Chuluota Wilderness Area

Land Management Plan

2020

CHULUOTA WILDERNESS AREA
LAND MANAGEMENT PLAN

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Chuluota Wilderness Area

Acres: 625

Location: Chuluota, Florida, Section 31, Township 21S, Range 33E

Dates of Acquisition: May, 1994

Key Resource Issues: The property was previously owned by the Fore family and used for livestock and hunting. Most of the plant communities remain intact with the exception of an area of improved pasture located near the northwest side of the property. The west side of the site is dominated by xeric communities of sand pine scrub and scrubby flatwoods that grade down towards the east into baygall and mesic flatwoods. Two ephemeral ponds exist in the xeric communities in the west, central area of the property. Recent State purchases have significantly increased the size of the Little-Big Econ State Forest which now borders this site on its north, east and portion of its south boundary. A portion of the trail system on-site was identified on a survey from 1843 and was believed to have been used to travel from Fort Christmas to Fort Taylor and Lake Jesup.

GENERAL DESCRIPTION:

- **Security** – There is caretaker residence on-site near the entrance of the property. A law enforcement officer is usually the occupant.
- **Fire** – The property is divided into 27 burn zones. Prescribed burning on the property was initiated in 2000 and continues today.
- **Wildlife and Plants** – Several listed species have been recorded on site including Curtis's milkweed (*Asclepias curtissii*), gopher tortoise (*Gopherus polyphemus*) and sandhill crane (*Grus canadensis pratensis*).
- **Education** – While no facilities exist on site, the CWA has been used as an outdoor learning destination for high school and university ecology/biology students.

Key Land Use/Recreation Issues: This wilderness area provides opportunities for a variety of recreational uses including environmental education, hiking, biking, horseback riding, and wildlife viewing.

- **Access** – There are three access points established on site. The primary access and vehicle parking are located at the east end of Curryville Road and a walk thru opening is established on the south line at the northern terminus of Brown Road in adjacent Orange County. There is also a walk thru opening for the Florida Trail between CWA and the Charles Bronson State Forest.
- **Public recreation** – This site is open for hiking, non-motorized biking, equestrian use and wildlife viewing.

Chuluota Wilderness Area
Seminole County, Florida

LAND MANAGEMENT PLAN

INTRODUCTION

This document provides guidelines for land management activities to be implemented within the Chuluota Wilderness Area over the next ten years. This is the second land management plan for this property.

