

ENCHANTED FOREST SANCTUARY MANAGEMENT PLAN Titusville, Florida

ARC Approval 02/17/17



**Prepared by: Brevard County
Environmentally Endangered Lands Program
Parks and Recreation Department
444 Columbia Blvd.
Titusville, FL 32780
(321) 264-5185**



FLORIDA'S SPACE COAST

Tammy Rowe, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 837-2001
Fax: (321) 264-6972
Tammy.Rowe@brevardclerk.us



October 19, 2016

MEMORANDUM

TO: Jack Masson, Parks and Recreation Director Attn: Mike Knight

RE: Item II.B.2., Approval of Enchanted Forest Sanctuary Management Plan Update

The Board of County Commissioners, in regular session on October 18, 2016, approved the Enchanted Forest Sanctuary Management Plan update under the Environmentally Endangered Lands Program Sanctuary Network.

Your continued cooperation is greatly appreciated.

Sincerely yours,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

A handwritten signature in cursive script that reads "Tammy Rowe".

Tammy Rowe, Deputy Clerk

/ds
S



**Florida Department of
Environmental Protection**

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Ryan E. Matthews
Interim Secretary

February 17, 2017

Mr. Mike Knight
Brevard County
Environmentally Endangered Lands Program
91 East Drive
Melbourne, Florida 32904

RE: Enchanted Forest Sanctuary - Lease #4177

Dear Mr. Knight:

On **February 17, 2017**, the Acquisition and Restoration Council recommended approval of the **Enchanted Forest Sanctuary** management plan. Therefore, the Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the **Enchanted Forest Sanctuary** management plan. The next management plan update is due February 17, 2027.

Approval of this land management plan does not waive the authority or jurisdiction of any governmental entity that may have an interest in this project. Implementation of any upland activities proposed by this management plan may require a permit or other authorization from federal and state agencies having regulatory jurisdiction over those particular activities. Pursuant to the conditions of your lease, please forward copies of all permits to this office upon issuance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ray Spaulding", is written over the typed name.

Raymond V. Spaulding
Office of Environmental Services
Division of State Lands
Department of Environmental Protection

LAND MANAGEMENT PLAN COMPLIANCE **CHECKLIST**

→ Required for State-owned conservation lands over 160 acres ←

Instructions for managers:

Complete each item and fill in the applicable correlating **page numbers and/or appendix** where the item can be found within the land management plan (LMP). If an item does not apply to the subject property, please describe that fact on a correlating page number of the LMP. Do not mark an “N/A” for any items below.

For more information, please visit the stewardship portion of the Division of State Lands’ website at: <http://www.dep.state.fl.us/lands/stewardship.htm>.

Section A: Acquisition Information Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
1.	The common name of the property.	18-2.018 & 18-2.021	1
2.	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	2-5
3.	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	1, 69-81
4.	The legal description and acreage of the property.	18-2.018 & 18-2.021	1, 82, 85-86
5.	A map showing the approximate location and boundaries of the property, and the location of any structures or improvements to the property.	18-2.018 & 18-2.021	6-7
6.	An assessment as to whether the property, or any portion, should be declared surplus. <i>Provide information regarding assessment and analysis in the plan, and provide corresponding map.</i>	18-2.021	5, 33
7.	Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property. <i>Please clearly indicate parcels on a map.</i>	18-2.021	33
8.	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	35-36
9.	A statement of the purpose for which the lands were acquired, the projected use or uses as defined in 253.034 and the statutory authority for such use or uses.	259.032(10)	1-5
10.	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	3

Section B: Use Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
11.	The designated single use or multiple use management for the property, including use by other managing entities.	18-2.018 & 18-2.021	1
12.	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	5,15,30-32,41-46
13.	A description of alternative or multiple uses of the property considered by the lessee and a statement detailing why such uses were not adopted.	18-2.018	1, 41
14.	A description of the management responsibilities of each entity involved in the property’s management and how such responsibilities will be coordinated.	18-2.018	34-36
15.	Include a provision that requires that the managing agency consult with the Division of Historical Resources, Department of State before taking actions that may adversely affect archeological or historical resources.	18-2.021	30
16.	Analysis/description of other managing agencies and private land managers, if any, which could facilitate the restoration or management of the land.	18-2.021	35-36

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17.	A determination of the public uses and public access that would be consistent with the purposes for which the lands were acquired.	259.032(10)	41-46
18.	A finding regarding whether each planned use complies with the 1981 State Lands Management Plan, particularly whether such uses represent "balanced public utilization," specific agency statutory authority and any other legislative or executive directives that constrain the use of such property.	18-2.021	5
19.	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	83-84
20.	An assessment of the impact of planned uses on the renewable and non-renewable resources of the property, including soil and water resources, and a detailed description of the specific actions that will be taken to protect, enhance and conserve these resources and to compensate/mitigate damage caused by such uses, including a description of how the manager plans to control and prevent soil erosion and soil or water contamination.	18-2.018 & 18-2.021	47-51
21.	*For managed areas larger than 1,000 acres, an analysis of the multiple-use potential of the property which shall include the potential of the property to generate revenues to enhance the management of the property provided that no lease, easement, or license for such revenue-generating use shall be entered into if the granting of such lease, easement or license would adversely affect the tax exemption of the interest on any revenue bonds issued to fund the acquisition of the affected lands from gross income for federal income tax purposes, pursuant to Internal Revenue Service regulations.	18-2.021 & 253.036	
22.	If the lead managing agency determines that timber resource management is not in conflict with the primary management objectives of the managed area, a component or section, prepared by a qualified professional forester, that assesses the feasibility of managing timber resources pursuant to section 253.036, F.S.	18-021	93-95
23.	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	2-5

*The following taken from 253.034(10) is not a land management plan requirement; however, it should be considered when developing a land management plan: The following additional uses of conservation lands acquired pursuant to the Florida Forever program and other state-funded conservation land purchase programs shall be authorized, upon a finding by the Board of Trustees, if they meet the criteria specified in paragraphs (a)-(e): water resource development projects, water supply development projects, storm-water management projects, linear facilities and sustainable agriculture and forestry. Such additional uses are authorized where: (a) Not inconsistent with the management plan for such lands; (b) Compatible with the natural ecosystem and resource values of such lands; (c) The proposed use is appropriately located on such lands and where due consideration is given to the use of other available lands; (d) The using entity reasonably compensates the titleholder for such use based upon an appropriate measure of value; and (e) The use is consistent with the public interest.

Section C: Public Involvement Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
24.	A statement concerning the extent of public involvement and local government participation in the development of the plan, if any.	18-2.021	44,140-164
25.	The management prospectus required pursuant to paragraph (9)(d) shall be available to the public for a period of 30 days prior to the public hearing.	259.032(10)	44,140-164
26.	LMPs and LMP updates for parcels over 160 acres shall be developed with input from an advisory group who must conduct at least one public hearing within the county in which the parcel or project is located. <i>Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.</i>	259.032(10)	46, 143-153
27.	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	143-164
28.	During plan development, at least one public hearing shall be held in each affected county. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing. <i>Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.</i>	253.034(5) & 259.032(10)	143-164

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29.	The manager shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan. <i>Include manager's replies to the team's findings and recommendations.</i>	259.036	163
30.	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	143-164
31.	If manager is not in agreement with the management review team's findings and recommendations in finalizing the required 10-year update of its management plan, the managing agency should explain why they disagree with the findings or recommendations.	259.036	

Section D: Natural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
32.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding soil types. <i>Use brief descriptions and include USDA maps when available.</i>	18-2.021	10-12
33.	Insert FNAI based natural community maps when available.	ARC consensus	118-136
34.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding outstanding native landscapes containing relatively unaltered flora, fauna and geological conditions.	18-2.021	12-13
35.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding unique natural features and/or resources including but not limited to virgin timber stands, scenic vistas, natural rivers and streams, coral reefs, natural springs, caverns and large sinkholes.	18-2.018 & 18-2.021	
36.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	
37.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding mineral resources, such as oil, gas and phosphate, etc.	18-2.018 & 18-2.021	
38.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding fish and wildlife, both game and non-game, and their habitat.	18-2.018 & 18-2.021	14, 25, 108-113
39.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding State and Federally listed endangered or threatened species and their habitat.	18-2.021	14, 25-29
40.	The identification or resources on the property that are listed in the Natural Areas Inventory. <i>Include letter from FNAI or consultant where appropriate.</i>	18-2.021	118-136
41.	Specific description of how the managing agency plans to identify, locate, protect and preserve or otherwise use fragile, nonrenewable natural and cultural resources.	259.032(10)	55-56
42.	Habitat Restoration and Improvement		
42-A.	Describe management needs, problems and a desired outcome and the key management activities necessary to achieve the enhancement, protection and preservation of restored habitats and enhance the natural, historical and archeological resources and their values for which the lands were acquired.		22-24
42-B.	Provide a detailed description of both short (2-year planning period) and long-term (10-year planning period) management goals, and a priority schedule based on the purposes for which the lands were acquired and include a timeline for completion.	259.032(10) & 253.034(5) ↓	53-61
42-C.	The associated measurable objectives to achieve the goals.		53
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. <i>Include fire management plans - they can be in plan body or an appendix.</i>		88-91
42-E.	A detailed expense and manpower budget in order to provide a management tool that facilitates development of performance measures, including recommendations for cost-effective methods of accomplishing those activities.		62

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43.	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. <i>See footnote.</i>	253.034(5)	12-15, 22, 24
44.	Sustainable Forest Management, including implementation of prescribed fire management	18-2.021, 253.034(5) & 259.032(10) ↓	
44-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		33-41
44-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		53-61
44-C.	Measurable objectives (see requirement for #42-C).		53-61
44-D.	Related activities (see requirement for #42-D).		53-61
44-E.	Budgets (see requirement for #42-E).		62
45.	Imperiled species, habitat maintenance, enhancement, restoration or population restoration	259.032(10) & 253.034(5) ↓	
45-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		22-24, 26-29
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		53-61
45-C.	Measurable objectives (see requirement for #42-C).		53-61
45-D.	Related activities (see requirement for #42-D).		53-61
45-E.	Budgets (see requirement for #42-E).		62
46.	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. <i>See footnote.</i>	253.034(5)	39-41
47.	Place the Arthropod Control Plan in an appendix. If one does not exist, provide a statement as to what arrangement exists between the local mosquito control district and the management unit.	BOT requirement via lease language	114-117
48.	Exotic and invasive species maintenance and control	259.032(10) & 253.034(5) ↓	
48-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		39-41
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		53-61
48-C.	Measurable objectives (see requirement for #42-C).		53-61
48-D.	Related activities (see requirement for #42-D).		53-61
48-E.	Budgets (see requirement for #42-E).		62

Section E: Water Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
49.	A statement as to whether the property is within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation. <i>If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.</i>	18-2.018 & 18-2.021	12
50.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding water resources, including water classification for each water body and the identification of any such water body that is designated as an Outstanding Florida Water under Rule 62-302.700, F.A.C.	18-2.021	12, 87
51.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding swamps, marshes and other wetlands.	18-2.021	24
52.	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. <i>See footnote.</i>	253.034(5)	12
53.	Hydrological Preservation and Restoration	259.032(10) & 253.034(5) ↓	
53-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		12
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		53-61

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53-C.	Measurable objectives (see requirement for #42-C).		53-61
53-D.	Related activities (see requirement for #42-D).		53-61
53-E.	Budgets (see requirement for #42-E).		62

Section F: Historical, Archeological and Cultural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
54.	**Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding archeological and historical resources. <i>Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.</i>	18-2.018, 18-2.021 & per DHR's request	30-32, 137
55.	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	30-32
56.	A description of actions the agency plans to take to locate and identify unknown resources such as surveys of unknown archeological and historical resources.	18-2.021	30
57.	Cultural and Historical Resources		
57-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		30-32
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	53-61
57-C.	Measurable objectives (see requirement for #42-C).	↓	53-61
57-D.	Related activities (see requirement for #42-D).		53-61
57-E.	Budgets (see requirement for #42-E).		62

**While maps of Native American sites should not be included in the body of the management plan, the DSL urges each managing agency to provide such information to the Division of Historical Resources for inclusion in their proprietary database. This information should be available for access to new managers to assist them in developing, implementing and coordinating their management activities.

Section G: Facilities (Infrastructure, Access, Recreation)

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
58.	***Quantitative data description of the land regarding an inventory of infrastructure and associated acreage. <i>See footnote.</i>	253.034(5)	41-46
59.	Capital Facilities and Infrastructure		
59-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		41-46
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	53-61
59-C.	Measurable objectives (see requirement for #42-C).	↓	53-61
59-D.	Related activities (see requirement for #42-D).		53-61
59-E.	Budgets (see requirement for #42-E).		62
60.	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	41-45
61.	Public Access and Recreational Opportunities		
61-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		41-42
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	53-61
61-C.	Measurable objectives (see requirement for #42-C).	↓	53-61
61-D.	Related activities (see requirement for #42-D).		53-61
61-E.	Budgets (see requirement for #42-E).		62

Section H: Other/ Managing Agency Tools

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
62.	Place this LMP Compliance Checklist at the front of the plan.	ARC and managing agency consensus	iv-ix
63.	Place the Executive Summary at the front of the LMP. Include a physical description of the land.	ARC and 253.034(5)	1-2
64.	If this LMP is a 10-year update, note the accomplishments since the drafting of the last LMP set forth in an organized (categories or bullets) format.	ARC consensus	47-49
65.	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	49-53
66.	Summary budget for the scheduled land management activities of the LMP including any potential fees anticipated from public or private entities for projects to offset adverse impacts to imperiled species or such habitat, which fees shall be used to restore, manage, enhance, repopulate, or acquire imperiled species habitat for lands that have or are anticipated to have imperiled species or such habitat onsite. The summary budget shall be prepared in such a manner that it facilitates computing an aggregate of land management costs for all state-managed lands using the categories described in s. 259.037(3) which are resource management, administration, support, capital improvements, recreation visitor services, law enforcement activities.	253.034(5)	62
67.	Cost estimate for conducting other management activities which would enhance the natural resource value or public recreation value for which the lands were acquired, include recommendations for cost-effective methods in accomplishing those activities.	259.032(10)	62
68.	A statement of gross income generated, net income and expenses.	18-2.018	

*** = The referenced inventories shall be of such detail that objective measures and benchmarks can be established for each tract of land and monitored during the lifetime of the plan. All quantitative data collected shall be aggregated, standardized, collected, and presented in an electronic format to allow for uniform management reporting and analysis. The information collected by the DEP pursuant to s. 253.0325(2) shall be available to the land manager and his or her assignee.

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I. EXECUTIVE SUMMARY

The Enchanted Forest Sanctuary (EFS) is part of a sanctuary network established by the Environmentally Endangered Lands (EEL) Program in Brevard County. The intent of the Program is to acquire environmentally sensitive lands as a first step “towards long-term protection of essential natural resources, open space, green space, wildlife corridors and maintenance of natural ecosystems functions” (Brevard County EEL Program, Sanctuary Management Manual, 1997). The network of public lands also provides passive recreation and environmental education programs to Brevard County residents and visitors.

EFS encompasses +/- 481.31 acres located north of SR 405 and east of I-95 in Titusville, Brevard County, Florida. In February 1991, the EEL Program purchased 264 acres with Brevard County Environmentally Endangered Lands (EEL) Program funds. An additional 129 acres was purchased in 1993, contiguous to the initial 264-acre acquisition. In 1998, EFS was titled to the State of Florida under the Conservation and Recreation Lands (CARL) Program. The state reimbursed Brevard County for 50% of the acquisition cost of the property. Brevard County remains the primary manager according to Amendment to Management Lease Agreement #4177 with the State of Florida (Appendix A). In 2002, the EEL Program received 23.85 acres of Sterling Forest, LLC and in 2003, Sterling Forest, LLC again transferred an additional 10 acres both as part of a mitigation donation. In 2007, the EEL Program purchased an additional 41.46 acres from the Vero Pittsburg Partners, LLC. The EEL Program acquired 23 acres of undisturbed hammock in a land transfer with Brevard County Parks and Recreation in exchange for 10 acres of disturbed property for future development. The State of Florida currently holds title to 393 acres while Brevard County holds title to 88.31 acres. The ±481.31 acre site is located within Township 22 South, Range 35 East, and Sections 26, 27, 34 and 35.

EFS is a Category I site, or Center for Regional Management. Category I sites are proposed for extensive public access and the development of active environmental education and land management. Category I sites are ADA accessible, include nature trails with interpretive signs, a dedicated parking area and extensive volunteer and environmental education programs. The single-use site is open to the public Tuesday through Sunday during the hours of 9:00 am to 5:00 pm unless scheduled otherwise. EFS was designated as one of four Centers for Regional Management within the EEL sanctuary network and continues to serve as a management area within the North Region to implement the conservation, education and recreational goals of the EEL Program. This regional approach streamlines facility operations and resource management activities.

The property consists primarily of mesic and hydric hammock, oak-saw palmetto scrub, scrubby flatwoods and basin swamp. Preliminary surveys of the site and surrounding lands noted the presence, or potential presence, of several listed plant and animal species. Listed plant species documented on site during recent or past studies include: Low peperomia (*Peperomia humilis*), Angularfruit milkvine (*Gonobolus suberosus*), rockland shrubverbena (*Lantana depressa* var. *floridana*), giant airplant (*Tillandsia utriculata*), cardinal airplant (*Tillandsia fasciculata*), spreading pinweed (*Lechea divaricata*), coastal dune sandmat (*Chamaesyce cumulicola*), widespread polypody (*Pecluma dispersa*) and plume polypody (*Pecluma plumula*). Protected

wildlife species documented on site during recent or past studies include gopher tortoise (*Gopherus polyphemus*), Florida Scrub Jays (*Aphelocoma coerulescens*), Bald Eagles (*Haliaeetus leucocephalus*), eastern indigo snake (*Drymarchon corais couperi*), and American alligator (*Alligator mississippiensis*).

This plan serves as an update to the original management plan and will replace the June 2000 plan and provides a basic statement of direction for the management of EFS. The primary goals of the site include the conservation and restoration of ecosystem function, natural communities, and native species habitat. The collection and documentation of natural and cultural resource data are important management goals. Other management goals include the provision of public access and environmental education.

EFS provides outstanding opportunities for nature-based outdoor recreation, environmental education, field research and guided or self-guided interpretive tours. These opportunities will provide Brevard County residents with an opportunity to enjoy of the unique and valuable natural resources available in Brevard County, thereby promoting the long-term preservation of Brevard's natural heritage. Nature trails feature interpretive signs to the Sanctuary's natural resources and provide information about resource management activities. The environmental learning center building and associated environmental programs are universally accessible.

II. INTRODUCTION

In two separate referendums in 1990 and 2004, Brevard County voters approved funding for the Environmentally Endangered Lands (EEL) Program. The mission of the EEL Program is "Protecting and Preserving Biological Diversity Through Responsible Stewardship of Brevard County's Natural Resources." The Program Vision Statement is as follows:

"The Environmentally Endangered Lands (EEL) Program acquires, protects and maintains environmentally endangered lands guided by scientific principles for conservation and the best available practices for resource stewardship and ecosystem management. The EEL Program protects the rich biological diversity of Brevard County for future generations. The EEL Program provides passive recreation and environmental education opportunities to Brevard's citizens and visitors without detracting from primary conservation goals of the program. The EEL Program encourages active citizen participation and community involvement."

The Program established a conceptual framework and funding mechanism to implement an EEL sanctuary network in Brevard County. The EEL sanctuary network represents a collection of protected natural areas that form a regional conservation effort focused upon protection of biological diversity. Within the countywide EEL sanctuary network, four management areas are geographically defined within Brevard County. For each management area, a specific site is identified as a Center for Regional Management. The sites that will function as Centers for Regional Management for the EEL Program are:

- I. The Enchanted Forest Sanctuary (Regional Management Center for North Mainland)
- II. Pine Island Conservation Area (Regional Management Center for Central Mainland)

- III. Malabar Scrub Sanctuary (Proposed Regional Management Center for South Mainland)
- IV. Barrier Island Center (Regional Management Center for South Beaches)

Centers provide strategically located hubs for implementing the countywide conservation, passive recreation, and environmental education goals of the EEL Program. These sites are dedicated for extensive public access, development of environmental land management and education.

Other EEL sanctuaries within the North Regional Management Area include: Buck Lake Conservation Area (managed jointly with SJRWMD), North Buck Lake Scrub Sanctuary, South Lake Conservation Area, Fox Lake Sanctuary, Indian River Sanctuary, Indian Mound Station Sanctuary, Scottsmoor Flatwoods Sanctuary and Dicerandra Scrub Sanctuary.

The EEL Program *Sanctuary Management Manual* (SMM 1997) guides conservation and land stewardship decisions implemented by the Brevard County EEL Program. The SMM contains detailed principles and directives for conservation, public access and environmental education within the EEL sanctuary network. The role of the EEL Selection & Management Committee (SMC) in advising staff and the Brevard County Board of County Commissioners on acquisition and management related issues is outlined in the SMM (Chapter 2, Section 4.3.4).

As outlined in the SMM, the EEL Program will adopt and implement an ecosystem approach to environmental management. Ecosystem management is defined as an integrative, flexible approach to the management of natural resources. Key themes of ecosystem management include the following:

1. Adaptive Management – Natural areas must be managed in the context of the landscape in which they exist and based on scientific knowledge. Resource managers must adapt to continuing advances in the scientific understanding of ecosystems and changing environmental and human influences on the resources.
2. Partnerships – Interagency and private sector partnerships are essential to manage and protect ecosystems. Natural resource management is complex and requires multi-disciplinary skills and experiences.
3. Holistic Approach – Ecosystem management includes the maintenance, protection, and improvement of both natural and human communities. This system approach to management considers the “big picture” of natural resource protection, community economic stability and quality of life.

Land management issues, such as fire management, protection and restoration of natural hydrologic cycles, threatened and endangered species, and removal of invasive exotics must be integrated with issues, such as provisions for public access and levels of human use. The integration of ecosystem protection and human needs combine to form the foundation of an effective ecosystem management strategy.

The Environmentally Endangered Lands Program SMM establishes a general framework for management of specific sites and establishes ten Principles of Conservation summarized below, to achieve the following:

1. Maintain all sites in a natural state and/or restore sites to enhance natural resource values.
2. Protect natural resource values by maintaining biological diversity and using conservation as a primary goal for decision-making.
3. Balance human use with the protection of natural resources.
4. Apply the most accurate scientific principles to strategies for conservation.
5. Collect and use the most accurate data available for developing site management plans.
6. Consider the interests and values of all citizens by using scientific information to guide management policy making.
7. Promote effective communication that is interactive, reciprocal, and continuous with the public.
8. Promote the value of natural areas to Brevard County residents and visitors through the maintenance of the quality of resource values, public services, and visitor experiences.
9. Promote the integration of natural resource conservation into discussions of economic development and quality of life in Brevard County.
10. Provide a responsible financial strategy to implement actions to achieve long-term conservation and stewardship goals.

In addition to the Principles of Conservation, this Management Plan will provide specific goals, strategies, and actions to guide management of the sanctuary in terms of the objectives of the Environmentally Endangered Lands Program. The plan is divided into the following ten sections:

- I. *Executive Summary* identifies the location, size, general natural resource features and primary management goals for the site.
- II. *Introduction* provides a brief introduction to the EEL Program and the site and describes the structure of the management plan.
- III. *Site Description and Location* provides a detailed site location and description.
- IV. *Natural Resource Descriptions* includes physical resources (climate, geology, topography, soils, and hydrology), biological resources (ecosystem function, flora, fauna, designated species, and biological diversity), and cultural resources (archaeological, historical, land-acquisition history, and public interest).
- V. *Factors Influencing Management* includes natural trends, human-induced trends, external influences, legal obligations and constraints, management constraints, and public access and passive recreation.
- VI. *Management Action Plans* include specific goals, strategies and actions.
- VII. *Projected Timetable for Implementation* prioritizes activities and provides a time frame for Management Plan implementation.

- VIII. *Financial Considerations* discusses funding mechanisms and projected management costs.
- IX. *Bibliography* cites original research and publications used to develop the Management Plan.
- X. *Appendices* includes supplemental information

Uses planned for EFS comply with the Conceptual State Lands Management Plan requirement for “balanced public utilization,” and with the mission of the EEL program as described in the SMM. Planned uses comply with Article VIII, Section 1 of the Florida Constitution as well as Chapters 375, 380, 259, 125, and 403 of the Florida Statutes. This plan is also in conformance with the Local Government Comprehensive Plan for Brevard County, Florida, as approved and adopted. The letter confirming compliance is contained in Appendix B. Additionally, the EEL Program will consider the findings and recommendations of the Land Management Review Team in finalizing the required 10-year update.

III. SITE DESCRIPTION AND LOCATION

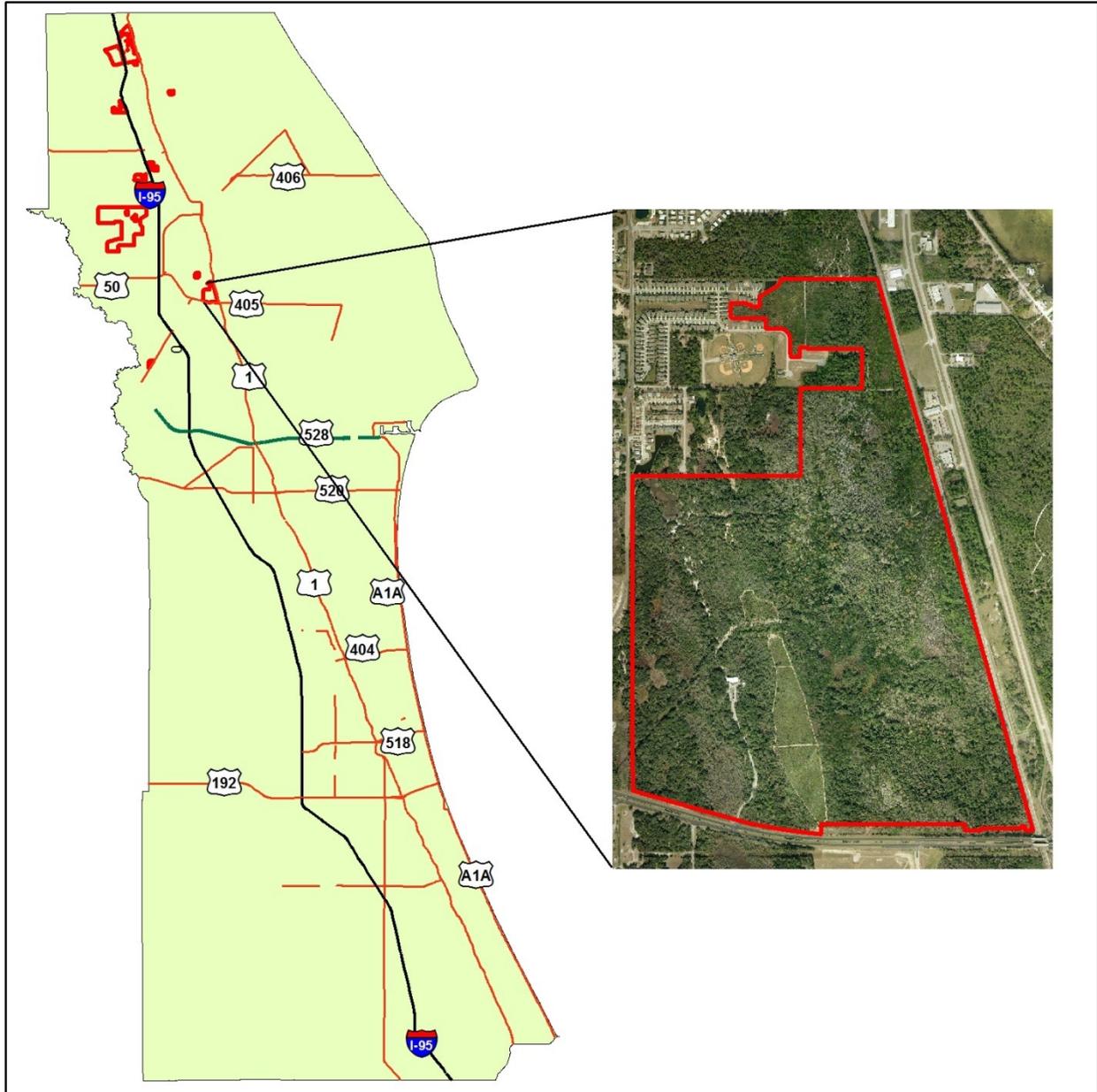
EFS is a ±481.31 acre site south of the City of Titusville, Brevard County, Florida (Township 22S, Range 35E, Sections 26, 27, 34 and 35) located east of I –95 on SR 405 (Figures 1 & 2, Appendix C). The EEL Selection and Management Committee (SMC) considered site location, natural communities, biological diversity, habitat quality, and contribution to functional ecological integrity to determine if the acquisition of EFS met the EEL Program conservation goals. The original 393 acres was titled to the State of Florida in 1998. Brevard County holds title to 78.31 acres acquired in 2002, 2003 and 2007. There is no portion of EFS that should be declared surplus.

EFS is comprised of a small ruderal area and seven natural communities: mesic hammock, hydric hammock, scrubby flatwoods, oak-saw palmetto scrub, basin swamp, depression marsh, and basin marsh. The site is in proximity to the northern limit of the 54° Fahrenheit, January isotherm. Vegetation found on site represents an outstanding example of the interface of temperate and subtropical plants, with many at the extreme limit of their geographical range.

IV. NATURAL RESOURCE DESCRIPTIONS

This section describes the physical resources (climate, geology, topography, soils, and hydrology), biological resources (ecosystem function, flora, fauna, special concern species, and biological diversity) and cultural resources (archeological, historical, land-use history and public interest).

Figure 1: Enchanted Forest Sanctuary General Location Map



Legend

 Sanctuary Boundary

0 5 10 20 Miles



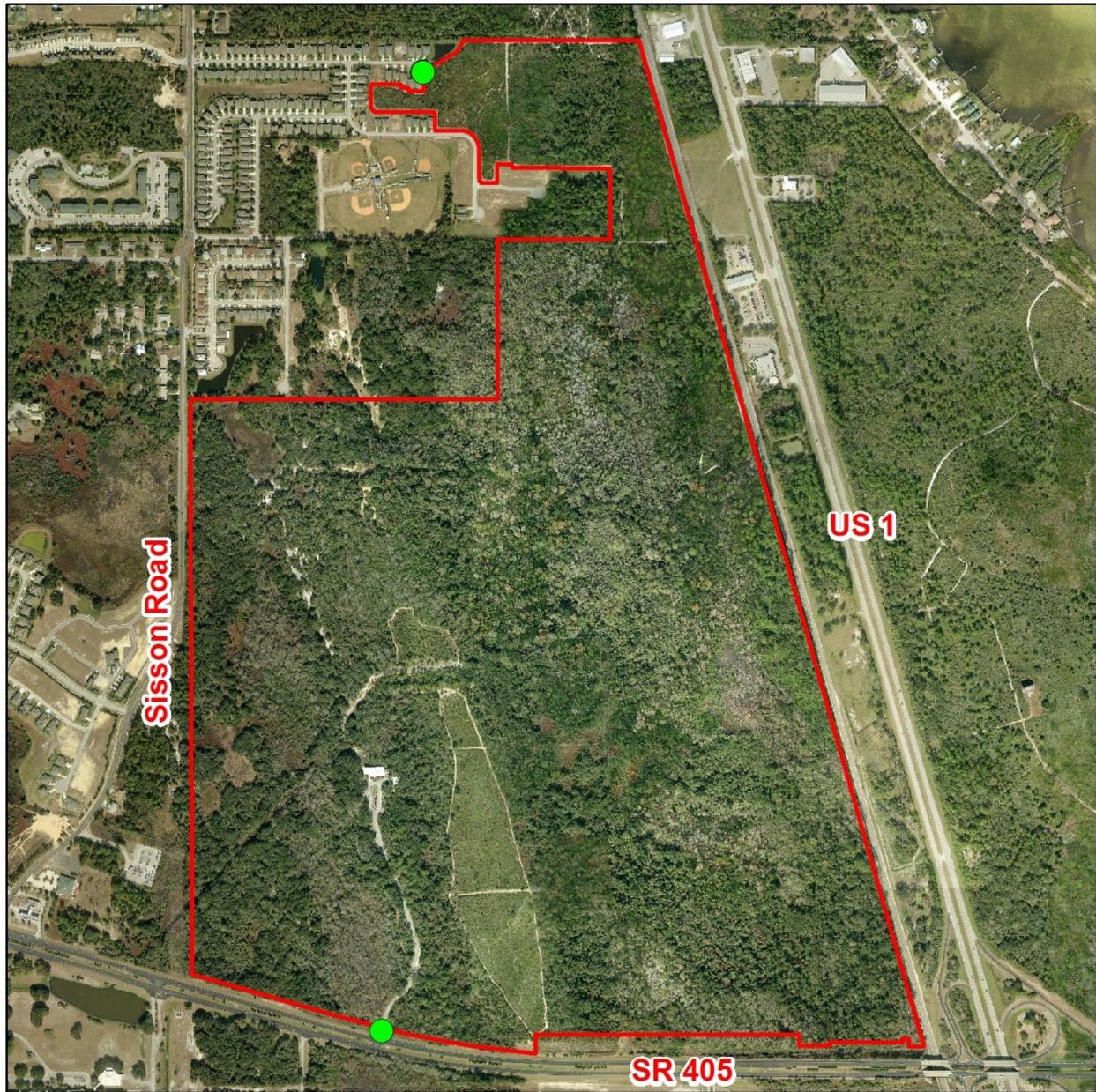
Map updated on 05/28/2013 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection



Figure 2: Enchanted Forest Sanctuary Location Map



Legend

-  Sanctuary Boundary
-  Gates

0 500 1,000 2,000 Feet



Map updated on 01/13/2014 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection



A. PHYSICAL RESOURCES

a. Climate

EFS is located in east central Florida, an isothermal area at the junction of the temperate and sub-tropical climatic zones. Temperature data from representative locations in Brevard County indicate an average annual temperature of approximately 74°F. August is typically the warmest month, averaging 82°F, whereas January is the coolest month, averaging about 62°F (Schmocker et al. 1990). Summer temperatures are moderated by frequent afternoon thunderstorms. Periods of extreme cold weather are infrequent due to the site's latitude and proximity to the Atlantic Ocean. The most recent "hard" freeze occurred in the winter of 1989. Long-term rainfall data for the area indicate an average of 54 inches per year in north Brevard County (Schmocker et al. 1990). Wet and dry seasons are typically well defined, with the wet season occurring between May and October, and the dry season occurring between November and April. Annual and seasonal rainfall is subject to large variation in both amount and distribution.

During summer, Central Florida has some of the highest frequencies of thunderstorms in the world, which is the natural ignition source for fire in Florida (Duncan et al. 2010). Cloud to ground lightning strikes occurs frequently during summer storms. This is an important source of natural fire ignition, which determined the historic natural fire regime. Prevailing winds are generally from north to northeast during the dry season (November to April) and from the east during the wet season (May to October) (ESMC, 1989).

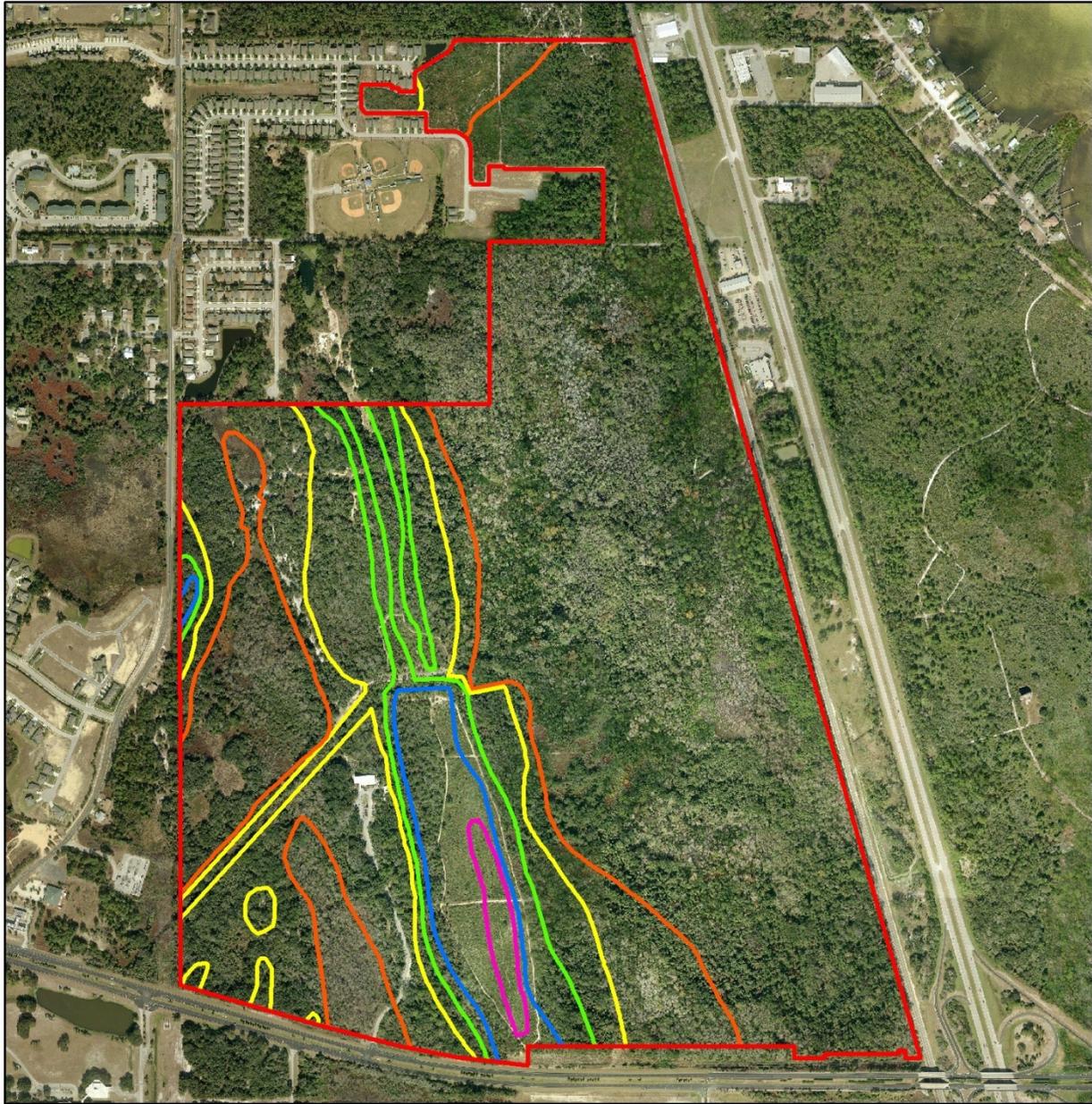
b. Geology

EFS is situated on the Atlantic Coastal Ridge, a geological shoreline feature estimated to have formed up to 140,000 years ago when the sea level was as much as 30 feet above the present level. The property is part of a relic beach and dune system, an important geological feature that influences the biological diversity of Brevard County. The Atlantic Coastal Ridge, a major feature of mainland Brevard County made of both single and multiple relic beach dunes that extend along the east coast of Florida. These ridges are believed to have formed along an erosional rather than prograding shoreline, and in most places contain little carbonates. Formation of the Atlantic Coastal Ridge is associated with Pamlico time (ca. 140,000 – 120,000 years before present) (Schmalzer et al. 1999). Brevard County is not aware of any mineral resources, such as oil, gas and/or phosphate located within the Sanctuary boundary.

c. Topography

Based on a review of the USGS Topographic Quadrangle Map (Figure 3), ground elevations varies slightly from 15' ± National Geodetic Vertical Datum (NGVD) throughout most of the property with the exception of the Atlantic Coastal Ridge that extends north and south through the middle of the property to 35' NGVD. The general surface drainage pattern is divided by the aforementioned ridge but primarily drains toward the east. This natural drainage has been altered due to the construction of the Addison Canal cut east west through the center of the property. The canal outfalls east into the Indian River Lagoon.

Figure 3: Enchanted Forest Sanctuary Topographic Map



Legend

-  Sanctuary Boundary
- Elevation (NGVD)**
-  15
-  20
-  25
-  30
-  35

0 500 1,000 2,000 Feet



Map updated on 05/28/2013 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Natural Resource Conservation Service.



d. Soils

Soil types within EFS are defined by the Natural Resource Conservation Service (formerly the Soil Conservation Service). Soils with aquifer recharge characteristics are noted with an asterisk. Soil types are represented in Figure 4.

