



# Lake Harney Wilderness Area

---

## Land Management Plan

2020

**LAKE HARNEY WILDERNESS AREA  
LAND MANAGEMENT PLAN**

**TABLE OF CONTENTS**

**INTRODUCTION ..... 1**

**WILDERNESS AREA OVERVIEW ..... 1**

    REGIONAL SIGNIFICANCE ..... 1

    ACQUISITION HISTORY ..... 1

**NATURAL RESOURCES OVERVIEW ..... 3**

    NATURAL COMMUNITIES..... 3

*Table 1. Approximate acreage for each plant community and percent uplands and wetlands. .... 4*

    WILDLIFE ..... 6

    CULTURAL RESOURCES..... 6

    SOILS ..... 6

    WATER RESOURCES ..... 7

**IMPLEMENTATION..... 9**

    RULES AND REGULATIONS ..... 9

**RESOURCE MANAGEMENT PROGRAM..... 9**

    MONITORING ..... 9

    RESTORATION ..... 9

    FIRE MANAGEMENT..... 10

*Table 2: Natural Community and Fire Return Interval..... 10*

    WILDLIFE ..... 12

    LISTED SPECIES..... 12

    INVASIVE SPECIES ..... 12

    CULTURAL RESOURCES PROTECTION..... 13

**LAND USE MANAGEMENT ..... 14**

    ACCESS..... 14

    RECREATION ..... 14

    ENVIRONMENTAL EDUCATION..... 14

    SECURITY ..... 14

**REFERENCES..... 16**

**TABLE OF FIGURES**

FIGURE 1: LOCATION MAP ..... 2

FIGURE 2: NATURAL COMMUNITIES MAP..... 5

FIGURE 3: SOILS ..... 8

FIGURE 4: BURN ZONE MAP..... 11

FIGURE 5: RECREATION MAP ..... 15

## LAND MANAGEMENT PLAN SUMMARY

### Lake Harney Wilderness Area

**Acres:** 363

**Location:** Geneva, Florida, Section 31, Township 19 South, Range 33 East

**Dates of Acquisition:** March 2006

#### **Key Resource Issues:**

The Lake Harney Wilderness Area is an approximately 363-acre property located on the St. Johns River and the northwest shore of Lake Harney. This site is home to an historic crossing of the Florida East Coast Railroad, Native American shell middens, several bald eagle's nests, oak hammocks and cypress swamps. This site also contains extensive floodplain marshes associated with Lake Harney which serve as important feeding grounds for wading birds and as a natural filter improving water quality.

#### **GENERAL DESCRIPTION:**

- **Security** – Unlike some of the other Natural Lands properties, there is no caretaker residing on this property. There is one park and walk access located at the eastern end of the property on Osceola Fish Camp Rd.
- **Invasive Species** – The amount of invasive exotic plants on the property is fairly extensive. Exotic plant species found at this site include cogongrass (*Imperata cylindrica*), tropical soda apple (*Solanum viarum*), camphor tree (*Cinnamomum camphora*), Brazilian pepper (*Schinus terebinthifolius*), Ceasar's weed (*Urena lobata*) and air potato (*Dioscorea bulbifera*).
- **Wildlife and Plants** – Listed species on the property include bald eagles and gopher tortoises. Various wading birds such as snowy egrets, little blue heron, tri-colored heron, and white ibis use the shoreline and pasture areas as forage sites.
- **Cultural Resources** – Lake Harney Wilderness Area is a significant property not only because of its natural resources, but also because of the historical resources on the property. There are at least two, and possibly three, known historical/archaeological sites located on the subject property.

#### **Key Land Use/Recreation Issues:**

Lake Harney Wilderness area is bisected by an historic railroad corridor that extends through the County. Through Seminole County's Trails Program, this has been developed into an unpaved nature trail known as the Flagler Trail. Existing uses on the property include hiking, equestrian, non-motorized biking and picnicking.

#### **General Description:**

- **Public recreation** - This site is open for hiking, non-motorized biking and equestrian use along the Flagler Trail.

**Lake Harney Wilderness Area  
Seminole County, Florida**

**LAND MANAGEMENT PLAN**

**INTRODUCTION**

This document provides guidelines for land management activities to be implemented within the Wilderness Area over the next ten years.

