

Yucca Pens Preserve

3941 Burnt Store Road
Cape Coral, Florida 33993

Land Management Plan Second Edition



Prepared by: Conservation 20/20 Land Management Section
Lee County Department of Parks and Recreation
Approved by the Lee County Board of County Commissioners:

04/02/2019



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Acknowledgements

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Tyler Marzella

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List of Acronyms

BoCC	Board of County Commissioners
BU	Burn Units
BWWMA	Fred C. Babcock/Cecil M. Webb Wildlife Management Area
CLASAC	Conservation Land Acquisition and Stewardship Advisory Committee
C20/20	Conservation 20/20
FDACS	Florida Department of Agriculture and Consumer Services
FFS	Florida Forest Service
FLEPPC	Florida Exotic Pest Plant Council
FNAI	Florida Natural Areas Inventory
FWC	Florida Fish and Wildlife Conservation Commission
IRC	Institute for Regional Conservation
LCDNR	Lee County Division of Natural Resources
LCPR	Lee County Department of Parks and Recreation
LiDAR	Light Detection and Ranging
LSOM	Land Stewardship Operations Manual
MU	Management Units
NWI	National Wetlands Inventory
ORV	Off Road Vehicle
PARI	Piper Archaeological Research, Inc.
SFWMD	South Florida Water Management District
STRAP	Section-Township-Range and Parcel
USFWS	United States Fish and Wildlife Service
YPP	Yucca Pens Preserve
YPU	Yucca Pens Unit

Vision Statement

It is the vision of the Conservation 20/20 program to complete restoration of Yucca Pens Preserve to a productive, functional and viable ecosystem. The conservation goals for the management of this preserve include maintaining its pyric ecosystems with prescribed fire; the removal of invasive exotic plants and wildlife; and the continued restoration of its hydrological features.

I. Executive Summary

Yucca Pens Preserve is a 232-acre preserve owned by the Lee County Board of County Commissioners and managed by the Lee County Conservation 20/20 program, through the Department of Parks and Recreation. The preserve is comprised of five parcels acquired between 1999 and 2006. Each parcel is identified using a chronological identification number that was assigned when the parcel was nominated to the Conservation 20/20 program. Yucca Pens Preserve includes parcel numbers 75, 102, 107, 202, and 281.

The preserve as a whole is generally topographically flat, and is part of three defined watersheds. There are six different soil types and thirteen different plant communities found at the preserve. Yucca Pens Preserve is home to many plant and animal species, including several listed species. Natural disturbances that affect the preserve and land management activities include wildfire, seasonal fluctuations of rain and drought, and extreme weather such as hurricanes.

Historical uses of the preserve area include agriculture operations and off-road recreational vehicle use. Some of these uses have caused negative ecological and hydrologic impacts that land managers are working to restore. Past large scale management projects have focused on restoring off road vehicle tracks that affected the sheetflow of water. Goals for the future management of the preserve include a continued reestablishment of a natural fire cycle, further restoration of hydrologic impacts, and continued management of invasive exotic plants and animals.

The purpose of this management plan is to serve as a 10-year update and to identify the future land management goals for the preserve. Staff researched restoration plans, and reviewed literature and historical records to better define the successes of past projects. These efforts also outline the needs of future management efforts and serve as a guide for Conservation 20/20 staff to utilize the best management practices in the continued conservation of the natural communities and resources at the preserve. This plan will also serve as a reference guide for anyone interested in learning more about Yucca Pens Preserve and conservation efforts in Lee County.

Table 1: Management Work to Date Summary (2008-2018)

<p>Natural Resource Management</p> <ul style="list-style-type: none"> ✓ Initial and follow up treatment of invasive exotic plants throughout the preserve, which is now at maintenance level (<5% coverage). ✓ Ecological restoration has occurred within all nominations of Yucca Pens Preserve. ✓ Plugs were installed along the man-made trail-swale in #75 and #281 to slow the flow of water and rehydrate preserve wetlands. ✓ Exotic feral hog trapping initiated at the preserve, and hogs were removed. ✓ Fire as a management tool has been introduced to portions of the pyric plant communities within the preserve. ✓ Roller chopping was conducted within communities dominated by saw palmetto to reduce fuel loads in preparation for the return of prescribed fire. ✓ Pine and palm tree thinning has occurred as fuel reduction within portions of the upland communities.
<p>Overall Protection</p> <ul style="list-style-type: none"> ✓ Small debris and abandoned vehicles have been removed from the preserve. ✓ Perimeter boundary signs have been installed and replaced as needed. ✓ Perimeter firelines have been installed and maintained. ✓ Perimeter fencing has been regularly inspected and repaired as needed. ✓ Tri-annual site inspections have been conducted. ✓ The Future Land Use categories for the preserve have been changed to Conservation Lands Upland/Wetland. ✓ STRAPs for conjoined parcels of the preserve have been combined.
<p>Public Use</p> <ul style="list-style-type: none"> ✓ Pedestrian walk-through gate was installed to provide public access. ✓ A preserve identification sign, identifying the approved recreational opportunities, was installed adjacent at the pedestrian walk-through gate. ✓ An address was assigned to the public access point for the Lee County E-911 records.
<p>Volunteers</p> <ul style="list-style-type: none"> ✓ Lee County volunteer group, Bird Patrol, has conducted bird count surveys.

II. Introduction

Yucca Pens Preserve (YPP) is located in northwest Lee County along the northern county boundary and the eastern edge of Burnt Store Road within Sections 5, 8, and 17; Township 43 South; and Range 23 East. The preserve is owned by the Board of County Commissioners (BoCC) and was purchased and managed by the Lee County Conservation 20/20 (C20/20) program, which currently operates under the Department of Parks and Recreation (LCPR). Program funding is provided through allocations by the Lee County Board of County Commissioners (BoCC) as part of the general budget for acquisition and management of conservation lands in accordance to County Ordinance No. 15-08.

The C20/20 program was initially established by Lee County voters through a referendum in 1996 for the purpose of acquiring and protecting environmentally sensitive lands within Lee County. The goals of the program continue to focus on land conservation and restoration, and are overseen by the Conservation Land Acquisition and Stewardship Advisory Committee (CLASAC). Parcels nominated to the program, including the five that formed YPP, are reviewed and approved for acquisition by CLASAC before they are submitted to the BoCC for consideration to purchase.

The five parcels of YPP are labeled throughout this plan using chronological identification numbers that were assigned when each parcel was nominated; YPP includes parcel numbers: 75, 102, 107, 202, and 281. These nominations were acquired for a total cost of \$1,647,400 between 1999 and 2006, and form a 232-acre conservation area broken into three tracts. The tracts are isolated from each other, and some are contiguous to state-owned and managed conservation land known as the Yucca Pens Unit (YPU) of the Fred C. Babcock/Cecil M. Webb Wildlife Management Area (BWWMA). The Florida Department of Environmental Protection and Florida Fish and Wildlife Conservation Commission (FWC) manage the YPU, while other properties near YPP with recreational opportunities are managed by LCPR, City of Cape Coral, and the United States Fish and Wildlife Service (USFWS).

YPP offers only resource-based recreational opportunities, with public access available through a walk-through gate located at 3941 Burnt Store Road (Cape Coral, Florida 33993). Visitors can hike on the preserve firelines as an unmarked trail system, fish the water impoundment pond, and explore the natural communities unaided. The preserve contains thirteen plant communities that include natural or man-made features, uplands or wetlands, or evidence of historical land uses. The most common community types by area are: wet flatwoods, mesic hammock, and mesic flatwoods.

The preserve is also known to contain six different soil types, with the most common being Wabasso Sand at nearly 50% of the total preserve acreage. The shared qualities of all soil types found at the preserve create severe limitations for the types of recreational opportunities that can be offered at the property, because the soils cannot support heavy use or disturbances. Evidence of historical land uses that impacted the soils continue to be visible on the landscape and affect the natural communities. Historic uses of the property included agricultural operations, limited soil removal for local development as evidenced by an existing borrow pond, and recreational off-road vehicle

(ORV) use. Impacts to YPP include erosion, introduction of invasive exotic plants and animals, and altered hydrological conditions.

Since the first edition of the Land Management Plan was published in 2008, many projects and management activities have been completed to repair these disturbances and restore natural communities. In 2011, a large restoration project was completed to repair impacts to hydrological conditions caused by the ORV use. Several invasive exotic plant control projects have been undertaken to bring YPP into a maintenance level, which means that less than 5% of the total area is affected by invasive exotic plants. Staff have also completed three prescribed fires as part of an effort to re-introduce a fire regime to improve the health of the pyric communities and reduce the threat of wildfire. These projects have helped the preserve provide habitat for a variety of plant and wildlife species, some of which are federally or state-designated as protected species.

Future planned management activities are similar to the activities of the last 10 years. The hydrological restoration work will continue, and efforts will be made to work with the Charlotte Harbor Flatwoods Initiative to help restore sheetflow inside the preserve and of the greater area around YPP. Land managers will continue to use prescribed fire as a management tool for the natural communities that require fire to promote growth and biodiversity. Efforts will be made to shorten the return interval of fire into the communities to more closely mimic the effects of historical natural fires.

C20/20 staff will also continue to control invasive exotic plant infestations. While 100% control is unrealistic, staff will continue to monitor and treat exotics that occur in the preserve. Staff will work with neighboring property owners and land managers to find solutions for reducing the impact of invasive plants from neighboring properties on YPP. Supplemental funding to the general budget for these projects may be requested through grants and funding opportunities from agencies such as FWC, USFWS, the South Florida Water Management District (SFWMD), or include public mitigation from capital improvement projects.

III. Location and Site Description

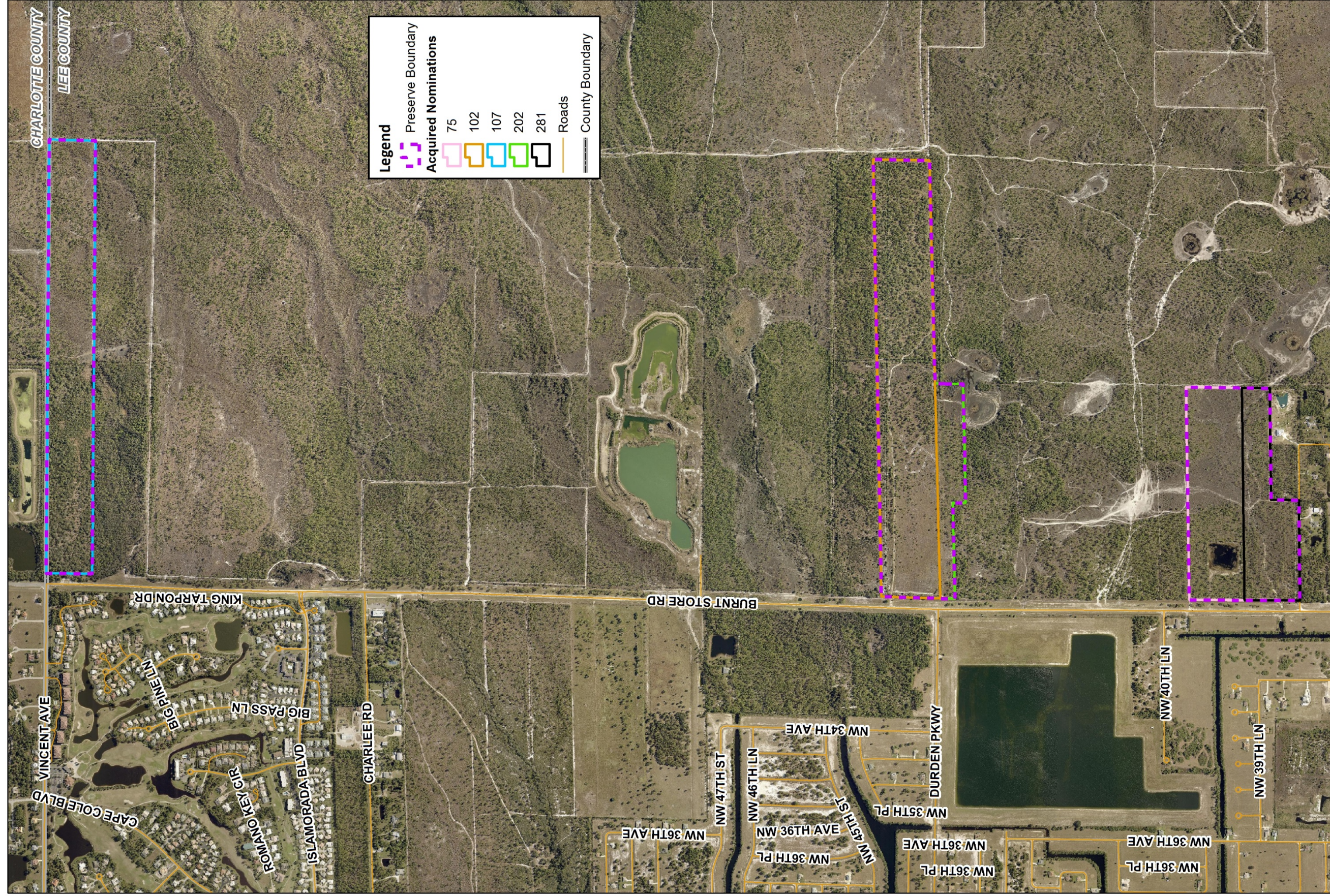
YPP is located in northwest Lee County along the eastside of Burnt Store Road and adjacent to portions of the state-owned YPU of the BWWMA. The preserve is made up of five acquisitions that were nominated to the C20/20 program, known by nomination numbers: 75, 102, 107, 202, and 281. Figure 1 identifies the boundaries of each nomination that forms YPP over a 2018 aerial photograph, but future maps within this plan may illustrate features within the conjoined nomination parcels without showing individual parcel boundaries.

Nomination #107 shares a western boundary with Burnt Store Road, a northern boundary with the Lee County/Charlotte County border, and is the only parcel with an address; the site can be found at 3941 Burnt Store Road, Cape Coral, FL 33993. Nominations #102 and #202 are conjoined with western boundaries along Burnt Store Road, and are located approximately two miles south of the county border. Nominations #75 and #281 are also conjoined with western boundaries along Burnt Store Road and are approximately two and a half miles south of the county border, but are the only

parcels that are not directly adjacent to state-owned conservation property on any boundary.

Together, the preserve nominations are approximately 232 acres consisting of thirteen plant communities, six soil types, and an elevation range of eight to fourteen feet above sea level. Historical uses of the preserve include agriculture and unauthorized ORV trails, dumping, hunting, and camping. Neighboring properties are mostly undeveloped privately-owned parcels, but the properties surrounding portions of nomination #107 and #102 are state-owned conservation lands known as the YPU. Other conservation and recreation properties in the area include the Charlotte Harbor Buffer Preserve, Charlotte Harbor Preserve State Park, Matlacha Pass National Wildlife Refuge, Coral Oaks Golf Course, Burnt Store Boat Ramp, and the Gasparilla Sound-Charlotte Harbor and Matlacha Pass Aquatic Preserves. Figure 2 illustrates the location of the preserve in northwestern Lee County. Appendix A contains the legal descriptions for the three tracts of YPP which contain the five acquired parcels.

Figure 1: Aerial Image (2018)

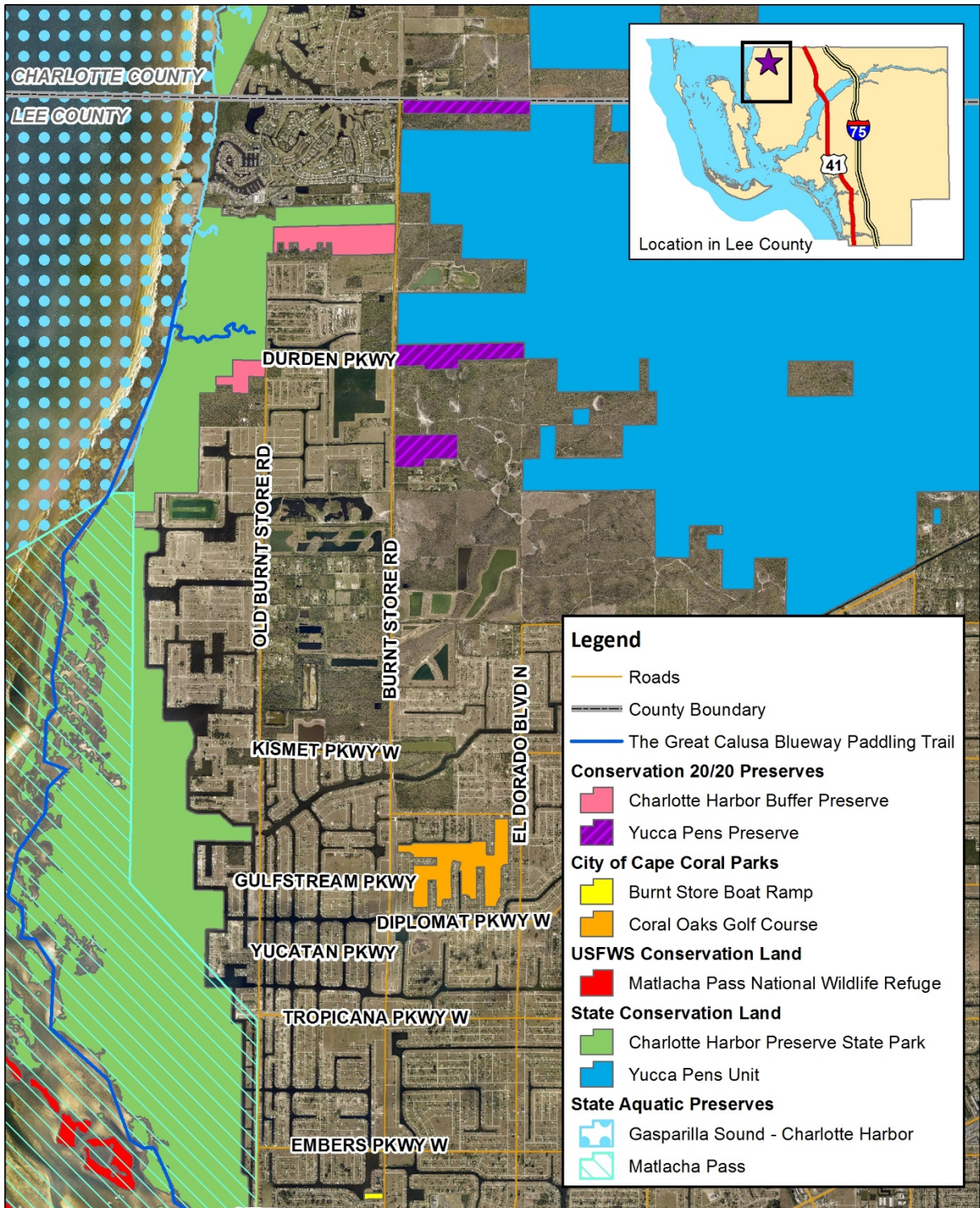


Yucca Pens Preserve

0 0.25 0.5 1 1.5 Miles

This is not a survey. Land Management staff have prepared this map for informational and planning purposes.

Figure 2: YPP Location



Yucca Pens Preserve

0 0.5 1 2 3 4 5 6 Miles

This is not a survey. Land Management staff have prepared this map for informational and planning purposes.



IV. Natural Resources Description

A. Physical Resources

i. Climate

General information on the climate of southwest Florida is located in the Land Stewardship Plan Development and Supplemental Information section of the 2012 edition Land Stewardship Operations Manual (LSOM).

ii. Geology

Specific information on geologic features, such as physiographic regions, formations, and maps can be found in the LSOM Land Stewardship Plan Development and Supplemental Information section.

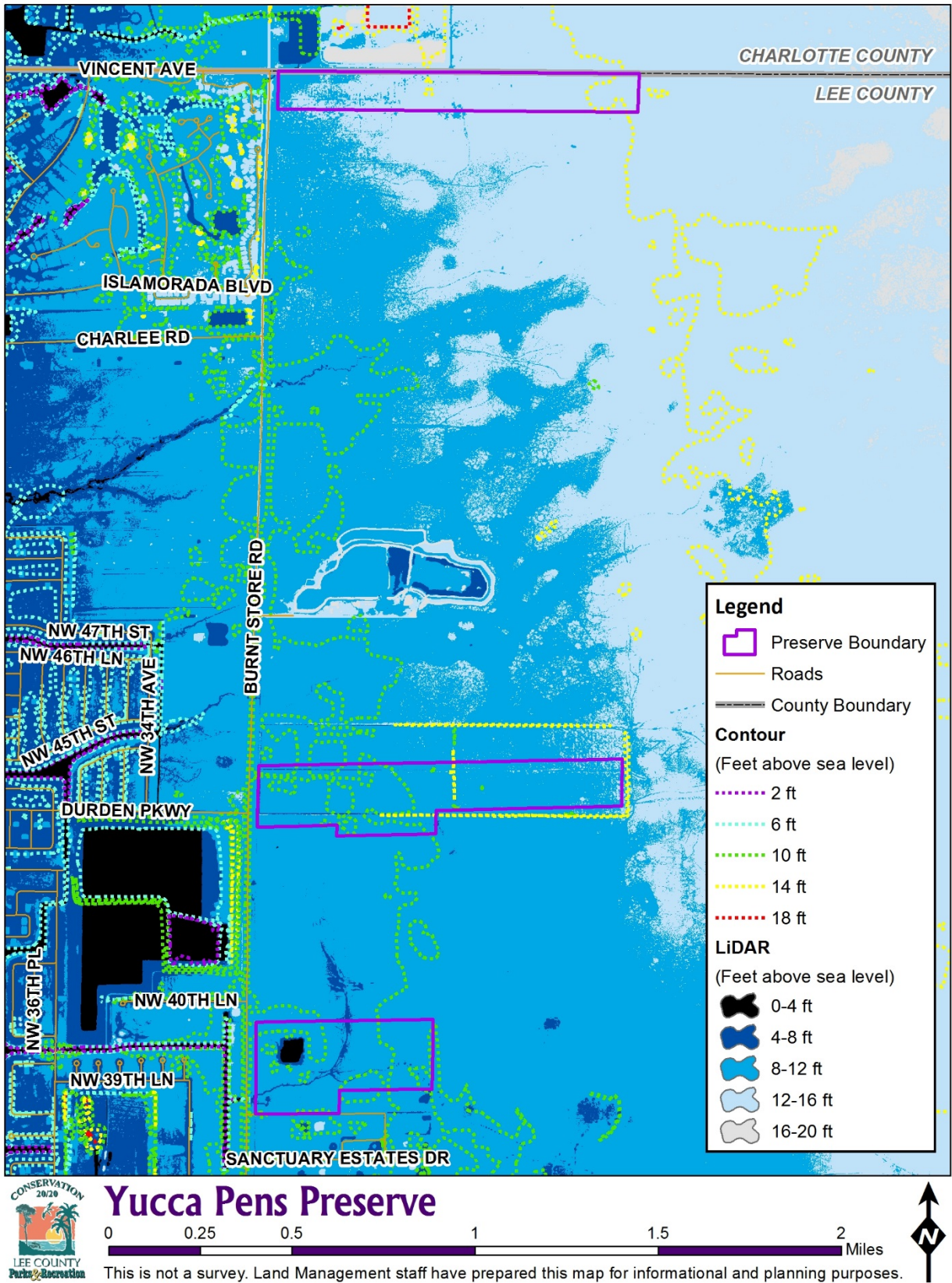
iii. Topography

Natural elevations at YPP range from eight to fourteen feet above sea level in a gentle slope downward to the southwesterly direction. The preserve is mostly flat overall, with a slope of 0-2%, and the elevation changes are nearly indistinguishable on a map. Historical land uses at the preserve created human-caused disturbances to the landscape, resulting in isolated areas of unnatural elevation. Ditches, an impoundment, and old vehicle trails throughout nominations #75 and #281 of the preserve create topographic low spots that affect natural sheetflow and register as wetlands or flowways.

Elevation of the areas surrounding the preserve has been largely affected by development. The majority of the land to the west of Burnt Store Road has been developed for single-family homes and a fire station, creating unnaturally high elevations and installation of drainage canals that interrupt natural sheetflow. Property to the north of #107 has been developed for a water treatment plant and cleared for agriculture, while land to the east and south have retained similar elevations to that of the preserve due to protections provided by acquisition through state conservation lands. These protections also apply to the property north, east, and south of #102, with the exception of the network of drainage ditches that were installed prior to acquisition of the properties.

Methods for measuring the elevation of the preserve include utilizing topographic contour lines, and Light Detection and Ranging technology (LiDAR). This technology is similar to sonar, but measures properties of scattered light to identify information about distant targets. The LiDAR data used in Figure 3 were collected in 2007 and represent the published five-foot digital elevation model.

Figure 3: Topography



iv. Soils

The 1984 “Soil Survey of Lee County, Florida” (Henderson 1984) was designed to identify soil behavior, physical and chemical properties, land use limitations, potential impacts, and environmental protection qualities of the local soils. This information was created by gathering hundreds of soil samples to study the soil profile. A predictive model of soil formations throughout the county was created by applying geology, land forms, relief, climate, and vegetation. According to this survey, there are six different soil types found at YPP (Figure 4). The map also represents acreage covered by the open water of the impoundment, because the depth of the impoundment and the historical excavation activity makes the soil type unpredictable.

All of the soil types found at the preserve have rapid surface and subsurface permeability, and slopes that range 0-2%, which means that they are fundamentally level. These characteristics, combined with sandy composites and tendencies to flood, create severe limitations for recreational development at the preserve. “Costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures” (Henderson 1984) are identified by the soil survey as the only methods that can offset the severe limitations of the soils to develop recreational opportunities. The consequences of bypassing these methods can still be seen on the landscape from historical uses for ORV driving prior to acquisition of the property by Lee County; old vehicle trails continue to impact natural processes at the preserve, such as vegetation growth and water flow.

A brief description about each soil type found at the preserve, based on the 1984 survey, is included in Table 2. For additional information about soil types and characteristics, refer to the LSOM Land Stewardship Plan Development and Supplemental Information section.

Figure 4: Soil Types

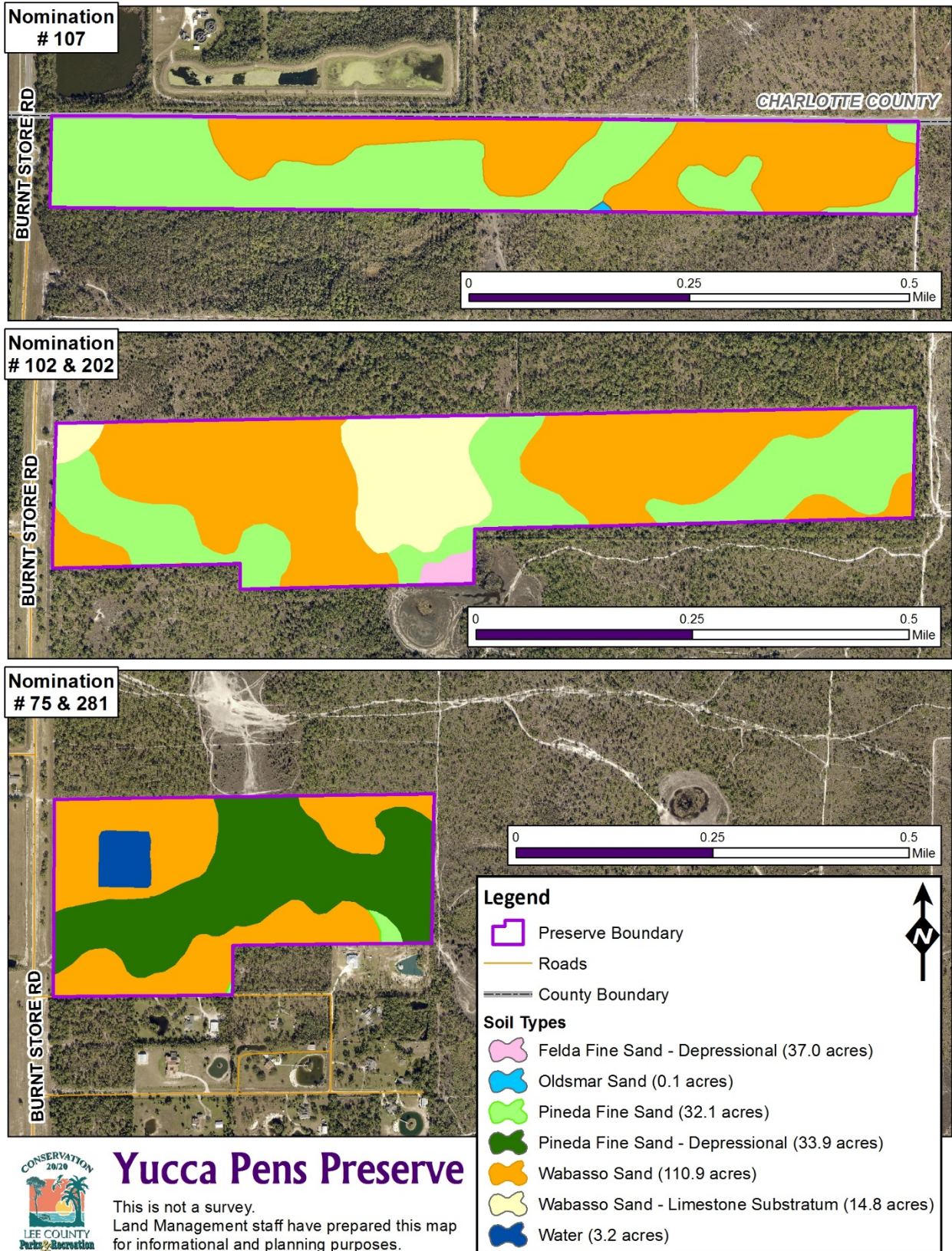


Table 2: Soils Attributes

Soil Types	Map Symbol	Total Acres	% of Preserve	Physical Attributes							Biological Attributes				Limitations for Recreation	
				Habitats (Range Site)	Wetland Class	Hydrologic Group	Surface Permeability	Subsurface Permeability	Water Table within 10" of surface	Water Table below 10-40" of surface	% Organic Matter	Potential as habitat for wildlife in—				
												Openland	Woodland	Wetland		Rangeland
Felda Fine Sand - Depressional	49	37.0	16%	Freshwater Marshes/Ponds	P	B/D	Rapid	Rapid	3-6+ months (ponded)	4-6 months	1-4%	Very Poor	Very Poor	Good	--	Severe: wetness, too sandy
Oldsmar Sand	33	0.1	0%	South Florida Flatwoods		B/D	Rapid	Rapid	1-3 months	>6 months	1-2%	Fair	Fair	Poor	--	Severe: wetness, too sandy
Pineda Fine Sand	26	32.1	14%	Sloughs	S	B/D	Rapid	Rapid	2-4 months	>6 months	0.5-6%	Fair	Poor	Fair	--	Severe: wetness, too sandy
Pineda Fine Sand - Depressional	73	33.9	15%	Freshwater Marshes/Ponds	P	D *	Rapid	Rapid	3-6+ months (ponded)	4-6 months	5-6%	Very Poor	Very Poor	Good	--	Severe: ponding, too sandy
Wabasso Sand	35	110.9	48%	South Florida Flatwoods		B/D	Rapid	Rapid	2-4 months	>6 months	1-4%	Poor	Fair	Poor	--	Severe: wetness, too sandy
Wabasso Sand - Limestone Substratum	42	14.8	6%	South Florida Flatwoods		B/D	Rapid	Rapid	1-3 months	2-4 months	2-5%	Poor	Fair	Poor	--	Severe: wetness, too sandy
Water	99	3.2	1%	Water covers a portion of the preserve acreage area which consists of a freshwater impoundment and therefore does not have soil characteristics.												

Color Key

Dry
Wet
Wetter
Wettest
Saturated

Wetland Class Key

- S – Slough (sheetflow): A broad, nearly level, poorly defined drainage way that is subject to sheetflow during the rainy season.
- F – Flooding: The temporary inundation of an area caused by overflowing streams, runoff from adjacent slopes, or tides.
- P – Ponding: Standing water on soils in closed depressions; the water can only be removed by percolation or evapotranspiration.

Hydrologic Group Key

- B – Soils having moderate infiltration rate (low to moderate runoff potential) when thoroughly wet.
- D – Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet.
- * – Water table is above the surface of the soil

v. Hydrological Components and Watershed

The location of YPP in northwestern Lee County places it within the jurisdiction of the SFWMD, the oldest of the five regional state-managed regulatory agencies, and is part of an area designated as the Lower West Coast Region. The SFWMD further identifies the preserve within a North Coastal Drainage Basin, and both the Gator Slough and Northwest Cape Coral Drainage Subbasin (Figure 5). Locally, the Lee County Division of Natural Resources (LCDNR) identifies three watersheds into which the preserve drains; Durden Creek, Greenwell Branch, and Yucca Pen Creek. Figure 6 illustrates each of the LCDNR watersheds.

Both the SFWMD and the LCDNR drainage areas were identified by current and historical natural sheetflow and flowways. Burnt Store Road borders YPP to the west and creates a sheetflow barrier, which divides the SFWMD North Coastal Drainage Basin area into the two subbasins. The watersheds identified by the LCDNR follow the larger flowway pattern of the SFWMD drainage basin, but classify it using smaller local tributaries and flowways. Portions of these watersheds are impacted by the drainage canal system, and all of them drain into the Charlotte Harbor.

Wetlands and flowways, both natural and man-made, which directly impact YPP have been illustrated in Figure 7. Data for this map were collected from site inspections, historical records, and a 1979 National Wetlands Inventory (NWI) conducted by the Office of Biological Services of the USFWS and classified utilizing the Classification of Wetlands and Deep Water Habitats of the United States (Cowardin et al. 1979). Wetlands were mapped for the NWI utilizing aerial photography to identify vegetation, visible hydrologic features and geography. YPP has three types of wetlands identified by the NWI; the freshwater pond is a man-made borrow pond, while the Freshwater Forested/Shrub and Freshwater Emergent Wetlands are naturally occurring and seasonally flooded.

Other man-made features that impact the sheetflow of the preserve include berms, ditches, trail-swale created by old ORV trails, and firelines. Prior to acquisition through C20/20, the property that would become YPP and the areas around it underwent various land uses that required creation of berms and ditching of water for drainage, agriculture, planned development, and water retention. None of the existing ditches or berms on the preserve have been maintained by C20/20, and natural sedimentation has begun to fill in the flowways. These features will, over-time, transition into natural wetland communities that will provide habitat for plants and animal species.

Shortly after acquisition, C20/20 installed firelines around the perimeters of the preserve parcels; these features have been illustrated and discussed in the Internal Influences section of this plan. The firelines are seasonally mowed or disked to provide protection to surrounding property during a wildfire or prescribed burn, and the soil disturbances over time lowered the grade of the firelines and causes some to convey water and act as shallow ditches during flooding events. To minimize this impact, minimal disking is done at YPP.

Nomination #107 was historically cleared for agriculture and several ditch/berm structures were created, but the only features that currently exist are a shallow ditch across the northwestern corner and western boundary, and a ditch/berm that is oriented

east-to-west and is located around the perimeter of the water treatment plant property to the north. A network of ORV trails surround the preserve, and one old trail that bisects #107 and connects the north and south boundaries was incorporated into a fireline that was connected to the perimeter fireline network. This parcel has two wetland types identified through the NWI, the Freshwater Forested/Shrub Wetland and Freshwater Emergent Wetland, which cover the majority of the site and are oriented northeast-to-southwest in a direction that mirrors the watersheds.

Nominations #102 and #202, composing the central preserve tract, were historically cleared and ditched extensively, and many of the ditch/berm features continue to impact the site sheetflow. The conjoined parcels are bordered to the west and east by berm/ditches, #102 has east-to-west berm/ditches offset along the northern and southern boundaries, and a berm/ditch connects through the northern boundary to the southern boundary where it intersects an east-to-west berm/ditch structure. The berm/ditch along the southern boundary of #102 had once continued along the northern boundary of #202, but was graded to re-establish sheet flow during a restoration project completed in 2011. A small cluster of historic ORV trails near the center of the tract can still be seen on the landscape, but are naturally filling in and act as ephemeral wetlands. The NWI identified two wetland types, the Freshwater Forested/Shrub Wetland and Freshwater Emergent Wetland, which cover minimal areas of the tract and are focused along the southern boundary.

Nominations #75 and #281, composing the southern preserve tract, have been heavily impacted by historical ORV use that has altered the hydrologic flow. C20/20 has maintained perimeter fencing and enforced only resource-based recreation at the preserve since acquisition which has allowed some of the historical ORV trails to naturally fill in, but one east-to-west trail continues to exist. Identified on the map as a trail/ swale, repeated use caused extensive soil disturbance and impacted the underlying limestone. The trail now presents as a deep flowway that drains water from the surrounding communities and conveys it into the neighboring canal system along Burnt Store Road. A shallower flowway that leads from the center of the northern boundary to the trail-swale was created through the same process, but does not convey the high volumes of water observed in the east-to-west flowway and has been incorporated into the fireline network.

In 2010, the LCDNR executed a portion of a surface water management project known as the Matlacha Pass Hydrologic Restoration Project; the Environmental Resource Permit from the SFWMD has been included in Appendix C as a "Surface Water Project SFWMD Permit." This project expanded the outflow and culvert structure under Burnt Store Road and improved the ditches along the right of way on Burnt Store Road. These structures are directly west of the YPP Boundary and connected to the trail-swale addressed below. The LCDNR flowways collect the water flowing out of YPP trail-swale and send it into the Cape Coral canal system. The permit for this project was issued in 2007.

