South Brevard Coastal Scrub Ecosystem Management Plan

Prepared For ARC Approval
April 2015

BREVARD COUNTY
ENVIRONMENTALLY ENDANGERED LANDS PROGRAM

Management Lease #4263

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	1
3.	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	1
4.	The legal description and acreage of the property.	18-2.018 & 18-2.021	1,7,12 & App. A
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	2
6.	An **assessment** as to whether the property, or any portion, should be declared surplus. *Provide Information regarding **assessment and analysis** in the plan, and provide **corresponding map**.*	18-2.021	6 & App.A
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. *Please clearly indicate parcels on a map.*	18-2.021	1,6
8.	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	49,50
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)	1,6
10.	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	1,6

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	1,61-63
12.	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	42-44
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	48
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	7, & App. C
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	41,44 & App. Q
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	61
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)	61-63

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	61-63
19.	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	17 & App. D
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	61,63-69
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	48
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	48 & App. R
23.	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	50-53

*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	70 & App. V-Y
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)	70 & App. V-Y
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. *Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.*	259.032(10)	70 & App. W-Y
27.	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	70 & App. X
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. *Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.*	253.034(5) & 259.032(10)	70 & App. W-Y
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. *Include manager's replies to the team's findings and recommendations.*	259.036	App . AA

30.	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	App. AA
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	App. AA

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. *Use brief descriptions and include USDA maps when available.*	18-2.021	20-22
33.	Insert FNAI based natural community maps when available.	ARC consensus	25 & App. G
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	25-27
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	29
36.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	App. AA
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	App. AA
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	37-40
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	36-39
40.	The identification or resources on the property that are listed in the Natural Areas Inventory. *Include letter from FNAI or consultant where appropriate.*	18-2.021	25 & App. G
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)	App. Q
42.	Habitat Restoration and Improvement	259.032(10) & 253.034(5) ↓	61
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.		64-69
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.		64-69
42-C.	The associated measurable objectives to achieve the goals.		64-69
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. *Include fire management plans - they can be in plan body or an appendix.*		64-69
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.		69
43.	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. *See footnote.*	253.034(5)	30

44.	Sustainable Forest Management, including implementation of prescribed fire management	18-2.021, 253.034(5) & 259.032(10) ↓	54-59 & App. T
44-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		64-69
44-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		64-69
44-C.	Measurable objectives (see requirement for #42-C).		64-69
44-D.	Related activities (see requirement for #42-D).		64-69
44-E.	Budgets (see requirement for #42-E).		69-70
45.	Imperiled species, habitat maintenance, enhancement, restoration or population restoration	259.032(10) & 253.034(5) ↓	36,61
45-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		64-69
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		64-69
45-C.	Measurable objectives (see requirement for #42-C).		64-69
45-D.	Related activities (see requirement for #42-D).		64-69
45-E.	Budgets (see requirement for #42-E).		69-70
46.	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. *See footnote.*	253.034(5)	60
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	App. K
48.	Exotic and invasive species maintenance and control	259.032(10) & 253.034(5) ↓	60
48-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		64-69
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		64-69
48-C.	Measurable objectives (see requirement for #42-C).		64-69
48-D.	Related activities (see requirement for #42-D).		64-69
48-E.	Budgets (see requirement for #42-E).		69-70

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. *If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.*	18-2.018 & 18-2.021	6 & App. B
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	23-24
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	25-27, 31-35
52.	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. *See footnote.*	253.034(5)	23-24
53.	Hydrological Preservation and Restoration	259.032(10) & 253.034(5) ↓	23-24
53-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		64-69
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		64-69

53-C.	Measurable objectives (see requirement for #42-C).		64-69
53-D.	Related activities (see requirement for #42-D).		64-69
53-E.	Budgets (see requirement for #42-E).		69-70

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. *Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.*	18-2.018, 18-2.021 & per DHR's request	41-44 & App. O & P
55.	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	41-42
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	64-69
57.	Cultural and Historical Resources	259.032(10) & 253.034(5) ↓	41-42
57-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		64-69
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		64-69
57-C.	Measurable objectives (see requirement for #42-C).		64-69
57-D.	Related activities (see requirement for #42-D).		64-69
57-E.	Budgets (see requirement for #42-E).		69-70