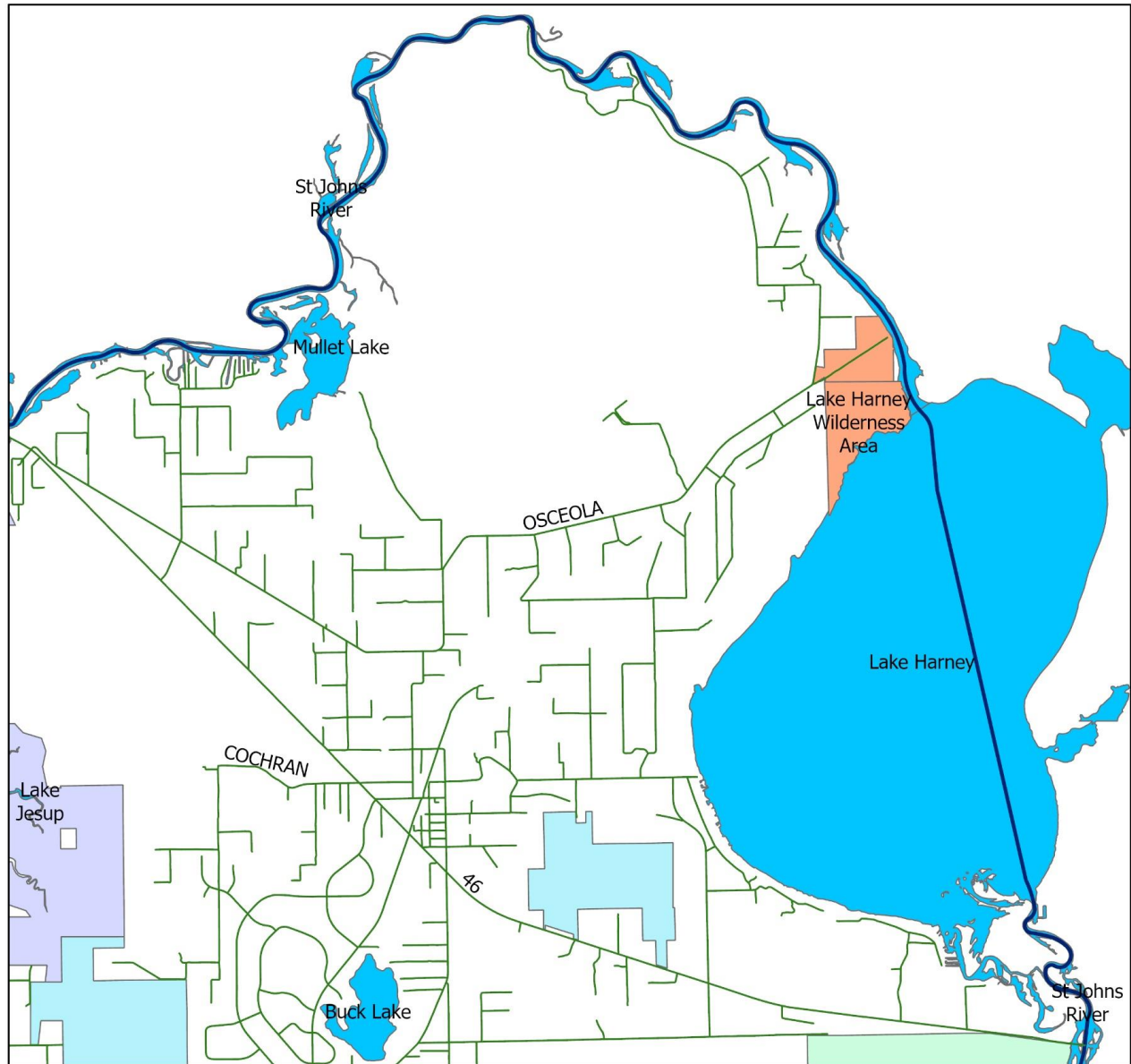
**WILDERNESS AREA OVERVIEW**

Regional Significance

The Lake Harney Wilderness Area (LHWA) was primarily purchased to protect and preserve property along the St. Johns River, which along with its tributaries, is arguably the life-blood of Seminole County's natural environment. This has been reinforced by the designation of the St. Johns River as an American Heritage River. By preserving this land and its surroundings as much as possible, the ecologically-sensitive St. Johns River will also receive an increased degree of protection. It is essential to protect the water quality, native vegetation, and wildlife habitats of this region for conservation purposes. Preserving this site will also enhance awareness of the existing cultural and historical resources as well as providing a connection to our more recent history by preserving the property that surrounds the Flagler Trail in this area.

