Econ River Wilderness Area

Land Management Plan

2020

ECON RIVER WILDERNESS AREA
LAND MANAGEMENT PLAN

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LAND MANAGEMENT PLAN SUMMARY

Econ River Wilderness Area

Acres: 240

Location: Oviedo, Florida, Section 36, Township 21 South, Range 31 East

Dates of Acquisition: 1994

Key Resource Issues: The Econ River Wilderness Area is made up of a variety of native plant communities including sandhill, mesic flatwoods, wet flatwoods, scrubby flatwoods, bay swamp, alluvial forest. The wetlands on the property are high quality wetlands which serve as a natural filter before draining into the Econlockhatchee River; a state-protected Outstanding Florida Water.

In 2002, during the construction of the east terminus of McCulloch Road, water was staged on the Econ River Wilderness Area for an extended period of time, negatively impacting a central wetland. Money was received from the developer and the St. Johns River Water Management District to mitigate for the damage. The wetland was restored and monitored for five years, ending in early 2010.

GENERAL DESCRIPTION:

- **Security** – There is caretaker residence on-site near the entrance of the property. A law enforcement officer is usually the occupant.
- **Fire** – Prescribed burning on the property was introduced in 1999 and continues today. The property is divided into 21 burn zones with the goal of burning all zones by the year 2025.
- **Invasive Species** – There are a number of invasive species known to occur on site, including air potato (*Dioscorea bulbifera*), cogongrass (*Imperata cylindrica*), and rattlebox (*Crotalaria spectabilis*).
- **Wildlife and Plants** – Econ River Wilderness Area (ERWA) is home to a wide variety of flora and fauna. Some of the species of interest include sandhill cranes (*Grus canadensis*), Florida pine snake (*Pituophis melanoluecus mugitus*), gopher tortoises (*Gopherus polyphemus*) and Sherman's fox squirrel (*Sciurus niger shermani*).

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

General Description:

- **Access** – The parking area is located at 3795 Old Lockwood Road. Two additional service access gates are located on the north boundary on Fawn Run and south at McColluch Rd.
- **Public Recreation** – The property is open to the public for nature study, hiking, fishing, horseback riding, and biking.

Econ River 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. This is the second land management plan for this property.