**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. *See footnote.*	253.034(5)	11, 13-14, 70
59.	Capital Facilities and Infrastructure	259.032(10) & 253.034(5) ↓	
59-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		68
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		68
59-C.	Measurable objectives (see requirement for #42-C).		68
59-D.	Related activities (see requirement for #42-D).		68
59-E.	Budgets (see requirement for #42-E).		70
60.	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	61-63
61.	Public Access and Recreational Opportunities	259.032(10) & 253.034(5) ↓	61-63
61-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).		64-69
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).		64-69
61-C.	Measurable objectives (see requirement for #42-C).		64-69
61-D.	Related activities (see requirement for #42-D).		64-69
61-E.	Budgets (see requirement for #42-E).		69-70

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	X
63.	Place the Executive Summary at the front of the LMP. Include a physical description of the land.	ARC and 253.034(5)	1-14
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	64-69
65.	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	64-69
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)	69-70
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)	69-70
68.	A statement of gross income generated, net income and expenses.	18-2.018	69-70

*** = 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.

South Brevard Coastal Scrub Ecosystem Management Plan

February 2015 Draft

Lease Agreement #4263

Compiled by David DeMeyer
Brevard County Environmentally Endangered Lands Program
South Region - Assistant Land Manager

Grant Flatwoods Tract (5,198 Acres)
Micco Scrub Sanctuary Tract (1,724 Acres)

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Appendices

I. EXECUTIVE SUMMARY

The South Brevard Coastal Scrub Ecosystem (SBCSE) Management Plan incorporates 2 sanctuaries within the Brevard County Environmentally Endangered Lands (EEL) Program's south region: Grant Flatwoods Sanctuary (GFS) and Micco Scrub Sanctuary (MISS). The SBCSE sanctuaries can be seen in **Figure 1**.

GFS and MISS are part of the sanctuary network established by the EEL Program in Brevard County. **Appendix A** contains legal descriptions. 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 ecosystem functions" (**Brevard County, 1997**). The program also establishes a network of public land to provide passive recreation and environmental education programs to Brevard County residents and visitors.

The SBCSE includes acreage owned by both Brevard County and by the State of Florida. Either the Brevard County EEL Program or the Florida Fish and Wildlife Conservation Commission (FFWCC) manage all state and county land in this area. Land that is owned by the State of Florida and managed by Brevard County is done so under lease agreement #4263. The lands under lease agreement #4263 can be seen in **Figure 2**.

GFS has been acquired through various means. Brevard County Funds have been raised through 2 referendums. There has been land accepted for management through mitigation, as well as from acquisitions through state funded projects such as Florida Forever. **Figure 3** divides GFS into these areas by project name. As mentioned above, FFWCC does manage land within the SBCSE boundary. Their management area boundaries are also the boundaries for the Micco Expansion and the Ten Mile Ridge projects.

The optimal boundary for the management tracts can be seen in **Figure 4**. Acquired lands and those of surrounding management areas will provide wildlife corridors from St. Sebastian River Preserve State Park (SSRPSP) north to the Valkaria Road area. Due to state and local funding cuts and shortfalls, future acquisition throughout the GFS optimal boundary area will be severely limited. Some parcels are still being acquired through mitigation donation.

Adjacent Conservation Lands

The SSRPSP consists of 21,748.42 acres. The site preserves open grassy forests of longleaf pine that were once commonplace throughout Florida. The pine flatwoods form a backdrop for other biological communities, including cypress domes, scrubby flatwoods, sandhills, and a beautiful strand swamp. These habitats are home to many native plants and animals, including over 50 protected species.