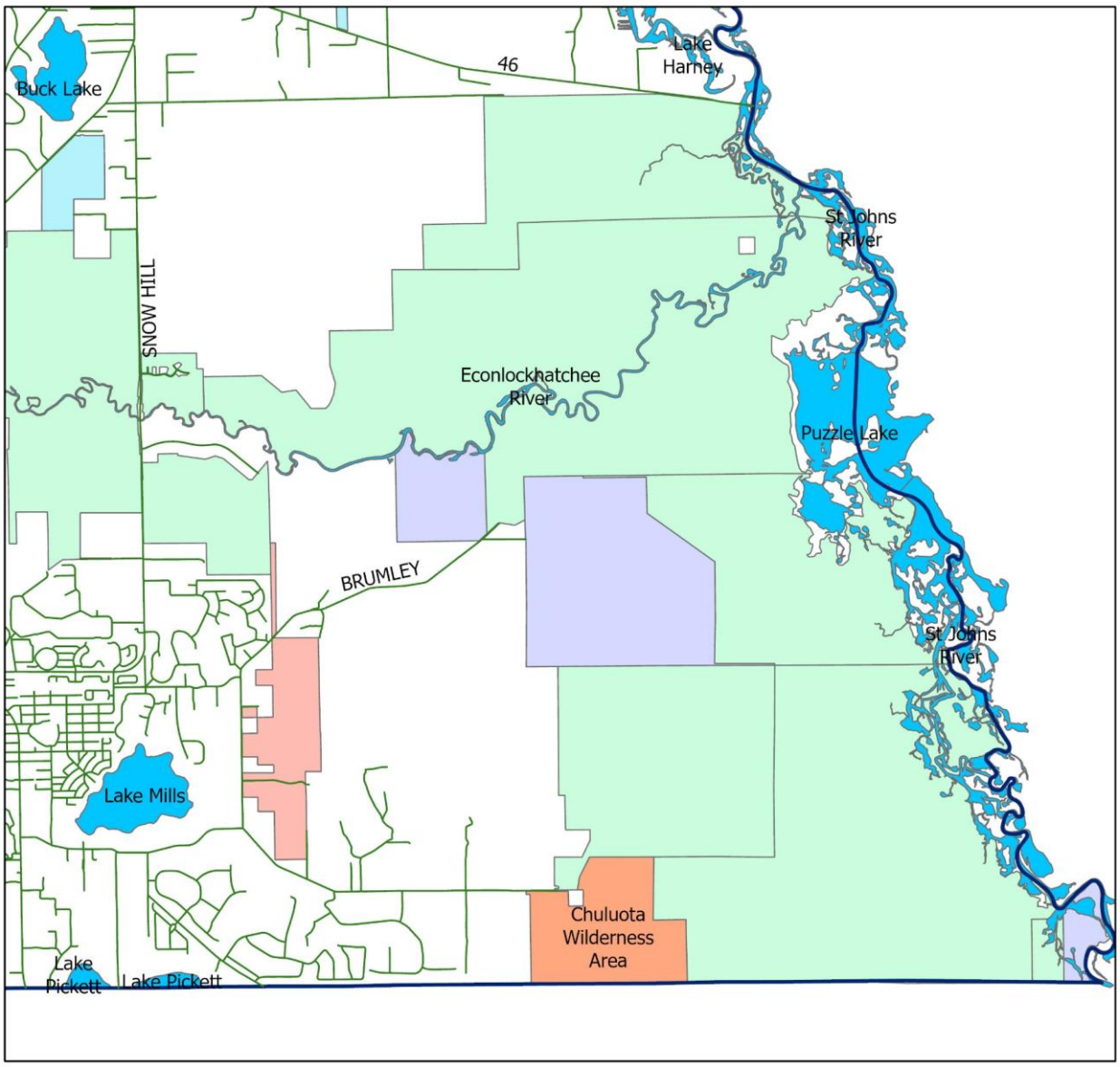
WILDERNESS AREA OVERVIEW

Regional Significance

The Chuluota Wilderness Area (CWA) is a 625-acre natural area located in southeastern Seminole County. CWA is a portion of a wilderness corridor that continues through the Little-Big Econ State Forest and the Charles Bronson Memorial State Forest that stretches along the Econ-St. Johns river corridors south into Orange County. The property protects wetlands and scrub communities within its boundary and offers a wilderness experience in a remote area of the County.

Acquisition History

This property was purchased from the Fore family in May of 1994.



Chuluota Wilderness Area

Figure 1: Location Map

0 0.38 0.75 1.5 2.25 3 Miles

Legend

- Seminole County Preserved Lands
- FL Forest Service Preserved Lands
- SJRWMD Preserved Lands
- US Forest Service Preserved Lands
- Streets
- Water Bodies
- Chuluota Wilderness Area
- County Boundary

N W E S

NATURAL RESOURCES OVERVIEW

Natural Communities

There are four dominant natural plant communities on this property, wet flatwoods, mesic flatwoods, scrubby flatwoods, and sand pine scrub. Basin swamp, mesic hammock and depression marshes are also present on the property. Plant communities and fire regimes are taken from FNAI, 2010.

Wet Flatwoods

Wet flatwoods habitat is characterized as a forest with minimal midstory and a groundcover of hydrophytic grasses, herbs, and low shrubs. The pine canopy at CWA is mainly pond pine (*Pinus serotina*). The midstory has scattered bay trees, wax myrtle (*Myrica cerifera*), gallberry, and cabbage palm. Herbs include wiregrass (*Aristida stricta var. beyrichiana*), blue maidencane (*Amphicarpum muhlenbergianum*), and/or hydrophytic species such as coastalplain yellow-eyed grass (*Xyris ambigua*), Carolina redroot (*Lachnanthes caroliana*), beaksedges (*Rhynchospora chapmanii, R. latifolia, R. compressa*), among others.

The wet flatwoods at CWA are currently in fair condition. While the species components are still intact, the groundcover is sparse in areas, most likely due to some sort of timber planting operations, or clearing for agriculture at some point. Timbering is necessary due to the thick canopy of pond pines, and then prescribed fire needs to be applied. There are also scattered invasive species such as coral ardisia (*Ardisia crenata*) and climbing ferns (*Lygodium sp.*) throughout the wet flatwoods.

Mesic Flatwoods

Mesic and wet flatwoods dominate the eastern side of the CWA and covers approximately 300 acres total. The overstory consists of pond pine and slash pine (*Pinus elliottii*) with scattered cabbage palms (*Sabal palmetto*). Understory is predominantly gallberry (*Ilex glabra*) and saw palmetto (*Serenoa repens*). Other species include wire grass (*Aristida stricta*), bushy bluestem (*Andropogon glomeratus* var. *glaucopsis*), and St. Johns wort (*Hypericum fasciculatum*). This is a fire dependent community which, according to the Florida Natural Areas Inventory has a fire regime of every 2 to 4 years.

The mesic flatwoods are in fair condition. Similar to the wet flatwoods, groundcover can be sparse, and pine trees are too dense. Once timbered, prescribed fire will help restore this community.

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 at CWA is in great condition. The ecotones may have suffered from fire suppression, and some areas may have been flatwoods or scrub/xeric hammock at one point, but overall species composition is intact and there are few invasive species, except for occasional coral ardisia plants on the southern edge.

Scrubby Flatwoods
Approximately 93 acres of the property is occupied by scrubby flatwoods. The overstory consists of mature slash (*Pinus elliottii*) and longleaf pines (*Pinus palutris*) 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. Groundcover includes sparse wiregrass, mock pennyroyal (*Hedeoma graveolens*), and other forbs. This is a fire dependent community and typically has a fire regime of 5 to 15 years.