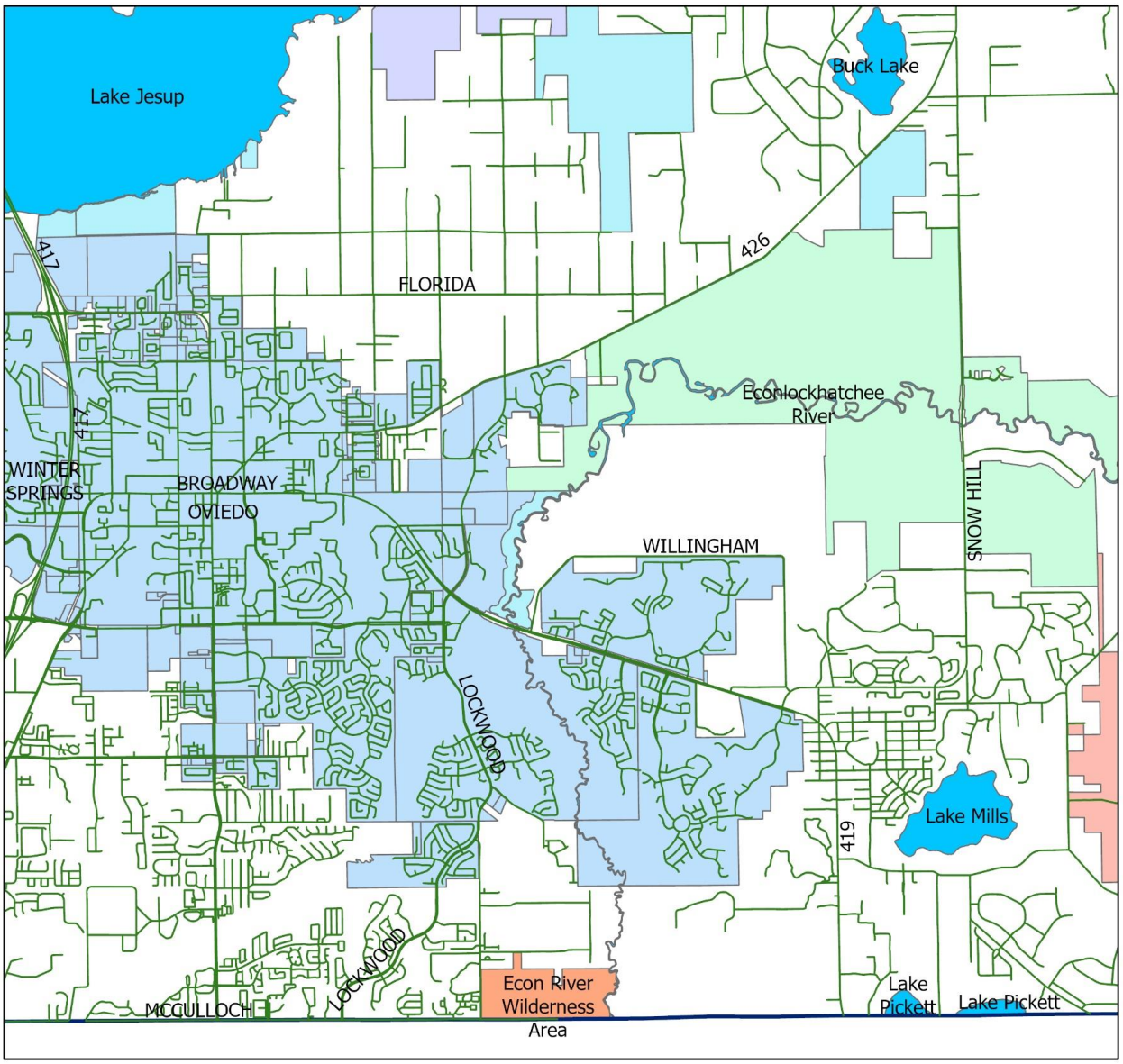
WILDERNESS AREA OVERVIEW

Regional Significance

The Econ River Wilderness Area (ERWA) is a 240-acre natural preserve located in southeastern Seminole County. The property contains many unique natural communities including the longleaf pine/ turkey oak or sandhill habitat. This important plant community is home to the federally protected Gopher Tortoise, a keystone species. Also of importance are high quality wetlands located on the property which serve as a natural filter before draining into the Econlockhatchee River, a state protected Outstanding Florida Water. This important natural resource provides a unique wilderness opportunity for the people of Seminole County and surrounding areas to experience and enjoy.

Acquisition History

The 240-acre Econ River Wilderness Area was purchased from the Clayton family in 1994 for the purpose of conservation, public enjoyment, and education.



Econ River Wilderness Area

Figure 1: Location Map

0 0.5 1 2 3 Miles

Legend

- Seminole County Preserved Lands
- Seminole County/Parks and Recreation
- FL Forest Service Preserved Lands
- SJRWMD Preserved Lands
- US Forest Service Preserved Lands
- Streets
- Water Bodies
- City Limits
- Econ River Wilderness Area
- County Boundary

N W E S

NATURAL RESOURCES OVERVIEW

Natural Communities

The Econ River Wilderness Area contains several natural plant communities, most of which are fire dependent. Plant communities include sandhill, mesic flatwoods, baygall, and xeric hammock. Other communities include wet flatwoods, xeric hammock, alluvial forest, and scrubby flatwoods.

Sandhill

Also known as longleaf pine-turkey oak, this habitat is characterized as a forest of widely spaced pine trees with a sparse understory of deciduous oaks and a fairly dense cover of grasses and herbs on rolling hills of sand. Typical plant species found in sandhill habitat include longleaf pine (*Pinus palustris*), turkey oak (*Quercus laevis*), and wiregrass (*Aristida berychiana*).

Fire is a dominant factor in the ecology of this community type. The natural fire frequency occurs every 1-3 years to reduce hardwood competition and to perpetuate pines and grasses. Without fire, sandhills become dominated by oak species and move towards a xeric hammock community. Some of the current habitat labeled as xeric hammock and scrubby/mesic flatwoods have some remnant turkey oak, and may transition towards sandhill with shorter fire return intervals.

The sandhill at ERWA is mostly in fair condition. There are pockets of good sandhill, but the majority of the sandhill needs regular fire and possibly hardwood removal in order to restore it to natural conditions.

Mesic Flatwoods

Mesic flatwoods habitat is characterized as an open canopy forest of pine trees with little to no understory but a dense ground cover of herbs and shrubs. Typical plant species found in mesic flatwoods are the slash pine (*Pinus elliottii*), longleaf pine (*Pinus palustris*), saw palmetto (*Serenoa repens*), wiregrass, and gallberry (*Ilex glabra*).