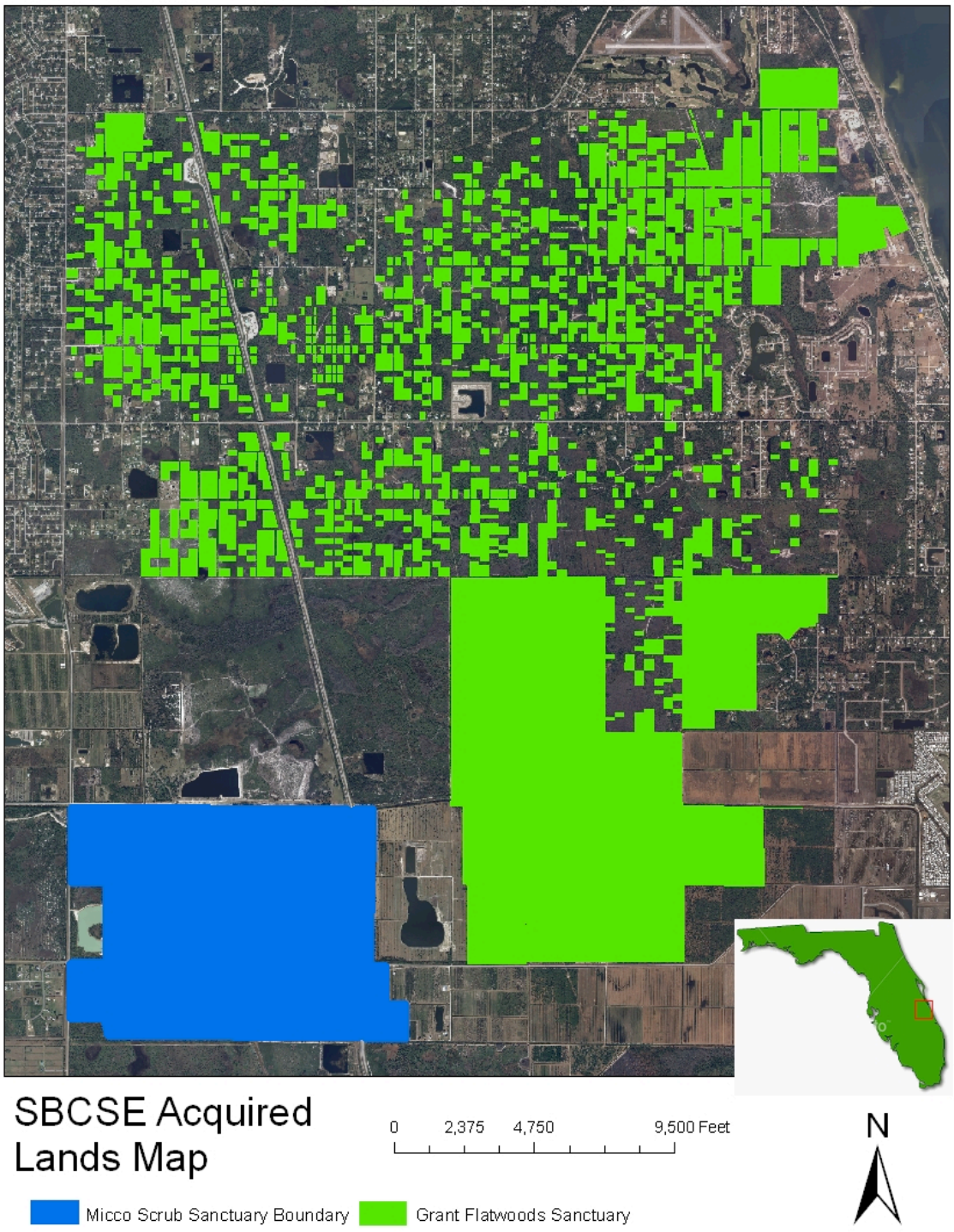

Figure 1
*Map current as of March 2014

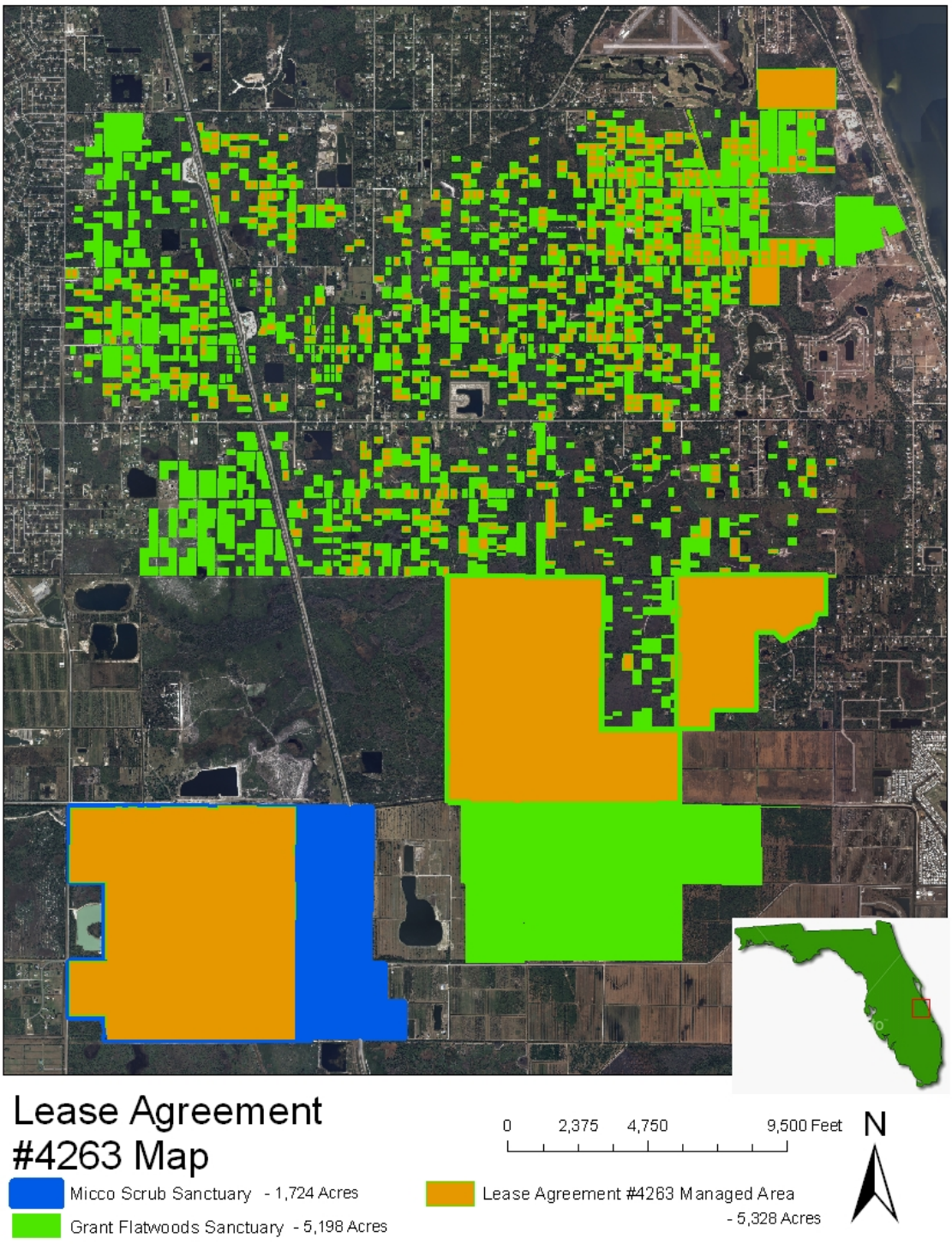

Figure 2

*Map current as of March 2014

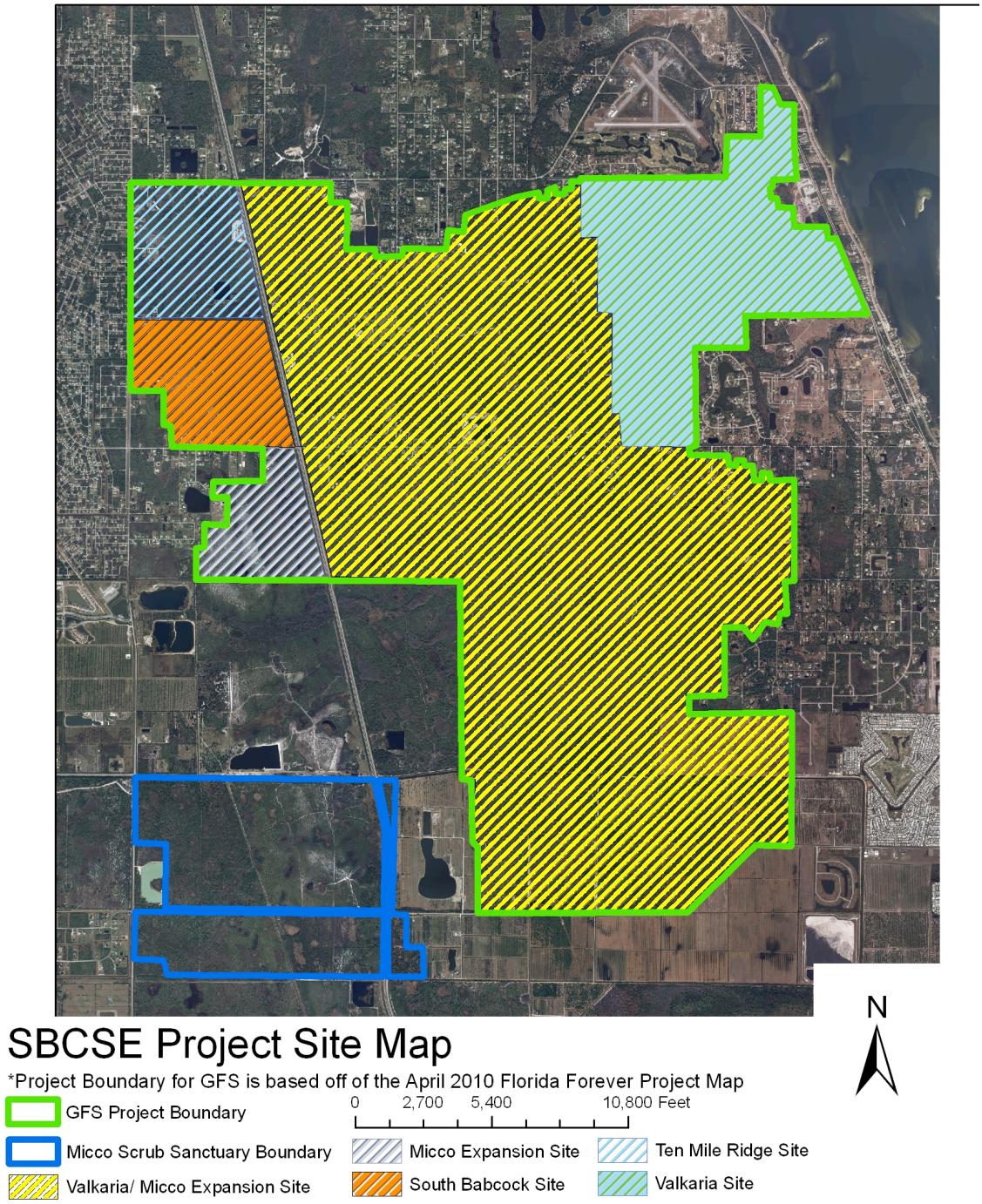

Figure 3
*Map current as of March 2014

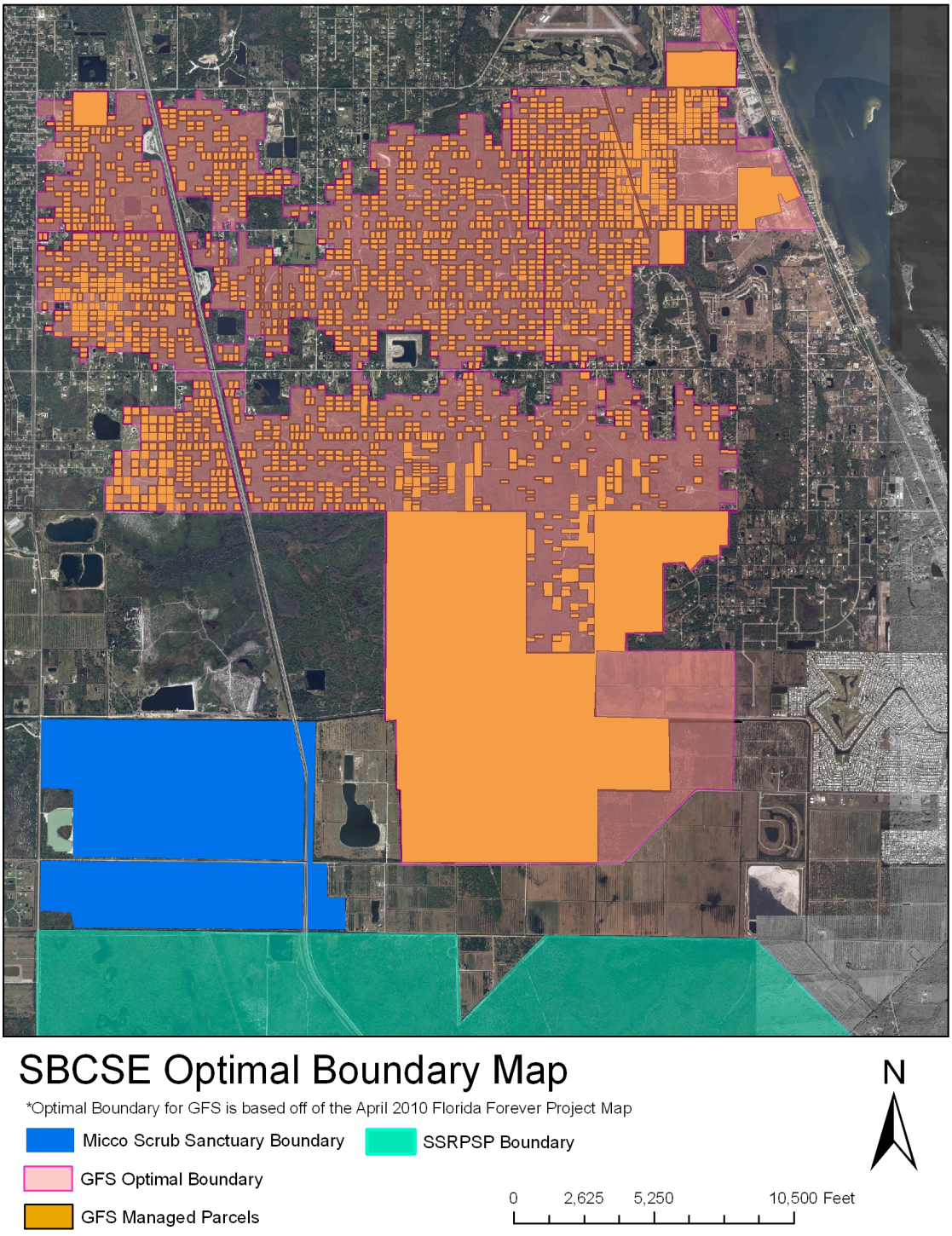

Figure 4

*Map current as of March 2014

To the north of SSRPSP is MISS. This site consists of 1,724 acres of scrub, scrubby flatwoods, pine flatwoods and wetland habitats. I-95 runs north-south through the far eastern portion of the site. Micco Road runs east-west through the sanctuary, splitting the northern 1,120 acres from the southern 604 acres.

Continuing east, Micco Road also runs along the southern portion of GFS. GFS consists of 5,198 County managed acres of pine flatwoods, cypress domes, scrub, hammocks and wetland habitats. GFS is home to a variety of native plants and animals including a number of listed species. The northern portion of GFS consists of small parcels that are acquired separately from one another. Grant Road runs east-west through the middle of this mega parcel acquisition section. Most of the development takes place around the Grant and Valkaria Roads. Parcels in this area are currently acquired primarily through donation or mitigation.