Acquisition History

On September 14-15, 2006, the Florida Communities Trust (FCT) Governing Board met and selected the Seminole County's *Lake Harney Wilderness Area* project for funding during the FF6 grant cycle. This project encompassed a 112-acre parcel located in the northeast corner of Seminole County in Geneva, Florida. Seminole County and the FCT each contributed 50% for the purchase of this parcel. Seminole County funds for the purchase were from the Year 2000 Natural Lands Bond Referendum funds. The FCT provided a significant contribution in protecting the habitat along the St. Johns River and Lake Harney. LHWA provides visitors with hiking trails, interpretation and an overlook to the St. Johns River as well as birding, hiking, educational opportunities or just a quiet resting place.

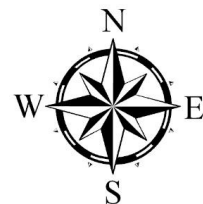


**Lake Harney Wilderness Area**  
**Figure 1: Location Map**



**Legend**

- Seminole County Preserved Lands
- FL Forest Service Preserved Lands
- SJRWMD Preserved Lands
- Streets
- Water Bodies
- Lake Harney Wilderness Area
- County Boundary



## NATURAL RESOURCES OVERVIEW

### Natural Communities

Approximately thirty percent of Lake Harney Wilderness Area has been altered from its original state and maintained as improved pasture. The remaining natural communities present include successional hardwood forest (mesic and scrubby flatwoods), mesic hammock, floodplain swamp, and floodplain marsh. All plant community descriptions were taken from FNAI, 2010.

#### *Successional Hardwood Forest (Scrubby Flatwoods)*

The overstory consists of mature slash (*Pinus elliottii*) and longleaf pines (*Pinus palustris*) with scattered sand live oaks (*Quercus geminata*). Understory plants include Chapman's oak (*Quercus chapmanii*), tarflower (*Befaria racemosa*), scrub oak (*Quercus inopinna*), myrtle oak (*Quercus myrtifolia*), rusty lyonia (*Lyonia ferruginea*), and saw palmetto (*Serenoa repens*). Groundcover includes sparse wiregrass (*Aristida stricta* var. *beyrichiana*), mock pennyroyal (*Hedeoma graveolens*), and other forbs. This is a fire dependent community and typically has a fire regime of 7 to 15 years.

There is no intact scrubby flatwoods community at Lake Harney Wilderness Area, but is most likely what the successional hardwood forests formerly were, along with mesic flatwoods. There are areas with wiregrass and longleaf pines, but most of the native groundcover is gone, and in some cases replaced by invasive species, including Caesar's weed, cogon grass, or tuberous sword fern. Restoration is unlikely at this time, but prescribed fire could be the first step to reducing fuel loads and hardwood cover.

#### *Mesic Hammock*

Mesic Hammock is characterized by a hardwood and/or cabbage palm overstory, and sometimes includes southern magnolia and pignut hickory in the subcanopy. Live oak is generally dominant, but water oak and laurel oak may occur as well, along with occasional slash or loblolly pine. Shrubs can include saw palmetto, beautyberry, *Ilex* sp., and possibly wild coffee. Panic grasses, witchgrasses and woodoats can all occur in the groundlayer, and epiphytes are common in the live oaks and cabbage palms, especially in central and south Florida. Generally mesic hammocks occur in slightly higher areas and are rarely inundated by water. They are not considered fire-adapted, but in some cases can form through fire suppression from more fire-dependent natural communities.

The mesic hammock is in fair to good condition. Some portions of it may be more successional from fire suppression in what were most likely flatwoods, but other portions appear to be intact mesic hammock. There are a few invasive species present in this community, mainly coral ardisia, tuberous sword fern, and Caesar's weed.

#### *Floodplain Swamp*

Floodplain swamps are heavily forested areas that occur along rivers or streams within the floodplain. Hydrophytic trees form a dense a canopy, including bald cypress (*Taxodium*

*distichum*), black gum (*Nyssa sylvatica*), and red maple (*Acer rubrum*). These swamps serve as important filters and flood storage areas for water making its way to Lake Harney.