Fire is an important physical factor in mesic flatwoods. Several plant and animal species depend on fire for their continued existence, and without it, mesic flatwoods will succeed into hardwood dominated forests whose closed canopy can essentially eliminate the ground cover of herbs and shrubs.

The mesic flatwoods at ERWA is in good condition. Fire every 2-4 years is necessary to maintain the habitat. Invasive species removal is needed in some areas of the flatwoods, where cogon grass and natal grass are starting to invade, especially along the firelines.

Baygall

This habitat is characterized as densely forested, peat-filled seepage depressions often at the base of sandy slopes. They may also be located at the edges of floodplains or in other flat areas where high lowland water tables may help maintain soil moisture. The canopy is dominated by

evergreen hardwoods sweetbay (*Magnolia virginiana*), swamp bay (*Persea palustris*), and loblolly bay (*Gordonia lasianthus*). The open understory is comprised of shrubs and ferns.

The normal fire interval in these communities is 50-100 years. After the fire, bay trees will re-sprout from the roots and replace themselves, but if the fire is severe enough it may potentially change the Baygall into a different community.

The baygall at ERWA is in good condition. While originally impacted by construction and ditching, the hydrology has been restored. The edges of the baygall have flatwoods components and should be burned every 2-4 years, with fire allowed to penetrate where possible.

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 (*Bejaria 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.

The scrubby flatwoods at ERWA are in good condition. While fire suppression has impacted the vegetative composition, and in some place the firelines have infestations of natal or cogon grass, overall the plant natural community is intact, and only needs more frequent growing season fire. The scrubby flatwoods should be burned on a 5-15 year basis. Shorter fire return intervals would keep fuel heights more manageable, and allow for easier prescribed burning without mechanical treatment.

Xeric Hammock

Xeric Hammock is characterized by a mostly closed canopy of sand live oak, with the possibility for other upland oaks or pines as well. The understory is fairly open and can include saw palmetto, wiregrass, *Lyonia spp.*, and other scrub or sandhill species. This habitat usually occurs on well-drained sandy soils, and succeeded from sandhill or scrub where fire exclusion occurred.

While fire is not necessary to maintain this habitat, if the habitat formed due to anthropogenic fire exclusion, restoration may be feasible with hardwood removal and prescribed fire. The xeric hammock at ERWA was mechanically treated in 2019, and prescribed fire will be applied when possible. There are a number of very large oaks that may not be possible to kill with prescribed fire, and removal is not recommended otherwise. However, it may be possible to restore with prescribed fire alone, if groundcover allows for frequent fire on a 1-3 year basis.