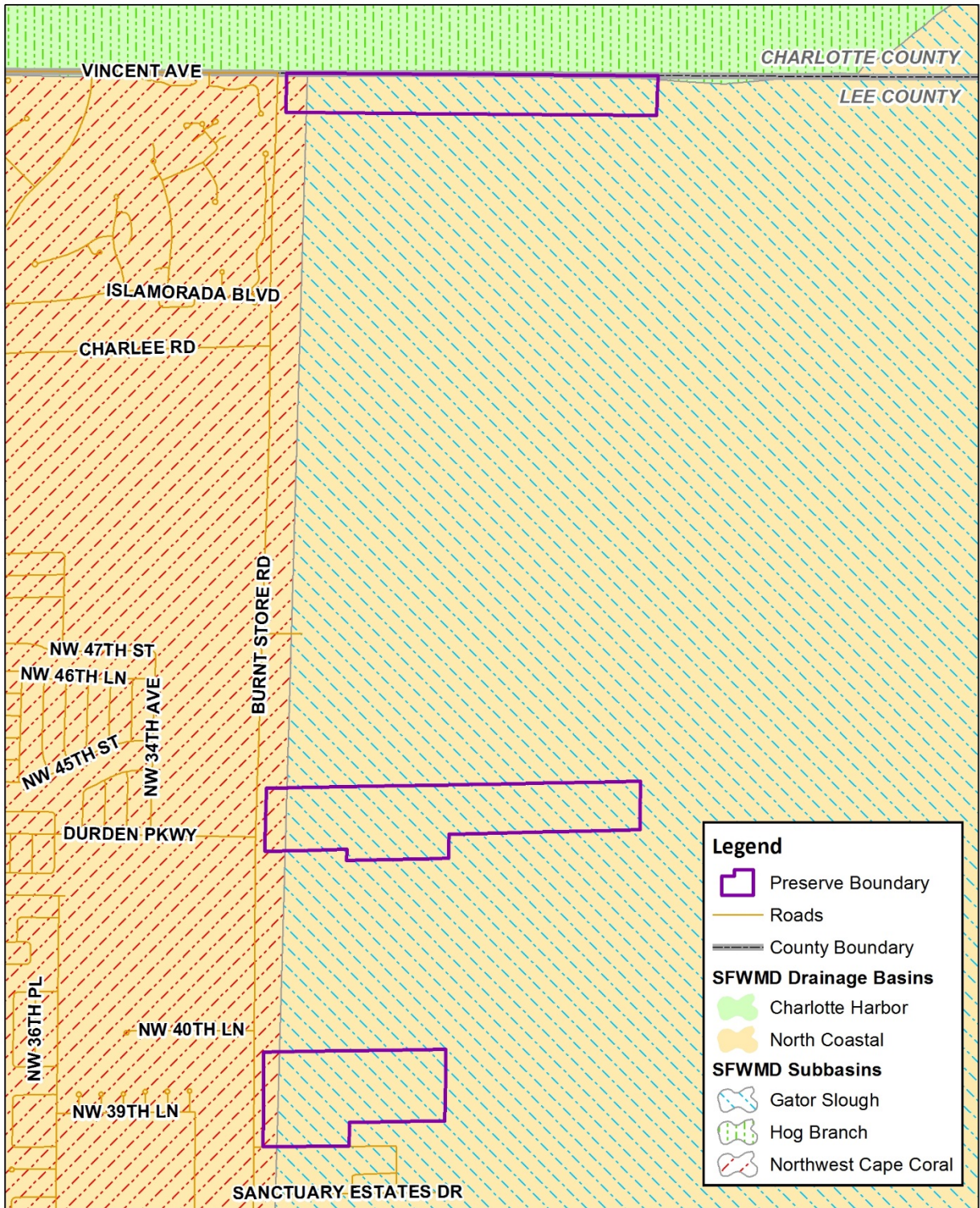
A restoration project within the preserve that was designed and permitted in 2010 underwent construction in 2011 to create plugs in the larger trail-swale flowway of the southern tract (nomination #75 and 281) to slow the flow of water being carried offsite. Appendix B contains the permitting and final project designs for this project, under the

title "Preserve Restoration Project SFWMD Permit." Fill material was used to raise the depth of the flowway in sections that would allow the water to overflow into the surrounding plant communities where it would sheetflow over the landscape and slowly percolate back into the groundwater and aquifer. The original designs required that some of these flowway plugs be built below grade to address concerns that plugs built to the natural grade could cause flooding issues during extreme weather events.

The designs from the YPP restoration project were later used as a model for a larger restoration project within the state-managed YPU. The SFWMD permitted the plugs for this project to be constructed to the natural grade, rather than below grade as required in the YPP project. This design change has shown to be more effective, and C20/20 staff will work to revise permits to update the plugs at YPP and raise them to natural grade. C20/20 staff will also work with LCDNR staff to update the flowways along the preserve boundary to reduce the volume of water leaving the preserve. This cooperation will further enhance the overall hydrological goals of YPP.

Other features that impact the hydrology of #75 and #281 are the neighboring ditches, onsite borrow pond, and invasive exotic plant species. A small ditch has been installed outside the southern boundary of #281 that drains water from the neighboring residential areas, but also has the potential to drain small amounts of water from the preserve. The southern tract has two wetlands identified by the NWI, Freshwater Forested/Shrub Wetland and Freshwater Pond, but the pond is a borrow pond impoundment created in the early 1960s to produce fill for Burnt Store Road. Cattails (*Typha latifolia*) require on-going maintenance to prevent overgrowth that can displace the water-holding capacity of the impoundment. Other invasive exotic plants on neighboring properties cause similar hydrologic issues by impacting the natural sheetflow, such as melaleuca that soak up water and dry out wetlands. Land managers continue working with the state agencies to get invasive exotics treated on neighboring YPU lands to improve sheetflow.

Figure 5: SFWMD Drainage Basins



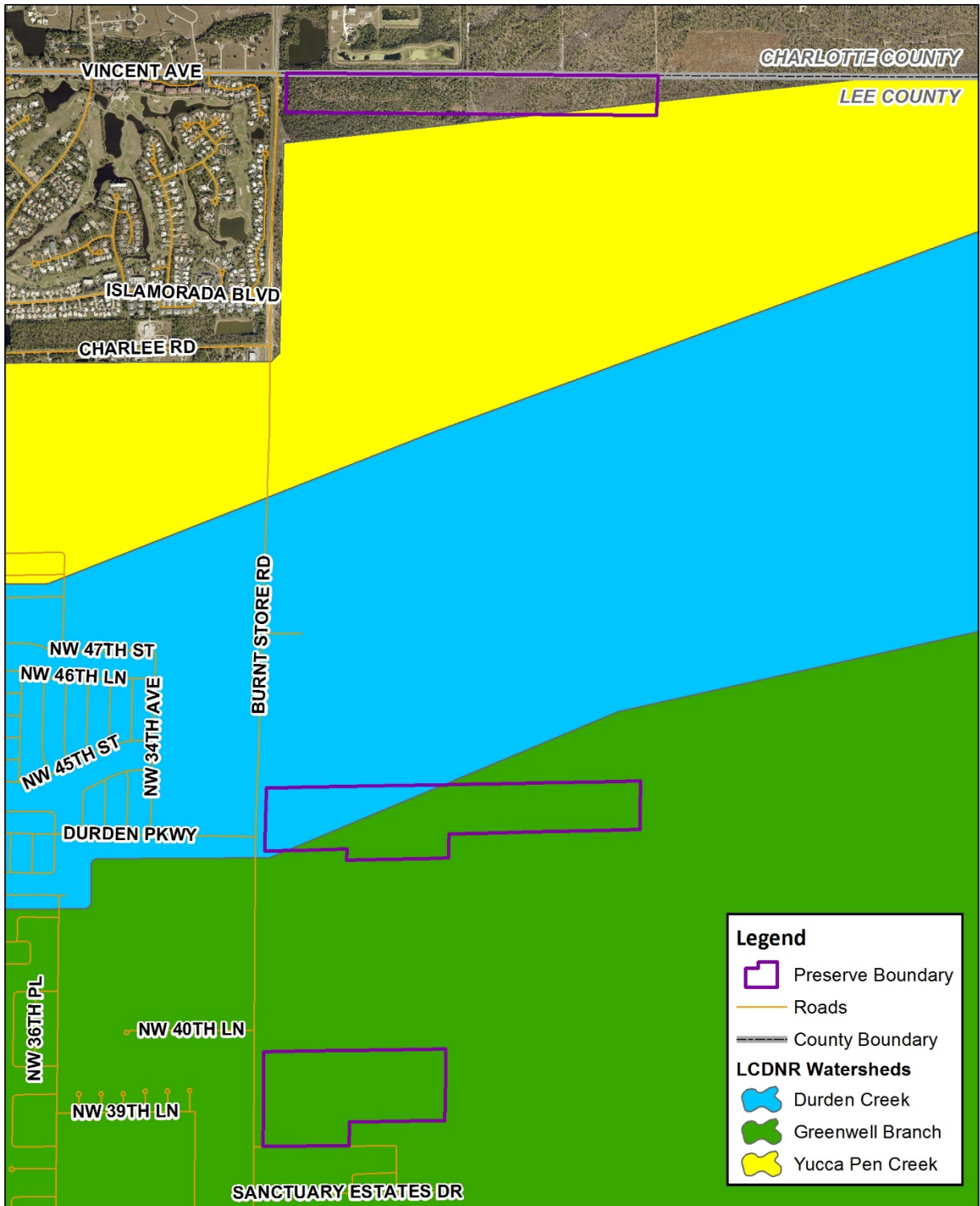
Yucca Pens Preserve

0 0.25 0.5 1 1.5 2 Miles

This is not a survey. Land Management staff have prepared this map for informational and planning purposes.



Figure 6: LCDNR Watersheds



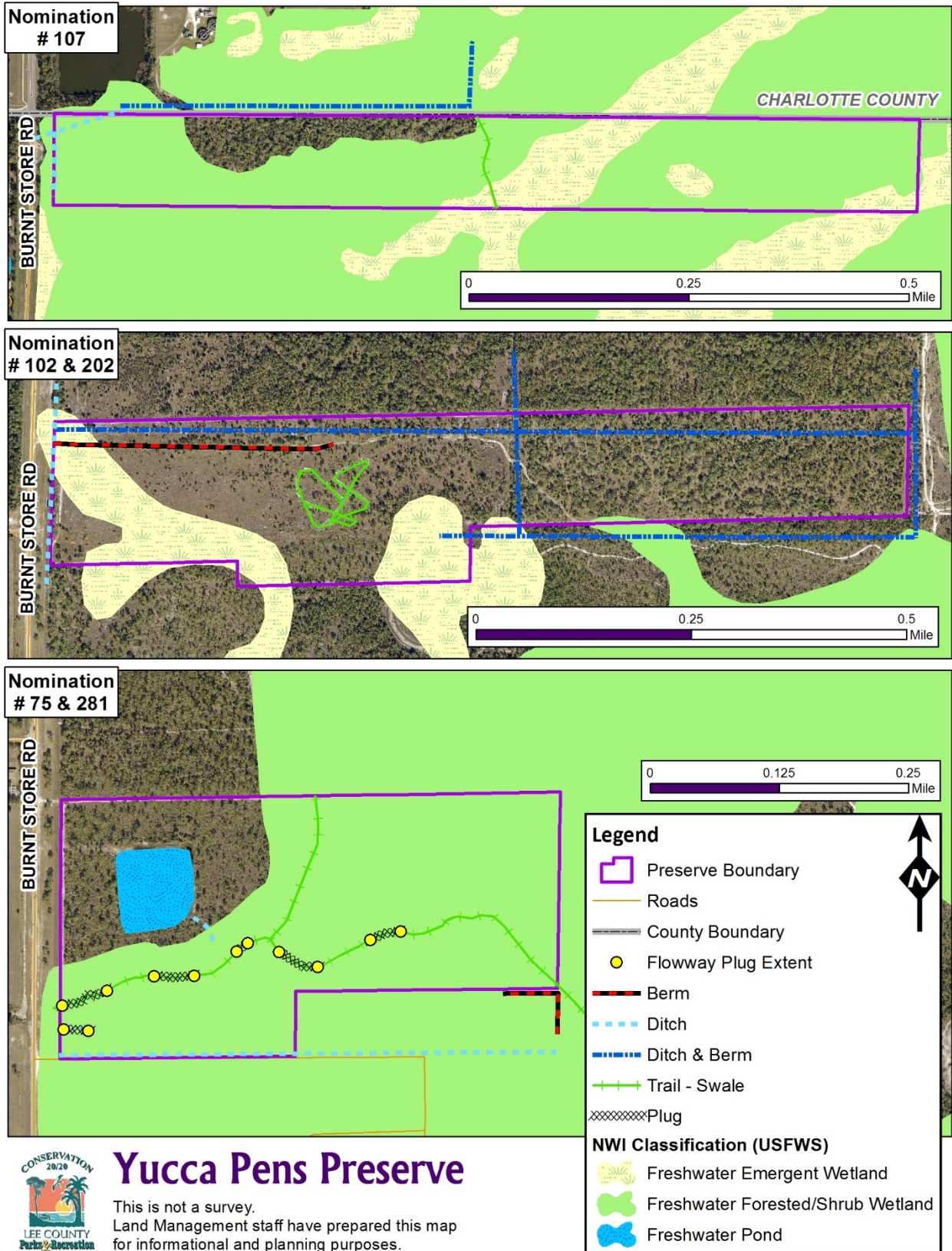
Yucca Pens Preserve

0 0.25 0.5 1 1.5 2 Miles

This is not a survey. Land Management staff have prepared this map for informational and planning purposes.



Figure 7: Hydrological Components



B. Biological Resources

i. Ecosystem Function

Lee County's preserves contain a diversity of plant communities that provide habitat for numerous plant and animal species. Individual preserves are not islands of habitat, but are pieces of a larger conservation effort striving to create and maintain a healthy and viable ecosystem. Ecosystem function information is located in the LSOM Land Stewardship Plan Development and Supplemental Information section.

ii. Natural Plant Communities

YPP contains 13 plant communities (Figure 8) that have been identified and defined using the 2010 edition of the "Guide to the Natural Communities of Florida" that was prepared by the Florida Natural Areas Inventory (FNAI) and the Florida Department of Environmental Protection. The greatest impacts to the plant communities found at the preserve have been caused by the construction of drainage ditches, the suppression of wildfire, rooting or trampling by feral hog (*Sus scrofa*) populations, the alteration of sheetflow from soil rutting and ORV trails, and the restoration methods used to restore communities and water flowways.

In an effort to repair some of the hydrologic impacts and invasive exotic plant infestation, a restoration project partially funded by the SFWMD was designed within nominations #75 and #281. The project included treatment of invasive exotic plant species identified by the Florida Exotic Pest Plant Council (FLEPPC) to have the ability of altering native plant communities, and created plugs in an ORV trail that acted as a flowway and drained the preserve wetlands. The hydrological components of the restoration successfully rehydrated wetlands, and land managers continue to restrict the level of invasive exotic plant infestation.

Absence of fire on the landscape is another impact that is causing plant communities to transition, develop closed canopies, and threaten sensitive habitat for designated plant and wildlife species. Land managers have supplemented the lack of naturally occurring wildfire by conducted fuels reduction and tree thinning to reduce canopy density, and conducted three prescribed burns to introduce burn regimes back into the system.

The following section includes a brief description of the dominant plants, characteristic wildlife, and physical attributes for each plant community found at the preserve. These qualities have also been used to identify management units and burn units at the preserve that are used by land managers to plan restoration projects, invasive exotic plant treatments, and prescribed burns.

A list of the plant species found in all of the communities at the preserve to date can be found in Appendix D. Designated statuses and occurrences for species included on the list have been recorded using databases provided by the Institute for Regional Conservation (IRC), FNAI, and the Florida Department of Agriculture and Consumer Services (FDACS).

Basin Marsh

2.8 acres with 1.2% preserve coverage

Characterized by FNAI as an herbaceous or shrubby wetland situated in a relatively large and irregular-shaped depression, basin marshes usually develop from shallow lakes as the bottom fills with sediments. The marsh is normally flooded for most of the year and fire intervals can be one to ten years apart. Found within the southeast corner of nominations #102 and #202, the basin marsh at YPP is hydrated by the re-graded drainage ditch/berm. Plant species that have been observed in the marsh include grassy arrowhead (*Sagittaria graminea* var. *graminea*), duck potato (*Sagittaria latifolia*), and bladderwort (*Utricularia cornuta*). Wildlife that has been observed include osprey (*Pandion haliaetus*), a variety of wading birds, and crayfish (*Cambaridae cambarus*).

The northern border of the marsh is populated by woody shrubs, including swamp bay (*Persea palustris*) and gallberry (*Ilex glabra*), and has similar characteristics to a shrub bog. This community is commonly found on the edges between wetlands, such as basin marshes, and mesic or wet flatwoods. Floating bladderworts and other herbaceous plants can also be found in areas of open water within a shrub bog, presenting a similar appearance to a basin marsh. The blurred transition between the basin marsh and the shrub bog, the small size of the two communities when separated, and the intent of C20/20 staff to manage the communities together led to the decision to combine them into a single basin marsh category. Land managers will monitor the two communities and revise the classifications if significant changes are observed.

Canal/Ditch

3.3 acres with 1.4% preserve coverage

Constructed prior to property acquisition by C20/20, the remaining drainage flowways on the preserve are limited to nomination #102 and #202. Clearing or dredging is not conducted to maintain the flowways, but they do continue to convey water during flood events. These features are further discussed in the Hydrological Components and Watershed section of this plan.

Regeneration

2.2 acres with 1.0% preserve coverage

This community is characterized by FNAI as having undergone “historic clearings that have significantly altered the groundcover and/or overstory of the original natural community.” The area within nomination #102 had historically been cleared to be used as a staging point for agricultural operations and dumping of spoil. The growth of herbaceous vegetation is sparse during the dry season, but many species of wetland plants appear once the site floods in the wet season. Unaided, the area will succeed into a community consistent with the hydrological, fire and climatic conditions present. The area within #75 consists of the sparsely vegetated border of the impoundment/artificial pond and produces sparse growth of grasses, both invasive exotic and native varieties.

Depression Marsh

1.1 acres with 0.5% preserve coverage

Characterized as seasonally flooded wetlands dominated by herbaceous or small shrubby plant species, this community can be found within nomination #202 and #281. They appear on the landscape within other fire-dependent communities with similar fire intervals, which is needed to restrict succession from growth of shrubs and trees. At YPP, this community appears within wet flatwoods and contains native wetland grasses, marsh fleabane (*Pluchea rosea*), and Bartram's rosegentian (*Sabatia bartramii*). The marshes provide breeding and foraging habitat for a variety of wildlife, including amphibians, but do not generally contain large predatory fish due to their temporary flooding. Other wildlife observed include a variety of wading birds that take advantage of the dry-down period to forage on the concentrated populations of invertebrates and amphibians.

Depression Marsh – Successional

0.5 acres with 0.2% preserve coverage

This community is located in nomination #107 and is similar to the depression marsh, but a lack of fire has contributed to the growth of a shrub and tree canopy. These woody species will begin to reduce the amount of time the marsh is flooded through evapotranspiration, and will reduce the diversity of herbaceous plants by shading out the wetland. Over time, this community will succeed into a wet flatwoods. To transition this community back to a depression marsh, land managers plan to utilize prescribed fire to reduce the woody vegetation and open the canopy. The community is currently dominated by wetland grasses and rush species, seedling south Florida slash pine (*Pinus elliotii* var. *densa*), and wax myrtle (*Myrica cerifera*). Wildlife observed during the wet season include crayfish and a variety of wading birds.

Impoundment/Artificial Pond

2.4 acres with 1.0% preserve coverage

Located on nomination #75, this feature is most likely a borrow pond created by an excavation for fill dirt to construct surrounding roads; it appears on historical aerials from around the same time Burnt Store Road was constructed. Overgrowth of cattails has been an on-going issue, but regular herbicide control has opened areas of shallower water for growth of grasses and sedges. Wildlife observed in or around the pond include several species of fish, wading birds, and amphibians. Florida sandhill cranes (*Grus canadensis pratensis*) have been observed nesting along the banks of the impoundment.

Mesic Flatwoods

22.0 acres with 9.5% preserve coverage

Found within nomination #107, this community consists of a sparse canopy of south Florida slash pines with a shrub understory of saw palmetto (*Serenoa repens*) and sparse herbaceous layer of grasses. Florida beargrass (*Nolina atopocarpa*), a state-listed species, has also been observed within this community. It is slightly higher in elevation than the wet flatwoods and is flooded less frequently. Wildlife observed within the community include southern black racer (*Coluber constrictor priapus*), eastern

diamondback rattlesnake (*Crotalus adamanteus*), and gulf fritillary butterfly (*Agraulis vanillae*). Feral hogs are also commonly observed rooting within this community.

A lack of fire within this community has caused an overgrowth of the canopy and shrub layers that have begun to shade out the underlying grasses, which has also provided shelter to a feral hog population that damage the sensitive soils through foraging. Land managers plan to utilize prescribed fire to re-establish a fire interval of one to five years, to reduce the pine and understory canopies, and to refresh the soil nutrients that will benefit the grass species such as Florida beargrass. Contracted hog trappers have been used to control the population of feral hogs and reduce rooting impacts.

Mesic Hammock

31.0 acres with 13.4% preserve coverage

Located in the western half of nomination #107, this community has a mixed land use history of agriculture operations and berm/ditch installation that altered the hydrology for the area. The ditches within the community have naturally filled in over time, but the ditch/berm along the northern boundary continues to drain the community. Development and creation of a water retention pond on the property to the north has also cut off the community from natural sheetflow. As a result, the area functions as an upland mesic hammock with hydrologic impacts and a lack of fire. Mesic hammocks are not considered fire dependent, but the presence of mature pines among oaks indicates the area has undergone a hardwood invasion of a historic pine community. There are also small pockets of wetlands within the hammock that feature open canopies and wetland herbaceous plants, but have not been isolated as separate communities because they will not be managed separately.

Plants found within the mesic hammock include a canopy of various oak species and south Florida slash pine, a sub-canopy of cabbage palm, a sparse shrub layer of saw palmetto and wild coffee (*Psychotria nervosa*), and a sparse herbaceous layer. Wildlife observed includes white-tailed deer (*Odocoileus virginianus*), nine-banded armadillo (*Dasypus novemcinctus*), oak toad (*Bufo quercicus*), and Florida box turtle (*Terrapene carolina bauri*). Feral hogs have caused on-going impacts by rooting, and contracted trappers have been used to control the population at the preserve.

Road

0.8 acres with 0.4% preserve coverage

Constructed sometime in the early 1980s, an elevated road is located in the western half of nomination #102 along the south berm of the east-to-west ditch. In the maps included in the Land Use History section of this plan, the road can first be seen in 1986 leading to a cleared square that land managers have attributed to agriculture operations. The road has been allowed to degrade, and is a hydrological barrier that land managers have planned to remove in future restoration projects.

Scrubby Flatwoods

15.6 acres with 6.7% preserve coverage

Similar to the other flatwoods community types, the scrubby flatwoods are dominated by a sparse canopy of south Florida slash pines and a shrubby understory of saw palmetto. Other plant species observed include chalky bluestem (*Andropogon virginicus* var.

glaucus) and coastalplain staggerbush (*Lyonia fruticosa*) within the sparse herbaceous layer. This community is slightly higher in elevation than the mesic flatwoods, is rarely flooded, and requires fire intervals of five to fifteen years to maintain the open canopy. Fire within the YPP community has been suppressed and the tree and shrub canopies have become overgrown. Land managers plan to utilize prescribed fire to re-establish a fire interval and transition the community back into a scrubby flatwoods.

Spoil Area

0.3 acres with 0.1% preserve coverage

Located along the western boundary of nominations #102 and #202, the spoil area is a berm placed between Burnt Store Road and YPP to control water within the roadside drainage system; the berm also retains some water within the wet flatwoods of the preserve. The surface of the berm has re-vegetated since its construction and is now covered in a mix of woody and herbaceous species, including south Florida slash pine, sabal palm (*Sabal palmetto*), eastern poison ivy (*Toxicodendron radicans*), oak tree species, muscadine grapevine (*Vitis rotundifolia*), and invasive exotic grasses.

Wet Flatwoods

142.3 acres with 61.3% preserve coverage

The lowest in elevation of the flatwoods and found throughout all nominations of YPP are the wet flatwoods. This community is identified by a sparse canopy of south Florida slash pines, a lack of woody understory, and features a dense herbaceous layer. Plants observed at the preserve include a variety of St. John's-wort (*Hypericum species*), toothpetal false reinorchid (*Habenaria floribunda*), starrush whitetop (*Rhynchospora colorata*), and blackroot (*Petrocaulon pycnostachyum*). Wildlife observed within the wet flatwoods include osprey, killdeer (*Charadrius vociferus*), and palamedes swallowtail (*Papilio palamedes*).

A lack of fire, feral hog rooting impacts, and altered hydrology have impacted this community. Land managers plan to utilize prescribed fire to re-establish a fire interval, which will help open the canopy and reduce the density of shrubby vegetation while refreshing nutrients into the soil for herbaceous species. Where possible, land managers will also plan restoration projects and work with the neighboring state-managed properties to restore natural sheetflow by re-grading berm/ditches and reconditioning the trail-swale flowway. Contracted hog trappers have been used to help control the hog populations and reduce rooting impacts.

Wet Prairie

6.6 acres with 2.9% preserve coverage

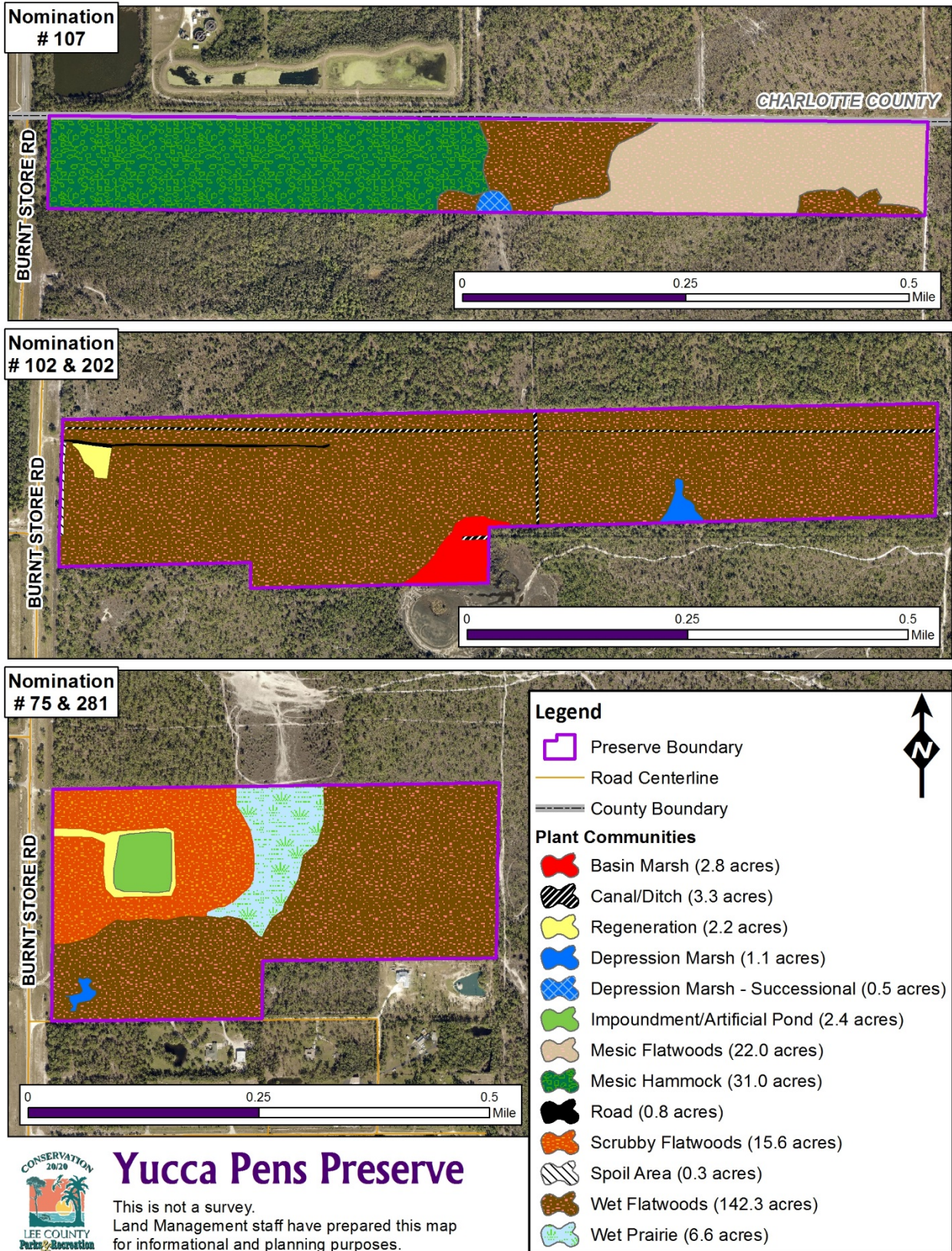
Located within nominations #75 and #281, this community appears as a lower slope between the wet and scrubby flatwoods. The area has an open canopy with minimal shrub growth and an understory dominated with native herbaceous species, and has sporadic periods of shallow standing water during the wet season. When the community does flood, the water does not flow off the site, but stands on the soil and slowly percolates through the limestone into the groundwater. This poor drainage, combined with a threat of dehydration in the dry season, causes stress for many of the plants found growing in the prairie. If not controlled, extended periods of climatic drought can

cause upland shrubby species to invade and develop an understory canopy that shades out the understory; YPP has begun to show signs of this shrubby invasion.

This community is also identified by FNAI as “sensitive to relatively slight physical alterations to the soil surface which can permanently alter the hydrology.” Old ORV trails from historic land uses and placement of ditches near prairies are identified as some of the major impacts to the community by FNAI and which YPP contains.

However, these impacts have not caused severe disturbances to the hydrology of the prairie and the community will not be categorized as disturbed at this time. To continue improving the prairie, land management staff will work with heavy equipment operators to shift the fireline to the neighboring scrubby flatwoods, and hand-thin the woody shrub species to reduce the canopy. A hydrologic restoration project for the trail-swale located along the southern boundary of the prairie will also help reduce the amount of water draining into the flowway.

Figure 8: Plant Communities



iii. Fauna

The location of YPP adjacent to large state-owned conservation properties and the Gulf of Mexico allows it to provide habitat for a variety of wildlife, and the types of wetlands and plant communities provide a transitional area for both saltwater and freshwater wildlife species. A small number of designated wildlife species classified as threatened or endangered, and those designated as exotic or invasive have been recorded at the preserve. Most wildlife observations have occurred during tri-annual site inspections that are conducted by C20/20 staff to monitor wildlife species, plant species, trespass or encroachment issues, or other management activities.

These tri-annual site inspections are conducted at all C20/20 preserves, beginning once the parcel has been acquired. The data collected are used by land managers to design and plan management activities such as invasive exotic treatments or restoration projects. The data for YPP are also augmented by bird count surveys conducted by the Lee County Bird Patrol, a subgroup of the Lee County Volunteer Services. These volunteers patrol various C20/20 preserves and collect data on the types and numbers of bird species observed, and upload the data into the online database at eBird.com where it can be accessed for use in planning management activities.

The species lists created by these surveys will continue to be added upon or modified as future observations occur. Appendix E contains the complete list of wildlife documented at YPP, and the Designated Species section of this plan will discuss any listed species observed. Exotic wildlife species observed at the preserve are also included in the species list, and have been compiled into Table 3. Additional information about wildlife on all C20/20 preserves can be found in the LSOM Land Stewardship Plan Development and Supplemental Information section.

Management at the preserve will focus on providing optimal habitat for native species by continuing to improve sheetflow, treating and controlling invasive exotic plants species, and application of prescribed fire. The tri-annual site inspections conducted at YPP will allow staff to monitor any impacts or changes to the preserve, and any new species observed during one of these inspections will be added to the species list. Land managers will take proper management measures to protect and promote native species populations and control populations of species of high concern.

One species of high concern at YPP is the feral hog, an animal that can cause extensive damage to natural communities and hydrologic flow by a specialized foraging activity known as rooting. This species can be found throughout Florida and is an opportunistic omnivore that mostly consumes plant material, but has been known to eat small birds, fish and dead animals. Signs of hog trampling and rooting can be found in every plant community at YPP. C20/20 utilizes county-contracted hog trappers to remove animals from the preserve with live traps. Trapping efforts are highest during the fall and winter seasons when seasonal floodwaters recede and desirable plant material is abundant for foraging, and signs of the animals begin appearing in the marshes and wet flatwoods communities. Land managers will continue coordinating with the trappers to control the population and reduce hog-related impacts to the preserve.

Another species that poses a large threat to the natural communities and has received a county-wide methodology for population control is the feral cat (*Felis silvestris*). While not yet observed or established at YPP, C20/20 preserves follow the FWC Feral and Free Ranging Cats policy: “To protect native wildlife from predation, disease, and other impacts presented by feral and free-ranging cats” (FWC 2003). C20/20 preserves will not contain nor will they support feral cat colonies, and cats continually observed onsite will be trapped and taken to Lee County Domestic Animal Services. C20/20 staff will continue to work with the Animal Services staff to prevent the establishment of feral cat colonies on or adjacent to the preserve.

Not all exotic wildlife species pose a threat to the natural communities, and two species observed at YPP contribute to the health of the preserve. The melaleuca psyllid and melaleuca weevil are insects that were studied and released by the United States Department of Agriculture to help control melaleuca trees (*Melaleuca quinquenervia*). Both of these insects are found within the native range of the tree species and naturally forage on parts of the tree. This foraging activity causes the plant to become stressed and reduces the ability to produce seed and reproduce, and can also occasionally cause plant mortality. This biologically-sourced control of the invasive exotic plant allows land managers to spend less money and time on control efforts, and reduces the volume of chemical control needed to maintain healthy communities.

Table 3: Exotic Wildlife Observed at YPP

	Common Name	Scientific Name
Mammals	nine-banded armadillo	<i>Dasypus novemcinctus</i>
	feral hog	<i>Sus scrofa</i>
Birds	Eurasian collared-dove	<i>Streptopelia decaocto</i>
	European starling	<i>Sturnus vulgaris</i>
Reptiles	brown anole	<i>Anolis sagrei</i>
Amphibians	greenhouse frog	<i>Eleutherodactylus planirostris planirostris</i>
	Cuban treefrog	<i>Osteopilus septentrionalis</i>
Fishes	brown hoplo	<i>Hoplosternum littorale</i>
	African jewelfish	<i>Hemichromis letourneauxi</i>
	blue tilapia	<i>Oreochromis aureus</i>
Insects	melaleuca psyllid	<i>Boreioglycaspis melaleucae</i>
	lovebug	<i>Plecia nearctica</i>
	melaleuca weevil	<i>Oxyops vitiosa</i>
Gastropods	island apple snail	<i>Pomaceae insularum</i>

iv. Designated Species

There are a variety of designated animal and plant species found at YPP. Although all native plant and animal species found on the preserve have some protection due to the preservation of the property, certain species require additional protection. Imperiled species have been primarily classified under a federal listing created by the USFWS, and additional species have been listed by state environmental agencies when classified as being locally imperiled species. For management purposes, all plant and animals listed by the USFWS, FWC, FDACS, the IRC, and the FNAI will be given special consideration when planning recreation and restoration projects. If additional animals or plant species are documented at the preserve in the future, they will be added to the lists.

Wildlife

The following are brief summaries of select federally-designated and state-listed wildlife species, and reasons for their decline. Unless otherwise stated, causes for decline and management recommendations (if available) were obtained from “Field Guide to the Rare Animals of Florida” (Hipes et al. 2001).

Florida Sandhill Crane (*Grus canadensis pratensis*)

State-threatened

Both foraging and nesting habitat for this species has been lost from the drainage and destruction of wetlands and natural prairies for development. Large home-range requirements for the birds prevent smaller conservation properties like YPP from providing habitat to large populations, but the larger conservation complex created with YPP, YPU and the BWWMA is capable of fulfilling the larger habitat requirement. Sandhill cranes can be found within the wet prairie and wet flatwoods, and around the edges of the basin and depression marshes. In the past they have been observed nesting around the impoundment of nomination #75.

The Florida sandhill crane is a visually identical sub-species of the sandhill crane that does not seasonally migrate, and can be observed within appropriate habitats of peninsular Florida year-round. The birds forage in freshwater wetlands, pastures and prairies, but nesting activities are limited to the shallow edges of freshwater wetlands. It is widely believed that population numbers for the sub-species have not changed since first being estimated around 4,000 birds in the 1970s. Future success for populations is threatened by continued development and loss of wetlands through draining, succession through woody vegetation invasion, and creation of drainage ditches. The birds have been observed adapting to human-altered communities such as rangeland and agriculture operations, but nesting success in these areas is lower than in natural areas. Management recommendations include improving water quality, restoring natural hydrological conditions, continuing to control invasive exotic plant species, and implementing prescribed fire to maintain herbaceous wetland communities.