The floodplain swamp at LHWA occurs along the floodplain marsh, and at the northernmost point on the property, close to the St. John’s River. It is in good condition, with some invasive species encroachment along the edges. Invasive plant control will be necessary to maintain this natural community.

*Floodplain Marsh*

Floodplain marshes are wetlands of herbaceous vegetation and low shrubs that occur in river floodplains. Emergent grasses, herbs, and shrubs that dominate this community include sand cordgrass (*Spartina bakeri*), maidencane (*Panicum hemitomom*), and coastalplain willow (*Salix carolinana*). This plant community is maintained by both regimes of fire and water. Fires burn on a one to five year basis under natural conditions and maintain the open herbaceous community by restricting shrub invasion.

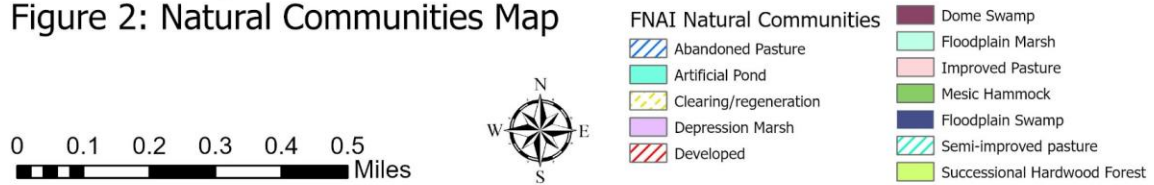
The floodplain marsh along Lake Harney and part of the St. Johns River has been disturbed and/or altered. A restoration project completed in 2006 restored most of the area along Lake Harney. Prescribed fire will be necessary to maintain the herbaceous nature of the floodplain, and will be considered when conditions permit.

**Table 1. Approximate acreage for each plant community and percent uplands and wetlands.**

<b>Community Type</b>	<b>Acres</b>
Abandoned Pasture	3.6
Clearing/regeneration	7.3
Depression Marsh	2.0
Developed	4.6
Dome Swamp	0.9
Floodplain Marsh	200.9
Floodplain Swamp	21.4
Improved Pasture	35.2
Marsh Lake	2.7
Mesic Hammock	38.2
Semi-improved pasture	2.3
Successional Hardwood Forest	30.7
<hr/>	
Percent Wetlands	65
Percent Uplands	35



Lake Harney Wilderness Area  
 Figure 2: Natural Communities Map





## Wildlife

Lake Harney Wilderness Area's diverse habitats support an equally diverse assemblage of wildlife. Common species recorded on site include whitetail deer (*Odocoileus virginiana*), wild turkey (*Meleagris gallopavo*), grey fox (*Urocyon cinereoargenteus*) and southern black racer. Several rare and listed species have also been observed including the American Alligator (*Alligator mississippiensis*), gopher tortoise (*Gopherus polyphemus*), sandhill crane (*Grus Canadensis*), Eastern indigo snake (*Drymarchon corais cooperi*) and Bald eagle (*Haliaeetus leucocephalus*).

## Cultural Resources

There are at least two, and possibly three, known historical/archaeological sites located on the subject property. Even though the third site has not been positively identified on the property, it is listed in the Florida Master Site File. These three sites are currently enrolled on the Florida Master Site File as **8Se11 (Huntingdon's Midden)**, **8Se12 (Cook's Ferry)**, and **8Se13 (Cook's Ferry/King Phillips Town Mound)**. The two Cook's Ferry middens are found on the easternmost border of the property along the St. Johns River and contain the following: ceramics, chipped stone, shells, glass beads, gold and silver works, and some animal and human remains. The two middens were disrupted in the early Nineteenth Century when Henry M. Flagler constructed a portion of the Okeechobee Railroad Line. Some remains of the once active railroad can still be seen today as the dividing line between the two middens.

The first site (8Se11) is located approximately one hundred sixty yards south of St. Johns River and one hundred thirty yards east of a small creek bed and is separated by a portion of the oak hammock. The midden contains predominately *Viviparus* snail shells. All three of the middens have been dated from the St. Johns I period (500 BC to AD 800) to St. Johns IIb period (AD1300-1513).