GFS and MISS will be managed as a part of the EEL Program's South Regional Management Area. The primary management goals for these 2 tracts include the conservation and restoration of ecosystem function. The collection and documentation of natural and cultural resource data are also important management goals. Public access to these tracts will encourage awareness of the County's natural assets, foster a greater understanding of the balance between access and non-consumptive use of the sites' resources, and promote environmental stewardship. This will benefit both the local community and the EEL Program. The EEL Program will try to providing educational opportunities to the Brevard County school system to promote the understanding and appreciation of the unique and valuable resources available in Brevard County and thereby promote long-term preservation as staff levels allow.

No portions of GFS or MISS should be declared surplus (**Appendix AA)**. These properties do not fall within an Aquatic Preserve or a designated Area of Critical State Concern. No cultural resources have been recorded within these sites. There are no water resources within these tracts that are designated as Outstanding Florida Waters (**Appendix B**).

As described in the EEL Sanctuary Management Manual **(Brevard County, 1997)**, these tracts are Category 2 sites. This means that these sites will receive minimal capital improvement that may include limited trails, footbridges, and/or boardwalks. Other management goals include the provision of passive recreation and environmental education.

These tracts will be open to the public during daylight hours and will provide outstanding opportunities for scientific research and guided or self-guided interpretive tours featuring the site's ecological diversity.

Grant Flatwoods Sanctuary

GFS is the largest Sanctuary in the EEL Program's South Region. The optimal boundary encompasses approximately 13,000 acres. Of these acres, 5,198 of them fall under Brevard County management through the EEL Program. The sanctuary is broken down into three main parts: The Anstalt Acquisition, The MEP Tract, and the mega parcel area. The purchase history can be seen in **Figure 5**.

The Sottile Canal runs east-west through the southern portion of GFS. In 2000 the EEL Program acquired the parcel south of the Sottile Canal from MEP America LLC. This parcel (1,088 acres), which is owned by the county, is within unincorporated Brevard County. This MEP purchase also involved a 401 acre parcel that is now included in MISS.

In 2001, the parcel north of the Sottile Canal was purchased from Amistad Anstalt, a Liechtenstein corporation. It is partially located in the town of Grant-Valkaria, Florida with the portion south of the Grant-Valkaria line residing in unincorporated Brevard County. The county purchased the Amistad Anstalt property and the State reimbursed the County for approximately 50% of the purchase price in 2002 (Anstalt section of GFS only). This portion of GFS (1,455 acres) is now titled to the state and Brevard County is the designated land management agency under lease agreement number 4263.

The EEL Selection and Management Committee (SMC) considered site location, natural communities, biological diversity, habitat quality, and contributions to functional ecological integrity to determine if the acquisition of the Anstalt and MEP tracts met the EEL Program's conservation goals. The Anstalt portion of GFS is under state ownership and the MEP portion now has a conservation easement in favor of St Johns River Water Management District (**Appendix C**), which resulted from a mitigation project that restored wetland habitat on the property.