Least Tern (*Sternula antillarum*)

State-threatened

This small seabird is a migratory species that is found throughout coastal Florida, and nests in the central and southern portions of the state beginning in mid-April. Beaches,

lagoons, bays, and estuaries are natural communities used to for nesting and foraging. The species can be identified by a pointed yellow bill, deeply forked tail, yellow-orange feet and legs, an overall light grey coloration, black cap on top of the head with a black band that extends over the eyes to the bill, and a very small size; this species is the smallest tern in North America. Terns are not a frequent observation in YPP, and would only be found utilizing the preserve for foraging or shelter from extreme coastal weather. Pairs have been observed nesting near YPP on private property to the west. Coastal management for this species would incorporate nest protections, but managing the foraging habitat can be achieved by improving water quality, restoring natural hydrological conditions, continuing to control invasive exotic plant species, and implementing prescribed fire to maintain open canopy wetland communities.

Wood Stork (*Mycteria americana*)

Federally-threatened

Occasionally observed at YPP, the adults of this large white wading bird is easily identified by an iconic gray head with scaly texture, black feather coloration underneath the wings, and long grey bill that curves down at the tip. They can be found foraging in a variety of freshwater wetlands, and can be observed in highest concentrations foraging in wetlands with falling water levels. The wood stork is a colonial nester that historically had a large breeding range including south Florida, but is now locally restricted to breeding habitats in north Florida, Georgia, and South Carolina. They can be observed during spring and summer months in south Florida, and have been observed foraging in the seasonally flooded depression marshes of YPP.

Loss of nesting and foraging habitat due to wetland draining, urban expansion, extended droughts, and unnaturally high water levels due to human-caused alterations are threats to the wood stork. Recommendations for protection of this species includes improving water quality, continuing to control invasive exotic plant species, restoring natural hydrological conditions, and implementing prescribed fire to maintain open canopy wetland communities.

Little Blue Heron (*Egretta caerulea*) and Tricolored Heron (*Egretta tricolor*)

State-threatened

Historically, these bird species were hunted to near-extinction for their plumes; they are now threatened by a loss of foraging and nesting habitat due to wetland draining, urban expansion, and human-caused alterations to water flow. Both species have been frequently observed within the seasonally flooded wetland communities of YPP, and can be found year-round foraging in the shallow freshwater marshes and impoundment. Management recommendations for the protection of these species are identical to those for the wood stork.

Florida Burrowing Owl (*Athene cunicularia floridana*)

State-threatened

This small resident owl can be observed foraging or flying over YPP, but does not utilize the preserve for nesting due to the lack of suitable dry upland habitat. The burrowing owl builds nests in ground burrows of sandy soils in natural dry prairie and sandhill communities; the birds have also adapted to residential development and have been

found with burrows in vacant lots, pastures, and large greenspace areas such as parks or lawns. Cape Coral, Florida, is home to one of the largest populations of Florida burrowing owl. Threats to the small owls include human harassment, predation by domestic animals and fire ants, vehicle collisions, destruction of burrows, and intensive cultivation or development of grasslands. Since the owls do not burrow or nest at the preserve, management considerations would be focused for protection of foraging habitat and would include: continuing control of invasive exotic plant species, and implementation of prescribed fire to maintain open canopy communities.

American Alligator (*Alligator mississippiensis*)

Federally-threatened for similar appearance

The USFWS has continued to list this species, despite a successful population recovery from federal protection and conservation efforts, due to a similar appearance to the rarer American Crocodile (*Crocodylus acutus*). Alligators can be found in freshwater and brackish wetlands throughout the southeastern United States, but have rarely been observed at YPP. Some populations in areas of Florida are stable enough that the FWC permits heavily regulated harvest, but there is no hunting or trapping of alligators permitted on any of the C20/20 preserves.

Gopher Tortoise (*Gopherus polyphemus*)

State-threatened

This species has taken advantage of the berms and higher elevations of the upland hammock community at YPP, and can occasionally be found walking in the firelines. The tortoise is dependent on the dry upland plant communities for burrows and foraging of low herbaceous plants. They have been observed foraging in many of the communities during the dry season, and primarily foraging in the uplands during the wet season. Habitat development, agriculture and mining operations, installation of man-made flowways, and succession of open canopy communities to closed and overgrown canopies are threats to this species. Additional threats include a highly contagious respiratory disease, predation on hatchlings, and human poaching. Management for the protection of the gopher tortoise include continuing control of invasive exotic plant species, restoration of natural hydrological conditions, and implementing prescribed fire to maintain open canopy communities.

Plants

In addition to designated wildlife, YPP provides habitat for several listed plant species. The IRC, which is not a regulatory agency, maintains a separate listing of threatened plant species. The scientists working for this institute have documented plants occurring in conservation areas in the ten southernmost counties of Florida. This initial floristic inventory allowed the IRC to rank plant species to indicate how rare or common these plants are in protected areas. For information on the parameters used to rank these species, refer to the IRC publication "Rare Plants of South Florida: Their History, Conservation, and Restoration" (Gann 2002).

In the IRC publication, the authors provide recommendations to restore south Florida's rare plant diversity. Several of these recommendations, particularly those that protect plants on the preserve and relate to management practices will be followed. More

information on the specific restoration and preservation techniques used will be discussed in the Management Action Plan section of this management plan. The following list highlights those recommendations by the IRC that will be incorporated into the management of YPP.

- Ensure preserve improvements and management activities do not needlessly threaten or destroy rare plant populations.
- Prevent illegal poaching of rare plants and prosecute poachers to the fullest extent of the law.
- Continue to implement an exotic pest plant control program.
- Educate exotic plant control crews about rare plants to ensure they avoid non-target damage.
- Trap feral hogs, if recorded at the preserve, to prevent destruction of vegetation and disturbance of soil due to rooting (foraging).

The following is a brief summary of state listed plant species in taxonomic order that have been classified by the FDACS, including reasons for their decline and the typical plant communities in which they can be found. A complete list of plant species observed at YPP, including designated and invasive exotic species, can be found in Appendix D. Additional designated plant species will be added to the list as they are documented on the preserve.

Royal Fern (*Osmunda regalis var. spectabilis*)
FDACS Commercially Exploited

This fern species can be found in the freshwater swamps and marshes of eastern and central North America, including south Florida. It grows up to four feet in height, and will generally grow equal in width as height if conditions allow. The fern grows at a moderate speed with full sun, or light to moderate shade. Royal ferns are at risk of population decline due to commercial harvesting from natural areas, and it is now illegal to remove the species from the wild without a permit; nurseries are able to cultivate the fern for sale. Management for the protection of the species includes mechanical thinning of the upper canopy vegetation to provide scattered shade to the understory, continuing to control invasive exotic plant species, and restoration of natural hydrological conditions.

Cardinal Airplant/Stiff-leaved Wild Pine (*Tillandsia fasciculata var. densispica*)
FDACS Endangered

Found in hammocks, swamps, and pinelands of Florida, this species grows on the side of mature trees (epiphytic) and is hydrated by rainwater collected by the radiating leaves. Similar to other airplant species, the cardinal airplant population is threatened by habitat destruction, illegal collection, and predation by the Mexican bromeliad weevil (*Metamasius callizona*). This weevil species feeds on the plant material, causing stress and nutrient loss that will slowly kill the plant; the bromeliad weevil has not yet been observed at YPP. Management for the protection of this species includes restoration of natural hydrological conditions, continuing to control invasive exotic plant species, securing against and educating about illegal poaching of the plants, and monitoring for signs of bromeliad weevil predation.

Florida beargrass (*Nolina atopocarpa*)
FDACS Threatened

This native grass species can be found in flatwoods communities of south Florida, and is identified by a clumping growth pattern and small white flowers produced along a vertical stalk. The grass grows in the herbaceous layer under an open canopy. It is threatened by habitat loss due to urban expansion and community succession from a lack of fire. Management for the protection of this species includes continuing to control invasive exotic plant species, restoring natural hydrological conditions, and implementing prescribed fire to maintain the essential open canopy for healthy growth.

v. Biological Diversity

General information on biological diversity and measures used to promote biological diversity can be found in the LSOM Land Management Plan Development and Supplemental Information section. The integrity and diversity of YPP must be protected when and where possible. Land management staff will perform the following actions in this regard.

- Control of invasive exotic vegetation followed by regular maintenance to provide more suitable habitat for native aquatic and terrestrial species.
- Maintain boundaries with signs to eliminate illegal access to the preserve and protect fragile ecosystems.
- Install and maintain “No Berry Picking” signs to inform visitors and vegetation poachers it is illegal to harvest on the preserve.
- Prevent and prosecute poaching and illegal removal activities (palmetto berry harvesting, illegal hunting, orchid collection, etc.).
- Remove any debris and prevent future dumping within the boundary line.
- Conduct on-going species surveys to catalog and monitor plant and wildlife diversity.
- Reduce canopy cover in appropriate habitats to promote herbaceous plant diversity.
- Use adaptive management if monitoring of current techniques indicates a change may be necessary.

C. Cultural Resources

i. Archaeological Features

In 1987, Piper Archaeological Research, Inc. (PARI) conducted an archaeological site inventory of Lee County. They were able to identify 53 additional archaeological sites, increasing the total number of known sites in Lee County to 204. Using the data collected, PARI created a site predictive model and archaeological sensitivity map for the county that highlighted potential area likely to contain additional archaeological sites. YPP is located in a portion of the coastal area identified by PARI as a sensitivity level 2 (Figure 9), which they defined as:

“Areas that contain known archaeological sites that have not been assessed for significance and/or conform to the site predictive model in such a way that there is a high likelihood that unrecorded sites of potential significance are present. If these areas are to be impacted, then they should be subjected to a cultural

*resource assessment survey by a qualified professional archaeologist in order to
1) determine the presence of any archaeological sites in the impact area and/or
2) assess the significance of these sites.” (Austin 1987)*

If archaeological resources are ever identified at the preserve, the site will be managed in coordination with recommendations from the state Division of Historical Resources with periodic monitoring for impacts. If any significant archaeological resources are found and confidentiality is not found to be necessary, they will be incorporated into the public education program. General information on archaeological features in Lee County can be found in the LSOM.

Figure 9: Archaeological Sensitivity



ii. Land Use History

Over the last century, land management and environmental disturbances have occurred on YPP and the surrounding areas. Intensive logging of pine trees in the late 19th century through the 1930s virtually eliminated all virgin pine stands in the southern mixed forests of South Florida. The lack of old growth pine on YPP can probably be attributed to this era of heavy logging; cypress stumps have been found in a few parts of the preserve that would indicate historical logging of cypress trees. Later in the 20th century, areas of previously harvested pine forest underwent “stumping.” This is a process where the stumps of previously logged pine trees were removed from the ground for use by the turpentine industry. There is evidence of this practice on YPP, indicated by the presence of small depressions in the earth where stumps once existed.

While parts of the surrounding areas have been historically used to support the cattle industry, staff found no indication of any historic cattle grazing on the parcels acquired by the county. As evidenced by the 1944 aerial image (Figure 10), the area that is now part of nomination #107 was used as a farm. There are several structures on the western half and there is ditching and furrows in the farm fields.

By 1953 (Figure 11), the farm on #107 appears to have been abandoned. The buildings are gone, and the natural hydrology of the surrounding areas has started to reestablish itself in the southeastern corner of the fields. Around this era, the City of Cape Coral was breaking ground. The preserve is now located on the northern outskirts of the Cape Coral city limits. This urban expansion required new infrastructure, and a series of borrow pits and Burnt Store Road appear simultaneously to the west of the future preserve property by 1968 (Figure 12). One borrow pit was created within the western half of nomination #75, and a smaller impoundment appears in the western portion of #281. The 1960s brought an increase in agricultural development, construction of borrow pits, and an increase in roads and general development.

Over the next decade, the 1972 aerial imagery shows various ORV trails appear and fade, clearing of the eastern half of #107, paving of Burnt Store Road to the west of the preserve, and drought conditions within the wetland communities in and around the preserve area (Figure 13). In 1979, the Charlotte County water plant was built directly north of #107, and clearing for the drainage flowway of the Cape Coral canal system appears to the west of Burnt Store Road (Figure 14).

An extensive network of ORV trails have become established in the area by the 1986 imagery (Figure 15), mostly focused around nomination #75 and #281, which have had a continuing and profound effect on the hydrology of YPP. The drainage ditches around portions of #107, #75 and #281 appear to have been recently cleaned in this aerial, and more areas of cleared vegetation are visible on and off the preserve. An elevated road and square clearing are visible within the western half of #102. The road was constructed of concrete and aggregate, and both the road and clearing have been attributed to agricultural operations. A clearing is also visible at the southeast corner of #281 and a retention pond was constructed on the water plant property at the northwest corner of #107.

In the mid-1990s, the majority of the lands to the east of YPP were integrated into the BWWMA under the management of FWC. This area is now known as the YPU, and

continues to be managed by the state. The first nomination of YPP, #75, was acquired through C20/20 in 1999, and was quickly followed by #102 and #107 in 2000. The 2002 aerial imagery (Figure 16) shows evidence of the county's land management efforts within the acquired parcels, as monocultures of invasive exotic plants were mechanically removed.

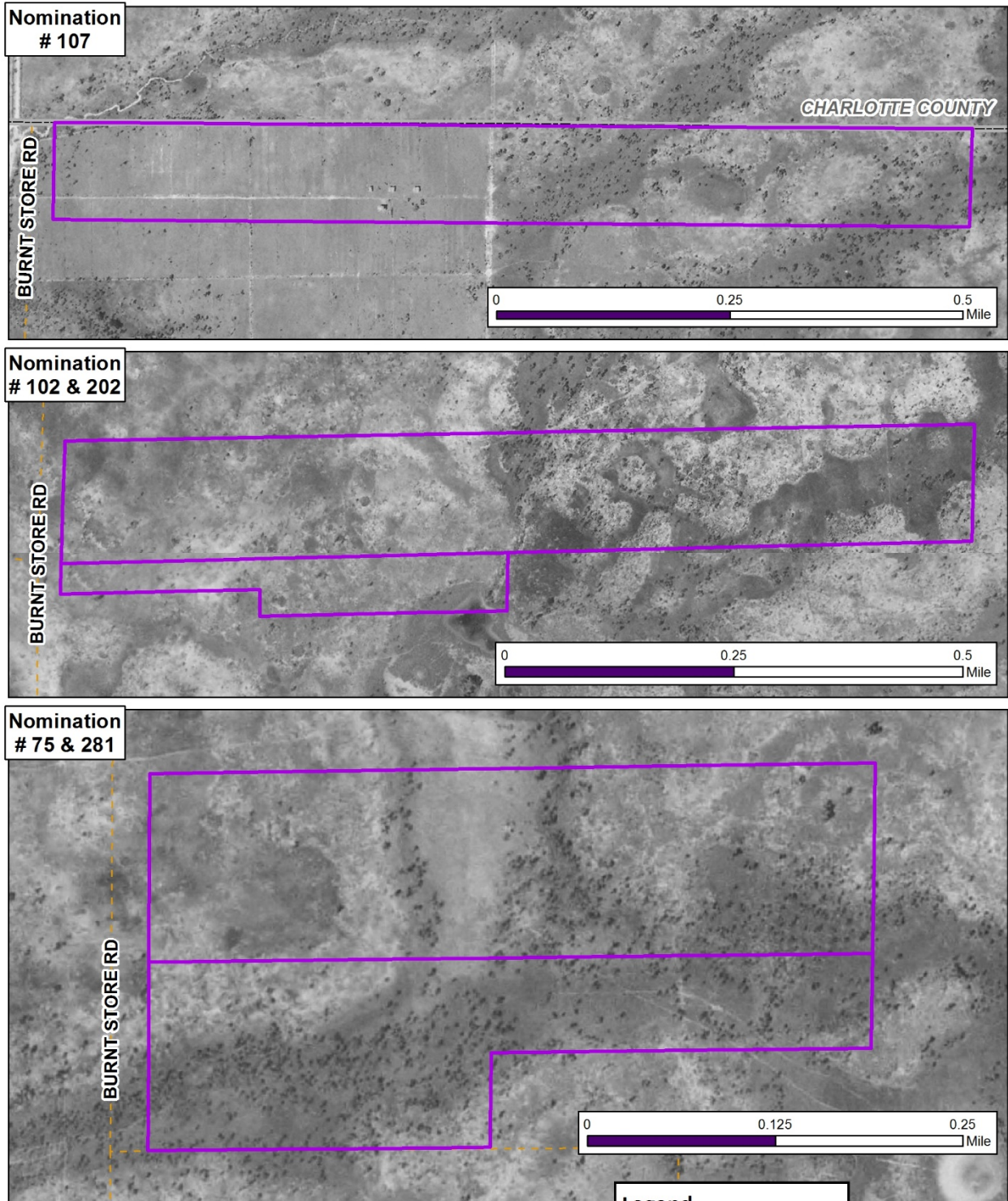
The 2005 aerial (Figure 17) illustrates several changes to the parcels that had been acquired, which included #202 as of 2003. Additional water retention ponds had been constructed on the Charlotte County water plant to the north of #107, residential development appears south of (what would later be) #281, and a small clearing site appears on the western boundary of #102. This clearing was created in 2005 when a decision was made to use conservation lands as a receiving area for hurricane debris from Hurricane Charley. The elevated road was stabilized and heavy equipment was used to level an area just inside the preserve boundary to receive the debris. The preserve did not end up being used for debris and the clearing revegetated.

Nomination #281 was acquired in 2006, and land management efforts across all of the nominations are visible in the 2008 aerial imagery (Figure 18). Perimeter fences and fireline had been installed around the exterior boundaries to prevent ORV trespass and reduce the risk of wildfires to neighboring properties. Fuels reduction was also carried out through mechanical brush thinning and roller chopping in #75. ORV trails had increased in frequency, and many had been used so heavily as to cause compression of underlying limestone and creation of man-made flowways that altered the natural hydrological conditions.

This negative impact to the preserve was the focus of a restoration project that was permitted and designed in 2010 to plug the artificial flowway created by a trail/ swale, and re-create natural sheetflow across the wetland communities of the southern preserve tract. Another focus of this project included the re-grading of a berm/ditch along the northern boundary of #202 to convey water out of the flowway into sheetflow, and extensive removal of invasive exotic plants throughout the preserve. Evidence of initial construction of the restoration project, as well as a reduction in ORV trails due to the perimeter fencing, is visible in the 2010 aerial (Figure 19).

The 2018 aerial (Figure 20) represents the most recent imagery available at the time of this plan. The borrow pond in #75 has begun to fill in around the edges (some naturally and some with manual reshaping) and become vegetated with freshwater emergent plant species, such as cattails. Development of the areas surrounding the preserve had slowed, and only two residential properties had appeared along the southern boundary of #281. ORV trails continued to appear on neighboring properties, including the YPU, and several new fences installed along the boundary of the state property can be seen in the aerial.

Figure 10: Historical Aerial (1944)



Yucca Pens Preserve

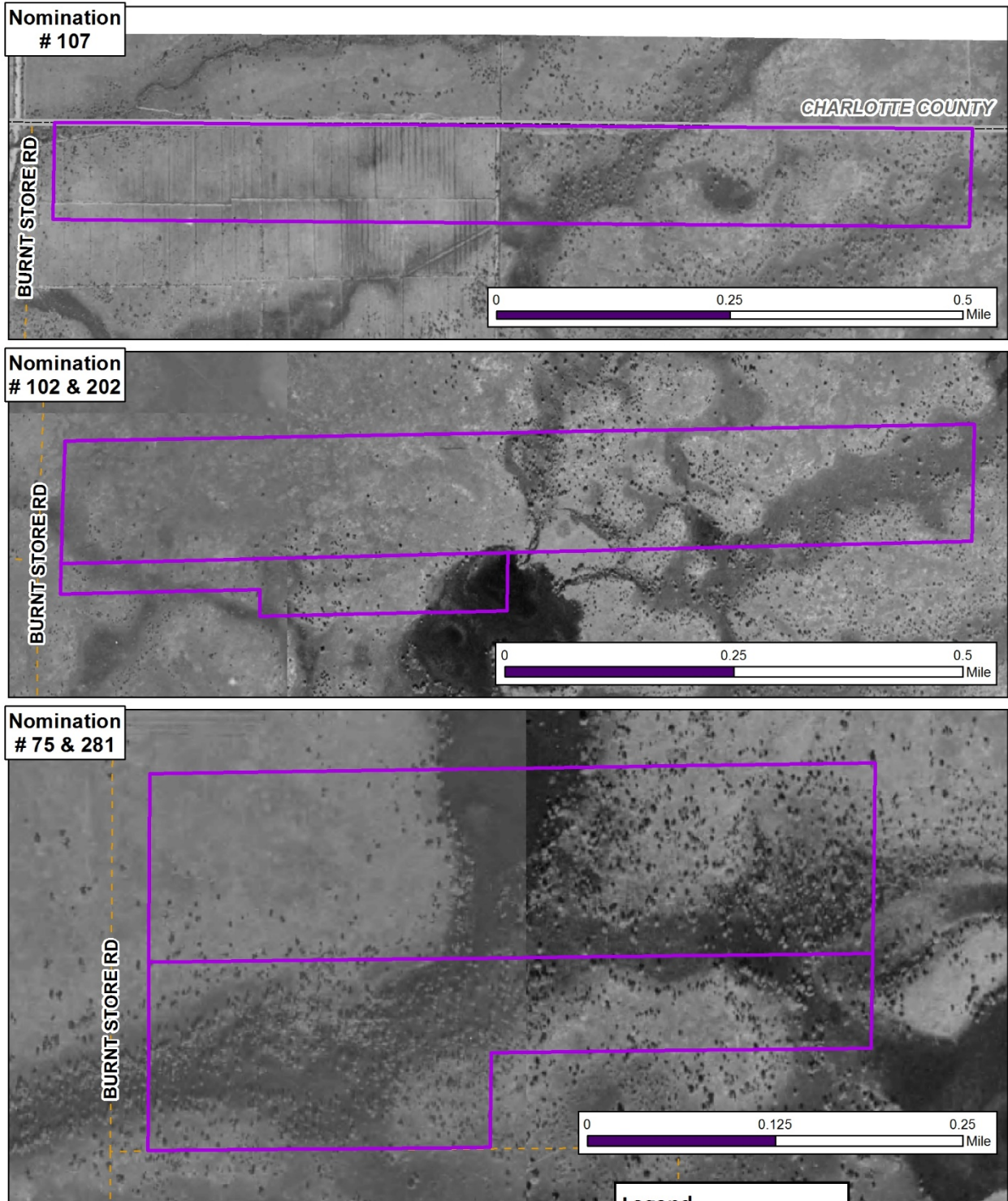
This is not a survey.
Land Management staff have prepared this map
for informational and planning purposes.

Legend

-  Preserve Boundary
-  2018 Roads
-  County Boundary



Figure 11: Historical Aerial (1953)



Yucca Pens Preserve

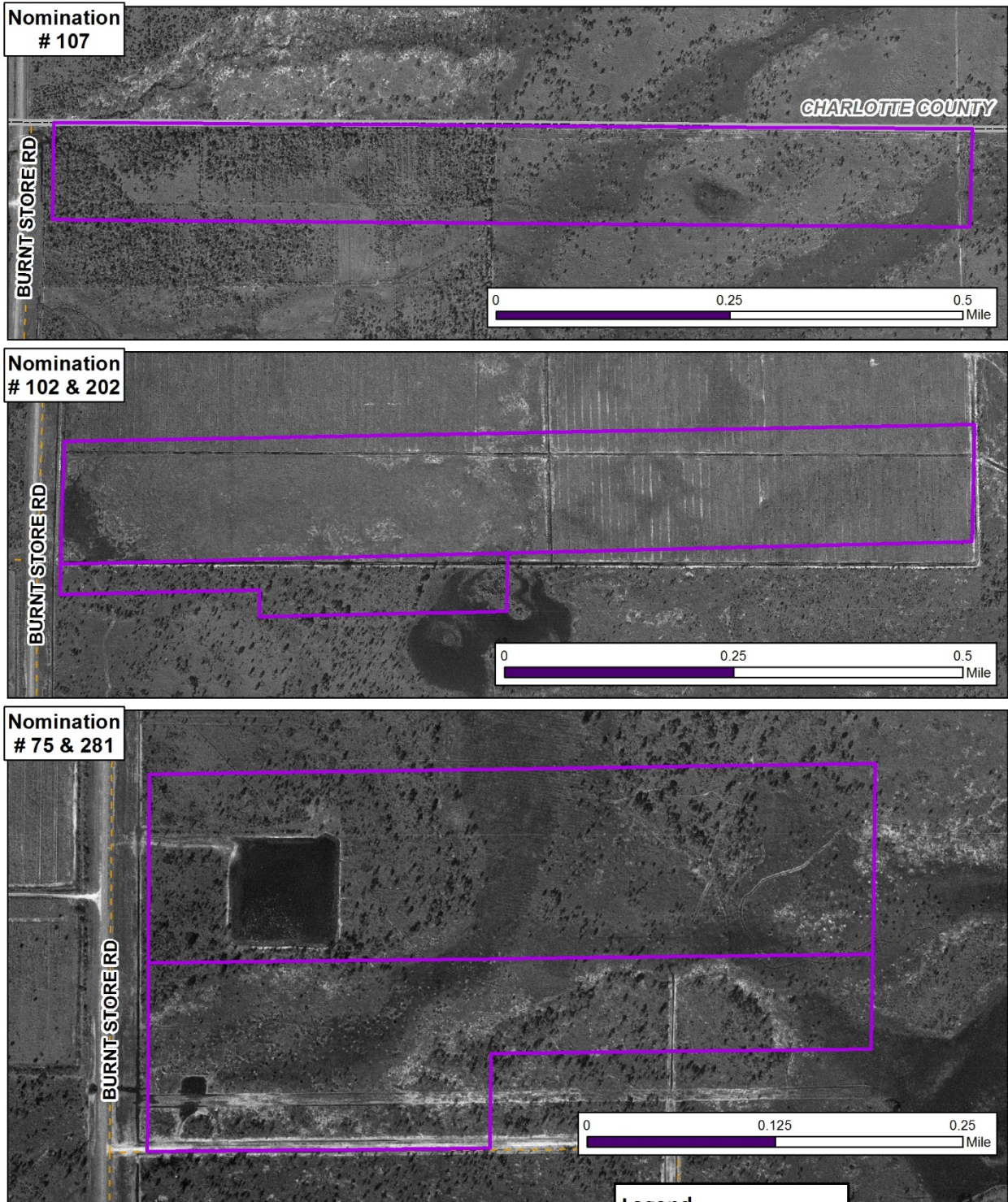
This is not a survey.
Land Management staff have prepared this map
for informational and planning purposes.

Legend

-  Preserve Boundary
-  2018 Roads
-  County Boundary



Figure 12: Historical Aerial (1968)



Yucca Pens Preserve

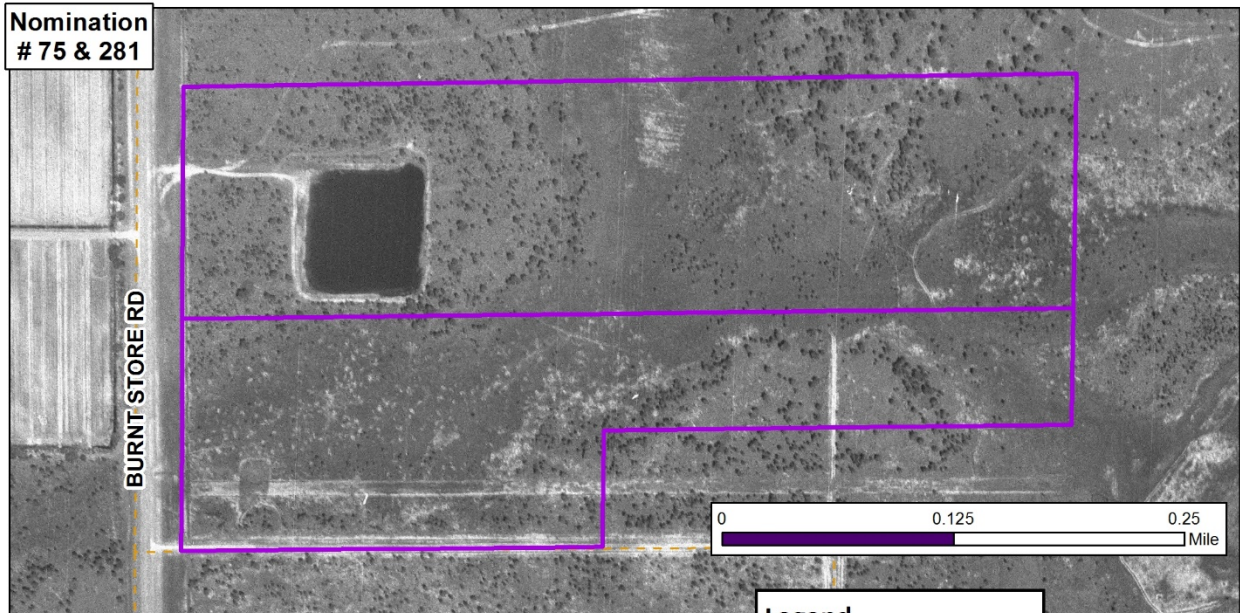
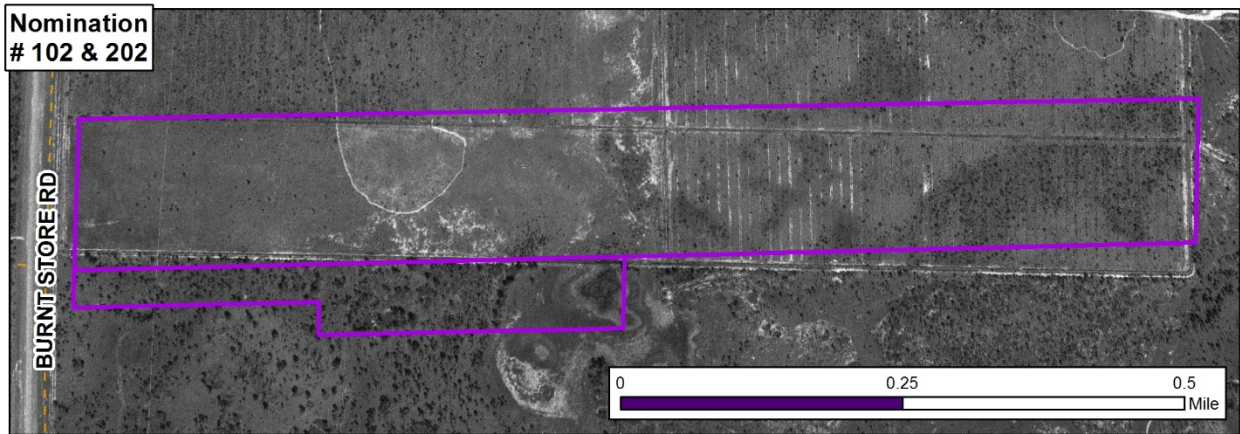
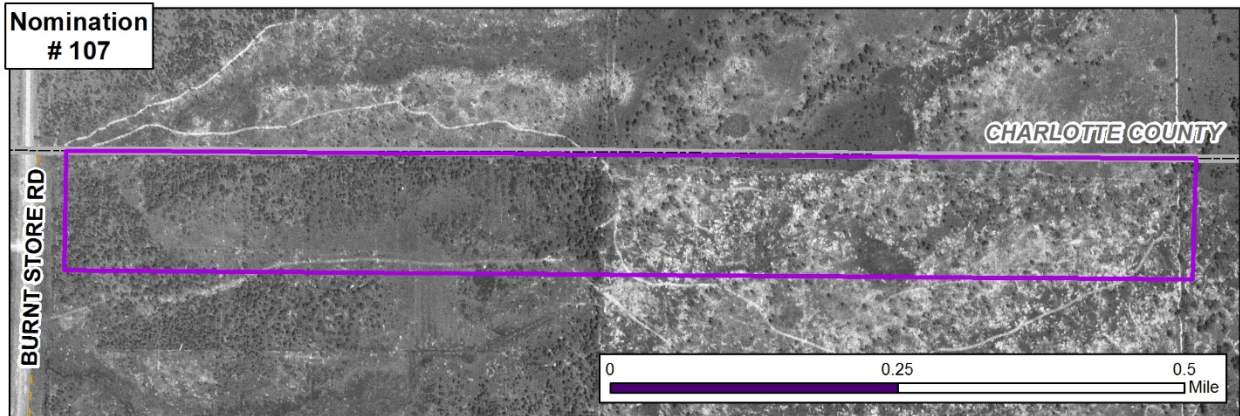
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Legend

-  Preserve Boundary
-  2018 Roads
-  County Boundary



Figure 13: Historical Aerial (1972)



Yucca Pens Preserve

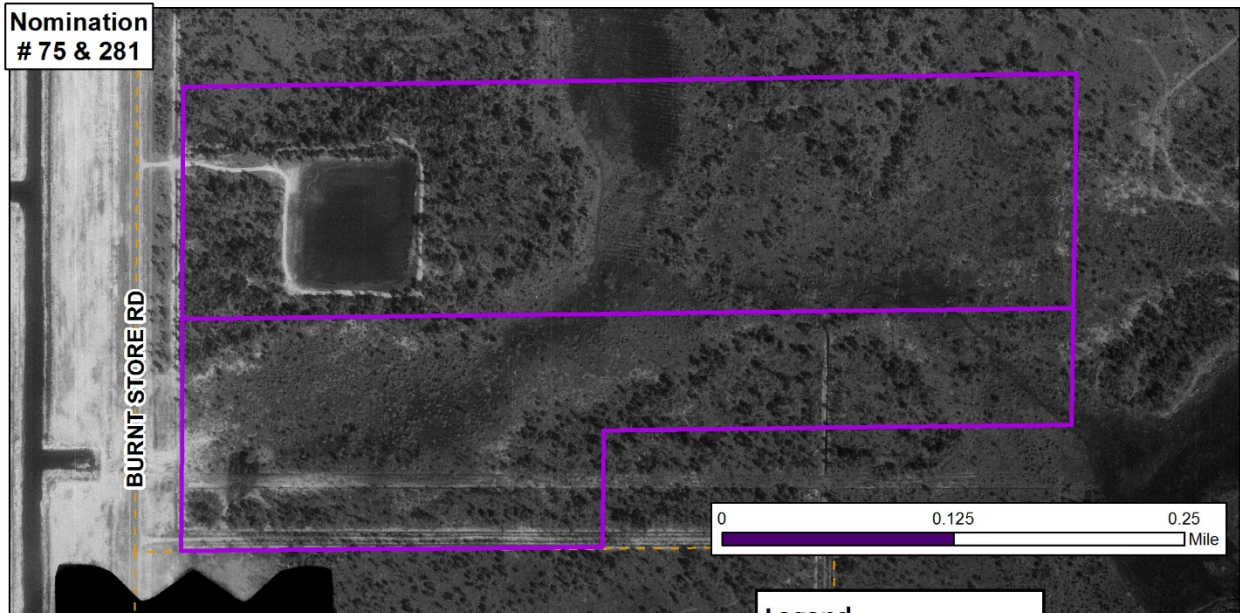
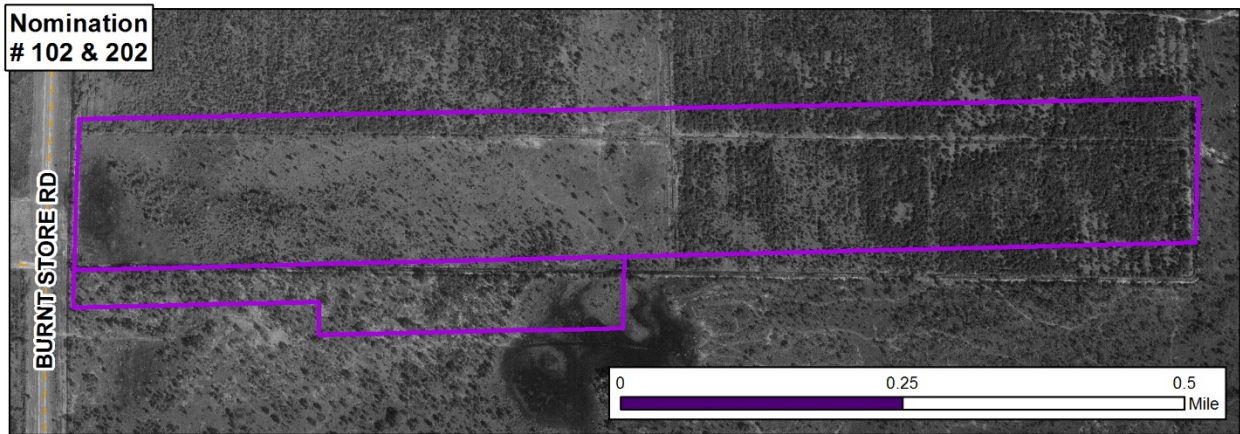
This is not a survey.
Land Management staff have prepared this map
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Legend

-  Preserve Boundary
-  2018 Roads
-  County Boundary



Figure 14: Historical Aerial (1979)