Anclote sand (An) is a nearly level, very poorly drained sandy soil. This soil type is characteristic of broad areas on flood plains, marshy depressions in the flatwoods, and poorly defined drainage ways. In most years, the water table is within a depth of 10 inches for more than 6 months. In dry seasons it is deeper, but seldom below a depth of 40 inches. The soil is flooded for 2 to 7 days following heavy rains.

*Cocoa sand (Co)** is a nearly level and gently sloping, well-drained, sandy soil over coquina rock. It is on low undulating ridges. The water table is below a depth of 6 feet at all times. Cocoa sand is an aquifer recharge soil.

Myakka sand (Mk) is a nearly level, poorly drained sandy soil in broad areas in flatwoods and in areas between sand ridges and sloughs and ponds. In most years the water table is within a depth of 10 inches for 1 to 4 months and between 10 and 40 inches for more than 6 months. In dry seasons it is below a depth of 40 inches. The soil is flooded for 2 to 7 days once in 1 to 5 years.

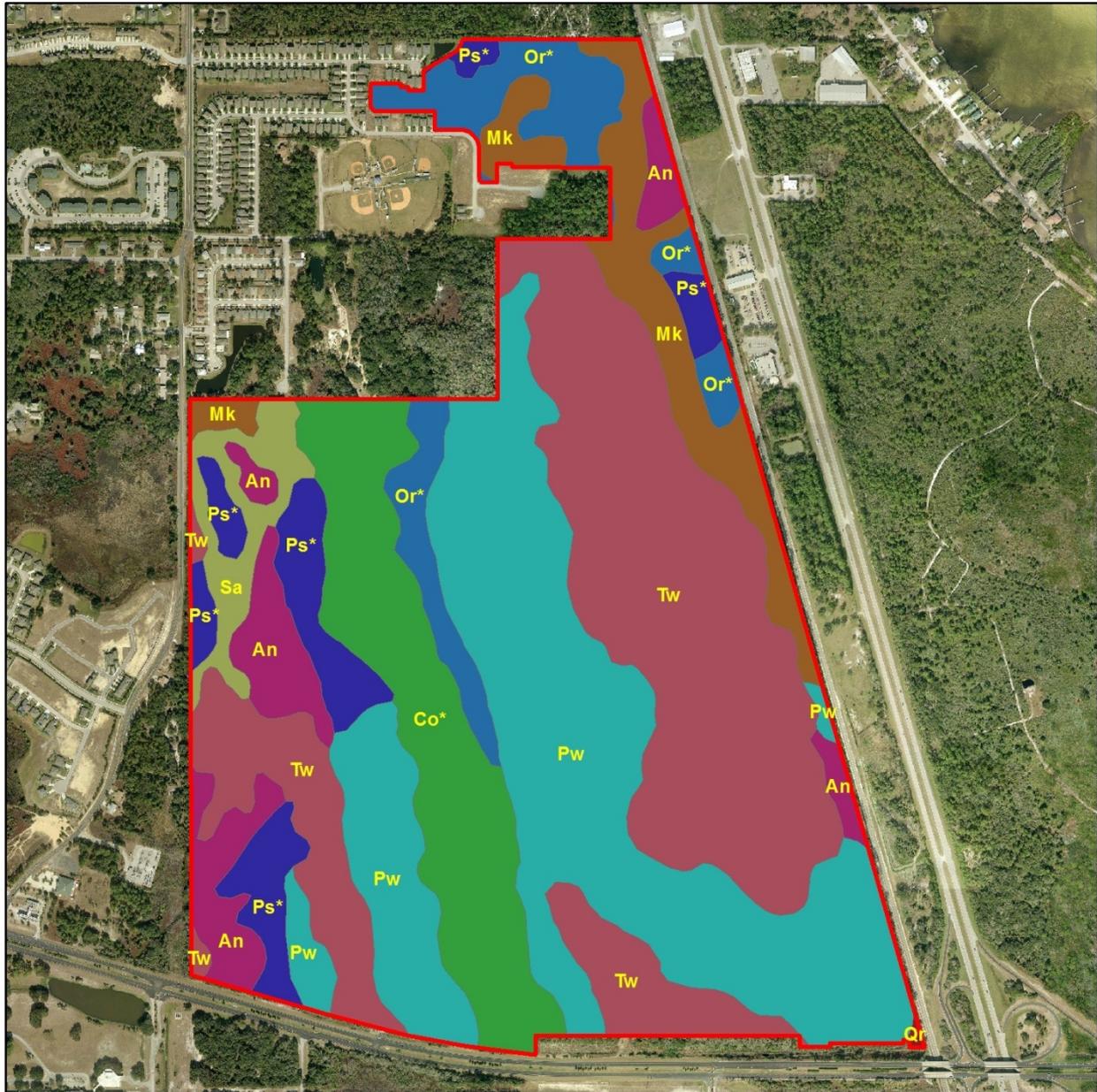
*Orsino fine sand (Or)** is a nearly level, moderately well drained sandy soil on moderately low ridges and between high ridges and poorly drained areas. In most years, the water table is at a depth of 40 to 60 inches for 6 months or more. During prolonged dry periods, it is below a depth of 60 inches, and during wet periods, it is between 20 to 40 inches for 7 days to 1 month. Orsino fine sand is an aquifer recharge soil.

*Pomello sand (Ps)** is a nearly level, moderately well drained sandy soil on broad low ridges and low knolls. The water table is 30 to 40 inches below the surface for 2 to 4 months in most years and between 40 and 60 inches for more than 6 months. During dry periods, it is below 60 inches for short periods. Pomello sand is an aquifer recharge soil.

Pompano sand (Pw) is a nearly level, poorly drained sandy soil on broad flats in shallow depressions and in sloughs. In most years the water table is within 10 inches of the surface for 2 to 6 months, and occasionally following heavy rain it rises above the surface for 2 to 7 days. It is ordinarily between depths of 10 to 40 inches for 6 months or more. During dry seasons it drops below 40 inches for brief periods.

Quartzipsamments, smoothed (Qr) are nearly level to steep sandy soils that have been reworked and shaped by earthmoving equipment. They are commonly near urban centers or along major highways on the mainland. Many areas are former sloughs, marshes, or shallow ponds that have been filled with various soil material to surrounding ground level or to elevations above natural ground level. Some areas were originally high ridges that have been excavated to below natural ground level and reworked.

Figure 4: Enchanted Forest Sanctuary Soil Map



Legend

Sanctuary Boundary	Mk	Qr
Soil Type	Or*	Sa
An	Ps*	Ta*
Co*	Pw	Tw

0 500 1,000 2,000 Feet



Map updated on 05/28/2013 for Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

Source: Natural Resource Conservation Service.



Satellite sand (Sa) is a nearly level, somewhat poorly drained sandy soil on broad low ridges in the flatwoods. The water table is 10 to 40 inches below the surface for 2 to 6 months in most years. Most of the time it is within a depth of 60 inches. During prolonged dry periods it is below 60 inches.

Tomoka muck (Tw) is a nearly level, very poorly drained muck soil in broad flat marshes, small depressions, and swamps. Sandy and loamy layers are at a depth of 16 to 40 inches. The water table is within a depth of 10 inches for 9 to 12 months in most years, and water is frequently above the surface. In dry periods it is between 10 and 30 inches.

(Source: U.S Department of Agriculture. Soil Survey of Brevard County, Florida, 1974)

Note: * denotes a soil with aquifer recharge characteristics

e. Hydrology

EFS lies within Panel 220 of 825 of the FEMA maps dated March 17, 2014 (Appendix D). The FEMA map shows flood zone A on the east and west boundaries of the property. Flood zone A indicates no base elevation has been determined. The rest of the Sanctuary is flood zone X. Flood zone X is an area that is determined to be outside the 500-year flood plain. The property is not located within an Aquatic Preserve, designated as an Area of Critical State Concern nor is it under review for such a designation.

Historically, drainage along the west side of the Enchanted Forest Sanctuary would have flowed west eventually reaching the St. Johns River. Along the eastern boundary, the interdunal swale system is vegetated by a series of forested hydric hammocks. It is likely that the hydrologic flow through these hammocks traveled east to the Indian River Lagoon. In addition, according to historical aerial photographs, the re-alignment of US Highway 1 and the Florida East Coast rail line in the early 1960's likely influenced the drainage along the eastern boundary.

The construction of the Addison Canal built in 1912 altered the flow patterns within the Enchanted Forest Sanctuary; allowing lands west of the central ridge system to drain to the east rather than to the west. The cutting of the canal through the center of the Enchanted Forest Sanctuary also resulted in a localized depression of the ground water table adjacent to the canal (Enchanted Forest Sanctuary Management Plan 2000). According to historical aerial photographs, the Addison Canal was actively maintained through the late 1950's - early 1960's.

B. Biological Resources

a. Ecosystem Function

The preservation of EFS ecosystem function depends on the enhancement of its natural communities, which will result in an increase of species viability. Restoration of the natural communities is mainly dependent upon the removal of exotic species, the reintroduction of an adequate fire regime and the restoration of the natural hydroperiod. EFS management actions include; the restoration of natural communities, restoration and enhancement of habitat for gopher tortoises and Florida Scrub-Jays, removal of invasive exotic species and implementation of prescribed fire. The EFS Fire Management Plan (Appendix E) identifies each fire dependent

ecosystem with a specific fire regime, the location of each fire unit and fireline and the pre-burn treatment necessary for each unit for a prescribed burn.

EFS, along with Dicerandra Scrub Sanctuary, Salt Lake Wildlife Management Area, Seminole Ranch Conservation Area, St. Johns National Wildlife Refuge, South Lake Conservation Area, Indian Mound Station Sanctuary, Fox Lake Sanctuary, North Buck Lake Scrub Sanctuary, Buck Lake Conservation Area and other Florida Forever Board of Trustees projects in the vicinity; help to form a conservation corridor within the urban areas of North Brevard County.

EFS preserves a fine example of the upland and wetland communities that once covered larger areas of Brevard County. These communities in a contiguous form increase the value of the site in terms of ecosystem function. These communities support a number of endemic plant and animal species. The preservation of ecotones (transition areas between community types) also increases the intrinsic biological value of the site. These ecotones are important due to the diversity of plant species and variety of animal species that dependent upon these areas to survive.

EFS uplands consist of mesic hammock, scrubby flatwoods and oak-saw palmetto scrub. A timber assessment prepared by a qualified professional forester assessed the feasibility of managing timber resources for resource conservation and revenue generation that embraces sustainable forest management practices (Appendix F).

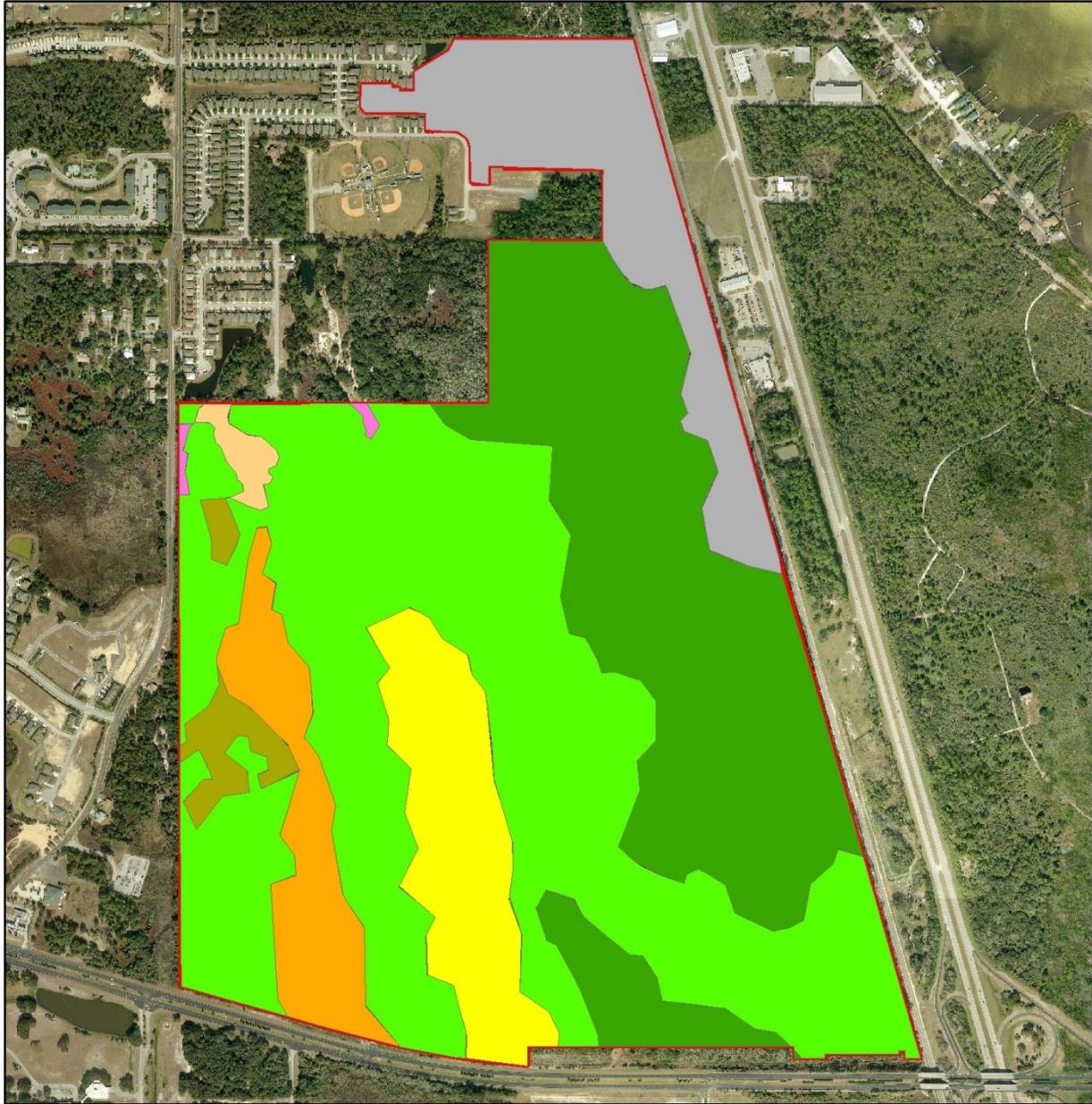
EFS wetlands consist of hydric hammock, basin swamp, basin marsh and a depression marsh. The Florida Department of Environmental Protection considers all surface waters on EFS, including isolated wetlands, as Class III waters (Rule 62-302.400(12)(b)5.,FAC). The site does not include any Outstanding Florida Waters (Rule 62-302.700, Florida Administrative Code) (Appendix G).

The Sanctuary is important as a surficial aquifer recharge area. Recharge occurs when water percolates through well-drained upland scrub soils to the aquifer layer where it is stored. The site is also important in the preservation of protected and listed plant and animal species and provides a significant area of unaltered flora and fauna, free from development.

b. Flora

This section describes the preliminary plant communities identified within EFS. The vegetative communities are described using the Florida Natural Areas Inventory's *Guide to the Natural Communities of Florida* (2010) as shown in Figure 5. A list of exotic plant species found on site by EEL staff is listed in the Management Constraints section of this management plan. A list of plants identified on site is included in Appendix H. This list reflects the representative species and is not a complete floristic inventory.

**Figure 5: Enchanted Forest Sanctuary
Natural Communities**



Legend

- | | |
|--|--|
|  Sanctuary Boundary |  Hydric Hammock |
| Natural Communities |  Mesic Hammock |
|  Basin Marsh |  Oak-Saw Palmetto Scrub |
|  Basin Swamp |  Ruderal |
|  Depression Marsh |  Scrubby Flatwoods |

0 500 1,000 2,000 Feet



Map updated on 01/29/2015 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Brevard County Natural Resources. 2002.
Converted from FLUCCS. 1985 to FNAI 1990 classification.



Historical aerial photographs were reviewed to determine changes to the vegetative community type and structure, as well as human-induced changes over the past seventy years. Historical aerial photographs from 1943, 1958, 1969, 1983, 1993, and 2012 are provided as figures 6, 7, 8, 9, 10 and 11, respectively. The natural community component of this property is rather diverse with excellent examples of the natural community transitions typical of the Atlantic Coastal Ridge system.

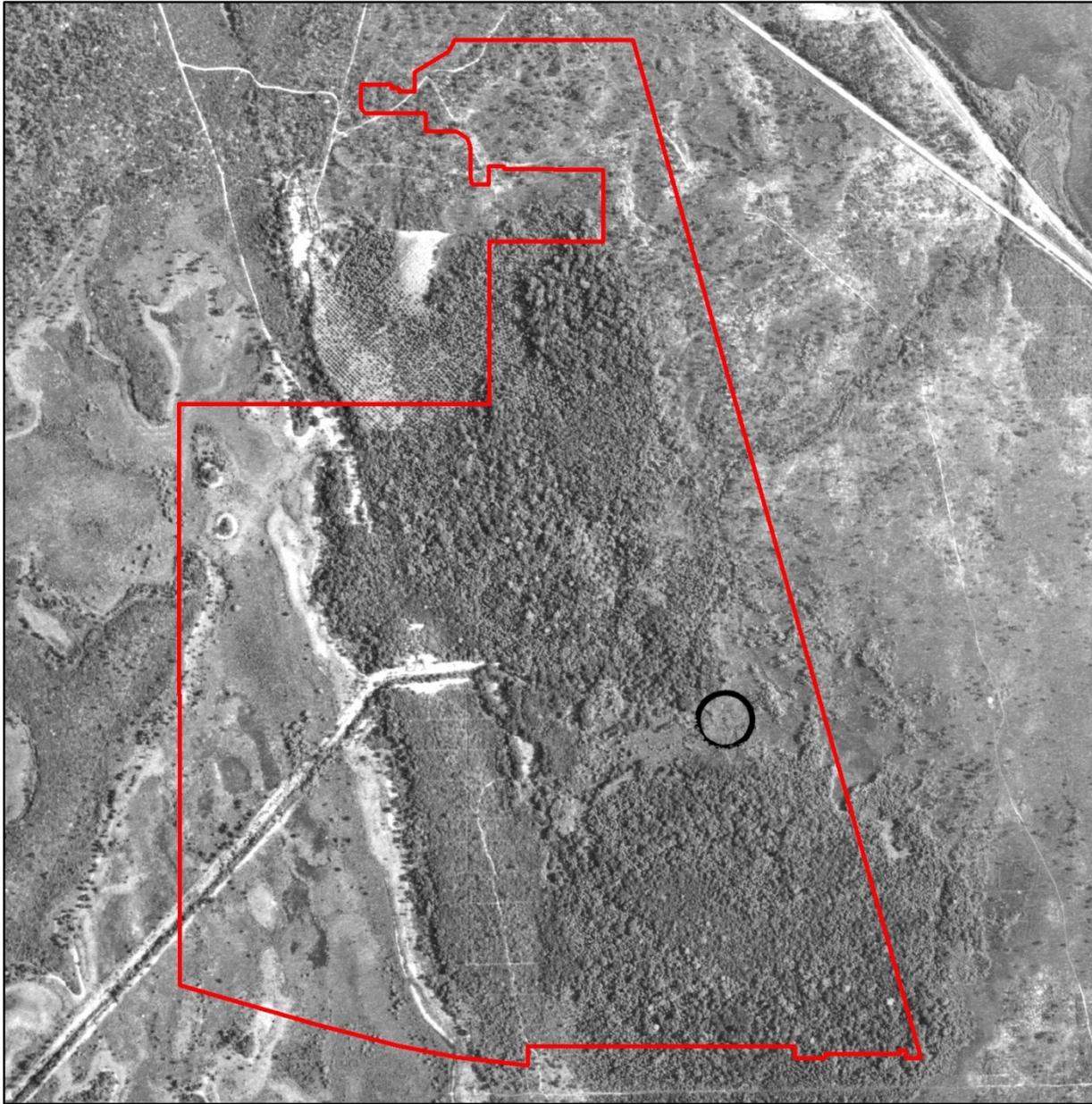
The 1943 aerial (Figure 6) shows the absence of all roadways and structures surrounding the property. The Addison Canal constructed between 1912-1913 and a citrus grove in north central portion of the property are shown to be the only areas of disturbance. The 1958 aerial (Figure 7) shows a significant reduction in the amount of vegetation from the 1943 aerial indicating a recent wildfire or prescribed fire. A dirt trail located along the southern boundary was widened for the creation of S.R. 405. By 1969 (Figure 8), the railroad and US 1 are present to the east, SR 405 has been completed to the south, land clearing for Sisson Road had begun to the west and ball fields are being built to the north. The 1983 aerial (Figure 9) shows the completion of Sisson Road, some development to the west and baseball fields to the north. By 1993 (Figure 10), the Sanctuary was purchased by the EEL Program and firebreaks can be seen south of the Addison Canal. Development continues to encroach south between US 1 and the railroad tracks and west of the sanctuary. By 2012 (Figure 11), housing developments are present to the north, northwest and west of the sanctuary and most of the area between US 1 and the railroad has been cleared for development.

Upland Communities

Mesic Hammock -This community represents the dominant plant assemblage within EFS. The community is composed of a mosaic of temperate and sub-tropical species exhibiting a high degree of species richness. Dominant species include live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), southern magnolia (*Magnolia grandiflora*), pignut hickory (*Carya glabra*), cabbage palm (*Sabal palmetto*) and red maple (*Acer rubrum*). The understory is composed of dahoon holly (*Ilex cassine*), lancewood (*Ocotea coriacea*), Simpson's stopper (*Myrcianthes fragrans*), American beautyberry (*Callicarpa americana*), saw palmetto (*Sabal repens*), wild coffee (*Psychotria nervosa*), snowberry (*Chiococca alba*) and partridgeberry (*Mitchella repens*). Woody vines including muscadine grape (*Vitis rotundifolia*), catbrier (*Smilax* spp.), and Virginia creeper (*Parthenocissus quinquefolia*), as well as sword fern (*Nephrolepis exaltata*), southern wood fern (*Dryopteris ludoviciana*) and toothpetal false reinorchid (*Habenaria floribunda*) are some of the species that compose the ground cover and herbaceous layers.

Scrubby Flatwoods (G3/S3)* - This community is found in the northeast portion of EFS along the Florida East Coast Railroad corridor. The community is dominated by a moderately dense canopy of slash pine (*Pinus elliottii*). The understory contains fetterbush (*Lyonia lucida*), rusty staggerbush (*Lyonia ferruginea*), gallberry (*Ilex glabra*), winged sumac (*Rhus copallinum*), myrtle oak (*Quercus myrtifolia*), and saw palmetto. The ground cover consists of wiregrass (*Aristida stricta* var. *beyrichiana*).

**Figure 6: Enchanted Forest Sanctuary
1943 Aerial**



Legend

 Sanctuary Boundary

0 500 1,000 2,000 Feet



Map updated on 06/10/2013 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection.



Figure 7: Enchanted Forest Sanctuary 1958 Aerial



Legend

 Sanctuary Boundary

0 500 1,000 2,000 Feet



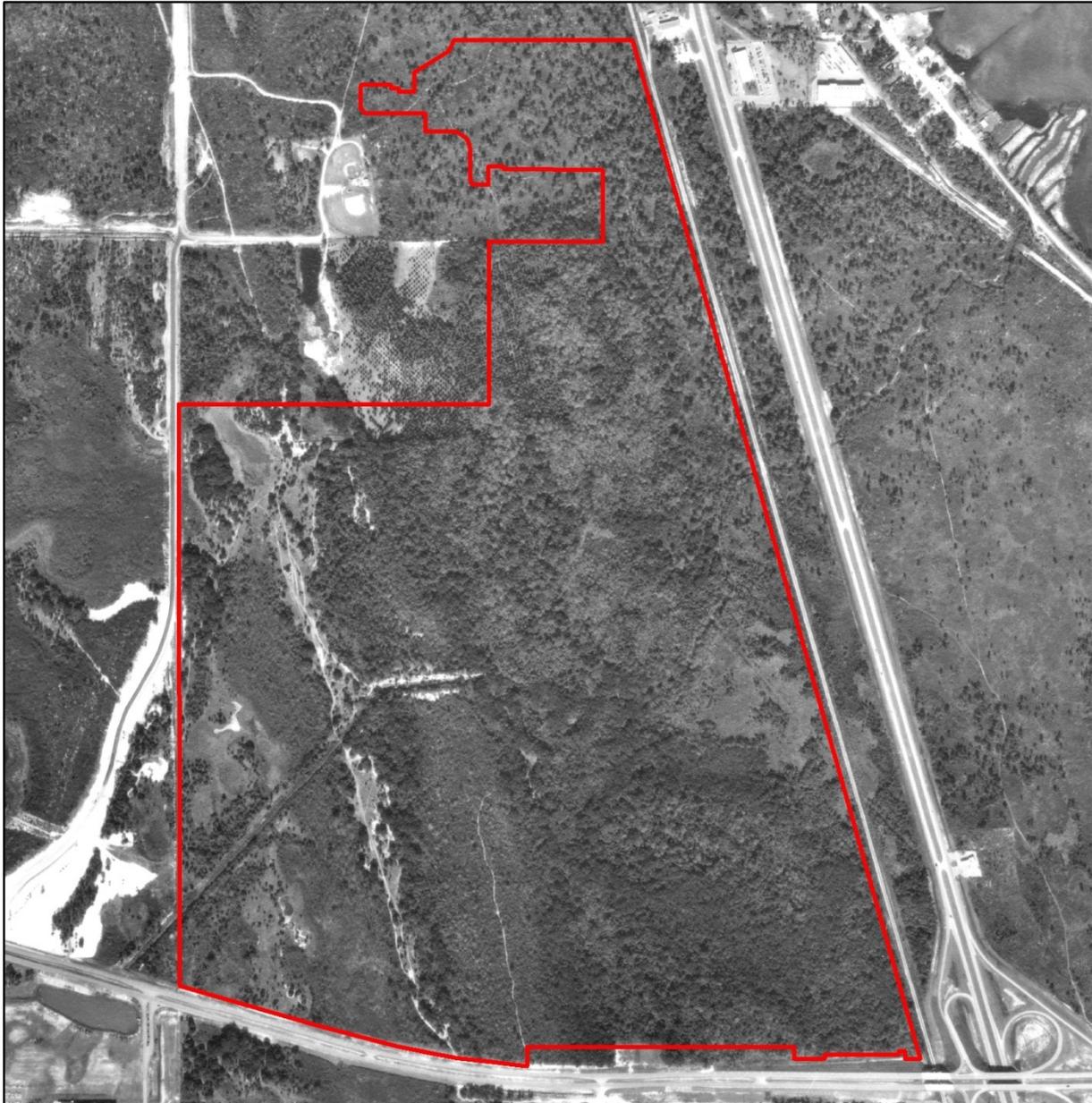
Map updated on 06/10/2013 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection.



Figure 8: Enchanted Forest Sanctuary 1969 Aerial



Legend

 Sanctuary Boundary

0 500 1,000 2,000 Feet



Map updated on 06/10/2013 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection.



Figure 9: Enchanted Forest Sanctuary 1983 Aerial



Legend

 Sanctuary Boundary

0 500 1,000 2,000 Feet



Map updated on 12/30/2013 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection.



Figure 10: Enchanted Forest Sanctuary 1993 Aerial



Legend

 Sanctuary Boundary

0 500 1,000 2,000 Feet



Map updated on 12/30/2013 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection.



Figure 11: Enchanted Forest Sanctuary 2012 Aerial



Legend

 Sanctuary Boundary

0 500 1,000 2,000 Feet



Map updated on 12/30/2013 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection.



*Oak-Saw Palmetto Scrub (G2/S2)** –This community type occurs on the centrally located ridge that runs from north to south through EFS. Dominant species include: sand live oak (*Quercus geminata*), Chapman oak (*Q. chapmanii*), myrtle oak, scrub hickory (*Carya floridana*), hog plum (*Ximenia americana*), tarflower (*Bejaria racemosa*), and saw palmetto. The ground cover is composed of wiregrass, gopher apple (*Licania michauxii*) prickly pear (*Opuntia humifusa*) jeweled blue-eyed grass (*Sisyrinchium xerophyllum*), and wild pennyroyal (*Piloblephis rigida*).

A specific fire regime is required for management of the oak-saw palmetto scrub and scrubby flatwoods community. Scrub oaks will resprout after fire at intermediate (5-10 years) frequencies (Schmalzer and Hinkle 1992a, 1992b). Saw palmetto grows more rapidly after fire and initially dominates the >0.5 m layer in mixed stands but is temporary, as the scrub oaks will overtop saw palmetto with time (Schmalzer 2003). Scientific literature suggests growth in long-unburned scrub is greater after initial roller chopping and burning compared to regularly burned scrub. Openings created by burning piled fuels do persist compared to openings in scrub burned without fuel piles which close by 50% in seven years (Schmalzer and Adrian 2001). Therefore, this portion of the scrub community will have to be burned on a shorter return interval.

PROPOSED RESTORATION

Saw palmettos are a very important component of the scrub communities. A combination of mechanical treatment (roller chopping or mowing of vegetation) followed quickly with fire will accelerate the restoration of the oak-saw palmetto scrub and scrubby flatwoods communities which have degraded by decades of fire suppression (Rickey et al. 2007). Restoration efforts are being concentrated on the oak-saw palmetto scrub and scrubby flatwood communities and will include mechanical treatment of upland areas (Figure 12). Mechanical treatment includes the reduction of the understory and will follow the scrub management guidelines developed for peninsular Florida by Kent and Kindell (2009) and approved by the SMC. Reduction of the understory includes all overgrown scrub oaks. Cabbage palms located within 100 feet of firelines will be cut and left in place. In addition, the oak-saw palmetto scrub and scrubby flatwood communities will be reduced to two slash and or longleaf pines per acre with an eventual target of one to two trees per acre. A selective thinning of 50% of the longleaf and slash pine canopy within 660 feet of the bald eagle nest will occur; retaining the largest pines for potential roosting or nest trees. Due to heavy fuel loads, mechanical reduction of the understory will be necessary up to 50 feet from the nest tree. Hand reduction may be performed within 50 feet of the nest tree to ensure the nest remains undisturbed. Hand removal of excess fuel loads near the nest tree may be necessary to decrease the threat of fire killing the nest, igniting a crown fire, or fire climbing up the nest tree, if the fire escapes containment. The nest tree may also be watered down prior to prescribed fire to further protect the tree. All mechanical reduction within the 660 foot nest buffer will be implemented outside of nesting season (May 16-September 30). Trees or snags identified a hazard for fire or recreation will be removed. A 1,000-foot buffer around potential Scrub-Jay territories may also be mechanically treated and thinned to 2 trees per acre (Kent and Kindell 2009) which will encroach into the mesic hammock community. Restoration efforts will then be focused on maintaining an adequate fire management routine. In preparation for the safe application of fire, a 30-foot reduction of the edges is anticipated for any unit prior to a prescribed fire.

Figure 12: Enchanted Forest Sanctuary Restoration Area



Legend

-  Sanctuary Boundary
-  Proposed Restoration

0 500 1,000 2,000 Feet



Map updated on 09/09/2014 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection.



Ruderal – These human disturbed areas are colonized by plants that do not constitute a natural

community. The area, historically oak-saw palmetto scrub, is now colonized by gopher apple, narrowleaf silkgrass (*Pityopsis graminifolia*) and other species of grasses.

Wetland Communities

Hydric Hammock - This lowland community is found primarily in the southeast portion of EFS. The dominant canopy species are live oak, laurel oak, red maple, blackgum (*Nyssa sylvatica*), sweetbay (*Magnolia virginiana*), and sugarberry (*Celtis laevigata*). The understory is composed of dahoon holly and marlberry (*Ardisia escallonioides*). Ground cover includes swamp fern (*Blechnum serrulatum*), marsh fern (*Thelypteris palustris* var. *pubescens*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis* var. *spectabilis*), and bog white violet (*Viola lanceolata*).

Basin Swamp - This community occurs on the western portion of this property, and is associated with a series of herbaceous basin marshes. The community is dominated by red maple, cabbage palm, laurel oak, and sugarberry. The understory is wax myrtle (*Myrica cerifera*) and Virginia willow (*Itea virginica*). The dominant herbaceous species include: cinnamon fern, and Virginia chain fern (*Woodwardia virginica*).

*Basin Marsh (G4/S4)** - These wetland systems are primarily located along the western portion of the site between the scrub ridge and Sisson Road. This community is dominated by spike rushes (*Eleocharis* spp.). The basin marsh also includes herbaceous species including maidencane (*Panicum hemitomon*), meadowbeauty (*Rhexia* spp.), Carolina redroot (*Lachnanthes caroliniana*), Virginia chain fern, and beakrush (*Rhynchospora* spp.).

*Depression Marsh (G4/S4)**- Depression marshes are characterized as a shallow, usually rounded depression in sand substrate with herbaceous vegetation often in concentric bands. The vegetation is primarily maidencane and pickerelweed (*Pontederia cordata*). A portion of the marsh has been damaged by previous ATV use.

Depression marshes occur as isolated wetlands within larger upland ecosystems and are of critical importance to many wetland and upland animals. Hydrological conditions vary, causing most depression marshes to dry in most years. Hydroperiods range widely from as few as 50 days or less to more than 200 days per year. Fire is important to maintaining this community type by restricting invasion of shrubs and trees and the formation of peat. Fire frequency is often greatest around the periphery of the marsh and least toward the center. A severe peat fire can lower the ground surface and create a pond at the center of the marsh.

Global (G) Element Ranks:

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very little remaining area, e.g., <2,000 acres) or because of some factor(s) making it especially vulnerable to extinction;

G2 = Imperiled globally because of rarity (6-20 occurrences or very little remaining area, e.g., <10,000 acres) or because of some factor(s) making it very vulnerable to extinction throughout its range;

G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range or because of other factors making it vulnerable to extinction throughout its range, 21 to 100 occurrences;

G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery;

G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery;

G? = uncertain Global rank.

State (S) element ranks:

S1 = Critically imperiled in state because of extreme rarity (5 or fewer occurrences or very little remaining area) or because of some factor(s) making it especially vulnerable to extinction;
S2 = Imperiled in state because of rarity (6-20 occurrences or little remaining area) or because of some factor(s) making it very vulnerable to extinction throughout its range;
S3 = Rare or uncommon in state (on the order of 21 to 100 occurrences);
S4 = Apparently secure in state, although it may be rare in some parts of its state range;
S5 = Demonstrably secure in state and essentially ineradicable under present conditions;
S? = uncertain State rank. 5

c. Fauna

A complete comprehensive faunal survey has not been completed for EFS. The natural community heterogeneity characterizing the site provides suitable habitat conditions for use by a broad range of species. The diversity of natural communities found within the Enchanted Forest Sanctuary supports a number of animal species. A preliminary list of animal species observed within the Sanctuary is presented in Appendix H.

In accordance with Florida Statutes Section 388.4111, all environmentally sensitive and biologically highly productive lands are required to submit an arthropod control plan (Appendix I). Brevard County Mosquito Control will adulticide only when populations exceed landing rate thresholds, or when the potential for a mosquito-borne disease outbreak become sufficient for transmission of disease or a quantifiable increase in the number of pestiferous mosquitoes or other arthropods. Treatments will occur in upland areas only. Spray Data from Brevard County Mosquito Control shows EFS was not treated from 2005-2009. It is the understanding of the EEL Program that Mosquito Control will not treat EFS unless one of the previously mentioned scenarios occurs.

d. Translocation

Translocation involves the reintroduction of a designated species to previously occupied areas or the augmentation of existing populations. The EEL Program has created a translocation policy to guide the process for third party requests and internal county requests for plant and animal species translocations to EEL Sanctuaries. Since translocations may be a viable part of the long-term reestablishment or maintenance of biological diversity on Sanctuary lands, the EEL Program has established a policy to guide the process of considering and deciding upon such activities. The EEL Program's SMC favors a conservative, science-based approach when considering requests for translocation. This policy is not meant to serve as a means to provide public lands as "safe havens" for listed species that would encourage habitat loss across private and public holdings. Translocation requests shall be considered on a case-by-case basis. A majority vote by the SMC is required for approval of the translocation. A third party requesting a translocation to an EEL Program Sanctuary shall be responsible for obtaining permits and maintaining compliance with any permits required for translocation of a listed species. The EEL Program reserves the right to refuse any translocation proposal for lands managed by the EEL Program.

e. Special Concern Species

The US Fish and Wildlife Service (USFWS) under the Endangered Species Act of 1973 and the State of Florida under the auspices of the Florida Department of Agriculture and Consumer Services (FDACS) is responsible for the listing of protected species. The USFWS classifies protected plants and animals as either “Endangered” or “Threatened”. The FDACS lists plant species that are considered State Endangered, Threatened, Species of Special Concern and Commercially Exploited. A primary management goal is to develop and implement strategies to enhance conservation of threatened, endangered, or endemic species. The following is information on existing listed species or species that may occur on EFS.

Plants

Low peperomia

Low peperomia (*Peperomia humilis*) was documented on the property in 2013 by EEL staff. Low peperomia is not federally listed but is considered Endangered by the Florida Department of Agriculture and Consumer Service Division of Plant Industry, which is responsible for the State listing (Weaver and Anderson 2010). This species is in imminent danger of extinction within the state; survival is unlikely if the causes of decline in the number of plants continue (Wunderlin and Hansen 2008; Wunderlin and Hansen 2011).

Angularfruit milkvine

Angularfruit milkvine (*Gonolobus suberosus*) was documented on the property in 2013 by EEL staff. Angularfruit milkvine is not federally listed but is listed as Endangered by the Florida Department of Agriculture and Consumer Service Division of Plant Industry, which is responsible for the State listing (Weaver and Anderson 2010). This species is in imminent danger of extinction within the state; survival is unlikely if the causes of decline in the number of plants continue (Wunderlin and Hansen 2008; Wunderlin and Hansen 2011).

Spreading pinweed

Spreading pinweed (*Lechea divaricata*) was documented on the property (Schmalzer and Foster 2005) with an estimated 26 plants. Spreading pinweed is not federally listed, but is listed as Endangered by the Florida Department of Agriculture and Consumer Service Division of Plant Industry, which is responsible for the State listing (Weaver and Anderson 2010). This species is in imminent danger of extinction within the state; survival is unlikely if the causes of decline in the number of plants continue (Wunderlin and Hansen 2008; Wunderlin and Hansen 2011).

Rockland shrubverbena

Rockland shrubverbena (*Lantana depressa* var. *floridana*) was documented on the property (Schmalzer and Foster 2005) with an estimated 46 plants. Rockland shrubverbena is not federally listed, but is listed as Endangered by the Florida Department of Agriculture and Consumer Service Division of Plant Industry, which is responsible for the State listing (Weaver and Anderson 2010). Although classified as a separate variety by the State of Florida and listed as endangered; Wunderlin and Hansen (2008 and 2011) considers this species a result of multiple

introductions both before and after European settlement and classifies it as *Lantana camara* (Category I invasive exotic).

Coastal dune sandmat

Coastal dune sandmat (*Chamaesyce cumulicola*), was documented on the property (Schmalzer and Foster 2005) with an estimated population of 1066 plants. Coastal dune sandmat is not federally listed, but is listed as Endangered by the Florida Department of Agriculture and Consumer Service Division of Plant Industry, which is responsible for the State listing (Weaver and Anderson 2010). This species is in imminent danger of extinction within the state; survival is unlikely if the causes of decline in the number of plants continue (Wunderlin and Hansen 2008; Wunderlin and Hansen 2011).

Plume polypody

Plume Polypody (*Pecluma dispersa*) was documented on the property in 2013 by EEL staff. Plume polypody is not federally listed but is listed as Endangered by the Florida Department of Agriculture and Consumer Service Division of Plant Industry, which is responsible for the State listing (Weaver and Anderson 2010). This species is in imminent danger of extinction within the state; survival is unlikely if the causes of decline in the number of plants continue (Wunderlin and Hansen 2008; Wunderlin and Hansen 2011).

Giant airplant

Giant airplant (*Tillandsia utriculata*) was documented on the property. In March 2007, 2176 bromeliads were counted in 4 monitoring areas by Dr. Teresa M. Cooper of the University of Florida. By May 2009, 53 plants remained with 97% of the plants lost due to an invasive bromeliad-eating weevil (Cooper et al. 2013). Giant airplant is not federally listed, but is listed as Endangered by the Florida Department of Agriculture and Consumer Service Division of Plant Industry, which is responsible for the State listing (Weaver and Anderson 2010). This species is in imminent danger of extinction within the state; survival is unlikely if the causes of decline in the number of plants continue (Wunderlin and Hansen 2008; Wunderlin and Hansen 2011).

Cardinal airplant

Cardinal airplant (*Tillandsia fasciculata*) was documented on the property. Cardinal airplant is not federally listed, but is listed as Endangered by the Florida Department of Agriculture and Consumer Service Division of Plant Industry, which is responsible for the State listing (Weaver and Anderson 2010). This species is in imminent danger of extinction within the state; survival is unlikely if the causes of decline in the number of plants continue (Wunderlin and Hansen 2008; Wunderlin and Hansen 2011).