The scrubby flatwoods at CWA is in good condition, but needs more frequent, growing season fire. Florida mice have been captured in the scrubby flatwoods at CWA in the past, and keeping this community in good condition is a high priority.

Scrub
Approximately 135 acres of this rare upland habitat exist on the western portion of this site. The overstory consist of mature sand pines (*Pinus clausa*) with an understory of sand live oak, rusty lyonia and chapman's oak. Understory plants include rosemary (*Ceratiola erecoides*), saw palmetto and smaller, younger specimens of the canopy species. Ground cover is sparse but includes lichens such as spike moss (*Cladonia sp*.). This is a fire dependent community with a fire regime of from 10-30 years.

The scrub at Chuluota Wilderness Area is a mix of sand pine and rosemary scrub. It is in good condition in many areas, with an intact vegetative component. Prescribed fire is needed on a rare basis, but more frequent fire may make it easier for the county to burn with current resources, due to lower fuel loads. Mechanical treatment may be needed in areas where fuel is too high to burn safely.

Basin Swamp
Basin swamps are heavily forested areas that occur in large landscape depressions. Bald cypress (*Taxodium distichum*), black gum (*Nyssa sylvatica*), and red maple (*Acer rubrum*) trees form a dense canopy which creates a shaded, cool microclimate for a diverse assemblage of wildlife. Other species include slash pine, dahoon (*Ilex cassine*), sweet bay (*Magnolia virginiana*), and lollolly bay (*Gordonia lasianthus*).

The basin swamp at CWA is in good condition. The main problem in this natural community is invasive species. Coral ardisia is spread throughout the basin swamp, and in some areas the infestation level is high. Tuberous sword fern (*Nephrolepis cordifolia*) and climbing fern can also be found in this community. Multiple treatments will be necessary to get these species into a maintenance level of control.

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

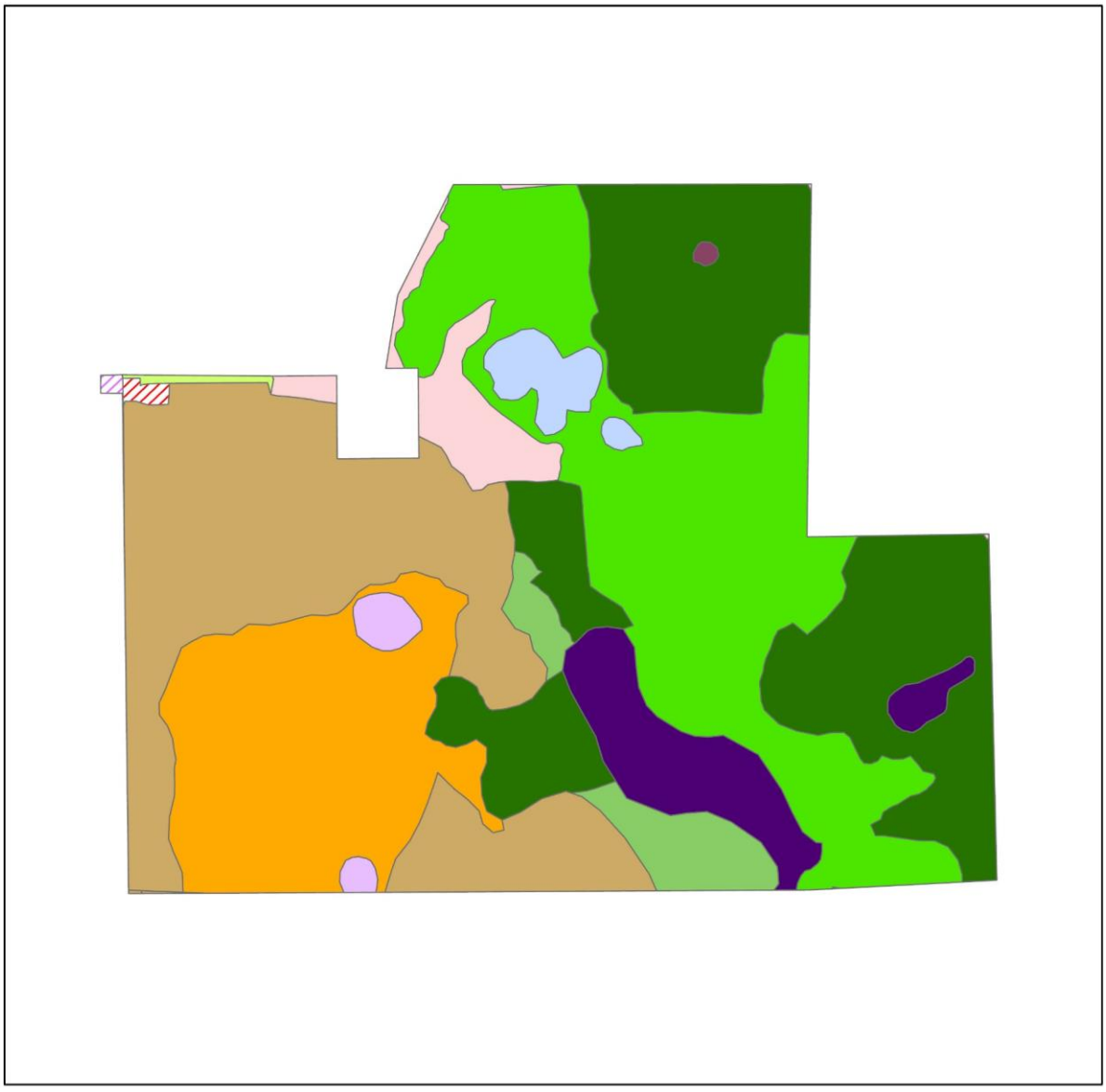
Community Type	**Acres**
Basin Swamp	33.5
Baygall	10.9
Depression Marsh	5.4
Developed	1.3
Dome Swamp	0.6
Improved Pasture	19.7
Mesic Flatwoods	151.2
Mesic Hammock	19.7
Scrub	134.2
Scrubby Flatwoods	92.6
Successional Hardwood Forest	1.4
Utility Corridor	0.6
Wet Flatwoods	149.5
Xeric Hammock	9.4
Percent Wetlands	8
Percent Uplands	92