Yucca Pens Preserve

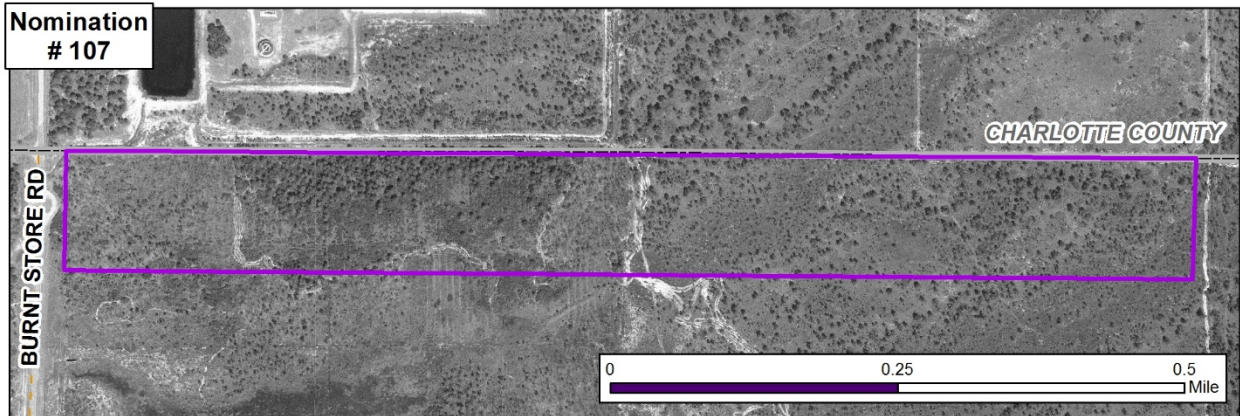
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Land Management staff have prepared this map
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Legend

-  Preserve Boundary
-  2018 Roads
-  County Boundary



Figure 15: Historical Aerial (1986)



Yucca Pens Preserve

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Legend

-  Preserve Boundary
-  2018 Roads
-  County Boundary



Figure 16: Historical Aerial (2002)



Yucca Pens Preserve

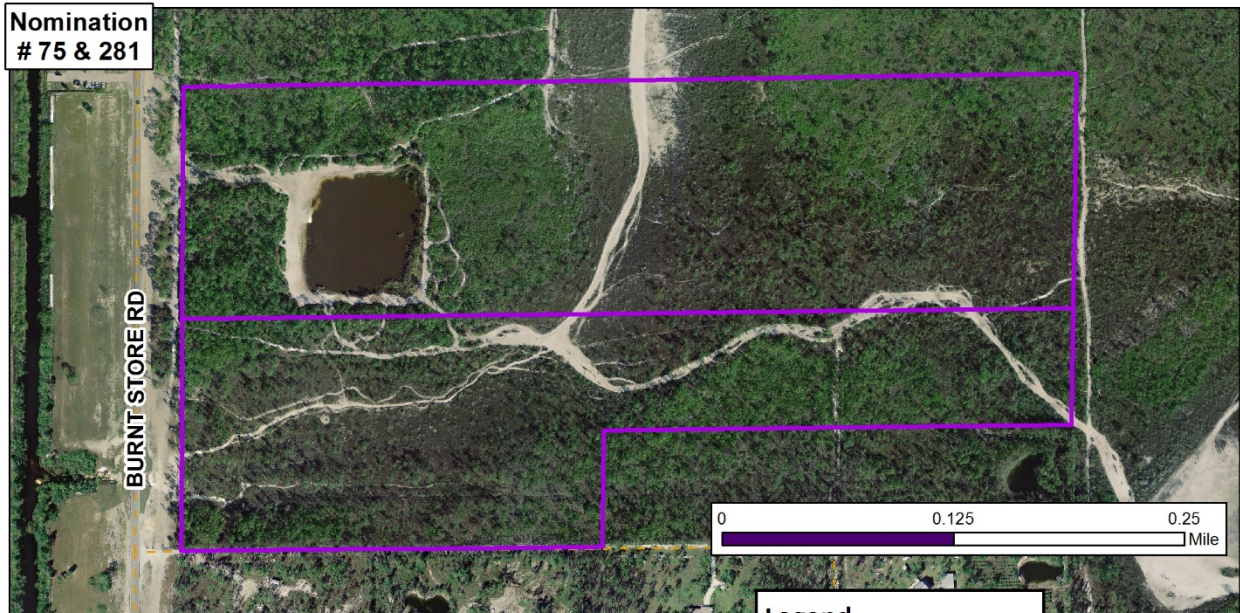
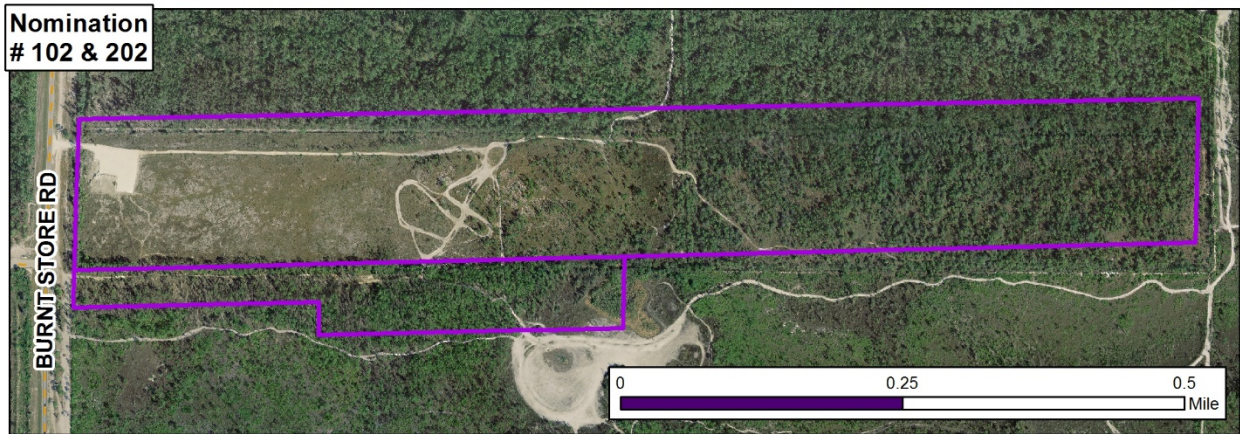
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Legend

-  Preserve Boundary
-  2018 Roads
-  County Boundary



Figure 17: Historical Aerial (2005)



Yucca Pens Preserve

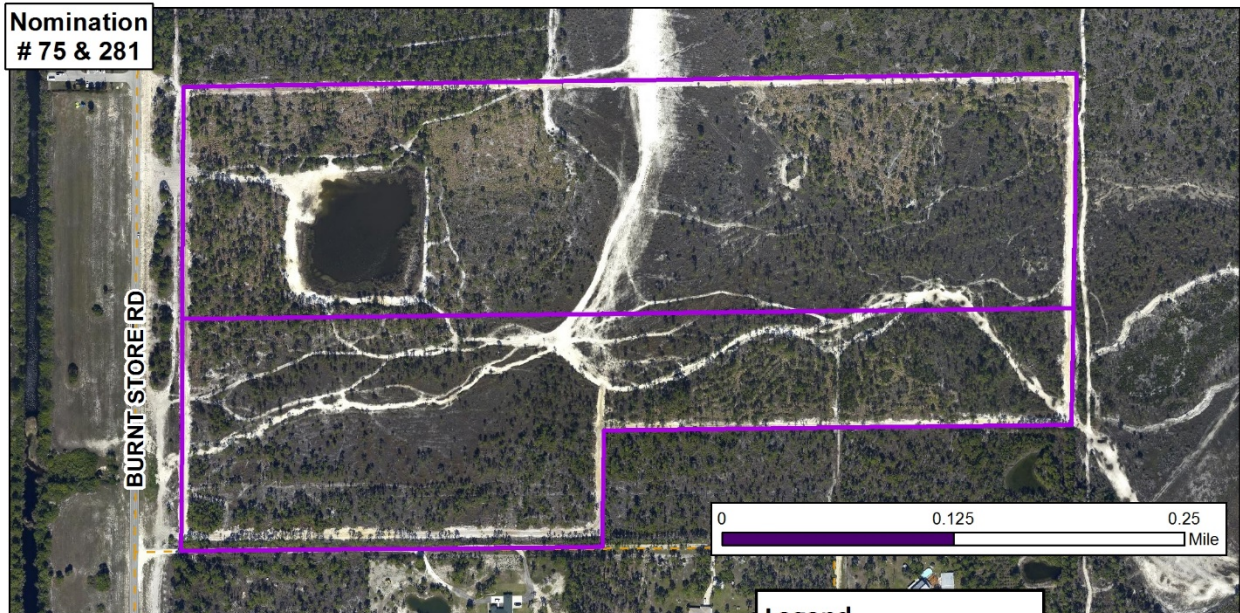
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Land Management staff have prepared this map
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Legend

-  Preserve Boundary
-  2018 Roads
-  County Boundary



Figure 18: Historical Aerial (2008)



Yucca Pens Preserve

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Legend

-  Preserve Boundary
-  2018 Roads
-  County Boundary



Figure 19: Historical Aerial (2010)



Yucca Pens Preserve

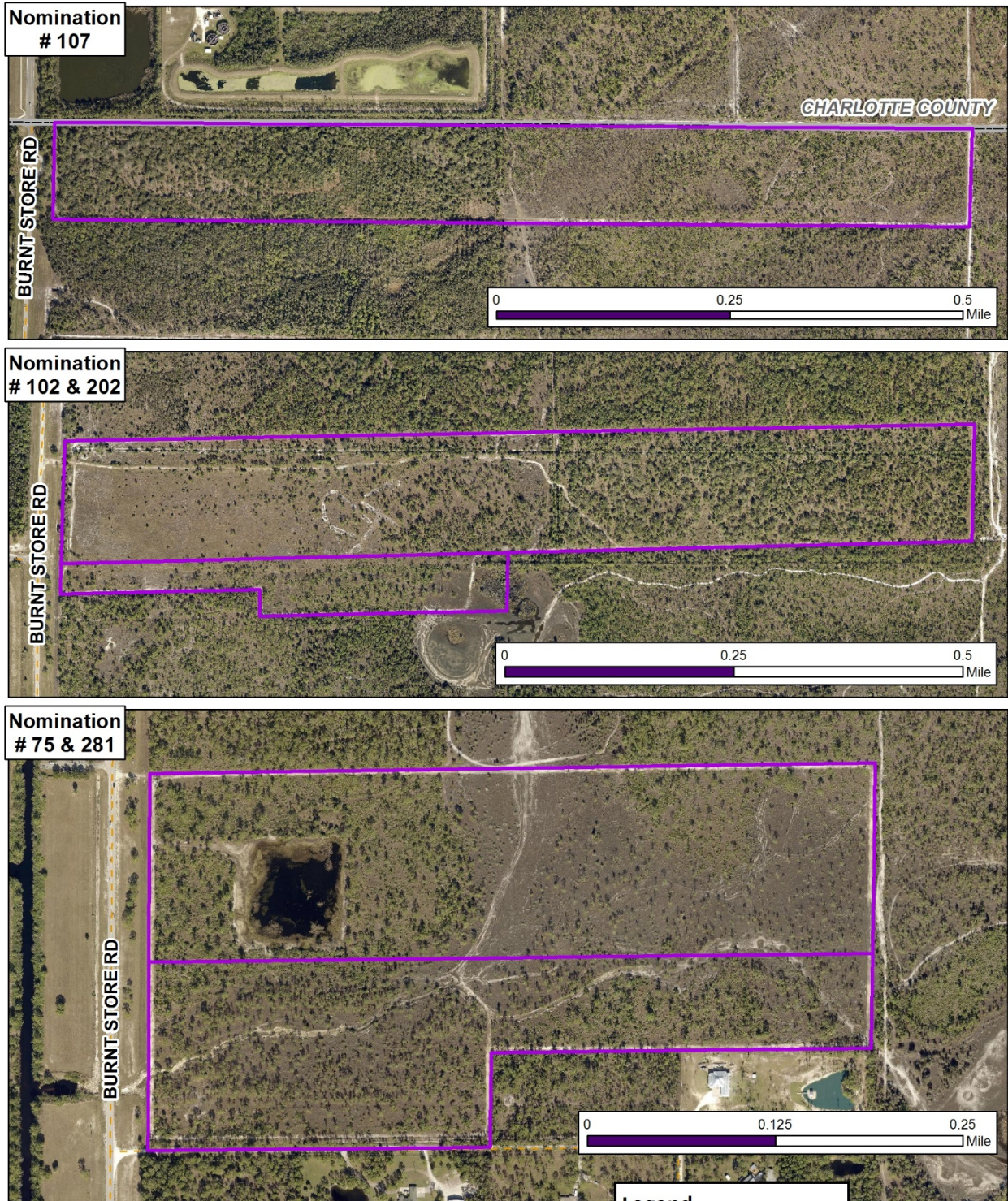
This is not a survey.
Land Management staff have prepared this map
for informational and planning purposes.

Legend

-  Preserve Boundary
-  2018 Roads
-  County Boundary



Figure 20: Historical Aerial (2018)



Yucca Pens Preserve

This is not a survey.
Land Management staff have prepared this map
for informational and planning purposes.

Legend

-  Preserve Boundary
-  2018 Roads
-  County Boundary



iii. Public Interest

YPP was acquired through the C20/20 program for the preservation of environmentally sensitive lands, high probability for state and federally-listed species, floodplain protection, and the potential to provide water quality protection and enhancements. In the past 10 years, one public access pedestrian walk-through gate was added to nomination #75 and an address for the location was created for the Lee County Department of Public Safety E-911 program to dispatch first responders in case of an emergency. Visitors can use the preserve for resource-based recreation, such as hiking on firelines, birdwatching, fishing, or nature study and photography. Lee County Bird Patrol volunteers have utilized #75/281 and #107 to conduct bird surveys, and signs of visitor presence have indicated light use of the firelines by pedestrians; a small number of isolated cases of fence cutting and ORV trespass have also occurred within the reporting period. If public use increases and it is deemed to be beneficial, C20/20 staff would consider adding public access pedestrian gates to additional portions of YPP for resource-based recreation opportunities. C20/20 rangers continue to coordinate with state and local law enforcement agencies to enforce rules.

V. Factors Influencing Management

A. Natural Trends and Disturbances

Natural trends and disturbances affecting natural communities at YPP include hurricanes, wildfires, occasional freezes, plant disease, invasive plants, and the cycle of wet and dry seasons. Implementing management activities will take all of these into account. For example, an unusually rainy wet season could cause added stress to a pine community and leave it vulnerable to pine beetles. Pines killed by beetles could become a wildfire hazard in the dry season or a falling hazard in hurricane season. Land management staff would take preemptive action in this case, and possibly fell dead trees to avoid any future hazards.

Wildfires caused by lightning is a common natural occurrence in Florida, and is the historical basis of a natural fire regime in southeastern ecosystems. There have been two documented wildfires on YPP since acquisition of the preserve, and both occurred in 2008. Wildfire broke out in February 2008 near the western boundary of #102 and burned three and a half acres; the origin was undetermined. A second fire in April 2008 was started by a lightning strike on an adjacent property to the south, and burned nearly 24 acres of the eastern half of parcel #107.

Staff has worked closely with local fire districts and the Florida Forest Service (FFS) to provide cooperation in planning and wildfire response. Efforts will be made to coordinate with FFS to limit the use of plow lines to control wildfire to cases where lives or private property are at risk. Staff maintain a network of perimeter firelines at the preserve in an attempt to reduce the possibility of a wildfire leaving YPP and damaging surrounding values. These firelines also help limit the ability of an external wildfire to enter the preserve from the outside.

The prescribed fire management program also helps reduce wildfire risk by mimicking the natural fire regime, while being carefully planned and controlled by land management staff. To date, three prescribed burns have been conducted within YPP:

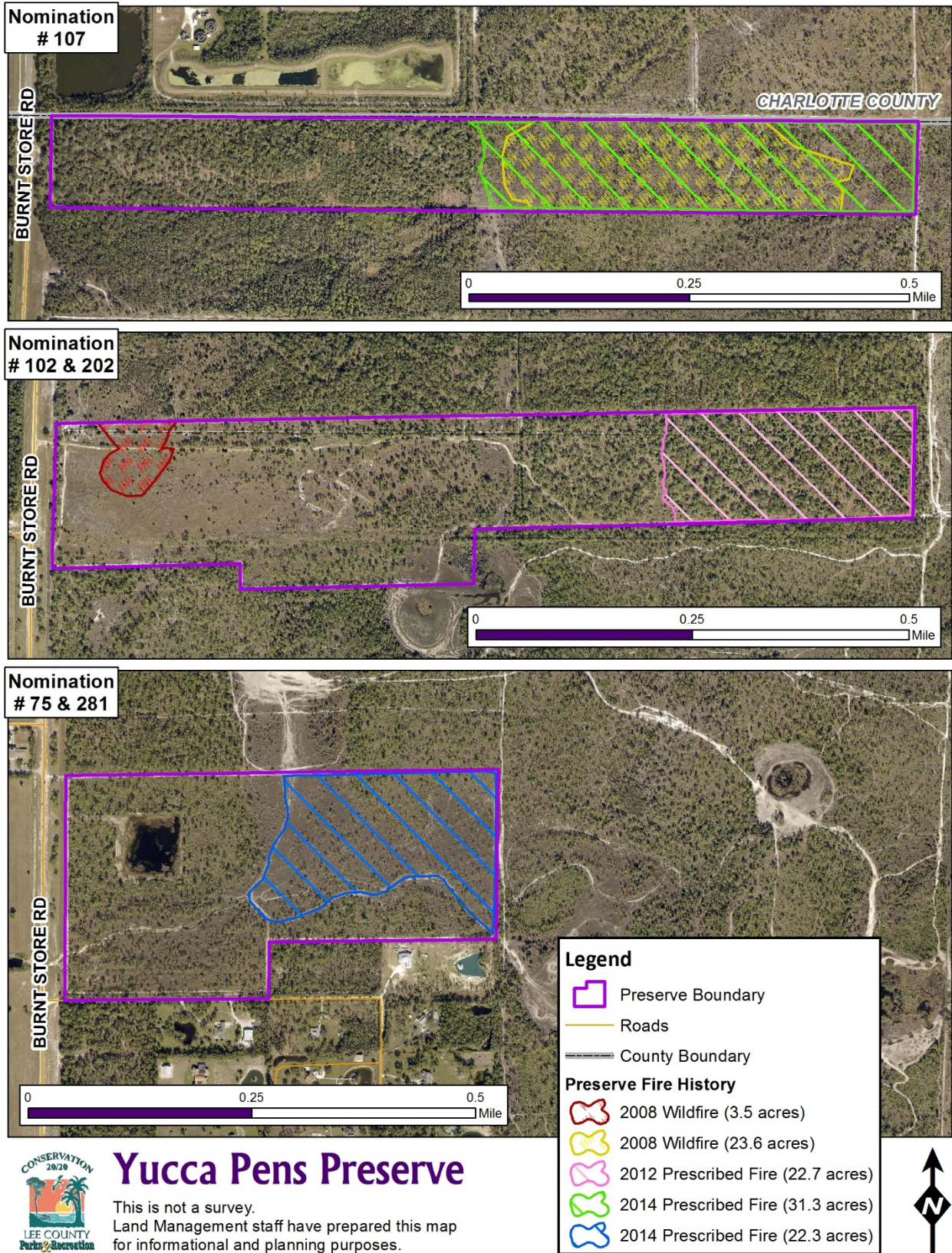
one in November 2012 that burned nearly 23 acres in the eastern half of #102 and #202; one in April 2014 that burned 31 acres in the eastern half of #107; and one in June 2014 that burned 22 acres in the eastern half of #75. The prescribed fire timing will be affected by seasonal weather patterns and management will respond accordingly. Past delays in establishing a fire regime can be attributed to poor weather cycles and the presence of heavy exotic plant infestations.

YPP is also influenced by seasonal flooding during the rainy summer season. C20/20 staff schedule management projects such as chemical invasive exotic plant treatments and maintenance of firelines by heavy equipment around the seasonal conditions to prevent negative impacts to the natural communities at the preserve. Soil rutting or disturbance, herbicide runoff, herbicide impacts to non-target plant species, compaction of soils, and alteration of hydrological conditions are some of the impacts negated by proper planning.

Designated species also influence scheduling of management projects at the preserve. Use of heavy equipment to conduct mechanical fuels reduction, such as roller chopping, will be scheduled around the colder weather months to reduce risk to gopher tortoises (*Gopherus polyphemus*). Nesting of bald eagles (*Haliaeetus leucocephalus*), while not yet observed at YPP, would require restrictions on heavy equipment use and establishment of buffers to prevent nest disturbances.

General information on natural trends and disturbances influencing native communities and management is included in the LSOM Land Stewardship Plan Development and Supplemental Information section. Figure 21 illustrates the fire history recorded at the preserve since acquisition through C20/20.

Figure 21: Preserve Fire History



B. Internal Influences

Many of the internal influences on YPP can be traced to human-caused alterations to the natural communities for agricultural operations or recreational ORV use. Each of the preserve parcels has historically been, or continue to be impacted by this land use history. Figure 22, included after the External Influences section, illustrates the natural and man-made influences that land managers take into consideration when planning management or restoration projects. Not all of the influences have been negative, but have caused a change to the existing state of the preserve.

Some of the positive internal influences to YPP include removed invasive exotic plants, perimeter fences and firelines, vehicle and pedestrian access gates, restored flowways, and photo monitoring plots. A hydrologic restoration project, further discussed in the Hydrological Components and Watershed section of this plan, included removal of invasive exotic plants and the creation of earthen plugs within an old man-made trail-swale that intentionally impacts the flow of water within the flowway. Vehicle access gates were installed when the perimeter fences were installed to secure the preserve boundary from ORV trespass while providing access for staff and contactors. Additionally, perimeter firelines were added to provide protection from wildfire threat to neighboring property and to help control prescribed fires. A pedestrian gate was later added to nomination #75 to provide public access for resource-based recreation. Photo points within nomination #107 were established to monitor the restoration of one of the abandoned agricultural fields that had been cleared, furrowed, and revegetated with a monoculture of invasive exotic plants.

The history of agriculture has continued to affect the hydrologic functions of the preserve, from the excavation of several ditch flowways to the furrows from row cropping activities. These ditches affect the manner in which water runs off of the property and can lead to erosion and soil disturbance. Berms created from the ditch spoil have provided disturbed soil that allowed invasive exotic plants to gain a foothold. A variety of woody and herbaceous invasive exotic plants have grown on these piles in the past, and continue to require on-going maintenance treatments. The areas cleared for agriculture, borrow ponds, and hurricane debris staging preparations also caused disturbances to the soil and plant communities, which became invaded by invasive exotics when the areas were abandoned.

The hydrological flow has also been affected by the historic use of the area for ORV activities. The repeated use of some trails eroded the land and compressed the underlying limestone, which formed trail-swale flowways that continue to negatively impact the natural sheetflow of the preserve. Some of these impacts were addressed by the restoration project completed in 2011, but flowways not included in the project continue to affect the sheetflow of the site.

Use of ORVs and heavy equipment by staff to access the site or maintain the firelines has the potential to cause similar impacts to the hydrological flow, but seasonal timing and restricting traffic to perimeter firelines that are already disturbed reduces impacts to the natural communities. Due to hydrologic concerns, firelines are being converted to mow-only grass lines where feasible. ORVs also act as vectors for invasive exotic plant seeds and materials, introducing plants and moving them between communities, and

C20/20 requires all vehicles and equipment (contractor or county-owned) be cleaned prior to use on any preserve.

Other negative internal influences from historical recreation include the use of the areas for large parties and illegal shooting/hunting. These uses are typically accompanied by the dumping of garbage and waste on the preserve. Installation of perimeter fences reduced the occurrence of these incidents, and C20/20 rangers continue to coordinate with state and local law enforcement agencies to educate and enforce trespass policies. Given the illegal nature and unpredictable patterns of dumping, garbage may be found in the future and C20/20 rangers and staff will continue to remove debris as it is found during the tri-annual site inspections or patrols.

C. External Influences

Residential and industrial development, recreational ORV use, and state-managed conservation lands are the largest external influences to YPP. These influences are not all negative, but some have the potential to cause negative impacts to the preserve or natural processes. Artificial light pollution, illegal activities, debris dumping, hydrologic alterations, invasive exotic plant vectors, exotic wildlife movement corridors, sources of water pollutants, habitat destruction, and habitat fragmentation are negative impacts caused by external influences to the preserve around which C20/20 staff design management projects. Figure 22 illustrates the visible external influences to YPP.

The largely undeveloped properties neighboring the various parcels of the preserve are heavily used for recreational ORV trails, an activity that historically occurred on YPP. These users typically trespass from other properties adjacent to YPP, both private and publicly owned. Impacts to the preserve from this activity include alteration of hydrological flow of the area, transport invasive exotic plant seeds and materials between communities, and can be linked to illegal activities such as debris dumping or trespassing. This influence has greatly reduced over the years thanks to the coordination of C20/20 rangers with local and state law enforcement agencies, as well as the presence of the perimeter fencing.

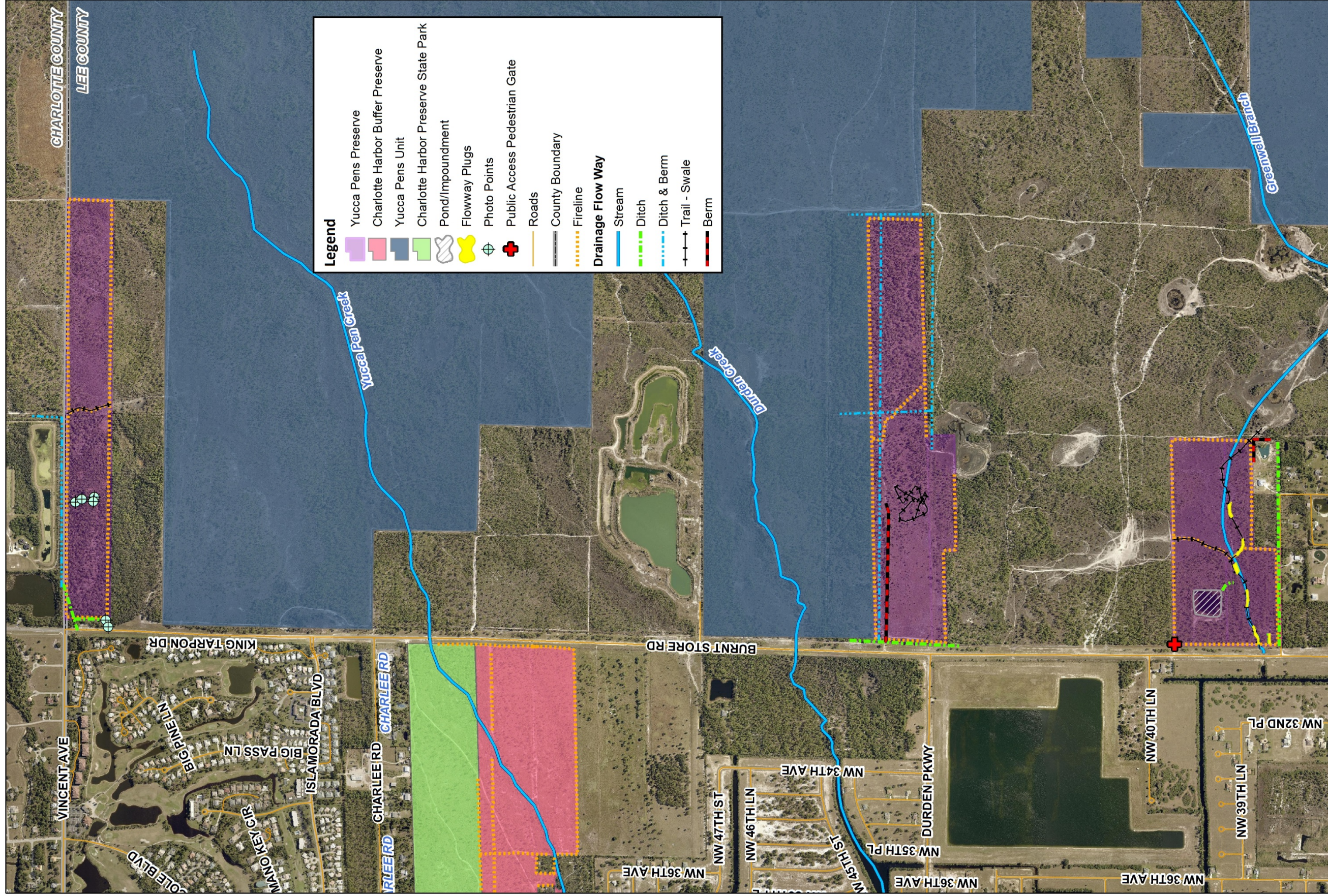
Neighboring properties in the area that have been developed for residential or industrial expansion, and the associated infrastructure contribute to a variety of impacts to the preserve. The extensive Cape Coral drainage canal system, Burnt Store Water Treatment Plant, historical agricultural land uses, and construction of roads cause barriers to the natural hydrologic sheetflow and wildlife of the area. Elevated road features, such as Burnt Store Road, block wildlife from easily crossing between communities and funnel water into the drainage flowways through series of culverts, ditches and canals. Due to urban expansion, large roadway expansion projects have been designed that could worsen these impacts; Burnt Store Road from Van Buren Parkway to the Charlotte County line is scheduled for a Project Development and Environmental Study in 2019, with construction planned as early as 2031 to 2040 (Lee/Charlotte County-Punta Gorda MPO 2018).

The Burnt Store Water Treatment Plant, located north of nomination #107, features multiple storm water retention ponds and a drainage ditch along the boundary of the two properties that impacts the preserve. During flood events, water from the retention ponds and ditch flow into the preserve before draining into the roadside canal system.

Invasive exotic plant seeds or plant materials, exotic fish species, and water quality pollutants (as well as debris) have the potential to enter the preserve during these events. The high water level of the ditch also overflows onto the northern fireline of #107 and prevents C20/20 staff from accessing a portion of the site until waters recede.

A positive external influence for the preserve is its proximity to the YPU and BWWMA, one of the largest swaths of undisturbed wet flatwoods in southwest Florida. The large expanse of conservation land does provide movement corridors and habitat for a variety of native wildlife and plant communities. The conservation complex created by the unity of the state-managed and county-managed properties provides an opportunity to restore historical natural sheetflow over a large portion of the SFWMD Charlotte Harbor and North Coastal drainage basins, and provides habitat to state and federally-designated wildlife species that require large home ranges, such as the Florida sandhill crane.

Figure 22: Internal and External Influences



Yucca Pens Preserve



This is not a survey. Land Management staff have prepared this map for informational and planning purposes.



D. Legal Obligations and Constraints

i. Permitting

Land management activities at YPP may require permits from several regulatory agencies. Any hydrological restoration to the site may require permits from the Florida Department of Environmental Protection, SFWMD, the United States Army Corps of Engineers, and recommendations from the FWC and USFWS. Restoration projects requiring use of heavy equipment or tree removal may require notification to the Lee County Department of Community Development, and significant soil disturbances during a project may require prior permitting through the state Division of Historical Resources and an authorization certificate from Lee County. The use of prescribed fire will require obtaining an FFS burn permit by a certified Prescribed Burn Manager.

ii. Other Legal Constraints

There are few restrictions to management activities at the preserve. A variety of public utility easements once applied to some of the nomination parcels, but these were voided when the utility infrastructure was not constructed. Public utility easements may appear if the private property surrounding select parcels is developed, and land managers will take any future constraints into consideration as they develop. There are currently no easements existing on the preserve property.

Constraints to access to the preserve may appear with the expansion of Burnt Store Road, and currently exist with the separation of the tracts. C20/20 staff currently utilize the eastern right-of-way and road shoulder of Burnt Store Road to travel between preserve parcels, and use the right-of-way to park vehicles and trailers to load or unload equipment. Visitors to the preserve also utilize these areas outside the boundaries for parking, because there is no parking area available. C20/20 will work with Lee County Department of Transportation to ensure future access to the preserve as the Burnt Store Road expansion project is planned.

iii. Relationship to Other Plans

The Lee Plan, Lee County's comprehensive plan, depicts Lee County as it is planned to appear in the year 2030. Several themes have been identified as having "great importance as Lee County approaches the planning horizon" (LCDCD 2018), and include:

- The growth patterns of the county will continue to be dictated by the Future Land Use map.
- The continued protection of the county's traditional economic base.
- The expansion of cultural, educational, and recreational opportunities.
- A significant expansion in the county's physical and social infrastructure.

The entire Lee Plan is available online at:

<http://www.leegov.com/dcd/Documents/Planning/LeePlan/Leeplan.pdf>. The sections of the Lee Plan that may pertain to C20/20 preserves have been identified in the LSOM.

E. Management Constraints

One of the larger constraints for management projects within C20/20 preserves is limited funding, which can potentially restrict invasive exotic plant treatments, hydrologic restoration, and prescribed fire application. Land management funding is currently provided through the general fund, and is allocated on an annual basis. This annual budget is currently inadequate to fulfill both the restoration and management activities for this and other C20/20 preserves. Efforts to obtain additional monies through grants or funding budgeted for mitigation of public infrastructure projects will be pursued. These monies will be used to supplement the operations budget to meet the management goals in a timely manner.

Additional constraints include seasonal limitations for vehicular access, the brief dry season for conducting land management activities, increasing urbanization pressures adjacent to the preserve, and altered hydrological conditions that impact timing for land management activities. The majority of the preserve is classified as seasonally influenced wetlands, so management activities and most vehicular site access is limited to the dry season between December and April. Altered hydrological conditions created by the trail-swale and ditch flowways, as well as minor impacts caused by perimeter firelines, cause portions of the preserve to dry down in unpredictable or unseasonal patterns; this affects timing of management projects, invasive exotic plant treatments, site access, and application of prescribed fire.

Hydrological conditions may also be impacted by expanding urban development, such as the expansion of Burnt Store Road. This development could alter the drainage flowways that would drain more water from the preserve. Additional development could also cause site access issues as the area becomes a construction zone, will create additional smoke management obstacles, and will create a vector for invasive exotic plant seeds as the soils become disturbed during clearing and construction.

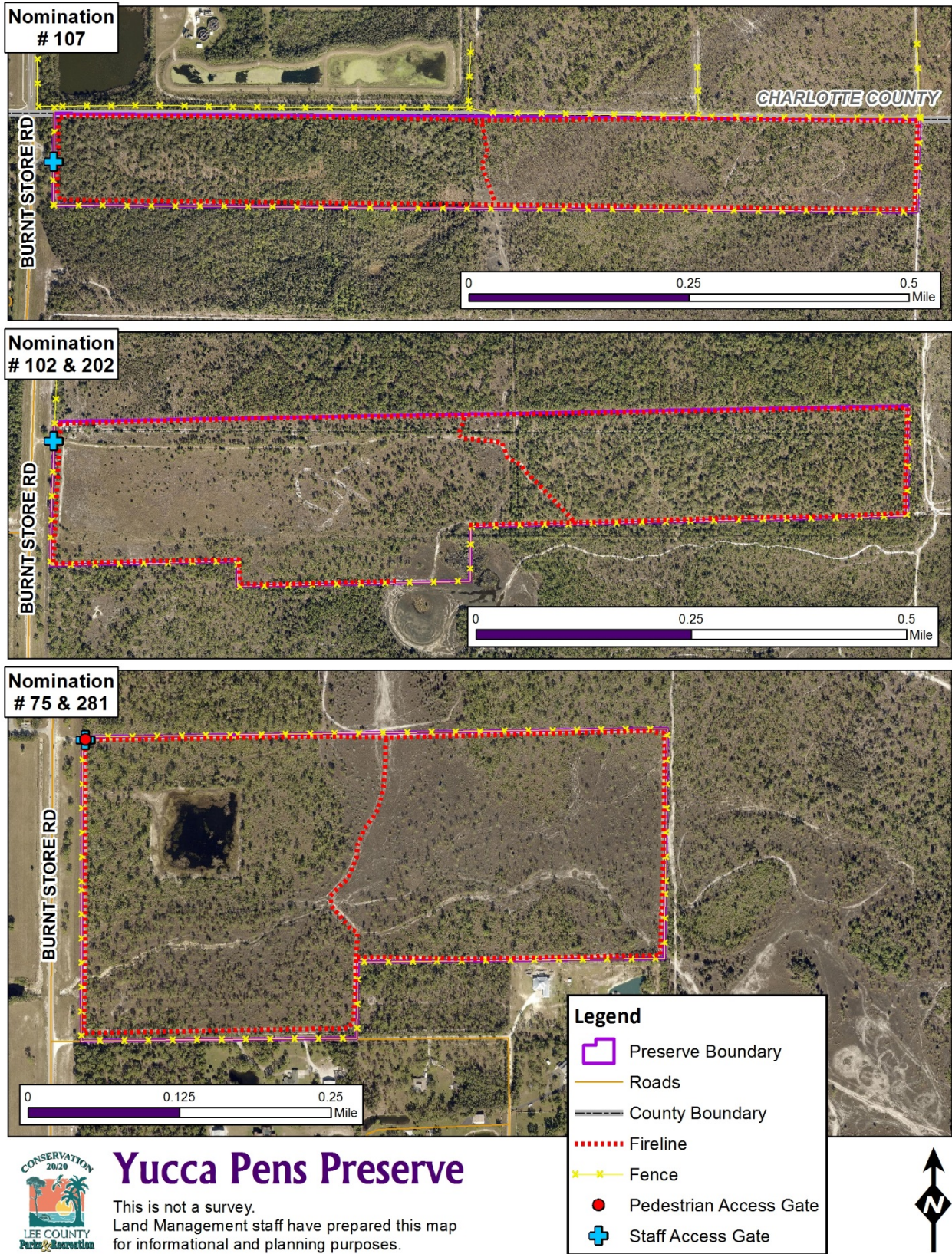
F. Public Access and Resource-Based Recreation

One public access walk-through gate has been installed at the northwestern corner of nomination #75 at 3941 Burnt Store Road (Cape Coral, Florida 33993) to provide resource-based recreational opportunities to pedestrians. Approved recreation at the preserve includes hiking without marked trails, hiking on firelines as trails, and nature observation or photography. No parking areas, amenities, or marked hiking trails are planned for the preserve. Due to the severe limitations of the soil types and sensitivity of plant communities found at the preserve, no public access types other than pedestrians will be permitted; equestrian, bicycle and ORV use would cause excessive and permanent damages to the natural communities. Future goals include adding marked trails and rerouting some of the firelines to better support their use as unmarked trails.