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

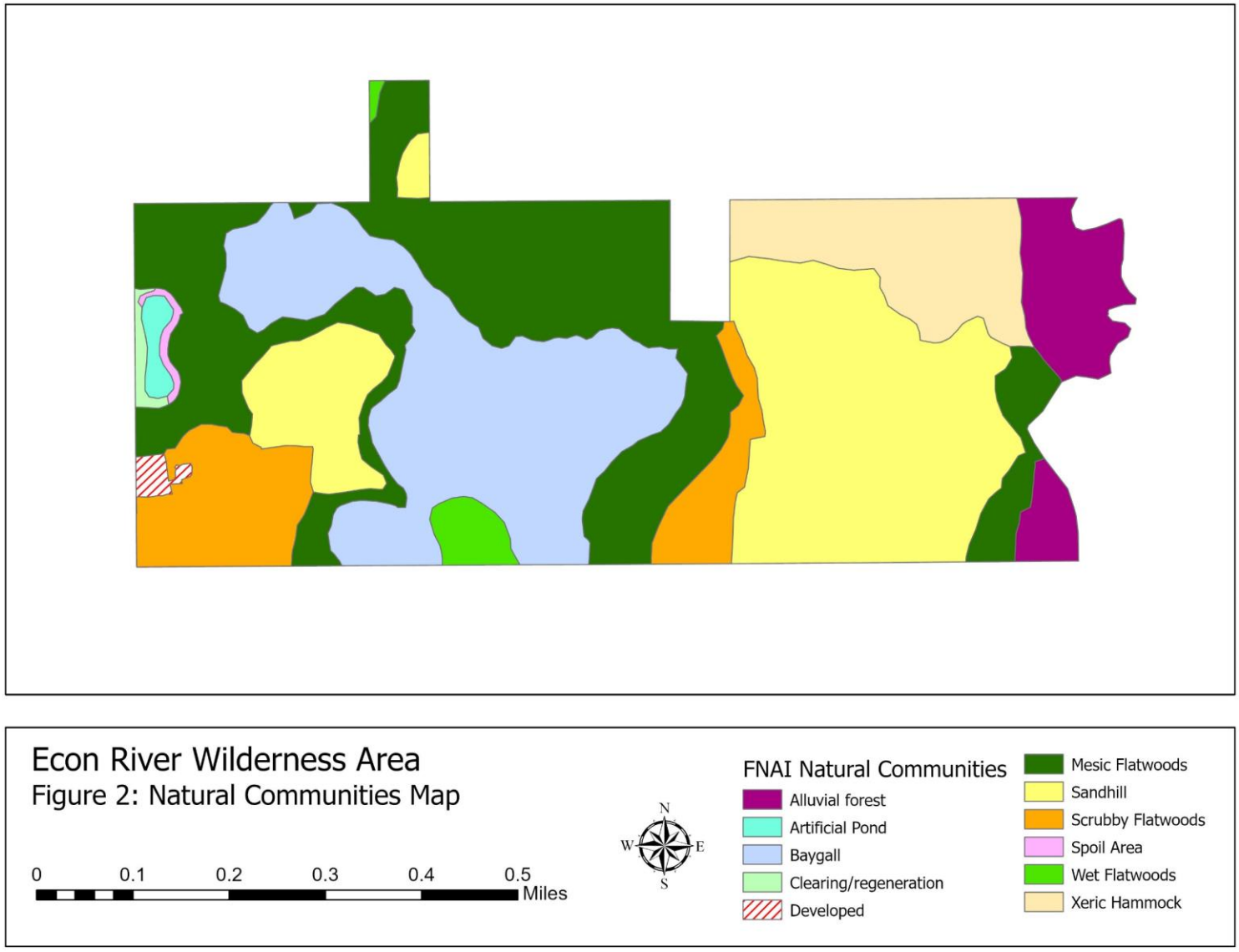
Community Type	Acres
Alluvial Forest	13.9
Artificial pond	1.5
Baygall	50.6
Clearing/regen	1.0
Developed Area	1.1
Mesic Flatwoods	66.2
Sandhill	60.3
Scrubby Flatwoods	20.6
Spoil Area	.8
Wet Flatwoods	3.4
Xeric Hammock	19.5
Percent Wetlands	28
Percent Uplands	72

Wildlife

There are a number of rare and state listed species found on the property including gopher tortoise (*Gopherus polyphemus*), sandhill crane (*Grus canadensis*), snowy egret (*Egretta thula*), and the little blue heron (*Egretta caerulea*). Other species observed on the property are white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), river otter (*Lutra canadensis*), marsh rabbit (*Sylvilagus palustris*), fence lizard (*Sceloporus undulatus*), eastern hognose snake (*Heterodon platyrhinos*), scarlet snake (*Cemophora coccinea*), six-lined racerunner (*Cnemidopherus sexlineatus sexlineatus*), ground skink (*Scincella lateralis*), and southeastern five-lined skink (*Eumeces inexpectatus*).

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 no known archaeological or cultural sites on Geneva Wilderness Area.


Econ River Wilderness Area
Figure 2: Natural Communities Map
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0.1
0.2
0.3
0.4
0.5
Miles
N
W
E
S
FNAI Natural Communities
Alluvial forest
Artificial Pond
Baygall
Clearing/regeneration
Developed
Mesic Flatwoods
Sandhill
Scrubby Flatwoods
Spoil Area
Wet Flatwoods
Xeric Hammock

Soils

Immokalee

The Immokalee series consists of very deep, very poorly and poorly drained soils that formed in sandy marine sediments. Immokalee soils are on flatwoods and low broad flats on marine terraces.

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.

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.

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.