Specific locations of some protected plant species were not recorded by prior investigators, or during the current site review. Mapping protected species populations will be a primary objective for monitoring populations. However, the EEL Program will not reveal the location of any protected species to ensure the protection of plants from collection. Other listed species are likely to occur at EFS due to its size and habitat diversity.

Animals

Eastern Indigo Snake

Indigo snakes (*Drymarchon corais couperi*) were documented on the property by EEL staff. USFWS lists the Indigo snake as threatened. It is uncertain whether there is a stable breeding population of indigo snakes in the area. Indigo snakes require large home ranges (370 to 2,500 acres) in order to maintain a stable population (Tennant 1997). Impacts from dogs, humans and roads cause habitat fragmentation and reduce indigo snake populations. Research by Breininger et al. (2004) suggested the indigo snake population is greatly influenced by habitat fragmentation because indigo snakes readily enter urban areas and cross roads. This study recommends the protection of the indigo snake population in large upland ecosystem conservation lands that connect to other conservation land, while trying to keep the amount of roads and urban areas in the immediate vicinity low (Breininger et al. 2004).

Florida Scrub-Jay

The Florida Scrub-Jay (*Aphelocoma coerulescens*) is listed as a threatened species by USFWS. Brevard County Office of Natural Resource Management (1986) reported Florida Scrub-Jays inhabiting the scrub ridge located in the southern portion of the property. This area has since become vacant of Scrub-Jays. A Florida Scrub-Jay survey was conducted in September 2001 and April 2002. A total of five Scrub-Jays were observed in the northern portion of the site throughout the course of the two surveys. The Scrub-Jays were confined to an area of burned scrubby flatwoods and the areas classified as “core” Scrub-Jay habitat by Brevard County. A Scrub-Jay survey performed in 2006 by the EEL Program staff reported no Scrub-Jays on the property. In December 2009, a single Scrub-Jay was observed by EEL staff. Reintroduction of an adequate fire regime and tree thinning should make the site suitable for Florida Scrub-Jays. However, a long history of reduced fire due to anthropogenic fire regime alterations has led to long-term habitat degradation and population decline typical of the region (Stith et al. 1996, Breininger et al. 2003, Breininger et al. 2006). Conservation goals will be to restore habitat so that approximately 70% of the potential territories are optimal and therefore consistent with statewide recovery plans.

This subpopulation, however, has become significantly isolated from other subpopulations because of habitat destruction and degradation that translocation may be the only viable approach to recovery (Breininger 2008). An experimental translocation program is currently under development by the Brevard Zoo and the EEL Program to use urban jays doomed to extinction because of habitat loss as sources of Scrub-Jays to recover restored sites that are likely to go extinct because of small population size without intervention (Fitzpatrick et al. 1991, Stith et al 1996, Root 1998, Breininger et al. 1998). Translocation of Scrub-Jays from other areas is considered a low priority due to the current acreage of oak-saw palmetto scrub and scrubby flatwoods. If translocation becomes a viable option in the future based on additional acquired lands, the EEL Program will comply with all Federal and State regulations as well as the EEL Program Species Translocation Policy and Selection and Management Committee approval. This program will only translocate Scrub-Jays from the same genetic unit as defined by Coulon et al. (2008). Translocation will be coordinated with the US Fish and Wildlife Service and Florida Fish and Wildlife Conservation Commission.

Fire return interval at EFS will be determined based on vegetation height and according to the scrub management guidelines developed for peninsular Florida by Kent and Kindell (2009) and approved by the SMC. To maintain a low, open scrub structure, fires must be frequent enough to keep average shrub height generally below 5.5 feet on at least 70% of a Scrub-Jay territory, but leave vegetation heights variable enough to allow continuous acorn production within the remaining 30%, and provide refugia for other scrub wildlife species (Kent and Kindell 2009). Vegetation height in the remaining 30% can be either lower (i.e., average shrub height <4 feet and <1 acre of medium-height shrubs) due to recent management, or taller (i.e., average shrub height 5.5 to 8 feet) (Kent and Kindell 2009).

The scrub management guidelines recommend allowing for more frequent prescribed fire in adjacent habitats to burn into scrub to maintain the desired mosaic state. Unfortunately, oak-saw palmetto scrub and scrubby flatwoods at EFS are exclusively surrounded by mesic and hydric hammocks that have a long fire return interval and generate low intensity fires that won't burn into adjacent scrub. Instead, the EEL Program will rely on mechanical treatment coupled with burning to keep oak-saw palmetto scrub and scrubby flatwoods at EFS in mosaic state.

Gopher Tortoise

Gopher tortoises (*Gopherus polyphemus*) inhabit the site. The Florida Fish and Wildlife Conservation Commission changed the status of the gopher tortoise from Species of Special Concern to Threatened in September 2007. A comprehensive gopher tortoise survey was completed on the Sanctuary in 2007. A total of 267 gopher tortoise burrows were located within the scrub and scrubby flatwoods located on the property; 168 burrows were reported active and 99 abandoned.

Bald Eagle

Bald Eagles (*Haliaeetus leucocephalus*) have been documented by FNAI (Appendix K) and FWCC. The USFWS removed the Bald Eagle from the list of federally endangered and threatened species in August 2007. Although no longer protected under the Endangered Species Act, the level of protection has not changed and continues to be federally protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. In Florida, it continues to be protected under the state's newly enacted Bald Eagle rule, F.A.C. 68A-16.002.

American alligator

American alligators (*Alligator mississippiensis*) have been observed by EEL staff and visitors in the Addison Canal. USFWS currently lists American alligators as threatened.

f. Biological Diversity

Although data collection has been ongoing to assess the Sanctuary's biological diversity, statistical analysis is limited. Additional data will be collected to assess the biological diversity for richness (the number of species found within a particular community) and evenness (the

distribution of individuals among species) to create a baseline data set to compare with future monitoring. Methodologies need to be established for all of the relevant taxonomic groups and staff working with researchers to address this particular need.

C. Cultural

a. Archaeological

According to FMSF (Appendix K), there are no recorded archeological sites within EFS. In addition, two assessments of the EFS archeological resources were conducted in 2001 and 2006, respectively by the Florida Department of State Public Lands Archeology Program (Formerly CARL Archeological Survey) and by Panamerican Consultants, Inc. Both surveys did not find any evidence of archeological sites within EFS.

The site lies within a moderate to low probability zone for encountering archeological resources. This designation does not exclude the potential for archeological sites being located within the EFS boundary. The Windover site located 2.5 miles southwest of the Sanctuary was discovered in 1982 in an area with the same designation.

b. Historical

The history of the area ranges from the Indian burial sites (6,000 BC) located several miles to the southwest at Windover, to the development of the space industry at Cape Canaveral during the 1950's, 1960's, and 1970's. In 1982, the developer of Windover Farms subdivision in Titusville unearthed one of the best-preserved indigenous burial sites with skeletal remains approximately 8,000 years old (Wentz 2012). The Ais Indians would later occupy the region around Titusville (Shoffner 1995).

Ais Indians (1,000BC – 1,500 AD)

The first people to inhabit Florida arrived roughly 12,000 years ago, from the central and southern areas of North America, at the end of the last ice age. During this time, much of North America was still covered by glaciers. Sea level was 200 feet below its current level and much of the earth's water was stored in glaciers (Brown 1994). The Ais (pronounced "eyes") Indians were known to inhabit Brevard County in the 16th century during the exploration and colonization of Florida by Europeans. The Ais Indians did not exhibit the traditional nomadic existence as other Native Americans, as the semi-tropical climate provided for their needs without requiring them to travel great distances.

Turn of the Century to Present

During the late 1800's and early 1900's, naturalists were the primary visitors to Brevard County. Notable scientists came to this species-rich, temperate/ subtropical region to collect specimens for natural history museums. These specimens included rare birds such as the now extinct Carolina parakeet (*Conuropsis carolinensis*).

A portion of the Hernandez-Capron Trail is located within EFS (Appendix K). The trail was a second Seminole War-era military trail established under Joseph M. Hernandez (1792-1857), a Brigadier General in the Army. It was the first road constructed between St. Augustine and the Ft. Pierce area. The road was intended to connect forts in an effort to remove the Seminole Indians, and eventually to support colonization of southern Florida. The road probably followed the same trail used by the Seminoles for over a century, and by generations of native Ais and Timucuan Indians prior to that. As other modes of transportation developed, human traffic on the Hernandez-Capron Trail diminished considerably.

During the early 1900's, people came to Brevard County from around the country via the Florida East Coast Railway. There was an increase in settlement and development of towns brought about by the creation of railroads and canals. The increase in population was the result of the 1916 Drainage Acts of Florida and the establishment of Mosquito Control measures that began in 1927. The Drainage Acts altered natural drainage patterns that permanently lowered water tables in areas where standing water naturally existed for six or more months of the year. The introduction of mosquito control (pesticide spraying) lowered the mosquito population to acceptable levels for human settlement (Barille 1988; Woodward-Clyde consultants, 1994). Throughout the 1920s, improved roads such as Dixie Highway (US 1) brought more cars and people to Brevard County. In 1921, a bridge was erected over the Indian River Lagoon connecting the barrier island with the main land for the development of hotels and casinos. Once air conditioning was introduced, Florida quickly became known as the residential and tourist destination it remains today.

Another historic feature found in the Enchanted Forest Sanctuary is the Addison-Ellis Canal (Appendix K), which runs through the property. The canal was constructed in 1912-13 by a consortium headed by Mr. Ellis, to drain the swamps along the St. Johns River, making the land usable for agricultural practices. The canal was also to relieve flooding in the St. John's River by diverting water to the Indian River Lagoon.

c. Land-Acquisition History

EFS encompasses +/- 481.31 acres located north of SR 405 and east of I-95 in Titusville, Brevard County, Florida. In February 1991, the EEL Program purchased 264 acres from The Nature Conservancy with EEL Program funds. Initially, The Nature Conservancy (TNC) purchased the property at a foreclosure auction. Funds for the purchase was provided by TNC's Land Preservation Fund and repaid by the EEL Program when funds from the 1991 referendum became available. An additional 129 acres was purchased in 1993 from the William H. Gauldin Trust, contiguous to the initial 264-acre acquisition. In 1998, EFS was titled to the State of Florida under the Conservation and Recreation Lands (CARL) Program. The state reimbursed Brevard County for 50% of the acquisition cost of the property. Brevard County remains the primary manager according to the 1999 Amendment to Management Lease Agreement #4177 with the State of Florida (Appendix A). In 2002, the EEL Program acquired 23.85 acres from Sterling Forest, LLC. as part of a mitigation donation to meet Florida Scrub-Jay mitigation requirements for the Plantation Point Development. In 2003, Sterling Forest, LLC. transferred an additional 10 acres as part of a mitigation donation. Management dollars received for the mitigation donation were used for securing the additional acreage with fencing. In 2007, the EEL Program purchased an additional 41.46 acres from the Vero Pittsburg Partners, LLC which

contained 10 acres of disturbed habitat. In 2009, the EEL Program secured 23 acres of undisturbed hammock in a land exchange with Brevard County Parks and Recreation for 10 acres of disturbed habitat acquired in 2007. The ±481.31 acre site is located within Township 22 South, Range 35 East, and Sections 26, 27, 34 and 35.

As part of the EEL Program goal towards long-term protection of essential natural resources, open space, green space, wildlife corridors and maintenance of natural ecosystem functions; the EEL Program has identified an optimal sanctuary boundary as shown in Figure 13.

d. Public Interest

EFS is a Category I site, or Center for Regional Management. Category I sites are proposed for extensive public access and the development of active environmental education and land management. Category I sites are ADA accessible and include: nature trails with interpretive signs, a dedicated parking area and extensive volunteer and environmental education programs. EFS was designated as one of four Centers for Regional Management within the EEL sanctuary network and continues to serve as a management area within the North Region to implement the conservation, education and recreational goals of the EEL Program. This regional approach streamlines facility operations and resource management activities.

Figure 13: Enchanted Forest Sanctuary Optimal Sanctuary Boundary



Legend

-  Sanctuary Boundary
-  Optimal Sanctuary Boundary

0 625 1,250 2,500 Feet



Map updated on 09/08/2014 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection.



V. FACTORS INFLUENCING MANAGEMENT

Part V includes information regarding natural and human-induced trends, external influences, legal obligations, and constraints, management constraints, and public access and passive recreational activities.

A. Natural Trends

Global trends, like sea level rise and global warming, are potential threats that are difficult to assess and can alter ecosystem function and biological diversity. Natural trends associated with stochastic events (fire, flood, drought, freeze) are unpredictable but their occurrence can be documented through historic records. Natural systems are typically able to respond and recover from such events. Altering natural stochastic events can negatively influence the biological and natural characteristics of the site, impacting resource values or management strategies. The primary variable that influences the formation and succession of Florida's vegetative communities is fire. If natural fires are not present, or are suppressed by man, less-fire-adapted species including invasive species can invade and alter the natural successional path of the community. In scrubby flatwoods, structural changes (height, growth, density) occur more rapidly than changes in species composition.

The mosaic of upland and wetland communities within EFS reflects the combination of differences in soil type, natural hydrologic regimes and historical fire effects. Fire effects, such as "fire shadowing," results in upland communities protected from sweeping large-scale fires by their close proximity to hardwood hammocks and wetland habitats. In systems such as scrub communities, lack of fire can profoundly affect the value and usability of the community for endemic as well as listed plant and animal species. To occur naturally, scrub fires require drier and hotter conditions than the flatwoods community (Myers and Ewel 1990). Land management practices developed for EFS must consider the re-introduction of a "natural" fire regime through the use of prescribed fire. Using prescribed fire as a management tool ensures that the natural ecological processes are restored and protected.

B. Human-Induced Trends

a. Fire suppression

It is unknown when the last major wildfire occurred within EFS. Due to overgrown conditions and the lack of fire, the EEL Program mechanically reduced 17.5 acres of the scrub ridge located in the south central portion of the property in 2006 and returned fire throughout this area in 2007. Similarly, a portion of the scrubby flatwoods in the northwest portion of the sanctuary was mechanically reduced and burned in 2007.

b. Hydroperiod alteration

The natural hydrologic regime and periodicity of EFS was previously altered by the construction of the Addison Canal and numerous small to large man-made ditches throughout the sanctuary. The EEL Program is not anticipating any restoration efforts into restoring the natural hydroperiod of the Addison Canal due to the economic feasibility and the potential flood impacts

on private property. Small and large ditch restoration will be investigated to ensure that there are no negative impacts to surrounding lands or private property. Upon completion of the restoration, natural recruitment of native species will be monitored and any encroachment of exotic invasive species will be treated.

c. Trails and Firebreaks

EFS currently offers nearly 5 miles of natural surface foot trails and an 800 foot ADA trail. Approximately 1 mile of the natural surface foot trail along the oak-saw palmetto scrub ridge is utilized as a firebreak when needed.

The management goals set forth in Section V (Management Action Plan) provide strategies and actions for reduction of human-induced impacts and restoration and enhancement of natural resources. As part of the management plan implementation, methodologies for assessing carrying capacity of the natural resources on the site will be developed. In addition, strategies for visitor impacts analysis that consider species-level, natural community-level and ecosystem-level human influences will be developed and implemented.

C. External Influences

As previously discussed, past uses of the property have affected the existence and function of some natural resources on the site. Disturbance events included the development of the Addison Canal, the coquina mining operations, and subsequent use of the property by off-road vehicles. Many of the impacts related to these activities have been minimized over time.

The original boundary of the property has been secured with fencing since 1993, and the Sterling Forest mitigation donation was fenced in December 2002. There has been some evidence of off-road vehicles periodically trespassing, cutting the fence and disturbing the trails. In January 2009, EEL program staff and volunteers removed 2.19 tons of trash (including several boats) during several workdays.

D. Legal Obligations and Constraints

The following is a list of possible legal constraints to management and public access on site.

a. Florida Forest Service

The Florida Forest Service (FFS) issues permits for prescribed burns for land management to Land Managers with certified burn numbers. These permits will be secured by an EEL Program certified Burn Boss prior to all prescribed burns.

b. Easements

Florida Power and Light (FPL) Easement

June 6, 1994, the Board of County Commissioners granted FPL aerial easement rights along the southern boundary of the Enchanted Forest Sanctuary along State Road 405 (Figure 14). The aerial easement (1.15 acres; 50,014 square feet) was requested by FPL to provide power line

improvements along State Road 405. The easement is an aerial easement for power lines. The easement is 21 feet wide and extends upward from a 14-foot elevation. No facilities will be constructed within the easement below 15 feet in height. The power poles were placed outside the Enchanted Forest property line.

Back Slope Easement

Brevard County Board of County Commissioners on March 16, 2004 agreed to waive a back slope easement for the donation of property by Sterling Forest, LLC. It was deemed not to be a concern as the easement will serve as a firebreak. Minutes may be found in Appendix L

c. Right of ways

No Right of ways are recorded for EFS

E. Management Constraints

Potential management constraints and challenges are associated with site security. There are no conflicts with any adjacent lands that would restrict the planned use of the property; however, the following is a description of the major management issues and constraints associated with the Sanctuary.

a. Fire

Natural communities within EFS were and will continue to be evaluated to determine any constraints upon the use of prescribed fire posed by natural site conditions and adjacent land uses. Existing (3 miles) and proposed (0.2 miles) firelines within the Sanctuary are shown on Figure 15. Reinstating a fire regime is needed in the oak-saw palmetto scrub, scrubby flatwoods, communities. The Fire Management Plan (Appendix E) includes fire return intervals, desired habitat conditions and required preparations needed for each burn unit. In preparation for prescribed fire, vegetation along the edge of firelines may be reduced and ignition strips created within a fire unit to help safely apply fire.

Figure 14: Enchanted Forest Sanctuary Easements



Legend

-  Sanctuary Boundary
-  FP& L Easement

0 500 1,000 2,000 Feet



Map updated on 02/13/2015 for Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map are based solely on secondary mapping sources. No warranties or representations of accuracy are expressed or implied.

Source: Florida Aerial Photography Archive Collection.



Figure 15: Enchanted Forest Sanctuary Existing and Proposed Firelines



Legend

-  Sanctuary Boundary
-  Existing Firelines
-  Proposed Firelines

0 500 1,000 2,000 Feet



Map updated on 10/14/2014 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection.



b. Exotic Species

Exotic, non-indigenous, non-native, and alien species are all terms used to describe plants and animals of foreign origin. Some exotic species can become invasive when they harm, displace or outcompete native species while altering native ecosystem function.

Plants

A list of exotic species identified is provided in Table 1. EFS does not support a large number of invasive exotics. Invasive exotics currently present in the Sanctuary will be treated and monitored to avoid spreading. Air Potato (*Dioscorea bulbifera*), Brazilian pepper (*Schinus terebinthifolius*), Chinaberry (*Melia azedarach*), Peruvian primrose willow (*Ludwigia peruviana*), Scratchthroat (*Ardisia crenata*), Guinea Grass (*Panicum maximum*) Rose Natalgrass (*Melinis repens*) and Caesarweed (*Urena lobata*) are the most prevalent invasive species found on the property and will be the first targeted for treatment. Isolated patches of Cogongrass (*Imperata cylindrica*) have also been found and treated on the property. It should also be noted that a detailed inventory of exotic/invasive/nuisance plants has not been conducted, and other exotic species are likely to exist on-site. Although not considered to be invasive, the Enchanted Forest hosts an excessively large amount of assorted citrus trees. Citrus trees will be treated and monitored along with the treatment of invasive species.

Table 1: Exotic Plants Species List – EFS –

Scientific Name	Common Name	Category
<i>Ardisia crenata</i>	Scratchthroat	I
<i>Dioscorea bulbifera</i>	Air-Potato	I
<i>Imperata cylindrica</i>	Cogon grass	I
<i>Lantana camara</i>	Lantana	I
<i>Ludwigia peruviana</i>	Peruvian primrose willow	I
<i>Lygodium microphyllum</i>	Old World climbing fern	I
<i>Melinis repens</i>	Rose Natalgrass	I
<i>Schinus terebinthifolia</i>	Brazilian pepper	I
<i>Solanum viarum</i>	Tropical soda apple	I
<i>Urena lobata</i>	Caesarweed	I
<i>Broussonetia papyrifera</i>	Paper mulberry	II
<i>Koelreuteria elegans</i>	Flamegold	II
<i>Melia azedarach</i>	Chinaberry tree	II
<i>Panicum maximum</i>	Guinea grass	II

<i>Sphagneticola trilobata</i>	Creeping oxeye	II
<i>Catharanthus roseus</i>	Madagascar periwinkle	E
<i>Citrus x aurantium</i>	Sour orange	E
<i>Enterolobium contortisiliquum</i>	Earpod tree	E

Category * (FLEPPC 2013)

I - Invasive exotics that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. This definition does not rely on the economic severity or geographic range of the problem, but on the documented ecological damage caused.

II - Invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. These species may become ranked Category I, if ecological damage is demonstrated.

E- Exotics that are not or not yet in classified in any other Category.

Animals

Exotic animal species also have the potential to adversely affect ecosystem function and to significantly alter population levels of native animals through predation or displacement. The fire ant (*Solenopsis invicta*), coyote (*Canis latrans*) and the nine-banded armadillo (*Dasypus novemcinctus*) have become a common throughout Central Florida. A significant population of feral hogs (*Sus scrofa*) has been documented on the property. Feral hogs can cause significant harm to vegetation and soils due to their rooting (Engeman et al. 2004, 2007; Jolley et al. 2010). In an attempt to avoid an increase in the hog population, the EEL Program is using the service of volunteer hog trappers. Any feral cats and dogs found on the property will be removed.

Laurel Wilt Disease

Laurel Wilt Disease has been documented at EFS. Laurel Wilt disease is caused by a fungus introduced into plants of the Lauraceae family by the red bay ambrosia beetle (*Xyleborus glabratus*) is native to Asia (Fraedrich et al. 2008; Mayfield et al. 2008). The fungus causing the vascular disease was a previously undescribed species of *Raffaealea*. Female red bay ambrosia beetles carry the spores of *Raffaealea* and transmit them into host trees by boring holes into the sapwood of stems and branches; restricting the flow of water and causing the leaves to wilt (Florida Department of Agriculture & Consumer Services 2008).

Mexican Bromeliad Weevil

The Mexican Bromeliad weevil (*Metamasius callizona*) has been documented throughout the hammocks of the Enchanted Forest Sanctuary. It is an invasive-bromeliad eating weevil originally found in Mexico and Guatemala. *Metamasius callizona* is a specialist herbivore of bromeliads (Frank and Cave 2005). The larvae hatch from eggs inserted in leaf bases by females (Frank and Thomas 1984; Frank and Cave 2005) and first mine the leaf, then the stem and leaf bases causing irreversible extensive damage, killing the plant. Sixteen species of bromeliads are native to Florida, of which 12 are susceptible to the Mexican Bromeliad weevil and 10 are listed as endangered or threatened. A graduate student for the University of Florida began a two-year monitoring program for the species in March 2007. An 87% mortality in the *Tillandsia utriculata* bromeliad population in the first six months of the study which increased to 97.4% at the

conclusion. Due to the rapid mortality rate of the bromeliad; permission was granted to release a biological control agent, *Lixadmontia franki* to control the bromeliad-eating weevil. *L. franki* is a tachnid (fly) from Honduras that parasitizes bromeliad-eating weevils. Five releases were initiated from August 2007 to June 2008 with an additional release in spring 2009 (Cooper et al 2011). Although ongoing, research has yet to show parasitized weevils by the release of *L. franki*. The study began with 2176 live bromeliads and ended with just 53 (Cooper et al 2014). Of the 1001 fallen dead bromeliads collected, 98.8% were the result of the weevil, three by fallen branches and nine that died naturally after reseeding.

A list of non-indigenous animal species has not been collected. An investigation into the levels and impacts of these species needs to be conducted prior to the establishment of a control strategy.

F. Public Access and Passive Recreation

Public access and opportunities for passive recreation will be provided at EFS pursuant to public use and recreational policies of the EEL Program Sanctuary Management Manual adopted by Brevard County Board of County Commissioners. It has been determined that passive recreational activities best support the EEL Program goals. The EEL Program Sanctuary Management Manual (SMM) defines passive recreation as follows:

“A recreational type of use, level of use and combination of uses that do not, individually or collectively, degrade the resource values, biological diversity, and aesthetic or environmental qualities of a site.”

EFS is classified as a “Category 1 site” which utilizes a center for regional management. Activities that are permitted include hiking, running, nature observation, nature photography, and environmental education. These recreational activities are also a component of nature-based tourism (or ecotourism) which is an expanding component in Florida's tourism market. Firebreaks may also be used for these activities unless otherwise posted. Staff retains the ability to close off trails due to seasonal conditions, management activities or if unacceptable impacts result from use. Pets are not permitted on the sanctuary. No other alternative or multiple uses are being considered other than passive recreation, as they do not fit in with the EEL program goals.

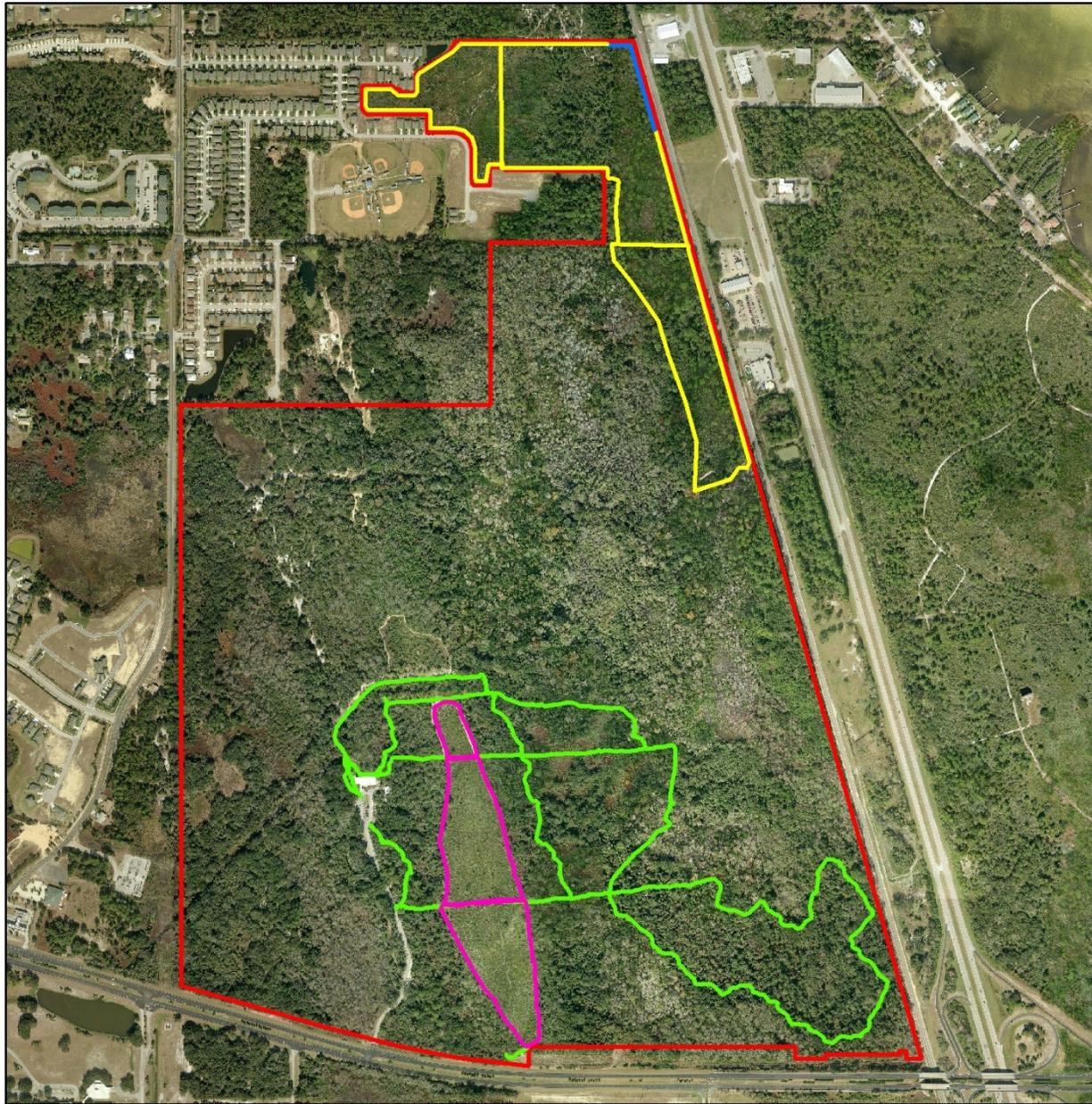
Facilities at EFS include a trail system, an environmental learning center, parking for 60+ vehicles and parking for two buses. An extensive network of trails already exists within EFS. Since the Addison Canal is a key feature, an observation platform has been build were the coquina outcropping is exposed. The platform is accessible from a paved trail in order to accommodate and comply with ADA requirements. The trailhead for this boardwalk originates at the north side of the Education Center and runs in a northeast direction to the Addison Ellis Canal. To the greatest extent possible, the environmental learning center and support facilities (parking, paved walkways, utility lines, etc.) were strategically located in areas already disturbed or degraded. Efforts were made to limit and mitigate impacts associated with staging and construction activities for these facilities.

Trails at EFS were the result of an existing trail system to minimize any impact to the natural

resources. By necessity, firebreaks are occasionally used as recreational trails on EEL sites. This minimizes the amount of habitat removed in order to properly manage for conservation while still providing public access. These dual-use trails are periodically impacted by maintenance and prescribed fire activities which include vehicle traffic, disking or tilling by tractor, and mechanically reducing adjacent vegetation. While staff attempts to minimize the extent and duration of impacts that may hinder recreational use, well-maintained firebreaks are vital to public safety and effective conservation management. Recreational trails and firelines are shown on Figure 16.

The center was designed to meet ADA standards (Brevard County EEL Program, Bridging the Gaps to Experiencing Nature, 1995). In addition, exhibits and programs include interpretive methods responsive to the needs of individuals who are hearing or visually impaired, reliant on wheelchairs or have limited mobility.

Figure 16: Enchanted Forest Sanctuary Firelines and Trails



Legend

-  Sanctuary Boundary
-  Existing Firelines
-  Fireline/Trail
-  Proposed Firelines
-  Hiking Trails

0 500 1,000 2,000 Feet



Map updated on 10/15/2014 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection.



A maintenance shop was constructed between September 2007 and March 2008 to meet the land management needs of a growing region, staff and equipment. An area next to the center that was previously disturbed was selected for the location of the maintenance shop.

The central focus for environmental education at the Enchanted Forest Sanctuary will be the diversity of ecosystems that occur on site. Annually, EFS leads over 100 school field trips with over 3000 students attending. The primary target audience for school groups is elementary and middle school students from throughout the county. Other ongoing education programs include: study trips for grades K-8, Forest FunDay (family nature and craft event), adult lecture series, guided hikes, annual Forest Festival, Earth Day and Creepy Crawly events and community presentations.

Another important element of public access to the Enchanted Forest Sanctuary includes the EEL Volunteer Program which contributes over 4,500 hours annually. It is the intent of the EEL Program to work closely with local communities to ensure that effective volunteer groups are established for each Category 1 site. The long-term success of the EEL Program and the EEL sanctuary network is directly linked to the level of citizen support, active participation and commitment to conservation. The EEL Program actively recruits volunteers from diverse backgrounds and promotes the involvement of disabled citizens.

Extension of the Enchanted Crossing ADA Accessible Trail to the Scrub Ridge

In a continued attempt to be a leader in providing universal access in natural settings The EEL Program plans to extend the 800 foot ADA sidewalk of the Enchanted Crossing Trail along the northern portion of the Biodiversity Loop for 350± feet to the top of the Atlantic Coastal Ridge (Figure 17). The 6 foot wide trail extension will allow people of all ability levels to have access to the oak-saw palmetto scrub habitat. This access will allow visitors an opportunity to compare and contrast the unique habitats found throughout the sanctuary. Educational trailside exhibits already exist along this portion of the trail. Additional research is needed prior to beginning this project and funding for the project is not yet planned. The hardened trail will cover the existing trail and should not have an impact on any plant species. EEL staff will monitor the construction to ensure that no rare or listed species are disturbed. EEL Program staff will consult with the EEL Program SMC and the Recreation and Education Advisory Committee (REAC) before committing to the construction of this project.

On October 27, 2015, a public meeting was held in Melbourne, FL with the EEL Program SMC. The purpose of the meeting was to provide an overview of the management plan and to receive comments and or concerns of the management plan. Minutes from this meeting can be found in Appendix L.

This management plan was available for a 30-day public review from December 15, 2015 through January 14, 2016. All identified stakeholders were notified of the 30-day public review and the draft management plan was available at several local libraries, the EEL Office, the Enchanted Forest Sanctuary, UF/IFAS Extension Brevard County office and the EEL Program website.

Figure 17: Enchanted Forest Sanctuary Proposed Trails



Legend

-  Sanctuary Boundary
-  Proposed ADA Extension of Enchanted Crossing
-  Hiking Trails

0 500 1,000 2,000 Feet



Map updated on 11/23/2015 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection.



On March 28, 2016, a public meeting was held at the Enchanted Forest Sanctuary in Titusville, FL with a public advisory group. The purpose of the meeting was to obtain input from public and private stakeholders regarding management of EFS. Minutes from this meeting can be found in Appendix L.

On June 23, 2016, a meeting was held in Melbourne, FL with the EEL Program SMC. The management plan was presented and the committee members moved to approve the plan. Minutes from this meeting can be found in Appendix L.

a. Parking and Public Access

The main entrance to the Sanctuary is located north of 405, east of I-95 and west of US 1. EFS includes: trails, an environmental learning center, parking for 60+ vehicles and parking for two buses.

b. Hiking

Trails were designed to give visitors an opportunity to experience the diverse habitats within the Sanctuary. These trails take visitors through the diverse habitats of EFS from oak-saw palmetto scrub to hydric hammocks. Most trails will be developed as natural surface foot paths with the exception of an ADA trail and will be adequately marked to facilitate easy navigation by visitors.

c. Bird Watching

Bird watching is a passive recreational activity that will be encouraged at the Sanctuary. Specific areas may be designated as overlooks for bird watching and some signage may be established along the hiking trails.

d. Mountain Biking

Mountain biking will not be permitted within the sanctuary.

e. Horseback Riding

Horseback riding will not be permitted within the sanctuary.

f. Hunting

Hunting will not be allowed within the Sanctuary. Hunting opportunities do exist at nearby Buck Lake Conservation Area and Salt Lake Wildlife Management Area

VI. MANAGEMENT ACTION PLANS

The following is a comprehensive outline of the goals, strategies, and actions necessary to manage EFS.

A. Goals

The *Sanctuary Management Manual* of the EEL Program provides the following management goals for EFS.

- Documentation of historic public use
- Conservation of ecosystem function
- Conservation of natural (native) communities
- Conservation of species (including: endemic, rare, threatened and endangered species)
- Documentation of significant archeological and historic sites
- Provision of public access and responsible public use
- Assessment of carrying capacity of natural resources with public use
- Provision of environmental education programs
- Opportunities for multiple uses and compatibility
- General upkeep and security of the property

B. Strategies and Actions

The following is an outline of the specific management strategies and actions included in the approved year 2000 management plan for EFS.

Documentation of Historic Public Use

2000 Plan Strategy 1: Document historic public use

Status: Completed

Conservation of Ecosystem Function

2000 Plan Strategy 2: Protect, maintain, and restore native diversity, ecological patterns, and the processes that maintain diversity.

Status: Ongoing. The EEL Program continues to implement an effective ecosystem management strategy by integrating the use of fire management, native plantings, exotic removal, species surveys and when necessary mechanical reduction.

2000 Plan Strategy 3: Ensure that natural upland-wetland interfaces are protected and enhanced.

Status: Ongoing. The EEL Program continues to reduce the deleterious effects of exotic species, and other external influences.

Conservation of Natural (Native) Communities

2000 Plan Strategy 4: Restore degraded, disturbed, or altered wetlands within EFS.

Status: Ongoing. EFS no longer contains any significantly degraded, disturbed, or altered wetlands. Hog trappers have been recruited to prevent damage from feral hogs and EEL staff continues to treat exotics that have encroached into the wetlands.

2000 Plan Strategy 5: Restore degraded, disturbed, or altered uplands within EFS.

Status: Ongoing. In 2006 and 2007 EEL Program staff chopped a portion of the scrub ridge located in the south central portion of the property which allowed for the safe application of

prescribed fire. The EEL Program is anticipating reducing the understory of the scrubby flatwoods in the northeast portion of the sanctuary in 2016.

Conservation of Species (Including Endemic, Rare, Threatened and Endangered Species)

2000 Plan Strategy 6: Design and implement a “natural” fire management program.

Status: Ongoing. The EEL Program has developed a Fire Management Plan (Appendix E) suitable for EFS. The Fire Management Plan has been updated to include all habitats and additional acreage since the approval of the Enchanted Forest Sanctuary Management Plan in 2000.

2000 Plan Strategy 7: Protect on-site populations of endemic, rare, threatened and endangered species through the utilization of existing habitat management and species recovery plans.

Status: Ongoing.

Documentation of Significant Archaeological and Historic Sites

2000 Plan Strategy 8: Survey for archaeological and historic sites within EFS

Status: Completed

Provision of Public Access and Responsible Public Use

2000 Plan Strategy 9: Establish and enforce specific policies and management techniques for public access and responsible public use.

Status: Ongoing. A community-based, eighteen member Universal Design Review Group was established to ensure compliance with the Americans with Disabilities Act (ADA) and to look for ways to make the site universally accessible. Additional trails and boardwalks are proposed to further allow universal access within the sanctuary. Youth Groups looking to earn merit badges have participated in the construction of steps along slopes, rest benches along trails, and the design and construction of terraces to prevent soil erosion on steep slopes.

Assessment of Carrying Capacity of Natural Resources with Public Use

2000 Plan Strategy 10: Establish a monitoring program to assess effects of public usage on natural resources.

Status: Ongoing. Since 1992, EEL staff and volunteers have been keeping attendance of the amount of visitors attending the Sanctuary. EEL staff will assess any impacts of public use on the natural habitats including; habitat alteration, disturbance/harassment of wildlife, littering, and harvesting of plants consistent with trail monitoring protocols.

Provision of Environmental Education Programs

2000 Plan Strategy 11: Develop a plan to provide on-going environmental education programs to Brevard County residents and visitors.

Status: Ongoing. The EEL Program has developed a North Region Interpretive Plan with the purpose of cataloging current interpretive media and making recommendations for future education and interpretation in the North Region. The Plan addresses program-wide education goals outlined in the EEL Education Master Plan, and interpretive recommendations made in the Recreation and Education Site Assessments. The primary target audience is elementary and middle-aged students from throughout the county and outdoor enthusiasts (residents and visitors). Secondary target audiences include local resident families visiting the center for

educational and enjoyment purposes, retirees and snowbirds. Ongoing education programs include; study trips for grades K-8 (including homeschoolers), Forest FunDay (family nature and craft event), adult lecture series, guided hikes, annual Forest Festival, Earth Day and Creepy Crawly events, and occasional community presentations. Future plans include the development of outreach kits for use at schools and community presentations.

Opportunities for Multiple Uses and Compatibility (i.e. Stormwater Control, Water Recharge, etc.)

2000 Plan Strategy 12: Provide opportunities for multiple use and compatibility when practical. Status: Ongoing. There are currently no multi-use opportunities as they do not fit with the EEL Program goals. Generated revenue is limited to: the Friends of the Enchanted Forest and the Native Plant Society Sea Rocket Chapter; two 501c3 organizations that aid in the maintenance and operation of the property.

General Upkeep and Security of the Property

2000 Plan Strategy 13: Secure and maintain the Sanctuary to the highest degree possible using EEL staff, Parks and Recreation staff, contract employees and volunteers.

Status: Ongoing. The EEL Program continues to maintain site security of the property. Illegal entry onto the property is documented every few months. The EEL Program continues to work with the Brevard County Sheriff's Office, Titusville Police Department, Florida Fish and Wildlife Commission, and Ag Marine to limit unauthorized access by off road vehicles and hunting. In August 2013, the EEL Program fenced 1,600 feet on the north side of the Sanctuary to further prohibit unauthorized access.

GOAL: CONSERVATION OF ECOSYSTEM FUNCTION

Strategy 1: Protect, maintain, and restore native diversity, ecological patterns and the processes that maintain diversity.

Actions:

- Research and monitor baseline conditions of natural systems;
- Install 4 baseline vegetation monitoring transects;
- Research the connection of on-site natural resources with adjacent resources;
- Research hydrologic patterns on and off-site;
- Restore natural communities to improve efforts on enhancing native diversity.