Other opportunities for recreation in proximity to YPP includes hiking at the state-managed YPU, BWWMA or Charlotte Harbor Preserve State Park; hiking at C20/20's Charlotte Harbor Buffer Preserve; golfing at the City of Cape Coral Parks' Coral Oaks Golf Course; or boating from the City of Cape Coral Parks' Burnt Store Boat Ramp to the state-managed Gasparilla Sound-Charlotte Harbor or Matlacha Pass Aquatic Preserves, or USFWS' Matlacha Pass National Wildlife Refuge. All of the opportunities

listed are within 6 miles of the preserve. Refer to Figure 2 in the Location and Site Description section of this plan for an illustration of these recreation facilities near YPP.

Figure 23: Preserve Public Access



G. Acquisition

YPP was acquired as five separate nomination parcels for a total cost of \$1,647,400 between 1999 and 2006 for nearly 232 total acres. All of the acquired nominations were significant to the C20/20 program due to their environmental sensitivity and their proximity to other managed conservation lands. The parcels were nominated through the C20/20 program and were reviewed and recommended for acquisition by the Conservation Land Acquisition and Stewardship Advisory Committee before being presented to the Lee County Board of County Commissioners for purchase approval. C20/20 is allocated an annual fund from the general operations budget for the acquisition and management of conservation lands.

Nomination #75 was the first parcel acquired in October 1999 for \$100,000 that included 38.9 acres. Nominations #102 and #107 were both acquired in March 2000; #102 cost \$310,000 for 83 acres, and #107 cost \$264,000 for 66 acres. Nomination #202 followed for acquisition in March 2003 for \$72,500 acres that included 14.5 acres, and #281 was the most recent acquisition in January 2006 for \$900,900 that included 28.6 acres.

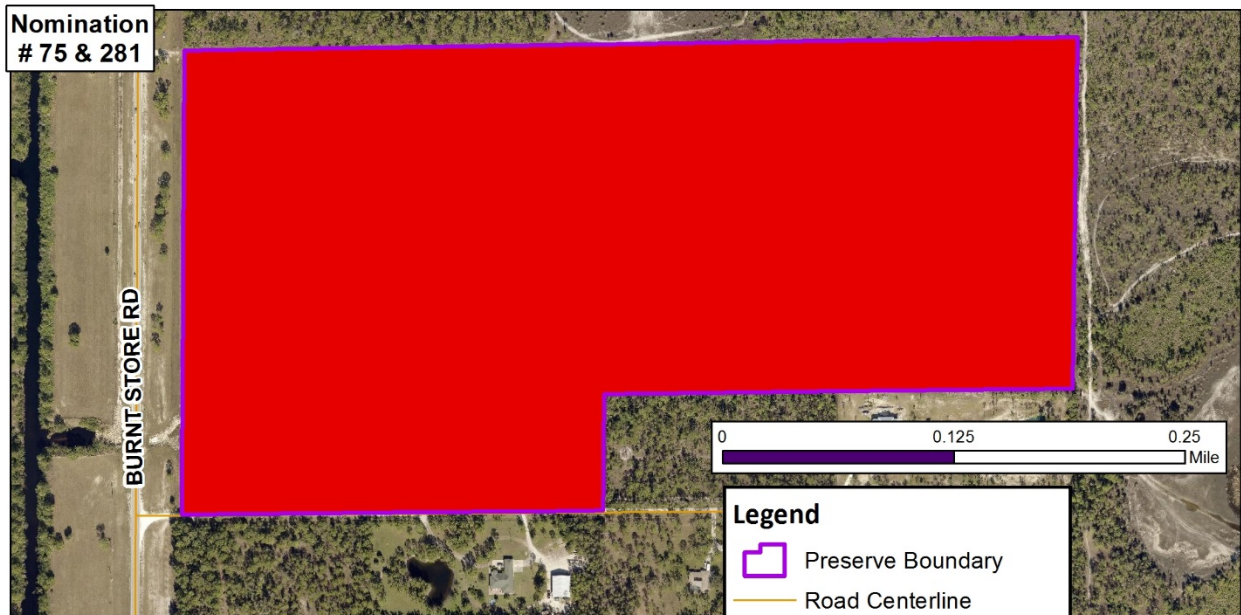
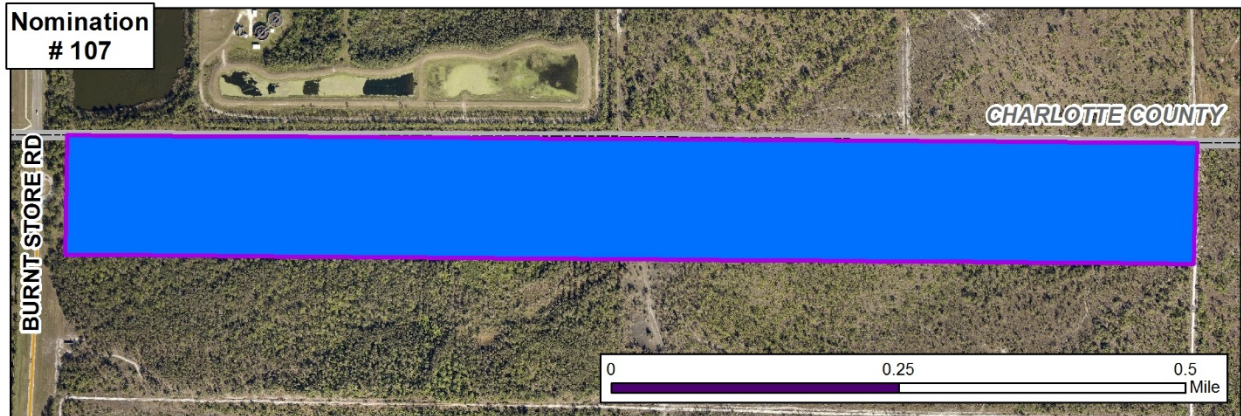
In 2008, the Section-Township-Range and Parcel (STRAP) codes for #102 and #202, and #75 and #281 were combined to unify the more recent nominations with existing parcels. These STRAPs are now 08-43-23-00-00006.0030 for #102/#202 and 17-43-23-00-00001.0030 for #75/#281, and #107 retained a STRAP of 05-43-23-00-00001.0000 with which it was acquired. These identification codes have been illustrated in Figure 24 below.

Shortly after acquisition, the Future Land Use categories were also changed for the preserve. All nominations of YPP are either "Conservation Lands Upland" or "Conservation Lands Wetland". The zoning code for the parcels is "Agriculture (AG-2)", and staff will work with the Lee County Department of Community Development to change the code to "Environmentally Critical (EC)". This change will align the zoning with the future land use, and further enhance the ability of staff to protect the preserve into perpetuity. See Figure 25 for Future Land Uses and Figure 26 for Zoning of YPP.

Several other parcels near the preserve had been nominated to the C20/20 program and acquired as part of other county preserves, purchased as part of the state-managed YPU, or were withdrawn during the property review phase. Illustrated in Figure 27 are only the parcels that were nominated to the C20/20 program and were acquired or withdrawn. Some of these parcels have been nominated multiple times or split into smaller pieces and nominated separately.

Nominations #86, #87, #420, and #452 were located between #107 and #102 of the preserve and would have filled in gaps of the conservation lands complex created by the YPU and YPP, but were withdrawn from the program. Nomination #405 was located along the southeastern boundary of YPP's #202 and contains the remainder of the basin marsh, but was withdrawn from the program. Nomination #282 and #94 are located west of Burnt Store Road and would have been a part of the CHBP for similar communities, but were also withdrawn from the program during review. Nominations #58, #372 and #400-2 were acquired through C20/20 and joined to form the CHBP.



Figure 24: STRAPs



Yucca Pens Preserve

This is not a survey.
Land Management staff have prepared this map
for informational and planning purposes.

Legend

-  Preserve Boundary
-  Road Centerline

STRAP




-  05-43-23-00-00001.0000
-  08-43-23-00-00006.0030
-  17-43-23-00-00001.0030



Figure 25: Future Land Use

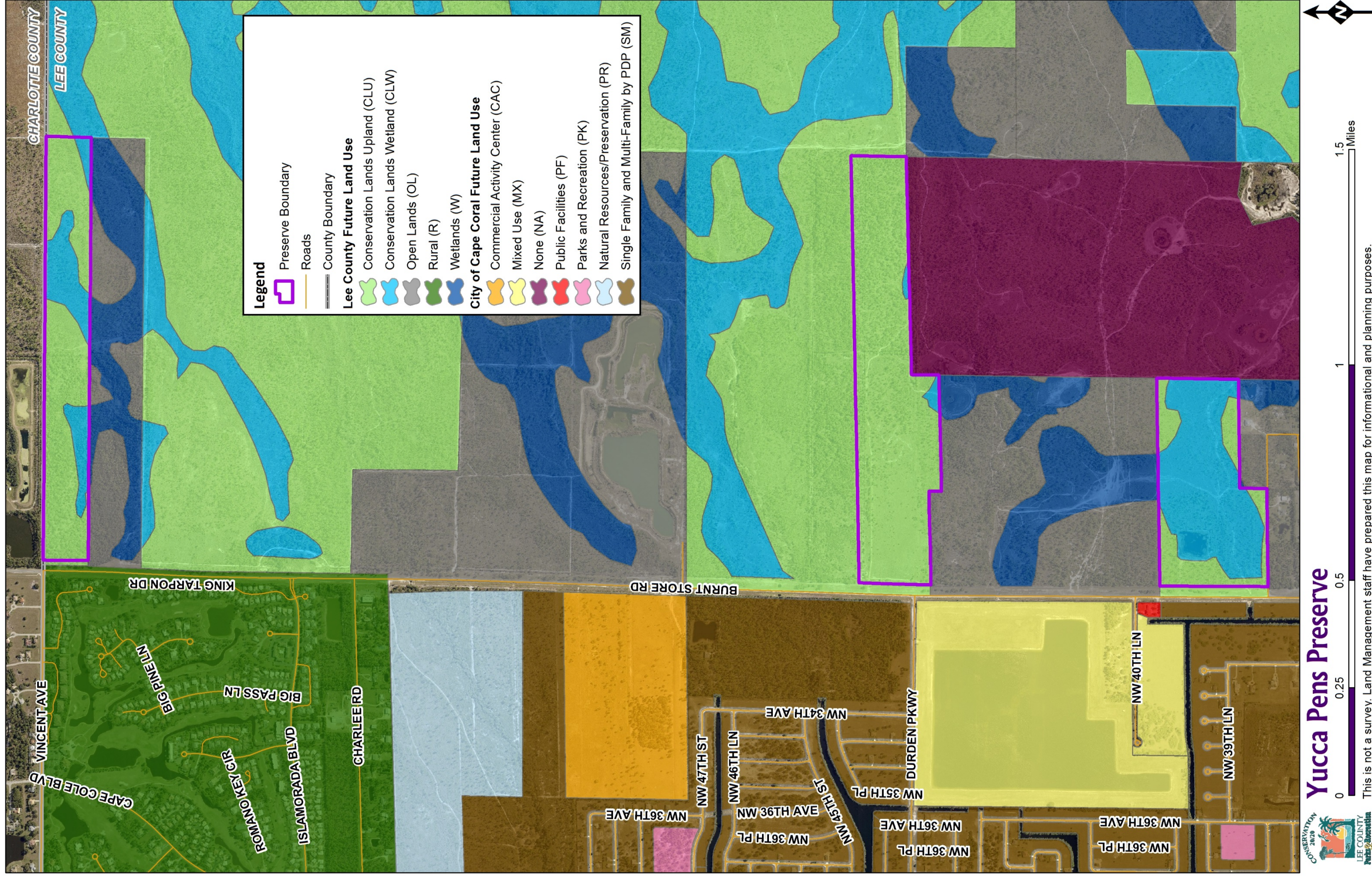
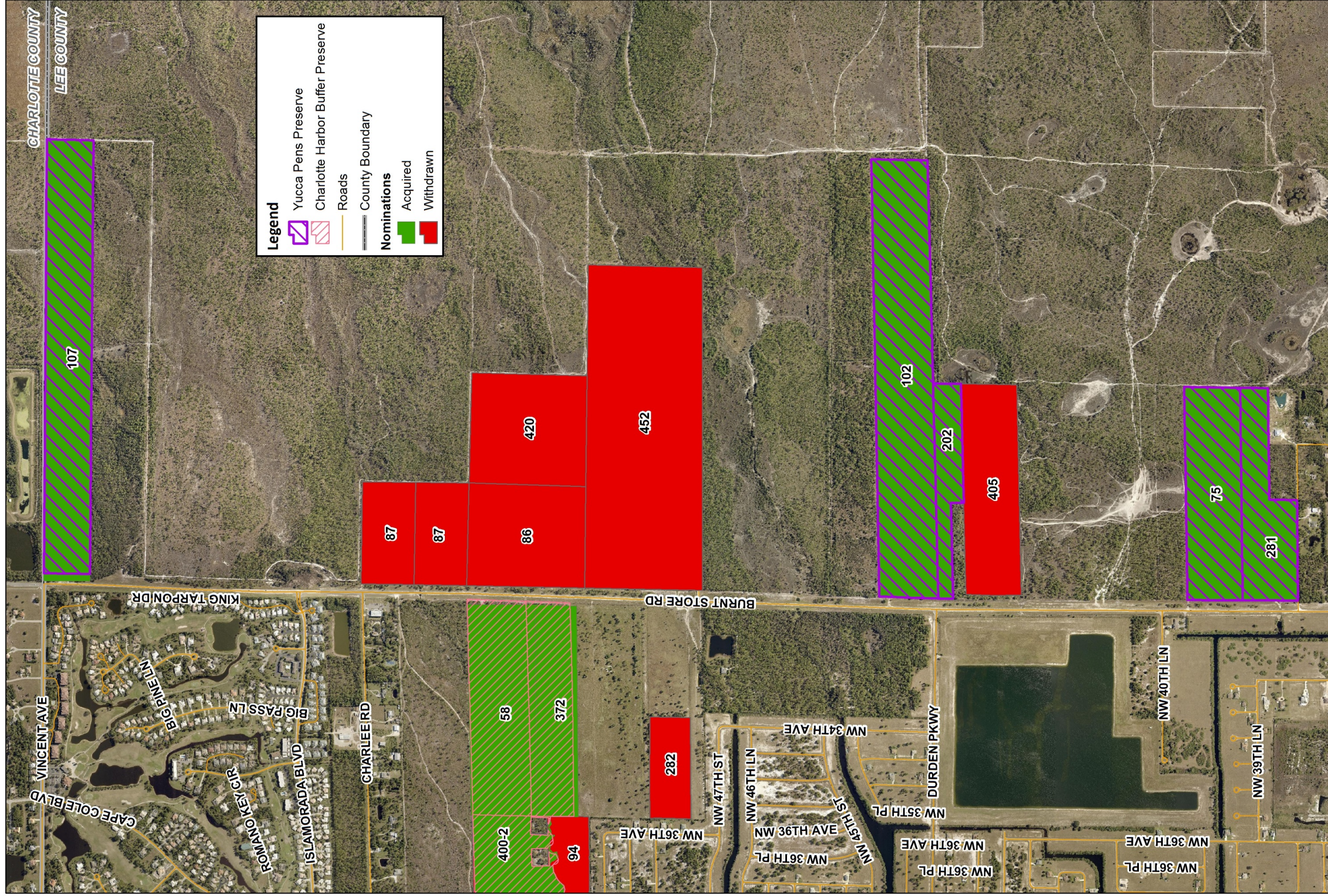


Figure 27: C20/20 Nominations



Yucca Pens Preserve



This is not a survey. Land Management staff have prepared this map for informational and planning purposes.



VI. Management Action Plan

A. Management Unit Descriptions

Land managers were able to re-assess the thirteen management units (MU) identified in the previous management plan edition to determine if the areas continued to represent the most efficient delineation of the preserve. Updates to plant communities, internal influences, and hydrologic components guided the revisions that resulted in eight MU groupings. These units will enable land managers to better plan and achieve management goals for the preserve, and have been illustrated in Figure 28.

Management Unit 1

32.9 Acres

Composed of the western half of nomination #107, this MU is bordered on all sides by firelines and contains mesic hammock, wet flatwoods, and a successional marsh community. The unit is located east of Burnt Store Road, south of the Charlotte County line and water treatment plant, west of MU 2, and north of undeveloped private property. Photo points established to monitor the restoration of old agricultural land are located in the central and southwestern portion of this unit, and a shallow ditch flowway exists along the northern boundary and northwestern corner. A fireline divides the eastern boundary of this unit from MU 2. Management of this unit will require on-going invasive exotic plant control and mechanical canopy thinning. The successional depression marsh will be left to transition into a wet flatwoods, and will be managed with the surrounding community.

Management Unit 2

33.0 Acres

Adjacent to MU 1, this unit contains the remainder of #107. Plant communities include the mesic and wet flatwoods, and a successional depression marsh. This unit is bordered on all sides by firelines and is located north of undeveloped private property, south of the Charlotte County line, east of MU 1, and west of the YPU. Fire history within the unit includes a 2008 wildfire that burned 23.6 acres and a prescribed fire in 2014 that burned 31.3 acres. Management of this unit will require on-going invasive exotic plant control and application of prescribed fire to maintain a sparse pine flatwoods canopy. The successional depression marsh will be left to transition into a wet flatwoods, and will be managed with the surrounding community. Feral hogs have been frequently observed in the unit, traveling between the neighboring properties utilizing open firelines, and will require on-going population control to reduce impacts to native communities.

Management Unit 3

61.3 Acres

Containing portions of nomination #102 and the entirety of #202, this unit is part of the central tract of YPP. It contains an area of regeneration and features several ditch flowways and old ORV trails that have altered the hydrological conditions of the site. The unit is located south of the YPU, west of MU 4, north of undeveloped private property, and east of Burnt Store Road. The unit is bordered by firelines and contains several man-made communities, including a raised road, spoil berm area, the

regeneration site, and canal/ditches. Fire history within the unit includes a 2008 wildfire that burned three and a half acres.

Management of this unit will require on-going invasive exotic plant control, application of prescribed fire in the flatwoods communities, and restoration of hydrological conditions by removing the ditch/berm flowways. A series of old ORV trails located in the center of the unit will likely be excluded from future restoration projects, because they create shallow seasonal pools for a variety of amphibians and invertebrates; this community is too small to be isolated on plant community or wetland maps, and is also slowly filling in with sedimentation. Feral hogs are also frequently observed in this unit, and will require on-going population control.

Management Unit 4

37.3 Acres

This unit is the eastern half of the central preserve tract, and contains the remainder of nomination #102. It is located south and west of the YPU, north of undeveloped private property, and east of MU 3. The unit is bordered by firelines and divided by canal/ditch flowways. Wet flatwoods make up the majority of the plant communities within the unit, and will require future applications of prescribed fire to prevent succession and to promote sparse pine canopies necessary for flatwoods. Fire history within the unit includes a 2012 prescribed fire that burned 22.7 acres. Other future management for this unit will require on-going invasive exotic plant control, restoration of hydrological conditions, and feral hog population control.

Management Unit 5

19.6 Acres

Located in the southern tract of the preserve, this unit contains a portion of nomination #75 and a small sliver of #281. The unit is bordered to the north, east and west by fireline. The southern boundary of this MU is the transition zone between the wet flatwoods, wet prairie, and scrubby flatwoods where a minute elevation change occurs. This unit has been largely impacted by man-made influences, and is dominated by a large impoundment/borrow pond and access road. This pond was constructed around the 1960's, and is believed to be the result of fill excavation for the construction of Burnt Store Road.

This unit also contains the only public access point for the preserve, and provides pedestrian access for resource-based recreation. Visitors can utilize the firelines for hiking, and nature photography or study. Management for this unit will require on-going invasive exotic plant control, and application of prescribed fire to maintain the sparse canopy of a flatwoods and to prevent succession or fuels buildup. The borrow pond will require on-going control of cattail to maintain open water for foraging habitat and water retention capacity. Feral hogs have not historically been a major issue within this unit, but land managers will continue to monitor for impacts and control populations as needed.

Management Unit 6

6.6 Acres

Containing the wet prairie community and sandwiched between MU 5 and 7, this unit is located in the southern tract of the preserve. It mostly consists of nomination #75, but has a small sliver of #281 on the southern boundary. A fireline borders the unit to the north, which separates the preserve from undeveloped private property. This unit also contains old ORV trails that have impacted the hydrological conditions of the site and will be subject to restoration plans in the future as funding and permits allow.

Management for this unit will require mechanical thinning of woody vegetation that has grown as a result of blocked sheetflow from the ORV trails.

Management Unit 7

26.4 Acres

Located in the eastern half of the southern preserve tract, this unit contains portions of nomination #75 and #281. The unit is entirely composed of wet flatwoods, but is largely influenced by an ORV trail-swale that cuts through the southern half of the unit; the trail-swale was subject to a restoration project completed in 2011 and is discussed further in the Hydrological Components and Watershed section of this plan. This unit is bordered to the north, east, and south by fireline, and is located east of the wet prairie of MU 6.

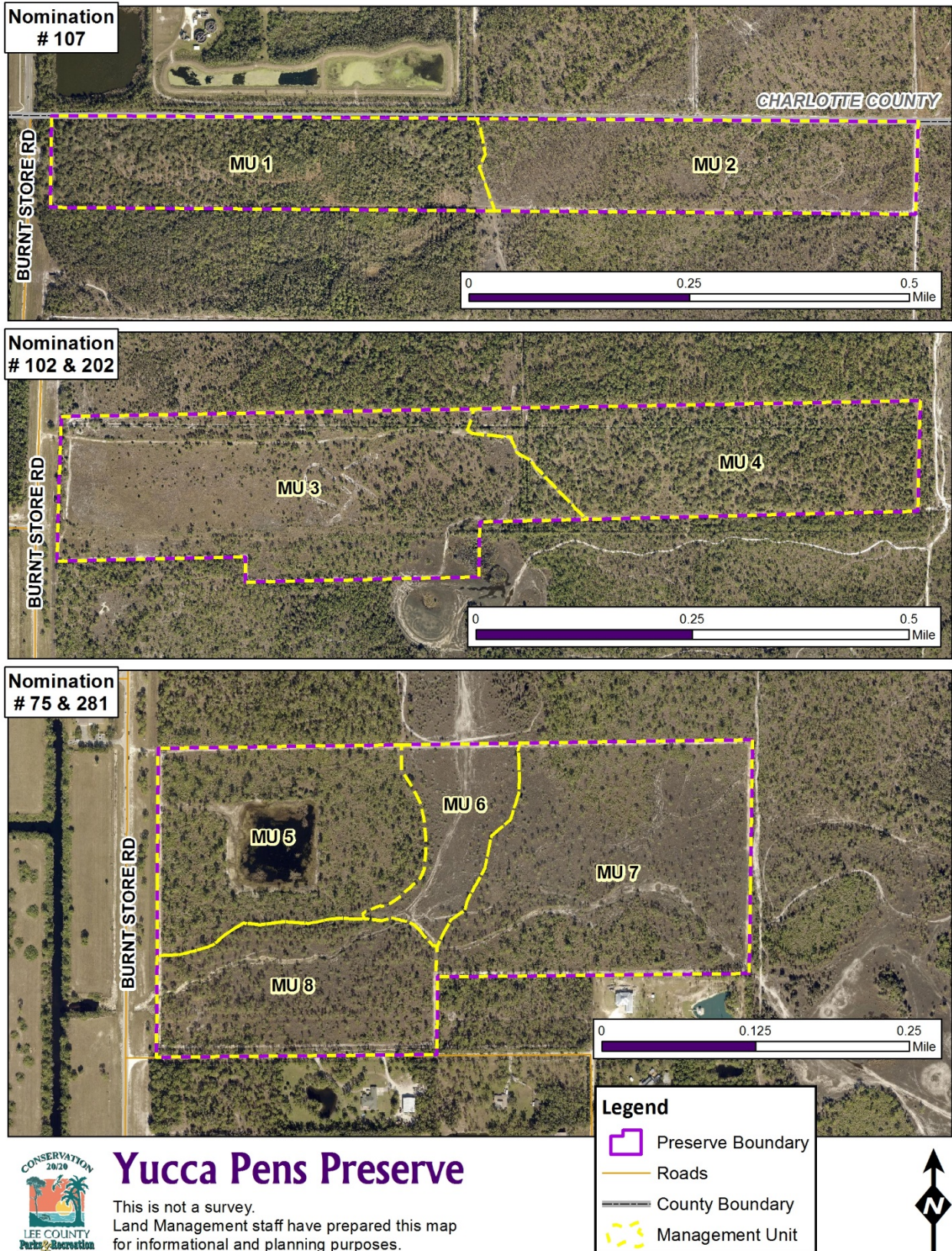
Osprey, several species of wading birds, and a variety of songbirds have been observed within this unit. Management for this unit will require on-going invasive exotic plant control and application of prescribed fire to maintain the sparse canopy of a flatwoods community. The trail-swale within the unit may also undergo updates to the hydrologic restoration project. Feral hogs have not historically been an issue within this unit, but land managers will continue to monitor for impacts.

Management Unit 8

14.9 Acres

Located in the southern preserve tract and at the southernmost point of YPP, this unit consists of mostly nomination #281 with a small sliver of #75. This unit contains wet flatwoods and a depression marsh, and is bordered to the north by the elevation change that transitions to scrubby flatwoods. The eastern, southern, and western boundaries are firelines; beyond the southern boundaries is developed private property. This unit contains the remainder of the trail-swale found in other units. Management for this unit will focus on maintaining and updating the restoration project. Other management for the unit will include on-going invasive exotic plant control and application of prescribed fire to maintain the sparse pine canopy of a wet flatwoods.

Figure 28: Management Units



B. Management Work to Date

The projects that have been completed at YPP since acquisition can be summarized into three main categories: natural resource management, overall protection, and public use. Natural resource management projects include hydrologic restoration, invasive exotic plant treatment, exotic animal control, fuels reduction, and prescribed fire management. Overall protection projects include boundary surveying, debris removal, fence installation and maintenance, fireline installation and maintenance, fence repairs, and boundary sign posting. Public use projects include access construction and sign production costs.

Natural Resource Management

Invasive Exotic Plant Control

All of the initial invasive exotic treatments are complete. As of this plan writing, YPP is in maintenance phase of invasive exotic control. Annual treatments have been conducted by county contractors, and county staff conduct follow-up treatments in the spring and fall seasons to find and control any new infestations of plants identified by the FLEPPC to be invasive to Florida natural areas. Grants and partnership agreements have been utilized to supplement general land management budgets to fund these treatments. One of these partnerships included the use of Department of Correction labor overseen by an Invasive Species Working Group managed by the FWC, with herbicides provided by C20/20 or a partnership herbicide bank. Other partnerships have included the FWC Aquatic Habitat Conservation and Restoration Section that has provided funding for the restoration of the freshwater wetland communities, and the FWC Invasive Plant Management Section that has provided funding and state-contracted treatments of invasive exotic plants at the preserve.

Exotic Animal Control

Feral hogs are a known invader of the natural communities within YPP. Hog populations at the preserve have been controlled by a Lee County contractor who has been authorized to conduct live trapping and removal. C20/20 staff has monitored for negative impacts caused by increasing feral hog populations, and adjusted the trapping efforts at the preserve accordingly.

Hydrologic Restoration

In 2011, a project to restore the natural hydrological conditions of YPP was completed within nomination #75 and #281. Historical land uses in the project area included heavy recreational ORV use that killed vegetation, disturbed the soil, and compacted the underlying limestone. These impacts affect the natural sheetflow of the area, and can be visually seen forming over time in the historical aerials of the Land Use History section of this plan. County staff and contractors worked to restore the hydrological functions of some areas affected by these impacts. Details of this preserve restoration project can be found in the Hydrological Components and Watershed section of this plan, and designs can be found with the SFWMD permit in Appendix B.

Fuels Reduction

In 2008 and 2011, county staff conducted fuel reduction roller chopping projects on nomination #75 and #281, and on nomination #107 and #102 in anticipation of reintroducing a natural fire regime to the preserve. By chopping and compressing the overgrown brush, a prescribed fire would burn with lower intensity and the amount of damaging heat that could hurt the pine overstory would be reduced. A lower intensity fire also reduces the risk of a prescribed fire burning outside of its prescription. In 2009, 85 acres within nominations #75, #281, #102, and #202 underwent pine tree thinning to reduce the basal area, lowering fuel loads and promoting biodiversity in the understory.

Fire Management

Prescribed fire has slowly been introduced to YPP to help return the ecosystem to a natural fire regime. The preserve area was broken into different units based on fire-dependency, known as Burn Units (BU), which are based on communities and hydrology. Figure 29 illustrates the current BUs at the preserve; the numbering of each unit is non-sequential, which is the result of map edits without re-numbering to prevent data inconsistencies. Land managers have made minor alterations to the shapes and merged BUs to meet future fire needs but cannot change the numbering in order to preserve historical fire data for that area.

The Natural Trends and Disturbances section of this plan contains further discussion of fire at the preserve, as well as Figure 21 that illustrates the fire history. Table 4 outlines the fire history for each of the current BUs at the preserve. To date, two wildfires and three prescribed burns have occurred at the preserve.

Table 4: Burn Unit Area

Burn Unit	Acreage	Fire History
BU 1	29.8	
BU 2	30.7	2008 Wildfire (23.6 acres) 2014 Prescribed Fire (31.3 acres)
BU 5	58.6	2008 Wildfire (3.5 acres)
BU 9	35.6	2012 Prescribed Fire (22.7 acres)
BU 10	24.3	
BU 11	10.3	
BU 12	29.2	2014 Prescribed Fire (22.3 acres)

Overall Protection

Boundary Surveying

In 2008, a contractor was hired to survey boundary at YPP for fencing and fireline installation.

Zoning / Future Land Use / STRAPs

The Future Land Use categories for the entire preserve were updated to Conservation Lands Upland or Conservation Lands Wetland. This change will further align the future land use with the conservation goals. The STRAP numbers for the nominations within the central (#102 and #202) and southern (#75 and #281) tracts were each combined in 2008.

Debris Removal

In 2011, staff removed large amounts of garbage and debris, and continue to do so periodically if garbage dumping is discovered.

Fence Installation and Repair

Since 2005, nearly a four and a half miles of barbed wire fencing has been installed and maintained around portions of the preserve perimeter. Portions of the perimeter fencing around YPP were installed by FWC as part of the YPU. Occasionally, this fencing is cut by trespassers and is repaired by FWC law enforcement or C20/20 staff. Large breaks in the fencing caused by rusting wire or larger trespass cuts have been contracted out for replacement. All fencing is inspected by C20/20 staff during the tri-annual site inspections to ensure the perimeter of the preserve is secure.

Fireline Installation

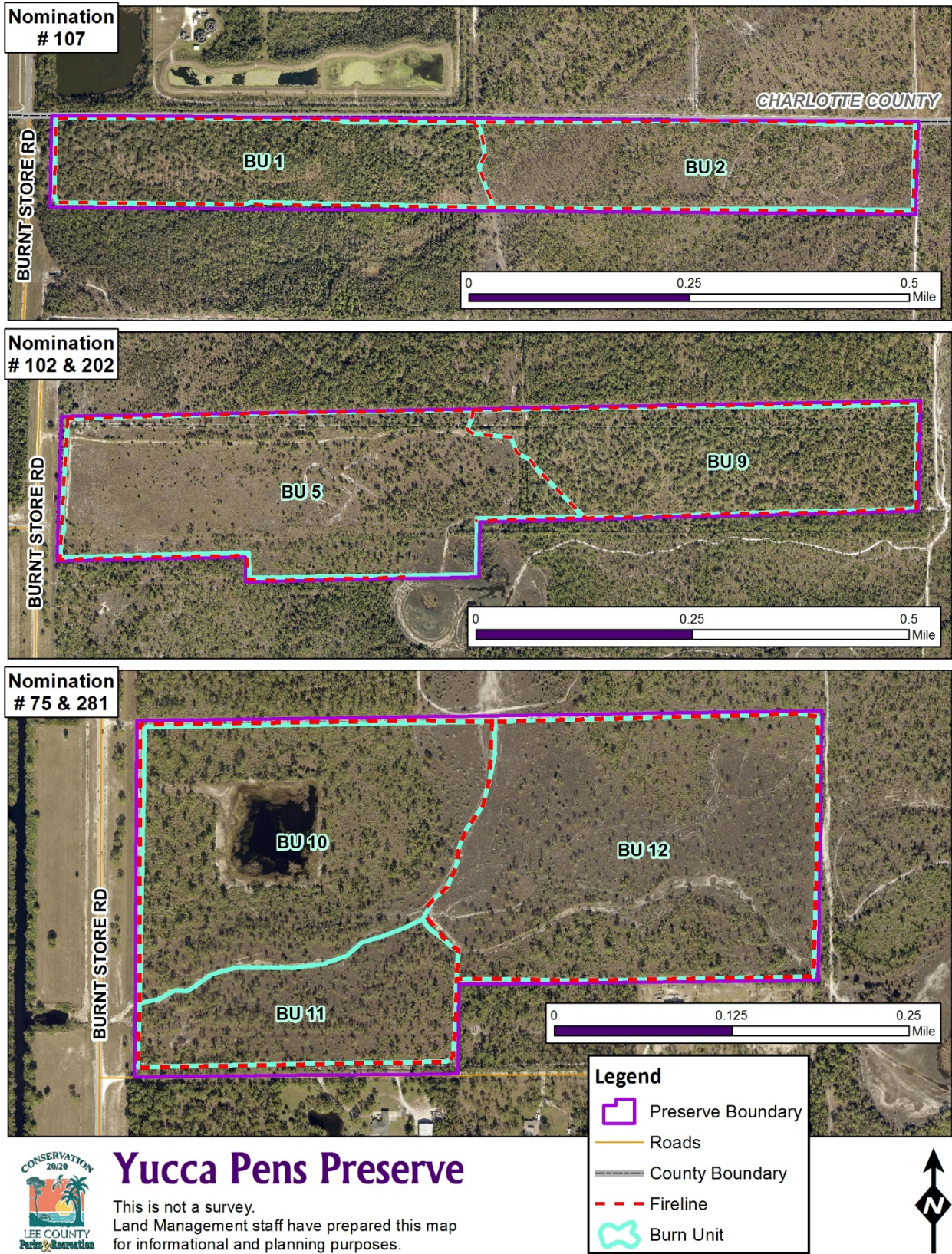
In 2008 and 2009, contractors cleared vegetation and installed firelines around the perimeter of the three preserve tracts. These lines help with overall protection by limiting the intrusion of wildfires that start outside of the preserve, and also help prevent external property damage from potential internal wildfires. Firelines are seasonally maintained and utilized by staff to conduct prescribed fire as a part of the fire management plan. Many of the perimeter firelines are also used as vehicle trails to access portions of the preserve when conditions allow.

Public Use

Access Point and Signs

A walkthrough gate for pedestrian access was installed at nomination #75 to allow visitor access to the preserve. There is no parking area, marked hiking trails, or public use amenities such as restrooms or benches. Visitors currently utilize the Burnt Store Road right-of-way to park vehicles near the access gate. Recreational opportunities at the preserve are limited to resource-based recreation to have minimal impact on the natural communities, and include: hiking, fishing, nature photography, and nature study such as bird watching. In 2018, the public access point was assigned an address for the Lee County Emergency-911 records. Advertised on preserve signs and on website references for the preserve, the address allows emergency responders and visitors to more easily locate the public access gate. The access can be found at: 3941 Burnt Store Road, Cape Coral, FL 33993.

Figure 29: Burn Units



C. Goals and Strategies

The primary management objectives for YPP are natural community enhancement, removal and continued treatment of invasive exotic plants, prescribed burning where appropriate and possible, and to continue to promote public use through the allowable uses of the preserve. Work will be prioritized in order of importance and ease of accomplishment, and will include the following tasks. Grants and/or monies budgeted to mitigate public infrastructure projects may be used to supplement the operations budget to meet these goals in a timely manner.

Natural Resource Management

Invasive Exotic Plant Control

The most current FLEPPC List of Invasive Species will be consulted by staff and contractors in determining the invasive exotic plants to be treated throughout the preserve. Treatments conducted by C20/20 staff and Lee County contractors will control re-growth and new infestations to keep the preserve at a maintenance level, defined as less than 5% invasive exotic plant coverage. Prior to each invasive plant treatment project by contractors, an Herbicide Prescription Form (located in the LSOM) will be filled out by the contractor, then reviewed and approved by county staff. Final project information and results will be entered in the database.

