for site maintenance of Big Slough Preserve comes from the ESLPP, which provides about $500,000 annually for management of all ESLPP properties. The County will coordinate with other agencies for potential cooperative funding for site improvement and management.

5.7 Costs

Costs are rough estimates taken from current actual expenditures in August 2020 (see Appendix F). In all but salaries, costs were increased to account for inflation, but escalators were not applied. Salaries are fully loaded, and escalators are built in for 10-year estimates. Site managers estimated the amount of time each staff position would spend on the natural area and divided annual salary accordingly to determine salary costs for given natural areas. See Appendix F for the annualized cost schedule for NAT.

	ACTIVITY	ESTIMATED 10-YR COST
NATURAL RESOURCES	prescribed fire preparation	$130,000
	prescribed fire	$2,100,000
	prescribed fire monitoring	$51,600
	integrated pest management surveying	$300,000
	integrated pest management treatment	$750,000
	hydrologic restoration	$100,000
	mechanical vegetation management	$500,000
	TOTAL COSTS	**$3,931,600**
CULTURAL RESOURCES	surveying	$75,000
	monitoring	$10,000
	TOTAL COSTS	**$85,000**
LAND USES	*Maintenance*	
	fencing	$14,500
	trail markers	$1,120
	benches	$1,600

	tools	$0
	parking lots	$1,500
	road repairs	$0
	restrooms	$0
	portable toilets	$0
	grills	$0
	tables	$1,250
	pavilions	$0
	camp sites	$0
	grounds mowing	$20,000
	power washing	$40,000
	building maintenance	$0
	Recreation and Visitor Services	
	kiosks	$4,900
	brochures	
	maps	$2,250
	programs, guided and self-guided	$0
	events	$0
	playgrounds	$0
	nature centers	$0
	bike rack	$1,400
	trails	$0
	TOTAL COSTS	**$88,520**
OPERATIONS	salary of Environmental Specialist III	$977,600
	salary of Supervisor	$208,000
	salary of Crew Leader	$0
	salary of Park Attendant	$0
	salary of Trades Worker	$241,280
	salary of Administrative Assistant	$124,800
	office equipment	$0
	utilities (water, sewer, electric, garbage)	$0
	offices	$0
	security	$0
	alarm monitoring	$0
	fleet (UTVs and trucks)	$20,000
	TOTAL COSTS	**$1,571,680**

Notes:

1. Current Loaded Salary is based on FY 21.
2. Salary multiplier is 2.5%.
3. Average hourly rate for salary is based on 2080 total hours per year.

6 GOALS, OBJECTIVES, AND ACTIONS IMPLEMENTATION MATRIX

	GOALS / OBJECTIVES / ACTIONS		MEASURE (metric)	TARGETS 2024	2026	2028	2030	2032
NATURAL RESOURCES	**GOAL 1**	**Restore and maintain native habitats and communities.**						
	OBJECTIVE 1.1	Return fire to its natural role in fire-dependent native habitats and communities.						
	Action	Identify areas that would benefit from pine tree basal area reduction; reduce pine density with timber thinning.	# acres identified and thinned	850	850			
	Action	Maintain and prepare firelines along boundary annually; internal firelines as required by annual plans.	# miles firelines prepared	30	30	30	30	30
	Action	Utilize prescribed fire to reduce wildfire risk and enhance native habitats .	# acres treated	1200	1200	1200	1200	1200
	OBJECTIVE 1.2	Eliminate FLEPPC Category I, and II invasive exotic plant species, or if not possible, reduce populations to levels too low to alter native communities.						
	Action	Identify and map priority invasive exotic plant species. Mapping should include abundance and extent.	GIS database and mapping completed	X	X	X	X	X
	Action	Annually treat at a minimum of 20 percent of known infestation sites.	% of known infestations treated	20%	20%	20%	20%	20%
	Action	Annually update the preserve's invasive exotic plant management work plan.	IPM Plan updated annually	X	X	X	X	X

	Action	Schedule workdays with land managers to assist with exotic control.	# work days scheduled	2	2	2	2	2
	OBJECTIVE 1.3	Document and monitor imperiled species occurrences as they are identified.						
	Action	Survey for nest sites of bald eagles and swallow-tailed kites during nesting season.	Surveys conducted annually	X	X	X	X	X
	Action	Manage and support volunteer bromeliad monitoring program.	Volunteers provided with logistical support	X	X	X	X	X
	OBJECTIVE 1.4	By 2032, restore the historical hydrologic flow in the preserve to the greatest amount feasible.						
	Action	Develop plan to reroute firelines that enter wetlands.	# miles of fireline rerouted	5	5	5	5	5
	Action	Repair ditching.	% of ditching repaired	20%	20%	20%	20%	20%
	Action	Add culverts or low water crossings.	# of crossings improved	2	2	2	2	2
	OBJECTIVE 1.5	Restore vegetation height, density, and composition to accepted levels based on habitat type.						
	Action	Implement timber thinning project to reduce basal area to optimal conditions.	Timber project implemented	X	X			
	Action	Utilize mechanical treatment.	# acres of mechanical treatment	75	75	75	75	75

CULTURAL RESOURCES	**GOAL 1**	**Protect, preserve, and maintain cultural resources.**						
	OBJECTIVE 1.1	Survey for historic resources during resource management activities in areas without any known sites. Complete and submit a Master Site File to the Division on Historic Resources.						
	Action	Conduct archeological survey of property with the History Center.	Survey completed		X	X		
	Action	Follow up any ground disturbing activities with an archeological resource monitor survey.	Survey completed	TBD	TBD	TBD	TBD	TBD
	OBJECTIVE 1.2	Monitor known sites bi-annually and during resource management activities. Update the Master Site File as needed.						
	Action	Evaluate the condition of known sites.	Evaluation completed	X		X		X
	Action	Inform Sarasota County History Center of potential ground disturbance activities outside of normal management activities.	History Center informed	TBD	TBD	TBD	TBD	TBD
LAND USES	**GOAL 1**	**Maintain public access and passive recreational opportunities without adversely impacting native habitats and communities.**						
	OBJECTIVE 1.1	Assess current trail routes and trail connections with nearby recreational opportunities.						
	Action	Add appropriate signs when trails lead to off property trail system.	# signs added	1	5	5		
	Action	Reroute trails that are negatively impacting native habitats.	% of problem trails rerouted	5%	10%	10%	10%	10%
	OBJECTIVE 1.2	Provide for outdoor recreational amenities while still protecting and educating the public about the natural resources.						
	Action	Maintain all amenities to include trails, parking lots, benches, and picnic tables.	Amenities maintained	X	X	X	X	X

	OBJECTIVE 1.3	Assess impacts of recreational activities to ensure the health of native habitats and communities.						
	Action	Assess the slough system for recreational impacts.	Assessment completed	X	X	X	X	X
	Action	Mitigate negative impacts to native habitats and communities.	Areas to be closed or improved identified	X	X	X	X	X
	GOAL 2	**Provide nature based educational and interpretive opportunities.**						
	OBJECTIVE 2.1	Provide interpretive signs.						
	Action	Develop material for kiosks.	Interpretive display updated		1	3		
	Action	Add trailside interpretive panels.	# panels added		2	2	2	2
	OBJECTIVE 2.2	Provide interpretive programs and nature walks.						
	Action	Host nature walk.	# walks hosted	2	2	2	2	2
	Action	Coordinate with Communications to add interpretive social media posts.	# posts	5	5	5	5	5
OPERATIONS	**GOAL 1**	**Provide administrative and fiscal support.**						
	OBJECTIVE 1.1	Provide opportunities for volunteers to support operations and natural systems.						
	Action	Support and schedule volunteer participation in operations, wildlife and plant monitoring, and natural systems management.	# volunteer workdays scheduled	2	4	4	4	4
	Action	Recruit volunteers for specific preserve needs by advertising specific job descriptions in County volunteer program.	# jobs advertised	X	X	X	X	X

7 REFERENCES

FNAI (Florida Natural Areas Inventory). 2010. *Guide to the natural communities of Florida: 2010 edition*. Florida Natural Areas Inventory, Tallahassee, FL. 278 pp.

Mote (Mote Marine Laboratory). 1990. *Big Slough Ambient Surface Water Quality Assessment: MML Technical Report No. 198.* Mote Marine Laboratory, Sarasota, FL. 164 pp.

USDA (US Department of Agriculture). 1991. *Soil Survey of Sarasota County, Florida.* Natural Resources Conservation Services.

USEPA (US Environmental Protection Agency). 2011. *Final: Total Maximum Daily Loads for the Big Slough Canal WBID 1976 Fecal Coliform*. Water Protection Division.