Wildlife

The Chuluota Wilderness Area's diverse habitats support an equally diverse assemblage of wildlife. Several rare and listed species have also been observed including red widow spider (*Latrodectus bishopi*), gopher tortoise (*Gopherus polyphemus*), sandhill crane (*Grus Canadensis*), sherman's fox squirrel (*Sciurus niger shermani*), Eastern Indigo snake (*Drymarchon corais cooperi*) and Florida mouse (*Podomys floridanus*). Common species recorded on site include whitetail deer (*Odocoileus virginiana*), wild turkey (*Meleagris gallopavo*), grey fox (*Urocyon cinereoargenteus*) and southern black racer (*Coluber constrictor priapus*).

Cultural Resources

According to Seminole County Code, Chapter 190, "All cultural and archeological resources on Natural Lands are protected." A review of the publication "Cultural Resources Study of Seminole County, Florida: Archaeology Volumes I & II" indicates that there are two small midden-like campsites on the property.


Chuluota Wilderness Area
Figure 2: Natural Communities Map
0 0.1 0.2 0.3 0.4 0.5
Miles
N
W
E
S
Legend
FNAI Natural Communities
Basin Swamp
Baygall
Depression Marsh
Developed
Dome Swamp
Improved Pasture
Mesic Flatwoods
Mesic Hammock
Scrub
Scrubby Flatwoods
Utility Corridor
Wet Flatwoods
Successional Hardwood Forest

Soils

Basinger

The Basinger series consists of very deep, poorly drained and very poorly drained, rapidly permeable soils in sloughs, depressions, low flats, and poorly defined drainageways. They formed in sandy marine sediments.

Brighton

The Brighton series consists of very deep, very poorly drained, moderately rapid to rapidly permeable organic soils in depressions, freshwater marshes, and swamps in peninsular Florida.

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.

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.

Paola

The Paola series consists of very deep, excessively drained soils that formed in sandy marine sediments. Paola soils are on hills, ridges, and flats on marine terraces.

Tavares

The Tavares series consists of very deep, moderately well drained soils that formed in sandy marine or eolian deposits. Tavares soils are on hills, ridges and knolls of the lower Coastal Plain.

Pineda

This very deep, nearly level, poorly drained soil is on broad low flats, hammocks, sloughs, depressions, poorly defined drainageways and flood plains in the Southern Florida Flatwoods and to a less extent in South Central Florida Ridge, Southern Florida Lowlands, Florida Everglades and Associated Areas, North Central Florida Ridge and Eastern Gulf Coast Flatwoods. They formed in thick beds of sandy and loamy marine sediments.