Uplands with light to moderate infestations:

In areas where invasive plants are sporadic and below 50% of the vegetation cover, hand removal will be utilized for control, while heavy equipment may be used in more densely infested areas. Specific methodology will depend on stem size, plant type and season, but generally the stem will be cut near the ground and the stump will be sprayed with appropriate herbicide, or a foliar application will be applied to the entire plant. Hand pulling will be utilized when possible with appropriate species in order to minimize herbicide use. Basal bark treatment may be used at some locations. Areas that receive heavy equipment work will receive follow-up treatment that will include an application of an appropriate herbicide mixture to the foliage of any re-sprouts or seedlings. Cut stems may be piled to facilitate future potential burning, chipping or removal from site. No replanting is anticipated due to significant presence of native vegetation and the native seed bank. No debris will be piled in such a way as to block established flowways. Additionally, mechanical treatments such as mowing or grinding, may be used if land managers deem it necessary, in the case of out of control infestations.

Wetlands with light to moderate infestations:

Hand crews will need to hike in and foliar, girdle, basal bark, or cut-stump treat the exotics with the appropriate herbicide. Follow-up treatments will need to be done on an annual basis and may eventually decrease to every two years. Where feasible or necessary, biomass may be removed from wetland sites to be piled and burned and/or mulched.

YPP is bordered in places by other conservation and public lands managed by other agencies. Staff will work with other agencies, such as FWC and Charlotte County Utilities to utilize best management practices to reduce or eliminate invasive plants

found on the shared fence lines. This will help reduce the vectoring of these invasive exotic species into YPP.

Exotic Animal Control

The feral hog is well established in south Florida communities. The foraging habits of wild hogs can be very destructive to native plant communities and soil conditions as they dig up the ground with their snouts, known as rooting. Staff will coordinate with authorized Lee County contracted trappers to reduce populations when negative impacts begin to appear within preserve communities. Additional hog population control methods will be evaluated where feasible and if the need arises

Although not noted at YPP, this preserve, like other C20/20 preserves, does not contain nor will it support feral cat colonies. FWC's Feral and Free Ranging Cats policy is "*To protect native wildlife from predation, disease, and other impacts presented by feral and free-ranging cats*" (FWC 2003). Any feral cats will be trapped and taken to Lee County Animal Services.

Prescribed Fire Management

YPP consists of multiple plant communities that rely on a natural fire regime for nutrient cycling and to limit succession. Staff will work to maintain a fire cycle with properly managed prescribed fire. The presence of prescribed fire in a landscape helps increase biodiversity, reduce dangerous fuel loading, and can help remove or prevent infestations of invasive exotic plants.

Due to the close proximity of smoke sensitive areas, staff will work within appropriate weather parameters to reduce risk the of smoke and fire effects to surrounding areas. Nearby landowners as well as local fire jurisdictions will be notified of impending fire management activities. Public access may be limited during and for some time after prescribed fire operations. The timing of prescribed fire will be influenced by seasonal rains and weather patterns, equipment and staff availability, and listed species requirements.

Projected costs associated with prescribed fires have been estimated to include two burns within five of the preserve BUs across the next 10 years of this Management Plan reporting period. Mechanical brush reduction has been budgeted in projected expenses as a complement to the planned fire cycle, for use of methods such as roller chopping instead of burning when poor weather patterns prevent the use of prescribed fire.

Mechanical Brush Reduction

Mechanical brush reduction will be used alternatively as well as in conjunction with the prescribed fire management to reduce fuel loading and help mimic the natural fire regime. Roller chopping and mowing are methods that can be utilized to reduce fuel loads to levels that are safe to burn in areas that have no fire management history, or in areas that cannot be burned safely.

Mowing and forestry mulching is a tool staff can use to remove successional plants from plant communities that are non-pyric. For example, cabbage palm reduction in a mesic hammock will help increase biodiversity. Pine thinning is another tool staff can utilize to help control fuel levels and prepare the land for the reintroduction of fire to the

landscape; selectively cutting pine trees to reduce the basal area to a level that would be normal in a natural fire regime will reduce competition and allow for a more open overstory canopy while promoting more diverse groundcover growth.

Mechanical brush reduction of palm species is a management technique that may be utilized within nomination #107 to help reduce the succession of the mesic hammock community. This community is not easily managed with fire, so a mechanical treatment will be effective in reducing unwanted palm tree dominance. Use of roller chopping may be used in #75 to reduce the fuels within the scrubby flatwoods community around the borrow pond area. Mechanical treatments using chainsaws and hand-pulling will be used in the wet prairie community of #75 to reduce the woody vegetation growth until the area can be managed with prescribed burning and hydrologic conditions are restored.

Monitor and Protect Listed Species

As discussed in the Designated Species section, there are several listed species that have been documented at YPP. State-protected species such as the gopher tortoise, federally-protected species such as the wood stork, and multiple listed plant species protected by FDACS have been observed and documented. Efforts will be made during the implementation of management activities to reduce and prevent negative effects to any designated species. YPP is part of a county-wide tri-annual site inspection program of all C20/20 preserves; these inspections allow staff to monitor impacts and changes management activities have on the landscape. If during an inspection, staff discovers a non-documented designated species, it will be reported appropriately.

Hydrologic Restoration

Staff will continue to monitor and maintain the previous hydrological restoration, and continue to maintain wetland features on YPP. Further restoration projects may be undertaken as time and budget restraints allow. Staff will work with FWC to assess the maintenance and possible restoration of a ditch/berm on the east border of nomination #102 as it affects the hydrology of both YPP and the YPU. Routine maintenance will continue for the trail-swale outflow restoration within the southernmost tract, and C20/20 will work to revise permits as discussed in the Hydrological Components and Watershed section of this plan. A restoration project budget has been identified in the financial considerations to allocate funds based on costs associated with similar projects at other C20/20 preserves.

Fireline maintenance will also be continually monitored with the goal of reducing hydrologic impacts. Disking firelines is an effective fire control method, but it does negatively impact the hydrological processes of the area. By converting disked fire lines to mowed fire lines where feasible, fire control should be unaffected while reducing these negative impacts.

Overall Protection

Install and Maintain Firelines

Firelines are used to help control the spread of fire during fire management activities and potential wildfire events. These firelines help protect surrounding landowners from fire originating inside of YPP, as well as protect the interior of YPP from fire originating

off of the preserve. Firelines will be seasonally maintained and cleared before any planned prescribed burns.

Fireline maintenance will also be continually monitored with the goal of reducing hydrologic impacts. Typically perimeter firelines at YPP are disked to mineral soil (except in wetland areas) to protect values outside of YPP. Converting disked firelines to mowed firelines where feasible will reduce negative hydrologic impacts while continuing to provide fire control. Firelines that subdivide YPP into burn units will be maintained as mowed firelines as conditions permit, and staff will continue to work with heavy equipment operators to review and update firelines to better follow plant community boundaries.

Boundary Sign and Fence Installation and Maintenance

YPP has several fence lines with proper boundary signs on the property boundaries. These fences help maintain the security of the preserve by limiting unauthorized access and use. Staff will inspect the fences and boundary signs regularly to ensure their presence and integrity. Any damaged fence or missing signage will be repaired as soon as possible, and reported appropriately. Gates for management access will be maintained and installed as needed.

Debris Removal

Like many areas, YPP is occasionally the site of unauthorized garbage dumping. Staff will work to remove any garbage or debris should they be discovered.

Zoning

Future efforts will include changing the current zoning code of the entire preserve from Agriculture (AG-2) to Environmentally Critical (EC). This change will further align the zoning with the future land use to better protect the preserve in perpetuity.

Public Use

Volunteer Groups

Several volunteer groups have assisted in management activities in the past and staff will work to continue facilitating access for volunteers that wish to assist in the future. Some of these groups have included the Lee County Bird Patrol and Environmental Clubs from local schools.

Public Access

Currently, there is one public access walkthrough available at the preserve, located at the northwestern corner of nomination #75. This will be maintained on an ongoing basis. Options will be considered to relocate and mark some of the firelines to better enhance their use as trails, as well as reduce the ecological impact of those firelines. There are no current plans to install access features at the other acquisitions of YPP, but this can be reassessed if there is a public demand for it in the future.

VIII. Financial Considerations

The C20/20 program is funded through Lee County's general fund in accordance with Ordinance 15-08 (as amended). This annual allocation funds restoration, maintenance of the preserve, equipment, and C20/20 staff costs. Funds not used in the annual allocation will roll over to the following year for future maintenance and restoration.

Past preserve expenses (Table 6) have been used for natural resource management projects, securing the overall protection, and providing public access with identification signage. Funding has been provided largely from the Lee County general fund, but grants and restoration funds have been provided for natural resource management projects by the SFWMD and FWC.

Possible funding for future invasive exotic plant treatments and restoration projects may be requested through grants from agencies such as SFWMD, FWC, and USFWS, or include additional public mitigation opportunities. Projected costs (Table 7) for annual maintenance and management expenses have been calculated using cost trend formulas. These estimations reflect an approximate management cost that can be applied to the number of occurrences each method will be used over the next ten years of this management plan.

Table 6: Expended Costs 1999-2018

Natural Resource Management		
<u>Item</u>	<u>Funding Source</u>	<u>Costs</u>
Feral Hog Control	C20/20	\$8,310.00
Contracted Invasive Exotic Plant Treatments	C20/20	\$110,779.30
In House Exotic Plant Treatments	C20/20	In House
Partnership Invasive Exotic Plant Treatments	FWC, C20/20	\$177,065.06
Fuels Reduction	C20/20	\$15,328.68
Hydrological Restoration	SFWMD, C20/20	\$100,374.33
Total		\$403,547.37
Overall Protection		
<u>Item</u>	<u>Funding Source</u>	<u>Costs</u>
Debris Removal	C20/20	\$3,293.69
Boundary Surveys	C20/20	\$10,625.00
Boundary Sign Installation	C20/20	\$750.00
Contracted Fence/Gate Installation	C20/20	\$22,106.01
Fence Maintenance	C20/20	In House
Contracted Firebreak Installation	C20/20	\$30,505.80
Fireline Maintenance	C20/20	In House
Total		\$67,280.50
Public Use		
<u>Item</u>	<u>Funding Source</u>	<u>Costs</u>
Preserve Identification Signage	C20/20	\$500.00
Preserve Restoration Signage	C20/20	\$510.00
Total		\$1,010.00

YPP Total Expended Cost for Reporting Period: \$471,837.87

Table 7: Projected Costs 2019-2028

Natural Resource Management			
<u>Item</u>	<u>Funding Source</u>	<u>Costs</u>	<u>Occurrences</u>
Feral Hog Control	C20/20	\$1,500.00	10 Times
Hydrological Restoration	C20/20	\$250,000.00	1 Time
Prescribed Burn (5 BUs)	C20/20	\$4,360.00	2 Times
Mechanical Brush Reduction	C20/20	\$13,160.00	5 Times
In House Exotic Plant Treatments	C20/20	In House	20 Times
Contracted Exotic Plant Treatments	C20/20	\$18,096.00	5 Times

Overall Protection			
<u>Item</u>	<u>Funding Source</u>	<u>Costs</u>	<u>Occurrences</u>
Fence Maintenance (In House)	C20/20	\$100.00	10 Times
Boundary Sign Replacement	C20/20	\$50.00	10 Times
Debris Removal (In House)	C20/20	\$100.00	10 Times
Fireline Maintenance (In House)	C20/20	\$1,454.00	10 Times

Public Use			
<u>Item</u>	<u>Funding Source</u>	<u>Costs</u>	<u>Occurrences</u>
Public Access Maintenance	C20/20	In House	20 Times

Due to the timeframe of this management report, all associated management expense estimates have been projected over 10 years.

Total costs have been distributed evenly across a 10 year timeframe to generate a projected annual management expense estimate of **\$ 19,704.00 per year**.

Total projected annual management expense estimate is **\$ 197,040.00 over 10 years**.

Total projected restoration expense estimate of **\$ 250,000.00** to occur within the timeframe of this plan.

IX. Literature Cited

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X. Appendices

A: Legal Descriptions

B: Preserve Restoration Project SFWMD Permit

C: Surface Water Project SFWMD Permit

D: Plant Species List

E: Wildlife Species List

F: Summary of Public Comments

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Appendix A: Legal Descriptions

Nomination #107

DESCRIPTION

PARCEL IN
SECTION 5, TOWNSHIP 43 SOUTH, RANGE 23 EAST
LEE COUNTY, FLORIDA

A TRACT OR PARCEL OF LAND LYING IN THE NORTH HALF (N-1/2) OF THE NORTH HALF (N-1/2) OF SECTION 5, TOWNSHIP 43 SOUTH, RANGE 23 EAST, LEE COUNTY, FLORIDA, WHICH TRACT OR PARCEL IS DESCRIBED AS FOLLOWS:

FROM THE NORTHWEST CORNER OF SAID SECTION, RUN S 89°51'30" E ALONG THE NORTH LINE OF SAID SECTION FOR 182.42 FEET TO A CONCRETE POST ON THE EAST RIGHT-OF-WAY LINE OF BURNT STORE ROAD (COUNTY ROAD NO. 765) AND THE POINT OF BEGINNING OF THE HEREIN DESCRIBED PARCEL.

FROM SAID POINT OF BEGINNING RUN S 00°20'00" W ALONG SAID RIGHT-OF-WAY LINE FOR 171.13 FEET TO A POINT OF CURVATURE; THENCE CONTINUE ALONG SAID RIGHT-OF-WAY LINE ALONG AN ARC OF A CURVE TO THE RIGHT OF RADIUS 17,320.73 FEET (DELTA 01°15'11") (CHORD 378.76 FEET) (CHORD BEARING S 00°57'35" W) FOR 378.77 FEET TO THE CENTERLINE OF A 60.00 FOOT WIDE EASEMENT FOR ROADWAY AND UTILITIES; THENCE RUN S 89°44'28" E ALONG SAID CENTERLINE FOR 1977.42 FEET TO A POINT DESIGNATED "A"; THENCE CONTINUE S 89°44'28" E ALONG SAID CENTERLINE FOR 541.89 FEET TO THE NORTH/SOUTH QUARTER SECTION LINE; THENCE RUN S 89°23'05" E ALONG SAID CENTERLINE FOR 2668.62 FEET TO THE EAST LINE OF SAID SECTION; THENCE RUN N 01°39'40" E ALONG SAID EAST LINE FOR 555.64 FEET TO A CONCRETE POST MARKING THE NORTHEAST CORNER OF SAID SECTION; THENCE RUN N 89°23'40" W ALONG THE NORTH LINE OF SAID SECTION FOR 2671.24 FEET TO A CONCRETE POST MARKING THE NORTH QUARTER SECTION CORNER OF SAID SECTION; THENCE RUN N 89°51'30" W ALONG THE NORTH LINE OF SAID SECTION FOR 2525.44 FEET TO THE POINT OF BEGINNING.

SUBJECT TO AND TOGETHER WITH THE HEREINABOVE DESCRIBED ROADWAY AND UTILITIES EASEMENT.

SUBJECT TO AND TOGETHER WITH EASEMENTS FOR UTILITY PURPOSES OVER AND ACROSS THE EAST 20.00 FEET AND THE WEST 20.00 FEET OF SAID FRACTION OF SAID SECTION.

TOGETHER WITH A WATER WELL EASEMENT 8.00 FEET WIDE, THE CENTERLINE OF WHICH EASEMENT IS DESCRIBED AS FOLLOWS:

BEGINNING AT THE HEREINABOVE DESCRIBED POINT "A", RUN S 00°08'30" W FOR 73.09 FEET TO AN ARTESIAN WELL; THENCE CONTINUE S 00°08'30" W FOR 4.00 FEET TO THE END OF THE HEREIN DESCRIBED CENTERLINE.

Appendix A: Legal Descriptions

Nomination 102

THE SOUTH HALF (S ½) OF THE SOUTH HALF (S ½) OF THE SOUTH HALF (S ½) OF SECTION 8, TOWNSHIP 43 SOUTH, RANGE 23 EAST, LESS THE WESTERLY 132 FEET MORE OR LESS, CONVEYED TO THE STATE OF FLORIDA BY DEED RECORDED IN DEED BOOK 239, PAGE 312, OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA.

Nomination 202

THE NORTH ONE-HALF OF THE NORTH ONE-HALF OF THE NORTH ONE-HALF OF THE NORTHWEST QUARTER OF SECTION 17, TOWNSHIP 43 SOUTH, RANGE 23 EAST, LEE COUNTY, FLORIDA, LESS THE WESTERLY 132 FEET FOR RIGHT-OF-WAY FOR BURNT STORE ROAD (S.R. NO. 765) AND LESS THE SOUTH 155 FEET OF THE WEST 1280 FEET OF THE ABOVE DESCRIBED PARCEL.

Appendix A: Legal Descriptions

Nomination #75 and #281

DESCRIPTION:

PARCEL 1:

THE SOUTH HALF (S $\frac{1}{2}$) OF THE SOUTH HALF (S $\frac{1}{2}$) OF THE NORTH HALF (N $\frac{1}{2}$) OF THE SOUTHWEST QUARTER (SW $\frac{1}{4}$) OF SECTION 17, TOWNSHIP 43 SOUTH, RANGE 23 EAST, LEE COUNTY, FLORIDA.

LESS THAT PART:

LYING WITHIN 132 FEET OF THE SURVEY LINE OF SR 765, SECTION 1263, SAID SURVEY LINE BEING DESCRIBED AS FOLLOWS:

BEGIN AT THE SOUTHWEST CORNER OF SAID SECTION 17; THENCE RUN NORTH 0 DEGREES 19'08" EAST, 5061.73 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT HAVING A RADIUS OF 17,188.73 FEET; THENCE ALONG SAID CURVE 245.57 FEET THROUGH A CENTRAL ANGLE OF 0 DEGREES 49'07" TO THE NORTH BOUNDARY OF SECTION 17, TOWNSHIP 43 SOUTH, RANGE 23 EAST, AT A POINT 1.76 FEET EAST OF THE NORTHWEST CORNER OF SAID SECTION 17, LESS EXISTING RIGHTS OF WAY.

PARCELS 2 AND 3:

THE NORTH HALF (N $\frac{1}{2}$) OF THE NORTHWEST QUARTER (NW $\frac{1}{4}$) OF THE SOUTHWEST QUARTER (SW $\frac{1}{4}$) OF THE SOUTHWEST QUARTER (SW $\frac{1}{4}$) LESS THE WESTERLY 132 FEET FOR ROAD RIGHT OF WAY AND THE NORTH HALF (N $\frac{1}{2}$) OF THE NORTHEAST QUARTER (NE $\frac{1}{4}$) OF THE SOUTHWEST QUARTER (SW $\frac{1}{4}$) OF THE SOUTHWEST QUARTER (SW $\frac{1}{4}$), BOTH PARCELS IN SECTION 17, TOWNSHIP 43 SOUTH, RANGE 23 EAST, LEE COUNTY, FLORIDA.

AND ALSO

THE SOUTH HALF (S $\frac{1}{2}$) OF THE NORTH HALF (N $\frac{1}{2}$) OF THE NORTH HALF (N $\frac{1}{2}$) OF THE SOUTHWEST QUARTER (SW $\frac{1}{4}$) OF SECTION 17, TOWNSHIP 43 SOUTH, RANGE 23 EAST, LEE COUNTY, FLORIDA.

AND ALSO

THE NORTH HALF (N $\frac{1}{2}$) OF THE SOUTH HALF (S $\frac{1}{2}$) OF THE NORTH HALF (N $\frac{1}{2}$) OF THE SOUTHWEST QUARTER (SW $\frac{1}{4}$) OF SECTION 17, TOWNSHIP 43 SOUTH, RANGE 23 EAST, LEE COUNTY, FLORIDA.

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Appendix B: Preserve Restoration Project SFWMD Permit



**SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE
STANDARD GENERAL PERMIT NO. 36-07470-P
DATE ISSUED: August 31, 2011**

Form #0941
08/95

PERMITTEE: LEE COUNTY BOARD OF COUNTY
COMMISSIONERS
3410 PALM BEACH BLVD
FORT MYERS, FL 33916

PROJECT DESCRIPTION: This application is a request for a modification to an Environmental Resource Permit to authorize construction and operation of a 69.60 acre hydrologic restoration project on two parcels (the 69.0 acre south parcel and the 0.6 acre north parcel) known as Yucca Pens Preserve with discharge to Pine Island Sound via the Cape Coral Canal System via Burnt Store Road roadside swales.

PROJECT LOCATION: LEE COUNTY, SEC 8, 9 TWP 43S RGE 23E
SEC 8, 9 TWP 43S RGE 23E

PERMIT DURATION: See Special Condition No:1. See attached Rule 40E-4.321, Florida Administrative Code.

This is to notify you of the District's agency action concerning Notice of Intent for Permit Application No. 110517-3, dated May 17, 2011. This action is taken pursuant to Rule 40E-1.603 and Chapter 40E-40, Florida Administrative Code (F.A.C.).

Based on the information provided, District rules have been adhered to and an Environmental Resource General Permit is in effect for this project subject to:

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing.
2. the attached 19 General Conditions (See Pages : 2 - 4 of 6),
3. the attached 20 Special Conditions (See Pages : 5 - 6 of 6) and
4. the attached 3 Exhibit(s)

Should you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights," we will assume that you concur with the District's action.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the Permittee (and the persons listed in the attached distribution list) no later than 5:00 p.m. on this 31st day of August, 2011, in accordance with Section 120.60(3), Florida Statutes.

BY: _____

Ricardo A. Valera, P.E.
Regulatory Administrator
Lower West Coast Service Center

Appendix B: Preserve Restoration Project SFWMD Permit

NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a District decision which does or may determine their substantial interests shall file a petition for hearing with the District Clerk within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: 1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or 2) within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, or electronic mail, or posting that the District has or intends to take final agency action, or publication of notice that the District has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

Filing Instructions

The Petition must be filed with the Office of the District Clerk of the SFWMD. Filings with the District Clerk may be made by mail, hand-delivery or facsimile. **Filings by e-mail will not be accepted.** Any person wishing to receive a clerked copy with the date and time stamped must provide an additional copy. A petition for administrative hearing is deemed filed upon receipt during normal business hours by the District Clerk at SFWMD headquarters in West Palm Beach, Florida. Any document received by the office of the SFWMD Clerk after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the SFWMD Clerk, P.O. Box 24680, West Palm Beach, Florida 33416.
- Filings by hand-delivery must be delivered to the Office of the SFWMD Clerk. **Delivery of a petition to the SFWMD's security desk does not constitute filing. To ensure proper filing, it will be necessary to request the SFWMD's security officer to contact the Clerk's office.** An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by facsimile must be transmitted to the SFWMD Clerk's Office at (561) 682-6010. Pursuant to Subsections 28-106.104(7), (8) and (9), Fla. Admin. Code, a party who files a document by facsimile represents that the original physically signed document will be retained by that party for the duration of that proceeding and of any subsequent appeal or subsequent proceeding in that cause. Any party who elects to file any document by facsimile shall be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed with the clerk as a result. The filing date for a document filed by facsimile shall be the date the SFWMD Clerk receives the complete document.

Appendix B: Preserve Restoration Project SFWMD Permit

Initiation of an Administrative Hearing

Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other SFWMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the District takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

Mediation

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the SFWMD Clerk within 30 days of rendering of the final SFWMD action.

Appendix B: Preserve Restoration Project SFWMD Permit

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373, F.S.
2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.
3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.
4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.
5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.
6. Within 30 days after completion of construction of the permitted activity, the permittee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.
7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to be in compliance with the permitted plans and specifications; and the entity approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit

Appendix B: Preserve Restoration Project SFWMD Permit

GENERAL CONDITIONS

Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.
9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.
10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.
11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..
12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.
13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.
14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.
15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit

Appendix B: Preserve Restoration Project SFWMD Permit

GENERAL CONDITIONS

application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.
17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.
18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.
19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

Appendix B: Preserve Restoration Project SFWMD Permit

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on August 31, 2016.
2. Operation of the surface water management system shall be the responsibility of LEE COUNTY BOARD OF COUNTY COMMISSIONERS.
3. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.
4. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.
5. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.
6. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.
7. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.
8. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.
9. This permit is issued based on the applicant's submitted information which reasonably demonstrates that adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed surface water management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the surface water management system, if necessary, to eliminate the cause of the adverse impacts.
10. The permittee acknowledges that, pursuant to Rule 40E-4.101(2), F.A.C., a notice of Environmental Resource or Surface Water Management Permit may be recorded in the county public records. Pursuant to the specific language of the rule, this notice shall not be considered an encumbrance upon the property.
11. If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, the permitted project should cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The permittee, or other designee, should contact the Florida Department of State, Division of Historical Resources, Review and Compliance Section at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Project activities should not resume without verbal and/or written authorization from the Division of Historical Resources. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, Florida Statutes.
12. All contractors must be provided with a copy of the staff report and permit conditions prior to the commencement of construction. The permittee is responsible for ensuring that all contractors adhere to the project construction details and methods indicated on the attached permit Exhibits and described herein.
13. The permittee and all designated contractors shall adhere to all project and mitigation construction details

Appendix B: Preserve Restoration Project SFWMD Permit

SPECIAL CONDITIONS

and methodology indicated on the enclosed permit Exhibits and described herein.

14. Prior to the commencement of construction, the permittee shall conduct a pre-construction meeting with field representatives, contractors and District staff. The purpose of the meeting will be to discuss construction methods and sequencing, including type and location of turbidity and erosion controls to be implemented during construction, mobilization and staging of contractor equipment, phasing of construction, methods of vegetation clearing, coordination with other entities on adjacent construction projects, wetland protection methods, and endangered species protection with the permittee and contractors. The permittee shall contact District Environmental Resource Compliance staff from the Lower West Coast Service Center at (239) 338-2929 to schedule the pre-construction meeting.
15. No construction dewatering is authorized.
16. Spoil generated from the excavation authorized by this permit must be placed on an upland site, as shown on Exhibit No. 2.0, and contained in such a manner as to prevent erosion into wetlands or other surface waters.
17. Prior to the commencement of construction, the perimeter of wetland areas in the vicinity of the proposed ditch blocks and construction access points shall be silt fenced to prevent encroachment into the protected areas. Using Global Positioning System (GPS) technology, the perimeter of the adjacent preserve area(s) shall be identified for future reference. The data shall be differentially corrected and accurate to less than a meter (+/- one meter or better). Electronic copies of the GPS data shall be provided to the District's Environmental Resource Compliance staff in accordance with Exhibit 2.0. The permittee shall notify the District's Environmental Resource Compliance staff in writing upon completion of silt fencing and schedule an inspection of this work. The silt fencing shall be subject to District staff approval. The permittee shall modify the silt fencing if District staff determines that it is insufficient or is not in conformance with the intent of this permit. Silt fencing shall remain in place until all adjacent construction activities are complete.
18. Any fill material around newly installed structures shall be fully compacted with permittee being responsible for correction of any erosion problems.
19. Endangered species, threatened species and/or species of special concern have been observed onsite and/or the project contains suitable habitat for these species. It shall be the permittee's responsibility to coordinate with the Florida Fish and Wildlife Conservation Commission and/or the U.S. Fish and Wildlife Service for appropriate guidance, recommendations and/or necessary permits to avoid impacts to listed species.
20. The exhibits and special conditions in this permit apply only to this application. They do not supersede or delete any requirements for other applications covered in Permit No. 36-07470-P unless otherwise specified herein.

Appendix B: Preserve Restoration Project SFWMD Permit

Last Date For Agency Action: September 13, 2011

GENERAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Yucca Pens Preserve

Permit No.: 36-07470-P

Application No.: 110517-3

Application Type: Environmental Resource (General Permit Modification)

Location: Lee County, S8, 9/T43S/R23E
S8, 9/T43S/R23E

Permittee : Lee County Board Of County Commissioners

Operating Entity : Lee County Board Of County Commissioners

Project Area: 69.60 acres

Project Land Use: Environmental Restoration

Drainage Basin: NORTH COASTAL

Sub Basin: DURDEN CREEK

Receiving Body: Pine Island Sound via Cape Coral Canal System via
Burnt Store Road roadside swales

Class: CLASS III

Special Drainage District: NA

Conservation Easement To District : No

Sovereign Submerged Lands: No

PROJECT PURPOSE:

This application is a request for a modification to an Environmental Resource Permit to authorize construction and operation of a 69.60 acre hydrologic restoration project on two parcels (the 69.0 acre south parcel and the 0.6 acre north parcel) known as Yucca Pens Preserve with discharge to Pine Island Sound via the Cape Coral Canal System via Burnt Store Road roadside swales.

Appendix B: Preserve Restoration Project SFWMD Permit

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The 69.6 acre site is located within two non-contiguous parcels on the east side of Burnt Store Road north of the Cape Coral City limits and south of the Charlotte County line in Lee County, Florida. The southern parcel totals 69.0 acres. The northern parcel is a 0.6 acre roadway running east-west on a 99.2 acre parcel. Both parcels are Lee County Conservation 20/20 parcels that are collectively known as Yucca Pens Preserve. A location map is attached as Exhibit 1.0.

The site contains a previously permitted surface water management system (SWMS) consisting of six ditch blocks which were constructed to assist in slowing the release of water through ditches created by ATV use on the site. The SWMS was authorized on December 23, 2010 under Application No. 100125-16/Permit no. 36-07470-P.

There are 36.6 acres of wetlands that include 5.0 acres of freshwater marsh, 24.0 acres of hydric pine flatwoods, and 7.6 acres of mixed wetland hardwoods. The wetlands extend offsite to the north, south, and east as part of a larger wetland slough system. There is also 29.6 acres of uplands that include 7.9 acres of palmetto prairie and 21.7 acres of pine flatwoods. Several ditch/ATV trails bisect both the upland and wetland habitats. In addition, there is a borrow area on the project that totals 2.8 acres. A FLUCCS map is attached as Exhibit 3.0.

The intent of the original project was to restore the onsite wetlands by increasing their hydroperiod without changing habitat types. Application No. 100125-16/Permit no. 36-07470-P authorized impacts to 0.7 acres of ditches/ATV trails that bisected the property. No mitigation was required as the impacts occurred in degraded ATV trails for the purpose of restoring adjacent wetlands. The proposed modification will not impact any wetlands or other surface waters located onsite.

PROPOSED PROJECT:

This is a hydrologic restoration project. The proposed modification to the previously permitted ditch blocks is based on improved survey data and site specific conditions obtained by the applicant during construction of the original ditch blocks. The surface water impacts total 0.7 acres and consist of constructing six ditch blocks on the southern parcel which vary in length from 50 to 200 feet, vary in width from 15 to 40 feet and ditch blocks within the main conveyance path (ditch blocks 1-4) vary in depth from 0.5 to 0.6 feet in height. The two ditch blocks (ditch block 5 and 6) located on branches off the main canal will be filled to adjacent to natural ground. This application specifically proposes to modify the constructed elevation of ditch block 2 by removing 0.1 feet of fill. The excess fill dirt will be placed on the existing road, identified as upland, located on the north parcel. The proposed modification is occurring within an area that was previously authorized for impacts under Application No. 100125-16/Permit no. 36-07470-P, and there are no additional wetland impacts associated with this project.

WATER QUANTITY:

Discharge Rate :

The purpose of this hydrologic restoration project is to increase the length of the hydro-period of the surrounding wetlands. To accomplish this goal the project has been designed so that the proposed maximum discharge of offsite flow through the property is less than the existing condition. This has been accomplished by the installation of six (6) ditch blocks. Ditch blocks 1-4 are located within the main conveyance path on-site and range in height from 6.0 inches to 7.2 inches above the existing conveyance invert. Ditch blocks 5 and 6 are located on branches off of the main conveyance path on-site and are designed to be filled to adjacent natural grade.

Appendix B: Preserve Restoration Project SFWMD Permit

WATER QUALITY :

No adverse water quality impacts are anticipated as a result of the proposed project.

WETLANDS:

There are 36.6 acres of wetlands that include 5.0 acres of freshwater marsh, 24.0 acres of hydric pine flatwoods, and 7.6 acres of mixed wetland hardwoods. The vegetation in the freshwater marsh is predominantly ground cover that includes gulf coast spikerush, coastalplain willow, primrose willow, redroot, pennywort, elderberry, pickerelweed, arrowhead, and fireflag. Vegetation in the hydric pine flatwoods includes slash pine, cabbage palm, wax myrtle, saltbush, St. John's wort, gulf coast spikerush, meadowbeauty, yellow-eyed grass, and fringed yellow stargrass. Vegetation in the mixed wetland hardwood area includes scattered slash pine and cabbage palm, with wax myrtle, saltbush, primrose willow, gulfcoast spikerush, pennywort, and yellow-eyed grass. Several ditch/ATV trails bisect both the upland and wetland habitats. In addition, there is a borrow area on the project that totals 2.8 acres. The borrow area is dominated by cattail. A FLUCCS map is attached as Exhibit 3.0. The northern 0.6 acre parcel is an elevated roadway identified as upland that is surrounded by a disturbed wetland area.

The project proposes to modify the constructed elevation of one of the six previously constructed ditch blocks (ditch block #2) by removing 0.1 feet of dirt. The excess dirt will be placed on the existing road, identified as upland, located on the north parcel. The proposed modification is occurring within an area that was previously authorized for impacts under Application No. 100125-16/Permit no. 36-07470-P, and there are no additional wetland impacts associated with this project.

Pursuant to Application No. 100125-16/Permit no. 36-07470-P the baseline monitoring report has been accepted by the District on April 29, 2011. There are no changes proposed to the previously authorized wetland restoration plan as a result of the proposed project.

Wildlife Issues:

The project site does contain preferred habitat for wetland-dependent endangered or threatened wildlife species or species of special concern. The improvements proposed as part of this hydrologic restoration project will not adversely affect wildlife species and the hydrologic improvements may encourage additional wildlife use such as wading bird foraging. This permit does not relieve the applicant from complying with all applicable rules and any other agencies' requirements if, in the future, endangered/threatened species or species of special concern are discovered on the site.

CERTIFICATION AND MAINTENANCE OF THE WATER MANAGEMENT SYSTEM:

It is suggested that the permittee retain the services of a Professional Engineer registered in the State of Florida for periodic observation of construction of the surface water management (SWM) system. This will facilitate the completion of construction completion certification Form #0881 which is required pursuant to Section 10 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, and Rule 40E-4.361(2), Florida Administrative Code (F.A.C.).

Pursuant to Chapter 40E-4 F.A.C., this permit may not be converted from the construction phase to the operation phase until certification of the SWM system is submitted to and accepted by this District. Rule 40E-4.321(7) F.A.C. states that failure to complete construction of the SWM system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization unless a permit extension is granted.

For SWM systems permitted with an operating entity who is different from the permittee, it should be noted that until the permit is transferred to the operating entity pursuant to Rule 40E-1.6107, F.A.C., the permittee is liable for compliance with the terms of this permit.

Appendix B: Preserve Restoration Project SFWMD Permit

The permittee is advised that the efficiency of a SWM system will normally decrease over time unless the system is periodically maintained. A significant reduction in flow capacity can usually be attributed to partial blockages of the conveyance system. Once flow capacity is compromised, flooding of the project may result. Maintenance of the SWM system is required to protect the public health, safety and the natural resources of the state. Therefore, the permittee must have periodic inspections of the SWM system performed to ensure performance for flood protection and water quality purposes. If deficiencies are found, it is the responsibility of the permittee to correct these deficiencies in a timely manner.

Appendix B: Preserve Restoration Project SFWMD Permit

RELATED CONCERNS:

Water Use Permit Status:

The applicant has indicated that irrigation water will not be required for the project. The applicant has also indicated that dewatering is not required for construction of this project.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

CERP:

The proposed project is not located within or adjacent to a Comprehensive Everglades Restoration Project component.

Potable Water Supplier:

N/A

Waste Water System/Supplier:

N/A

Right-Of-Way Permit Status:

A District Right-of-Way Permit is not required for this project.

DRI Status:

This project is not a DRI.

Historical/Archeological Resources:

The District has received correspondence dated March 23, 2010 from the Florida Department of State, Division of Historical Resources indicating that the agency has no objections to the issuance of this permit. This permit does not release the permittee from compliance with any other agencies' requirements in the event that historical and/or archaeological resources are found on the site.

DCA/CZM Consistency Review:

The issuance of this permit constitutes a finding of consistency with the Florida Coastal Management Program.

Third Party Interest:

No third party has contacted the District with concerns about this application.

Enforcement:

There has been no enforcement activity associated with this application.