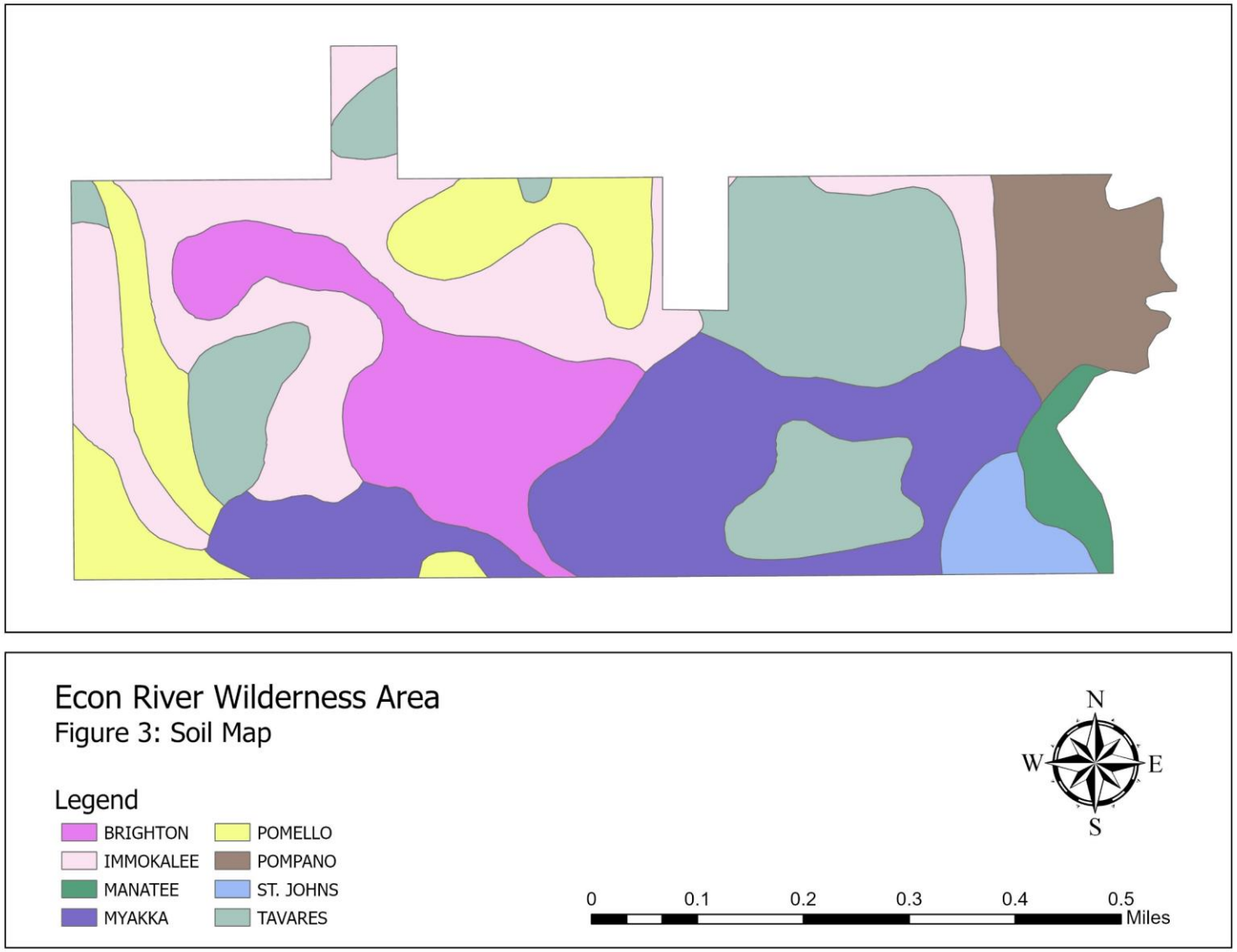
St. Johns

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.

Water Resources

The Econlockhatchee River is classified as an Outstanding Florida Water, and forms the eastern boundary of the property. The alluvial forest surrounding the river changes due to deposition and erosion of soil along the banks of the river. Water levels vary throughout the year as rain upstream can impact the river.

An artificial pond on the western boundary was created as a retention pond for construction along Old Lockwood Rd. Water also ponds in the baygall in center of the property, especially during wet times of year. Restoration was completed after construction flooded the baygall completely in the early 2000s. ERWA is located within the Big Econlockhatchee drainage basin.


Econ River Wilderness Area
Figure 3: Soil Map
Legend
BRIGHTON
IMMOKALEE
MANATEE
MYAKKA
POMELLO
POMPANO
ST. JOHNS
TAVARES
N
W
E
S
0
0.1
0.2
0.3
0.4
0.5
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. In May 2018, ERWA hosted its first bioblitz; the next one will occur in fall 2023.