## Soils

### *Eaugallie*

The EauGallie series consists of very deep, very poorly or poorly drained, slowly permeable soils in flats, sloughs and depressional areas in the Southern Florida Flatwoods and to a lesser extent in the Atlantic Coast Flatwoods, the South Central Florida Ridge, and the Southern Florida Lowlands. They formed in sandy and loamy marine sediments in Peninsula Florida.

### *Manatee*

The Manatee series consists of very deep, very poorly drained, moderately permeable soils in depressions, broad drainageways, and on flood plains. They formed in sandy and loamy marine sediments.

### *Myakka*

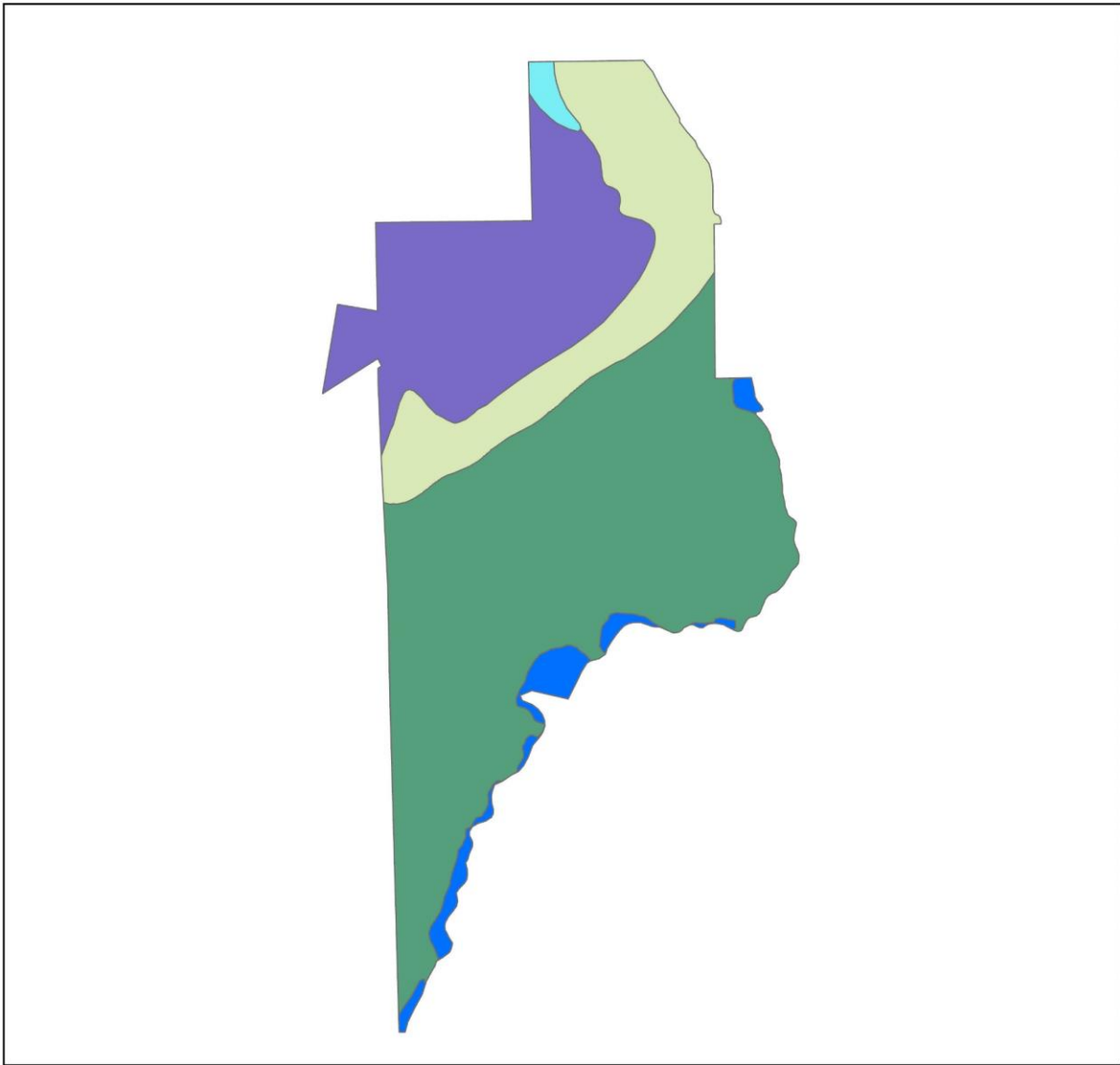
The Myakka series consists of very deep, very poorly or poorly drained, moderately rapid or moderately permeable soils that occur primarily in mesic flatwoods of peninsular Florida. They formed in sandy marine deposits.