Strategy 2: Ensure natural upland-wetland interfaces are protected and enhanced.

Actions:

- Collect data to analyze the public access on the natural resources;
- Protect communities from deleterious impacts deriving from external influences;
- Restore/enhance natural communities where and as possible.

GOAL: CONSERVATION OF NATURAL (NATIVE) COMMUNITIES

Strategy 3: Restore degraded, disturbed, or altered wetlands within EFS.

Actions:

Establish baseline conditions within wetlands;
Consult local experts and current literature regarding best scientific methods for wetland restoration;
Use native plants for restoration efforts (if needed);
Prioritize the wetland communities in need of restoration based upon ease of accomplishment, expected habitat value yield, or financial considerations;
Use off-site mitigation projects to fund on-site wetland restoration;
Assess possible impacts of proposed restoration on adjacent communities and offsite properties;
Implement the selected restoration activities (i.e., remove exotic species, restore natural hydrologic flood, etc.);
Monitor the effects of the restoration activities, evaluate the success of the restoration projects, and revise the restoration plan, as necessary;
Manage invasive exotic plant species at a maintenance level (0-5%); continue to periodically treat FLEPPC cat. 1 & 2 invasive exotic plant species.

Strategy 4: Restore degraded, disturbed, or altered uplands within EFS.

Actions:

Establish baseline conditions within the upland communities;
Consult local experts and current literature regarding best scientific methods for upland restoration;
Prioritize the upland communities in need of restoration based upon ease of accomplishment, expected habitat value yield, or financial considerations;
Assess possible impacts of proposed restoration on adjacent communities and offsite properties;
Implement the selected restoration activities (i.e., remove exotic species, restore natural disturbance regime, replant native species, etc.);
Monitor the effects of the restoration activities, evaluate the success of the restoration projects, and revise the restoration plan, as necessary;
Manage invasive exotic plant species at a maintenance level (0-5%), continue to periodically treat FLEPPC cat. 1 & 2 invasive exotic plant species;

Strategy 5: Design and implement a “natural” fire management program.

Actions:

Identify natural communities that require prescribed fire management;
Identify and evaluate individual proposed burn management units;
Identify the goal of the application of fire to each proposed burn unit;
Document listed species within each burn unit;
Identify and plan perimeter and internal fire breaks;
Create a site-specific Fire Management Plan;
Develop and implement public education campaign including programs and literature regarding the need for periodic controlled burns;
Meet with local HOA’s to help educate neighbors to the prescribed fire program;
Secure the necessary permits from the Florida Forest Service and other agencies;

Mechanical reduction of overgrown vegetation when necessary before fire implementation;
Begin prescribed fire management program;
Monitor the effects of the fire management activities, evaluate the success of the program, and revise the program strategies as needed;
Reintroduce and continue prescribed fire to fire adapted communities every 3-5 years or as needed.

GOAL: CONSERVATION OF SPECIES (INCLUDING ENDEMIC, RARE, THREATENED AND ENDANGERED)

Strategy 6: Protect on-site populations of endemic, rare, threatened and endangered species through the utilization of existing habitat management and species recovery plans.

Actions:

- Develop a methodology and work plan to accomplish the identification of designated plant and animal species;
- Survey for, and identify listed/protected plant and animal species;
- Plot the location of identified designated species within and/or adjacent to the sanctuary for use in the implementation, or re-distribution, of amenities or site improvements;
- Periodically update these baseline survey data to determine possible changes in designated species distribution or density;
- In cooperation with FWC and USFWS, develop an Imperiled Fish and Wildlife Species Management Strategy that addresses imperiled fish and wildlife species for EFS, with emphasis on management prescriptions for imperiled fish and wildlife species occurring or having the potential to occur at EFS, their associated habitats, and including the development of appropriate imperiled fish and wildlife species survey and monitoring protocols based on site-specific occurrences, population data and sustainability potential.
- Map gopher tortoise burrows post burns or once every five years.

GOAL: DOCUMENTATION AND RESTORATION OF SIGNIFICANT ARCHAEOLOGICAL AND HISTORIC SITES

Strategy 7: Survey and document archaeological and historical areas

Actions:

- Work with an Archaeologist to develop probability zones for potential sites;
- Conduct a Phase 1 survey of high probability sites;
- Review available maps and historic records for indications of past usage of the site;
- Map all archaeological and historic sites for future reference.

GOAL: PROVISION FOR PUBLIC ACCESS AND RESPONSIBLE PUBLIC USE

Strategy 8: Establish and enforce specific policies and management techniques for public access and responsible public use.

Actions:

- Plan appropriate public facilities by examining the site's natural and cultural resources and reviewing public input;
- Perform public access site assessment;
- Install boundary fence and post with EEL Program signage;
- Evaluate design and proposed public facilities for consistency with ADA guidelines;
- Establish social and environmental carrying capacities for proposed public facilities;
- Use daily or seasonal quotas, restricted access or limited parking to enforce established carrying capacities;
- Coordinate recreational use with the ecological burning strategies of the EEL Program;
- Minimize unauthorized trail expansion by establishing sufficient trails, constructing handrails, and the development of written guidelines;
- Install informational kiosks at the Sanctuary entrance and educational signage along approved trails.

GOAL: ASSESSMENT OF CARRYING CAPACITY OF NATURAL RESOURCES WITH PUBLIC USE

Strategy 9: Establish a monitoring program to assess effects of public usage on natural resources.

Actions:

- Establish trail monitoring protocols
- Establish a methodology and record keeping system to document public use;
- Conduct regular monitoring to assess impacts of public use on natural habitats;
- Conduct regular "walk-throughs" over frequently used sites to assess the need for changes in routing/user types, or user intensity;
- Re-route users from sensitive areas or popular sites on a regular or as-needed basis;
- Re-align public use to avoid areas which observations or data indicate are too sensitive for the level of use originally planned.

GOAL: PROVISION OF ENVIRONMENTAL EDUCATION PROGRAMS

Strategy 10: Develop a plan to provide on-going environmental education programs to Brevard County residents and visitors.

Actions:

- Determine target audiences and types of programming best suited to those groups;
- Design and develop indoor and outdoor exhibits, signs and printed materials;
- Provide a trail brochure for visitors to the Sanctuary;
- Include educators, friends groups and other organizations in the design, development and delivery of programs;
- Develop and coordinate a docent program to assist in program delivery;
- Develop and provide training and site specific informational materials for use by docents and other educators;
- Develop criteria and process of evaluation for program review and refinement;

- Coordinate outreach and on-site programs for school-aged children with school board and area schools;
- Provide a “special collection” of books and other materials specifically related to the environmental and cultural character of the Sanctuary.

GOAL: OPPORTUNITIES FOR MULTIPLE USES AND COMPATIBILITY

Strategy 11: *Provide opportunities for multiple use and compatibility when practical.*

Actions:

- Use fire breaks for multi-use recreation trails when not needed for resource management;
- Include multiple benefits of natural community restoration efforts in education program.

GOAL: GENERAL UPKEEP AND SECURITY OF THE PROPERTY

Strategy 12: Secure and maintain the Sanctuary to the highest degree possible using EEL staff, Parks and Recreation staff, contract employees and volunteers.

Actions:

- Install perimeter fencing and or signs clearly marking the site’s boundary;
- Contract with outside contractors or with Brevard County, Parks and Recreation for maintenance of parking areas, buildings, septic, lighting, etc.;
- Coordinate daily maintenance tasks using staff and volunteers.

VII. PROJECTED TIMETABLE FOR IMPLEMENTATION

Part VII recommends a timeline for management plan implementation. The timeline has been divided into immediate, short-term and long-term time frames. Immediate time frame is defined as within one year of the adoption of this management plan, short term is 1 to 5 years, and long-term is more than 5 years. Some actions are also defined as on-going, if the activity is required for the on-going maintenance of the Sanctuary.

<u>ACTION</u>	<u>ACTIVITY TIMELINE</u>
Strategy 1: Protect, maintain, and restore native diversity, ecological patterns, and the processes that maintain diversity.	
Research and monitor baseline conditions of natural systems;	Immediate
Research the connection of on-site natural resources with adjacent resources;	Immediate
Research hydrologic patterns on and off-site;	Immediate
Research native species' movement patterns on- and off-site;	Immediate
Focus natural community restoration efforts on enhancing native diversity;	Short-Term
Investigate the historic hydroperiod and restore natural hydrologic patterns.	Long-Term

Strategy 2: Ensure that natural upland-wetland interfaces are protected and enhanced.	
Collect data to analyze the existing community interfaces;	Immediate
Protect communities from deleterious impacts deriving from external influences;	Ongoing
Restore/enhance natural communities where and as possible.	Ongoing
Strategy 3: Restore degraded, disturbed, or altered wetlands within the Enchanted Forest Sanctuary.	
Establish baseline conditions within wetlands;	Immediate
Collect historic information regarding the prior wetland communities that may have occurred on-site;	Immediate
Consult local experts and current literature regarding best scientific methods for wetland restoration;	Immediate
Prioritize the wetland communities in need of restoration based upon ease of accomplishment, expected habitat value yield, or financial considerations;	Immediate
Assess possible impacts of proposed restoration on adjacent communities and offsite properties;	Immediate
Implement the selected restoration activities (i.e. remove exotic species, restore natural hydrologic flood, etc.);	Short-Term
Establish a monitoring program to track water quality in the Addison Canal	Long-Term
Monitor the effects of the restoration activities, evaluate the success of the restoration projects, and revise the restoration plan, as necessary.	Ongoing
Strategy 4: Restore degraded, disturbed, or altered uplands within the Enchanted Forest Sanctuary.	
Establish baseline conditions within the upland communities;	Immediate
Collect historic information regarding the prior upland communities that may have occurred on-site;	Immediate
Consult local experts and current literature regarding best scientific methods for upland restoration;	Immediate

Prioritize the upland communities in need of restoration based upon ease of accomplishment, expected habitat value yield, or financial considerations;	Immediate
Assess possible impacts of proposed restoration on adjacent communities and offsite properties;	Immediate
Use native plants for restoration efforts;	Short-Term
Implement the selected restoration activities (i.e. remove exotic species, restore natural disturbance regime, replant native species, etc.);	Short-Term
Monitor the effects of the restoration activities, evaluate the success of the restoration projects, and revise the restoration plan, as necessary.	Ongoing
Strategy 5: Design and implement a “natural” fire management program.	
Identify natural communities that require prescribed fire management;	Complete
Identify and evaluate individual proposed burn management units;	Complete
Identify the goal of the application of fire to each proposed burn unit;	Complete
Document listed species within each burn unit;	Complete
Identify and locate perimeter and internal fire breaks;	Complete
Staff will develop a site-specific fire management plan;	Complete
Develop and implement public education campaign including programs and literature regarding the need for periodic controlled burns;	Ongoing
Secure the necessary permits from the Florida Forest Service;	Ongoing
Secure the service of properly trained staff or consultants to implement the prescribed burns;	Ongoing
Begin prescribed fire management program;	Ongoing
Monitor the effects of the fire management activities, evaluate the success of the program, and revise the program strategies, if necessary.	Ongoing
Strategy 6: Protect on-site populations of endemic, rare, threatened and endangered species through the utilization of existing habitat management and species recovery plans.	
Develop a methodology and work plan to accomplish the identification of designated plant and animal species;	Short-Term

Engage the services of volunteers qualified to survey for and identify designated plant and animal species (Sampling methodology: FWC. 1988. Wildlife Methodology Guidelines for Section 18.D of the Application for Development Approval. Florida Fish and Wildlife Conservation Commission. Tallahassee, Florida). Sampling method references listed in the Biological Diversity section may also be used (as appropriate) for establishment of baseline conditions;	Short-Term
Send unknown plants to the University of South Florida for identification;	Short-Term
Plot the location of identified designated species within and/or adjacent to the Enchanted Forest Sanctuary for use in the implementation, or re-distribution, of amenities or site improvements;	Short-Term
Survey and map the gopher tortoise burrows to avoid disturbance from development of fire breaks and new trails and amenities;	Short-Term
Periodically update baseline survey data to determine possible changes in designated species distribution or density;	Ongoing
Implement best management practices activities to enhance habitat suitability for use by listed species;	Ongoing
Review management plans for consistency with USFWS and FWC guidance concerning listed species;	Immediate
Implement habitat restoration activities for listed species (i.e. removal of exotic/nuisance species, restoration of ecosystem functionality);	Short-Term
Establish periodic monitoring of habitat suitability (where indices are available for a given species), species population levels, diversity levels, and exotic/nuisance species, as a means of evaluating the success of management strategies.	Ongoing
Work with agencies and researchers to assist with regional recovery efforts of rare, threatened, and endangered species.	Ongoing
Increase knowledge of biotic diversity on site, continue to collect biotic inventories and frequency of occurrence data.	Ongoing
Build an inventory of lesser known taxa – insects, fungi, non-vascular plants, etc.	Ongoing
Strategy 7: Survey for archaeological and historic sites within the Enchanted Forest Sanctuary.	
Contact the State Division of Historic Resources to conduct a Phase I survey of the site;	Complete

Review available maps and historical records for indications of past usage of the site;	Complete
Map all archaeological and historic sites for future reference.	Complete
Strategy 8: Establish and enforce specific policies and management techniques for public access and responsible public use.	
Plan appropriate public facilities by examining the site’s natural and cultural resources and reviewing public input;	Complete
Evaluate design of future public facilities for consistency with ADA guidelines;	Immediate
Establish social and environmental carrying capacities for proposed public facilities;	Immediate
Coordinate recreational use with the ecological burning strategies of the EEL Program;	Immediate
Construct hiking trails in accordance with the USDA Forest Service “Standard Specifications for the Construction of Trails”;	Immediate
Minimize unauthorized trail expansion by establishing sufficient trails, constructing handrails, and the development of written guidelines;	Short-Term
Construct terraces for erosion control on steep slopes;	Short-Term
Use daily or seasonal quotas, restricted access or limited parking to enforce established carrying capacities.	Ongoing
Construct an extension of the Enchanted Crossing ADA accessible trail to the scrub ridge	Short-Term
Strategy 9: Establish a monitoring program to assess effects of public use on natural resources.	
Establish baseline vegetation monitoring transects to provide data regarding existing conditions prior to development;	Immediate
Establish a methodology and record keeping system to document public use;	Immediate
Conduct regular and periodic monitoring to assess impacts of public use on natural habitats;	Ongoing
Conduct regular “walk-throughs” over frequently used sites to assess the need for changes in routing/user types, or user intensity;	Ongoing

Re-route users from sensitive areas or popular sites on a regular (seasonal, annual, etc.) or as-needed basis.	Ongoing
Re-align public use to avoid areas which observations or data indicate are too sensitive for the level of use originally planned.	Ongoing
Strategy 10: Develop a plan to provide on-going environmental educational programs to Brevard County residents and visitors.	
Employ an education/exhibit coordinator or curator and education or scientist intern;	Complete
Determine target audiences and types of programming best suited to those groups;	Ongoing
Design and develop indoor and outdoor exhibits, signs and printed materials;	Ongoing
Include educators, friends groups and other organizations in the design, development and delivery of programs;	Ongoing
Develop and coordinate a docent program to assist in program delivery;	Ongoing
Develop and provide training and site specific informational materials for use by docents and other educators;	Ongoing
Develop a marketing and promotions plan for educational programs;	Ongoing
Identify appropriate site-specific goals outlined in the EEL Environmental Education Manual;	Ongoing
Coordinate outreach and on-site programs for school-aged children with school board and area schools;	Ongoing
Develop a student internship program for university students to support research projects that further the goals of the EEL Program;	Ongoing
Develop criteria and process of evaluation for program review and refinement;	Long-Term
Provide a “special collection” of books and other materials specifically related to the environmental and cultural character of the Enchanted Forest Sanctuary.	Ongoing
Develop Enchanted Forest web pages to share natural resource information, upcoming activities, opportunities and management planning.	Ongoing
Strategy 11: Provide opportunities for multiple use and compatibility where practical.	

Design the environmental learning center facility to accommodate multiple uses (i.e. meeting rooms, classrooms, etc.);	Complete
During the design process for building and road improvements, a comprehensive stormwater management plan will be developed that will complement the natural community restoration efforts on the site;	Immediate
Use fire breaks for multi-use recreation trails when not needed for resource management activities.	Ongoing
Strategy 12: Secure and maintain the Enchanted Forest Sanctuary to the highest degree possible using EEL staff, Parks and Recreation staff, contract employees and volunteers.	
Retain a land manager to oversee security and maintenance activities;	Complete
Employ two part-time maintenance staff;	Complete
Develop a security plan for the Enchanted Forest Sanctuary to include provisions for perimeter barriers, security alarm and lighting systems, patrol schedules, arrangements for assistance and necessary back-up from Sheriff and municipal police;	Ongoing
Develop a specific operation plan for building operations, opening and closing of gates, special event support, etc..	Ongoing
Develop a specific maintenance plan identifying specific task, frequency and responsible entities or individuals, with consideration given to hiring a part- or full-time maintenance employee;	Ongoing
Make arrangements with Brevard County Parks and Recreation staff or contract services for maintenance of parking areas, building interiors and exteriors, perimeter roads, fire breaks, trails, boardwalks and bridges, stormwater management, sign/exhibit maintenance, benches, etc.;	Ongoing
Coordinate daily maintenance tasks (trash collection, building janitorial, etc.) using EEL staff and volunteer staff;	Ongoing
Based on the maintenance, security and resource management plan, develop an annual budget for the Enchanted Forest Sanctuary;	Ongoing
Construction document preparation;	Complete
Permitting;	Complete
Construction of infrastructure;	Complete
Construction of environmental learning center, exhibits, trails, bridges, site amenities.	Complete

Construct a Regional Maintenance Facility	Complete
Strategy 13: Document external threats to the natural resources	
Collect future land use information for the area around Enchanted Forest	Short-Term
Review Brevard County’s Future Land Use Map	Short-Term
Identify proposed potentially damaging adjacent land uses.	Short-Term
Strategy 14: Design and implement a monitoring program.	
Track long-term changes in biotic and physical conditions	Long-Term
Collect weather data from the Enchanted Forest and Space Coast Executive Airport	Short-Term
Install and monitor staff gauges in the wetlands	Short-Term
Conduct monthly and annual bird counts	Long-Term
Monitor phenology of key plant species	Long-Term
Acquire biennial aerial photography or imagery of the Enchanted Forest and surrounding landscapes	Ongoing
Establish and monitor photo points in the Enchanted Forest	Ongoing
Strategy 15: Build and operate an Environmental Education Center and other infrastructure needed to support the center.	
Get Board of County Commissioner approval for the project	Complete
Secure funding for the project	Complete
Hire an Architect and Engineering Firm to do the Master Site Plan and Design and Development phases of the project.	Complete
Hire the County’s Facilities Construction Office to oversee the Contracts	Complete
Hire a Construction Management Firm to oversee the construction of the Center	Complete
Conduct public meetings	Complete
Oversee the permitting process	Complete

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Design and build the Center using sustainable technologies and construction methods	Complete
Design and build the Center and site amenities with the goal to exceed ADA guidelines, when feasible, in order to expand accessibility for persons with disabilities	Complete
Organize a community-based Universal Design Review Group to provide input and advice on development of the Center and other site amenities for persons with disabilities	Complete

VIII. FINANCIAL CONSIDERATIONS

The Brevard County EEL Program receives land acquisition and management revenues from ad valorem revenues collected pursuant to the 2004 voter-approved EEL Referendum. The EEL Program allocates bond funds to capital land acquisition and one-time capital expenditures. Ad valorem revenue collected during each fiscal year that are not required for bond debt services can be used for any legal purpose within the EEL Program pursuant to §200.181 and §125.013 of the Florida Statutes. The EEL Program collected ad valorem revenues from the 1990 referendum until the Year 2011 and continues to collect as valorem revenue from the 2004 referendum until 2024, the sunset dates of the ad valorem collections, respectively.

Based on financial projections, the EEL Program shall annually appropriate a portion of the EEL Program ad valorem revenue not required for bond debt services to fund annual EEL Program capital and non-capital expenditures. Specific appropriations for EFS will be made each fiscal year as part of this overall annual budget process. The EEL Program budget will be reviewed and adopted annually as part of the Brevard County budget process and as authorized by the Board of County Commissioners. The Board of County Commissioners will consider other funding options and financial resources to address the long-term management responsibilities of the EEL Program.

A Land Manager will oversee maintenance, security and resource management for EFS and other properties located within the North Region Management Area. An Assistant Land Manager and two Land Management Technicians will assist the Land Manager with maintenance, security, and resource management for all properties in the north region. A Sanctuary Steward manages volunteers, insures the building is maintained, schedules programs, study trips, and groups, and other administrative tasks. Two part time naturalists will design and develop interpretive signage based on the natural resources and provide environmental education for preschool aged through adults, through common core study trips, guided hikes, scout programs and home-school programs. The cost estimate for personnel assumes that volunteers will be utilized to assist with maintenance and research. The maintenance and operations cost includes estimates for travel activities, office supplies, repair and maintenance services, printing and training. The cost estimate for resource management includes activities such as research and monitoring contracts, developing and implementing the prescribed burn program, environmental education programs and exotic species removal.

The following is a breakdown of the general costs estimated for annual management operations of EFS:

Staff Salaries/ Benefits (* indicates a portion of salary based on time spent at the sanctuary)	
*Land Manager	\$7,228.90 (incl. benefits)
*Assistant Land Manager	\$5,881.80 (incl. benefits)
*Two Land Management Technicians	\$9,767.30 (incl. benefits)
Sanctuary Steward	\$49,349.94 (incl. benefits)
Two Naturalists (part time)	\$38,770.81
Management Activities	\$27,000.00

(Exotic treatment, fire management, trails, environmental education, boundary maintenance, etc.)

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APPENDICES

Appendix A: State Management Lease

Appendix B: Letter of Compliance

Appendix C: Legal Description

Appendix D: FEMA Map

Appendix E: Fire Management Plan

Appendix F: Timber Assessment

Appendix G: Surface Water Quality Classification

Appendix H: Species List

Appendix I: Arthropod Control Plan

Appendix J: Florida Natural Areas Inventory

Appendix K: Florida Master Site File

Appendix L: Public Meetings and Review

**Appendix A:
State Management Lease**

OAL1

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT
TRUST FUND OF THE STATE OF FLORIDA

LEASE AGREEMENT
MARITIME HAMMOCK
Enchanted Forest

Lease Number 4177

THIS LEASE AGREEMENT, made and entered into this 28th day
of January 1999, between the BOARD OF TRUSTEES OF THE
INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA
hereinafter referred to as "LESSOR", and BREVARD COUNTY, FLORIDA,
hereinafter referred to as "LESSEE."

LESSOR, for and in consideration of mutual covenants and
agreements hereinafter contained, does hereby lease to said
LESSEE the lands described in paragraph 2 below, together with
the improvements thereon, and subject to the following terms and
conditions:

1. DELEGATIONS OF AUTHORITY: LESSOR'S responsibilities and obligations herein shall be exercised by the Division of State Lands, Department of Environmental Protection.
2. DESCRIPTION OF PREMISES: The property subject to this lease, is situated in the County of Brevard, State of Florida and is more particularly described in Exhibit "A" attached hereto and hereinafter referred to as the "leased premises".
3. TERM: The term of this lease shall be for a period of fifty (50) years commencing on January 28, 1999 and ending on January 27, 2049, unless sooner terminated pursuant to the provisions of this lease.
4. PURPOSE: The LESSEE shall manage the leased premises only for natural resource conservation, passive recreation and environmental education, along with other related uses necessary for the accomplishment of this purpose as designated in the Management Plan required by paragraph 8 of this lease.
5. QUIET ENJOYMENT AND RIGHT OF USE: LESSEE shall have the right of ingress and egress to, from and upon the leased premises

for all purposes necessary to the full quiet enjoyment by said LESSEE of the rights conveyed herein.

6. UNAUTHORIZED USE: LESSEE shall, through its agents and employees, prevent the unauthorized use of the leased premises or any use thereof not in conformance with this lease.

7. ASSIGNMENT: This lease shall not be assigned in whole or in part without the prior written consent of LESSOR. Any assignment made either in whole or in part without the prior written consent of LESSOR shall be void and without legal effect.

8. MANAGEMENT PLAN: LESSEE shall prepare and submit a Management Plan for the leased premises, in accordance with subsection 18-2.021(4), Florida Administrative Code, within twelve months of the effective date of this lease. The Management Plan shall be submitted to LESSOR for approval through the Division of State Lands. The leased premises shall not be developed or physically altered in any way other than what is necessary for security and maintenance of the leased premises without the prior written approval of LESSOR until the Management Plan is approved. LESSEE shall provide LESSOR with an opportunity to participate in all phases of preparing and developing the Management Plan for the leased premises. The Management Plan shall be submitted to LESSOR in draft form for review and comments within ten months of the effective date of this lease. LESSEE shall give LESSOR reasonable notice of the application for and receipt of any state, federal or local permits as well as any public hearings or meetings relating to the development or use of the leased premises. LESSEE shall not proceed with development of said leased premises including, but not limited to, funding, permit application, design or building contracts, until the Management Plan required herein has been submitted and approved. Any financial commitments made by LESSEE which are not in compliance with the terms of this lease shall be done at LESSEE'S own risk. The Management Plan shall emphasize

the original management concept as approved by LESSOR on the effective date of this lease which established the primary public purpose for which the leased premises are to be managed. The approved Management Plan shall provide the basic guidance for all management activities and shall be reviewed jointly by LESSEE and LESSOR at least every five years. LESSEE shall not use or alter the leased premises except as provided for in the approved Management Plan without the prior written approval of LESSOR. The Management Plan prepared under this lease shall identify management strategies for exotic species, if present. The introduction of exotic species is prohibited, except when specifically authorized by the approved Management Plan.

9. EASEMENTS: All easements including, but not limited to, utility easements are expressly prohibited without the prior written approval of LESSOR. Any easement not approved in writing by LESSOR shall be void and without legal effect.

10. SUBLEASES: This agreement is for the purposes specified herein and subleases of any nature are prohibited, without the prior written approval of LESSOR. Any sublease not approved in writing by LESSOR shall be void and without legal effect.

11. RIGHT OF INSPECTION: LESSOR or its duly authorized agents, representatives or employees shall have the right at any and all times to inspect the leased premises and the works and operations of LESSEE in any matter pertaining to this lease.

12. PLACEMENT AND REMOVAL OF IMPROVEMENTS: All buildings, structures, improvements, and signs shall be constructed at the expense of LESSEE in accordance with plans prepared by professional designers and shall require the prior written approval of LESSOR as to purpose, location and design. Further, no trees, other than non-native species, shall be removed or major land alterations done without the prior written approval of LESSOR. Removable equipment and removable improvements placed on the leased premises by LESSEE which do not become a permanent

part of the leased premises will remain the property of LESSEE and may be removed by LESSEE upon termination of this lease.

13. INSURANCE REQUIREMENTS: During the term of this lease LESSEE shall procure and maintain policies of fire, extended risk, and liability insurance coverage. The extended risk and fire insurance coverage shall be in an amount equal to the full insurable replacement value of any improvements or fixtures located on the leased premises. The liability insurance coverage shall be in amounts not less than \$100,000 per person and \$200,000 per incident or occurrence for personal injury, death, and property damage on the leased premises. Such policies of insurance shall name LESSOR, the State of Florida and LESSEE as co-insureds. LESSEE shall submit written evidence of having procured all insurance policies required herein prior to the effective date of this lease and shall submit annually thereafter, written evidence of maintaining such insurance policies to the Bureau of Public Land Administration, Division of State Lands, Department of Environmental Protection, Mail Station 130, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000. LESSEE shall purchase all policies of insurance from a financially-responsible insurer duly authorized to do business in the State of Florida. Any certificate of self-insurance shall be issued or approved by the Insurance Commissioner, State of Florida. The certificate of self-insurance shall provide for casualty and liability coverage. LESSEE shall immediately notify LESSOR and the insurer of any erection or removal of any building or other improvement on the leased premises and any changes affecting the value of any improvements and shall request the insurer to make adequate changes in the coverage to reflect the changes in value. LESSEE shall be financially responsible for any loss due to failure to obtain adequate insurance coverage, and the failure to maintain such policies or certificate in the amounts set forth shall constitute a breach of this lease.

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← Revised?

14. LIABILITY: Each party is responsible for all personal injury and property damage attributable to the negligent acts or omissions of that party and the officers, employees and agents thereof. Nothing herein shall be construed as an indemnity or a waiver of sovereign immunity enjoyed by any party hereto, as provided in Section 768.28, Florida Statutes, as amended from time to time, or any other law providing limitations on claims.

15. PAYMENT OF TAXES AND ASSESSMENTS: LESSEE shall assume full responsibility for and shall pay all liabilities that accrue to the leased premises or to the improvements thereon, including any and all ad valorem taxes and drainage and special assessments or taxes of every kind and all mechanic's or materialman's liens which may be hereafter lawfully assessed and levied against the leased premises.

16. NO WAIVER OF BREACH: The failure of LESSOR to insist in any one or more instances upon strict performance of any one or more of the covenants, terms and conditions of this lease shall not be construed as a waiver of such covenants, terms or conditions, but the same shall continue in full force and effect, and no waiver of LESSOR of any of the provisions hereof shall in any event be deemed to have been made unless the waiver is set forth in writing, signed by LESSOR.

17. TIME: Time is expressly declared to be of the essence of this lease.

18. NON DISCRIMINATION: LESSEE shall not discriminate against any individual because of that individual's race, color, religion, sex, national origin, age, handicap, or marital status with respect to any activity occurring within the leased premises or upon lands adjacent to and used as an adjunct of the leased premises.

19. UTILITY FEES: LESSEE shall be responsible for the payment of all charges for the furnishing of gas, electricity, water and

other public utilities to the leased premises and for having all utilities turned off when the leased premises are surrendered.

20. MINERAL RIGHTS: This lease does not cover petroleum or petroleum products or minerals and does not give the right to LESSEE to drill for or develop the same, and LESSOR specifically reserves the right to lease the leased premises for purpose of exploring and recovering oil and minerals by whatever means appropriate; provided, however, that LESSEE named herein shall be fully compensated for any and all damages that might result to the leasehold interest of said LESSEE by reason of such exploration and recovery operations.

21. RIGHT OF AUDIT: LESSEE shall make available to LESSOR all financial and other records relating to this lease, and LESSOR shall have the right to either audit such records at any reasonable time or require the submittal of an annual independent audit by a Certified Public Accountant during the term of this lease. This right shall be continuous until this lease expires or is terminated. This lease may be terminated by LESSOR should LESSEE fail to allow public access to all documents, papers, letters or other materials made or received in conjunction with this lease, pursuant to the provisions of Chapter 119, Florida Statutes.

22. CONDITION OF PREMISES: LESSOR assumes no liability or obligation to LESSEE with reference to the condition of the leased premises. The leased premises herein are leased by LESSOR to LESSEE in an "as is" condition, with LESSOR assuming no responsibility for the care, repair, maintenance or improvement of the leased premises for the benefit of LESSEE.

23. COMPLIANCE WITH LAWS: LESSEE agrees that this lease is contingent upon and subject to LESSEE obtaining all applicable permits and complying with all applicable permits, regulations, ordinances, rules, and laws of the State of Florida or the United States or of any political subdivision or agency of either.

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24. NOTICE: All notices given under this lease shall be in writing and shall be served by certified mail including, but not limited to, notice of any violation served pursuant to Section 253.04, Florida Statutes, to the last address of the party to whom notice is to be given, as designated by such party in writing. LESSOR and LESSEE hereby designate their address as follows:

LESSOR: Department of Environmental Protection
Division of State Lands
Bureau of Public Land Administration, M. S. 130
3900 Commonwealth Boulevard,
Tallahassee, Florida 32399-3000

LESSEE: Board of County Commissioners
Parks and Recreation Department
Environmentally Endangered Lands Program
2725 Judge Fran Jamieson Way
Viera, Florida 32940

25. BREACH OF COVENANTS, TERMS, OR CONDITIONS: Should LESSEE breach any of the covenants, terms, or conditions of this lease, LESSOR shall give written notice to LESSEE to remedy such breach within sixty days of such notice. In the event LESSEE fails to remedy the breach to the satisfaction of LESSOR within sixty days of receipt of written notice, LESSOR may either terminate this lease and recover from LESSEE all damages LESSOR may incur by reason of the breach including, but not limited to, the cost of recovering the leased premises and attorneys' fees or maintain this lease in full force and effect and exercise all rights and remedies herein conferred upon LESSOR.

26. DAMAGE TO THE PREMISES: (a) LESSEE shall not do, or suffer to be done, in, on or upon the leased premises or as affecting said leased premises or adjacent properties, any act which may result in damage or depreciation of value to the leased premises or adjacent properties, or any part thereof. (b) LESSEE shall not generate, store, produce, place, treat, release or discharge any contaminants, pollutants or pollution, including, but not limited to, hazardous or toxic substances, chemicals or other agents on, into, or from the leased premises or any adjacent

lands or waters in any manner not permitted by law. For the purposes of this lease, "hazardous substances" shall mean and include those elements or compounds defined in 42 USC Section 9601 or which are contained in the list of hazardous substances adopted by the United States Environmental Protection Agency (EPA) and the list of toxic pollutants designated by the United States Congress or the EPA or defined by any other federal, state or local statute, law, ordinance, code, rule, regulation, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance, material, pollutant or contaminant. "Pollutants" and "pollution" shall mean those products or substances defined in Chapters 376 and 403, Florida Statutes, and the rules promulgated thereunder, all as amended or updated from time to time. In the event of LESSEE's failure to comply with this paragraph, LESSEE shall, at its sole cost and expense, promptly commence and diligently pursue any legally required closure, investigation, assessment, cleanup, decontamination, remediation, restoration and monitoring of (1) the leased premises, and (2) all off-site ground and surface waters and lands affected by LESSEE's such failure to comply, as may be necessary to bring the leased premises and affected off-site waters and lands into full compliance with all applicable federal, state or local statutes, laws, ordinances, codes, rules, regulations, orders, and decrees, and to restore the damaged property to the condition existing immediately prior to the occurrence which caused the damage. LESSEE's obligations set forth in this paragraph shall survive the termination or expiration of this lease. This paragraph shall not be construed as a limitation upon LESSEE's obligations regarding indemnification and payment of costs and fees as set forth in paragraph 14 of this lease, nor upon any other obligations or responsibilities of LESSEE as set forth herein. Nothing herein

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Lease No. 4177
Revised 10/12/98

shall relieve LESSEE of any responsibility or liability prescribed by law for fines, penalties and damages levied by governmental agencies, and the cost of cleaning up any contamination caused directly or indirectly by LESSEE's activities or facilities. Upon discovery of a release of a hazardous substance or pollutant, or any other violation of local, state, or federal law, ordinance, code, rule, regulation, order or decree relating to the generation, storage, production, placement, treatment, release, or discharge of any contaminant, LESSEE shall report such violation to all applicable governmental agencies having jurisdiction, and to LESSOR, all within the reporting periods of the applicable governmental agencies.

27. ENVIRONMENTAL AUDIT: At LESSOR'S discretion, LESSEE shall provide LESSOR with a current Phase I environmental site assessment conducted in accordance with the Department of Environmental Protection, Division of State Land's standards prior to termination of this lease, and if necessary a Phase II environmental site assessment.

28. SURRENDER OF PREMISES: Upon termination or expiration of this lease, LESSEE shall surrender the leased premises to LESSOR. In the event no further use of the leased premises or any part thereof is needed, LESSEE shall give written notification to LESSOR and the Bureau of Public Land Administration, Division of State Lands, Department of Environmental Protection, Mail Station 130, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, at least six months prior to the release of any or all of the leased premises. Notification shall include a legal description, this lease number, and an explanation of the release. The release shall only be valid if approved by LESSOR through the execution of a release of lease instrument with the same formality as this lease. Upon release of all or any part of the leased premises or upon termination or expiration of this lease, all improvements, including both physical structures and

modifications to the leased premises shall become the property of LESSOR, unless LESSOR gives written notice to LESSEE to remove any or all such improvements at the expense of LESSEE. The decision to retain any improvements upon termination or expiration of this lease shall be at LESSOR'S sole discretion. Prior to surrender of all or any part of the leased premises a representative of the Division of State Lands, Department of Environmental Protection shall perform an on-site inspection and the keys to any building on the leased premises shall be turned over to the Division. If the improvements, do not meet all conditions as set forth in paragraphs 19 and 35 herein, LESSEE shall pay all costs necessary to meet the prescribed conditions.

29. BEST MANAGEMENT PRACTICES: LESSEE shall implement applicable Best Management Practices for all activities conducted under this lease in compliance with paragraph 18-2.018(2)(h), Florida Administrative Code, which have been selected, developed, or approved by LESSOR or other land managing agencies for the protection and enhancement of the leased premises.

30. PROHIBITIONS AGAINST LIENS OR OTHER ENCUMBRANCES: Fee title to the leased premises is held by LESSOR. LESSEE shall not do or permit anything to be done which purports to create a lien or encumbrance of any nature against the real property contained in the leased premises including, but not limited to, mortgages or construction liens against the leased premises or against any interest of LESSOR therein.

31. PARTIAL INVALIDITY: If any term, covenant, condition or provision of this lease shall be ruled by a court of competent jurisdiction, to be invalid, void, or unenforceable, the remainder shall remain in full force and effect and shall in no way be affected, impaired or invalidated.

32. ARCHAEOLOGICAL AND HISTORIC SITES: Execution of this lease in no way affects any of the parties' obligations pursuant to Chapter 267, Florida Statutes. The collection of artifacts or

the disturbance of archaeological and historic sites on state-owned lands is prohibited unless prior authorization has been obtained from the Department of State, Division of Historical Resources. The Management Plan prepared pursuant to Chapters 18-2 and 18-4, Florida Administrative Code, shall be reviewed by the Division of Historical Resources to insure that adequate measures have been planned to locate, identify, protect and preserve the archaeological and historic sites and properties on the leased premises.

33. SOVEREIGNTY SUBMERGED LANDS: This Lease does not authorize the use of any lands located waterward of the mean or ordinary high water line of any lake, river, stream, creek, bay, estuary, or other water body or the waters or the air space thereabove.

34. ENTIRE UNDERSTANDING: This lease sets forth the entire understanding between the parties and shall only be amended with the prior written approval of LESSOR.

35. MAINTENANCE OF IMPROVEMENTS: LESSEE shall maintain the real property contained within the leased premises and any improvements located thereon, in a state of good condition, working order and repair including, but not limited to, keeping the leased premises free of trash or litter, maintaining all planned improvements as set forth in the approved Management Plan, meeting all building and safety codes in the location situated and maintaining any and all existing roads, canals, ditches, culverts, risers and the like in as good condition as the same may be on the effective date of this lease.

36. GOVERNING LAW: This lease shall be governed by and interpreted according to the laws of the State of Florida.

37. SECTION CAPTIONS: Articles, subsections and other captions contained in this lease are for reference purposes only and are in no way intended to describe, interpret, define or limit the scope, extent or intent of this lease or any provisions thereof.

36. ADMINISTRATIVE FEE: LESSEE shall pay LESSOR an annual administrative fee of \$300. The initial annual administrative fee shall be payable within thirty days from the date of execution of this lease agreement and shall be prorated based on the number of months or fraction thereof remaining in the fiscal year of execution. For purposes of this lease agreement, the fiscal year shall be the period extending from July 1 to June 30. Each annual payment thereafter shall be due and payable on July 1 of each subsequent year.

IN WITNESS WHEREOF, the parties have caused this lease to be executed on the day and year first above written.

BOARD OF TRUSTEES OF THE INTERNAL
IMPROVEMENT TRUST FUND OF THE
STATE OF FLORIDA

Deirdre Mordica
Witness
Deirdre Mordica
Print/Type Name
Susan Beckett
Witness
Susan Beckett
Print/Type Name

By: Daniel T. Crabb (SEAL)
DANIEL T. CRABB, CHIEF, BUREAU OF
PUBLIC LAND ADMINISTRATION,
DIVISION OF STATE LANDS
FLORIDA DEPARTMENT OF ENVIRONMENTAL
PROTECTION

"LESSOR"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 28th day of January, 1999, by Daniel T. Crabb, as Chief, Bureau of Public Land Administration, Division of State Lands, Florida Department of Environmental Protection, as agent for and on behalf of the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida. He is personally known to me.

Sylvia S. Roberts
Notary Public, State of Florida



Sylvia S. Roberts
MY COMMISSION # CG854057 EXPIRES
July 25, 2001
BONDED THRU TROY FISH INSURANCE, INC.