Monitoring Accomplishments

- Gopher tortoise burrow monitoring occurred in 2012, 2018, and 2019
- Organized a bioblitz in May 2018 – 255 new species were 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

A restoration plan for the property has been in place since the flooding event in 2002. The objective was to return to the natural hydrologic regime of the Econ Wilderness Area property, and restoration efforts were completed by the end of 2010. Restoration on this site has also included the reintroduction of fire and the use of some mechanical treatments such as roller chopping.

Restoration and Habitat Enhancement Accomplishments

- 69 acres of xeric hammock and sandhill were mowed in 2019

Restoration and Habitat Enhancement Strategies

- Continue to use fire and mechanical treatment to restore fire dependent plant communities

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 Econ River 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.

The NL reintroduced fire to the wilderness area in 2000. Nearly all of the burn units have been burned at least once. Due to the relatively urban setting, prescribed fires are carefully planned using south and west winds to avoid smoke impacts to adjacent residences and roadways.

Econ River Wilderness Area is comprised of a mix of sandhill and flatwoods. Much of the sandhill is overgrown, and has a large hardwood component due to fire suppression and needs reduction in order to restore the habitat. The sandhill should be burned on a 1-3 year basis, and ideally during the growing season for maximum hardwood reduction. The flatwoods could be burned on a 2-4 year basis, or in the scrubbier areas, a slightly longer interval would be acceptable. Currently, 22% of fire-type acres at ERWA are within the recommended fire return interval (FRI).

The property needs to be burned on a more consistent basis, averaging a recommended 61.5 acres per year. This exact number would be impossible to achieve, due to some years being better than others, and some of the zones having a much higher FRI. For example, some years should and would be much higher than the average, and others may be well below. The goal should be

to keep prescribed fire frequent enough to maintain the zone within that recommended fire return interval above.

Most of the fire-type acres has fireline constructed and can be burned with minimal mechanical treatment. However, management zone 7 has no south fireline, and is a mix of baygall and flatwoods. There are 11 fire-type acres in the zone, and the baygall edges should be exposed to fire, and occasionally even have fire carried through the zone. The installation of a fireline along the south boundary would facilitate the introduction of prescribed fire into this zone.

Fire Management Accomplishments

- Since 2010, 8 prescribed burns have been completed on the property on 8 burn zones, totaling 84.5 acres