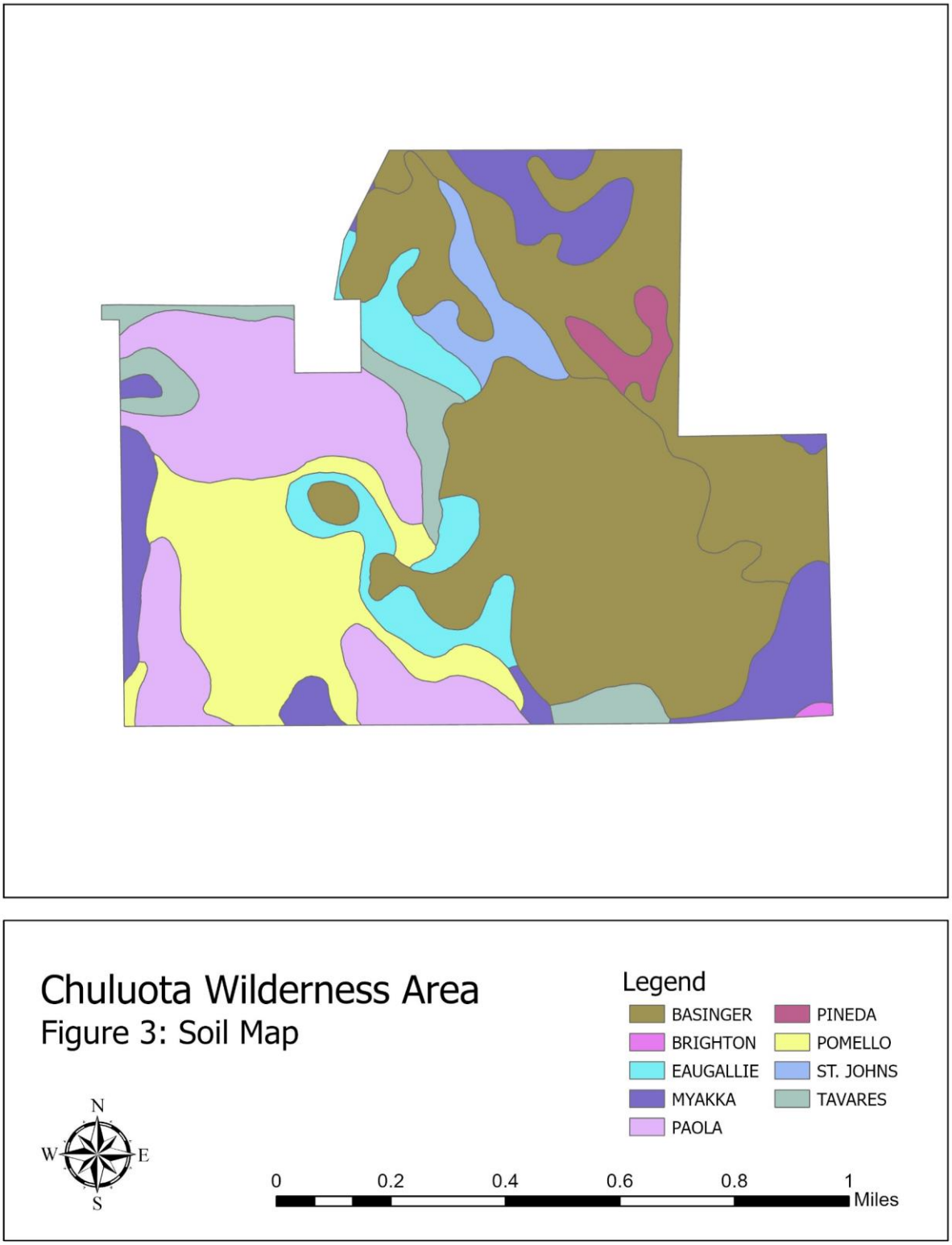
Pomello

The Pomello series consists of very deep, moderately well to somewhat poorly drained soils that formed in sandy marine sediments. Pomello soils are on ridges, hills, and knolls in the flatwoods on marine terraces.

St. Johns
The St. Johns series consists of very deep, very poorly or poorly drained, moderately permeable soils on broad flats and depressional areas of the lower Coastal Plain. They formed in sandy marine sediments.

Tavares
The Tavares series consists of very deep, moderately well drained soils that formed in sandy marine or eolian deposits. Tavares soils are on hills, ridges and knolls of the lower Coastal Plain.

Water Resources
There are two depression marshes on the property. The ephemeral ponds play a key role in the reproduction of several amphibian species such as the barking tree frog, dwarf salamander and Florida gopher frog as well as provide nesting habitat for sandhill cranes. Water also ponds throughout the wet season in both the basin swamp and in areas of the flatwoods on the eastern portion of the property. The property is part of the Puzzle Lake drainage basin.


Chuluota Wilderness Area
Figure 3: Soil Map
Legend
BASINGER
BRIGHTON
EAUGALLIE
MYAKKA
PAOLA
PINEDA
POMELLO
ST. JOHNS
TAVARES
N
W
E
S
0
0.2
0.4
0.6
0.8
1
Miles

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. The Natural Lands Program has developed a monitoring plan that encompasses all sites. From 1996 until June 2004, baseline monitoring was conducted on the property. This included herp arrays, drift fences, cover boards, bird surveys, marking gopher tortoises, photo points, small mammal trapping, fish and turtle traps and bird/bat boxes.

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.

Currently, the Natural Lands program hosts a bioblitz twice a year on a different property. A bioblitz occurred at CWA in Spring 2014. The next one is currently scheduled for Fall 2022.

Monitoring Accomplishments

- Gopher tortoise burrow monitoring occurred in 2011, 2015, 2019, and 2020
- Organized a bioblitz in 2014 - 37 new species recorded

Monitoring Strategies

- Continue organizing bioblitzes
- Continue monitoring burrows after mechanical treatment and prescribed fire
- Continue monitoring invasive plant species.
- Establish 5-10 photo points to monitor effects of mechanical treatment and prescribed fire

Restoration and Habitat Enhancement

Restoration of the fire dependent communities is an ongoing process using both prescribed fire and mechanical treatments. The eastern portion of the property will need pine tree thinning in

order to restore the mesic and wet flatwoods. Once thinning has occurred, prescribed fire will be possible. Sections of the scrub may also need mechanical treatment before prescribed fire can occur.