8 EXHIBITS

EXHIBIT 1 – LOCATION MAP

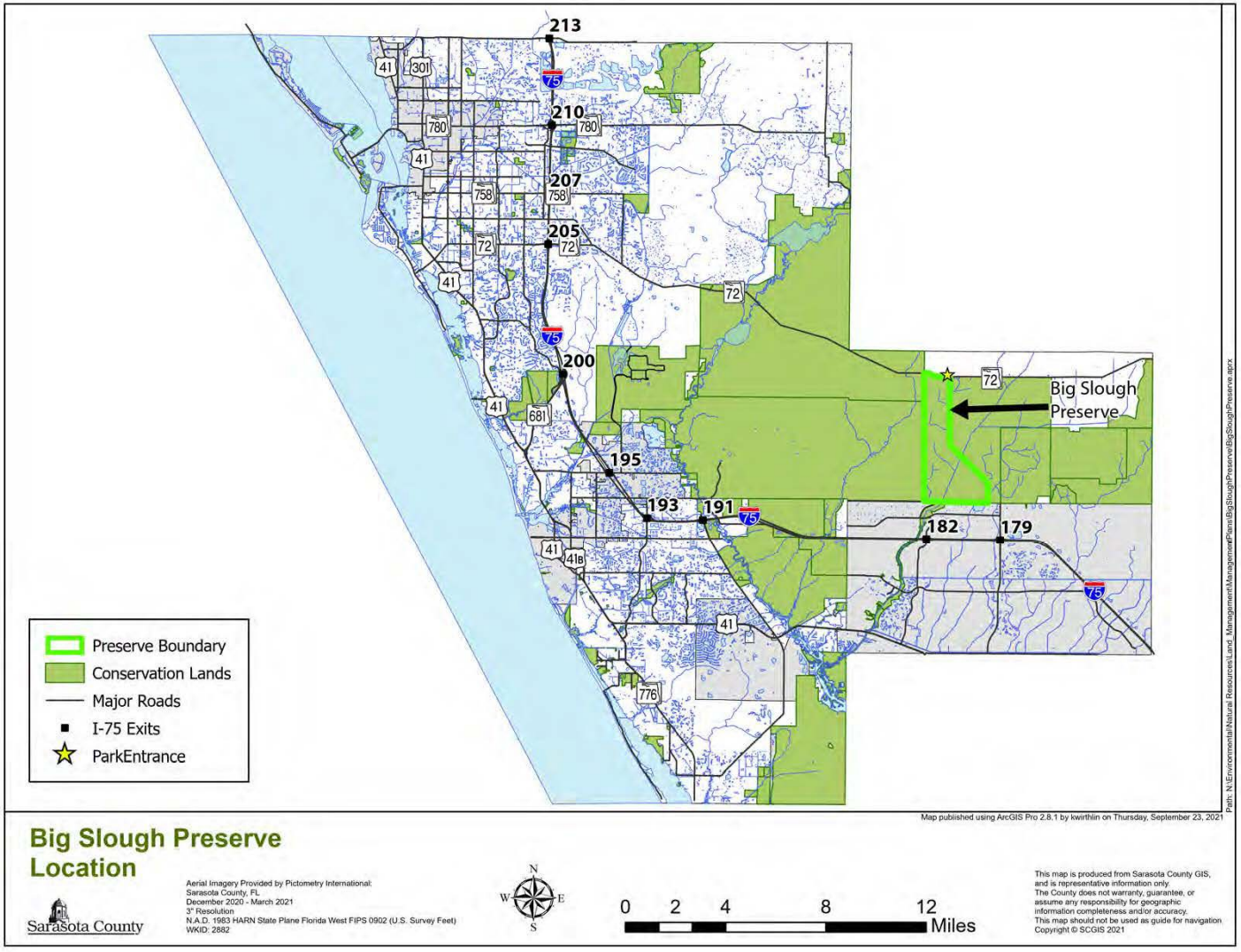


EXHIBIT 2 – PRESERVE BOUNDARY

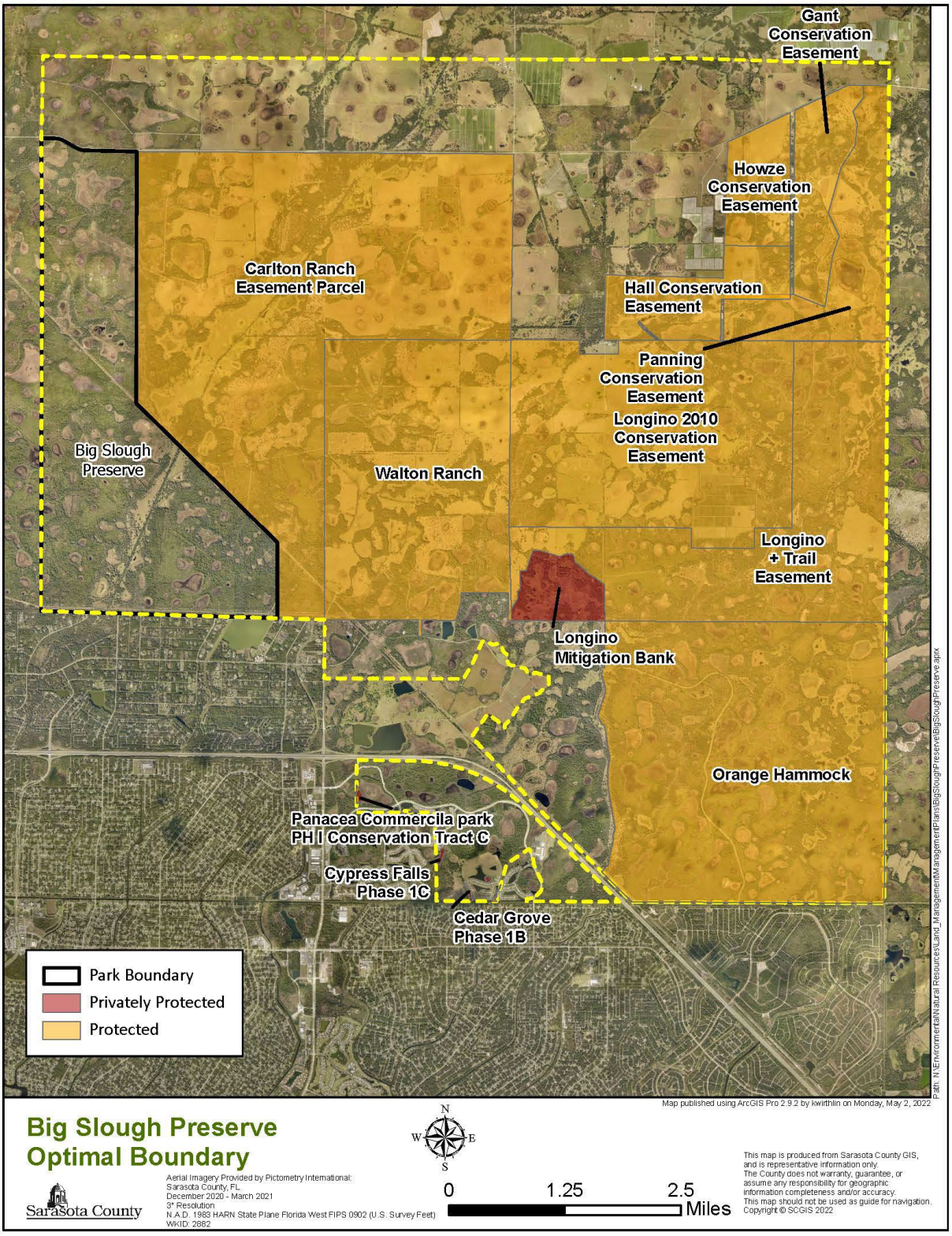


EXHIBIT 3 – ZONING

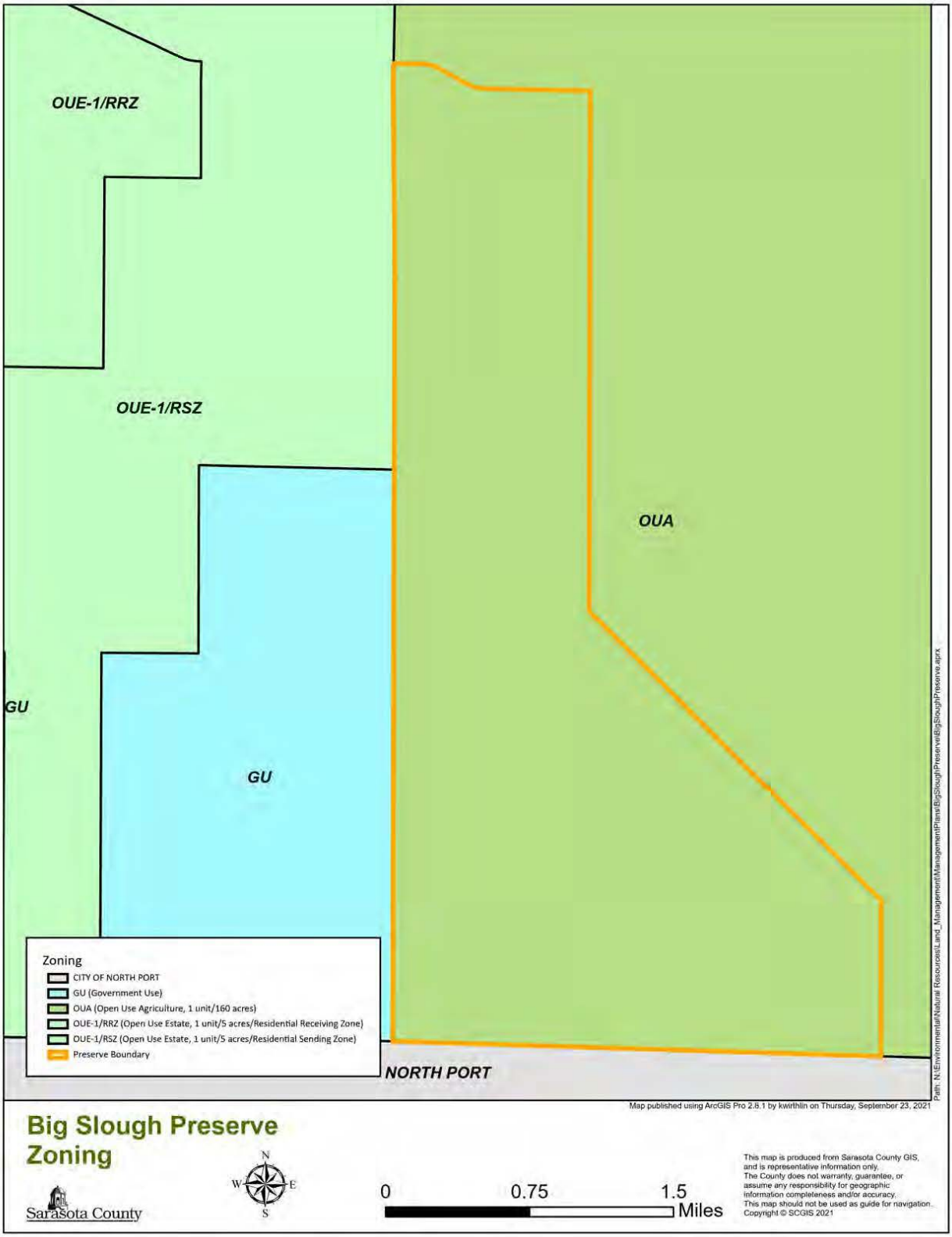


EXHIBIT 4 – ELEVATION MAP

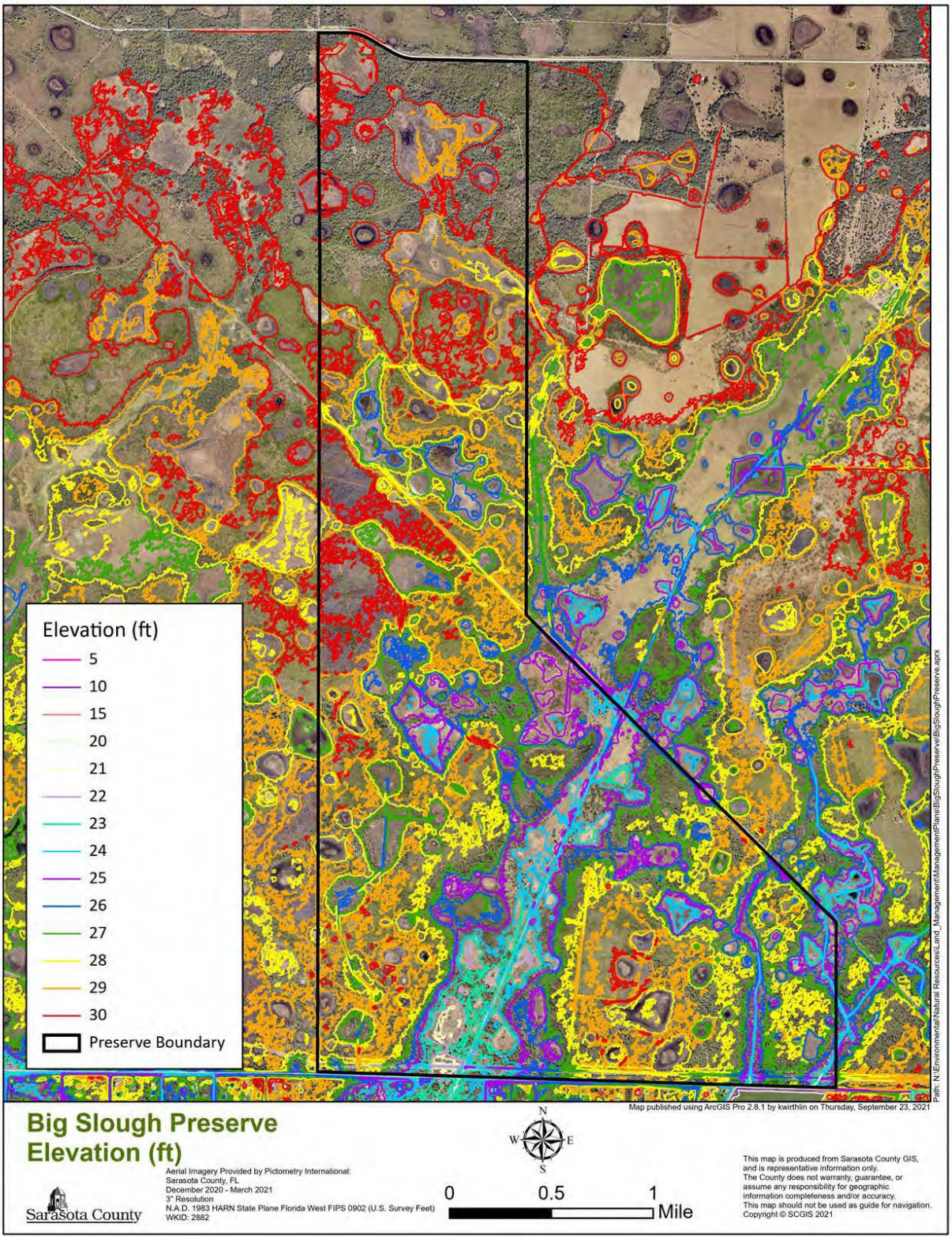


EXHIBIT 5 – SOILS MAP