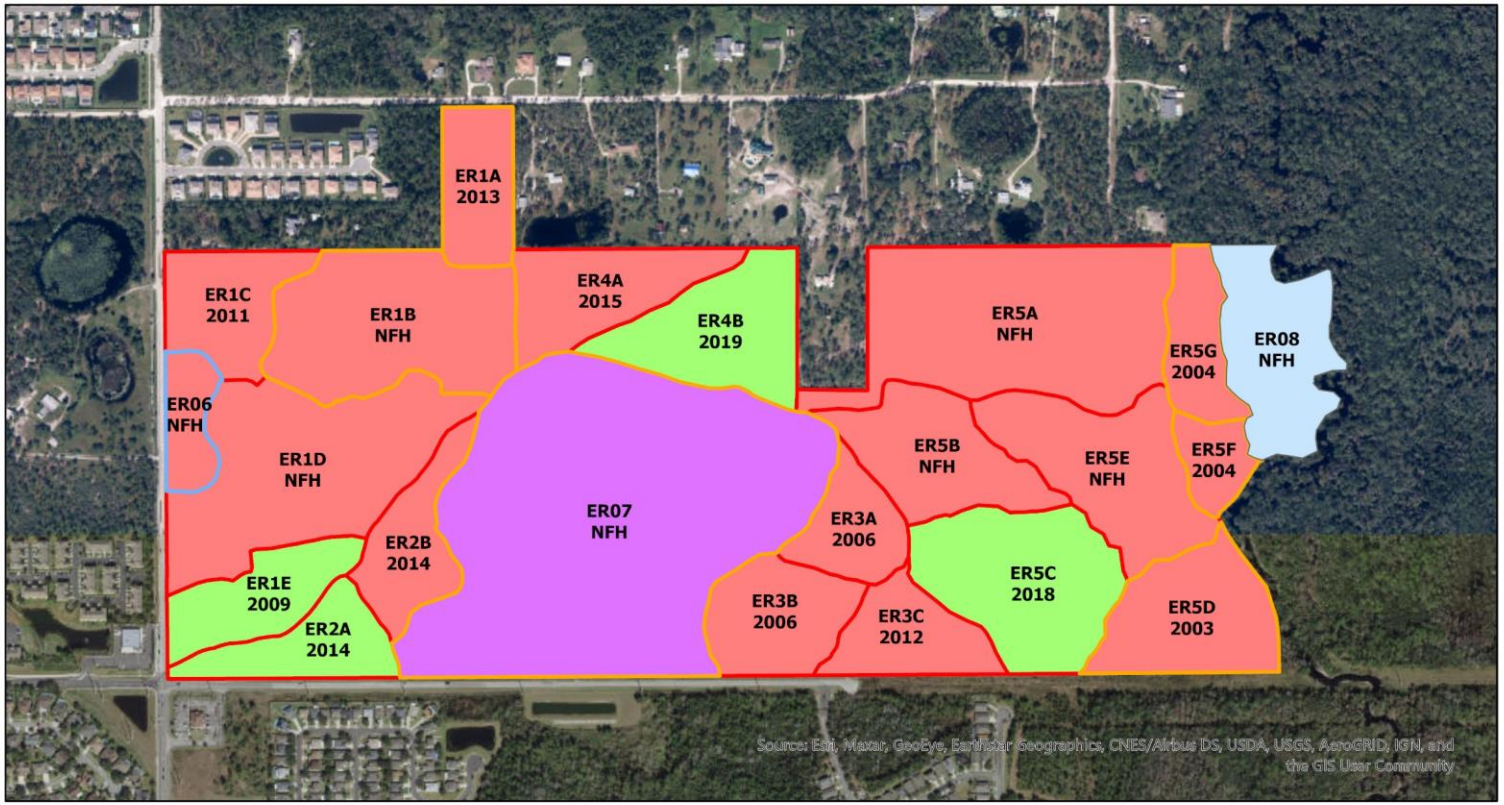
Fire Management Strategies

- Conduct 50% lightning season burns.
- Maintain 70% of the fire-type acres within the recommended FRI
- Build up to .3 mile of new fireline to conduct prescribed fire on an additional 11 acres

Table 2: Natural Community and Fire Return Interval

Plant Community	**Recommended Fire Return Interval**
Sandhill	1-3 years
Wet Flatwoods	1-4 years
Mesic Flatwoods	2-4 years
Scrubby Flatwoods	5-15 years

Fire frequencies based on FNAI.


ER1A
2013
ER1C
2011
ER1B
NFH
ER4A
2015
ER4B
2019
ER5A
NFH
ER5G
2004
ER08
NFH
ER06
NFH
ER1D
NFH
ER07
NFH
ER5B
NFH
ER5E
NFH
ER5F
2004
ER3A
2006
ER2B
2014
ER1E
2009
ER2A
2014
ER3B
2006
ER3C
2012
ER5C
2018
ER5D
2003
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Econ River 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
Legend
Within FRI, Priority
Y,High
N,High
N,Medium
N,Low
N/A,Medium
N/A,None
N
W
E
S

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 SCNLP 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 not been any listed plant species identified on-site.

Animals

Listed animal species include the gopher tortoise (*Gopherus polyphemus*), Florida pine snake (Pituophis melanoluecus mugitus), sandhill crane (*Grus canadensis*), and wood stork (*Mycteria americana*).

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. Some examples of 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 per year either directly or indirectly through grants, trying to control 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. Econ River Wilderness Area has invasive species from both categories.

Plants

Econ River Wilderness Area has a number of invasive species on the property including rattlebox, cogongrass, and Brazilian pepper (*Schinus terebinthifolius*). Most of the infestations occur on the western portion of the property, closer to the disturbed and developed areas. Natal grass has become a problem in recent years along the fire lines, and occurs in high densities in a couple of areas. Frequent hand-pulling is necessary to control this species. Because many of the infestations are small, NLP can likely continue with maintenance treatments on these species.

Animals

Invasive animal species found at ERWA include the brown anole (Anolis sagrei) and Cuban tree frog (Osteopilus septentrionalis). 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

- 87.7 acres treated by NLP staff

Invasive Plant and Animal Strategies

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

LAND USE MANAGEMENT

Access

There is one park and walk access located off of Old Lockwood Road and gates located on the north and south lines for service vehicle access.