### *Nittaw*

The Nittaw series consists of very poorly drained, slowly permeable soils that formed in thick deposits of clayey sediments of marine origin. These soils are in well-defined drainageways, broad, nearly level swamps, and marshes of central and southern peninsular Florida. They are subject to flooding and water standing above the soil surface for 6 months or more in most years during late spring, summer and fall.

### Water Resources

Lake Harney Wilderness Area protects the shorelines of two major water bodies in Seminole County, Lake Harney and the St. John's River. The floodplain marsh is extensive on the property, and water levels vary greatly throughout the year. At one point, ditches and berms drained the floodplain, but soon after acquisition, restoration took place through partnerships with the St. John's River Water Management District (SJRWMD) and the Florida Department of Transportation (FDOT). There are still some ditches on the property, with one intact on the northern end of the property leading out from private property to the St. John's River. There are also two depression marshes, surrounded by what is now pasture. Most of the property is located within the Lake Harney drainage basin, but the northern section is part of the St. John's River drainage basin.



Lake Harney Wilderness Area  
 Figure 3: Soil Map

Legend

- |   |  |
|---|--|
|  EAUGALLIE |  NITTAW |
|  MANATEE   |  WATER  |
|  MYAKKA    |  |



## **IMPLEMENTATION**

Integral to the goals and objectives for managing acquired lands in an acceptable manner are protection and restoration of those lands where feasible. An important element in protecting the resources is to prevent dumping, poaching, and other illegal activities. Appropriate land management activities, such as prescribed burning, forest management, and removal of exotics, should be continued to protect the viability of the site.

### Rules and Regulations

*Seminole County Code Chapter 190 Section 4* establishes the provisions relating to management and use of the properties acquired or managed by Seminole County Natural Lands Program.

## **RESOURCE MANAGEMENT PROGRAM**

### Monitoring

Monitoring natural resources is an important tool in gauging the overall health of an ecosystem. In 2006, NLD staff revised the monitoring plan to focus more closely on the effects of land management practices on flora and fauna. This property was purchased in 2006 and so has only been surveyed according to 2006 plan.

Gopher tortoise populations are monitored by staff via burrow surveys after prescribed burns and mechanical treatment. The data collected from this monitoring effort allow staff to estimate gopher tortoise populations on each property. There have not been any burrow surveys conducted at LHWA.

Currently, the Natural Lands program hosts a bioblitz twice a year on a different property. The first Lake Harney Wilderness Area bioblitz is scheduled for fall 2021.

### *Monitoring Strategies*

- Organize two bioblitzes on the property in the next 10 years
- Continue monitoring invasive plant species.
- Establish 2-4 photo points to monitor effects of mechanical treatment and prescribed fire if planned

### Restoration

Restoration and possibly prescribed burning will be part of the long-term goals this property. The pasture and scrubby flatwoods will be the primary areas of focus for restoration efforts. Many native species are still present in scattered groups throughout the pasture, evidence that a natural seed bank still exists. If funding and staff time becomes available, the NLP will restore approximately 30 acres of pasture to mesic flatwoods using slash pine, shiny lyonia, gallberry, wiregrass and other species known to be found in this habitat. The successional hardwood

forest/scrubby flatwoods portions of the property have high fuel loading, and mechanical treatment would most likely be necessary before prescribed fire could be applied.

Restoration of the pasture areas of the property may assist in protecting the water resources adjacent to the property by acting as a filtering source for water runoff. Additionally, the floodplain has had extensive mitigation work which has restored the hydrology and protects the shoreline along the St. Johns River.