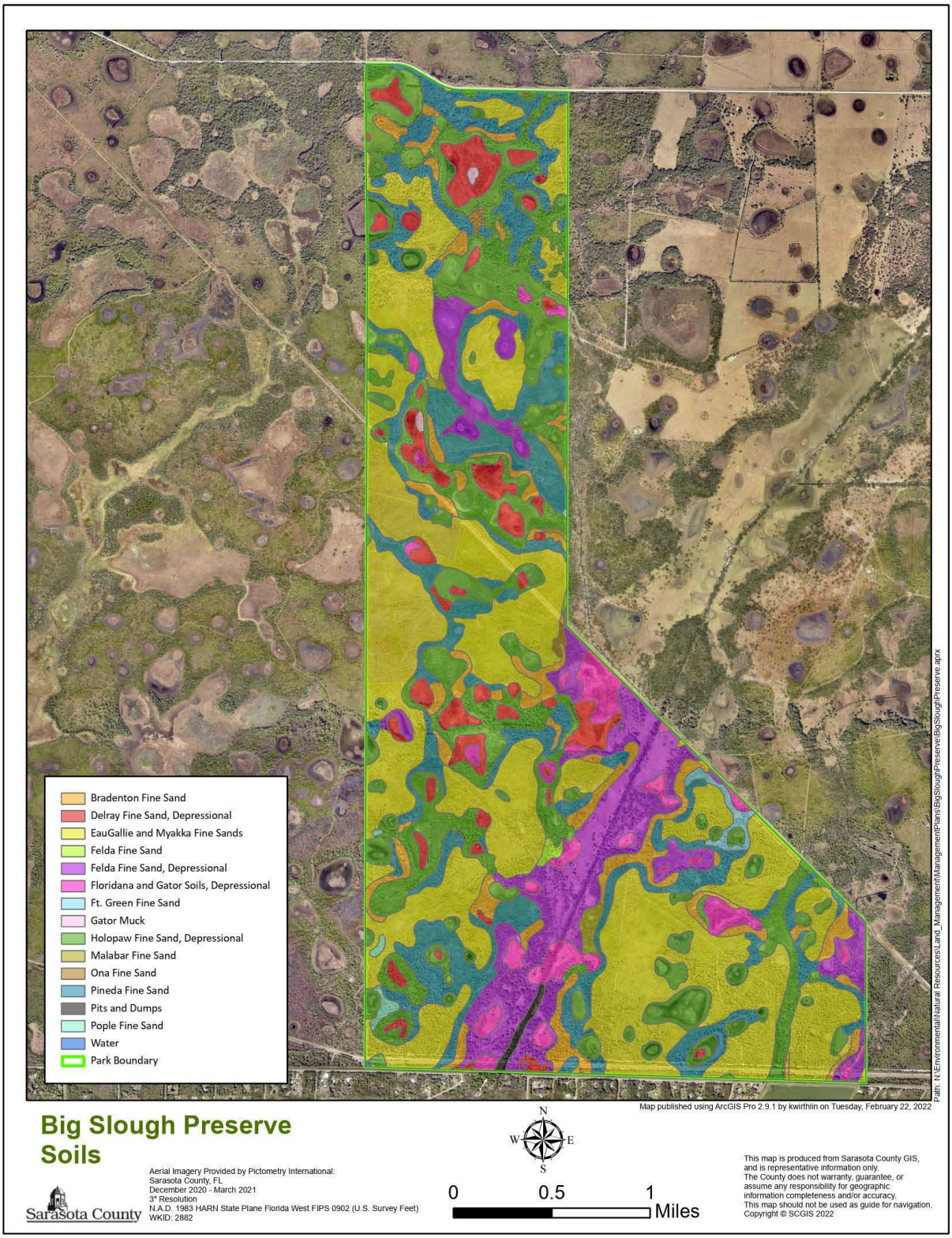


EXHIBIT 6 – FLOOD MAP

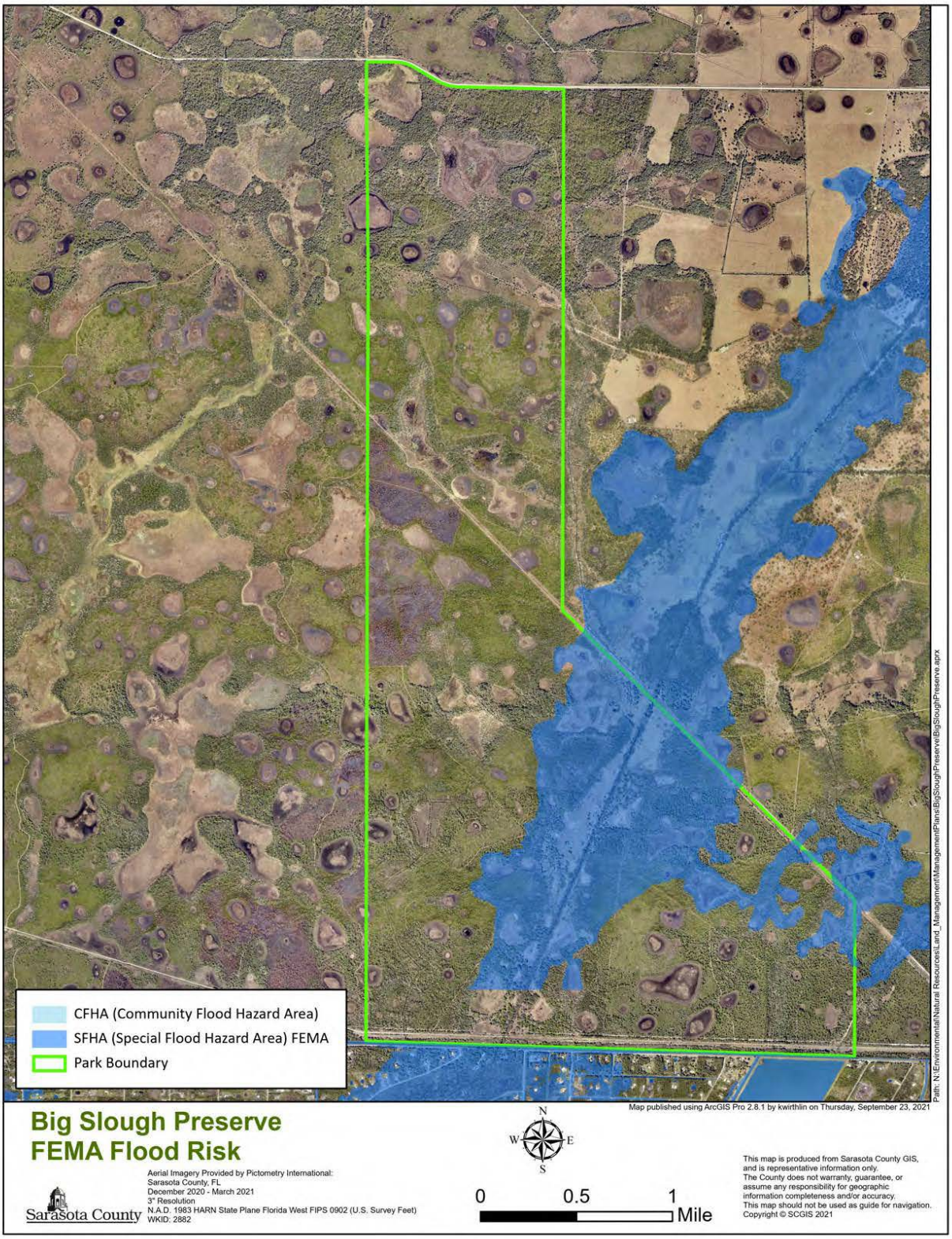


EXHIBIT 7A – HABITAT MAP

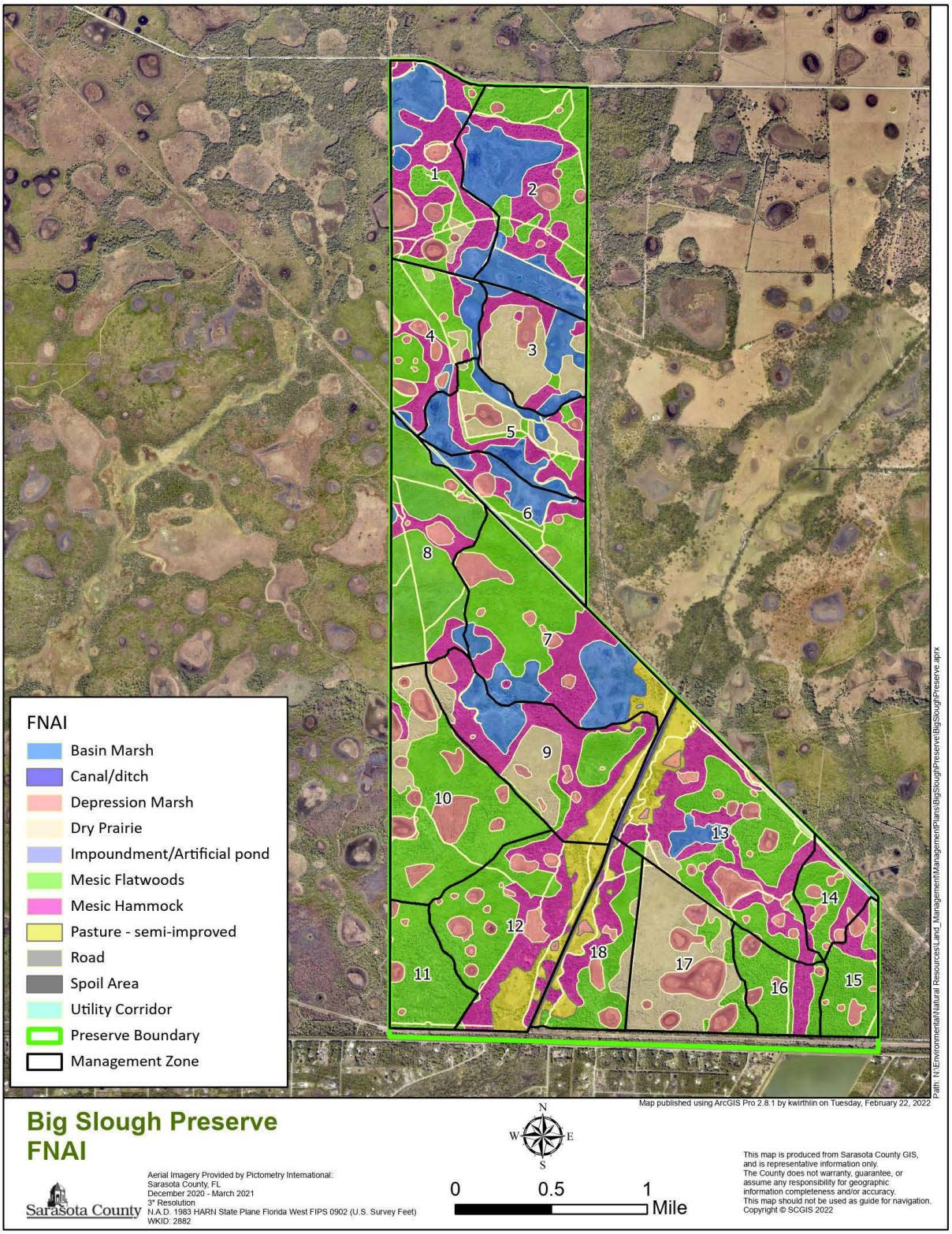


EXHIBIT 7B – HISTORICAL AERIAL

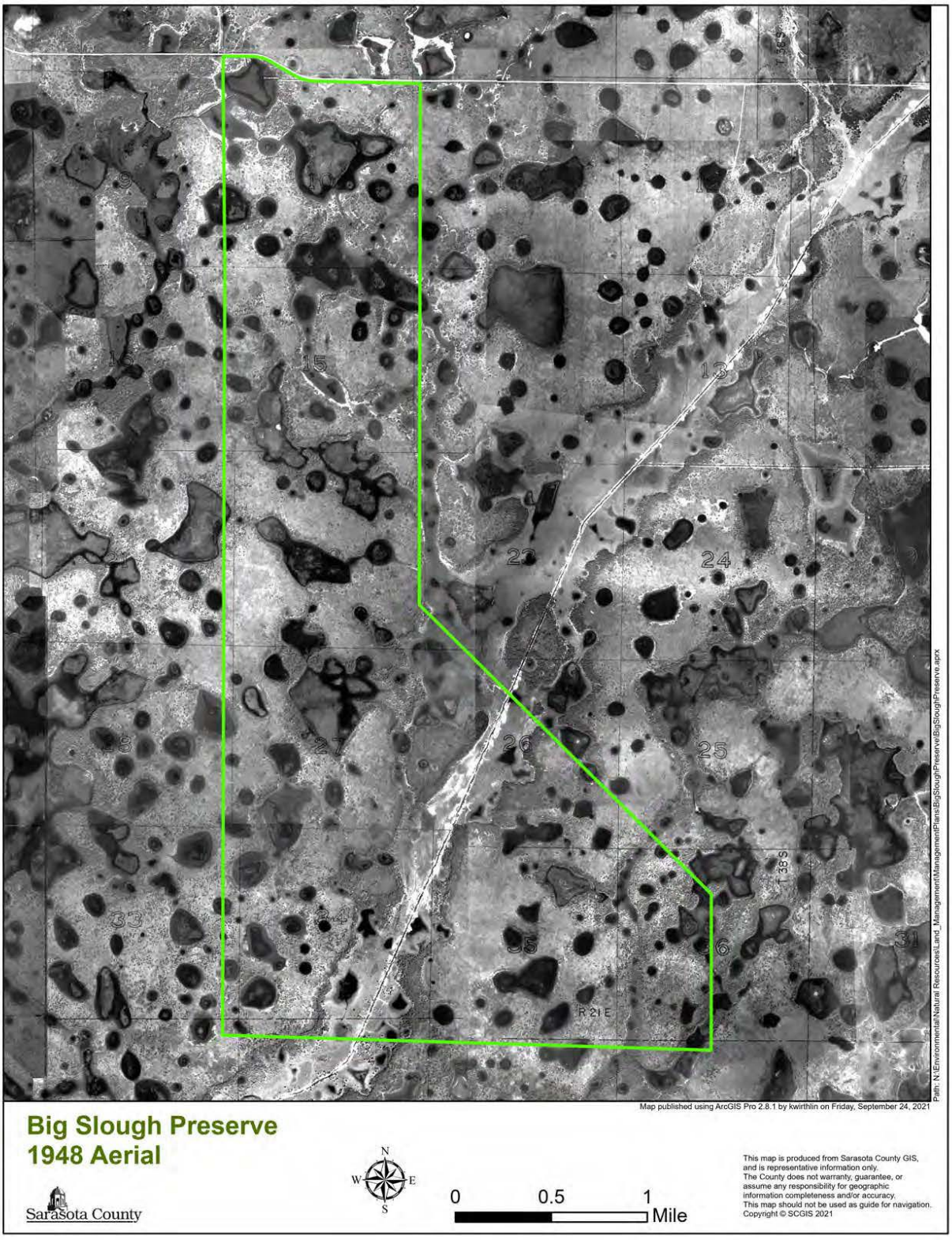


EXHIBIT 8 – MANAGEMENT ZONE MAP

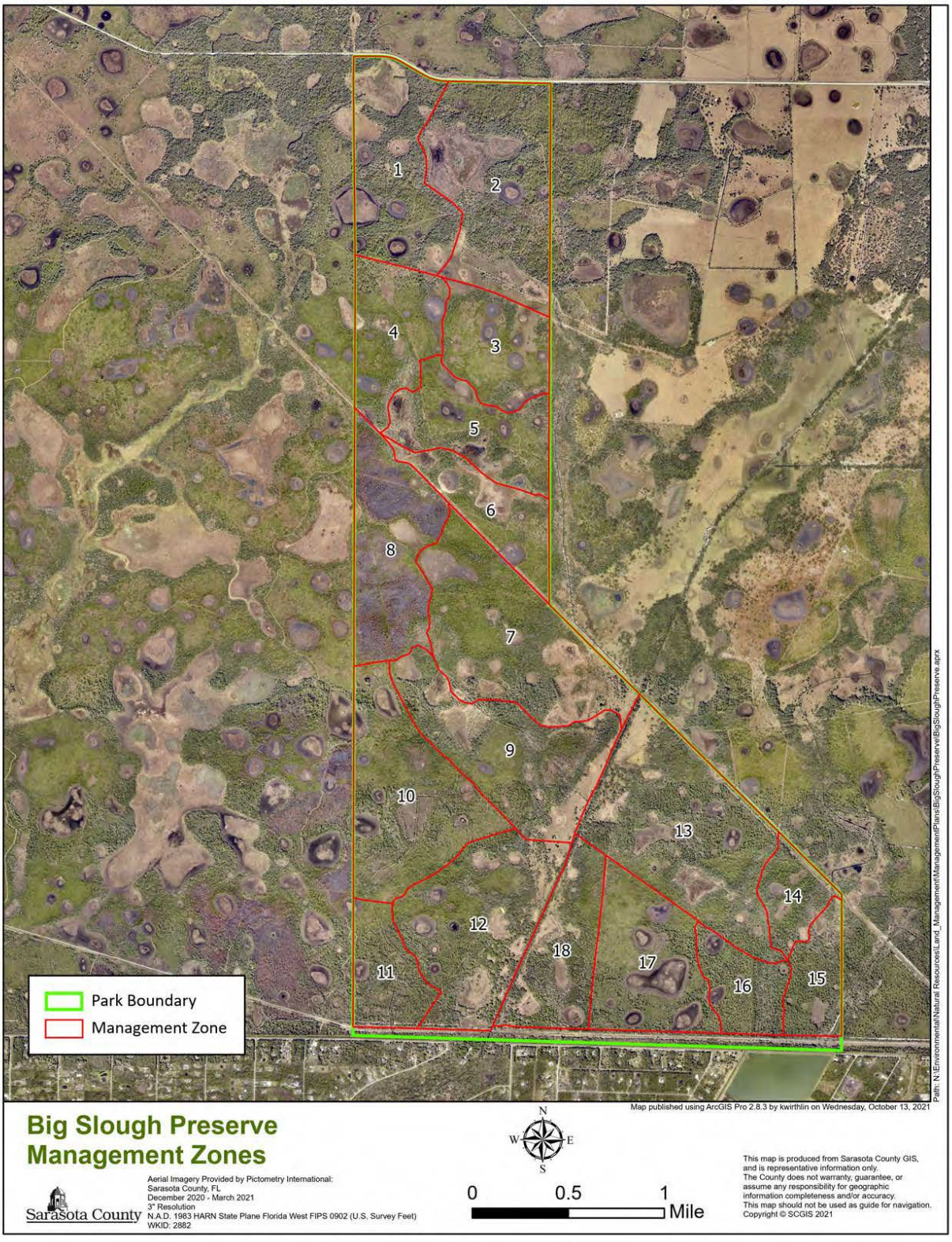