Print/Type Notary Name
Commission Number:
Commission Expires:

Approved as to Form and Legality
By: Sam H. Wren
DEP Attorney

BREVARD COUNTY THROUGH
ITS BOARD OF COUNTY COMMISSIONERS

Berni Talbert
Witness
Berni Talbert
Print/Type Name

Witness

Print/Type Name

By: _____
Truman G. Scarborough, Jr.
Print/Type Name

Title: Chairman

OFFICIAL SEAL

As approved by the Board on 11-12-99

ATTEST: Sandy Crawford
County Administrator and Ex-Officio
Clerk of The Board of County
Commissioners of Brevard County
Sandy Crawford, Clerk
"LESSEE"

STATE OF FLORIDA
COUNTY OF BREVARD

The foregoing instrument was acknowledged before me this
12th day of January, 1999, by Truman Scarborough and
Sandy Crawford as Chairman
and Clerk respectively, on
behalf of the Board of County Commissioners of Brevard
County, Florida. They are personally known to me.

Benedetta S. Talbert
Notary Public, State of Florida

Print/Type Notary Name

Commission Number:

Commission Expires:



Benedetta S. Talbert
MY COMMISSION # CCS40700 EXPIRES
May 10, 2000
BONDED UNDER FIDELITY BOND INSURANCE, INC.

STATE OF FLORIDA
COUNTY OF BREVARD

This is to certify that the foregoing is a
true and correct copy of Lease
Charumit witness my hand
and official seal this 14th day of

January 19 99
SANDY CRAWFORD
Clerk Circuit Court
BY E.M. G... D.C.

Exhibit "A"

Legal Description of the Property

PARCEL I:

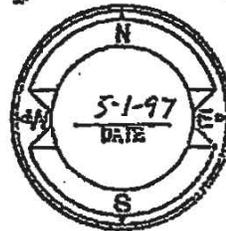
The North 60 feet of Government Lot 2, and the South 40 feet of Government Lot 1, in Section 33, Township 28 South, Range 38 East, and the North 100 feet of the South 140 feet of Government Lot 1, all in Section 33, Township 28 South, Range 38 East, Brevard County, Florida, less and except the rights of way for State Road A-1-A.

LESS AND EXCEPT that certain parcel conveyed to Brevard County Board of County Commissioners as more particularly described in Official Records Book 2760, Page 569, of the Public Records of Brevard County, Florida.

PARCEL II:

The South 100 feet of the North 160 feet of Government Lot 2, Section 33, Township 28 South, Range 38 East, Brevard County, Florida; less and except the rights of way for State Road A-1-A.

LESS AND EXCEPT that parcel conveyed to Brevard County Board of County Commissioners, Brevard County, Florida by Warranty Deed dated December 22, 1986 and recorded in Official Records Book 2760, page 571, Public Records of Brevard County, Florida.



SCHMITT 1 & 2

Page 14 of 15
Lease No.
Revised 10/12/98

**Appendix B:
Letter of Compliance**

City of Titusville
"Gateway to Nature and Space"

555 SOUTH WASHINGTON AVENUE
TITUSVILLE, FLORIDA 32796-3584
POST OFFICE BOX 2806 (32781-2806)



Community Development Department
(321)-567-3778
Fax (321)-383-5700
www.titusville.com

November 19, 2014

Michael Wielenga
North Region Assistant Land Manager
Brevard County Environmentally Endangered Lands
444 Columbia Blvd.
Titusville, FL 32780

Re: Enchanted Forest Sanctuary

Dear Mr. Wielenga:

The portion of the Enchanted Forest Sanctuary that lies within the corporate limits of the City of Titusville is zoned Open Space and Recreation (OR). Public parks are a permitted use within this zoning category. The City's Future Land Use designation for the property is Conservation.

If you would like any additional information, please contact me.

Sincerely,

A handwritten signature in blue ink that reads "Peggy Busacca".

Peggy Busacca
Community Development Director

/PAB



BOARD OF COUNTY COMMISSIONERS

Planning & Development Department
2725 Judge Fran Jamieson Way
Building A, Room 114
Viera, Florida 32940

Inter-Office Memo

TO: Michael Wielenga
North Region Assistant Land Manager
Environmentally Endangered Lands Program

FROM: Robin M. Sobrino, AICP *RMS*
Director, Planning & Development Department

DATE: December 1, 2015

SUBJECT: Enchanted Forest—Tax Account No. 2217823

The subject property is situated within the unincorporated area of Brevard County. The property is zoned GU (General Use). Section 62-1331 of the Zoning Regulations governing GU zoning states that parks and public recreational facilities are permitted uses.

The Future Land Use Map designates a portion of this property for Recreation and the remainder as Public Conservation. The Future Land Use designations are considered consistent with the use of this property.

If you have any questions, please do not hesitate to contact me.

enclosure

Appendix C:
Legal Description

6.16.98

THE SURVEY LEGAL
DESCRIPTION WAS REVISED
TO DELETE THE OVERLAP
AREA. SEE DETAIL A, SHEET 4, "A"
THIS IS THE APPROVED LEGAL
DESCRIPTION.

R Beck

A PARCEL OF LAND LYING IN SECTIONS 34 AND 35, TOWNSHIP 22 SOUTH, RANGE 35 EAST, BREVARD COUNTY, FLORIDA, BEING DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF SAID SECTION 35, TOWNSHIP 22 SOUTH, RANGE 35 EAST AS THE POINT OF BEGINNING OF THE HEREIN DESCRIBED PARCEL; FROM SAID POINT OF BEGINNING RUN S. 89 DEG. 29'52" E., ALONG THE NORTH LINE OF SAID SECTION 35 A DISTANCE OF 695.67 FEET TO THE WEST RIGHT OF WAY LINE OF THE FLORIDA EAST COAST RAILROAD TRACKS; THENCE RUN S. 15 DEG. 55'40" E., ALONG SAID WEST RIGHT OF WAY LINE, A DISTANCE OF 5576.79 FEET TO THE NORTH RIGHT OF WAY LINE OF STATE ROAD 405; THENCE RUN N. 89 DEG. 55'13" W., ALONG SAID RIGHT OF WAY LINE A DISTANCE OF 107.81 FEET; THENCE RUN N. 0 DEG. 38'33" E., ALONG SAID RIGHT OF WAY LINE A DISTANCE OF 51.19 FEET; THENCE RUN N. 89 DEG. 55'13" W., ALONG SAID RIGHT OF WAY LINE A DISTANCE OF 40.39 FEET; THENCE RUN S. 0 DEG. 38'33" E., ALONG SAID RIGHT OF WAY LINE A DISTANCE OF 26.85 FEET; THENCE RUN N. 89 DEG. 35'10" W., ALONG SAID RIGHT OF WAY LINE A DISTANCE OF 485.17 FEET; THENCE RUN S. 0 DEG. 06'06" W., ALONG SAID RIGHT OF WAY LINE A DISTANCE OF 25.12 FEET; THENCE RUN N. 89 DEG. 22'27" W., ALONG SAID RIGHT OF WAY LINE A DISTANCE OF 205.28 FEET; THENCE RUN N. 0 DEG. 47'11" E., A DISTANCE OF 72.66 FEET; THENCE RUN N. 89 DEG. 29'52" W., A DISTANCE OF 1749.97 FEET; THENCE RUN S. 0 DEG. 47'11" E., A DISTANCE OF 128.50 FEET TO A POINT ON A CURVE OF SAID RIGHT OF WAY LINE, HAVING A DELTA OF 13 DEG. 57'27" AND A RADIUS OF 5501.60 FEET; THENCE RUN NORTHWESTERLY ALONG SAID CURVE AN ARC DISTANCE OF 1340.21 FEET TO THE POINT OF TANGENCY ON SAID RIGHT OF WAY LINE; THENCE RUN N. 73 DEG. 32'42" W., ALONG SAID RIGHT OF WAY LINE A DISTANCE OF 1028.90 FEET TO THE WEST LINE OF THE EAST ONE-HALF OF SECTION 34, TOWNSHIP 22 SOUTH, RANGE 35 EAST, THENCE DEPARTING FROM SAID RIGHT OF WAY RUN N. 0 DEG. 05'47" E., ALONG SAID WEST LINE OF THE EAST ONE-HALF OF SECTION 34, A DISTANCE OF 3575.14 FEET TO THE SOUTHWEST CORNER OF THE NORTH WEST ONE-QUARTER OF THE NORTHEAST ONE-QUARTER OF SECTION 34, TOWNSHIP 22 SOUTH, RANGE 35 EAST; THENCE RUN S. 89 DEG. 40'29" E., ALONG THE SOUTH LINE OF THE NORTH ONE-HALF OF THE NORTHEAST ONE-QUARTER A DISTANCE OF 2653.08 FEET TO THE SOUTHEAST CORNER OF THE NORTHEAST ONE-QUARTER OF THE NORTHEAST ONE-QUARTER OF SAID SECTION 34; THENCE RUN N. 0 DEG. 15'33" E., ALONG THE EAST LINE OF SAID SECTION 34 A DISTANCE OF 1337.58 FEET TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED PARCEL.

LESS AND EXCEPT THE FOLLOWING DESCRIBED PARCEL:

COMMENCE AT THE NORTHWEST CORNER OF SECTION 35, TOWNSHIP 22 SOUTH, RANGE 35 EAST, BREVARD COUNTY, FLORIDA AND RUN S. 0 DEG. 15'33" W., ALONG THE WEST LINE OF SAID SECTION 35, A DISTANCE OF 1,337.58 FEET TO THE SOUTHEAST CORNER OF THE NORTHEAST ONE-QUARTER OF THE NORTHEAST ONE-QUARTER OF SECTION 34, TOWNSHIP 22 SOUTH, RANGE 35 EAST, BREVARD COUNTY, FLORIDA, AND THE POINT OF BEGINNING OF THE HEREIN DESCRIBED PARCEL; FROM SAID POINT OF BEGINNING RUN S. 0 DEG. 21'35" W., A DISTANCE OF 386.00 FEET; THENCE RUN N. 89 DEG. 40'29" W., A DISTANCE OF 2,651.27 FEET TO THE WEST LINE OF THE EAST ONE-HALF OF SAID SECTION 34, THENCE RUN N. 0 DEG. 05'47" E., ALONG SAID WEST LINE A DISTANCE OF 386.00 FEET TO THE SOUTHWEST CORNER OF THE NORTHWEST ONE-QUARTER OF THE NORTHEAST ONE-QUARTER OF SAID SECTION

Enchanted Forest, Brevard County
F:\BSM\LEGALS\BREVARD\ENFORNL.DOC



LEGAL DESCRIPTION:

Exhibit "A"

The South 263.83 feet of the West 780.8 feet of the North 1/2 of the Northeast 1/4 of Section 34, Township 22 South, Range 35 East, Brevard County, Florida.

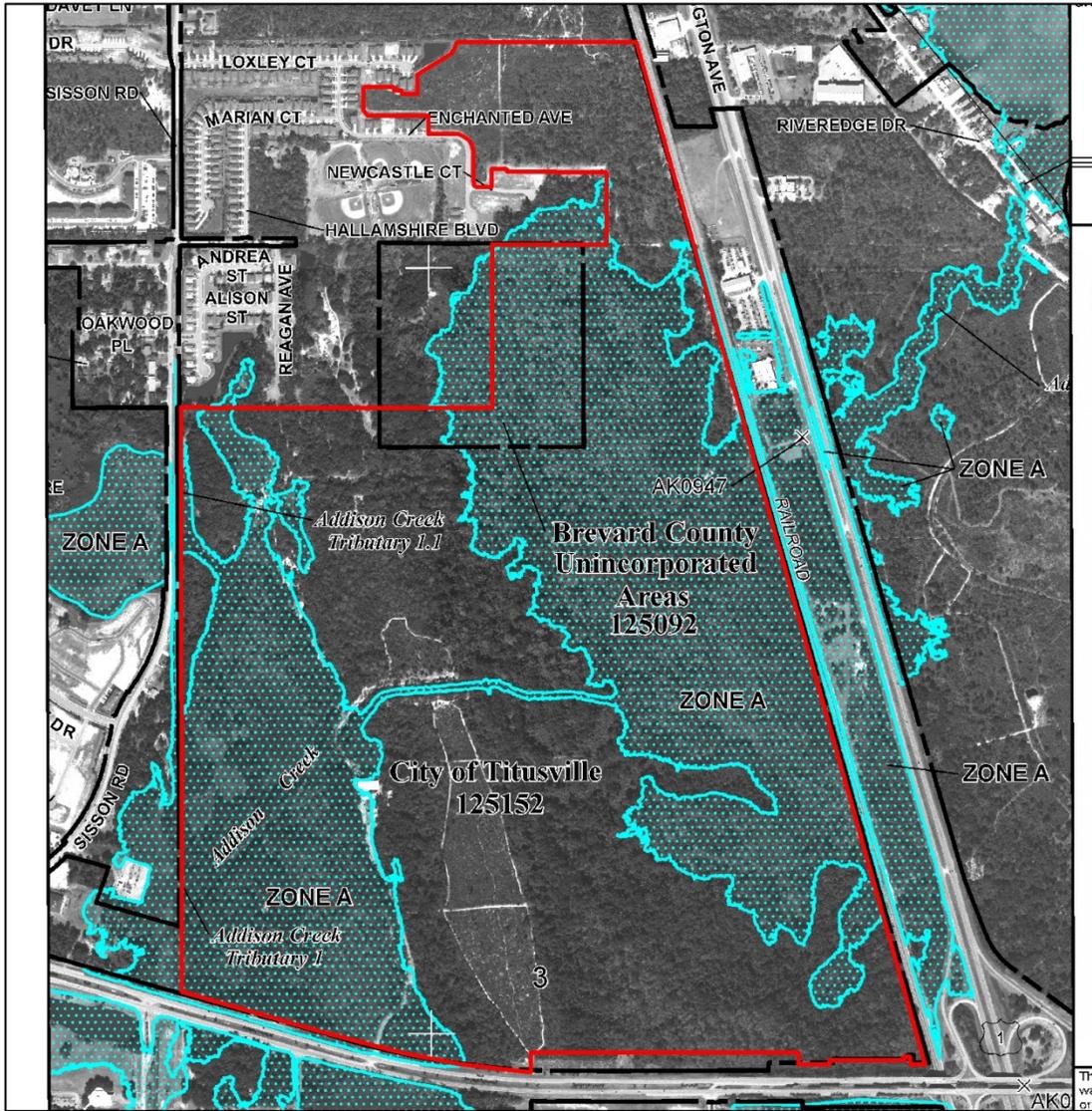
AND

Commence at the Northwest corner of Section 35, Township 22 South, Range 35 East, Brevard County, Florida, and run South 0 degrees 15' 33" West, along the West line of said Section 35, a distance of 1,337.58 feet to the Southeast corner of the Northeast one-quarter of the Northeast one-quarter of Section 34, Township 22 South, Range 35 East, Brevard County, Florida, and the Point of Beginning of the herein described parcel: From said Point of Beginning run South 0 degrees 21' 35" West a distance of 386.00 feet; thence run North 89 degrees 40' 29" West a distance of 2,651.27 feet to the West line of the East one-half of said Section 34; thence run North 0 degrees 05' 47" East, along said West line a distance of 386.00 feet to the Southwest corner of the Northwest one-quarter of the Northeast one-quarter of said Section 34; thence run South 89 degrees 40' 29" East, along the South line of the North one-half of the Northeast one-quarter of said Section 34, a distance of 2,653.08 feet to the Point of Beginning of the herein described parcel.

AND

The West 548.08 feet to the East 28.43 chains (1876.38 feet) of the North one-half of the Northeast one-quarter of Section 34, Township 22 South, Range 35 East, Brevard County Florida, except the North 300 feet thereof.

Appendix D: FEMA Map



Legend

Sanctuary Boundary

0 500 1,000 2,000 Feet

Map updated on 11/23/2015 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: FEMA Flood Map Service Center.



**Appendix E:
Fire Management Plan**

**ENCHANTED FOREST SANCTUARY
FIRE MANAGEMENT PLAN**

Introduction

Historically, fires have played a vital role in shaping and maintaining Florida's natural communities. The combination of past fuel conditions and specific fire events (wildfires, prescribed fires) shapes both the short term (seed germination, sprouting, mortality and species shifts) and long term (succession, aging, ecosystem composition) effects upon the landscape. Human culture and land use often influences fire/ecosystem dynamics and the nature and continuity of the fuel environment within the landscape (Pyne 1982, Guyette and Dey, 2000).

Sanctuary Fire Management Goals

- Restore, maintain and preserve fire-adapted communities with the reintroduction of fire
- Improve wildlife habitat
- Manage Threatened and Endangered species
- Reduce fire hazards by managing fuels and fire
- Control exotic vegetation

Smoke Management Issues

Transport winds, dispersal index and surface winds are of primary concern when trying to optimize the lofting and dispersal of smoke. To mitigate smoke impacts, burning should be conducted when mixing heights are in excess of 1,600 feet and transport winds greater than 9 mph (Southern Forest Laboratory 1976, Crow and Shilling 1983). Areas in close proximity of EFS that might be influenced by smoke include: US 1, State Roads 405 and 50, Tico Airport, and residential areas to the north and west.

Cooperation with Other Agencies

Personnel from Brevard County Fire/Rescue and Florida Forest Service may be utilized during the planning and implementation of prescribed fire. Other agencies that may be involved include the Florida Fish and Wildlife Conservation Commission, St. Johns River Water Management District and the Fish and Wildlife Service.

Desired structural conditions of habitat

Depression Marsh: Treeless, 75-100% of vegetation is herbaceous.
Oak-Saw Palmetto Scrub: 70% of scrub oaks are 1.7 meters in height, one pine tree or less per acre and 10-50% bare sand or sparse herbaceous vegetation (Kent and Kindell 2009).

Scrubby Flatwoods:	70% of scrub oaks are 1.7 meters in height, one pine tree or less per acre and 10-50% bare sand or sparse herbaceous vegetation.
Basin Marsh:	Regularly inundated freshwater herbaceous wetland with shrub patches (FNAI 2010).
Basin Swamp:	Vegetated with hydrophytic trees and shrubs (FNAI 2010).
Hydric Hammock:	Closed-canopy of oaks and palms with an open understory of palms and ferns (FNAI 2010).
Mesic Hammock:	Closed-canopy dominated by live oaks with a subcanopy of cabbage palms and variable shrubby understory (FNAI 2010).

Burn Unit Descriptions

Figure A shows the location of each burn unit at EFS.

Unit 1: 18 acres

Habitat types

Oak-Saw Palmetto Scrub.

Habitat Condition

Overgrown/Medium Fuel Load

Required preparations (firelines, timbering, vegetation reduction)

Reduce understory of oak-saw palmetto scrub as necessary.

Unit 2: 18 acres

Habitat types

Scrubby Flatwoods

Habitat Condition

Overgrown/High Fuel Load

Required preparations (fire lines, timbering, vegetation reduction)

Reduce understory of scrubby flatwoods. Widen existing firelines to minimum 15 feet.

Figure A: Enchanted Forest Sanctuary Burn Unit Map



Legend

-  Sanctuary Boundary
-  Fire Units

0 500 1,000 2,000 Feet



Map updated on 12/31/2014 for
Enchanted Forest Sanctuary Management Plan.

Disclaimer: Calculated acreages indicated on the map
are based solely on secondary mapping sources. No
warranties or representations of accuracy are expressed
or implied.

Source: Florida Aerial Photography Archive Collection.



Unit 3: 19 acres

Habitat types

Scrubby Flatwoods

Habitat Condition

Overgrown/High Fuel Load

Required preparations (fire lines, timbering, vegetation reduction)

Reduce understory of scrubby flatwoods. Widen existing firelines to minimum 15 feet. Install 700 feet of fireline in the northeast and east portion of the unit.

Unit 4: 9 acres

Habitat types

Scrubby Flatwoods.

Habitat Condition

Overgrown/High Fuel Load

Required preparations (fire lines, timbering, vegetation reduction)

Reduce understory of scrubby flatwoods. Widen existing firelines to minimum 15 feet.

Literature Cited

Crow, A.B., and C. L. Shilling. 1983. Prescribed burning in Louisiana pinelands. State Univ. Coop. Ext. Serv. Pub. 1618

Guyette, R.P. and D.C. Dey. 2000. Humans, topography, and wildland fire: The ingredients for long-term patterns in ecosystems. In D.A. Yaussy (ed.). Proceedings: Workshop on Fire, People, and the Central Hardwoods Landscape, 28-35. General Technical Report NE-274. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station.

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

Kent, A. and C. Kindell. 2009. Scrub management guidelines for peninsular Florida: using the scrub-jay as an umbrella species. Florida Fish and Wildlife Conservation Commission, Division of Habitat and Species Conservation, Tallahassee, FL

Pyne, S.J. 1982. Fire in America: a cultural history of wildland and rural fire. Princeton, NJ: Princeton University Press. 654 pp.

Southern Forests Fire Laboratory. 1976. Southern forestry smoke management guide book. USDA General Technical Report SE-10

**Appendix F:
Timber Assessment**

**BREVARD COUNTY ENVIRONMENTALLY ENDANGERED
LANDS PROGRAM PROPERTIES
TIMBER MANAGEMENT ASSESSMENT**

Prepared by John T. Marshall
Region 5, Other Public Lands Forester
Florida Division of Forestry
Updated June 2009

Purpose

This document is intended to fulfill the timber assessment requirements for public lands in the state of Florida as required in section 253.036, Florida Statutes. It is being written for portions of the Brevard County Environmentally Endangered Lands (EEL) Program properties in Brevard County, Florida. The goal of this assessment is to evaluate the potential and feasibility of utilizing silvicultural techniques to help managers with their timber resources being managed for conservation and revenue generating purposes on the Brevard County EEL Program's property.

Forest Resource Background and History

The Brevard County Environmentally Endangered Lands Program was established in 1990 after citizens voted to increase their taxes to help purchase and maintain environmentally sensitive lands within the county. The initial length of this taxing period is for 20 years. Matching funds have been provided by the State of Florida through the Preservation 2000 and Florida Forever Acts for these types of purchases as well. The Brevard EEL Program also partners with other conservation and preservation organizations such as the St. Johns River Water Management District and the North American Wetlands Conservation Act to help with the purchase and management of sensitive lands.

Approximately 20,195 acres of environmentally sensitive lands across the county have been purchased at this time and are being managed under the EEL Program. This assessment will only cover a portion of these lands in the inland portion of the county. The properties included are the Helen and Allan Cruickshank Sanctuary, Malabar Scrub, Jordan Scrub, Micco Scrub, Grant Flatwoods Sanctuaries, Turkey Creek Sanctuary, Pine Island Conservation Area, Enchanted Forest Sanctuary, Dicerandra Scrub Sanctuary, North Buck Lake Scrub Sanctuary, Indian Mound Station Sanctuary, South Lake Conservation Area, Tico Scrub Sanctuary, Fox Lake Sanctuary and the Scottsmoor Property.

The Valkaria Scrub Sanctuary is also included and currently comprises approximately 7394 acres. This area was subdivided and sold as residential type lots. The EEL Program is in the acquisition phase on this property and due to the numerous landowners, the property is not all contiguous at this time. Present and future goals include purchasing as many of the lots as possible to secure this property into one manageable tract. It is difficult to discern the boundaries on the ground since no physical lot boundaries are evident. Only with the use of GIS is it possible to overlay boundary lines with aerial photography and distinguish community types and property boundaries. The management options offered in this assessment may not be feasible at this time on all the property of the sanctuary. When more acquisitions are made and larger, more manageable blocks are created and defined, these options should prove valuable to the EEL Program resource managers.

Development in this part of the state is steadily increasing. These properties were purchased to protect and preserve environmentally sensitive lands and the plants and animals associated with them. They also provide educational opportunities and recreation.

Past land uses of much of the property in Brevard County has included naval stores operations and cattle grazing. The EEL Program properties have probably included both at some time in the past. Prescribed burning was an important part of both. Forage production and brush control was dependent on frequent fires. Historically, fire has always been part of the Florida ecosystem and many communities are dependent on fire to maintain their diversity. Lightning caused, low intensity fires burned frequently. Small shrubs and many hardwood species were kept from overtaking the pine forest because of frequent fires. Burning techniques have been revised over the years and more growing season burns are attempted as weather permits. If heavy fuel loads are allowed to accumulate, winter or cool season fuel reduction burns should be done first to minimize timber mortality before growing season burns are attempted again.

Management Goals and Objectives

The Brevard County EEL Program lands are acquired in an attempt to help preserve and restore diminishing natural communities. Their mission statement and primary management objective is to protect and preserve the biological diversity on these lands. These tracts are called sanctuaries and provide for conservation of natural resources, education, and recreation.

Ecological Trends

Human disturbances such as drainage, urbanization, and land use changes such as mining and crop production have occurred throughout the state causing the degradation or loss of many natural communities. Frequent fire that helped create and maintain many natural communities in Florida has been altered or removed. This has allowed an increase of both endemic and non-endemic plants to these once fire dependent communities. Timber management can be useful aid in the restoration of these sites by eliminating the overcrowding of naturally occurring trees and removing the species that are not typically found in these community types. By removing this additional fuel load, prescribed fire can be reintroduced safely to mimic the natural fire cycles that once existed. Timber management can also help develop multi-aged structures in stands that help maintain dynamic ecosystems. Opening the overstory will also increase the amount of sunlight reaching the forest floor, aiding in natural groundcover recovery and maintenance.

Timber Resources and Management Options

The majority of the timber resources on the EEL Program property that would benefit from silvicultural treatments exist in the pine flatwoods. Mesic, wet, and scrubby flatwoods all fall into this general category. Slash and longleaf pine are the dominant overstory species that currently exist with an understory of palmetto, gallberry, wiregrass, scrub oaks and other understory grasses and woody plants.

General Timber Management Guidelines

Basal Area (BA) is a common measurement used to identify stand density. The basal area is measured on a tree four and one half feet above the ground, identified as diameter at breast height or DBH, and is expressed in square feet (ft.²). The BA is the total measure of the cross sectional area in square feet of the stems of trees occupying space on one acre of land. Fewer large diameter trees are needed to equal the same BA as many small diameter trees. For example, 509 evenly distributed six inch diameter trees over

one acre has a BA of 100 ft.². Only 127 twelve inch diameter trees, evenly spaced on one acre, are needed to create the same 100 ft.² of BA.

Basal area can also be correlated to crown coverage. Basal areas around 50 square feet per acre of mature, healthy trees can help prescribed burning efforts by increasing the fuel dispersion and loads with needle cast. This needle cast should allow prescribed fires to carry across areas while still allowing adequate sunlight to reach the forest floor to maintain native grasses.

Current Timber Resources

The Brevard County EEL Program Lands encompass many thousands of acres. Identifying and defining individual stands and treatments for each stand is not the goal of this assessment. Detailed stand descriptions would be necessary to help plan for long term timber management on these sites. While timber management is not the primary goal for these properties, many of the silvicultural recommendations can be implemented along with preservation activities to maintain or restore these areas to their once natural condition.

The following are general descriptions and management recommendations. The diversity of the EEL Programs land and the management objectives for each will be the ultimate guiding principal. Areas with populations of gopher tortoises can sustain higher BA's than those being managed for scrub jays but less than some of the wetter flatwoods sites.

Natural Pine:

All of these areas have been harvested or have burned hot enough to reduce the standing timber to an unmerchantable volume. They all appear to have supported stands of large timber at one time, but the lack of any forestry type management in the past has converted these forest to fire-climax communities composed mainly of saw-palmetto that are fire hazards. The one exception is the North Buck Lake Scrub Sanctuary that has a fair stand of young sand pine. Saw-palmetto responds to fire by resprouting immediately and can return to preburn levels in as little as 1 year. This makes it very hard to regenerate a stand of trees because the seedlings have a hard time getting through the saw palmetto and if they do they stand a good chance burning up because of the volume of fuel produced by the saw-palmetto. If a forest community is desired, burning alone will not restore these communities to their original forested state. Saw-palmetto flourishes in full sun light but is also somewhat tolerant of shade. A complete overstory of trees creates shade and slows the growth. Shade with prescribe fire seems to keep it in check but some mechanical removal will be required to get the trees established.

Planted Pine:

There are 205 acres of planted pine in the Micco Scrub Sanctuary. It appears to be north Florida slash pine planted in an area that should have been planted in south Florida slash or longleaf. It was an old field, pasture, or had some heavy site preparation before it was planted as there is very little saw palmetto in the understory. The rows of trees were planted with about 8 feet between rows which is very close at today's standards. When the basal area reaches 100 this area should be thinned. This could be done by removing every other row, every third row, or every third row and thinning in between, depending on the desired remaining stand.

In under stocked areas, longleaf pine can be planted if sites are suitable. This species is more adapted to fire and is longer lived than the other southern pines. A "rule of thumb" is that if palmetto is dominant, longleaf can be planted. If gallberry dominates, then it is probably too wet for longleaf and slash pine should be planted.

Access

Adequate access is a necessity for land management activities. Law enforcement patrol, prescribed burning activities and fire suppression are but a few of the activities that benefit from improved road access. Most of the EEL Program's land is adjacent to a paved road of some sort. Internal access to some of the properties is limited by weather. Low areas become very wet and high areas become excessively dry depending on the season. Parts of the road system would need improvements to facilitate movement of heavy equipment for restoration or maintenance purposes. Widening current roads, installing culverts or low water crossings, or capping soft roads with shell, rock or clay are some of the possibilities for needed upgrades.

Economics

It is difficult to predict with any certainty the amount of revenue that can be derived through timber harvests on the Brevard County Environmentally Endangered Lands. Brevard County is approximately 100 miles to the nearest major wood processing facilities in Palatka, Florida. Market conditions, harvest prescriptions, product mix, logging conditions and distance to manufacturing facilities are factors in stumpage prices. Even though economics are hard to predict, they should be analyzed before making any management decisions.

Summary

There are approximately 10,000 acres in the EEL Program with current or future potential for timber management. Exclusive timber management would not meet the objectives for which this property was purchased, however, silviculture is a valuable tool to help restore and maintain native ecosystems, increase diversity and improve wildlife habitat. It is possible to manage nearly all of the sandhill, mesic flatwood, scrubby flatwood, and ruderal areas in order to retain their natural appearance and produce revenue from timber harvests. Currently a market does exist for timber products in the Brevard County area.

Road access within would need to be improved in some areas to allow for silvicultural activities. Public roads and highways to the park need to be monitored for weight restrictions on bridges.

**Appendix G:
Surface Water Quality Classification**



**Florida Department of
Environmental Protection**

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

February 25, 2010

Michael Wielenga
North Region Assistant Land Manager
Brevard County Environmentally Endangered Lands Program
Parks & Recreation Department
444 Columbia Blvd.
Titusville, FL 32780

RE: Land Use Plan for Enchanted Forest Sanctuary

Dear Mr. Wielenga:

Thank you for your inquiry regarding the surface water quality classifications on and near Enchanted Forest Sanctuary in Brevard County. There are no Outstanding Florida Waters (OFW) located on or immediately adjacent to the site (Rule 62-302.700, Florida Administrative Code (FAC)). Any surface waters on or immediately adjacent to these parcels are classified as Class III waters (Subparagraph 62-302.400(12)(b)5., FAC), which is the statewide default classification.

If you have any questions or need additional information, please feel free to contact me at the letterhead address (mail station 6511), by phone at 850/245-8429, or via E-mail at Eric.Shaw@dep.state.fl.us.

Sincerely,

A handwritten signature in black ink that reads "Eric R. Shaw".

Eric R. Shaw
Environmental Manager
Standards and Assessments Section

"More Protection, Less Process"
www.dep.state.fl.us

**Appendix H:
Species List**

Plants

SAPINDACEAE	<i>Acer rubrum</i>		Red Maple
PTERIDACEAE	<i>Acrostichum danaeifolium</i>		Giant Leather Fern
ASTERACEAE	<i>Ambrosia artemisiifolia</i>		Common Ragweed
FABACEAE	<i>Amorpha fruticosa</i>		Bastard False Indigo
VITACEAE	<i>Ampelopsis arborea</i>		Peppervine
POACEAE	<i>Andropogon glomeratus</i>		Bushy Bluestem
POACEAE	<i>Andropogon virginicus</i> var. <i>glaucus</i>		Chalky Bluestem
FABACEAE	<i>Apios americana</i>		Groundnut
MYRSINACEAE	<i>Ardisia crenata</i>	EPPC (1)	Scratchthroat
MYRSINACEAE	<i>Ardisia escallonioides</i>		Marlberry
ARACEAE	<i>Arisaema triphyllum</i>		Jack-in-the-Pulpit
POACEAE	<i>Aristida stricta</i> var. <i>beyrichiana</i>		Wiregrass
ASTERACEAE	<i>Arnoglossum floridanum</i>	Endemic	Florida Indian Plantain
APOCYNACEAE	<i>Asclepias tomentosa</i>		Velvetleaf Milkweed
APOCYNACEAE	<i>Asclepias tuberosa</i>		Butterfly Milkweed
POLYGALACEAE	<i>Asemeia violacea</i>		Showy Milkwort
ANNONACEAE	<i>Asimina obovata</i>	Endemic	Bigflower Pawpaw
ANNONACEAE	<i>Asimina parviflora</i>		Smallflower Pawpaw
ASTERACEAE	<i>Baccharis halimifolia</i>		Groundsel Tree
PLANTAGINACEAE	<i>Bacopa caroliniana</i>		Lemon Bacopa

PLANTAGINACEAE	<i>Bacopa monnieri</i>		Herb-of-Grace
ERICACEAE	<i>Bejaria racemosa</i>		Tarflower
RHAMNACEAE	<i>Berchemia scandens</i>		Rattan Vine
ASTERACEAE	<i>Berlandiera subacaulis</i>	Endemic	Florida Greeneyes
ASTERACEAE	<i>Bidens alba</i>		Beggerticks
ASTERACEAE	<i>Bidens bipinnata</i>		Spanish Needles
BLECHNACEAE	<i>Blechnum serrulatum</i>		Swamp Fern
URTICACEAE	<i>Boehmeria cylindrica</i>		False Nettle
MORACEAE	<i>Broussonetia papyrifera</i>	EPPC (2)	Paper Mulberry
LAMIACEAE	<i>Callicarpa americana</i>		American Beautyberry
BIGNONIACEAE	<i>Campsis radicans</i>		Trumpet Creeper
POLYPODIACEAE	<i>Campyloneurum phyllitidis</i>		Long Strap Fern
CANNACEAE	<i>Canna flaccida</i>		Bandanna-of-the-Everglades
CARICACEAE	<i>Carica papaya</i>		Papaya
ASTERACEAE	<i>Carphephorus odoratissimus</i>		Vanillaleaf
BETULACEAE	<i>Carpinus caroliniana</i>		American Hornbeam
OLEACEAE	<i>Cartrema americana</i>		Wild Olive
JUGLANDACEAE	<i>Carya floridana</i>	Endemic	Scrub Hickory
JUGLANDACEAE	<i>Carya glabra</i>		Pignut Hickory
LAURACEAE	<i>Cassytha filiformis</i>		Love Vine
APOCYNACEAE	<i>Catharanthus roseus</i>	Exotic	Madagascar Periwinkle
CANNABACEAE	<i>Celtis laevigata</i>		Hackberry
POACEAE	<i>Cenchrus sp.</i>		

RUBIACEAE	<i>Cephalanthus occidentalis</i>		Common Buttonbush
PTERIDACEAE	<i>Ceratopteris pteridoides</i>		Water Horn Fern
FABACEAE	<i>Chamaecrista fasciculata</i>		Partridge Pea
EUPHORBIACEAE	<i>Chamaesyce cumulicola</i>	Endemic, Endangered- State	Coastal Dune Sandmat
RUBIACEAE	<i>Chiococca alba</i>		Snowberry
ASTERACEAE	<i>Chrysopsis scabrella</i>		Coastalplain Goldenaster
APIACEAE	<i>Cicuta maculata</i>		Spotted Water Hemlock
LAURACEAE	<i>Cinnamomum camphora</i>	EPPC (1)	Camphortree
RUTACEAE	<i>Citrus x aurantium</i>	Exotic	Sour Orange
CYPERACEAE	<i>Cladium jamaicense</i>		Jamaica Swamp Sawgrass
EUPHORBIACEAE	<i>Cnidoscolus stimulosus</i>		Tread-Softly
COMMELINACEAE	<i>Commelina diffusa</i>	Exotic	Common Dayflower
ORCHIDACEAE	<i>Corallorhiza wisteriana</i>		Spring Coralroot
ASTERACEAE	<i>Coreopsis leavenworthii</i>		Leavenworth's Tickseed
CORNACEAE	<i>Cornus foemina</i>		Swamp Dogwood
CISTACEAE	<i>Crocanthemum corymbosum</i>		Pinebarren Frostweed
FABACEAE	<i>Crotalaria rotundifolia</i>		Rabbitbells
APOCYNACEAE	<i>Cynanchum scoparium</i>		Leafless Swallowwort
HYDRANGEACEAE	<i>Decumaria barbara</i>		Cowitch Vine
RUBIACEAE	<i>Diodia virginiana</i>		Virginia Buttonweed

DIOSCOREACEAE	<i>Dioscorea bulbifera</i>		Air-Potato
EBENACEAE	<i>Diospyros virginiana</i>		Common Persimmon
DRYOPTERIDACEAE	<i>Dryopteris ludoviciana</i>		Southern Wood Fern
CYPERACEAE	<i>Eleocharis</i> sp.		
ASTERACEAE	<i>Elephantopus elatus</i>		Tall Elephantsfoot
ORCHIDACEAE	<i>Encyclia tampensis</i>		Florida Butterfly Orchid
FABACEAE	<i>Enterolobium contortisiliquum</i>	Exotic	Earpod Tree
ORCHIDACEAE	<i>Epidendrum conopseum</i>		Green-Fly Orchid
ASTERACEAE	<i>Erigeron quercifolius</i>		Oakleaf Fleabane
ASTERACEAE	<i>Erigeron vernus</i>		Early Whitetop Fleabane
FABACEAE	<i>Erythrina herbacea</i>		Coralbean
MYRTACEAE	<i>Eugenia axillaris</i>		White Stopper
ASTERACEAE	<i>Eupatorium capillifolium</i>		Dogfennel
ASTERACEAE	<i>Eupatorium mikanioides</i>	Endemic	Semaphore Thoroughwort
ASTERACEAE	<i>Eupatorium serotinum</i>		Lateflowering Thoroughwort
ASTERACEAE	<i>Euthamia caroliniana</i>		Slender Flattop Goldenrod
ASTERACEAE	<i>Flaveria linearis</i>		Narrowleaf Yellowtops
OLEACEAE	<i>Forestiera segregata</i>		Florida Swampprivet
OLEACEAE	<i>Fraxinus pennsylvanica</i>		Green Ash
FABACEAE	<i>Galactia elliotii</i>		Elliott's Milkpea

RUBIACEAE	<i>Galium hispidulum</i>		Coastal Bedstraw
RUBIACEAE	<i>Galium tinctorium</i>		Stiff Marsh Bedstraw
ERICACEAE	<i>Gaylussacia dumosa</i>		Dwarf Huckleberry
GELSEMIACEAE	<i>Gelsemium sempervirens</i>		Yellow Jessamine
APOCYNACEAE	<i>Gonolobus suberosus</i>	Threatened- State	Angularfruit milkvine
THEACEAE	<i>Gordonia lasianthus</i>		Loblolly Bay
PLANTAGINACEAE	<i>Gratiola ramosa</i>		Branched Hedgehyssop
ORCHIDACEAE	<i>Habenaria floribunda</i>		Toothpetal False Reinorchid
ASTERACEAE	<i>Heterotheca subaxillaris</i>		Camphorweed
RUBIACEAE	<i>Houstonia procumbens</i>		Innocence
AMARYLLIDACEAE	<i>Hymenocallis latifolia</i>		Mangrove Spiderlily
CLUSIACEAE	<i>Hypericum hypericoides</i>		St. Andrew's Cross
CLUSIACEAE	<i>Hypericum tetrapetalum</i>		Fourpetal St. John's-Wort
AQUIFOLIACEAE	<i>Ilex ambigua</i>		Carolina Holly
AQUIFOLIACEAE	<i>Ilex cassine</i>		Dahoon
AQUIFOLIACEAE	<i>Ilex glabra</i>		Gallberry
AQUIFOLIACEAE	<i>Ilex vomitoria</i>		Yaupon
POACEAE	<i>Imperata cylindrica</i>	EPPC (1)	Cogongrass
FABACEAE	<i>Indigofera</i> sp,		
CONVOLVULACEAE	<i>Ipomoea alba</i>		Moonflowers
CONVOLVULACEAE	<i>Ipomoea sagittata</i>		Saltmarsh Morning-Glory