*Restoration and Habitat Enhancement Accomplishments*

- 15 acres of pasture were planted with longleaf pine, saw palmetto, and wiregrass in 2010

*Restoration and Habitat Enhancement Strategies*

- Consider mechanical treatment before burning
- Consider continuing pasture restoration if funding and staff time becomes available

Fire Management

Fire is an integral part of the Florida landscape. Before the influx of settlers, lightning fires would burn unimpeded through fire adaptive communities and landscapes until extinguished via changes in weather and/or fuel characteristics. Native Americans would also burn at various times of the year to attract wild game and to keep the landscape open for easy travel. Today, due to increased development pressures on conservation areas, fires must be managed under strict regulations and performed according to set criteria depending on the site.

The objective of prescribed burning at Lake Harney Wilderness Area would be to restore the scrubby flatwoods and floodplain communities, promote species diversity, and reduce the accumulation of hazardous fuel loads and associated wildfire risks. This would also help to minimize and/or exclude smoke impacts to adjoining or nearby urbanized areas, roads and highways. However, the minimization of fuels at LHWA will mostly be accomplished through mechanical treatment and possibly prescribed burning in the future. Currently there are 3 eagles’ nests on the property and one or more is active every year. This limits our opportunity for any type of fire or mechanical treatment most of the year. The floodplain marsh in LH04, or the pastures in LH01 and LH03 would be the priority for prescribed fire.

*Fire Management Strategies*

- Conduct mechanical treatment or prescribed fire as appropriate conditions allow

**Table 2: Natural Community and Fire Return Interval**

<b>Plant Community</b>	<b>Recommended Fire Return Interval</b>
Floodplain Marsh	1 to 2 years
Improved Pasture	1 to 3 years
Scrubby Flatwoods	5 to 15 years

**Fire frequencies based on FNAI.**



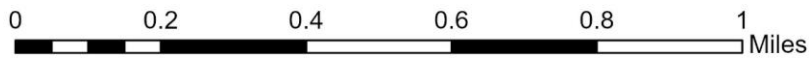
## Lake Harney Wilderness Area Figure 4: Fire History Map

This map shows each management zone, and the trails throughout the property. Most of the trails are also firelines. There is no fire history on the property. LH01, LH04, and portions of LH03 have fire-type acres, and may be considered for fire in the future.



### Legend

-  Trails
-  Management Zones



## Wildlife

Continued habitat management through roller chopping, mowing and burning should provide optimum habitat for wildlife species. Wildlife observations will continue to be added to the NLP database.

### *Wildlife Strategies*

- Continue to record wildlife observations.
- Continue land management activities.

## Listed Species

Surveys are conducted annually to verify the existence of listed plant and animal species.

### *Plants*

There have been no listed plant species identified on the property to date. Proper management of natural communities will enhance the site for any listed plant species found. Inventory of listed species has been scheduled for this property as part of the 2006 Monitoring Plan for the Natural Lands Program.

### *Animals*

Listed animal species include the American alligator (*Alligator mississippiensis*), gopher tortoise (*Gopherus polyphemus*), sandhill crane (*Grus Canadensis*), Eastern Indigo snake (*Drymarchon corais cooperi*) and bald eagle (*Haliaeetus leucocephalus*).

### *Listed Plant and Animal Strategies*

- Continue annual listed plant surveys.

## Invasive Species

Florida's climate is not only attractive to humans, but also to invasive exotic species. An invasive exotic species is defined as a species introduced to Florida, purposefully or accidentally, from a natural range outside of Florida with the ability to become established outside of cultivation and out-compete native species. Some examples of invasive exotic species in Florida include Brazilian pepper (*Schinus terbinthifolius*), air potato (*Dioscorea bulbifera*), old world climbing fern (*Lygodium microphyllum*), Cogongrass (*Imperata cylindrica*), feral hog (*Sus scrofa*), Cuban brown anole (*Anolis segrei*), nine-banded armadillo (*Dasytus novemcinctus*), Eurasian collared-dove (*Streptopelia decaocto*), Cuban treefrog (*Osteopilus septentrionalis*), and walking catfish (*Clarias batrachus*). The State of Florida spends millions of dollars each year either directly or indirectly through grants, trying to control invasive exotic species.

Since the impacts of invasive exotic species have both an environmental and economic impact, a non-governmental organization called the Florida Exotic Pest Plant Council (now the Florida Invasive Species Council) was formed. This organization provides a list of Florida's most invasive exotic species. The list is split into two categories: Category I species are those that are altering

native plant communities by displacing native species and Category II species are those that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. Lake Harney Wilderness Area has invasive species from both categories.