EXHIBIT 9 – IPM ROTATION MAP

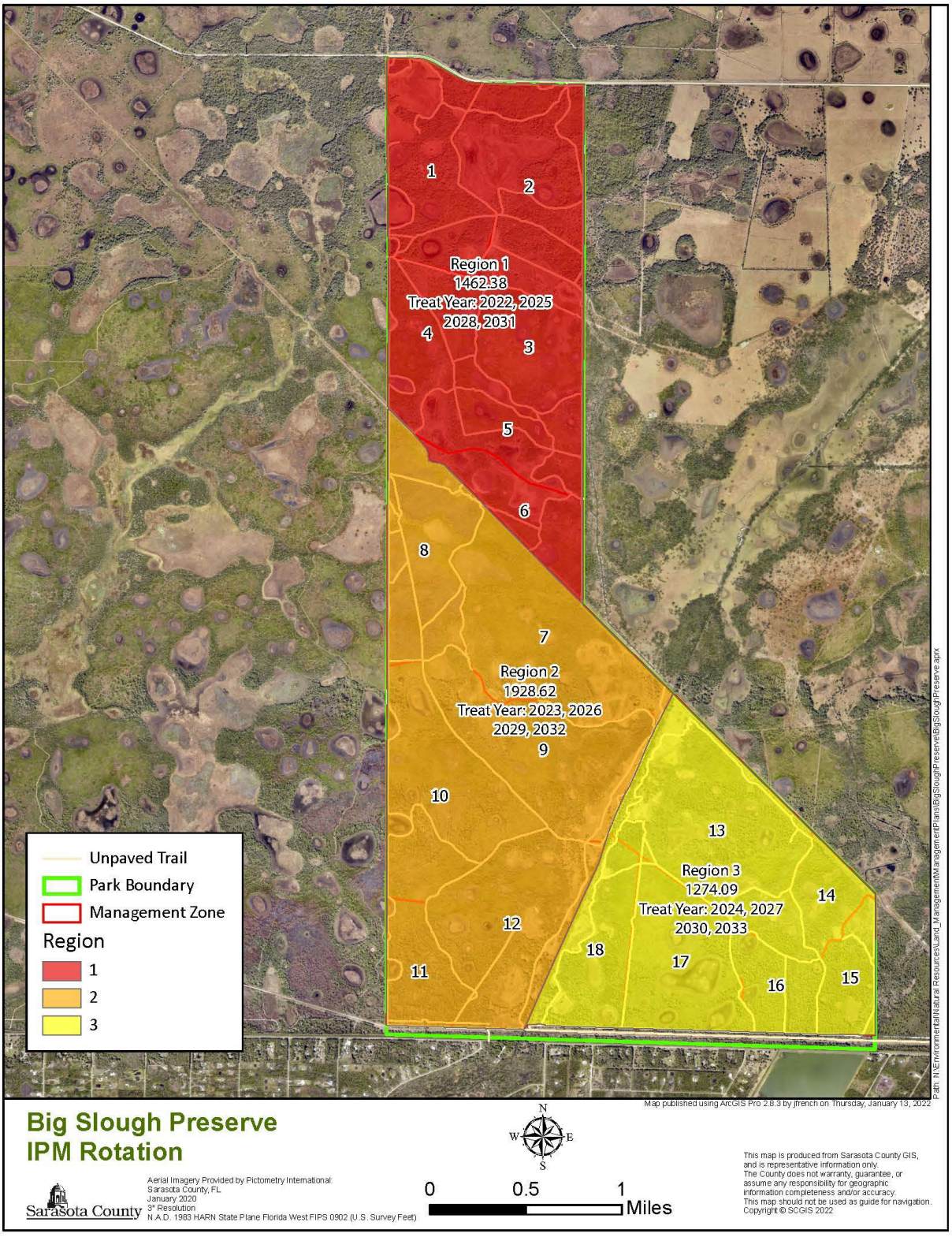
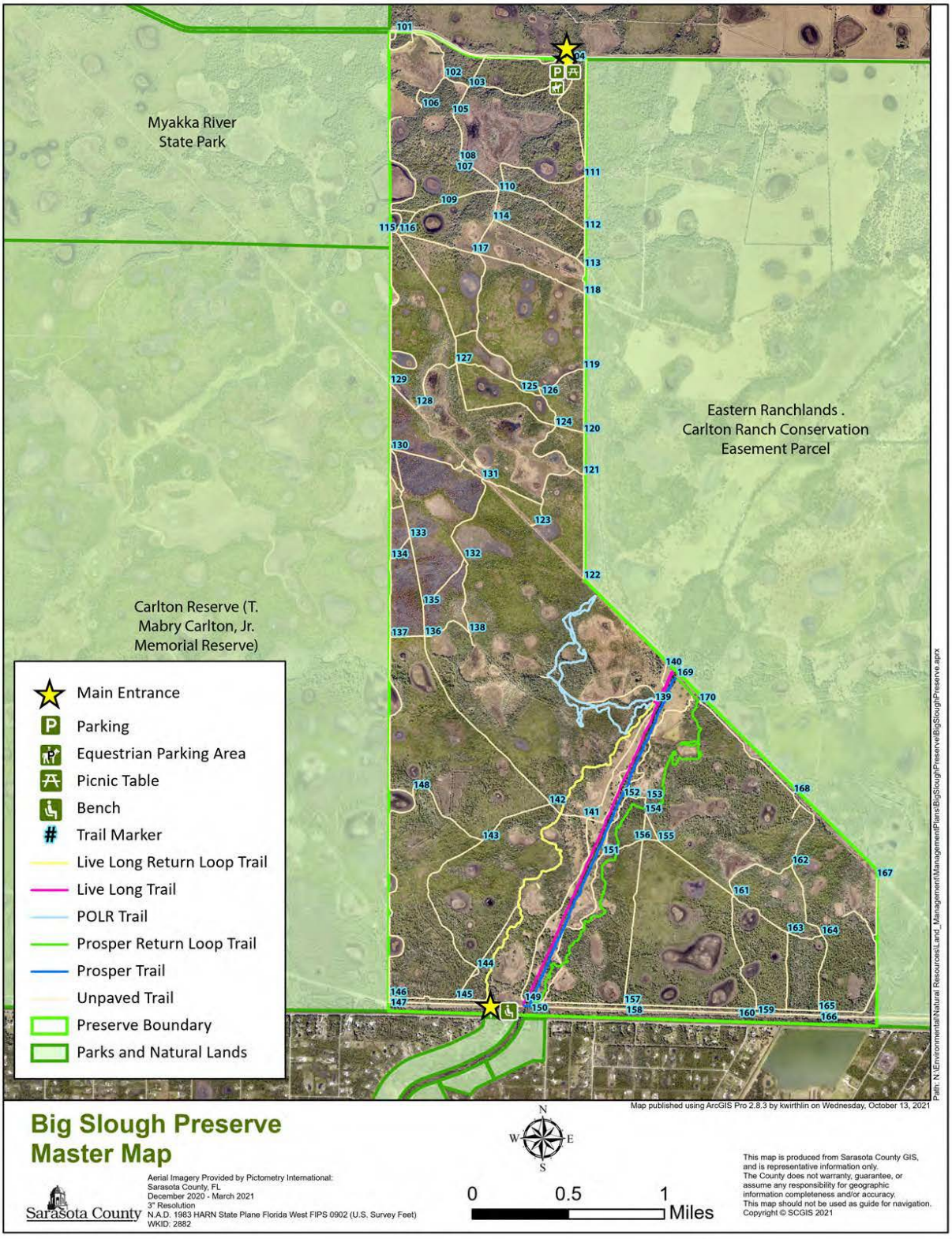


EXHIBIT 10 – FACILITIES, IMPROVEMENTS AND PUBLIC ACCESS AMENITIES MAP



9 APPENDICES

APPENDIX A – ACQUISITION DOCUMENTS

Deeds of Sale

1. Purchase date 12/20/07
   4,744 ac
   https://secure.sarasotaclerk.com/viewTiff.aspx?intrnum=2007188019

APPENDIX B – LAND USE AGREEMENTS AND EASEMENTS

1. Management Agreement Between the Board of County Commissioners of Sarasota County and the Southwest Florida Water Management District (Contract No. 2012-081)
   Document can be accessed and viewed via Smartsheet.