There is a pasture in the north central portion of the property, but unless increased funding and staffing becomes available, pasture restoration is not a priority. The pasture is currently maintained by mowing once/year.

Restoration and Habitat Enhancement Accomplishments

- 83 acres of scrub were mowed in April 2020

Restoration and Habitat Enhancement Strategies

- Conduct mechanical treatment in scrub as needed
- SCNLP staff, in coordination with the Florida Division of Forestry, are evaluating the possibility of timber thinning on the east side of the Chuluota Wilderness Area and the clear cutting of Sand Pine on the northwest portion of the site.
- Consider 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. Also, Native Americans would burn at various times of the year to attract wild game and to keep the landscape open for easy travel. Today, due to increased urban 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 Chuluota Wilderness Area is to create a mosaic of native plant 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.
Fire is used routinely on this property as a management tool.

Chuluota Wilderness Area has many different fire-type natural communities. Scrub, scrubby flatwoods, and some remnant sandhill comprise the western portion of the property. Many of these zones have had at least one fire or mechanical treatment. The natural communities may be re-examined as fire continues to reveal portions of what may have been sandhill at one time.

The eastern portion of the property is a mix of wet and mesic flatwoods, with some baygall, dome swamp, and basin swamp mixed in. This may have been wet prairie at one point in time, but there is now a dense canopy of pond pine throughout these flatwoods. Timbering will need to occur before fire can be reintroduced slowly here. Even though the management zones 1 and 5 need forest management before they can be burned, their fire priority is still a high. Fuel reduction and habitat restoration in these areas should be considered a priority for this property.

C06 and C07 do not currently have a fireline between them, but to burn the scrub in C06, a line should be installed. There is no continuous line on the south boundary due to the basin swamp in C07, and to burn that zone, a line would most likely be needed as well.

Currently 56% of the burnable acres at CWA have been maintained within the proper fire return interval (FRI). However, on the property overall, only about 22% of the acreage is within the proper FRI. More efforts needs to be spent in the next decade towards making the eastern portion of the property burnable. Using just the burnable acreage, 19.4 acres should be burned every year on this property. This number will vary wildly because the majority of those acres are scrub, which does not need to burn frequently. However, looking at the property as a whole, 148.5 acres should be burned annually, mainly due to the flatwoods in the eastern portion, as they need to be burned on a more frequent rotation.

Fire Management Accomplishments

- Since 2010, 8 prescribed burns have been completed on the property on 7 burn zones, totaling 113.6 acres