#### *Plants*

Invasive plant species found at this site include cogongrass (*Imperata cylindrica.*), tropical soda apple (*Solanum viarum*), camphor tree (*Cinnamomum camphora*), and tuberous sword fern (*Nephrolepis cordifolia*). Caesar's weed is also present on much of the property, especially in the firelines and more disturbed areas, but is also spreading into the more intact hammock systems. More recently, coral ardisia was discovered in the hammock in the eastern portion of the property, and scattered plants have been discovered outside of that main infestation as well. At least one contractor treatment may be necessary to reduce infestation sizes enough for staff to maintain the infestations. Staff should continue to monitor for new infestations as they patrol the property.

#### *Animals*

Currently, feral animals are not a problem on this wilderness area. If a problem arises, services will be contracted out to licensed trappers to remove the nuisance animals. Feral animal monitoring will be part of the monitoring plan established for the site. Invasive animal species found at Lake Harney Wilderness Area are the brown anole (*Anolis sagrei*), Cuban tree frog (*Osteopilus septentrionalis*), and the Mexican bromeliad weevil (*Metamasius callizona*).

#### *Invasive Plant and Animal Accomplishments since 2010*

- 25.5 acres treated by NLP staff

#### *Invasive Plant and Animal Strategies*

- Get all Category I exotic species under maintenance control

#### Cultural Resources Protection

Significant historic resources will be interpreted for the public, while ensuring protection of these resources. In addition, the Natural Lands Program will coordinate with Division of Historical Resources (DHR) on the protection and management of archaeological and historical resources. A review of the Master Site File quad sheets maintained by Department of State Division of Historical Resources indicates that there are three registered sites on the LHWA.

#### *Cultural Resources Accomplishments*

- We coordinated with DHR after a vandalism attempt on one of the resources, and were able to arrest and trespass the perpetrator

#### *Cultural Resources Strategies*

- Continue to monitor for disturbance



## LAND USE MANAGEMENT

### Access

There is one park and walk access located at the eastern end of the property on Osceola Fish Camp Road.

### *Access Strategies*

- Continue regular maintenance of public access area
- Maintain signs and kiosk

### Recreation

Current recreational opportunities include wildlife viewing, hiking and equestrian use along the Flagler Trail and fishing along the St. John's River. Future plans for the site include a possible canoe/kayak launch and camping facilities to enhance visitor experience.

### *Recreation Accomplishments*

- Boardwalk and observation tower constructed in 2015

### *Recreation Strategies*

- Continue regular maintenance of trails
- Install a canoe/kayak launch on the St. John's River
- Install camping facilities

### Environmental Education

While no educational facilities exist on this property, it can be used as an outdoor classroom for students of all ages.

### *Environmental Education Strategies*

- Continue education programs

### Security

Unlike other Natural Lands properties, there is no caretaker residing on this property. The security of Lake Harney Wilderness Area will continue to be addressed through the existing partnerships with SCSO and FWC. All possible locations for access whether designated or not, are gated, regularly evaluated and methods for control considered. Security of the site will continue to be monitored and further corrective actions may be required.

### *Security Accomplishments*

- The parking lot gate is now opened and closed by a security company each morning and evening

### *Security Strategies*

- Continue with current security
- Install a caretaker residence as recreational facilities expand



Sources: Esri, Mapbox, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

# Lake Harney Wilderness Area

## Figure 5: Recreation Map

0 0.09 0.17 0.26 0.34 0.43 Miles



- |                   |                       |
|-------------------|-----------------------|
| <b>Facilities</b> | Floodplain Loop Trail |
| Observation Tower | Floodplain Road       |
| Trailhead/Parking | North Pasture Line    |
| <b>Trails</b>     | River Loop Trail      |
| Boardwalk         | South Pasture Line    |
| Flagler Trail     | Safety Markers        |

## References

Brooks, H.K. 1981. *Guide to the Physiographic Regions of Florida*. Institute of Food and Agricultural Services, University of Florida. Gainesville, FL.

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

Myers, R.L. and John J. Ewel. 1990. *Ecosystems of Florida*. University of Central Florida Press. Gainesville, FL.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions. Available online. Accessed 10/2020.

Wunderlin, R.P. 1998. *Guide to the Vascular Plants of Florida*. The Board of Regents of the State of Florida. Tallahassee, FL.