2. Conservation Easement Granted by Mabry Carlton Ranch to Southwest Florida Water Management District 12/31/98 (OR 1998175092)
   Document can be accessed and viewed via Smartsheet.

APPENDIX C – GOVERNING DOCUMENTS AND ORDINANCES

1. The Sarasota County Comprehensive Plan (2016) to provide for the protection and management of the county's native habitats balanced with the need for public resource-based, ecologically benign, and non-consumptive recreation.
   https://www.scgov.net/government/planning-and-development-services/planning-and-zoning/planning/

2. Ordinance No. 97-024: Adopted 11 March 1997, amending Ordinance 90-01 to include carrotwood, Chinese tallow and beach naupaka as invasive exotic plant species to be controlled. (Sarasota County Invasive Plant Species Ordinance)
   https://library.municode.com/fl/sarasota_county/codes/code_of_ordinances?nodeId=PTIICOOR_CH54ENNARE_ARTXIXEXPL

3. Ordinance No. 98-045: Adopted 5 May 1998 with sunset provision 31 May 2005, to prohibit unauthorized removal or destruction of property on parks, beaches, recreation areas, or other public lands with a second-degree misdemeanor penalty for violations. (Use of Parks, Beaches, and Public Land)
   https://library.municode.com/fl/sarasota_county/codes/code_of_ordinances?nodeId=PTIICOOR_CH90PAREPULA_ARTIIUSPABEPULA

4. Ordinance No. 98-096: 15 January 1999, to increase up to .25 mill in ad valorem taxes for 20 years and authorize general obligation bonds up to $53,000,000 (maturity deadline date, 31 December 2019), both subject to referendum, to acquire, protect and manage environmentally sensitive lands.

5. Ordinance No. 99-004: Adopted 19 January 1999, to create 9-member Environmentally Sensitive Lands Oversight Committee to submit proposed protection priority sites to the Board for approval and provide recommendations to the Board on the management, restoration and/or public use of each property; to provide policies for such lands.
   https://library.municode.com/fl/sarasota_county/codes/code_of_ordinances?nodeId=PTIICOOR_CH54ENNARE_ARTIVENSELA

6. Sarasota County Land Management Master Plan (2004) to provide guidelines to those managing natural areas for conservation or preservation in Sarasota County.
   https://www.scgov.net/Home/ShowDocument?id=1306

APPENDIX D – LIST OF PLANT SPECIES

The preliminary plant list has been compiled for the reserve as a partial listing of currently known species. As new species are discovered, their identification will be confirmed according to Wunderlin (1998) and added to the existing species list. Survey information on the occurrence of listed plant species will be forwarded to the Florida Natural Areas Inventory (FNAI) in accordance with their procedures.

FAMILY	SCIENTIFIC NAME	COMMON NAME(S)	STATUS
Acanthaceae	*Stenandrium dulce*	sweet shaggytuft	
Acanthaceae	*Ruellia caroliniensis*	wild petunia	
Adoxaceae	*Viburnum obovatum*	Walter's viburnum; small-leaf viburnum	
Alismataceae	*Sagittaria graminea*	grassy arrowhead	
Alismataceae	*Sagittaria lancifolia*	bulltongue arrowhead	
Alismataceae	*Sagittaria latifolia*	duck potato	
Amaranthaceae	*Dysphania ambrosioides*	Mexican tea	Exotic
Amaranthaceae	*Alternanthera sessillis*	sessile joyweed	Exotic
Amaranthaceae	*Iresine diffusa*	Juba's bush	
Amaryllidaceae	*Crinum americanum*	string lilly, swamp lily	
Amaryllidaceae	*Hymenocallis palmeri*	alligator lily	Endemic
Anacardiaceae	*Rhus copallinum*	winged sumac	
Anacardiaceae	*Toxicodendron radicans*	eastern poison ivy	
Anacardiaceae	*Schinus terebinthifolia*	Brazilian peppertree	Exotic, FLEPPC I
Annonaceae	*Asimina reticulata*	netted pawpaw	
Apiaceae	*Centella asiatica*	spadeleaf	
Apiaceae	*Eryngium baldwinii*	Baldwin's eryngo	
Apiaceae	*Eryngium yuccifolium*	button rattlesnake, button snakeroot	
Apiaceae	*Ptilimnium capillaceum*	mock bishops-weed	
Apiaceae	*Tiedemannia filiformis*	water cowbane	
Apocynaceae	*Orthosia scoparia*	leafless swallowwort	
Apocynaceae	*Asclepias pedicellata*	savanah milkweed	
Aquifoliaceae	*Ilex cassine*	dahoon holly	
Aquifoliaceae	*Ilex glabra*	gallberry; inkberry	
Aquifoliaceae	*Ilex vomitoria*	yaupon	
Araceae	*Pistia stratiores*	water-lettuce	
Araceae	*Lemna valdiviana*	valdivia duckweed	
Araliaceae	*Hydrocotyle umbellata*	manyflower marsh pennywort	
Arecaceae	*Sabal palmetto*	cabbage palm	
Arecaceae	*Serenoa repens*	saw palmetto	
Asteraceae	*Ageratina jucunda*	hammock snakeroot	

Asteraceae	*Ambrosia artemisiifolia*	common ragweed	
Asteraceae	*Baccharis glomeruliflora*	silverling	
Asteraceae	*Baccharis halimifolia*	groundsel tree; sea myrtle	
Asteraceae	*Bidens alba*	beggarticks; romerillo	
Asteraceae	*Bigelowia nudara* subsp. *australis*	pineland rayless goldenrod	Endemic
Asteraceae	*Boltonia diffusa*	smallhead doll's daisy	
Asteraceae	*Carphephorus corymbosus*	coastalplain chaffhead; Florida paintbrush	
Asteraceae	*Carphephorus odoratissimus* var. *subtropicanus*	pineland purple; false vanillaleaf	Endemic
Asteraceae	*Chrysopsis mariana*	Maryland goldenaster	
Asteraceae	*Cirsium nuttallii*	nuttall's thistle	
Asteraceae	*Conoclinium coelestinum*	blue mistflower	
Asteraceae	*Conyza canadensis*	canadian horseweed	
Asteraceae	*Coreopsis floridana*	Florida tickseed	Endemic
Asteraceae	*Coreopsis leavenworthii*	leavenworth's tickseed	
Asteraceae	*Eclipta prostrata*	false daisy	
Asteraceae	*Elephantopus elatus*	tall elephant’s-foot	
Asteraceae	*Erechtites hieraciifolius*	American burnweed; fireweed	
Asteraceae	*Erigeron quercifolius*	oakleaf fleabane	
Asteraceae	*Erigeron vernus*	early whitetop fleabane	
Asteraceae	*Eupatorium capillifolium*	dog fennel	
Asteraceae	*Eupatorium mohrii*	Mohr’s thoroughwort	
Asteraceae	*Eupatorium rotundifolium*	roundleaf thoroughwort; false horehound	
Asteraceae	*Euthamia caroliniana*	slender flattop goldenrod	
Asteraceae	*Euthamia graminifolia*	flattop goldenrod	
Asteraceae	*Helianthus angustifolius*	narrowleaf sunflower; swamp sunflower	
Asteraceae	*Heterotheca subaxillaris*	camphorweed	
Asteraceae	*Liatris savannensis*	savanna gayfeather	Endemic
Asteraceae	*Liatris tenuifolia*	shortleaf gayfeather	
Asteraceae	*Lygodesmia aphylla*	rose-rush	
Asteraceae	*Melanthera nivea*	snow squarestem	
Asteraceae	*Mikania cordifolia*	Florida Keys hempvine	
Asteraceae	*Mikania scandens*	climbing hempvine	
Asteraceae	*Oclemena reticulata*	whitetop aster; pinebarren aster	
Asteraceae	*Pityopsis graminifolia*	narrowleaf silkgrass	
Asteraceae	*Pluchea baccharis*	rosy camphorweed	
Asteraceae	*Pluchea foetida*	stinking camphorweed	