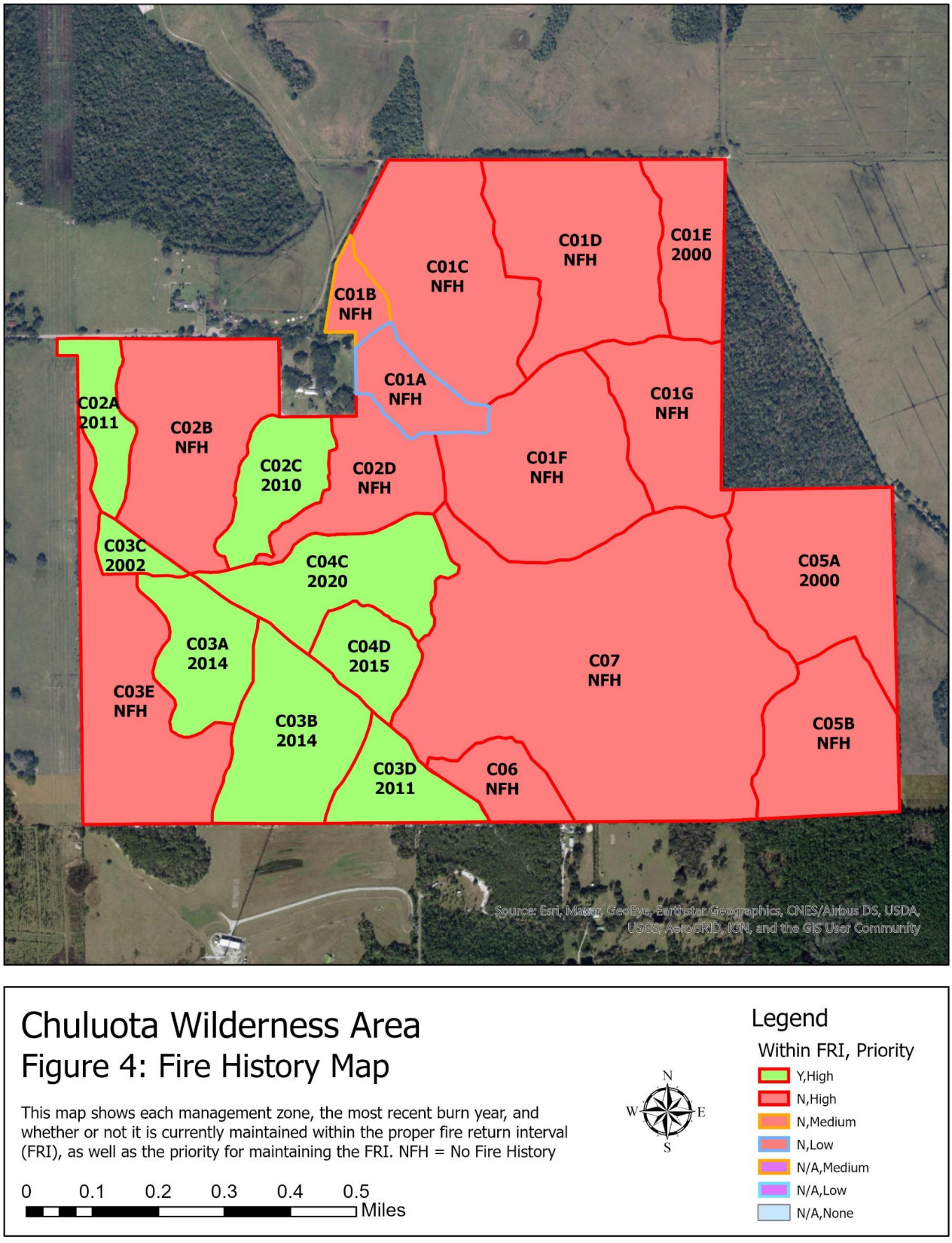
Fire Management Strategies

- Conduct 50% lightning season burns.
- Maintain 70% of the fire-type acres within the recommended FRI
- Build up to .6 mile of new fireline to conduct prescribed fire on an additional 10-90 acres

Table 2: Natural Community and Fire Return Interval

Plant Community	**Recommended Fire Return Interval**
Mesic Flatwoods	2-4 years
Wet Flatwoods	1-4 years
Improved Pasture	1-3 years
Scrubby Flatwoods	5-15 years
Scrub	10-30 years

Fire frequencies based on FNAI.



Chuluota Wilderness Area

Figure 4: Fire History Map

This map shows each management zone, the most recent burn year, and whether or not it is currently maintained within the proper fire return interval (FRI), as well as the priority for maintaining the FRI. NFH = No Fire History

0 0.1 0.2 0.3 0.4 0.5 Miles

N W E S

Legend

Within FRI, Priority

- Y,High
- N,High
- N,Medium
- N,Low
- N/A,Medium
- N/A,Low
- N/A,None

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 NL database. The formerly-threatened species, the Florida mouse (Podomys floridanus) has also been found on this property in the past.

Wildlife Strategies

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

Listed Species

There are a number of listed plant and animal species found on this property. Surveys are conducted annually for listed plants.

Plants

Listed plant species found on the property to date are Curtiss's milkweed (*Asclepias curtissii*), Garberia (*Garberia heterophylla*), cinnamon fern (*Osmunda cinnamonea*), and royal fern (*Osmunda regalis*).

Animals

Listed animals found on the CWA property include gopher tortoise (*Gopherus polyphemus*), and numerous wading birds such as the little blue heron (*Egretta caerulea*), wood stork (*Mycteria americana*), and sandhill crane (*Grus canadensis*).

Listed Plant and Animal Strategies

- Continue monitoring for gopher tortoises
- 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 (*Dasypus 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. Chuluota Wilderness Area has invasive species from both categories.

Plants

The east side of the property has more invasive species, especially in the basin swamp. Coral ardisia and tuberous sword fern occur at their highest densities in zone 7. Ardisia, sword fern, and climbing fern are also scattered throughout the flatwoods at low densities (cover class 1) on the east side. Zone 7 should be the priority for funding, especially for contractor treatment, for at least 3 years. Once the ardisia and sword fern can be maintained with in-house treatments, contractors could be hired every few years or so to maintain denser patches on the east side. Caesar's weed occurs in the firelines. When it occurs in small patches, it should be treated before early fall when seeds become viable.

Animals

Exotic animal species found at CWA are the brown anole (*Anolis segrei*), Cuban tree frog (), and the Mexican bromeliad weevil (*Metamasius callizona*). The Natural Lands Program has contracted up to 6 nuisance feral hog removal agents at a time. Feral cats and dogs are trapped and turned over to Seminole County Animal Services when observed on the property.

Invasive Plant and Animal Accomplishments since 2010

- 6 contracts for invasive plant removal for a total of 939 acres
- 4.1 acres treated by NLP staff

Invasive Plant and Animal Strategies

- Keep all Category I invasive species under maintenance control
- Continue feral hog agent program.

<u>Cultural Resources Protection</u>

Cultural sites will be monitored annually for disturbance.

LAND USE MANAGEMENT

Public Access

There are four access points established on site. The primary access and vehicle parking are located at the east end of Curryville Rd. and a walk thru opening is established on the south line at the northern terminus of Brown Rd. in adjacent Orange County. There are also two walk-through openings between CWA and the Charles Bronson State Forest, one on the northern boundary, and one on the southern boundary for the Florida Trail.