ITEACEAE	<i>Itea virginica</i>		Virginia Willow
JUNCACEAE	<i>Juncus effusus</i> subsp. <i>solutus</i>		Soft Rush
CUPRESSACEAE	<i>Juniperus virginiana</i>		Red Cedar
ACANTHACEAE	<i>Justicia angusta</i>		Pineland Waterwillow
SAPINDACEAE	<i>Koelreuteria elegans</i>	EPPC (2)	Flamegold
VERBENACEAE	<i>Lantana camara</i>	EPPC (1)	Lantana
VERBENACEAE	<i>Lantana depressa</i> var. <i>floridana</i>	Endemic, Endangered-State	Rockland Shrubverbena
CISTACEAE	<i>Lechea divaricata</i>	Endemic, Endangered-State	Spreading Pinweed
BRASSICACEAE	<i>Lepidium virginicum</i>		Virginia Pepperweed
CHRYSOBALANACEAE	<i>Licania michauxii</i>		Gopher Apple
PLANTAGINACEAE	<i>Linaria floridana</i>		Apalachicola Toadflax
ALTINGIACEAE	<i>Liquidambar styraciflua</i>		Sweetgum
CAMPANULACEAE	<i>Lobelia glandulosa</i>		Glade Lobelia
ONAGRACEAE	<i>Ludwigia peruviana</i>	EPPC (1)	Peruvian Primrosewillow
FABACEAE	<i>Lupinus diffusus</i>		Skyblue Lupine
SCHIZAEACEAE	<i>Lygodium microphyllum</i>	EPPC (1)	Small-Leaf Climbing Fern
ERICACEAE	<i>Lyonia ferruginea</i>		Rusty Staggerbush
ERICACEAE	<i>Lyonia fruticosa</i>		Coastalplain Fetterbush
ERICACEAE	<i>Lyonia lucida</i>		Fetterbush

LYTHRACEAE	<i>Lythrum alatum</i> var. <i>lanceolatum</i>		Winged Loosestrife
MAGNOLIACEAE	<i>Magnolia grandiflora</i>		Southern Magnolia
MAGNOLIACEAE	<i>Magnolia virginiana</i>		Sweetbay
MELIACEAE	<i>Melia azedarach</i>	EPPC (1)	Chinaberrytree
POACEAE	<i>Melinis repens</i>	EPPC (1)	Rose Natalgrass
CUCURBITACEAE	<i>Melothria pendula</i>		Creeping Cucumber
RUBIACEAE	<i>Mitchella repens</i>		Partridgeberry
LOGANIACEAE	<i>Mitreola sessilifolia</i>		Swamp Hornpod
LAMIACEAE	<i>Monarda punctata</i>		Spotted Beebalm
MORACEAE	<i>Morus rubra</i>		Red Mulberry
MYRICACEAE	<i>Myrica cerifera</i>		Wax Myrtle
MYRSINACEAE	<i>Myrsine cubana</i>		Colicewood
NEPHROLEPIDACEAE	<i>Nephrolepis exaltata</i>		Sword Fern
LAURACEAE	<i>Ocotea coriacea</i>		Lancewood
CACTACEAE	<i>Opuntia humifusa</i>		Pricklypear
OSMUNDACEAE	<i>Osmunda cinnamomea</i>	Commercially Exploited-State	Cinnamon Fern
OSMUNDACEAE	<i>Osmunda regalis</i> var. <i>spectabilis</i>	Commercially Exploited-State	Royal Fern
POACEAE	<i>Panicum hemitomon</i>		Maidencane
POACEAE	<i>Panicum maximum</i>	EPPC (2)	Guineagrass
CARYOPHYLLACEAE	<i>Paronychia americana</i>		American Nailwort
VITACEAE	<i>Parthenocissus quinquefolia</i>		Virginia Creeper

PASSIFLORACEAE	<i>Passiflora incarnata</i>		Purple Passionflower
PASSIFLORACEAE	<i>Passiflora suberosa</i>		Corkstem Passionflower
POLYPODIACEAE	<i>Pecluma dispersa</i>	Endangered-State	Widespread Polypody
POLYPODIACEAE	<i>Pecluma plumula</i>	Endangered-State	Plume Polypody
PIPERACEA	<i>Peperomia humilis</i>	Endangered-State	Low Peperomia
LAURACEAE	<i>Persea borbonia</i>		Red Bay
FABACEAE	<i>Phaseolus polystachios</i>		Thicket Bean
POLYPODIACEAE	<i>Phlebodium aureum</i>		Golden Polypody
PHORADENDRON	<i>Phoradendron serotinum</i>		Oak Mistletoe
SOLANACEAE	<i>Physalis walteri</i>		Walter's Groundcherry
PHYTOLACCACEAE	<i>Phytolacca americana</i>		American Pokeweed
LAMIACEAE	<i>Piloblephis rigida</i>		Wild Pennyroyal
TURNERACEAE	<i>Piriiqueta cistoides</i> subsp. <i>caroliniana</i>		Pitted Stripeseed
ASTERACEAE	<i>Pityopsis graminifolia</i>		Narrowleaf Silkgrass
POLYPODIACEAE	<i>Pleopeltis polypodioides</i> var. <i>michauxiana</i>		Resurrection Fern
EUPHORBIACEAE	<i>Poinsettia cyathophora</i>		Paintedleaf
POLYGALACEAE	<i>Polygala incarnata</i>		Procession Flower
POLYGONACEAE	<i>Polygonella polygama</i>		October Flower
POLYGONACEAE	<i>Polygonum punctatum</i>		Dotted Smartweed
PONTEDERIACEAE	<i>Pontederia cordata</i>		Pickerelweed

ROSACEAE	<i>Psilotum nudum</i>		Whisk Fern
RUBIACEAE	<i>Psychotria nervosa</i>		Wild Coffee
RUBIACEAE	<i>Psychotria sulzneri</i>		Shortleaf Wild Coffee
RUBIACEAE	<i>Psychotria sulzneri</i>		Shortleaf Wild Coffee
DENNSTAEDTIACEAE	<i>Pteridium aquilinum</i> var. <i>pseudocaudatum</i>		Tailed Bracken
PTERIDACEAE	<i>Pteris vittata</i>	EPPC (2)	Chinese Ladder Brake
ASTERACEAE	<i>Pyrrhopappus carolinianus</i>		Carolina Desertchicory
FAGACEAE	<i>Quercus chapmanii</i>		Chapman's Oak
FAGACEAE	<i>Quercus geminata</i>		Sand Live Oak
FAGACEAE	<i>Quercus incana</i>		Bluejack Oak
FAGACEAE	<i>Quercus laurifolia</i>		Laurel Oak
FAGACEAE	<i>Quercus myrtifolia</i>		Myrtle Oak
FAGACEAE	<i>Quercus virginiana</i>		Live Oak
ANACARDIACEAE	<i>Rhus copallinum</i>		Winged Sumac
FABACEAE	<i>Rhynchosia</i> sp.		
CYPERACEAE	<i>Rhynchospora colorata</i>		Starrush Whitetop
CYPERACEAE	<i>Rhynchospora megalocarpa</i>		Sandyfield Beaksedge
PHYTOLACCACEAE	<i>Rivina humilis</i>		Rougeplant
ROSACEAE	<i>Rubus cuneifolius</i>		Sand Blackberry
ROSACEAE	<i>Rubus trivialis</i>		Southern Dewberry
ACANTHACEAE	<i>Ruellia caroliniensis</i>		Carolina Wild Petunia
ARECACEAE	<i>Sabal palmetto</i>		Cabbage Palm

ALISMATACEAE	<i>Sagittaria lancifolia</i>		Bulltongue Arrowhead
SALICACEAE	<i>Salix caroliniana</i>		Carolina Willow
LAMIACEAE	<i>Salvia coccinea</i>		Tropical Sage
LAMIACEAE	<i>Salvia lyrata</i>		Lyreleaf Sage
ADOXACEAE	<i>Sambucus nigra subsp. canadensis</i>		American Elder
APOCYNACEAE	<i>Sarcostemma clausum</i>		White Twinevine
SAURURACEAE	<i>Saururus cernuus</i>		Lizard's Tail
ANACARDIACEAE	<i>Schinus terebinthifolia</i>		Brazilian Pepper
CYPERACEAE	<i>Scleria triglomerata</i>		Tall Nutgrass
PLANTAGINACEAE	<i>Scoparia dulcis</i>		Sweetbroom
ARECACEAE	<i>Serenoa repens</i>		Saw Palmetto
OROBANCHACEAE	<i>Seymeria pectinata</i>		Piedmont Blacksennea
SAPOTACEAE	<i>Sideroxylon tenax</i>		Tough Bully
IRIDACEAE	<i>Sisyrinchium xerophyllum</i>		Jeweled Blue-Eyed Grass
SMILACACEAE	<i>Smilax auriculata</i>		Earleaf Greenbrier
SMILACACEAE	<i>Smilax bona-nox</i>		Saw Breenbrier
SMILACACEAE	<i>Smilax laurifolia</i>		Laurel Greenbrier
SOLANACEAE	<i>Solanum americanum</i>		American Black Nightshade
SOLANACEAE	<i>Solanum capsicoides</i>	Exotic	Soda Apple
SOLANACEAE	<i>Solanum erianthum</i>		Potatotree
SOLANACEAE	<i>Solanum viarum</i>	EPPC (1)	Tropical Soda Apple

ASTERACEAE	<i>Solidago odora var. chapmanii</i>		Chapman's Goldenrod
ASTERACEAE	<i>Sphagneticola trilobata</i>		Creeping Oxeye
ASTERACEAE	<i>Symphotrichum carolinianum</i>		Climbing Aster
THELYPTERIDACEAE	<i>Thelypteris dentata</i>	EXOTIC	Downy Maiden Fern
THELYPTERIDACEAE	<i>Thelypteris interrupta</i>		Hottentot Fern
THELYPTERIDACEAE	<i>Thelypteris palustris var. pubescens</i>		Marsh Fern
BROMELIACEAE	<i>Tillandsia fasciculata</i>	Endangered-State	Cardinal Airplant
BROMELIACEAE	<i>Tillandsia recurvata</i>		Ballmoss
BROMELIACEAE	<i>Tillandsia setacea</i>		Southern Needleleaf
BROMELIACEAE	<i>Tillandsia usneoides</i>		Spanish Moss
BROMELIACEAE	<i>Tillandsia utriculata</i>	Endangered-State	Giant Airplant
ANACARDIACEAE	<i>Toxicodendron radicans</i>		Eastern Poison Ivy
LAMIACEAE	<i>Trichostema dichotomum</i>		Forked Bluecurls
ULMACEAE	<i>Ulmus americana</i>		American Elm
MALVACEAE	<i>Urena lobata</i>	EPPC (1)	Caesarweed
ERICACEAE	<i>Vaccinium arboreum</i>		Sparkleberry
ERICACEAE	<i>Vaccinium corymbosum</i>		Highbush Blueberry
ERICACEAE	<i>Vaccinium myrsinites</i>		Shiny Blueberry
ERICACEAE	<i>Vaccinium stamineum</i>		Deerberry
ADOXACEAE	<i>Viburnum obovatum</i>		Walter's Viburnum
VIOLACEAE	<i>Viola lanceolata</i>		Bog White Violet

VIOLACEAE	<i>Viola sororia</i>		Common Blue Violet
VITACEAE	<i>Vitis aestivalis</i>		Summer Grape
VITACEAE	<i>Vitis rotundifolia</i>		Muscadine
VITACEAE	<i>Vitis shuttleworthii</i>		Calloose Grape
PTERIDACEAE	<i>Vittaria lineata</i>		Shoestring Fern
BLECHNACEAE	<i>Woodwardia areolata</i>		Netted Chain Fern
BLECHNACEAE	<i>Woodwardia virginica</i>		Virginia Chain Fern
XIMENIACEAE	<i>Ximenia americana</i>		Hog Plum
AGAVACEAE	<i>Yucca filamentosa</i>		Adam's Needle
RUTACEAE	<i>Zanthoxylum clava-herculis</i>		Hercules-Club
RUTACEAE	<i>Zanthoxylum fagara</i>		Wild Lime

Animals

Common Name	Scientific Name
-------------	-----------------

Amphibians

Southern cricket frog	<i>Acris gryllus</i>
Oak toad	<i>Anaxyrus quercicus</i>
Southern toad	<i>Anaxyrus terrestris</i>
Greenhouse treefrog	<i>Eleutherodactylus planirostris planirostris</i>
Eastern narrow-mouthed frog	<i>Gastrophryne carolinensis</i>
Green treefrog	<i>Hyla cinerea</i>
Pinewoods treefrog	<i>Hyla femoralis</i>
Squirrel treefrog	<i>Hyla squirrela</i>
Southern leopard frog	<i>Rana utriculata</i>
Eastern spadefoot toad	<i>Scaphiopus holbrookii</i>

Avian

Cooper's Hawk	<i>Accipiter cooperii</i>
Sharp-Shinned Hawk	<i>Accipiter striatus</i>
Red-Winged Blackbird	<i>Agelaius phoeniceus</i>
Chuck-Will's-Widow	<i>Antrostomus carolinensis</i>
Florida Scrub-Jay	<i>Aphelocoma coerulescens</i>
Ruby-Throated Hummingbird	<i>Archilochus colubris</i>
Great Blue Heron	<i>Ardea herodias</i>
Tufted Titmouse	<i>Baeolophus bicolor</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Great Horned Owl	<i>Bubo virginianus</i>
Red-Tailed Hawk	<i>Buteo jamaicensis</i>
Red Shouldered Hawk	<i>Buteo lineatus</i>
Northern Cardinal	<i>Cardinalis cardinalis</i>
Turkey Vulture	<i>Cathartes aura</i>
Hermit Thrush	<i>Catharus guttatus</i>
Chimney Swift	<i>Chaetura pelagica</i>
Northern Flicker	<i>Colaptes auratus</i>
Northern Bobwhite	<i>Colinus virginianus</i>
Common Ground Dove	<i>Columbina passerina</i>
Black Vulture	<i>Coragyps atratus</i>
Fish Crow	<i>Corvus ossifragus</i>
Blue Jay	<i>Cyanocitta cristata</i>
Pileated Woodpecker	<i>Dryocopus pileatus</i>
Gray Catbird	<i>Dumetella carolinensis</i>
Swallow-Tailed Kite	<i>Elanoides forficatus</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Sandhill Crane	<i>Grus canadensis pratensis</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>

Orange-Crowned Warbler	<i>Leiothlypis celata</i>
Eastern Screech Owl	<i>Megascops asio</i>
Red-Bellied Woodpecker	<i>Melanerpes carolinus</i>
Wild Turkey	<i>Meleagris gallopavo</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
Black-and-White Warbler	<i>Mniotilta varia</i>
Brown-Headed Cowbird	<i>Molothrus ater</i>
Great Crested Flycatcher	<i>Myiarchus crinitus</i>
Osprey	<i>Pandion haliaetus</i>
Louisiana Waterthrush	<i>Parkesia motacilla</i>
Painted Bunting	<i>Passerina ciris</i>
Indigo Bunting	<i>Passerina cyanea</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Eastern Towhee	<i>Pipilo erythrophthalmus</i>
Summer Tanager	<i>Piranga rubra</i>
Blue-Gray Gnatcatcher	<i>Poliophtila caerulea</i>
Common Grackle	<i>Quiscalus quiscula</i>
Ruby-Crowned Kinglet	<i>Regulus calendula</i>
Eastern Phoebe	<i>Sayornis phoebe</i>
Northern Parula	<i>Setophaga americana</i>
Yellow-Rumped Warbler	<i>Setophaga coronata</i>
Yellow-Throated Warbler	<i>Setophaga dominica</i>
Pine Warbler	<i>Setophaga pinus</i>
American Redstart	<i>Setophaga ruticilla</i>
Yellow-Bellied Sapsucker	<i>Sphyrapicus varius</i>
American Goldfinch	<i>Spinus tristis</i>
Chipping Sparrow	<i>Spizella passerina</i>
Barred Owl	<i>Strix varia</i>
European Starling	<i>Sturnus vulgaris</i>

Tree Swallow	<i>Tachycineta bicolor</i>
Carolina Wren	<i>Thryothorus ludovicianus</i>
Brown Thrasher	<i>Toxostoma rufum</i>
Greater Yellowlegs	<i>Tringa melanoleuca</i>
House Wren	<i>Troglodytes aedon</i>
American Robin	<i>Turdus migratorius</i>
Barn Owl	<i>Tyto alba</i>
Yellow-Throated Vireo	<i>Vireo flavifrons</i>
White-Eyed Vireo	<i>Vireo griseus</i>
Red-Eyed Vireo	<i>Vireo olivaceus</i>
Blue-Headed Vireo	<i>Vireo solitarius</i>
Mourning Dove	<i>Zenaida macroura</i>

Lepidoptera

Gulf fritillary	<i>Agraulis vanillae</i>
White peacock	<i>Anartia jatrophae</i>
Great southern white	<i>Ascia monuste</i>
Red-banded hairstreak	<i>Calycopis cecrops</i>
Southern dogface	<i>Colias cesonia</i>
Queen	<i>Danaus gilippus</i>
Monarch	<i>Danaus plexippus</i>
Silver-spotted skipper	<i>Epargyreus clarus</i>
Horace's dustywing	<i>Erynnis horatius</i>
Zebra longwing	<i>Heliconius charithonia</i>
Carolina satyr	<i>Hermeuptychia sosybius</i>
Fiery skipper	<i>Hylephila phyleus</i>
Common buckeye	<i>Junonia coenia</i>
Cassius blue	<i>Leptotes cassius</i>
Clouded skipper	<i>Lerema accius</i>

Viceroy	<i>Limenitis archippus</i>
Giant swallowtail	<i>Papilio cresphontes</i>
Tiger swallowtail	<i>Papilio glaucus</i>
Palamedes swallowtail	<i>Papilio palamedes</i>
Cloudless sulphur	<i>Phoebis sennae</i>
Long-tailed skipper	<i>Urbanus proteus</i>
Red admiral	<i>Vanessa atalanta</i>

Mammalia

Nine-banded armadillo	<i>Dasypus novemcinctus</i>
Opossum	<i>Didelphis marsupialis</i>
Southern flying squirrel	<i>Glaucomys volans</i>
Bobcat	<i>Lynx rufus</i>
White-tailed deer	<i>Odocoileus virginianus</i>
Raccoon	<i>Procyon lotor</i>
Eastern gray squirrel	<i>Sciurus carolinensis</i>
Wild boar	<i>Sus scrofa</i>
Eastern cottontail rabbit	<i>Sylvilagus floridanus</i>
Marsh rabbit	<i>Sylvilagus palustris</i>
Gray fox	<i>Urocyon cinereoargenteus</i>

Reptilia

American Alligator	<i>Alligator mississippiensis</i>
Green anole	<i>Anolis carolinensis</i>
Brown anole	<i>Anolis sagrei</i>
Six-lined racerunner	<i>Aspidoscelis sexlineata</i>
Southern black racer	<i>Coluber constrictor priapus</i>
Ringneck snake	<i>Diadophis punctatus punctatus</i>
Eastern indigo snake	<i>Drymarchon couperi</i>

Gopher tortoise	<i>Gopherus polyphemus</i>
Scarlet kingsnake	<i>Lampropeltis elapsoides</i>
Eastern coachwhip	<i>Masticophis flagellum flagellum</i>
Coral snake	<i>Micrurus fulvius</i>
Rough green snake	<i>Opheodrys aestivus carinatus</i>
Rough green tree snake	<i>Opheodrys aestivus carinatus</i>
Yellow rat snake	<i>Pantherophis alleghaniensis</i>
Red rat snake	<i>Pantherophis guttatus</i>
Southeastern five-lined skink	<i>Plestiodon inexpectatus</i>
Broad-head skink	<i>Plestiodon laticeps</i>
Scrub lizard	<i>Sceloporus woodi</i>
Ground skink	<i>Scinellis laterale</i>
Florida box turtle	<i>Terrapene carolina bauri</i>
Peninsula ribbon snake	<i>Thamnophis sauritus sackeni</i>

Appendix I: Arthropod Control Plan



CHARLES H. BRONSON
COMMISSIONER

Florida Department of Agriculture and Consumer Services
Division of Agricultural Environmental Services

ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS

Chapters 388.4111, F.S. and 5E-13.042(4)(b), F.A.C.
Telephone: (850) 922-7011

For use in documenting an Arthropod control plan for lands designated by the State of Florida or any political subdivision thereof as being environmentally sensitive and biologically highly productive therein.

Name of Designated Land: Brevard County EELS Program – Sites include the following impoundments: From C-2 North, C-2 South, C-2A, Jefferson Marsh area, Crystal Lakes area, to Honest Johns Area.

Specific sites include:

- | | |
|-----------------------------|-------------------------------------|
| 1. Ocean Ridge Sanctuary | 15. Grant Flatwoods |
| 2. Coconut Point | 16. Indian Mound |
| 3. Hog Point Cove | 17. Indian River Sanctuary |
| 4. Washburn Cove | 18. Johnson (Hall Road) |
| 5. Maritime Hammock area | 19. Jordan Scrub Sanctuary |
| 6. Barrier Island Sanctuary | 20. Kabboord |
| 7. Hardwood Hammock | 21. Kings Park |
| 8. 1000 Islands | 22. Malabar Scrub Sanctuary |
| 9. Capron Ridge area | 23. Micco Scrub Sanctuary |
| 10. Crane Creek | 24. North Buck Lake Scrub Sanctuary |
| 11. Cruickshank | 25. Pine Island Conservation Area |
| 12. Dicerandra Scrub | 26. Scottsmoor Flatwoods Sanctuary |
| 13. Enchanted Forest | 27. Southlake Conservation Area |
| 14. Fox Lake | 28. Sykes Creek |

Is Control Work Necessary: Yes No

Location: Brevard County Florida

Land Management Agency: Environmentally Endangered Lands Program
Mike Knight, Program Manager
91 East Drive
Melbourne, FL 32904

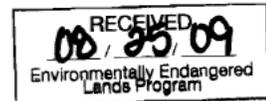
Are Arthropod Surveillance Activities Necessary? Yes No

If "Yes", please explain:

According to the Florida Administrative Code 5E-13 surveillance shall be conducted to determine the species and numbers of both pestiferous and disease bearing arthropods. Our surveillance program provides information as to species and amounts of mosquitoes which may require larviciding.

DACS-13668 07/08

- 1 -



Which Surveillance Techniques Are Proposed?
Please Check All That Apply:

- Landing Rate Counts Light Traps Sentinel Chickens
 Citizen Complaints Larval Dips Other

If "Other", please explain:

Arthropod Species for Which Control is Proposed: *Aedes taeniorhynchus*
Aedes sollicitans
Culex nigripalpus (ground treatment only)
Culex salinarius

Proposed Larval Control:

- Number of dips per site: 3+ per location at specific site.
Proposed larval monitoring procedure: When 10% or more of the dips are positive for mosquito larvae, control action will typically be taken
Are post treatment counts being obtained: Yes No

Biological Control of Larvae:

- Might predacious fish be stocked: Yes No
Other biological controls that might be used:

Material to be Used for Larviciding Applications:

(Please Check All That Apply:)

- Bti (*Bacillus thuringiensis israeliensis*)
 Bs (*Bacillus sphaericus*)
 Methoprene
 Non-Petroleum Surface Film
 Other, please specify:

DACS-13668 07/08

- 2 -

Please specify the following for each larvacide:

Chemical or Common name: BTI (=VectoBac)
Bs (= Vectolex)

Ground Aerial

Rate of application: 12 lb-18lb/acre = VectoBac

Method of application: liquid by hand or granular by air.

Proposed Adult Mosquito Control:

Aerial adulticiding Yes No

Ground adulticiding Yes No

Please specify the following for each adulticide: N/A

Chemical or common name: Dibrom/ Permethrin

Rate of application: 0.6 oz/acre (Dibrom), 0.5 oz/acre (Permethrin)

Method of application: Ultra low volume

Adult mosquito control will be conducted only if requested, or if populations are above background.

Proposed Modifications for Public Health Emergency Control:

BMCD may request special exception to this plan during a threat to public or animal health declared by State Health Officer or Commissioner of Agriculture.

Proposed Notification Procedure for Control Activities: Approval of this plan is intended as notification.

Records:

Are records being kept in accordance with Chapter 388, F.S.:

Yes No

Records Location: In District office Titusville.

How long are records maintained: 5+ Years

Vegetation Modification: Yes No

What trimming or altering of vegetation to conduct surveillance or treatment is proposed?

Minor trail trimming for surveillance and for ground larviciding will be done as needed.

Some herbiciding with AquaStar, Reward or Rodeo for control of exotic vegetation will be carried out only as needed.

Proposed Land Modifications: Yes No

Is any land modification, *i.e.*, rotary ditching, proposed: Yes No

Include proposed operational schedules for water fluctuations: Impoundments managed under RIM program (Rotational Impoundment Management), controlling water levels in impoundments from June-Oct. (sometimes as early as May), depending on water level in Indian River Lagoon system. Impoundments open to the lagoon during other months of year.

List any periodic restrictions, as applicable, for example peak fish spawning times: NA

Proposed Modification of Aquatic Vegetation: Yes No

Land Manager Comments:

Arthropod Control Agency Comments:

Signature of Lands Manager or Representative Date

 8/12/09

Signature of Mosquito Control Department Director Date

 8/12/09

Signature of Mosquito Control District Director Date

Appendix J: Florida Natural Areas Inventory



1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
850-224-8207
fax 850-681-9364
www.fnai.org

February 14, 2014

Michael Wielenga
Brevard County Environmentally Endangered Lands
444 Columbia Blvd
Titusville, FL 32780

Dear Mr. Wielenga,

Thank you for requesting information from the Florida Natural Areas Inventory (FNAI). We have compiled the following information for your project area.

Project: Enchanted Forest Sanctuary
Date Received: 2/12/2014
Location: Brevard County

Based on the information available, this site appears to be located on or very near a significant region of scrub habitat, a natural community in decline that provides important habitat for several rare species within a small area. Additional consideration should be given to avoid and/or mitigate impacts to these natural resources, and to design land uses that are compatible with these resources.

Element Occurrences

A search of our maps and database indicates that we currently have several element occurrences mapped in the vicinity of the study area (see enclosed map and element occurrence table). Please be advised that a lack of element occurrences in the FNAI database is not a sufficient indication of the absence of rare or endangered species on a site.

Federally Listed Species

Our data indicate federally listed species, particularly *Aphelocoma coerulescens* (Florida scrub-jay), have been present on or very near this site (see enclosed map and tables for details). This statement should not be interpreted as a legal determination of presence or absence of federally listed species on a property.

The element occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates that some element occurrences occur in the general vicinity of the label point. This may be due to lack of precision of the source data, or an element that occurs over an extended area (such as a wide ranging species or large natural community). For animals and plants, element occurrences generally refer to more than a casual sighting; they usually indicate a viable population of the species. Note that some element occurrences represent historically documented observations which may no longer be extant. Extirpated element occurrences will be marked with an 'X' following the occurrence label on the enclosed map.

*Several of the species and natural communities tracked by the Inventory are considered **data sensitive**. Occurrence records for these elements contain information that we consider sensitive due to collection pressures, extreme rarity, or at the request of the source of the information. The Element Occurrence Record has been labeled "Data Sensitive." We request that you not publish or release specific locational*



Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

Tracking Florida's Biodiversity

data about these species or communities without consent from the Inventory. If you have any questions concerning this please do not hesitate to call.

Likely and Potential Rare Species

In addition to documented occurrences, other rare species and natural communities may be identified on or near the site based on habitat models and species range models (see enclosed Biodiversity Matrix Report). These species should be taken into consideration in field surveys, land management, and impact avoidance and mitigation.

FNAI habitat models indicate areas, which based on land cover type, offer suitable habitat for one or more rare species that is known to occur in the vicinity. Habitat models have been developed for approximately 300 of the rarest species tracked by the Inventory, including all federally listed species.

FNAI species range models indicate areas that are within the known or predicted range of a species, based on climate variables, soils, vegetation, and/or slope. Species range models have been developed for approximately 340 species, including all federally listed species.

The FNAI Biodiversity Matrix Geodatabase compiles Documented, Likely, and Potential species and natural communities for each square mile Matrix Unit statewide.

Florida Scrub-jay Survey – U.S. Fish and Wildlife Service

This survey was conducted by staff and associates of the Archbold Biological Station from 1992 to 1996. An attempt was made to record all scrub-jay (*Aphelocoma coerulescens*) groups, although most federal lands were not officially surveyed. Each map point represents one or more groups.

This data layer indicates that there are potential scrub-jay populations on or very near your site. For additional information:

Fitzpatrick, J.W., B. Pranty, and B. Stith, 1994, Florida scrub jay statewide map, 1992-1993. U. S. Fish and Wildlife Service Report, Cooperative Agreement no. 14-16-004-91-950.

Land Acquisition Projects

This site appears to be located within the Brevard Coastal Scrub Ecosystem Florida Forever BOT Project – Titusville Wellfield, which is part of the State of Florida's Conservation and Recreation Lands land acquisition program. A description of this project is enclosed. For more information on this Florida Forever Project, contact the Florida Department of Environmental Protection, Division of State Lands.

Florida Forever Board of Trustees (BOT) projects are proposed and acquired through the Florida Department of Environmental Protection, Division of State Lands. The state has no specific land management authority over these lands until they are purchased.

The Inventory always recommends that professionals familiar with Florida's flora and fauna conduct a site-specific survey to determine the current presence or absence of rare, threatened, or endangered species.

Please visit www.fnai.org/trackinglist.cfm for county or statewide element occurrence distributions and links to more element information.

The database maintained by the Florida Natural Areas Inventory is the single most comprehensive source of information available on the locations of rare species and other significant ecological resources. However, the data are not always based on comprehensive or site-specific field surveys. Therefore this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. Inventory data are

designed for the purposes of conservation planning and scientific research, and are not intended for use as the primary criteria for regulatory decisions.

Information provided by this database may not be published without prior written notification to the Florida Natural Areas Inventory, and the Inventory must be credited as an information source in these publications. FNAI data may not be resold for profit.

This report is made available at no charge due to funding from the Florida Department of Environmental Protection, Division of State Lands.

Thank you for your use of FNAI services. If I can be of further assistance, please contact me at (850) 224-8207 or at npasco@fnai.org.

Sincerely,

Nathan Pasco

Nathan Pasco
GIS / Data Services

Encl



1018 Thomasville Road
 Suite 200-C
 Tallahassee, FL 32303
 (850) 224-8207
 (850) 681-9364 Fax
 www.fnai.org

FLORIDA
 Natural Areas
 INVENTORY

Element Occurrences

- Animals
- Plants
- Communities
- Other
- Data Sensitive

Point Indicates General
 Vicinity of Element

U.S. Fish & Wildlife Service
 Scrub Jay Survey 1992-96

Conservation Lands

- Federal
- State
- Local
- Private
- State Aquatic Preserves

Land Acquisition Projects

- Florida Forever
- Board of Trustees Projects
- FNAI Rare Species Habitat
- FNAI Biodiversity Matrix Square Mile Units

- County Boundary
- Interstate
- Turnpike
- Major Highway
- Local Road
- Railroad [Inactive railroads shown in Gray]
- Water

NOTE
 Map should not be interpreted without
 accompanying documents.

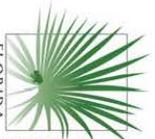
Enchanted Forest Sanctuary

Site boundaries are approximate.

Brevard County



Map produced by NDP
 2/14/2014



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FLORIDA
Natural Areas
INVENTORY

Florida Natural Areas Inventory
DOCUMENTED ELEMENT OCCURRENCES ON OR NEAR
Enchanted Forest Sanctuary



Map Label	Scientific Name	Common Name	Global State Federal State Observation			Date	Description	EO Comments	
			Rank	Rank	Status Listing				
APHECOER*32	<i>Aphelocoma coerulescens</i>	Florida Scrub-Jay	G2	S2	LT	FT	1991-04-26	OAK SCRUB	1981-07-25: 2 SCRUB JAYS (U81COXX01); 1991-04-26: 1 ADULT SCRUB JAY REPORTED (U91SN001); SNODGRASS ET AL. ESTIMATED RECORDS 2, 4, 32, 33, AND 36 TO CONSTITUTE A LARGE POPULATION OF >30 FAMILY GROUPS DURING A 1991 INVENTORY.
APHECOER*33	<i>Aphelocoma coerulescens</i>	Florida Scrub-Jay	G2	S2	LT	FT	1991-08-06	OAK SCRUB AND SANDPINE SCRUB WITH SCATTERED SNAGS & SLASH PINE.	1981-07-26: 4 SCRUB JAYS; 1989-11-15: 3 ADULTS; 1989-12-19: 1 SCRUB JAY; 1991-01-07: 1 SCRUB JAY; 1991-08-06: 2 ADULTS; 1991-08-06: 2 ADULTS (U91SN001); SNODGRASS ET AL. ESTIMATED THESE RECORDS TO CONSTITUTE A MEDIUM POPULATION OF 6-30 FAMILY GROUPS DURING A 1991 INVENTORY.
APHECOER*33	<i>Aphelocoma coerulescens</i>	Florida Scrub-Jay	G2	S2	LT	FT	1991-08-20	Oak Scrub/Sand Pine Scrub/Scrubby Flatwoods.	1989-10-01: Three Scrub jays reported; 1991-07-20: one adult reported (U91SN001); Snodgrass et al. estimated record(s) (2, 4, 32, 33, 36) to constitute a large population of > 30 family groups during a 1991 inventory.
APHECOER*436	<i>Aphelocoma coerulescens</i>	Florida Scrub-Jay	G2	S2	LT	FT	1991-07-20	OAK SCRUB/SAND PINE SCRUB/SCRUBBY FLATWOODS.	1989-11-28: 8 ADULTS REPORTED; 1990-02-01: 10 SCRUB JAYS REPORTED; 1991-04-26: 3 ADULTS AND 3 JUVENILES REPORTED; 1991-07-20: 3 ADULTS AND ONE JUVENILE REPORT (U91SN001); SNODGRASS ET AL. ESTIMATED RECORD(S) (2, 4, 32, 33, 36) TO CONSTITUTE A LARGE POPULATION OF >30 FAMILY GROUPS DURING A 1991 INVENTORY.
CHAMQUIN*30	<i>Chamaesyce curvilicola</i>	Sand-dune Spurge	G2	S2	N	LE	2004-10-14	2004-10-14: Primarily in sandy substrate under an open canopy, some locations subject to disturbance from adjacent trail (U05SCH03FLUS).	2004-10-14: 1,092 plants throughout large area at 9 discrete locations, mostly healthy and fruiting, some stressed and vegetative especially in closed canopy areas. For detailed data at each location see Source Observation Tab (U05SCH03FLUS).
CONRIGRAN*27	<i>Conradina grandiflora</i>	Large-flowered Rosemary	G3	S3	N	LT	1987	SAND PINE SCRUB (SITE OF PRESUMPTIVE NEW SP. OF DICERANDRA).	No EO data given

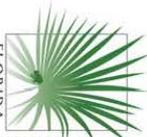


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Florida Natural Areas Inventory
DOCUMENTED ELEMENT OCCURRENCES ON OR NEAR
Enchanted Forest Sanctuary



Map Label	Scientific Name	Common Name	Global State Rank	Federal Rank	State Rank	Observation Date	Description	EO Comments
DENNBPI*2	<i>Dennstaedtia bipinnata</i>	Hay Scented Fern	G4	S1	N	LE	1992-06	92-06-00: Occurrence on site (U92HIL01)
DEPRMARS*28	Depression marsh		G4	S4	N	N	2004	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS), LITTLE DISTURBANCE: GOOD QUALITY, WITH SAND CORDGRASS AND BUSHY BLUESTEM AT THE PERIPHERY AND MIXED YELLOW BACHELORS BUTTONS.
DICETHIN*12_0	<i>Dicoeandra thimicola</i>	Titusville Balm	G1Q	S1	N	LE	2009-02-11	This is a parent EO for four sub-EOs (#s 2, 9, 10, and 11). Refer to individual sub-EOs for detailed information.
DICETHIN*12_10	<i>Dicoeandra thimicola</i>	Titusville Balm	G1Q	S1	N	LE	2003	2003: Plants occur in sunny areas and under some Quercus/Carya along most of this easement. The powerline easement was initially cleared before 1943, possibly as a small road or survey line, and was widened by 1951. Patches of Paspalum notatum
DICETHIN*12_11	<i>Dicoeandra thimicola</i>	Titusville Balm	G1Q	S1	N	LE	2003	2003: Two colonies occur along the edge of Bama, a third in the interior in a small canopy gap in Pinus clausa scrub. A fourth colony occurs just south of Wuesthoff Park, southeast of the intersection of Worth Ave and Kansas St. (U03BRA02FLUS).
DICETHIN*12_9	<i>Dicoeandra thimicola</i>	Titusville Balm	G1Q	S1	N	LE	2003	2003: Soils: Astatula fine sand, dark surface (U03BRA02FLUS).
DRYMOCOUP*293	<i>Drymonchon couperi</i>	Eastern Indigo Snake	G3	S3	LT	FT	1981-02-18	No general description given



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DS*12824	Data Sensitive Element	Data Sensitive	G1Q S1 N	2009-02-11	Data Sensitive	Data Sensitive
GLANTAMP*21	<i>Glandularia tamperensis</i>	Tampa Yervain	G2 S2 N	1990-04-00	XERIC HAMMOCK WITH CANOPY OF QUERCUS VIRGINIANA, ULMUS AMERICANA.	<20 PLANTS SEEN, FEW FLOWERING.
GOHPQLY*1349	<i>Gopherus polyphemus</i>	Gopher Tortoise	G3 S3 C	2009-02-11	2009-02-11: ruderal area/clearing for new residential subdivision adjacent to forested managed area owned by County (U09DJA01FLUS).	2009-02-11: Observed two tortoises moving through ruderal area/clearing for new residential subdivision (U09DJA01FLUS).
HALLEUC*1708	<i>Haliaeetus leucoccephalus</i>	Bald Eagle	G5 S3 N	2009-02-11	2009-02-11: Observed two birds communiting/resting at edge of clearing for new residential subdivision/mesic flatwoods (PNDMCA02FLUS).	2009-02-11: Observed two birds communiting/resting at edge of clearing for new residential subdivision/mesic flatwoods (PNDMCA02FLUS).
HAROSARA*12	<i>Haroldiaferrius samarri</i>	Sand Pine Scrub Ateanius Beetle	G3G4 S3S4 N	2001-05-16	2001-05-16: No description given (N05LAM01FLUS).	2001-05-16: One specimen was collected (N05LAM01FLUS).
HYDRHAM*25	Hydric hammock		G4 S4 N	2004	THIS IS AN EXTENSIVE AREA OF HIGH QUALITY HYDRIC HAMMOCK BORDERING SAND PINE SCRUB, AS WELL AS THE VARIED FLATWOODS AND DEPRESSION MARSHES.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-16) (U05FN402FLUS). WELL DEVELOPED WITH A TALL (60') CANOPY DOMINATED BY DIAMOND LEAF OAK, WATER OAK, AMERICAN ELM, CABBAGE PALM, BLACK GUM, HACKB
LANIFLORP33	<i>Lantana depressa</i> var. <i>fordana</i>	Atlantic Coast Florida Lantana	G2T1 S1 N	2005-05-17	2005-05-17: Near trail in disturbed scrub along the ridge and in openings in hammock vegetation, the population is threatened by <i>Lantana canara</i> in the area (U05SCH03FLUS).	2005-05-17: Approximately 46 plants flowering at four discrete locations. For details at each location see Source Observation Tab (U05SCH03FLUS).
LECHDMA*22	<i>Lechea divaricata</i>	Pine Pinweed	G2 S2 N	2004-10-18	2004-10-18: Near a powerline, open canopy with 0.5 cm of litter (U05SCH03FLUS).	2004-10-18: Three healthy plants, fruiting (U05SCH03FLUS).
LECHDMA*23	<i>Lechea divaricata</i>	Pine Pinweed	G2 S2 N	2004-11-16	2004-11-16: In open sand with scattered to 0.5 cm thick oak and grass litter (U05SCH03FLUS).	2004-11-16: Thirteen plants, vegetative (U05SCH03FLUS).