Asteraceae	*Pluchea odorata*	sweetscent	
Asteraceae	*Pseudognaphalium obtusifolium*	sweet everlasting; rabbit tobacco	
Asteraceae	*Pterocaulon pycnostachyum*	blackroot	
Asteraceae	*Rudbeckia hirta*	black-eyed susan	
Asteraceae	*Sericocarpus tortifolius*	whitetop aster; dixie aster	
Asteraceae	*Solidago tortifolia*	twistedleaf goldenrod	
Asteraceae	*Symphyotrichum carolinianum*	climbing aster	
Asteraceae	*Symphyotrichum dumosum*	rice button aster	
Asteraceae	*Verbesina virginica*	frostweed; white crownbeard	
Bignoniaceae	*Campsis radicans*	trumpet creeper	
Blechnaceae	*Blechnum serrulatum*	swamp fern	
Blechnaceae	*Woodwardia virginica*	Virginia chain fern	
Boraginaceae	*Euploca polyphylla*	pineland heliotrope	
Bromeliaceae	*Tillandsia fasciculata*	cardinal airplant	E (FDACS)
Bromeliaceae	*Tillandsia recurvata*	ball moss	
Bromeliaceae	*Tillandsia setacea*	southern needleleaf	
Bromeliaceae	*Tillandsia simulata*	Florida airplant	Endemic
Bromeliaceae	*Tillandsia usneoides*	Spanish moss	
Bromeliaceae	*Tillandsia utriculata*	giant airplant; giant wild pine	E (FDACS)
Cannabaceae	*Celtis laevigata*	sugarberry; hackberry	
Caryophyllaceae	*Drymaria cordata*	West Indian chickweed; drymary	Exotic
Chrysobalanaceae	*Geobalanus oblongifolius*	gopher apple	
Cistaceae	*Crocanthemum corymbosum*	pinebarren frostweed	
Cistaceae	*Lechea torreyi*	piedmont pinweed	
Commelinaceae	*Commelina diffusa* var. *diffusa*	common dayflower	Exotic
Commelinaceae	*Commelina erecta*	whitemouth dayflower	
Convolvulaceae	*Dichondra carolinensis*	Carolina ponysfoot	
Convolvulaceae	*Ipomoea sagittata*	saltmarsh morning-glory	
Cornaceae	*Cornus foemina*	swamp dogwood; stiff dogwood	
Cucurbitaceae	*Melothria pendula*	creeping cucumber	
Cyperaceae	*Carex longii*	longs sedge	
Cyperaceae	*Cladium jamaicense*	Jamaica swamp sawgrass	
Cyperaceae	*Cyperus articulatus*	jointed flatsedge	
Cyperaceae	*Cyperus croceus*	Baldwin's flatsedge	
Cyperaceae	*Cyperus distinctus*	swamp flatsedge	
Cyperaceae	*Cyperus echinatus*	globe flatsedge	
Cyperaceae	*Cyperus erythrorhizos*	redroot flatsedge	

Cyperaceae	*Cyperus haspan*	haspan flatsedge	
Cyperaceae	*Cyperus ovatus*	pinebarren flatsedge	
Cyperaceae	*Cyperus polystacyos*	manyspike flatsedge	
Cyperaceae	*Eleocharis equisetoides*	jointed spikerush	
Cyperaceae	*Eleocharis flavescens*	yellow spikerush; pale spikerush	
Cyperaceae	*Eleocharis vivipara*	viviparous spikerush	
Cyperaceae	*Fimbristylis puberula*	hairy fimbry	
Cyperaceae	*Fuirena breviseta*	saltmarsh umbrella-sedge	
Cyperaceae	*Fuirena scirpoidea*	Southern umbrella-sedge	
Cyperaceae	*Rhynchospora colorata*	starrush whitetop	
Cyperaceae	*Rhynchospora fascicularis*	fascicled beaksedge	
Cyperaceae	*Rhynchospora filifolia*	threadleaf beaksedge	
Cyperaceae	*Rhynchospora inundata*	narrowfruit horned breaksedge	
Cyperaceae	*Rhynchospora microcarpa*	Southern beaksedge	
Cyperaceae	*Rhynchospora microcephala*	bunched beaksedge	
Cyperaceae	*Rhynchospora nitens*	shortbeak beaksedge; baldrush	
Cyperaceae	*Rhynchospora pusilla*	fairy beaksedge	
Cyperaceae	*Rhynchospora tracyi*	Tracy's beaksedge	
Cyperaceae	*Scleria ciliata*	fringed nutrush	
Cyperaceae	*Scleria reticularis*	netted nutrush	
Dennstaedtiaceae	*Pteridium aquilinum* var. *pseudocaudatum*	tailed bracken	
Droseraceae	*Drosera brevifolia*	dwarf sundew	
Droseraceae	*Drosera capillaris*	pink sundew	
Ebenaceae	*Diospyros virginiana*	common persimmon	
Ericaceae	*Bejaria racemosa*	tarflower	
Ericaceae	*Gaylussacia dumosa*	dwarf huckleberry	
Ericaceae	*Lyonia fruitcosa*	coastalplain staggerbush	
Ericaceae	*Lyonia lucida*	fetterbush	
Ericaceae	*Vaccinium arcoreum*	sparkleberry; farkleberry	
Ericaceae	*Vaccinium darrowii*	Darrow's blueberry	
Ericaceae	*Vaccinium myrsinites*	shiny blueberry	
Ericaceae	*Vaccinium stamineum*	deerberry	
Eriocaulaceae	*Eriocaulon compressum*	flattened pipewort	
Eriocaulaceae	*Eriocaulon decangulare*	tenangle pipewort	
Eriocaulaceae	*Lachnocaulon anceps*	whitehead bogbutton	
Eriocaulaceae	*Syngonanthus flavidulus*	yellow hatpins	
Euphorbiaceae	*Acalypha gracilens*	slender threeseed mercury	
Euphorbiaceae	*Cnidoscolus stimulosus*	tread-softly; finger-rot	

Euphorbiaceae	*Croton michauxii*	rushfoil; michaux's croton	
Euphorbiaceae	*Stillingia sylvatica*	queensdelight	
Fabaceae	*Galactia volubilis*	eastern milkpea	
Fagaceae	*Quercus chapmanii*	Chapman’s oak	
Fagaceae	*Quercus geminata*	sand live oak	
Fagaceae	*Quercus laurifolia*	laurel oak	
Fagaceae	*Quercus minima*	dwarf live oak	
Fagaceae	*Quercus nigra*	water oak	
Fagaceae	*Quercus viginiana*	live oak	
Haemodoraceae	*Lachnanthes caroliana*	Carolina redroot	
Hypericaceae (subfamily of Clusiaceae)	*Hypericum cistifolium*	roundpod st. john's wort	
Hypericaceae (subfamily of Clusiaceae)	*Hypericum fasciculatum*	sandweed; peelbark St. John's wort	
Hypericaceae (subfamily of Clusiaceae)	*Hypericum myrtifolium*	myrtleleaf st. john's wort	
Hypoxidaceae	*Hypoxis juncea*	fringed yellow stargrass	
Juncaceae	*Juncus marginatus*	shore rush; grassleaf rush	
Lamiaceae	*Callicarpa americana*	American beautyberry	
Lamiaceae	*Hyptis alata*	clustered bushmint; musky mint	
Lamiaceae	*Salvia lyrata*	lyreleaf sage	
Lentibulariaceae	*Utricularia purpurea*	eastern purple bladderwort	
Lentibulariaceae	*Utricularia subulata*	zigzag bladderwort	
Liliaceae	*Lilium catesbaei*	Catesby’s lily; pine lily	T (FDACS)
Loganiaceae	*Mitreola petilata*	lax hornpod	
Malvaceae	*Urena lobata*	caesarweed	Exotic; FLEPPC I
Melastomataceae	*Rhexia cubensis*	West Indian meadow beauty	
Melastomataceae	*Rhexia mariana*	pale meadow beauty	
Myricaceae	*Morella cerifera*	wax myrtle	
Myrsinaceae	*Ardisia escallonioides*	marlberry	
Onagraceae	*Ludwigia arcuata*	Piedmont primrose willow	
Onagraceae	*Ludwigia peruviana*	Peruvian primrose willow	Exotic; FLEPPC I
Orchidaceae	*Encyclia tampensis*	Florida butterfly orchid	
Oxalidaceae	*Oxalis corniculata*	common yellow woodsorrel	
Passifloraceae	*Passiflora incarnata*	purple passionflower	
Passifloraceae	*Passiflora suberosa*	corky-stem passionflower	
Phyllanthaceae	*Phyllanthus urinaria*	chamber bitter	Exotic

Pinaceae	*Pinus elliotti* var. *densa*	slash pine	
Plantaginaceae	*Bacopa caroliniana*	lemon bacopa	
Plantaginaceae	*Bacopa monnieri*	herb-of-grace	
Plantaginaceae	*Mecardonia acuminata* subsp. *peninsularis*	axilflower	Endemic
Poaceae	*Cynodon dactylon*	Bermuda grass	Exotic
Poaceae	*Andropogon glomeratus* var. *glaucopsis*	purple bluestem	
Poaceae	*Andropogon glomeratus* var. *hirsutior*	bushy bluestem	
Poaceae	*Andropogon ternarius*	splitbeard bluestem	
Poaceae	*Andropogon virginicus* var. *decipiens*	broomsedge bluestem	
Poaceae	*Andropogon virginicus* var. *glaucus*	chalky bluestem	
Poaceae	*Aristida purpurascens* var. *purpurascens*	arrowfeather threeawn	
Poaceae	*Aristida spiciformis*	bottlebrush threeawn	
Poaceae	*Aristida stricta*	wiregrass	
Poaceae	*Eragrostis elliotti*	Elliott's lovegrass	
Poaceae	*Saccharum giganteum*	sugarcane plumegrass	
Poaceae	*Imperata cylindrica*	cogon grass	Exotic, FLEPPC I
Poaceae	*Panicum hemitomon*	maidencane	
Poaceae	*Panicum repens*	torpedo grass	Exotic, FLEPPC I
Poaceae	*Paspalum notatum* var. *notatum*	bahia grass	
Poaceae	*Sorghastrum secundum*	lopsided indiangrass	
Poaceae	*Spartina bakeri*	sand cordgrass	
Polygalaceae	*Polygala lutea*	orange milkwort	
Polygalaceae	*Polygala nana*	candyroot	
Polygalaceae	*Polygala rugelii*	yellow milkwort	Endemic
Polygonaceae	*Persicaria hydropiperoides*	mild waterpepper; swamp smartweed	
Polypodiaceae	*Phlebodium aureum*	golden polypody	
Polypodiaceae	*Pleopeltis michauxiana*	resurrection fern	
Pontederiaceae	*Pontederia cordata*	pickerelweed	
Psilotaceae	*Psilotum nudum*	whisk-fern	
Pteridaceae	*Vittaria lineata*	shoestring fern	
Rosaceae	*Rubus trivialis*	Southern dewberry	
Rubiaceae	*Cephalanthus occidentalis*	common buttonbush	
Rubiaceae	*Houstonia procumbens*	innocence; roundleaf bluet	

Salicaceae	*Salix caroliniana*	Carolina willow; coastalplain willow	
Sapindaceae	*Acer rubrum*	red maple	
Sapotaceae	*Sideroxylon reclinatum*	Florida bully	
Schizaeaceae	*Lygodium microphyllum*	small-leaf climbing fern	Exotic, FLEPPC I
Smilacaceae	*Smilax auriculata*	earleaf greenbrier	
Smilacaceae	*Smilax bona-nox*	saw greenbrier	
Smilacaceae	*Smilax laurifolia*	laurel greenbrier	
Tetrachondraceae	*Polypremum procumbens*	rustweed	
Verbenaceae	*Phyla nodiflora*	turkey tangle fogfruit; capeweed	
Vitaceae	*Nekemias arborea*	pepper-vine	
Vitaceae	*Parthenocissus quinquwfolia*	Virginia creeper	
Vitaceae	*Vitis rotundifolia*	muscadine	
Xyridaceae	*Xyris caroliniana*	Carolina yelloweyed grass	
Xyridaceae	*Xyris elliottii*	Elliott's yelloweyed grass	

APPENDIX E – LIST OF WILDLIFE SPECIES

The preliminary animal list has been compiled for the Preserve as a partial listing of currently known species.