STAFF REVIEW:

Appendix B: Preserve Restoration Project SFWMD Permit

DIVISION APPROVAL:


NATURAL RESOURCE MANAGEMENT:



Laura Layman

DATE: 8/30/11 _____

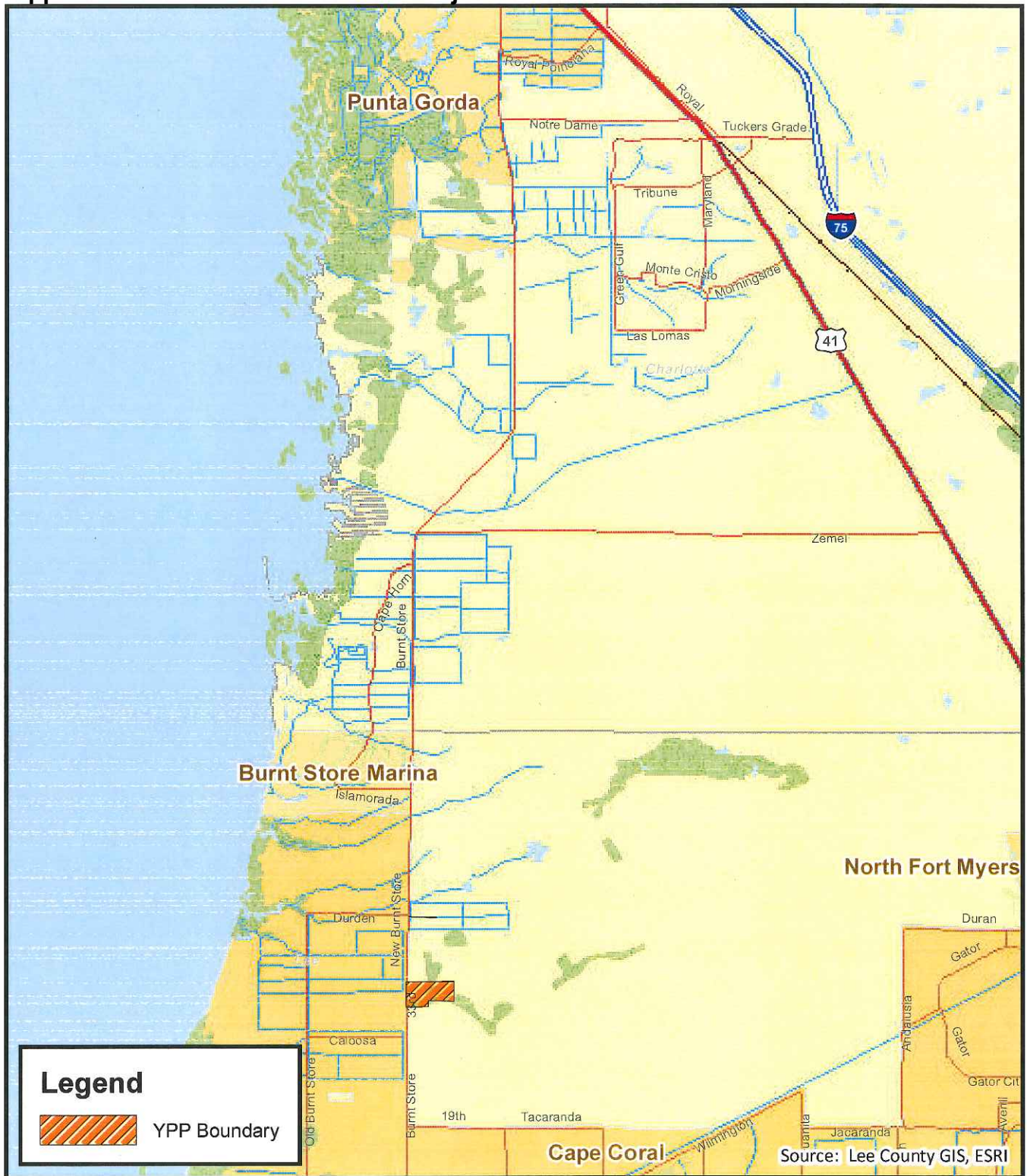
SURFACE WATER MANAGEMENT:




Daniel F. Waters, P.E.

DATE: 8/30/11 _____

Appendix B: Preserve Restoration Project SFWMD Permit




Legend

 YPP Boundary



**Yucca Pens Preserve
Location/Vicinity Map
Lee County, Florida**

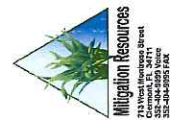
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Project No. YPP-036-09		
Scale: NTS	Date: 05/13/2011	
Drawn By: EMD	Approved By: TFO	

Construction Drawings for the Yucca Pens Preserve

Prepared For:
Lee County Parks and Recreation
3410 Palm Beach Boulevard
Fort Myers, Florida 33916

Prepared By:



Certificate of Authorization #9275

Index of Sheets

Cover Sheet	Sheet 1 of 5
Abbreviations, Legend and Location Map	Sheet 2 of 5
Master Project Layout	Sheet 3 of 5
Proposed Construction Activities with Typical Details	Sheet 4 of 5
Proposed Construction Activities Earthen Ditch Block	Sheet 5 of 5
Erosion and Sedimentation BMP Details	Sheet 5 of 5

Date: May 2011
Project No.: YPP/036/09

Appendix B: Preserve Restoration Project SFWMD Permit

Exhibit 2.0
 Application No. 110517-3
 Page 2 of 6



Source: USGS Quadrangle Maps: Matlacha, Florida (Dated 1958, Photo Revised 1987)
 Section 8, Township 43 South, Range 23 East:
 Longitude: 82°01'52"W, Latitude: 26°44'31"N
 Section 17, Township 43 South, Range 23 East:
 Longitude: 82°02'06"W, Latitude: 26°43'52"N

Abbreviations, Legend and Location Map		Project No. YPP/036/09
		Scale Not to Scale
		Sheet 1 of 5
		G-1

Abbreviation	Abbreviated Term	Abbreviation	Abbreviated Term	Abbreviation	Abbreviated Term
A	Asphalt	M	Manhole	Y	Year Constructed
AB	Asphalt Base	MA	Manhole Access	YD	Year Destroyed
ABM	Asphalt Base Mat	MB	Manhole Box	VE	Vertical
AF	Asphalt Finish	MC	Manhole Cover	Z	Zone
AFS	Asphalt Finish Surface	MD	Manhole Diameter		
AL	Asphalt Lining	ME	Manhole Elevation		
ALC	Asphalt Lining Concrete	MF	Manhole Finish		
ALF	Asphalt Lining Finish	MG	Manhole Grade		
ALP	Asphalt Lining Pipe	MH	Manhole Height		
ALR	Asphalt Lining Reinforcement	MI	Manhole Inlet		
ALW	Asphalt Lining Width	ML	Manhole Location		
ALX	Asphalt Lining X-section	MM	Manhole Material		
ALY	Asphalt Lining Y-section	MN	Manhole Name		
ALZ	Asphalt Lining Z-section	MO	Manhole Offset		
AM	Asphalt Mat	MP	Manhole Pipe		
AMC	Asphalt Mat Concrete	MR	Manhole Radius		
AMD	Asphalt Mat Diameter	MS	Manhole Slope		
AME	Asphalt Mat Elevation	MT	Manhole Thickness		
AMF	Asphalt Mat Finish	MU	Manhole Utility		
AMG	Asphalt Mat Grade	MV	Manhole Velocity		
AMH	Asphalt Mat Height	MW	Manhole Width		
AMI	Asphalt Mat Inlet	MX	Manhole X-section		
AMJ	Asphalt Mat Junction	MY	Manhole Y-section		
AMK	Asphalt Mat Location	MZ	Manhole Z-section		
AML	Asphalt Mat Material				
AMM	Asphalt Mat Manhole				
AMN	Asphalt Mat Name				
AMO	Asphalt Mat Offset				
AMP	Asphalt Mat Pipe				
AMQ	Asphalt Mat Radius				
AMR	Asphalt Mat Slope				
AMS	Asphalt Mat Thickness				
AMT	Asphalt Mat Utility				
AMU	Asphalt Mat Velocity				
AMV	Asphalt Mat Width				
AMW	Asphalt Mat X-section				
AMY	Asphalt Mat Y-section				
AMZ	Asphalt Mat Z-section				

Reference Symbols

Section Reference
 Denotes section letter identification.
 Denotes drawing no. where section is located.

Detail Reference
 Denotes detail number identification.
 Denotes drawing no. where detail is located.

Section Title
 Denotes section letter identification.

Detail Title
 Denotes detail number identification.

Legend
 = Property Line
 = Right-of-Way Line
 = Contact Elevation
 = Benchmark
 = Spot Elevation (Proposed)
 = Spot Elevation (Existing)
 = Proposed Contour
 = Existing Contour
 = Fines Line
 = Proposed Embankment (Down Slope In Direction of Line)
 = Existing Embankment (Down Slope In Direction of Line)
 = Proposed Surface Drainage
 = Existing Surface Drainage

Name	Date
Designed By	No. 12/08
Drawn By	12/08
Checked By	
Approved By	
CADD File:	1/7/10
Revisions	Checked By
Revised By	Date

713 West Tennessee Street
 Tallahassee, FL 32311
 352.04.9099 (Voice)
 352.04.9995 (Fax)
 Certificate of Authorization # 0275
 Irrigation Resources

Appendix B: Preserve Restoration Project SFWMD Permit

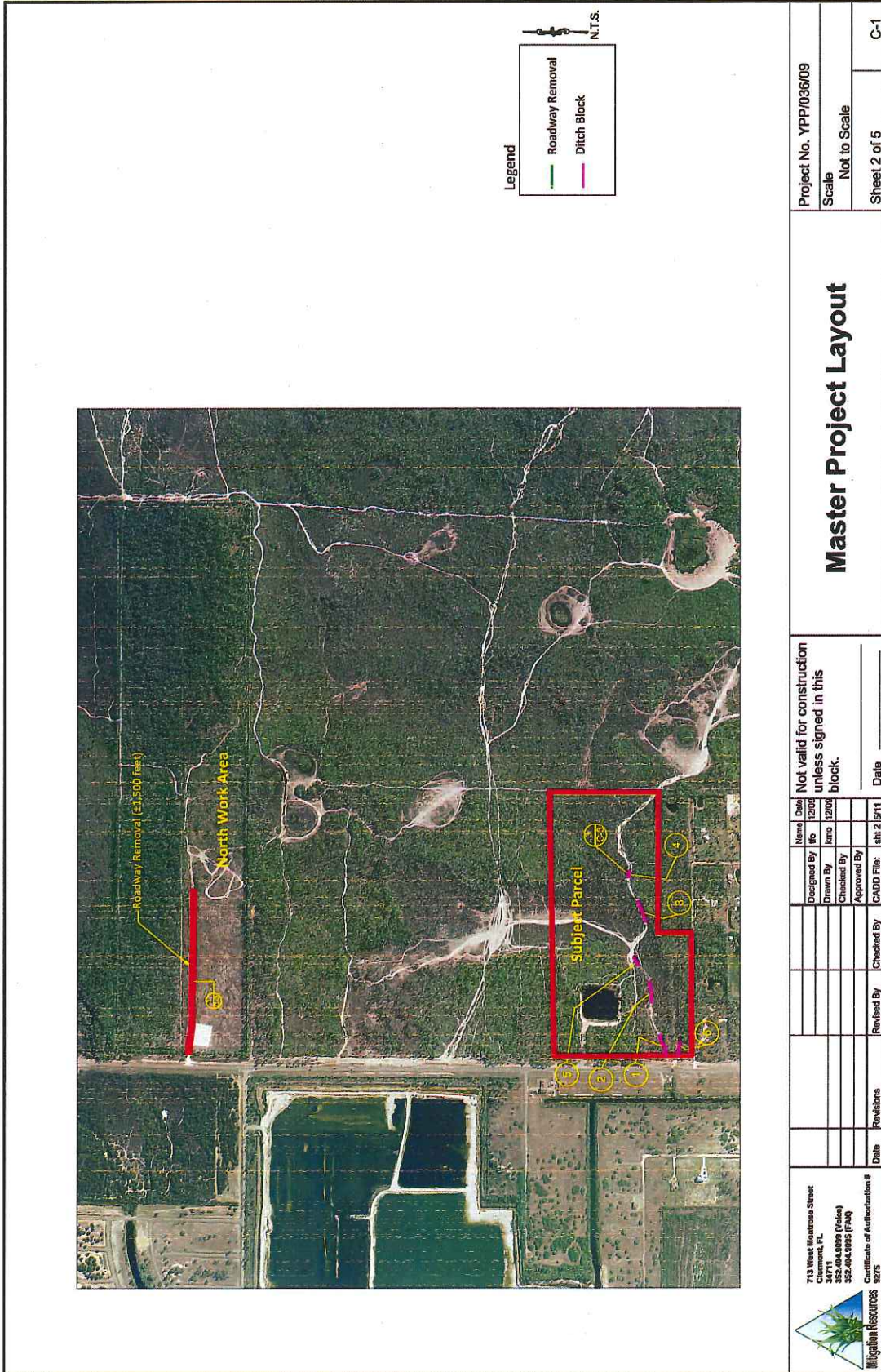
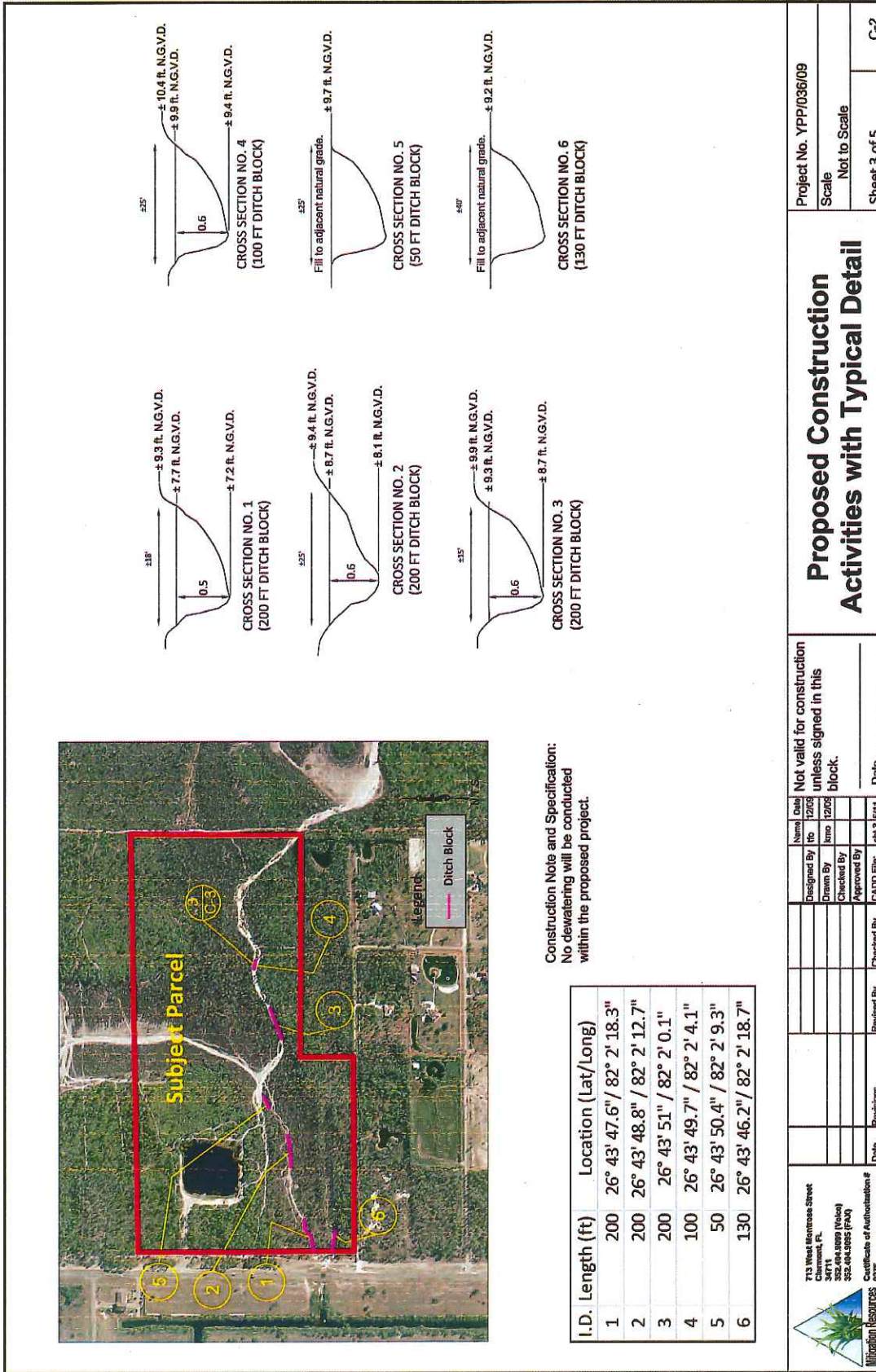


Exhibit 2.0
 Application No. 110517-3
 Page 3 of 6

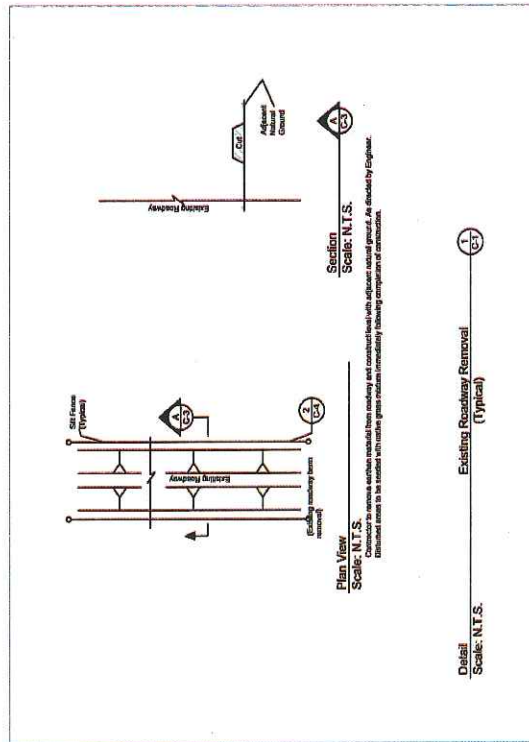
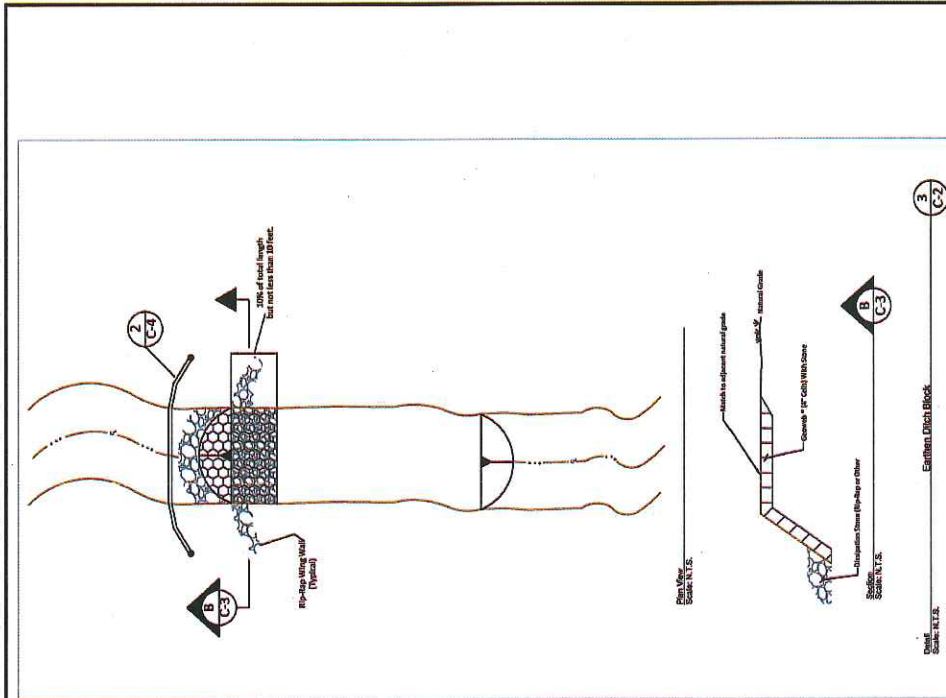
Appendix B: Preserve Restoration Project SFWMD Permit



<p>713 West Riverside Street Clearwater, FL 335-074-9099 (Voice) 335-074-3995 (Fax) Certificate of Authorization # 8275</p>		<p>Not valid for construction unless signed in this block.</p>	
Designed By	No. 12/05	Name	Date
Drawn By	hms	hms	12/05
Checked By		Checked By	
Approved By		CRDD File:	sh 3 5/11
Revised By		Checked By	Date

Proposed Construction Activities with Typical Detail

Project No.	YPP/036/09
Scale	Not to Scale
Sheet	3 of 5
	C-2



713 West Brentwood Street
Gainesville, FL
352.404.1899 (Voice)
352.404.1899 (Fax)

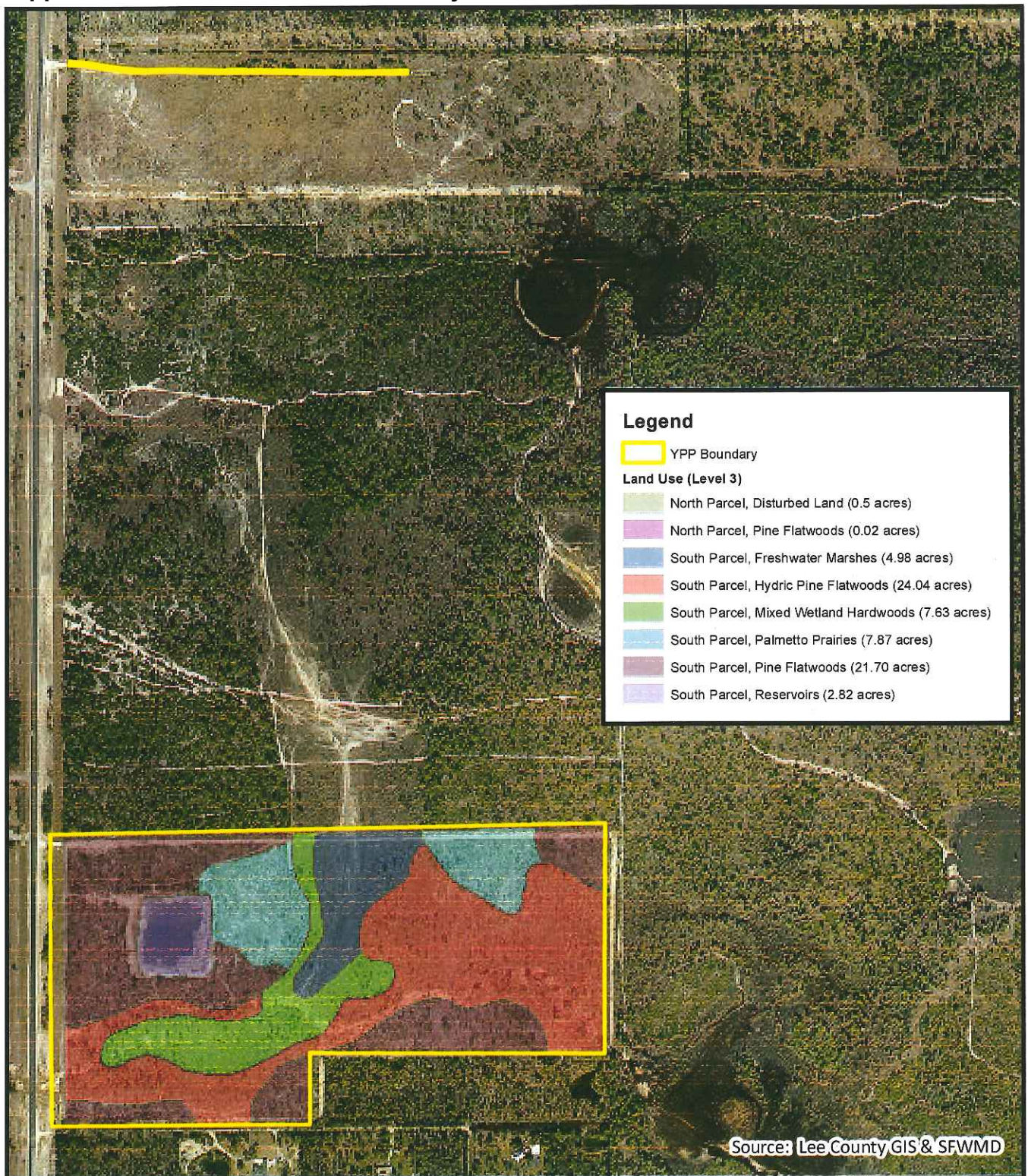
Attitugan Resources
Certificate of Authorization # 0275

Project No. YPP/036/09
Scale Not to Scale
Sheet 4 of 5 C-3

Proposed Construction Activities Earthen Ditch Block

Designed By	Date	Not valid for construction unless signed in this block.
Drawn By	12/05	
Checked By	12/05	
Approved By	12/10	
CAUD File:	12/10	Date

Appendix B: Preserve Restoration Project SFWMD Permit



 Mitigation Resources	<h2 style="margin: 0;">Yucca Pens Preserve</h2> <h2 style="margin: 0;">Land Use Map</h2> <h2 style="margin: 0;">Lee County, Florida</h2>	Project No. YPP-036-09 
	Scale: NTS	Date: 06/28/2011
	Drawn By: EMD	Approved By: TFO
M:\Projects\Yucca Pens\Permit Modification 052011\RAI 1\Exhibit C - Land Use Map.mxd		

Appendix B: Preserve Restoration Project SFWMD Permit

STAFF REPORT DISTRIBUTION LIST

YUCCA PENS PRESERVE

Application No: 110517-3

Permit No: 36-07470-P

INTERNAL DISTRIBUTION

- X Jessica White, P.E.
- X Justin M.Hojnacki
- X Laura Layman
- X Daniel F. Waters, P.E.

EXTERNAL DISTRIBUTION

- X Permittee - Lee County Board Of County Commissioners
- X Agent - Mitigation Resources L L C

Appendix B: Preserve Restoration Project SFWMD Permit

STAFF REPORT DISTRIBUTION LIST

ADDRESSES

Mitigation Resources L L C
713 W Montrose Street
Clermont FL 34711
todom@mitigationresources.com

Lee County Board Of County Commissioners
3410 Palm Beach Blvd
Fort Myers FL 33916
bmanzo@leegov.com

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Appendix C: Surface Water Project SFWMD Permit



**SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE PERMIT NO. 36-06263-P
DATE ISSUED: MARCH 15, 2007**

FORM #0145
Rev. 08/95

PERMITTEE: LEE COUNTY DIVISION OF NATURAL RESOURCES
(MATLACHA PASS HYDROLOGIC RESTORATION PF
1500 MONROE STREET,
FORT MYERS, FL 33901

PROJECT DESCRIPTION CONSTRUCTION AND OPERATION OF A SURFACE WATER MANAGEMENT SYSTEM TO SERVE AN 80.14 ACRE PROJECT KNOWN AS MATLACHA PASS HYDROLOGIC RESTORATION WITH DISCHARGE TO MATLACHA PASS VIA CAPE CORAL CANAL SYSTEM VIA GATOR SLOUGH VIA ROADSIDE SWALES.

PROJECT LOCATION: LEE COUNTY, SECTION 7,8,17,18,19,20,29,30,31,32 TWP 43S RGE 23

PERMIT DURATION: See Special Condition No:1. See attached Rule 40E-4.321, Florida Administrative Code.

This Permit is issued pursuant to Application No. 060301-5, dated February 24, 2006. Permittee agrees to hold and save the South Florida Water Management District and its successors harmless from any and all damages, claims or liabilities which may arise by reason of the construction, operation, maintenance or use of activities authorized by this Permit. This Permit is issued under the provisions of Chapter 373, Part IV Florida Statutes (F.S.), and the Operating Agreement Concerning Regulation Under Part IV, Chapter 373 F.S., between South Florida Water Management District and the Department of Environmental Protection. Issuance of this Permit constitutes certification of compliance with state water quality standards where necessary pursuant to Section 401, Public Law 92-500, 33 USC Section 1341, unless this Permit is issued pursuant to the net improvement provisions of Subsections 373.414(1)(b), F.S., or as otherwise stated herein.

This Permit may be transferred pursuant to the appropriate provisions of Chapter 373, F.S. and Sections 40E-1.6107(1) and (2), and 40E-4.351(1), (2), and (4), Florida Administrative Code (F.A.C.). This Permit may be revoked, suspended, or modified at any time pursuant to the appropriate provisions of Chapter 373, F.S. and Sections 40E-4.351(1), (2), and (4), F.A.C.

This Permit shall be subject to the General Conditions set forth in Rule 40E-4.381, F.A.C., unless waived or modified by the Governing Board. The Application, and the Environmental Resource Permit Staff Review Summary of the Application, including all conditions, and all plans and specifications incorporated by reference, are a part of this Permit. All activities authorized by this Permit shall be implemented as set forth in the plans, specifications, and performance criteria as set forth and incorporated in the Environmental Resource Permit Staff Review Summary. Within 30 days after completion of construction of the permitted activity, the Permittee shall submit a written statement of completion and certification by a registered professional engineer or other appropriate individual, pursuant to the appropriate provisions of Chapter 373, F.S. and Sections 40E-4.361 and 40E-4.381, F.A.C.

In the event the property is sold or otherwise conveyed, the Permittee will remain liable for compliance with this Permit until transfer is approved by the District pursuant to Rule 40E-1.6107, F.A.C.

SPECIAL AND GENERAL CONDITIONS ARE AS FOLLOWS:

- SEE PAGES 2 - 2 OF 5 (14 SPECIAL CONDITIONS).
- SEE PAGES 3 - 5 OF 5 (19 GENERAL CONDITIONS).

SOUTH FLORIDA WATER MANAGEMENT DISTRICT, BY ITS GOVERNING BOARD

On ORIGINAL SIGNED BY:

By ELIZABETH VEGUILLA
DEPUTY CLERK

Appendix C: Surface Water Project SFWMD Permit

PERMIT NO: 36-06263-P

PAGE 2 OF 5

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on March 15, 2012.
2. Operation of the surface water management system shall be the responsibility of the permittee.
3. Discharge Facilities: see Exhibit 2.1-2.4, 2.6 and 2.8.
4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.
5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.
6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.
7. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.
8. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.
9. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.
10. This permit is issued based on the applicant's submitted information which reasonably demonstrates that adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed surface water management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the surface water management system, if necessary, to eliminate the cause of the adverse impacts.
11. Prior to commencement of construction in wetlands and in accordance with the work schedule in Exhibit No. 3.3, the permittee shall submit documentation from the Florida Department of Environmental Protection that 1.37 freshwater herbaceous mitigation bank credits have been deducted from the ledger for Little Pine Island Mitigation Bank.
12. The authorization for construction of the surface water management system is issued pursuant to the water quality net improvement provisions referenced in Rule Section 40E-4.303(1), Florida Administrative Code; therefore, the state water quality certification is waived.
13. The Permittee shall utilize the criteria contained in the Best Management Practices plan (Exhibit 2.15) and on the applicable approved construction drawings for the duration of the project's construction activities.
14. The Permittee shall utilize the criteria contained in the Urban Stormwater Management Program (Exhibit 4.0-4.1) for post construction activities.

Appendix C: Surface Water Project SFWMD Permit

PERMIT NO: 36-06263-P

PAGE 3 OF 5

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373. F.S.
2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.
3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.
4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.
5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.
6. Within 30 days after completion of construction of the permitted activity, the permittee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.
7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to be in compliance with the permitted plans and specifications; and the entity approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved

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responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.
9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.
10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.
11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..
12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.
13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.
14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.
15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.
16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.
17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

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18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.
19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

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ENVIRONMENTAL RESOURCE PERMITS CHAPTER 40E-4 (01/07)

40E-4.321 Duration of Permits.

(1) Unless revoked or otherwise modified the duration of an environmental resource permit issued under this chapter or Chapter 40E-40, F.A.C., is as follows:

(a) For a conceptual approval, two years from the date of issuance or the date specified as a condition of the permit, unless within that period an application for an individual or standard general permit is filed for any portion of the project. If an application for an environmental resource permit is filed, then the conceptual approval remains valid until final action is taken on the environmental resource permit application. If the application is granted, then the conceptual approval is valid for an additional two years from the date of issuance of the permit. Conceptual approvals which have no individual or standard general environmental resource permit applications filed for a period of two years shall expire automatically at the end of the two year period.

(b) For a conceptual approval filed concurrently with a development of regional impact (DRI) application for development approval (ADA) and a local government comprehensive plan amendment, the duration of the conceptual approval shall be two years from whichever one of the following occurs at the latest date:

1. The effective date of the local government's comprehensive plan amendment,
2. The effective date of the local government development order,
3. The date on which the District issues the conceptual approval, or
4. The date on which the District issues a final order pertaining to the resolution of any Section 120.57, F.S., administrative proceeding or other legal appeals.

(c) For an individual or standard general environmental resource permit, the construction phase authorizing construction, removal, alteration or abandonment of a system shall expire five years from the date of issuance or such amount of time as made a condition of the permit.

(d) For an individual or standard general environmental resource permit, the operational phase of the permit is perpetual for operation and maintenance.

(e) For a noticed general permit issued pursuant to Chapter 40E-400, F.A.C., five years from the date the notice of intent to use the permit is provided to the District.

(2)(a) Unless prescribed by special permit condition, permits expire automatically according to the timeframes indicated in this rule. If application for extension is made by electronic mail at the District's e-Permitting website or in writing pursuant to subsection (3), the permit shall remain in full force and effect until:

1. The Governing Board takes action on an application for extension of an individual permit, or
2. Staff takes action on an application for extension of a standard general permit.

(b) Installation of the project outfall structure shall not constitute a vesting of the permit.

(3) The permit extension shall be issued provided that a permittee files a written request with the District showing good cause prior to the expiration of the permit. For the purpose of this rule, good cause shall mean a set of extenuating circumstances outside of the control of the permittee. Requests for extensions, which shall include documentation of the extenuating circumstances and how they have delayed this project, will not be accepted more than 180 days prior to the expiration date.

(4) Substantial modifications to Conceptual Approvals will extend the duration of the Conceptual Approval for two years from the date of issuance of the modification. For the purposes of this section, the term "substantial modification" shall mean a modification which is reasonably expected to lead to substantially different water resource or environmental impacts which require a detailed review.

(5) Substantial modifications to individual or standard general environmental resource permits issued pursuant to a permit application extend the duration of the permit for three years from the date of issuance of the modification. Individual or standard general environmental resource permit modifications do not extend the duration of a conceptual approval.

(6) Permit modifications issued pursuant to paragraph 40E-4.331(2)(b), F.A.C. (letter modifications) do not extend the duration of the permit.

(7) Failure to complete construction or alteration of the surface water management system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization in order to continue construction unless a permit extension is granted.

Specific Authority 373.044, 373.113, 668.003, 668.004, 668.50 FS. Law Implemented 373.413, 373.416, 373.419, 373.426, 668.003, 668.004, 668.50 FS. History-New 9-3-81, Amended 1-31-82, 12-1-82, Formerly 16K-4.07(4), Amended 7-1-86, 4-20-94, 10-3-95, 5-28-00, 10-1-06.