Access Strategies

- Continue regular maintenance of 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

- A new boardwalk installed in 2018 has made it easier for hikers to access the eastern portion of the property
- In 2019, a 1-mile accessible loop trail was installed on the western portion of the property, connecting to the parking lot on both ends
- A gazebo was installed near the ADA loop and the artificial pond in 2019

Recreation Strategies

- Continue regular maintenance of trails

Environmental Education

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

Education Strategies

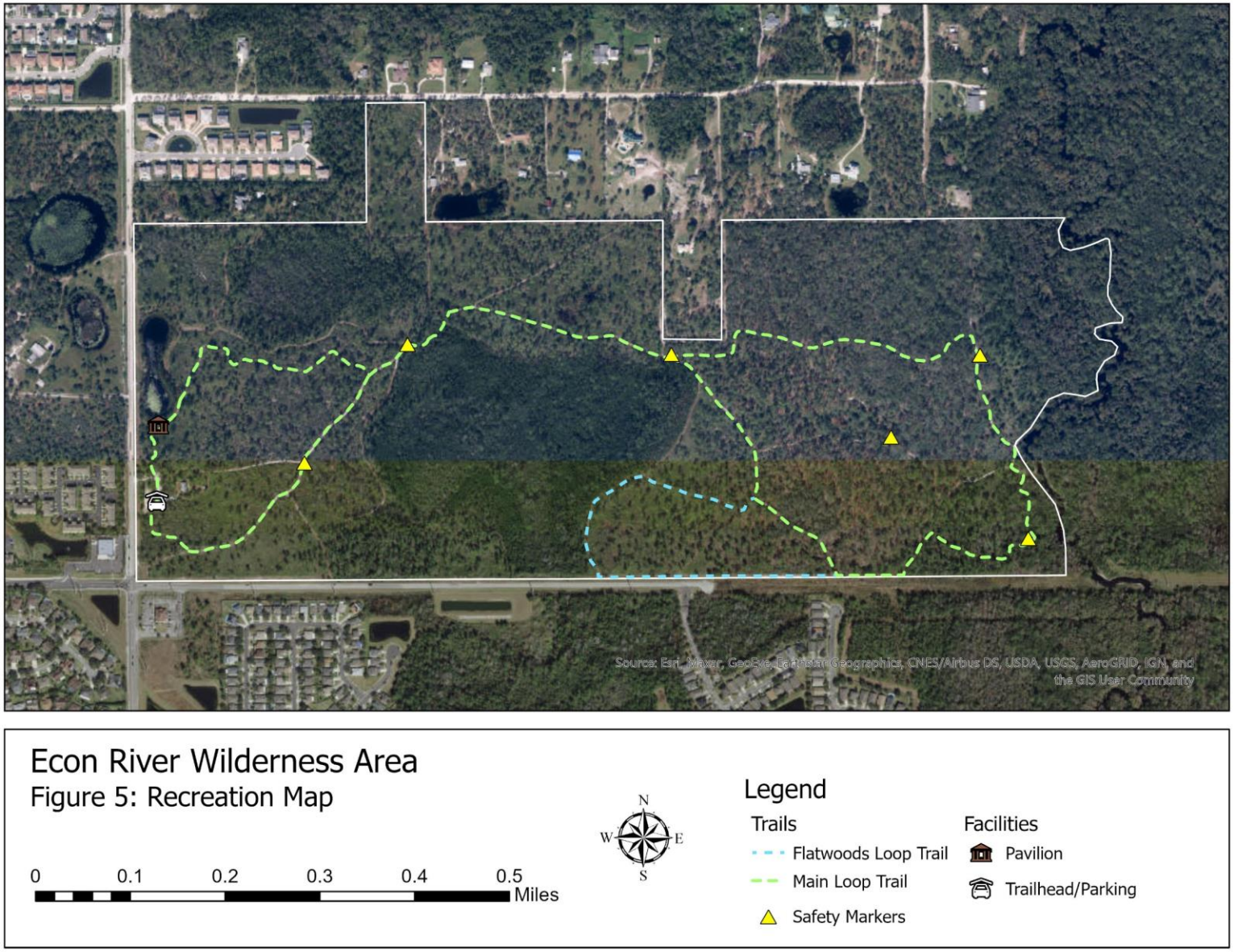
- Continue to support the utilization of ERWA as an outdoor learning tool in an effort to promote environmental education.
- Continue partnerships with local universities for use as outdoor classrooms and collection of scientific data.

Security

Econ River Wilderness Area has a resident law enforcement officer who routinely patrols the property. The Sheriff's office and or FWC are notified of any illegal activity.

Security Strategies

- Continue maintaining resident law enforcement on-site.


Econ River Wilderness Area
Figure 5: Recreation Map
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Miles
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Legend
Trails
Flatwoods Loop Trail
Main Loop Trail
Safety Markers
Facilities
Pavilion
Trailhead/Parking
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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