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LECHDMA24	<i>Lechea divaricata</i>	Pine Pinweed	G2	S2	N	LE	2004-10-13 2004-10-13: In two areas, one with an open canopy on bare sand and one with a closed canopy on leaf litter. Light disturbance from an adjacent trail present. (U05SCH03FLUS)	2004-10-13: 26 plants, some fruiting and some vegetative (U05SCH03FLUS).
MESFLATT5	Mesic flatwoods		G4	S4	N	N	2004 MESIC FLATWOODS GRADING INTO DEPRESSION MARSH, HYDRIC HAMMOCK AND XERIC HAMMOCK.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). GOOD TO HIGH QUALITY BUT APPEARS TO HAVE SUFFERED A CATASTROPHIC FIRE CA 10-12 YEARS AGO. 6-8 FT. DENSE UNDERSTORY OF SERENOA
MESHAMM38	Mesic hammock		G3	S3?	N	N	2004 XERIC HAMMOCK THAT GRADES INTO FLATWOODS, HYDRIC HAMMOCK AND OAK SCRUB.	2010: Prior to the 2010 natural community reclassification effort this EO had been known as Xeric hammock EO number 38 (see U10FNA01FLUS for updated community descriptions). 2004: Update to last obs date was based on interpretation of aerial photography
MESHAMM54	Mesic hammock		G3	S3?	N	N	2004 MARSHY OPENINGS ON PARTS OF SITE - ON DRIER PARTS IS TEMPERATE LIVE OAK HAMMOCK AND HARDWOOD SWAMP EXTENDING TO R.R.	2010: Prior to the 2010 natural community reclassification effort this EO had been known as Maritime hammock EO number 54 (see U10FNA01FLUS for updated community descriptions). 2004: Update to last obs date was based on interpretation of aerial photograph
OPHPALUM18	<i>Ophioglossum palmatum</i>	Hand Fern	G4	S2	N	LE	1985-11-30 OCCURS IN OAK HAMMOCK WITH TROPICAL UNDERSTORY	No EO data given
PTERECR116	<i>Pteroglossaspis ecrinata</i>	Giant Orchid	G2G3	S2	N	LT	1992-06 Scrubby flatwoods in association with mesic flatwoods and oak-dominated scrub.	92-06-00: Occurrence on site (U92HIL01)
SCELWOOD*231	<i>Sceloporus woodi</i>	Florida Scrub Lizard	G3	S3	N	N	1993-07-20 RELATIVELY SMALL TRACT OF SAND PINE SCRUB WITH FAIRLY LARGE SAND PINES.	1993-07-20: P. MOLIER OBSERVED ON ADULT AND ONE JUVENILE IN ROADCUT IN STEEP SAND BANK.
SCELWOOD*235	<i>Sceloporus woodi</i>	Florida Scrub Lizard	G3	S3	N	N	1986-11-11 Coastal scrub	1986-11-11: K.E. Engle, GFC - See Engle et al (1986; Coop Unit Tech Rep No 26).
SCELWOOD*236	<i>Sceloporus woodi</i>	Florida Scrub Lizard	G3	S3	N	N	1986-05-14 Coastal scrub	1986-05-14: K.E. Engle, GFC - See Engle et al (1986; Coop Unit Tech Rep No 26).



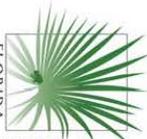
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			Rank	Rank	Status Listing				
SCRUB***734	Scrub		G2	S2	N	N	2004	SAND PINE SCRUB ON PAOLA FINE SAND ON OLD DUNE SYSTEM; SCRUB COVER IS NOT THICK BUT LITTER IS ABUNDANT UNDERSTORY CONSISTS OF OAKS AND SAW PALMETTO (U88CHR01). NUMEROUS SAND PINE SEEDLINGS, GROUND LITTER ABUNDANT. HABITAT APPEARED SUITABLE FOR CONRADINA.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1983-09-01) (U05FNA02FLUS). FAIRLY DENSE SAND PINE WITH ABOUT 75% CANOPY COVER.
SCRUB***761	Scrub		G2	S2	N	N	2004	XERIC OAK-DOMINATED SCRUB.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). THE LOW (15-20') CANOPY IS COMPOSED OF A DENSE GROWTH OF VARIOUS SCRUB OAKS, INCLUDING QUERCUS MYRTIFOLIA, Q. GEMINATA, AND Q.
SCRUB***762	Scrub		G2	S2	N	N	2004	XERIC OAK-DOMINATED SCRUB.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). THE LOW (15-20') CANOPY IS COMPOSED OF A DENSE GROWTH OF VARIOUS SCRUB OAKS, INCLUDING QUERCUS MYRTIFOLIA, Q. GEMINATA, AND Q.
SCRUB***763	Scrub		G2	S2	N	N	2004	XERIC OAK-DOMINATED SCRUB.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). THE LOW (15-20') CANOPY IS COMPOSED OF A DENSE GROWTH OF VARIOUS SCRUB OAKS, INCLUDING QUERCUS MYRTIFOLIA, Q. GEMINATA, AND Q.
SCRUB***780	Scrub		G2	S2	N	N	2004	Oak Scrub/Sand Pine Scrub.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). Ca. 60% Oak Scrub and 40% Sand Pine Scrub.



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			Rank	Rank	Status Listing				
SCRUB***794	Scrub		G-2	S2	N	N	2004	No general description given	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). CA, 60% SAND PINE SCRUB AND 40% OAK SCRUB.
SCRUB***795	Scrub		G-2	S2	N	N	2004	OAK SCRUB.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). EO PRESENT ON SITE.
SCRUB***796	Scrub		G-2	S2	N	N	2004	SAND PINE SCRUB.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). EO PRESENT ON SITE.
SCRUB***797	Scrub		G-2	S2	N	N	2004	SAND PINE SCRUB.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). EO PRESENT ON SITE.
SCRUBFLAT52	Scrubby flatwoods		G-2	S2?	N	N	2004	SCRUBBY FLATWOODS IN ASSOCIATION WITH MESIC FLATWOODS AND OAK-DOMINATED SCRUB.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). SPARSE CANOPY OF SLASH PINE, THICK SAWPALMETTO WITH A SIGNIFICANT PRESENCE OF SCRUB OAKS, RUSTY LYONIA AND TARFLOWER, WIREGRA
SCRUBFLAT53	Scrubby flatwoods		G-2	S2?	N	N	2004	SCRUBBY FLATWOODS IN ASSOCIATION WITH MESIC FLATWOODS AND OAK-DOMINATED SCRUB.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). FENAI note: this eo has same data as eo 052] SPARSE CANOPY OF SLASH PINE, THICK SAW PALMETTO WITH A SIGNIFICANT PRESENCE OF SCR



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SCRUFAT54	Scrubby flatwoods		G2	S2?	N N	2004	SCRUBBY FLATWOODS IN ASSOCIATION WITH MESIC FLATWOODS AND OAK-DOMINATED SCRUB	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FN/A02FLUS). [FNAI note: this eo has same data as eo 052] SPARSE CANOPY OF SLASH PINE, THICK SAW PALMETTO WITH A SIGNIFICANT PRESENCE OF SCR



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Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 58481					
Likely					
<i>Aphelocoma coerulescens</i>	Florida Scrub-Jay	G2	S2	LT	FT
<i>Chamaesyce cumulicola</i>	Sand-dune Spurge	G2	S2	N	LE
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3	S3	LT	FT
<i>Glandularia tampensis</i>	Tampa Vervain	G2	S2	N	LE
<i>Grus canadensis pratensis</i>	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Mesic hammock		G3	S3?	N	N
<i>Mycteria americana</i>	Wood Stork	G4	S2	LE	FE
Scrub		G2	S2	N	N
Scrubby flatwoods		G2	S2?	N	N
Potential					
<i>Athene cunicularia floridana</i>	Florida Burrowing Owl	G4T3	S3	N	SSC
<i>Calamovilfa curtissii</i>	Curtiss' Sandgrass	G3	S3	N	LT
<i>Calopogon multiflorus</i>	Many-flowered Grass-pink	G2G3	S2S3	N	LE
<i>Centrosema arenicola</i>	Sand Butterfly Pea	G2Q	S2	N	LE
<i>Conradina brevifolia</i>	Short-leaved Rosemary	G2Q	S2	LE	LE
<i>Conradina grandiflora</i>	Large-flowered Rosemary	G3	S3	N	LT
<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	G3G4	S2	N	N
<i>Deeringothamnus pulchellus</i>	Beautiful Pawpaw	G1	S1	LE	LE
<i>Dicerandra thincicola</i>	Titusville Balm	G1Q	S1	N	LE
<i>Glandularia maritima</i>	Coastal Vervain	G3	S3	N	LE
<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	C	ST
<i>Heterodon simus</i>	Southern Hognose Snake	G2	S2	N	N
<i>Lechea cernua</i>	Nodding Pinweed	G3	S3	N	LT
<i>Lechea divaricata</i>	Pine Pinweed	G2	S2	N	LE
<i>Mustela frenata peninsulæ</i>	Florida Long-tailed Weasel	G5T3	S3	N	N
<i>Nemastylis floridana</i>	Celestial Lily	G2	S2	N	LE
<i>Nolina atopocarpa</i>	Florida Beargrass	G3	S3	N	LT
<i>Panicum abscissum</i>	Cutthroat Grass	G3	S3	N	LE
<i>Peucaea aestivalis</i>	Bachman's Sparrow	G3	S3	N	N
<i>Platanthera integra</i>	Yellow Fringeless Orchid	G3G4	S3	N	LE
<i>Pteroglossaspis ecrinata</i>	Giant Orchid	G2G3	S2	N	LT
<i>Rana capito</i>	Gopher Frog	G3	S3	N	SSC
<i>Sceloporus woodi</i>	Florida Scrub Lizard	G3	S3	N	N
<i>Warea carteri</i>	Carter's Warea	G3	S3	LE	LE
Matrix Unit ID: 58482					
Documented					
<i>Chamaesyce cumulicola</i>	Sand-dune Spurge	G2	S2	N	LE
<i>Lantana depressa var. floridana</i>	Atlantic Coast Florida Lantana	G2T1	S1	N	LE
<i>Lechea divaricata</i>	Pine Pinweed	G2	S2	N	LE
Scrub		G2	S2	N	N
Documented-Historic					
<i>Aphelocoma coerulescens</i>	Florida Scrub-Jay	G2	S2	LT	FT

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Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Likely					
<i>Conradina grandiflora</i>	Large-flowered Rosemary	G3	S3	N	LT
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3	S3	LT	FT
<i>Glandularia tampensis</i>	Tampa Vervain	G2	S2	N	LE
<i>Grus canadensis pratensis</i>	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Mesic flatwoods		G4	S4	N	N
<i>Mycteria americana</i>	Wood Stork	G4	S2	LE	FE
Potential					
<i>Athene cunicularia floridana</i>	Florida Burrowing Owl	G4T3	S3	N	SSC
<i>Calamovilfa curtissii</i>	Curtiss' Sandgrass	G3	S3	N	LT
<i>Calopogon multiflorus</i>	Many-flowered Grass-pink	G2G3	S2S3	N	LE
<i>Centrosema arenicola</i>	Sand Butterfly Pea	G2Q	S2	N	LE
<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	G3G4	S2	N	N
<i>Deeringothamnus pulchellus</i>	Beautiful Pawpaw	G1	S1	LE	LE
<i>Dicerandra thincicola</i>	Titusville Balm	G1Q	S1	N	LE
<i>Glandularia maritima</i>	Coastal Vervain	G3	S3	N	LE
<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	C	ST
<i>Heterodon simus</i>	Southern Hognose Snake	G2	S2	N	N
<i>Lechea cernua</i>	Nodding Pinweed	G3	S3	N	LT
<i>Mustela frenata peninsulæ</i>	Florida Long-tailed Weasel	G5T3	S3	N	N
<i>Nemastylis floridana</i>	Celestial Lily	G2	S2	N	LE
<i>Nolina atopocarpa</i>	Florida Beargrass	G3	S3	N	LT
<i>Panicum abscissum</i>	Cutthroat Grass	G3	S3	N	LE
<i>Peucaea aestivalis</i>	Bachman's Sparrow	G3	S3	N	N
<i>Platanthera integra</i>	Yellow Fringeless Orchid	G3G4	S3	N	LE
<i>Podomys floridanus</i>	Florida Mouse	G3	S3	N	SSC
<i>Pteroglossaspis ecrinata</i>	Giant Orchid	G2G3	S2	N	LT
<i>Rana capito</i>	Gopher Frog	G3	S3	N	SSC
<i>Sceloporus woodi</i>	Florida Scrub Lizard	G3	S3	N	N
<i>Sciurus niger shermani</i>	Sherman's Fox Squirrel	G5T3	S3	N	SSC
<i>Warea carteri</i>	Carter's Warea	G3	S3	LE	LE
Matrix Unit ID: 58483					
Documented					
<i>Lechea divaricata</i>	Pine Pinweed	G2	S2	N	LE
Likely					
<i>Aphelocoma coerulescens</i>	Florida Scrub-Jay	G2	S2	LT	FT
<i>Conradina grandiflora</i>	Large-flowered Rosemary	G3	S3	N	LT
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3	S3	LT	FT
<i>Mycteria americana</i>	Wood Stork	G4	S2	LE	FE
Scrub		G2	S2	N	N
Potential					
<i>Athene cunicularia floridana</i>	Florida Burrowing Owl	G4T3	S3	N	SSC
<i>Calamovilfa curtissii</i>	Curtiss' Sandgrass	G3	S3	N	LT
<i>Calopogon multiflorus</i>	Many-flowered Grass-pink	G2G3	S2S3	N	LE

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<i>Centrosema arenicola</i>	Sand Butterfly Pea	G2Q	S2	N	LE
<i>Chamaesyce cumulicola</i>	Sand-dune Spurge	G2	S2	N	LE
<i>Deeringothamnus pulchellus</i>	Beautiful Pawpaw	G1	S1	LE	LE
<i>Dicerandra thincicola</i>	Titusville Balm	G1Q	S1	N	LE
<i>Glandularia maritima</i>	Coastal Vervain	G3	S3	N	LE
<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	C	ST
<i>Grus canadensis pratensis</i>	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
<i>Heterodon simus</i>	Southern Hognose Snake	G2	S2	N	N
<i>Lechea cernua</i>	Nodding Pinweed	G3	S3	N	LT
<i>Mustela frenata peninsulæ</i>	Florida Long-tailed Weasel	G5T3	S3	N	N
<i>Nemastylis floridana</i>	Celestial Lily	G2	S2	N	LE
<i>Nolina atopocarpa</i>	Florida Beargrass	G3	S3	N	LT
<i>Panicum abscissum</i>	Cutthroat Grass	G3	S3	N	LE
<i>Peucaea aestivalis</i>	Bachman's Sparrow	G3	S3	N	N
<i>Platanthera integra</i>	Yellow Fringeless Orchid	G3G4	S3	N	LE
<i>Pteroglossaspis ecrinata</i>	Giant Orchid	G2G3	S2	N	LT
<i>Rana capito</i>	Gopher Frog	G3	S3	N	SSC
<i>Sceloporus woodi</i>	Florida Scrub Lizard	G3	S3	N	N
<i>Sciurus niger shermani</i>	Sherman's Fox Squirrel	G5T3	S3	N	SSC

Matrix Unit ID: 58781

Documented

<i>Lechea divaricata</i>	Pine Pinweed	G2	S2	N	LE
Mesic hammock		G3	S3?	N	N

Documented-Historic

<i>Ophioglossum palmatum</i>	Hand Fern	G4	S2	N	LE
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Likely

<i>Aphelocoma coerulescens</i>	Florida Scrub-Jay	G2	S2	LT	FT
<i>Chamaesyce cumulicola</i>	Sand-dune Spurge	G2	S2	N	LE
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3	S3	LT	FT
<i>Glandularia tampensis</i>	Tampa Vervain	G2	S2	N	LE
<i>Grus canadensis pratensis</i>	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Mesic flatwoods		G4	S4	N	N
<i>Mycteria americana</i>	Wood Stork	G4	S2	LE	FE
Scrub		G2	S2	N	N

Potential

<i>Athene cunicularia floridana</i>	Florida Burrowing Owl	G4T3	S3	N	SSC
<i>Calamovilfa curtissii</i>	Curtiss' Sandgrass	G3	S3	N	LT
<i>Calopogon multiflorus</i>	Many-flowered Grass-pink	G2G3	S2S3	N	LE
<i>Centrosema arenicola</i>	Sand Butterfly Pea	G2Q	S2	N	LE
<i>Conradina brevifolia</i>	Short-leaved Rosemary	G2Q	S2	LE	LE
<i>Conradina grandiflora</i>	Large-flowered Rosemary	G3	S3	N	LT
<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	G3G4	S2	N	N
<i>Deeringothamnus pulchellus</i>	Beautiful Pawpaw	G1	S1	LE	LE
<i>Dicerandra thincicola</i>	Titusville Balm	G1Q	S1	N	LE
<i>Glandularia maritima</i>	Coastal Vervain	G3	S3	N	LE

Definitions: Documented - Rare species and natural communities documented on or near this site.
 Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
 Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
 Potential - This site lies within the known or predicted range of the species listed.



1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
(850) 224-8207
(850) 681-9364 Fax

FLORIDA
Natural Areas
INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report



Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	C	ST
<i>Heterodon simus</i>	Southern Hognose Snake	G2	S2	N	N
<i>Lechea cernua</i>	Nodding Pinweed	G3	S3	N	LT
<i>Mustela frenata peninsulæ</i>	Florida Long-tailed Weasel	G5T3	S3	N	N
<i>Nemastylis floridana</i>	Celestial Lily	G2	S2	N	LE
<i>Nolina atopocarpa</i>	Florida Beargrass	G3	S3	N	LT
<i>Panicum abscissum</i>	Cutthroat Grass	G3	S3	N	LE
<i>Peucaea aestivalis</i>	Bachman's Sparrow	G3	S3	N	N
<i>Platanthera integra</i>	Yellow Fringeless Orchid	G3G4	S3	N	LE
<i>Pteroglossaspis ecrinata</i>	Giant Orchid	G2G3	S2	N	LT
<i>Rana capito</i>	Gopher Frog	G3	S3	N	SSC
<i>Sceloporus woodi</i>	Florida Scrub Lizard	G3	S3	N	N
<i>Warea carteri</i>	Carter's Warea	G3	S3	LE	LE

Matrix Unit ID: 58782

Documented

<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	C	ST
<i>Haliaeetus leucocephalus</i>	Bald Eagle	G5	S3	N	N
<i>Lantana depressa var. floridana</i>	Atlantic Coast Florida Lantana	G2T1	S1	N	LE

Likely

<i>Aphelocoma coerulescens</i>	Florida Scrub-Jay	G2	S2	LT	FT
<i>Chamaesyce cumulicola</i>	Sand-dune Spurge	G2	S2	N	LE
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3	S3	LT	FT
<i>Glandularia tampensis</i>	Tampa Vervain	G2	S2	N	LE
<i>Grus canadensis pratensis</i>	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Mesic flatwoods		G4	S4	N	N
<i>Mycteria americana</i>	Wood Stork	G4	S2	LE	FE
Scrub		G2	S2	N	N

Potential

<i>Acipenser oxyrinchus oxyrinchus</i>	Atlantic Sturgeon	G3T3	S1	PS:LE,LT	SSC
<i>Athene cunicularia floridana</i>	Florida Burrowing Owl	G4T3	S3	N	SSC
<i>Calamovilfa curtissii</i>	Curtiss' Sandgrass	G3	S3	N	LT
<i>Calopogon multiflorus</i>	Many-flowered Grass-pink	G2G3	S2S3	N	LE
<i>Centrosema arenicola</i>	Sand Butterfly Pea	G2Q	S2	N	LE
<i>Conradina grandiflora</i>	Large-flowered Rosemary	G3	S3	N	LT
<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	G3G4	S2	N	N
<i>Deeringothamnus pulchellus</i>	Beautiful Pawpaw	G1	S1	LE	LE
<i>Dicerandra thimicola</i>	Titusville Balm	G1Q	S1	N	LE
<i>Glandularia maritima</i>	Coastal Vervain	G3	S3	N	LE
<i>Heterodon simus</i>	Southern Hognose Snake	G2	S2	N	N
<i>Lechea cernua</i>	Nodding Pinweed	G3	S3	N	LT
<i>Lechea divaricata</i>	Pine Pinweed	G2	S2	N	LE
<i>Mustela frenata peninsulæ</i>	Florida Long-tailed Weasel	G5T3	S3	N	N
<i>Nemastylis floridana</i>	Celestial Lily	G2	S2	N	LE
<i>Nolina atopocarpa</i>	Florida Beargrass	G3	S3	N	LT
<i>Panicum abscissum</i>	Cutthroat Grass	G3	S3	N	LE
<i>Peucaea aestivalis</i>	Bachman's Sparrow	G3	S3	N	N

Definitions: Documented - Rare species and natural communities documented on or near this site.
 Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
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 Potential - This site lies within the known or predicted range of the species listed.

02/14/2014

Page 4 of 5



1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
(850) 224-8207
(850) 681-9364 Fax

Florida Natural Areas Inventory Biodiversity Matrix Report



Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
<i>Platanthera integra</i>	Yellow Fringeless Orchid	G3G4	S3	N	LE
<i>Podomys floridanus</i>	Florida Mouse	G3	S3	N	SSC
<i>Pteroglossaspis ecristata</i>	Giant Orchid	G2G3	S2	N	LT
<i>Rana capito</i>	Gopher Frog	G3	S3	N	SSC
<i>Sceloporus woodi</i>	Florida Scrub Lizard	G3	S3	N	N
<i>Sciurus niger shermani</i>	Sherman's Fox Squirrel	G5T3	S3	N	SSC
<i>Setophaga discolor paludicola</i>	Florida Prairie Warbler	G5T3	S3	N	N
<i>Trichechus manatus</i>	Manatee	G2	S2	LE	FE
<i>Warea carteri</i>	Carter's Warea	G3	S3	LE	LE

Matrix Unit ID: 58783

Documented

Lechea divaricata Pine Pinweed G2 S2 N LE

Likely

Drymarchon couperi Eastern Indigo Snake G3 S3 LT FT
Mesic flatwoods G4 S4 N N
Scrub G2 S2 N N

Potential

Acipenser oxyrinchus oxyrinchus Atlantic Sturgeon G3T3 S1 PS:LE,LT SSC
Aphelocoma coerulescens Florida Scrub-Jay G2 S2 LT FT
Athene cunicularia floridana Florida Burrowing Owl G4T3 S3 N SSC
Calamovilfa curtissii Curtiss' Sandgrass G3 S3 N LT
Calopogon multiflorus Many-flowered Grass-pink G2G3 S2S3 N LE
Centrosema arenicola Sand Butterfly Pea G2Q S2 N LE
Chamaesyce cumulicola Sand-dune Spurge G2 S2 N LE
Conradina grandiflora Large-flowered Rosemary G3 S3 N LT
Deeringothamnus pulchellus Beautiful Pawpaw G1 S1 LE LE
Dicerandra thincola Titusville Balm G1Q S1 N LE
Eretmochelys imbricata Hawksbill G3 S1 LE FE
Glandularia maritima Coastal Vervain G3 S3 N LE
Gopherus polyphemus Gopher Tortoise G3 S3 C ST
Grus canadensis pratensis Florida Sandhill Crane G5T2T3 S2S3 N ST
Heterodon simus Southern Hognose Snake G2 S2 N N
Lechea cernua Nodding Pinweed G3 S3 N LT
Mustela frenata peninsulæ Florida Long-tailed Weasel G5T3 S3 N N
Nemastylis floridana Celestial Lily G2 S2 N LE
Nolina atopocarpa Florida Beargrass G3 S3 N LT
Panicum abscissum Cutthroat Grass G3 S3 N LE
Peucaea aestivalis Bachman's Sparrow G3 S3 N N
Platanthera integra Yellow Fringeless Orchid G3G4 S3 N LE
Pteroglossaspis ecristata Giant Orchid G2G3 S2 N LT
Sceloporus woodi Florida Scrub Lizard G3 S3 N N
Sciurus niger shermani Sherman's Fox Squirrel G5T3 S3 N SSC
Setophaga discolor paludicola Florida Prairie Warbler G5T3 S3 N N
Trichechus manatus Manatee G2 S2 LE FE
Warea carteri Carter's Warea G3 S3 LE LE

Definitions: Documented - Rare species and natural communities documented on or near this site.
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

Elements and Element Occurrences

An **element** is any exemplary or rare component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature.

An **element occurrence (EO)** is an area of land and/or water in which a species or natural community is, or was, present. An EO should have practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location.

Element Ranking and Legal Status

Using a ranking system developed by NatureServe and the Natural Heritage Program Network, the Florida Natural Areas Inventory assigns two ranks for each element. The global rank is based on an element's worldwide status; the state rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of Element Occurrences (EOs), estimated abundance (number of individuals for species; area for natural communities), geographic range, estimated number of adequately protected EOs, relative threat of destruction, and ecological fragility.

FNAI GLOBAL ELEMENT RANK

- G1** = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
- G2** = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- G3** = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
- G4** = Apparently secure globally (may be rare in parts of range).
- G5** = Demonstrably secure globally.
- GH** = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker).
- GX** = Believed to be extinct throughout range.
- GXC** = Extirpated from the wild but still known from captivity or cultivation.
- G#?** = Tentative rank (e.g., G2?).
- G#G#** = Range of rank; insufficient data to assign specific global rank (e.g., G2G3).
- G#T#** = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1).
- G#Q** = Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q).
- G#T#Q** = Same as above, but validity as subspecies or variety is questioned.
- GU** = Unrankable; due to a lack of information no rank or range can be assigned (e.g., GUT2).
- GNA** = Ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
- GNR** = Element not yet ranked (temporary).
- GNRTNR** = Neither the element nor the taxonomic subgroup has yet been ranked.

FNAI STATE ELEMENT RANK

- S1** = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
- S2** = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- S3** = Either very rare and local in Florida (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
- S4** = Apparently secure in Florida (may be rare in parts of range).
- S5** = Demonstrably secure in Florida.
- SH** = Of historical occurrence in Florida, possibly extirpated, but may be rediscovered (e.g., ivory-billed woodpecker).
- SX** = Believed to be extirpated throughout Florida.
- SU** = Unrankable; due to a lack of information no rank or range can be assigned.
- SNA** = State ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
- SNR** = Element not yet ranked (temporary).

FEDERAL LEGAL STATUS

Legal status information provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant federal agency.

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

- C** = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
- LE** = Endangered: species in danger of extinction throughout all or a significant portion of its range.
- LE, LT** = Species currently listed endangered in a portion of its range but only listed as threatened in other areas
- LE, PDL** = Species currently listed endangered but has been proposed for delisting.
- LE, PT** = Species currently listed endangered but has been proposed for listing as threatened.
- LE, XN** = Species currently listed endangered but tracked population is a non-essential experimental population.
- LT** = Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
- SAT** = Treated as threatened due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.
- SC** = Not currently listed, but considered a "species of concern" to USFWS.

STATE LEGAL STATUS

Provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant state agency.

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission, 1 August 1997, and subsequent updates.

- FE** = Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service
- FT** = Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service
- F(XN)** = Federal listed as an experimental population in Florida
- FT(S/A)** = Federal Threatened due to similarity of appearance
- ST** = State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future. (ST* for *Ursus americanus floridanus* (Florida black bear) indicates that this status does not apply in Baker and Columbia counties and in the Apalachicola National Forest. ST* for *Neovison vison* pop.1 (Southern mink, South Florida population) indicates that this status applies to the Everglades population only.)
- SSC** = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* indicates that a species has SSC status only in selected portions of its range in Florida. SSC* for *Pandion haliaetus* (Osprey) indicates that this status applies in Monroe county only.)
- N** = Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or see: <http://www.doacs.state.fl.us/pi/>.

- LE** = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.
- LT** = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.
- N** = Not currently listed, nor currently being considered for listing.

Element Occurrence Ranking

FNAI ranks of quality of the element occurrence in terms of its viability (EORANK). Viability is estimated using a combination of factors that contribute to continued survival of the element at the location. Among these are the size of the EO, general condition of the EO at the site, and the conditions of the landscape surrounding the EO (e.g. an immediate threat to an EO by local development pressure could lower an EO rank).

- A** = Excellent estimated viability
- A?** = Possibly excellent estimated viability
- AB** = Excellent or good estimated viability
- AC** = Excellent, good, or fair estimated viability
- B** = Good estimated viability
- B?** = Possibly good estimated viability
- BC** = Good or fair estimated viability
- BD** = Good, fair, or poor estimated viability
- C** = Fair estimated viability
- C?** = Possibly fair estimated viability
- CD** = Fair or poor estimated viability
- D** = Poor estimated viability
- D?** = Possibly poor estimated viability
- E** = Verified extant (viability not assessed)
- F** = Failed to find
- H** = Historical
- NR** = Not ranked, a placeholder when an EO is not (yet) ranked.
- U** = Unrankable
- X** = Extirpated

*For additional detail on the above ranks see: <http://www.natureserve.org/explorer/eorankguide.htm>

FNAI also uses the following EO ranks:

- H?** = Possibly historical
- F?** = Possibly failed to find
- X?** = Possibly extirpated

The following offers further explanation of the H and X ranks as they are used by FNAI:

The rank of H is used when there is a lack of recent field information verifying the continued existence of an EO, such as (a) when an EO is based only on historical collections data; or (b) when an EO was ranked A, B, C, D, or E at one time and is later, without field survey work, considered to be possibly extirpated due to general habitat loss or degradation of the environment in the area. This definition of the H rank is dependent on an interpretation of what constitutes "recent" field information. Generally, if there is no known survey of an EO within the last 20 to 40 years, it should be assigned an H rank. While these time frames represent suggested maximum limits, the actual time period for historical EOs may vary according to the biology of the element and the specific landscape context of each occurrence (including anthropogenic alteration of the environment). Thus, an H rank may be assigned to an EO before the maximum time frames have lapsed. Occurrences that have not been surveyed for periods exceeding these time frames should not be ranked A, B, C, or D. The higher maximum limit for plants and communities (i.e., ranging from 20 to 40 years) is based upon the assumption that occurrences of these elements generally have the potential to persist at a given location for longer periods of time. This greater potential is a reflection of plant biology and community dynamics. However, landscape factors must also be considered. Thus, areas with more anthropogenic impacts on the environment (e.g., development) will be at the lower end of the range, and less-impacted areas will be at the higher end.

The rank of X is assigned to EOs for which there is documented destruction of habitat or environment, or persuasive evidence of eradication based on adequate survey (i.e., thorough or repeated survey efforts by one or more experienced observers at times and under conditions appropriate for the Element at that location).

Appendix K: Florida Master Site File



This record search is for informational purposes only and does NOT constitute a project review. This search only identifies resources recorded at the Florida Master Site File and does NOT provide project approval from the Division of Historical Resources. Contact the Compliance and Review Section of the Division of Historical Resources at 850.245.6333 for project review information.

March 4, 2010

Michael Wielenga
Environmentally Endangered Lands
444 Columbia Blvd.
Titusville, FL 32780
Email: Michael.wielenga@brevardparks.com



In response to your inquiry of March 4, 2010, the Florida Master Site File lists no previously-recorded archaeological sites, two resource groups, and no standing structures in the following parcel(s) of Brevard County:

Enchanted Forest Sanctuary as plotted in the attached map.

When interpreting the results of this search, please consider the following information:

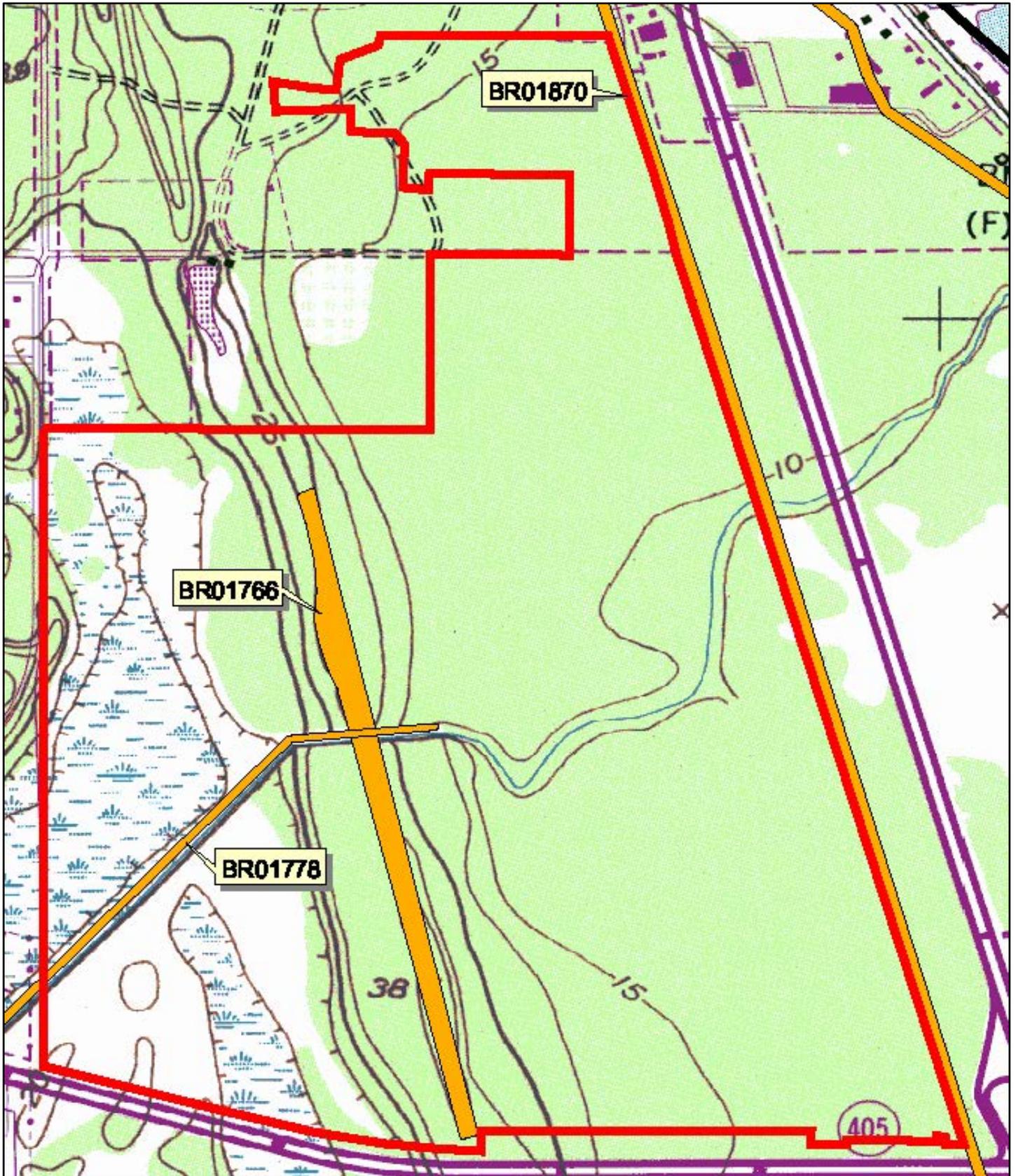
- This search area may contain *unrecorded* archaeological sites, historical structures or other resources even if previously surveyed for cultural resources.
- Federal, state and local laws require formal environmental review for most projects. This search **DOES NOT** constitute such a review. If your project falls under these laws, you should contact the Compliance and Review Section of the Division of Historical Resources at 850.245.6333.

Please do not hesitate to contact us if you have any questions regarding the results of this search.

Sincerely,

Erin Michelle Bailey
Archaeological Data Analyst
Florida Master Site File

500 South Bronough Street • Tallahassee, FL 32399-0250 • www.flheritage.com/preservation/sitefile
850.245.6440 ph | 850.245.6439 fax | SiteFile@dos.state.fl.us



CULTURAL RESOURCES REPORT

SITEID	FORMNO	T-R-S	CR	SITENAME	NRLIST	SURVEY	LOCATION	OTHER
BR01166	200603	30S/38E/2	RG	HENNADEZ-CARRON TRAIL	ELI91b	12777	CITY: UNSP	RG Type: LINE, #
BR01178	200108	22S/39E/1	RG	ADDISON-ELLIS CANAL	6794	CITY: TITUSVILLE	RG Type: LINE, #	

2 site(s) evaluated; 2 form(s) evaluated. (2 Rg)
Print date: 3/4/2010 11:16:52 AM

Appendix L:
Public Meetings and Review



FLORIDA'S SPACE COAST



BERNADETTE S. TALBERT, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999 Telephone: (321) 264-6970
Fax: (321) 264-6972

March 17, 2004

MEMORANDUM

TO: Charles Nelson, Parks and Recreation Director Attn: Mike Knight

RE: Item III.B.5, Waiver of Title Exceptions for Sterling Forest LLC Donation to EEL Program

The Board of County Commissioners, in regular session on March 16, 2004, waived a back slope easement, by-laws of the Sterling Forest Homeowners Association, and restrictions, covenants, and conditions, which are identified as exceptions on the title commitment for 50.389± acres being donated to the EEL Program by Sterling Forest, LLC.

Your continued cooperation is greatly appreciated.

Sincerely yours,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

Bernadette Talbert, Deputy Clerk

/tjr

original - Mike
CC: Agenda file
Chris file

RECEIVED
MAR 22 2004
PARKS AND RECREATION
BREVARD CO.
GOVT. CTR.

Meeting Date
March 16, 2004



AGENDA	
Section	CONSENT
Item No.	III B 5

AGENDA REPORT
BREVARD COUNTY BOARD OF COUNTY
COMMISSIONERS

SUBJECT: Sterling Forest, LLC Donation – Waiver of Title Exceptions
DEPT. / OFFICE: Parks & Recreation Department
 Environmentally Endangered Lands Program

Requested Action:

Request authority for staff to waive a back slope easement, By-Laws of the Sterling Forest Homeowner's Association, and Restrictions, covenants and conditions, which are identified as exceptions on the Title Commitment for the property being donated to the EEL Program by Sterling Forest, LLC

Summary Explanation & Background:

Sterling Forest, LLC is proposing to donate 50.389 ± acres to the County for management by the EEL Program. The donation is to satisfy scrub jay mitigation requirements for the adjacent property being developed. The survey of the property shows a ten-foot wide back slope easement around the perimeter, adjacent to the future home sites. The title company has determined that the easement is a title exception. The back slope easement is located within the same area that the EEL Program will use as a firebreak and, therefore, does not represent a management concern once the property is donated. In addition, the title commitment lists special exceptions that refer to Restrictions, covenants and conditions and By-Laws of the Sterling Forest Homeowner's Association. The Restrictions, covenants and conditions are recorded on the Sterling Forest development plat and reference requirements relating to notification of all future homeowners of the adjacent development that the adjacent conservation area was set aside for the protection of scrub jays and scrub habitat. The By-Laws of the Sterling Forest Homeowner's Association is a recorded document and as such shows as a title exception but does not have any effect on the proposed donation property.

The County Attorney's Office does not have authority to close the transactions with these exceptions in place. Authority is requested to allow staff to waive the title exception for the easement.

Cost/Benefit Analysis: This action will result in donation of 50.389± acres of natural habitat. Meets the goals of conserving natural resources and creating and supporting cooperative partnerships.

Contact Mike Knight, Interim EEL Program Manager, 255-4466 or mknight@brevardparks.com

*New date
& info
updated by
Cat*

Exhibits Attached:

Contract /Agreement (If attached): Reviewed by County Attorney Yes No

County Manager's Office Tom N. Jenkins, County Manager	Department Charles S. Nelson, Director, Parks & Recreation Department
---	--

**MINUTES OF THE MEETING OF THE BOARD OF COUNTY COMMISSIONERS
BREVARD COUNTY, FLORIDA
March 16, 2004**

The Board of County Commissioners of Brevard County, Florida, met in regular session on March 16, 2004, at 9:00 a.m. in the Government Center Commission Room, Building C, 2725 Judge Fran Jamieson Way, Viera, Florida. Present were: Chair Nancy Higgs, Commissioners Truman Scarborough, Ron Pritchard, Susan Carlson, and Jackie Colon, County Manager Tom Jenkins, and County Attorney Scott Knox.

WAIVER OF TITLE EXCEPTIONS, RE: STERLING FOREST LLC DONATION TO EEL PROGRAM

Motion by Commissioner Pritchard, seconded by Commissioner Carlson, to waive back slope easement, By-laws of the Sterling Forest Homeowners Association, and restrictions, covenants, and conditions, which are identified as exceptions on the title commitment for 50.389± acres being donated to the EEL Program by Sterling Forest, LLC. Motion carried and ordered unanimously.

APPROVAL TO PURCHASE FROM JOHN BROWN AND SONS, INC., RE: BRAZILIAN PEPPER TREE REMOVAL SERVICE

Motion by Commissioner Pritchard, seconded by Commissioner Carlson, to approve purchase of Brazilian pepper tree removal service on County-owned lands on the South Beaches for the EEL Program from the sole source vendor, John Brown and Sons, Inc. in the amount of \$116,032. Motion carried and ordered unanimously.



**ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
SELECTION & MANAGEMENT COMMITTEE (SMC)
October 27, 2015
Attendance List**

SELECTION & MANAGEMENT COMMITTEE MEMBERS

Ross Hinkle
Paul Schmalzer
D. Scott Taylor
Laurilee Thompson
Kim Zarillo

EEL PROGRAM STAFF

Laura Clark
David DeMeyer
Mike Knight
Brad Manley
Steve McGuffey
Chris O'Hara

GUESTS

None

*Protecting and Preserving Biological Diversity
Through Responsible Stewardship of Brevard County's Natural Resources*

*October 27, 2015
Approved January 26, 2016*



**ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
SELECTION & MANAGEMENT COMMITTEE (SMC)**

**October 27, 2015
Meeting Minutes**

CALL TO ORDER:

Kim Zarillo, Chairman, called the meeting to order at 1:05 PM.