Public Access Strategies

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

Recreation

Resource-based recreational opportunities provided on this property include hiking, biking, horseback riding, and wildlife viewing.

Recreation Accomplishments

- The parking lot was expanded in conjunction with the Forest Service to allow for more equestrian use
- In partnership with Seminole County Public Safety, "safety" or "locator" signs/markers have been installed to assist with emergency response

Recreation Strategies

- Continue regular maintenance on trails
- Continue to coordinate with the Florida Trail Association on trail maintenance and route planning

Environmental Education

This site serves as an outdoor classroom for nature enthusiasts of all ages.

Environmental Education Strategies

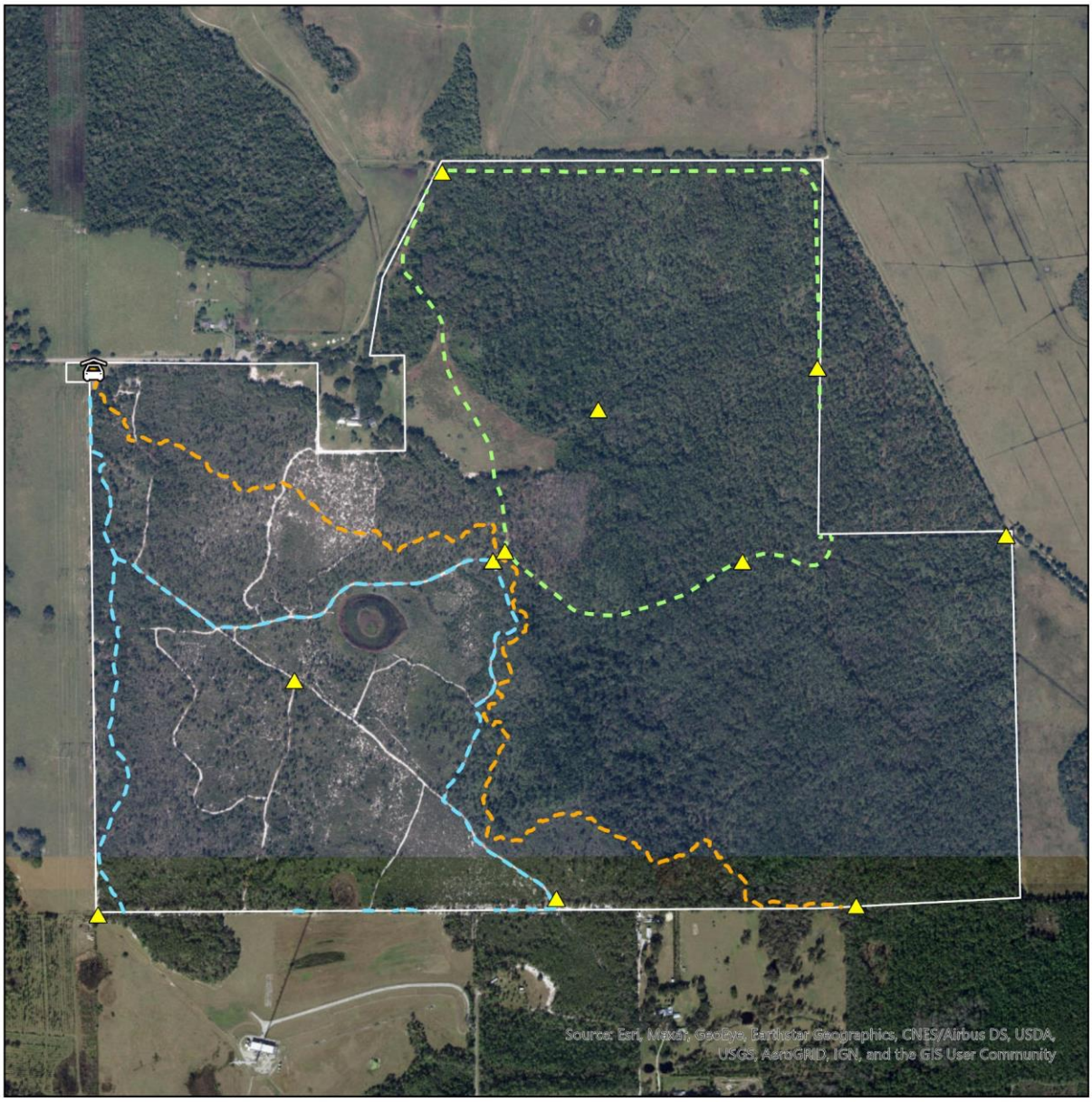
- Continue to support the utilization of CWA as an outdoor learning tool in an effort to promote environmental education

Security

Chuluota Wilderness Area has a resident caretaker who routinely patrols the property. The Sheriff's office and FWC are notified of any illegal activity.

Security Strategies

- Continue maintaining resident caretaker on-site



Chuluota Wilderness Area
Figure 5: Recreation Map

N
W E
S

0 0.1 0.2 0.3 0.4 0.5 Miles

Legend

Trails

- East Loop
- Florida National Scenic Trail
- West Loop
- Trailhead/Parking
- Safety Markers

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