	FAMILY	SCIENTIFIC NAME	COMMON NAME	STATUS
REPTILES				
	Alligatoridae	Alligator mississippiensis	American alligator	
	Colubridae	Coluber constrictor	Southern black racer	
	Colubridae	Pantherophis alleghaniensis	Eastern rat snake	
	Testudinidae	Gopherus polyphemus	gopher tortoise	T (FWC); S3 (FNAI)
	Trionychidae	Apalone ferox	Florida softshell turtle	
	Viperidae	Crotalus adamanteus	Eastern diamondback rattlesnake	
AMPHIBIANS				
	Bufonidae	Anaxyrus quercicus	oak toad	
	Hylidae	Acris gryllus	Florida cricket frog	
	Hylidae	Hyla cinerea	green tree frog	
	Hylidae	Hyla femoralis	pinewoods tree frog	
	Hylidae	Hyla gratiosa	barking tree frog	
	Hylidae	Hyla squirella	squirrel tree frog	
	Hylidae	Pseudacris crucifer	Southern spring peeper	
	Hylidae	Pseudacris ocularis	little grass frog	
	Ranidae	Lithobates sphenocephalus	Southern leopard frog	
INSECTS				
	Aeshnidae	Anax junius	green darner	
	Papilionidae	Protographium marcellus (Cramer)	zebra swallowtail	
	Romaleidae	Romalea microptera	Eastern lubber grasshopper	
BIRDS				
	Accipitridae	Buteo lineatus	red-shouldered hawk	
	Accipitridae	Elanoides forficatus	swallow-tailed kite	S2 (FNAI)
	Accipitridae	Haliaeetus leucocephalus	bald eagle	
	Alcedinidae	Megaceryle alcyon	belted kingfisher	
	Anhingidae	Anhinga anhinga	anhinga	
	Aramidae	Aramus guarauna	limpkin	S3 (FNAI);
	Ardeidae	Ardea alba	great egret	
	Ardeidae	Ardea herodias	great blue heron	
	Ardeidae	Egretta caerulea	little blue heron	S4 (FNAI); T (FWC)
	Ardeidae	Egretta thula	snowy egret	S3 (FNAI)
	Ardeidae	Egretta tricolor	tricolored heron	T (FWC)

Ardeidae	Bubulcus ibis	cattle egret	
Ardeidae	Lxobrychus exilis	least bittern	S4 (FNAI)
Cardinalidae	Cardinalis cardinalis	northern cardinal	
Cathartidae	Cathartes aura	turkey vulture	
Cathartidae	Coragyps atratus	black vulture	
Ciconiidae	Mycteria americana	wood stork	T (USFWS)
Columbidae	Columbina passerina	common ground-dove	
Columbidae	Zenaida macroura	mourning dove	
Corvidae	Corvus brachyrhynchos	American crow	
Corvidae	Corvus ossifragus	fish crow	
Corvidae	Cyanocitta cristata	blue jay	
Falconidae	Caracara cheriway	crested caracara	T (USFWS)
Falconidae	Falco sparverius	American kestrel	
Gruidae	Antigone canadensis pratensis	Florida sandhill crane	S2 (FNAI); T (FWC)
Hirundinidae	Tachycineta bicolor	tree swallows	Migratory
Icteridae	Agelaius phoeniceus	red-winged blackbird	
Icteridae	Sturnella magna	Eastern meadowlark	
Mimidae	Dumetella carolinensis	gray catbird	
Mimidae	Mimus polyglottos	Northern mockingbird	
Mimidae	Toxostoma rufum	brown thrasher	
Odontophoridae	Colinus virginianus	Northern bobwhite	
Pandionidae	Pandion haliaetus	osprey	
Paridae	Parus bicolor	tufted titmouse	
Parulidae	Setophaga palmarum	palm warbler	
Parulidae	Setophaga pinus	pine warbler	
Parulidae	Setophaga coronata	yellow-rumped warbler	
Pelecanidae	Pelecanus erythrorhynchos	American white pelican	
Phasianidae	Meleagris gallopavo	wild turkey	
Picidae	Dryobates pubescens	downy woodpecker	
Picidae	Melanerpes carolinus	red-bellied woodpecker	
Picidae	Melanerpes erythrocephalus	red-headed woodpecker	
Picidae	Dryocopus pileatus	pileated woodpecker	
Strigidae	Bubo virginianus	great horned owl	
Strigidae	Megascops asio	Eastern screech-owl	
Strigidae	Strix varia	barred owl	
Threskiornithidae	Eudocimus albus	white ibis	S4 (FNAI
Threskiornithidae	Platalea ajaja	roseate spoonbill	T (FWC)
Threskiornithidae	Plegadus falcinellus	glossy ibis	
Troglodytidae	Thryothorus ludovicianus	Carolina wren	
Turdidae	turdus migratoius	American robin	

	Turdidae	Sialia sialis	Eastern bluebird	
	Tyrannidae	Myiarchus crinitus	great crested flycatcher	
	Tyrannidae	Sayornis phoebe	Eastern phoebe	
	Vireonidae	Vireo griseus	white-eyed vireo	
MAMMALS				
	Canidae	Canis latrans	coyote	range expansion
	Cervidae	Odocoileus virginianus	white-tailed deer	
	Dasypodidae	Dasypus novemcincuts	nine-banded armadillo	range expansion
	Felidae	Lynx rufus	bobcat	
	Leporidae	Didelphis virginiana	Virginia opossum	
	Leporidae	Sylvilagus palustris	marsh rabbit	
	Leporidae	Sylvilagus floridanaus	Eastern cottontail	
	Muridae	Sigmodon hispidus	hispid cotton rat	
	Mustelidae	Lutra canadensis	river otter	
	Procyconidae	Procyon lotor	raccoon	
	Sciuridae	Glaucomys volans	Southern flying squirrel	
	Sciuridae	Sciurus carolinensis	grey squirrel	
	Suidae	Sus scrofa	wild hog	Exotic
	Talpidae	Scalopus aquaticus	Eastern mole	
	Ursidae	Ursus americanus floridanus	Florida black bear	T (FWC)

KEY TO WILDLIFE LISTED STATUS		
Florida Fish and Wildlife Conservation Commission (FWC) Designations	E	endangered
	T	threatened
	SSC	species of special concern
United States Fish and Wildlife Service (USFWS) Designations	E	endangered
	T	threatened
	C2	candidate for listing with some evidence of vulnerability, but for which not enough information exists to justify listing
Convention on International Trade In Endangered Species of Wild Fauna And Flora (Cites) Designations	I	Appendix I species
	II	Appendix II species
Florida Natural Areas Inventory (FNAI) Designations	S2	imperiled in the state because of rarity (6 - 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor
	S3	either very rare and local throughout its range (21 - 100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction because of other factors
	S4	apparently secure in the state (may be rare in parts of state)

APPENDIX F – ANNUALIZED COST SCHEDULE

RESOURCE MANAGEMENT	Units	Cost per unit
prescribed fire preparation	per mile	$ 250.00
prescribed fire	per acre	$ 40.00
prescribed fire monitoring	per hour	$ 50.00
integrated pest management surveying	avg per acre	$ 30.00
integrated pest management treatment	avg per acre	$ 125.00
hydrologic restoration	per mile	$ 8,000.00
mechanical vegetation management	per acre	$ 150.00
cultural resource management	per site	$ 500.00
ADMINISTRATION/OPERATIONS		
salary of Land Manager	per hour	$ 47.00
salary of Supervisor	per hour	$ 50.00
salary of Administrative Assistant	per hour	$ 30.00
annual cost of computers, printers, phone	per year	varies
utilities	per year	varies
offices	per year	varies
security	per year	$ 13,000.00
fleet	per year	$ 4,000.00
MAINTENANCE		
fencing - board	1 linear foot	$ 29.00
fencing - wire	1 linear foot	$ 12.00
trail markers	1 marker	$ 16.00
benches	1 bench	$ 160.00
tools	1 site	$ 4,000.00
parking lots - aggregate material	cost per parking spot	$ 60.00
parking lots - grass	cost per parking spot	$ 10.00
road repairs	1/2 mile	$ 20,000.00
restrooms	cost per toilet	$ 750.00
portable toilets	cost per toilet	$ 1,440.00
grills	1 grill	$ 400.00
tables	1 table	$ 250.00
pavilions	square foot	$ 1.00
camp sites	per campsite	$ 300.00
grounds mowing (x12 events annually)	per acre	$ 600.00
power washing	per hour	$ 100.00
building maintenance	per structure	$ 500.00
RECREATION/VISITOR SERVICES		
kiosks/signs - replacement costs	per unit	$ 1,000.00
brochures	per brochure	$ 5,000.00

events (Firefest)	per event	$ 3,500.00
visitors center (staffing/contents)	per year	$ 4,000.00
camping	per campsite	$ 200.00
permitted events	per event	$ 320.00

Notes:

1. Current Loaded Salary is based on FY 21.
2. Assumed 2.5% multiplier for salary.
3. Divided salary total hours by 2080 for average hour rate