PUBLIC COMMENT:

None.

MINUTES:

The August 26, 2015 minutes were presented for approval.

Ross Hinkle noted the following:

- Page 2, Motion 2, the following information was noted twice: "Dave Breiningер seconded the motion. The motion passed unanimously".
- Page 5, Additional Discussion North Region, 1st bullet: correct spelling to "bromiliads".
- Page 5, Additional Discussion North Region, 2nd bullet: add "bay" between "loblolly" and "trees".
- Page 6, Land Management, 2nd bullet: add "PICA" after "Pine Island Conservation Area".
- Page 6, Land Management, last bullet: Original language "Not due to Sanctuary". Suggested revised language: "Flooding was not due to Sanctuary Management Practices".
- Page 8, Additional Discussion South Region, 2nd bullet: Correct spelling to "cogongrass".

Paul Schmalzer noted the following additional comments:

- Page 5, Dicerandra Sanctuary: Correct typo "*Dicerandra thinicola*" - species name is lower case".
- Page 5, Scottsmoor Flatwoods Sanctuary. Delete last sentence "An SMC site visit is planned for this sanctuary on September 19th." The site visit actually planned for Fox Lake Sanctuary.
- Page 7: Correct "Rosary pea" to "rosary pea" four times.
- Page 7, Malabar Scrub Sanctuary, bullet 6: lower case "fires".
- Page 8, Additional Discussion South Region, Bullet 2: correct spelling to "cogongrass".
- Page 9, Hardwood Hammock: correct "harissa" to "*Harissia*".

MOTION ONE

Ross Hinkle moved to approve the August 26, 2015 minutes as amended.

Laurilee Thompson seconded the motion.

The motion carried unanimously.

*EEL Program Selection and Management Committee Meeting
October 27, 2015
Page 1 of 10
Approved January 26, 2016*

The September 22, 2015 minutes were presented for approval.

Paul Schmalzer made a suggestion for rewording the language on Page 4, Funding Status Overview discussion regarding fire lines, Bullet 4: Remove "restoration" and add "installation".

Ross noted the following: Page 5, Funding Status Overview: Change "recieved" to "received".

MOTION TWO

Paul Schmalzer moved to approve the September 22, 2015 minutes as amended.

Ross Hinkle seconded the motion.

The motion carried unanimously.

Additional Discussion – Bromiliad Research Report

Scott Taylor requested an update on distribution of Dr. Teresa Cooper's report on bromiliads research at the Enchanted Forest Sanctuary. Staff will follow up with Dr. Cooper.

ADMINISTRATIVE REVIEW:

The Administrative Review was discussed.

Linear Trail Alignments

Mike Knight confirmed that he has spoken with Katrina Morrell, TPO staff, regarding the presentations she previously gave at Sams House and the Enchanted Forest Sanctuary. He added that Katrina has indicated that the presentation did include maps with proposed linear trail lines on some EEL Program sanctuaries, but there had been no discussion regarding linear trails on EEL lands during her presentation. He also added that she has not given this presentation at any other location, but has indicated a willingness to give the presentation at an SMC meeting. A suggestion was received to invite Leigh Holt, from the TPO, to attend the meeting as well.

Mike noted that he has a copy of Katrina's presentation and will distribute it to the Committee.

Mike provided an update on the Transportation Planning Organization (TPO) proposed Linear Trail Alignments:

- EEL Program staff submitted the SMC's input and motions from August 26, 2015 related to the proposed linear trail alignments at Fox Lake, Cruickshank, Jordan and Grant Flatwoods (missile tracking annex) to the TPO during September.
- EEL staff was informed that the TPO would consider all proposed revisions to the 2040 Long Range Transportation Plan (LRTP) at their October 8, 2015 meeting.
- Prior to the October 8 TPO meeting, EEL Program staff inquired as to the availability of the revised plan and was informed that the proposed paved linear trails would not be discussed because they were not part of the Cost Feasible Plan that was being revised by the TPO.
- Staff was also informed that the SMC input will be included in the public comment section of the revised plan when it is re-published sometime in January 2016.

Kim stated she felt that was a problem.

Mike said he agreed. He stated that after a discussion with Leigh Holt, TPO staff, Leigh had indicated that when the TPO's Long Range Transportation Plan is republished, which will be sometime in January, 2016, they will be removing the proposed linear trail lines from the two

locations which the SMC did not approve: Fox Lake Sanctuary and the Valkaria mega-parcel area.

Kim stated that unless the Board itself recognizes the need to make those changes, she has some concerns that they may not be made.

Mike stated that was a concern of his as well, but we would need to wait and see what happens in January.

Kim recommended consideration of having an SMC member assist Mike in bringing the Committee's recommendation to the TPO's governing board, as it may be awkward for Mike to do that since the Board includes five County Commissioners. Several members of the SMC expressed their support for this suggestion. Kim noted that it may be possible that the TPO staff may not understand the other side's perspective. Mike stated he thought it would be good if TPO staff attend an SMC meeting. He added that he has done his best to try to explain things and he felt it would be best if everyone could get together in the same room.

Additional Discussion – Orange County Green Places

Ross Hinkle distributed a document, approved by the Orange County Board of County Commissioners, which provides clarification of which activities are appropriate at Orange County Green Places and also includes clarification of activities which are not allowable. He suggested consideration of a similar list for EEL Program sanctuaries along with consideration of not allowing any more paved trails on any EEL Program sanctuary until impacts from the Malabar Scrub Sanctuary Pilot Project are identified. Mike noted that it has been difficult to evaluate the impacts, but it is probably something we should be thinking about. Ross agreed. Kim noted the importance of showing how wet the Fox Lake Sanctuary can be and how important it is to clarify the difficulties of trying to maintain a paved surface which might be flooded half of the year.

Malabar Scrub Sanctuary Paved Trail

Chris O'Hara, South Region Land Manager, asked if it would be helpful if he prepared a report showing some of the issues staff is having with the portion of the Al Tuttle Trail which runs down the east side of Malabar East. This is also known as the Malabar Paved Trail. Paul stated he felt the SMC would welcome a report. Ross stated the information would go along with discussion on allowable activities. Kim stated she felt the report would be very beneficial. Ross added that they need to understand and evaluate impacts before giving any whole scale authorization. Mike stated it would be really nice if we could figure out some way to determine if we are stepping across the line of over use. Ross noted the EEL Program supports ecotourism, but it is important to protect the natural areas, too. He noted the controlled eco-tourism activities of the Space Coast Birding and Wildlife Festival, which will be occurring again next January, with multiple activities on EEL Program sanctuaries. Kim noted it would also be helpful if Chris could provide information on costs associated with added responsibilities for maintaining the paved trail at Malabar East. Chris stated that he could. The group agreed this is a topic that requires additional discussion.

Kayaking at Sams Creek / Pine Island Conservation Area

Mike noted that it is anticipated that a kayak launch area will be opening soon at Sams Creek. He mentioned that staff moved the previously planned location of the launch area due to concerns related to manatees, and that there is some support from County Administration for establishing a manatee protection area where the manatees are currently congregating. Laurilee suggested consideration of an SMC motion in support of creating the manatee protection zone. Mike noted

that the existing kayak launch is 5 feet wide, and only allows one boat at a time. There are concerns regarding possible negative impacts from increased levels of use if the area is opened to commercial use. It was noted that guidelines for commercial use should be part of Management Plans and that it might be good to include the commercial use guideline information in the appendices of specific plans, with additional language for clarification included in the Sanctuary Management Manual. Additional information will be provided as it becomes available.

State Lands Management Lease #4263 Review

Paul noted that he had a couple of comments on staff's response to the State's South Brevard Coastal Scrub Ecosystem (SBCSE) Management Lease Review Report, which had been mailed to the SMC prior to the meeting. He also requested clarification on the following items as he felt some of staff's responses had been vague:

- Item # 5. Continued thinning of planted pines in Micco was listed as "a priority". Paul requested clarification of specific timeframe. Chris noted he had not wanted to pin down a specific date, because they've done that in the past, and then missed the deadline. Paul noted he would like to see something a little more definitive.
- Item # 6. Strategies for removal of feral hogs was listed as "working to improve efficiency". Paul noted that the SMC has received reports which clarify that the previous efforts to control feral hogs on EEL Program lands are not working and he noted Staff's response does not include any specific information related to new efforts. Xavier de Seguin des Hons, North Region Land Manager stated that the Program has expanded the group of folks involved in the hog removal program. Paul suggested that this information be included in Staff's response.
- Item #8. Team recommends that Brevard County continue efforts to transfer responsibility for management of mega-parcels in Grant Flatwoods Sanctuary, from Fish and Wildlife Conservation Commission (FWCC) management, to the EEL Program. Paul asked if the Program has asked the State to transfer management responsibility for these areas to the EEL Program. Mike said no. Mike noted that it is his feeling that having responsibility for managing those areas under the EEL Program would probably be the best way to get the land managed, but that has not occurred because it will not work out politically. The area referred to in the report is West of I-95, not far from property the Program is already managing. Mike noted his feeling that the BOCC would not approve acceptance of additional land management responsibilities at this time. Paul noted his feeling that the Board could accept, or reject the proposal, but their actions should be documented publicly for the record.

MOTION THREE

Paul Schmalzer moved to request that staff prepare a BOCC agenda item requesting the transfer of management responsibility for EEL Program State owned mega-parcel areas in Grant Flatwoods Sanctuary, which are currently under responsibility for management by the Fish and Wildlife Conservation Commission (FWCC), from FWCC to Brevard County, along with any management dollars which might be available for that purpose.

Kim Zarillo seconded the motion.

The motion carried unanimously.

Additional discussion ensued. The following was noted:

- Most of the EEL Program's properties in the mega-parcel areas are in State title. Many of the other small parcels, in private title, are held by owners who do not live locally. Most of the land management in the mega-parcel area has been accomplished by the Division of Forestry (DOF) under the Hawkins Bill, with the EEL Program's assistance.
- Some of the areas have not received any land management activities for a long time and are overgrown. This impacts the habitat's ability to support biodiversity.
- It should also be emphasized that these areas are in need of prescribed fire and other land management activities due to wildfire concerns related to excessive fuel load. This is also a citizen safety concern.
- It was noted that an additional EEL Program mega-parcel area in Port St. John is also currently under the management responsibility of FWCC.
- It was noted that we are in one of the strongest El Nino's weather patterns in history; lots of rain, which will make plants grow, followed by drought, which will increase the risk of wildfires, should be expected.
- Mike noted that staff will prepare a draft agenda report for the SMC's review before it is submitted to the BOCC for their consideration.

MOTION FOUR

Paul Schmalzer moved to request that staff prepare a BOCC agenda item requesting the transfer of management responsibility for EEL Program State owned mega-parcel areas in Port St. John, which are currently under responsibility for management by the FWCC, from FWCC to Brevard County, along with any management dollars which might be available for that purpose.

Scott Taylor seconded the motion.

The motion carried unanimously.

Additional Discussion - State Lands Management Lease #4263 Review

Paul noted that the State's Land Management Lease Review Report noted significant improvement in the overall South Region land management status and he wanted to be sure this was mentioned. He added that he visited the Malabar Scrub Sanctuary recently and the newly burned area east of the boulevard looks very good. Ross noted he had submitted comments on Staff's response to the Land Management Review Report that were similar to Paul's.

BOCC Items

- BOCC 9/29/2015: Final approval of Fiscal Year 2015-2016 budget. APPROVED
- BOCC 10/6/2015: Scottsmoor Flatwoods Clear Channel Billboard Lease. APPROVED

Sams House Pavilion

The contractor's corrections to the vertical supports have been completed. Staff and volunteers have completed the floor and walkways, and are now preparing to install the screens and doors. Ribbon cutting is scheduled for November 9th at 11:00 AM.

Sams Creek Kayak Launch Site

Staff has been reluctant to officially open the Sams Creek Kayak Launch site due to the ongoing

controversy regarding the regulation of commercial use of park facilities for eco-tours. Although Sams Creek was intended to accommodate some commercial use, it was intended to be regulated on a case by case basis through the issuance of a Facility Use Permit when requested. Due to the existing high levels of kayak tours being done by commercial tour companies at the nearby Manatee Cove Park, there have been discussions about allowing commercial overflow from Manatee Cove at Sams Creek. The Parks Department is exploring an RFP for commercial use at Manatee Cove. Commercial use of the Sams Creek launch site will be included in the RFP. It is currently unclear how the RFP will be structured, but staff will update the SMC as more information becomes available.

Alachua County

On October 20th, the Alachua County Commission held a special meeting to discuss funding for their conservation lands program. Staff is in the process of watching the full meeting video. So far the discussions are very similar to discussions on funding for the EEL referendum here in Brevard. If you would like to watch the meeting you can go to the Video tab on the Alachua County Government website, go to Archives and look for the Special Commission Meeting at 1:30 pm on October 20, 2015.

Town of Grant / Valkaria Trail Plan

On October 1st, staff attended the Town's Greenways and Trails Committee Meeting to discuss trail opportunities on EEL managed lands within the Town boundaries. The Town is interested in establishing a network of unpaved footpaths for hikers, off-road bicyclists, and equestrians. Staff explained that no trails were proposed in the SBCSE management plan because the area could not be adequately managed due to the ownership fragmentation. Staff has agreed to work with the Town to develop a conceptual unpaved trail plan that could be included in a future management plan amendment.

North Buck Lake Scrub Sanctuary Long Term Gopher Tortoise Recipient Site 2015-2016 Monitoring Report

The EEL Program recently received the 2014/2015 Monitoring Report from Sue Gosselin. Staff will provide a Dropbox link to the report for review.

Additional Discussion - SBCSE Grant Flatwoods Sanctuary Management Plan – Category Discussion

Mike noted that it had come to his attention that when staff prepared the South Brevard Coastal Scrub Ecosystem Management Plan, which includes the Grant Flatwoods Sanctuary and surrounding areas, they inadvertently omitted including the existing Category III rankings for the areas of the Missile Tracking Annex, the general area of the Florida Inland Navigation District (FIND) exchange, and the Walmart mitigation donation. He noted that this information should be included in the management plan and he suggested that, if the SMC approved, perhaps the best way to fix that was to do a minor revision to the language – probably a sentence – and they would show that to the SMC and hopefully let the State folks know there was a minor typo. It is anticipated that proposed language will be provided at the next meeting.

SMC REPORTS

Kim noted that she recently attended a Global Tree meeting in Chicago which was very interesting and the group is looking for people to help write assessments if anyone has an interest in assisting.

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Paul noted that he led a trailer ride field trip at Scottsmoor Flatwoods at the request of EEL Program Staff and that Ron Chicone, North Region Land Management Tech, had assisted and done a good job. The field trip went very well.

Ross explained that a new executive order has been issued related to Federally Funded projects and that all future decisions need to incorporate natural capital (the value of natural areas) and ecosystem services as part of the Federal evaluation process.

STAFF REPORTS:

None.

Land Acquisition Status Update

Florida Inland Navigation District (FIND) Property Exchange

Mike reported that it appears the survey work has been finished and the exchange is now in the hands of US Fish and Wildlife Service for their review.

Mike also reported that a mitigation donation of approximately 10 acres is pending related to the Summerbrook area near FIND.

Additional Discussion – Viera DRI Tract A Property

Paul requested an update on this property. Mike noted that a letter from Jack Masson, Director of Parks and Recreation, has been sent to the Viera folks requesting that they donate the parcel to the EEL Program.

AGENDA ITEMS:

Challenger Marsh Interim Management Plan

The Challenger Marsh (formerly known as Greensboro Park Mitigation Donation property) Interim Management Plan was sent to the SMC for their review on October 26th. Xavier de Seguin des Hons, North Region Land Manager, provided an overview of the property and interim plan and he confirmed that comments received from Paul and Ross would be incorporated. It was noted that as a result of efforts by the mitigant as part of the requirements for acceptance of the donation, the area has been restored to a marsh from the previous wax myrtle forest it had become. It is anticipated that this management plan will be combined with the Indian River Sanctuary Management Plan.

MOTION FIVE

Paul Schmalzer moved to approve the Challenger Marsh Sanctuary Interim Management Plan as amended.

Ross Hinkle seconded the motion.

The motion carried unanimously.

Enchanted Forest Sanctuary Management Plan Update

Mike explained that in 2007 a previously planned update to the original management plan from 2000, never went full circle. A new update was previously distributed to the SMC for their review. Comments were received from Ross and Paul. A few specifics in the plan were discussed:

- Bridge over Addison Canal – original management plan included an option for a suspension bridge. A small bridge, lower in the canal, has been constructed by staff, and there has been some confusion regarding the two bridges. Clarification was provided that it

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is felt construction of a suspension bridge over the Addison Canal would cost in excess of \$100,000 and that it is doubtful EEL Program funds would ever be used for that purpose, but staff would like to keep the option open in case some type of grant funding might become available in the future. Ross stated his feeling that the original purpose for the suspension bridge was to provide an opportunity to appreciate the geology of the canal, and it is possible to do that under current conditions. Mike stated the item could be removed, if the SMC would rather not see the elevated suspension bridge as part of the plan. Paul stated his preference that reference to the bridge be removed. Kim agreed.

- Addison Canal Trail - Mike stated that the SMC previously passed a motion clarifying their preference for guided trips only through the bottom of the Addison Canal due to the sensitive habitat in this location. Mike stated that the current language regarding the trail was to ensure that the area could not be opened for general use unless the issue came back to the SMC for authorization. He added that the only work staff plans along the Canal Trail is a small amount of surface leveling. Ross stated his feeling that if you put proposing a trail in the Canal, it implies there will be a trail in the canal. It was determined that the entire section referring to the Addison Canal Trail should be removed from the management plan, but occasional special hikes guided by staff would be permissible. Xavier noted that when staff advertises the special hikes, they are referred to as "Geology Hikes".
- ADA Accessible Boardwalk on Scrub Ridge – The SMC expressed their support for the 800 foot ADA accessible boardwalk which is planned for the top of the scrub ridge, beginning at the end of the Enchanted Crossing Trail.
- ADA Accessible Boardwalk in Hammock – The potential ADA Accessible Boardwalk in Hammock habitat is being removed from the Plan.

Mike stated that an SMC vote on the revisions to the Enchanted Forest Management Plan Update was not needed at this time. The next step in the management plan approval process will be a public meeting for citizens and other stakeholders. Mike noted that clarification of the Management Plan process related to updates would be beneficial.

It was noted that the SMC preferred to receive an open Microsoft Word document, if possible. Staff confirmed future plans will be provided in this format.

Fire Line Management Guidelines

The most current version of Fire Line Management Guidelines was distributed prior to the meeting. Paul confirmed that he had submitted written comments. Ross noted guideline language that relates to root raking of 95% underground vegetation roots to a depth of 10 inches and he asked if it was possible to determine that. Chris O'Hara, South Region Land Manager, stated the verbiage came from contractor specifications, and was provided as a general guideline.

MOTION SIX

Paul Schmalzer moved to approve the Fire Line Construction and Management Guidelines as revised.

Ross Hinkle seconded the motion.

Additional Discussion

The group discussed the best way to incorporate the guidelines. It was determined that the guidelines should be used as an operating procedure and it should be posted to the EEL Program

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Website in the area where the Sanctuary Management Manual is listed and the next time the Sanctuary Management Manual is updated, the guidelines should be included in the update.
The motion carried unanimously.

EEL Program Funding Status Report

Paul noted that he sent in a few comments to the most recent version of the report. Ross added the he had also sent in a few comments. Mike noted the revisions had not yet gone full circle. Paul also commented that he thought it would be appropriate to note that for the 2004 referendum, only one issuance of bonds has occurred \$45 million of the voter approved maximum of \$60 million, and he suggested including a sentence clarifying that \$4 million of the \$45 million was defeased (returned). Scott suggested consideration of making the headings more consistent. Laurilee agreed that work on the headings would be beneficial. Mike noted it would be important to get things going soon. He added that he felt it would be helpful to have some sort of formal support from the Committee on the document, if the SMC felt comfortable doing that.

MOTION SEVEN

**Paul Schmalzer moved to approve the Brevard County Environmentally Endangered Lands Program Referendum Operations and Funding Status Report 2015, as amended.
Laurilee Thompson seconded the motion.**

Additional Discussion

Kim noted that the Committee was approving a draft document. Mike confirmed if P&R Finance made any significant changes, he would be sure the SMC is aware. Confirmation was provided that the final document will be distributed to all three committees.

Laurilee Thompson suggested including information related to the importance of land management as protection from wildfires. Ross noted that had been one of his comments and he noted the history of a previous wild fire burning up to the edge of a recently managed EEL Program sanctuary and going out because the fuel load was removed during the land management process.

The motion carried unanimously.

Public Comment

None.

NEXT MEETING:

The next EEL Program SMC Meeting will be scheduled for November 30, 2015.

ADJOURNED:

The meeting was adjourned at 3:52 PM.

SUMMARY OF MEETING MOTIONS:

- 1. Motion to approve the August 26, 2015 minutes as amended.**
- 2. Motion to approve the September 22, 2015 minutes as amended.**
- 3. Motion to request that staff prepare a BOCC agenda item requesting the transfer of management responsibility for EEL Program State owned mega-parcel areas in**

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Grant Flatwoods Sanctuary, which are currently under responsibility for management by the Fish and Wildlife Conservation Commission (FWCC), from FWCC to Brevard County, along with any management dollars which might be available for that purpose.

- 4. Motion to request that staff prepare a BOCC agenda item requesting the transfer of management responsibility for EEL Program State owned mega-parcel areas in Port. St. John, which are currently under responsibility for management y the FWCC, from FWCC to Brevard County, along with any management dollars which might be available for that purpose.**
- 5. Motion to approve the Challenger Marsh Sanctuary Interim Management Plan, as amended.**
- 6. Motion to approve the Fire Line Management Guidelines, as revised.**
- 7. Motion to approve the Brevard County Environmentally Endangered Lands Program Referendum Operations and Funding Status Report 2015, as amended.**



ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
Enchanted Forest Sanctuary Management Plan Update
Advisory Committee Group Meeting
March 28, 2016
Attendance List

Attendees

Bob Champaigne, Citizen, REAC
Laura Clark, EEL Program
Xavier de Seguin des Hons, EEL Program
Joan Fauls, Citizen
Matt Heydon, Citizen
Barbara Hoelscher, Friends of the Enchanted Forest
Mike Knight, EEL Program
Martha Long, City of Titusville
Laura Losey, Citizen
David Turner, FL Fish and Wildlife Conservation Commission

Invitation List to Public Advisory Committee Public Meeting March 28, 21016

Natural Resources Conservation Service
Tico Airport
Friends of the Enchanted Forest
Brevard County North Area Parks and Recreation
City of Titusville
Indian River Anthropological Society
National Trail Association
Sterling Forest Home Owners Association
Florida National Plant Society Sea Rocket Chapter
Knight Armaments
Sierra Club
Tourism Development Council

Enchanted Forest Sanctuary Management Plan Advisory Group Meeting
March 28, 2016
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ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
Enchanted Forest Sanctuary Management Plan Advisory Group
March 28, 2015
Meeting Minutes

CALL TO ORDER:

Xavier de Seguin des Hons, EEL Program North Region Land Manager, welcomed the group to the meeting, thanked everyone for coming, and introduced Mike Knight, EEL Program Manager. Introductions were provided for others in attendance. It was noted that David Millnard, with Natural Resources and Conservation Service had been invited to the meeting, but was not in attendance.

PUBLIC COMMENT:

None at this time.

PRESENTATION:

Xavier gave a presentation on the history of the Enchanted Forest Sanctuary and development of the sanctuary's management plan. A copy of the presentation is provided as an attachment to these minutes. The following was noted:

- **Management Plan History**
 - The original management plan for the Enchanted Forest Sanctuary was developed in 2000 by the architect and builder who constructed the Management and Education Center.
 - A management plan update was started in 2007, but was not completed.
 - Multiple acquisitions have occurred since the original plan.
 - A new format was established for the management plan update.
 - The next management plan update will be due 10 years from the approval of this plan.
- **Enchanted Forest Sanctuary Land Acquisition History**
 - **1991 - 264 acres:** Acquired by The Nature Conservancy (TNC) prior to completion of EEL Program's first bonding action. TNC sold to EEL. First property purchased by EEL Program.
 - **1993 - 129 acres: Purchased. New total 393 acres.**
 - **1998 - State reimbursed EEL for 50% of purchase price:** Property is within Brevard Coastal Scrub Ecosystem footprint. 393 acres in State title.
 - **2002-2003 - 33.85 acres:** Sterling Forest Mitigation Donation.
 - **2007 - 41.46 acres:** Acquired from Vero-Pittsburg Partners, LLC.
 - **2009 - 13 acres:** Gained 13 acres of mesic and hydric hammock as result of land swap with Brevard County Parks & Recreation (P&R).
 - **Boundary today – 481 acres.**

Enchanted Forest Sanctuary Management Plan Advisory Group Meeting

March 28, 2016

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- **Additional Land Management Facility**
 - A portion of the shop area has been designated for office space and a tool storage shed was added in 2007.
- **Natural Communities and Restoration**
 - Majority of sanctuary is mesic or hydric hammock. Also includes basin marsh, basin swamp, depression marsh, oak and saw palmetto scrub, and scrubby flatwoods.
 - Scrub and scrubby flatwoods are fire dependent. Scrub burned in 2007. Hope to burn both habitats this year.
 - Eagle's nest within scrubby flatwoods restricts available work time from May 16 to October 1.
 - Sterling Forest mitigation donation was for Florida Scrub-Jay habitat. No Jays on site at this time. Restoration priority.
- **Invasive Exotics**
 - Feral hogs continue to be a problem.
 - Invasive, exotic Mexican bromeliad weevil has wiped out 97% of the *Tillandsia utriculata* and *Tillandsia fasciculata* which used to be prevalent throughout the sanctuary. Both species of large air plants found in the Forest are now listed as endangered by the State of Florida. This weevil has caused tremendous damage throughout the southeast. Enchanted Forest was research site for control of this weevil. No known control method at this time.
 - Significant damage to Red Bay trees from invasive beetle which bores into the tree's bark. Many trees have been killed throughout the entire range of the Red Bay trees. No known cost effective control method.
 - A controlled release of a beetle which only eats Air Potatoes has occurred as part of bio-control efforts against the invasive exotic Air Potato vine.
 - Treatment of invasive, exotic plants, often using grant funds, has been a high priority and has been very successful. Monitoring continues.
- **American's with Disabilities Act (ADA) Accommodations**
 - The Enchanted Crossing Trail is a concrete path which runs from the Management and Education Center to an Addison Canal overlook. There are plans to extend the crossing to the east, along the edge of the scrub ridge. Consideration is being given to using a boardwalk system that could be moved out of the way during prescribed fire operations. Still in planning stage.
 - The original management plan included plans for an additional ADA boardwalk through hammock habitat. The sanctuary currently has an existing boardwalk through hammock in another location. During the management plan update process, it was determined that the additional boardwalk would not be constructed. It was noted this information needs to be removed from one additional spot in the draft management plan.
- **Other Public Access Plans**

Consideration has been given over the years to constructing an expansion bridge over the Addison Canal. This option has been discarded due to the extremely high anticipated cost.

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ADDITIONAL DISCUSSION:

- It was noted that the EEL Program has some lands which are eligible for State reimbursement. It is unknown if reimbursement will occur.
- Clarification was requested regarding P&R plans for the property they acquired in the land swap. It was noted that consideration had been given to expanding the ball fields, but that has not yet occurred.
- It is unknown if the scrub and scrubby flatwoods areas of the sanctuary will be sufficient to sustain a population of Florida Scrub Jays within the Enchanted Forest. It is believed there are a few Jays nearby and a few have been seen briefly on site, but all the Jays in the area are banded, and none of them have been at the Forest long term.
- It was noted that the application of prescribed fire to improve the Jay habitat would also be beneficial for the Gopher tortoises in the area.
- It was noted that although the acreage immediately east of the sanctuary, and on the Indian River Lagoon has a high value for conservation, there are plans to develop the area. It is possible that a small portion of the site might be donated to the Program for mitigation. Additional discussion occurred regarding other tracts of undeveloped land along the lagoon.
- Clarification was requested regarding whether or not the core conservation area will remain.
 - Confirmation was provided that there are no new trails planned within the core conservation area.
 - It was also noted that there are a few existing trails in the core conservation area that are sometimes used by staff during prescribed fire operations, and that cameras along these trails have documented inappropriate uses there including some citizens with dog and with bows and arrows. Staff is working with the Florida Fish and Wildlife Conservation Commission to reduce inappropriate use.
- It was noted that although consideration had been given to establishing a new trail through the floor of the Addison Canal, it was determined that due to the environmental sensitivity of the area, only special, guided hikes should occur there. Rock fern, which is State listed as threatened, occurs in this area.
- Additional discussion occurred regarding options for control of feral hogs. Evidence of hogs is frequently observed in the core conservation area.
- It was noted that the reduction in the on-site fuel load which will occur during land management operations and the application of prescribed fire, will help protect neighboring homes from the threat of wildfires.
- The next step in the management plan update approval process is to submit the most recent draft to the EEL Program's Selection and Management Committee for their final approval. Once that is complete, the management plan update will also be submitted to the Board of County Commissioners and the State's Acquisition and Restoration Council in Tallahassee.



**ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
SELECTION & MANAGEMENT COMMITTEE (SMC)**

**June 23, 2016
Attendance List**

SELECTION & MANAGEMENT COMMITTEE MEMBERS

Paul Schmalzer
Scott Taylor
Laurilee Thompson
Kim Zarillo

EEL PROGRAM STAFF

Jenny Ashbury
Laura Clark
David Demeyer
Xavier de Seguin des Hons
Mike Knight
Steve McGuffey
Brad Manley
Chris O'Hara

GUESTS

None

*Protecting and Preserving Biological Diversity
Through Responsible Stewardship of Brevard County's Natural Resources*

*June 23, 2016
Approved July 19, 2016*



ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM SELECTION & MANAGEMENT COMMITTEE (SMC)

June 25, 2016
Meeting Minutes

CALL TO ORDER

Kim Zarillo, Chairman, called the meeting to order at 1:00 PM.

PUBLIC COMMENT

None.

MINUTES

The May 23, 2016 SMC minutes were presented for approval. Scott Taylor noted the following:

- Page 2, Additional Discussion – South Region, 2nd sentence – Remove “/” from “... and / spoke of the need...”
- Page 2, Mole Skink Research section, 2nd sentence – Add “n” to “... and the n release the skinks.”

MOTION ONE:

Scott Taylor moved to approve the May 23, 2016 SMC minutes as amended.

Laurilee Thompson seconded the motion.

The motion carried unanimously.

ADMINISTRATIVE REVIEW

The Administrative Review was reviewed.

BOCC ITEMS

- Canaveral Beach Club Land Transfer: from Parks and Recreation (P&R) to EEL Program expected to be presented to Board of County Commissioner (BOCC) for consideration sometime during July or August.
- Request to Advertise for Replacement SMC Member: expected to be presented to BOCC for consideration during July.

Trail Cameras Malabar Scrub Sanctuary

Staff has installed 5 trail monitoring cameras at the Malabar Scrub Sanctuary to collect visitor use data. Mike provided a brief presentation. Camera images were reviewed to adjust for the possibility of one person activating multiple cameras. Recorded visitation over 18 days indicates 906 visitors with an average daily visitation of 50.3 people each day. These numbers are higher than anticipated, especially during the recent hot weather. Current data reflects a projected average annual visitation at this sanctuary of 18,360. Additional information will be collected and results provided once data have been analyzed.

The SMC noted their support for the collection of this type of information and their pleasure with the visitation numbers. Laurilee Thompson emphasized how important she feels the information will be in securing additional funding for the Program.

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Additional Discussion – Request for Honeybee Apiary

Mike explained that a request to establish a Honeybee apiary on County property has been received from a citizen and that County Administration is currently reviewing the request.

It was noted that the citizen has expressed interest in 35 locations, most of which are within the EEL Program or P&R. Mike confirmed that the information he requested and received from SMC members on honeybees has been forwarded to Administration along with additional information he located on potential honeybee impacts on native pollinators.

Paul Schmalzer noted that there are many kinds of native bees and that the honeybee is a non-native species which would be in competition with native pollinators for limited flowers and pollen resources.

Kim stated she feels that establishing a non-native species on an EEL Program site would not be appropriate.

It was noted that the SMC has discussed this topic in the past, but no record of a motion has been located. Kim asked if a motion was needed from the SMC. Mike stated a motion was not required at this time. Kim plans to contact Mark Deyrup, Sr. Research Program Director at Archbold Biological Station, who has done significant research on pollinators, to see if his group might have additional information.

EEL Program Land Managers in attendance at the meeting expressed their lack of support for having honey bee apiaries on EEL Program lands.

Mike explained that meetings are being scheduled regarding the request and that he hopes to participate. He also noted that he has requested that if plans move forward to allow apiaries on any P&R properties, that they not be located near any EEL Program sanctuaries.

Additional Discussion – Zoning of EEL Program properties

Mike noted that in response to a previous request from Kim regarding clarification of zoning for EEL Program sites, Jenny Ashbury has been in contact with the Planning and Zoning Department and is compiling a listing.

Additional Discussion - Reimbursements

Mike mentioned that Ross Hinkle has requested information on properties currently eligible for State partnership funding reimbursement. A listing was compiled which indicates that approximately \$20 million could be received, if the State chose to approve all previously eligible reimbursements. The listing will be forwarded to SMC members, Mike also noted that previous verbal discussion with the State indicated there was no benefit in applying for the reimbursements because there was no State funding available for them. Staff plans to get further clarification on the item soon due to the possible revenue which may exist from the passing of Amendment I. Additional information will be provided when it is received.

Additional Discussion - TPO Long Range Transportation Plan Revision

Mike noted that we have been waiting to find out when the Transportation Planning Organization's (TPO) Long Range Transportation Plan was going to be updated to include input from the SMC regarding potential alignments for paved trails across EEL Program sanctuaries, particularly at the Fox Lake, Cruickshank, and Malabar Scrub Sanctuaries, in addition to the Grant/Valkaria missile tracking annex and some areas below the annex.

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He noted that the Long Range Transportation Plan has recently been republished, and language has been included which references an EEL Program representative at a meeting, but he believes the document actually means to reference an SMC meeting which Leigh Holt, from the TPO, attended some time ago. Mike stated that the previously shown, potential trail lines across EEL Program sanctuaries have been removed, with the exception of Fox Lake Sanctuary. He added that the language in the most recent version on pages 74-75 states that even though there may be potential trail lines on some maps within the document, no one can put trails across an EEL Program sanctuary without the managing entity approving the action.

Kim noted that information in the handout also relates to removal of potential impacts to the southern border of the Malabar Scrub Sanctuary from the widening of Malabar Road. Mike stated that he has not had additional communications with the project consultants regarding their previous consideration of placing a sidewalk on the north side of the road and within the footprint of the sanctuary, since the original discussions when he made the process for consideration of potentially impacting an EEL Program site clear to them.

Johnson Property Mitigation

Discussions are on-going regarding a potential 16 acre P&R mitigation project at the Johnson Property, off Hall Road on Merritt Island, which could result from environmental impacts from a planned community center parking lot expansion in Scottsmeer.

Titusville Wellfield

Staff recently attended the Titusville public meeting regarding the Florida Forest Service's plans to implement prescribed fire at the wellfield near the Dicerandra Scrub Sanctuary. The meeting, which provided information on the multi-agency cooperative effort to burn the wellfield area in an effort to reduce the high fuel load near an urban interface and to provide land management efforts protecting several endangered plant and animal species in the area, went well.

Once the wellfield area nearest the sanctuary has been burned, additional prescribed fires will be planned for the sanctuary.

SMC REPORTS

None.

STAFF REPORTS

None.

Land Acquisition Status Update

Pending Donations

Jenny Ashbury noted that potential mitigation donations from the City of Palm Bay, Valkaria Airport and two smaller private properties are going through the permitting process with the SJ River Water Management District and that once the permits are approved, anticipated closing dates will be established. Maps of donation locations have been reviewed in the past and will be provided at time of closing.

US Air Force Partnership Funding

Confirmation was provided that although a written request for the return of approximately \$1 million in unspent US Air Force Partnership funding has not yet been received, it is staff's

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understanding that the Air Force still wants the money returned. Staff is waiting for written confirmation from the Air Force regarding the return of the funds before sending the money back, per advice from the County Attorney.

FIND Land Exchange

Additional confirmation was provided that staff does not expect to hear from the folks at the Florida Inland Navigation District (FIND) regarding the pending land exchange until they receive their permits early in 2017.

AGENDA ITEMS

Enchanted Forest Sanctuary Management Plan Update

The Enchanted Forest Sanctuary Management Plan was presented to the SMC for their final approval, before the plan is submitted to the BOCC and the Acquisition and Restoration Council in Tallahassee. Approval by the State is required for this sanctuary as the EEL Program received partnership funding from the State for the original property acquisition before the sanctuary was expanded.

Xavier de Seguin des Hons, North Region Land Manager, provided an overview of the Plan including an update on the most recent revisions. A copy of the presentation is provided as an attachment to these minutes. The following was noted:

- The March 28, 2016 Advisory Group Public Meeting went well.
- Revisions to the Threatened and Endangered Plants list were discussed.
- Plans continue to extend the Enchanted Crossing, an ADA accessible concrete pathway which runs from the back of the Management and Education Center to the top of the scrub ridge.
- Plans to construct an elevated bridge over the Addison Canal are being removed and a potential 1000 foot new trail inside the canal will not be included.
- Previous plans for an additional boardwalk, in hammock habitat west of the Management and Education Center, which were referenced in the original Management Plan are being removed as there is an existing boardwalk in this type of habitat in another part of the sanctuary.
- References will be added regarding *Bridging the Gaps to Experiencing Nature*, a workbook which was published early in the Program's history, as a result of a workshop for making nature accessible to people of diverse needs.
- A suggestion to list acquisition of the property directly east of the Forest and adjacent to the Lagoon as a specific goal will not be included as the property's footprint is within the existing optimal sanctuary boundary map.
- Confirmation was provided that a recently acquired portion of the northern part of the sanctuary meets the criteria for State reimbursement.
- It was noted that on June 17th, Paul sent an email and memo with additional information regarding the most recent version of the Management Plan and the Enchanted Forest Advisory Group Meeting. This information will be incorporated into the Plan before it is sent to the BOCC for their approval.
- Xavier confirmed that as soon as the Plan is updated, staff will send a new link to the updated plan to the SMC.

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MOTION TWO

Paul Schmalzer moved to approve the Enchanted Forest Sanctuary Management Plan, contingent on the incorporation of revisions, as noted, and the corrections included in his memo and email of June 17, 2016.

Laurilee Thompson seconded the motion.

The motion carried unanimously.

Additional Discussion – Additional Bonding

A request was received for clarification of the status of the SMC's February motion to pursue additional bonding.

Mike stated that this had been one of the items discussed in the May 18th meeting with County Administration and that concerns were expressed that if the available millage was used to pay additional bond debt, there would not be any room to expand the operational millage, although there has not been a formal response to the SMC about why the Program won't be bonding any more. He added that it is his understanding that the FY 2016-2017 EEL Program millage rate which will be submitted to the BOCC during July will be at the level requiring approval from 4 of the 5 Commissioners (supermajority).

EEL Program Funding History Summary

Mike provided a brief review of some of the information that Larry Wojciechowski, Parks and Rec. Finance, provided at the May 23rd SMC/PC meeting.

- Since 2006, EEL millage rates have been set at the maximum level requiring approval from 3 of 5 commissioners. However, in Fiscal Years 2012 and 2013, the rate was set below the maximum allowable with 3 votes.
- Raising the millage rate to the level which would require approval from 4 of 5 commissioners (supermajority) will not increase the funding received in one year significantly, but it will raise the following year's starting point for consideration of the next year's millage. If a supermajority rate is repeated multiple times, this will increase the rate of millage that can be collected over time, which will provide additional funding to the Program.
- Setting the millage rate at a level which requires unanimous approval is considered to be an emergency situation and the starting point for the following year goes back to the previous year's level. A unanimous vote on a supermajority millage rate does not go back to the previous year's rate.

The group discussed the draft funding history summary which was provided prior to the meeting.

Paul provided the following comments:

- Item #2, 2nd sentence – Remove “*as a result of increasing property tax revenue.*” Phrase considered speculation.
- Item #3, 2nd sentence – Remove “*This decision was made because the additional funding was not necessary for Program operations because revenue was still being collected from the coexisting 1990 referendum.*” There may have been enough money collected to operate the Program on an annual basis, but there wasn't enough to set up a management

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