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Appendix D: Plant Species List

Scientific Name	Common Name	Designated Status				
		Status	FDACS	IRC	EPPC	FNAI
Family: Blechnaceae (midsorus)						
<i>Blechnum serrulatum</i>	swamp fern	native		S		G5
<i>Woodwardia virginica</i>	Virginia chain fern	native		R		G5
Family: Osmundaceae (royal fern)						
<i>Osmunda regalis var. spectabilis</i>	royal fern	native	CE	R		G5/T5
Family: Polypodiaceae (polypody)						
<i>Phlebodium aureum</i>	golden polypody	native		S		G5
Family: Psilotaceae (whisk-fern)						
<i>Psilotum nudum</i>	whisk-fern	native		S		G5
Family: Pteridaceae (brake fern)						
<i>Acrostichum danaeifolium</i>	giant leather fern	native		S		G5
Family: Schizaeaceae (curly-grass)						
<i>Lygodium microphyllum</i>	Old World climbing fern	exotic			I	G5
Family: Thelypteridaceae (marsh fern)						
<i>Thelypteris kunthii</i>	widespread maiden fern	native		S		G5
Family: Pinaceae (pine)						
<i>Pinus elliottii var. densa</i>	south Florida slash pine	native		S		G5/T4
Family: Alismataceae (water plantain)						
<i>Sagittaria graminea var. graminea</i>	grassy arrowhead	native		R		G5/T5
<i>Sagittaria latifolia</i>	duck potato	native		I		G5
Family: Araliaceae (ginseng)						
<i>Centella asiatica</i>	spadeleaf	native		S		G5
Family: Arecaceae (palm)						
<i>Sabal palmetto</i>	cabbage palm	native		S		G5
<i>Serenoa repens</i>	saw palmetto	native		S		G5/S4S5
Family: Bromeliaceae (pineapple)						
<i>Tillandsia fasciculata var. densispica</i>	cardinal airplant	native	E	AS		G5/T4T5
<i>Tillandsia usneoides</i>	Spanish moss	native		S		G5
Family: Cyperaceae (sedge)						
<i>Cyperus ligularis</i>	swamp flatsedge	native		S		G5
<i>Eleocharis cellulosa</i>	gulf coast spikerush	native		S		G4G5
<i>Fimbristylis puberula</i>	hairy fimbry	native		I		G5
<i>Fuirena scirpoidea</i>	southern umbrellasedge	native		AS		G5
<i>Rhynchospora colorata</i>	starrush whitetop	native		S		G5
<i>Rhynchospora tracyi</i>	Tracy's beaksedge	native		AS		G4
<i>Scleria sp.</i>	nutrush	native				
Family: Eriocaulaceae (pipewort)						
<i>Eriocaulon compressum</i>	flattened pipewort	native		R		G5
<i>Eriocaulon decangulare</i>	tenangle pipewort	native		R		G5
<i>Lachnocaulon anceps</i>	whitehead bogbutton	native		R		G5
<i>Syngonanthus flavidulus</i>	yellow hatpins	native		R		G5
Family: Haemodoraceae (bloodwort)						
<i>Lachnanthes carolina</i>	Carolina redroot	native		AS		G4
Family: Hydrocharitaceae (frog's-bit)						
<i>Egeria densa</i>	Brazilian waterweed	exotic				G5
Family: Hypoxidaceae (yellow stargrass)						
<i>Hypoxis juncea</i>	fringed yellow stargrass	native		R		G4
Family: Juncaceae (rush)						
<i>Juncus marginatus</i>	shore rush	native		R		G5
<i>Juncus megacephalus</i>	bighead rush	native		AS		G4G5
<i>Juncus roemerianus</i>	needle rush	native		R		G5

Appendix D: Plant Species List

Scientific Name	Common Name	Status	FDACS	IRC	EPPC	FNAI
Family: Marantaceae (arrowroot)						
<i>Thalia geniculata</i>	alligatorflag, fireflag	native		S		G4
Family: Orchidaceae (orchid)						
<i>Habenaria floribunda</i>	toothpetal false reinorchid	native		AS		G4
Family: Poaceae (grass)						
<i>Andropogon glomeratus</i> var. <i>glaucopsis</i>	purple bluestem	native		R		G5/T3T5
<i>Andropogon virginicus</i> var. <i>glaucus</i>	chalky bluestem	native		AS		G5/T4T5
<i>Aristida purpurascens</i>	arrowfeather threeawn	native		S		G5
<i>Aristida spiciformis</i>	bottlebrush threeawn	native		R		G4
<i>Aristida stricta</i>	wiregrass	native		S		G5
<i>Dactyloctenium aegyptium</i>	Durban crowfootgrass	exotic			II	G5
<i>Dichantherium erectifolium</i>	erectleaf witchgrass	native		AS		G4
<i>Dichantherium strigosum</i> var. <i>glabrescens</i>	rough hair witchgrass	native		S		G5/T4T5
<i>Eragrostis</i> sp.	lovegrass	depends on species				
<i>Eustachys glauca</i>	saltmarsh fingergrass	native		S		G4
<i>Imperata cylindrica</i>	cogongrass	exotic			I	
<i>Muhlenbergia capillaris</i> var. <i>filipes</i>	gulf hairawn muhly	native				G5/T5
<i>Panicum repens</i>	torpedograss	exotic			I	
<i>Phragmites australis</i>	common reed	native		AS		G5
<i>Rhynchelytrum repens</i>	rose natalgrass	exotic			I	
<i>Setaria parviflora</i>	knotroot foxtail	native		S		G5
<i>Sorghastrum secundum</i>	lopsided Indian grass	native		S		G5
<i>Sporobolus indicus</i>	smutgrass	exotic				G5
<i>Sporobolus junceus</i>	pineywoods dropseed	native		AS		G5
Family: Potamogetonaceae (pondweed)						
<i>Potamogeton illinoensis</i>	Illinois pondweed	native		I		G5
Family: Ruscaceae (Butcher's Broom)						
<i>Nolina atopocarpa</i>	Florida beargrass	native	T	CI		G3/S3
Family: Smilacaceae (smilax)						
<i>Smilax auriculata</i>	earleaf greenbrier	native		S		G4
<i>Smilax laurifolia</i>	laurel greenbrier	native		S		G5
<i>Smilax tamnoides</i>	bristly greenbrier	native		I		G5
Family: Typhaceae (cattail)						
<i>Typha latifolia</i>	broadleaf cattail	native		R		G5
Family: Xyridaceae (yelloweyed grass)						
<i>Xyris</i> sp.	yelloweyed grass	dependent on species				
Family: Acanthaceae (acanthus)						
<i>Ruellia caroliniensis</i>	Carolina wild petunia	native		I		G5
Family: Amaranthaceae (amaranth)						
<i>Iresine diffusa</i>	Juba's bush	native		S		G4G5
Family: Anacardiaceae (cashew)						
<i>Schinus terebinthifolius</i>	Brazilian pepper	exotic			I	G4
<i>Toxicodendron radicans</i>	eastern poison ivy	native		S		G5
Family: Annonaceae (custard-apple)						
<i>Asimina reticulata</i>	netted pawpaw	native		S		G4
Family: Apiaceae (carrot)						
<i>Eryngium aquaticum</i>	rattlesnakemaster	native		AS		G4
<i>Oxypolis filiformis</i>	water cowbane	native		S		G5
<i>Ptilimnium capillaceum</i>	mock bishopsweed	native		R		G5
Family: Apocynaceae (dogbane)						
<i>Asclepias lanceolata</i>	fewflower milkweed	native		R		G5
<i>Asclepias curassavica</i>	scarlet milkweed	exotic				G5
<i>Sarcostemma clausum</i>	white twinevine	native		S		G5

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Scientific Name	Common Name	Status	FDACS	IRC	EPPC	FNAI
Family: Aquifoliaceae (holly)						
<i>Ilex cassine</i>	dahoon holly	native		S		G5
<i>Ilex glabra</i>	gallberry	native		S		G5
Family: Asteraceae (aster)						
<i>Ageratina jucunda</i>	hammock snakeroot	native		R		G4
<i>Ambrosia artemisiifolia</i>	common ragweed	native		S		G5
<i>Baccharis angustifolia</i>	saltwater falsewillow	native		AS		G5
<i>Baccharis halimifolia</i>	groundsel tree	native		S		G5
<i>Bidens alba</i>	beggerticks/Spanish-needle	native		S		
<i>Bigelovia nudata subsp. Australis</i>	pineland rayless goldenrod	native		R		G5/T4T5
<i>Chaptalia tomentosa</i>	pineland daisy	native		R		G5
<i>Cirsium horridulum</i>	purple thistle	native		S		G5
<i>Coreopsis floridana</i>	Florida tickseed	native		I		G3G4
<i>Coreopsis leavenworthii</i>	Leavenworth's tickseed	native		S		G4G5/S4S5
<i>Emilia sonchifolia</i>	lilac tasselflower	exotic				
<i>Erechtites hieraciifolius</i>	fireweed	native		S		G5
<i>Eupatorium capillifolium</i>	dogfennel	native		S		G5
<i>Euthamia caroliniana</i>	slender flattop goldenrod	native		S		G5
<i>Flaveria linearis</i>	narrowleaf yellowtops	native		S		G5
<i>Iva microcephala</i>	pedmont marshelder	native		R		G5
<i>Liatris gracilis</i>	slender gayfeather	native		AS		G5
<i>Mikania cordifolia</i>	Florida Keys hempvine	native		AS		G5
<i>Mikania scandens</i>	climbing hempvine	native		S		G5
<i>Pterocaulon pycnostachyum</i>	blackroot	native		S		G5
<i>Pityopsis graminifolia</i>	narrowleaf silkgrass	native		S		G5
<i>Pluchea odorata</i>	sweetscent	native		S		G5
<i>Pluchea rosea</i>	rosy camphorweed	native		S		G4G5
<i>Rudbeckia hirta</i>	blackeyed Susan	native		R		G5
<i>Solidago odora var. chapmanii</i>	Chapman's goldenrod	native		S		G5/T5
<i>Solidago stricta</i>	wand goldenrod	native		S		G5
Family: Casuarinaceae (sheoak)						
<i>Casuarina equisetifolia</i>	Australian-pine	exotic			I	
Family: Chrysobalanaceae (coco plum)						
<i>Licania michauxii</i>	gopher apple	native		S		G4G5
Family: Convolvulaceae (morning-glory)						
<i>Ipomoea sagittata</i>	saltmarsh morning-glory	native		S		G5
Family: Clusiaceae (mangosteen)						
<i>Hypericum brachyphyllum</i>	coastalplain St. John's-wort	native		AS		G5
<i>Hypericum cistifolium</i>	roundpod St. John's-wort	native		AS		G5
<i>Hypericum fasciculatum</i>	sandweed	native		R		G5
<i>Hypericum myrtifolium</i>	myrtleleaf St. John's-wort	native		CI		G4G5
<i>Hypericum mutilum</i>	dwarf St. John's-wort	native		I		G5
<i>Hypericum reductum</i>	Atlantic St. John's-wort	native		R		G5
<i>Hypericum tetrapetalum</i>	fourpetal St. John's-wort	native		AS		G5
Family: Droseraceae (sundew)						
<i>Drosera capillaris</i>	pink sundew	native		R		G5
Family: Ericaceae (heath)						
<i>Lyonia fruticosa</i>	coastalplain staggerbush	native		S		G4
Family: Euphorbiaceae (spurge)						
<i>Stillingia aquatica</i>	corkwood	native		AS		G4G5
<i>Stillingia sylvatica</i>	queensdelight	native		S		G5/S4

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Scientific Name	Common Name	Status	FDACS	IRC	EPPC	FNAI
Family: Fabaceae (pea)						
<i>Acacia auriculiformis</i>	earleaf acacia	exotic			I	
<i>Crotalaria spectabilis</i>	showy rattlebox	exotic				
<i>Leucaena leucocephala</i>	white leadtrees	exotic			II	
<i>Mimosa quadrivalvis</i>	sensitive brier	native		R		G5
<i>Mimosa strigillosa</i>	powderpuff	native		I		G4G5
<i>Sesbania spp.</i>	Sesban	exotic				
Family: Fagaceae (beech)						
<i>Quercus geminata</i>	sand live oak	native		S		G5
<i>Quercus laurifolia</i>	laurel oak	native		S		G5
<i>Quercus virginiana</i>	live oak	native		S		G5
Family: Gentianaceae (gentian)						
<i>Sabatia bartramii</i>	Bartram's rosegentian	native		I		G4G5
<i>Sabatia brevifolia</i>	shortleaf rosegentian	native		I		G3G4
<i>Sabatia stellaris</i>	rose-of-plymouth	native		AS		G5
Family: Haloragaceae (watermilfoil)						
<i>Proserpinaca pectinata</i>	combleaf mermaidweed	native		R		G5
Family: Lamiaceae (mint)						
<i>Callicarpa americana</i>	American beautyberry	native		S		G5
<i>Hyptis alata</i>	musky mint	native		S		G5
<i>Physostegia purpurea</i>	eastern false dragonhead	native		I		G4G5
<i>Piloblephis rigida</i>	wild pennyroyal	native		R		G3G4
<i>Salvia lyrata</i>	lyre-leaf sage	native		CI		G5
Family: Lauraceae (laurel)						
<i>Cassytha filiformis</i>	love vine	native		S		G4G5
<i>Persea palustris</i>	swamp bay	native		S		G5
Family: Lentibulariaceae (bladderwort)						
<i>Pinguicula pumila</i>	small butterwort	native		R		G4
<i>Utricularia cornuta</i>	horned bladderwort	native		R		G5
Family: Loganiaceae						
<i>Mitreola sessilifolia</i>	swamp hornpod			R		G4G5
Family: Malvaceae (mallow)						
<i>Kosteletzkya virginica</i>	Virginia saltmarsh mallow	native		S		G5
<i>Melochia corchorifolia</i>	chocolateweed	exotic				
<i>Urena lobata</i>	caesarweed	exotic			I	
Family: Melastomataceae (melastome)						
<i>Rhexia nuttallii</i>	Nuttall's meadowbeauty	native		I		G4
Family: Menyanthaceae (bogbean)						
<i>Nymphoides aquatica</i>	big floatingheart	native		AS		G5
Family: Myricaceae (bayberry)						
<i>Myrica cerifera</i>	wax myrtle	native		S		G5
Family: Myrsinaceae (myrsine)						
<i>Rapanea punctata</i>	myrsine	native		S		G5
Family: Myrtaceae (myrtle)						
<i>Melaleuca quinquenervia</i>	punktree	exotic			I	
<i>Rhodomyrtus tomentosa</i>	rose myrtle	exotic			I	
<i>Syzygium cumini</i>	Java plum	exotic			I	
Family: Onagraceae (eveningprimrose)						
<i>Gaura angustifolia</i>	southern beeblossom	native		S		G5
<i>Ludwigia octovalvis</i>	Mexican primrosewillow	native		S		G5
Family: Orobanchaceae (broomrape)						
<i>Buchnera americana</i>	American bluehearts	native		S		G5

Appendix D: Plant Species List

Scientific Name	Common Name	Status	FDACS	IRC	EPPC	FNAI
Family: Passifloraceae (passionflower)						
<i>Passiflora suberosa</i>	corkstem passionflower	native		S		G5
Family: Polygalaceae (milkwort)						
<i>Polygala baldunii</i>	Baldwin's milkwort	native		R		G4
<i>Polygala nana</i>	candyroot	native		R		G5
Family: Rubiaceae (madder)						
<i>Psychotria nervosa</i>	shiny-leaved wild coffee	native		S		G5
<i>Spermacoce verticillata</i>	shrubby false buttonweed	exotic			II	G5
Family: Salicaceae (willow)						
<i>Salix caroliniana</i>	Carolina willow	native		S		G5
Family: Sapotaceae (sapodilla)						
<i>Sideroxylon reclinatum</i>	Florida bully	native		AS		G4G5
Family: Tetrachondraceae (tetrachondra)						
<i>Polypremum procumbens</i>	rustweed	native		S		G5
Family: Turneraceae (turnera)						
<i>Piriqueta cistoides</i>	pitted stripeseed	native		S		G5
Family: Verbenaceae (vervain)						
<i>Phyla nodiflora</i>	turkey tangle fogfruit	native		S		G5
Family: Veronaceae (speedwell)						
<i>Bacopa monnieri</i>	herb-of-grace	native		S		G5
Family: Violaceae (violet)						
<i>Viola palmata</i>	early blue violet	native		CI		G5
Family: Vitaceae (grape)						
<i>Ampelopsis arborea</i>	peppervine	native		S		G5
<i>Vitis aestivalis</i>	summer grape	native		R		G5
<i>Vitis rotundifolia</i>	muscadine	native		S		G5

Key:

EPPC (Florida Exotic Pest Plant Council)

I - Species that are invading and disrupting native plant communities

II - Species that have shown a potential to disrupt native plant communities

FDACS (Florida Department of Agriculture and Consumer Services)

E - Endangered

T - Threatened

CE - Commercially Exploited

IRC (Institute for Regional Conservation)

CI - Critically Imperiled

I - Imperiled

R - Rare

AS - Apparently Secure

S - Secure

FNAI (Florida Natural Areas Inventory)

G - Global Status

S - State Status

1 - Critically Imperiled

2 - Imperiled

3 - Rare, Restricted (otherwise vulnerable to extinction)

4 - Apparently Secure

5 - Demonstrably Secure

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Appendix E: Wildlife Species List

Scientific Name	Common Name	Designated Status		
		FWC	FWS	FNAI
MAMMALS				
Family: Dasypodidae (armadillos)				
<i>Dasyopus novemcinctus</i>	nine-banded armadillo *			G5
Family: Sciuridae (squirrels and their allies)				
<i>Sciurus carolinensis</i>	eastern gray squirrel			G5
Family: Leporidae (rabbits and hares)				
<i>Sylvilagus floridanus</i>	eastern cottontail			G5
Family: Felidae (cats)				
<i>Lynx rufus</i>	bobcat			G5
Family: Canidae (wolves and foxes)				
<i>Canis latrans</i>	coyote			G5
Family: Procyonidae (raccoons)				
<i>Procyon lotor</i>	raccoon			G5/S5
Family: Mustelidae (weasels, otters and relatives)				
<i>Lutra canadensis</i>	northern river otter			G5
Family: Mephitidae (skunks)				
<i>Mephitis mephitis</i>	striped skunk			G5
Family: Suidae (old world swine)				
<i>Sus scrofa</i>	feral hog *			G5
Family: Cervidae (deer)				
<i>Odocoileus virginianus</i>	white-tailed deer			G5/S5
BIRDS				
Family: Anatidae (swans, geese and ducks)				
Subfamily: Anatinae				
<i>Anas fulvigula</i>	mottled duck			G4/S3S4
<i>Lophodytes cucullatus</i>	hooded merganser			G5
Family: Odontophoridae (new world quails)				
<i>Colinus virginianus</i>	northern bobwhite			
Family: Columbidae (pigeons and doves)				
<i>Streptopelia decaocto</i>	Eurasian collared-dove *			G5
<i>Columbina passerina</i>	common-ground dove			G5/S4
<i>Zenaida macroura</i>	mourning dove			G5
Family: Caprimulgidae (goatsuckers)				
Subfamily: Chordeilinae				
<i>Chordeiles minor</i>	common nighthawk			G5/S5
Family: Apodidae (swifts)				
Subfamily: Chaeturinae				
<i>Chaetura pelagica</i>	chimney swift			G4G5/S4
Family: Trochilidae (hummingbirds)				
Subfamily: Trochilinae				
<i>Archilochus colubris</i>	ruby-throated hummingbird			G5
Family: Rallidae (coots and gallinules)				
<i>Gallinula galeata</i>	common gallinule			G5
<i>Fulica americana</i>	American coot			G5
Family: Gruidae (cranes)				
Subfamily: Gruinae				
<i>Grus canadensis pratensis</i>	Florida sandhill crane	T		G5/T2/S2S3

Appendix E: Wildlife Species List

Scientific Name	Common Name	Designated Status		
		FWC	FWS	FNAI
Family: Recurvirostridae (avocets and stilts)				
<i>Himantopus mexicanus</i>	black-necked stilt			G5
Family: Charadriidae (plovers)				
Subfamily: Charadriinae				
<i>Charadrius vociferus</i>	killdeer			G5
Family: Scolopacidae (sandpipers and phalaropes)				
Subfamily: Scolopacinae				
<i>Gallinago delicata</i>	Wilson's snipe			G5
<i>Tringa solitaria</i>	solitary sandpiper			G5
<i>Tringa melanoleuca</i>	greater yellowlegs			G5
<i>Tringa flavipes</i>	lesser yellowlegs			G5/S4
Family: Laridae (gulls)				
Subfamily: Larinae				
<i>Larus atricilla</i>	laughing gull			G5
<i>Larus delawarensis</i>	ring-billed gull			G5
Subfamily: Sterninae (terns)				
<i>Sternula antillarum</i>	least tern	T		G4/S3
<i>Sterna hirundo</i>	common tern			G5
Family: Ciconiidae (storks)				
<i>Mycteria americana</i>	wood stork	FT	T	G4/S2
Family: Anhingidae (anhingas)				
<i>Anhinga anhinga</i>	anhinga			G5
Family: Phalacrocoracidae (cormorants)				
<i>Phalacrocorax auritus</i>	double-crested cormorant			G5
Family: Ardeidae (herons, egrets, bitterns)				
<i>Ardea herodias</i>	great blue heron			G5/S5
<i>Ardea alba</i>	great egret			G5/S4
<i>Egretta thula</i>	snowy egret			G5/S3
<i>Egretta caerulea</i>	little blue heron	T		G5/S4
<i>Egretta tricolor</i>	tricolored heron	T		G5/S4
<i>Bubulcus ibis</i>	cattle egret			G5
<i>Butorides virescens</i>	green heron			G5/S4
<i>Nycticorax nycticorax</i>	black-crowned night-heron			G5/S3
<i>Nyctanassa violacea</i>	yellow-crowned night-heron			G5/S3
Family: Threskiornithidae (ibises and spoonbills)				
Subfamily: Threshiornithinae				
<i>Eudocimus albus</i>	white ibis			G5/S4
<i>Plegadis falcinellus</i>	glossy ibis			G5/S3
Family: Carthartidae (new world vultures)				
<i>Coragyps atratus</i>	black vulture			G5
<i>Cathartes aura</i>	turkey vulture			G5
Family: Pandionidae (ospreys)				
<i>Pandion haliaetus</i>	osprey			G5/S3S4
Family: Accipitrinae (hawks, kites, accipiters, harriers and eagles)				
<i>Elanoides forficatus</i>	swallow-tailed kite			G5/S2
<i>Circus cyaneus</i>	northern harrier			G5
<i>Accipiter striatus</i>	sharp-shinned hawk			G5
<i>Accipiter cooperii</i>	Cooper's hawk			G5/S3

Appendix E: Wildlife Species List

Scientific Name	Common Name	Designated Status		
		FWC	FWS	FNAI
<i>Haliaeetus leucocephalus</i>	bald eagle			G5/S3
<i>Buteo lineatus</i>	red-shouldered hawk			G5
<i>Buteo jamaicensis</i>	red-tailed hawk			G5
Family: Strigidae (true owls)				
<i>Bubo virginianus</i>	great horned owl			G5
<i>Athene cunicularia floridana</i>	Florida burrowing owl	T		G4/T3/S3
<i>Strix varia</i>	barred owl			G5
Family: Alcedinidae (kingfishers)				
<i>Ceryle alcyon</i>	belted kingfisher			G5
Family: Picidae (woodpeckers)				
Subfamily: Picinae				
<i>Sphyrapicus varius</i>	yellow-bellied sapsucker			G5
<i>Melanerpes carolinus</i>	red-bellied woodpecker			G5
<i>Picoides pubescens</i>	downy woodpecker			G5
<i>Picoides villosus</i>	hairy woodpecker			G5/S3
<i>Dryocopus pileatus</i>	pileated woodpecker			G5
<i>Colaptes auratus</i>	northern flicker			G5/S4
Family: Falconidae (falcons)				
Subfamily: Falconinae (falcons)				
<i>Falco sparverius</i>	American kestrel			G5
<i>Falco columbarius</i>	merlin			G5/S2
Family: Tyrannidae (tyrant flycatchers)				
Subfamily: Fluvicolinae				
<i>Sayornis phoebe</i>	eastern phoebe			G5
<i>Myiarchus crinitus</i>	great crested flycatcher			G5
Family: Laniidae (shrikes)				
<i>Lanius ludovicianus</i>	loggerhead shrike			G4/S4
Family: Vireonidae (vireos)				
<i>Vireo griseus</i>	white-eyed vireo			G5
<i>Vireo flavifrons</i>	yellow-throated vireo			G5
<i>Vireo olivaceus</i>	red-eyed vireo			G5
Family: Corvidae (crows, jays, etc.)				
<i>Cyanocitta cristata</i>	blue jay			G5
<i>Corvus brachyrhynchos</i>	American crow			G5
<i>Corvus ossifragus</i>	fish crow			G5
Family: Hirundinidae (swallows)				
Subfamily: Hirundinidae				
<i>Stelgidopteryx serripennis</i>	northern rough-winged swallow			G5
<i>Progne subis</i>	purple martin			G5/S5
<i>Tachycineta bicolor</i>	tree swallow			G5
<i>Hirundo rustica</i>	barn swallow			G5/S5
Family: Sittinae (nuthatches)				
<i>Sitta pusilla</i>	brown-headed nuthatch			G4/S3
Family: Troglodytidae (wrens)				
<i>Troglodytes aedon</i>	house wren			G5
<i>Cistothorus platensis</i>	sedge wren			G5/S5
<i>Thryothorus ludovicianus</i>	Carolina wren			G5

Appendix E: Wildlife Species List

Scientific Name	Common Name	Designated Status		
		FWC	FWS	FNAI
Family: Polioptilidae				
<i>Polioptila caerulea</i>	blue-gray gnatcatcher			G5
Family: Turdidae (thrushes)				
<i>Sialia sialis</i>	eastern bluebird			G5
<i>Turdus migratorius</i>	American robin			G5
Family: Mimidae (mockingbirds and thrashers)				
<i>Dumetella carolinensis</i>	gray catbird			G5
<i>Toxostoma rufum</i>	brown thrasher			G5
<i>Mimus polyglottos</i>	northern mockingbird			G5
Family: Sturnidae (starlings)				
<i>Sturnus vulgaris</i>	European starling *			G5
Family: Emberizine (sparrows and their allies)				
<i>Ammodramus savannarum</i>	grasshopper sparrow			G5
<i>Passerculus sandwichensis</i>	Savannah sparrow			G5
<i>Aimophila aestivalis</i>	Bachman's sparrow			G3/S3
<i>Pipilo erythrophthalmus</i>	eastern towhee			G5
Family: Icteridae (blackbirds, orioles, etc.)				
<i>Sturnella magna</i>	eastern meadowlark			G5
<i>Agelaius phoeniceus</i>	red-winged blackbird			G5
<i>Molothrus ater</i>	brown-headed cowbird			G5
<i>Quiscalus quiscula</i>	common grackle			G5
<i>Quiscalus major</i>	boat-tailed grackle			G5
Family: Parulidae (wood-warblers)				
<i>Seiurus aurocapilla</i>	ovenbird			G5
<i>Parkesia motacilla</i>	Louisiana waterthrush			G5/S2
<i>Mniotilta varia</i>	black-and-white warbler			G5
<i>Oreothlypis peregrina</i>	Tennessee warbler			G5
<i>Oreothlypis ruficapilla</i>	Nashville warbler			G5
<i>Geothlypis trichas</i>	common yellowthroat			G5
<i>Setophaga ruticilla</i>	American redstart			G5/S2
<i>Setophaga americana</i>	northern parula			G5
<i>Setophaga fusca</i>	Blackburnian warbler			G5
<i>Setophaga palmarum</i>	palm warbler			G5
<i>Setophaga pinus</i>	pine warbler			G5
<i>Setophaga coronata</i>	yellow-rumped warbler			G5
<i>Setophaga dominica</i>	yellow-throated warbler			G5
<i>Setophaga discolor</i>	prairie warbler			G5
<i>Setophaga virens</i>	black-throated green warbler			G5
Family: Cardinalidae (cardinals, some grosbeaks, new world buntings, etc.)				
<i>Cardinalis cardinalis</i>	northern cardinal			G5
REPTILES				
Family: Alligatoridae (alligator and caiman)				
<i>Alligator mississippiensis</i>	American alligator	FT(SA)	T(SA)	G5/S4
Family: Kinosternidae (musk and mud turtles)				
<i>Sternotherus odoratus</i>	common musk turtle			G5/S5
Family: Emydidae (box and water turtles)				
<i>Terrapene carolina bauri</i>	Florida box turtle			G5/T4

Appendix E: Wildlife Species List

Scientific Name	Common Name	Designated Status		
		FWC	FWS	FNAI
Family: Testudinidae (gopher tortoises)				
<i>Gopherus polyphemus</i>	gopher tortoise	T		G3/S3
Family: Polychridae (anoles)				
<i>Anolis carolinensis</i>	green anole			G5
<i>Anolis sagrei</i>	brown anole *			G5
Family: Scincidae (skinks)				
<i>Eumeces inexpectatus</i>	southeastern five-lined skink			G5
Family: Anguidae (glass and alligator lizards)				
<i>Ophisaurus ventralis</i>	eastern glass lizard			G5
Family: Colubridae (colubrids)				
<i>Coluber constrictor priapus</i>	southern black racer			G5/T5
<i>Lampropeltis getula floridana</i>	Florida kingsnake			G4
Family: Viperidae (vipers)				
Subfamily: Crotalinae (pit vipers)				
<i>Agkistrodon piscivorus conanti</i>	Florida cottonmouth			G5/S4
<i>Crotalus adamanteus</i>	eastern diamondback rattlesnake			G4/S3
<i>Sistrurus miliarius barbouri</i>	dusky pygmy rattlesnake			G5/T5
Family: Dipsadidae (rear-fanged snakes)				
<i>Diadophis punctatus punctatus</i>	southern ringneck snake			G5/S5
Family Natricidae (harmless live-bearing snakes)				
<i>Thamnophis sauritus sackenii</i>	peninsula ribbon snake			G5/S5
<i>Thamnophis sirtalis sirtalis</i>	eastern garter snake			G5
AMPHIBIANS				
Family: Leptodactylidae (tropical frogs)				
<i>Eleutherodactylus planirostris planirostris</i>	greenhouse frog *			G5
Family: Bufonidae (toads)				
<i>Bufo terrestris</i>	southern toad			G5
<i>Bufo quercicus</i>	oak toad			G5
Family: Hylidae (treefrogs)				
<i>Acris gryllus dorsalis</i>	Florida cricket frog			G5/T5
<i>Hyla cinerea</i>	green treefrog			G5
<i>Hyla femoralis</i>	pine woods treefrog			G5
<i>Hyla squirella</i>	squirrel treefrog			G5
<i>Osteopilus septentrionalis</i>	Cuban treefrog *			G5
<i>Pseudacris ocularis</i>	little grass frog			G5
Family: Microhylidae (narrowmouth toads)				
<i>Gastrophryne carolinensis</i>	eastern narrowmouth toad			G5
Family: Ranidae (true frogs)				
<i>Lithobates sphenoccephalus</i>	southern leopard frog			G5
<i>Rana grylio</i>	pig frog			G5
FISHES				
Family: Lepisosteidae (gar fish)				
<i>Lepisosteus platyrhincus</i>	Florida gar			G5
Family: Cyprinidae (minnows)				
<i>Notemigonus crysoleucas</i>	golden shiner			G5
Family: Callichthyidae (callichthyid armored catfishes)				
<i>Hoplosternum littorale</i>	brown hoplo *			

Appendix E: Wildlife Species List

Scientific Name	Common Name	Designated Status		
		FWC	FWS	FNAI
Family: Fundulidae (topminnows and killifishes)				
<i>Fundulus confluentus</i>	marsh killifish			G5
<i>Fundulus chrysotus</i>	golden topminnow			G5
Family: Cyprinodontidae (pupfishes)				
<i>Jordanella floridae</i>	American flagfish			G5
Family: Atherinopsidae (silversides)				
<i>Menidia beryllina</i>	inland silverside			G5
Family: Poeciliidae (livebearers)				
<i>Poecilia latipinna</i>	sailfin molly			G5
<i>Gambusia spp.</i>	mosquitofish			
Family: Centrarchidae (sunfishes basses)				
<i>Micropterus salmoides</i>	largemouth bass			G5
<i>Lepomis macrochirus</i>	bluegill			G5
<i>Lepomis microlophus</i>	redeer sunfish			G5
<i>Lepomis marginatus</i>	dollar sunfish			G5
Family: Cichlidae (cichlids)				
<i>Hemichromis letourneauxi</i>	African jewelfish, jewel cichlid *			G4G5
<i>Oreochromis aureus</i>	blue tilapia *			G5
INSECTS				
Family: Libellulidae (skimmer dragonflies)				
<i>Tramea onusta</i>	red saddlebag			G5
Family: Oxyopidae (lynx spiders)				
<i>Peucetia viridans</i>	green lynx spider			
Family: Acrididae (grasshoppers)				
<i>Romalea microptera</i>	eastern lubber grasshopper			G5
Family: Psyllidae (psyllids)				
<i>Boreioglycopsis melaleucae</i>	melaleuca psyllid *			
Family: Bibionidae (march flies)				
<i>Plecia nearctica</i>	lovebug *			G5
Family: Curculionidae (true weevils)				
<i>Oxyops vitiosa</i>	melaleuca weevil *			
Family: Papilionidae (swallowtails)				
<i>Papilio palamedes</i>	palamedes swallowtail			G4/S5
Family: Nymphalidae (brushfoots)				
Subfamily: Heliconiinae (longwings)				
<i>Agraulis vanillae</i>	gulf fritillary			G5/S5
Subfamily: Nymphalinae (brushfoots)				
<i>Junonia coenia</i>	common buckeye			G5/S5
<i>Anartia jatrophae</i>	white peacock			G5/S5
Subfamily: Danaidae (milkweed butterflies)				
<i>Danaus plexippus</i>	monarch			G4/S5
Family: Vespidae (wasps)				
<i>Poistes spp.</i>	paper wasp			
CRUSTACEANS				
Family: Ocypodoidea (ghost and fiddler crabs)				
Subfamily: Ocypodinae (fiddler crabs)				
<i>Uca stylifera</i>	fiddler crab			

Appendix E: Wildlife Species List

Scientific Name	Common Name	Designated Status		
		FWC	FWS	FNAI
Family: Cambaridae (crayfish)				
<i>Cambarus spp.</i>	crayfish			
GASTROPODS				
Family: Ampullariidae (apple snails)				
<i>Pomacea insularum</i>	island apple snail *			

KEY:

FWS (U.S. Fish & Wildlife Service)

E - Endangered

T - Threatened

T(SA) - Threatened for Similar Appearance

FNAI (Florida Natural Areas Inventory)

G - Global Rarity

S - State Rarity

T - Subspecies (of special population)

1 - Critically Imperiled

2 - Imperiled

3 - Rare, Restricted; otherwise vulnerable to extinction

4 - Apparently Secure

5 - Demonstrably Secure

* = Non-native

FWC (Florida Fish & Wildlife Conservation Commission)

FT/FE - Federally-listed Threatened/Endangered

FT(SA) - Federally-listed Threatened for Similar Appearance

E - Endangered

T - Threatened

SSC - Species of Special Concern

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Appendix F: Summary of Public Comments

Summary of Public Comments Received

Yucca Pens Preserve Land Management Plan, Second Edition

The Yucca Pens Preserve Land Management Plan, Second Edition was available for public comment from January 10, 2019 through February 18, 2019. The plan was made available to the public electronically through the Conservation 20/20 and Parks and Recreation websites. Citizens were informed of the plan and public meeting through a combination of a legal advertisement on the county website, an online press release, a legal notice published in the News Press on February 4, 2019, and a news release posted on both the Conservation 20/20 and Parks websites.

A public meeting was held on Monday, February 18, 2019 at 4:30 P.M. at the Northwest Regional Library. No members of the public attended the meeting, which contained a PowerPoint overview of the management plan including background on the historical land use, past and proposed management activities, and recreational uses.

There was one emailed response from a Regional Biologist with the Florida Fish and Wildlife Conservation Commission. His comments concerned an acronym used in the plan as well as a concern about exotic animals. The email is attached below.

Also attached is the Legal Display from the News-Press

Any questions about this summary should be directed to:

Tyler Marzella

Land Stewardship Coordinator

Lee County Parks and Recreation, Conservation 20/20

2959 Van Buren St

Fort Myers, FL 33916

tmarzella@leegov.com

239-220-7243

Appendix F: Summary of Public Comments

From: [Kemmerer, Mike](#)
To: [Marzella, Tyler](#)
Subject: [EXTERNAL] RE: Yucca Pens Preserve Land Management Plan Update
Date: Monday, January 14, 2019 1:52:37 PM

Tyler,

Just a couple of suggestions:

Page 5, paragraph 2 – I would change “work with outside partners” to “work with the Charlotte Harbor Flatwoods Initiative”. Lee Co. is a participating member.

Page 68, Exotic Animal Control – What about big lizard and snakes?

Mike Kemmerer, Certified Wildlife Biologist[©]
District Wildlife Biologist
Babcock Webb WMA
29200 Tucker Grade
Punta Gorda, FL 33955
941-833-2555

Appendix F: Summary of Public Comments

From: Marzella, Tyler <TMarzella@leegov.com>

Sent: Thursday, January 10, 2019 10:16 AM

To: Kemmerer, Mike <Mike.Kemmerer@MyFWC.com>; Sofferin, Seth <Seth.Sofferin@MyFWC.com>

Subject: Yucca Pens Preserve Land Management Plan Update

CAUTION:This email originated from outside of FWC. Whether you know the sender or not, do not click links or open attachments you were not expecting.

Good Morning

We have been updating the LMP for Yucca Pens Preserve, and as neighbors, I thought we would keep you all up to date. A copy of the draft can be found at this link.

<http://www.leegov.com/conservation2020/documents/LSP/YPP.pdf>

If you feel like reviewing it and sending any feedback feel free.

Thanks

Tyler

Tyler Marzella

Land Stewardship Coordinator

Conservation 20/20

3410 Palm Beach Blvd

Fort Myers, FL 33916

239-220-7243

TMarzella@leegov.com

www.leeparks.com

www.conservation2020.org

Please note: Florida has a very broad public records law. Most written communications to or from County Employees and officials regarding County business are public records available to the public and media upon request. Your email communication may be subject to public disclosure.

Under Florida law, email addresses are public records. If you do not want your email address released in response to a public records request, do not send electronic mail to this entity. Instead, contact this office by phone or in writing.

Appendix F: Summary of Public Comments

THE NEWS-PRESS

*Published every morning
Daily and Sunday
Fort Myers, Florida*

Affidavit of Publication

STATE OF FLORIDA
COUNTY OF LEE

Before the undersigned authority, personally appeared **Sue Bridges**, who on oath says that he/she is an Assistant of the News-Press, a daily newspaper, published in print and online at Fort Myers, in Lee County, Florida; that the attached copy of advertisement, being a

Legal Display

In the matter of:

D020419-23 Yuca Pens Preserve

In the court was published in said newspaper

and/or on the website in the issues of

February 4, 2019

Affiant further says that the said News-Press is a newspaper of general circulation daily in Lee, Charlotte, Collier, Glades and Hendry Counties and published at Fort Myers, in said Lee County, Florida and that said newspaper has heretofore been continuously published in said Lee County, Florida, each day, and has been entered as a second class mail matter at the post office in Fort Myers in said Lee County, Florida, for a period of one year next preceding the first publication of the attached copy of the advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Sue Bridges

Sworn to and subscribed before me this **4th day** of **February, 2019**.

By **Sue Bridges**

personally known to me or who has produced

as identification, and who did or did not take an oath.

Notary Public *Milagros A. Isberto*

Print Name: **Milagros A. Isberto**

My commission Expires: **July 11, 2020**

Lee County
Southwest Florida

PUBLIC NOTICE

To whom it may concern: A Public Meeting on the Yucca Pens Preserve Land Management Plan 10 year revision, will be held on Monday, February 18, 2019, starting at 4:30 pm at the Lee County Northwest Regional Library, 519 Chiquita Blvd., Cape Coral, FL 33993. A record will be made of this meeting.

The Management Plan will be available on-line at: <http://www.leegov.com/conservation2020/documents/LSP/YPP.pdf>.

Written comments will be accepted prior to the commencement of, or during the course of the scheduled meeting. Comment cards for oral comments, will be provided at the public meeting. Please conduct yourself accordingly.

Lee County will not discriminate against individuals with disabilities. To request an accommodation, contact Terri Farrell, (239) 533-7515, Florida Relay Service 711, or tfarrell@leegov.com, at least five business days in advance.

P.O. Rasner
NP-0000987602

D020419-23