The third portion of GFS encompasses just over 3000 acres in Grant-Valkaria, south Brevard County, Florida. Acquisition within this area began by the State in 1992. **Figure 6** details parcels that are owned by either the state or the county. Some parcels not purchased have been donated as part of mitigation projects and are listed under county ownership. **Figure 7** details purchased parcels compared to acreage that was donated. Due to the numerous landowners throughout the project area, much of the acquired property is not contiguous. Present and future goals include the acquisition of additional parcels to create a more contiguous and manageable landscape. Due to the non-contiguous nature of these parcels, there are no official kiosks or trailheads established in the northern portion of GFS at this time.

The portion of the SBCSE Management Plan that describes GFS is written as if the entire optimal boundary area is managed in full by the EEL Program. Boundaries extend from US Highway 1 on the east, west to Babcock Street and from Micco Road, north to Valkaria Road. Access gates for SBCSE can be seen in **Figure 8**. These gates are for management access only and are not open to the public.

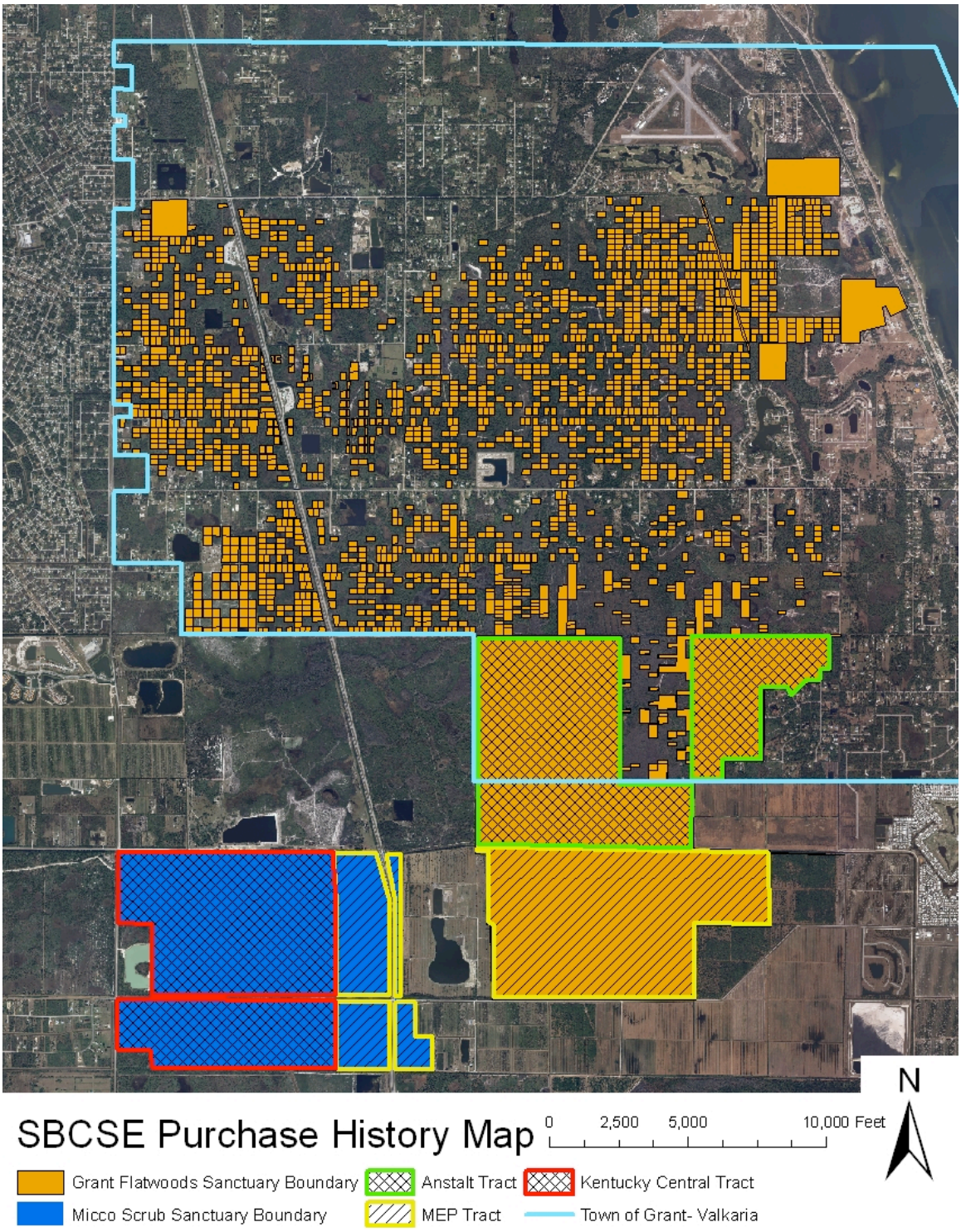

Figure 5

*Map current as of March 2014

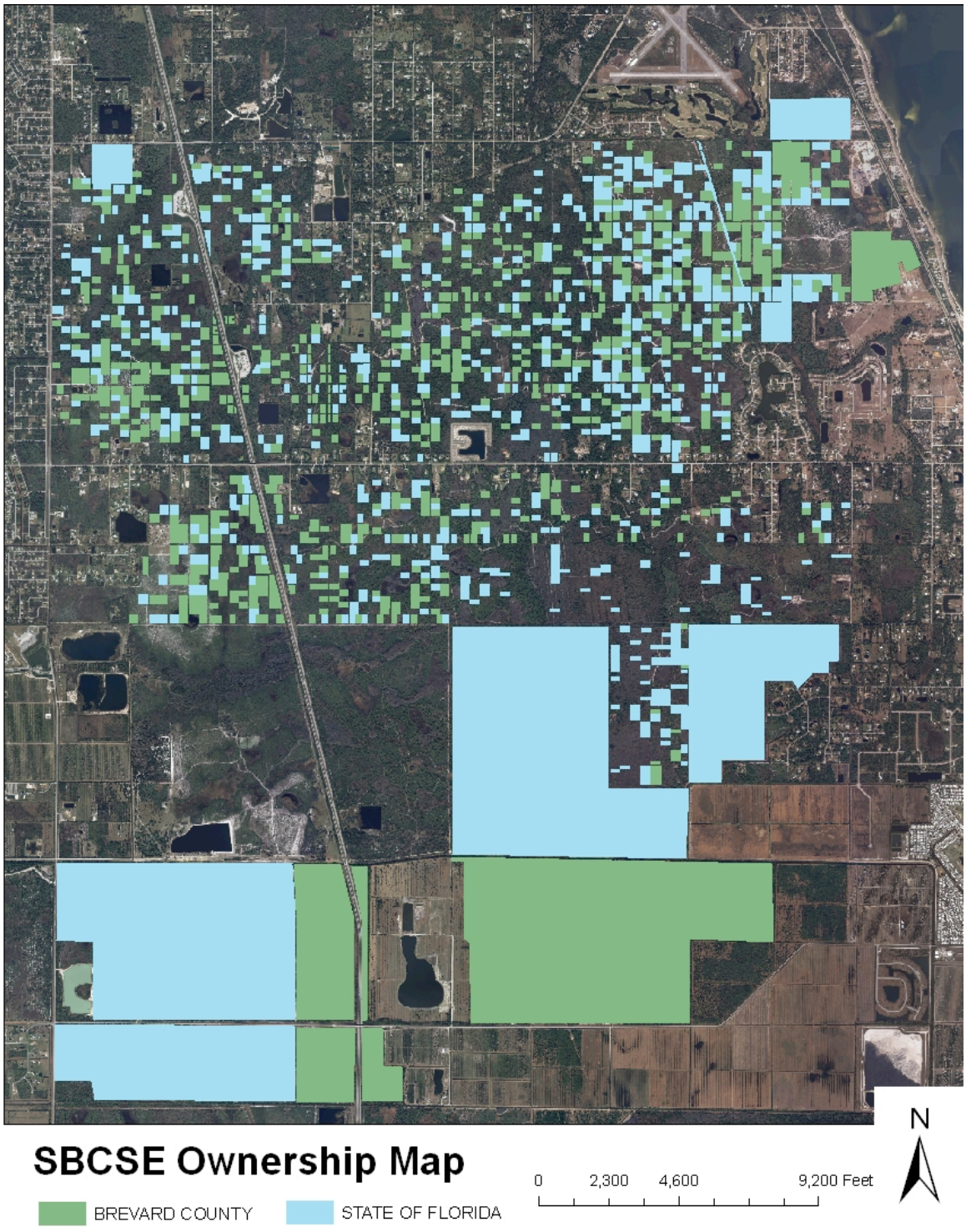

Figure 6

*Map current as of March 2014

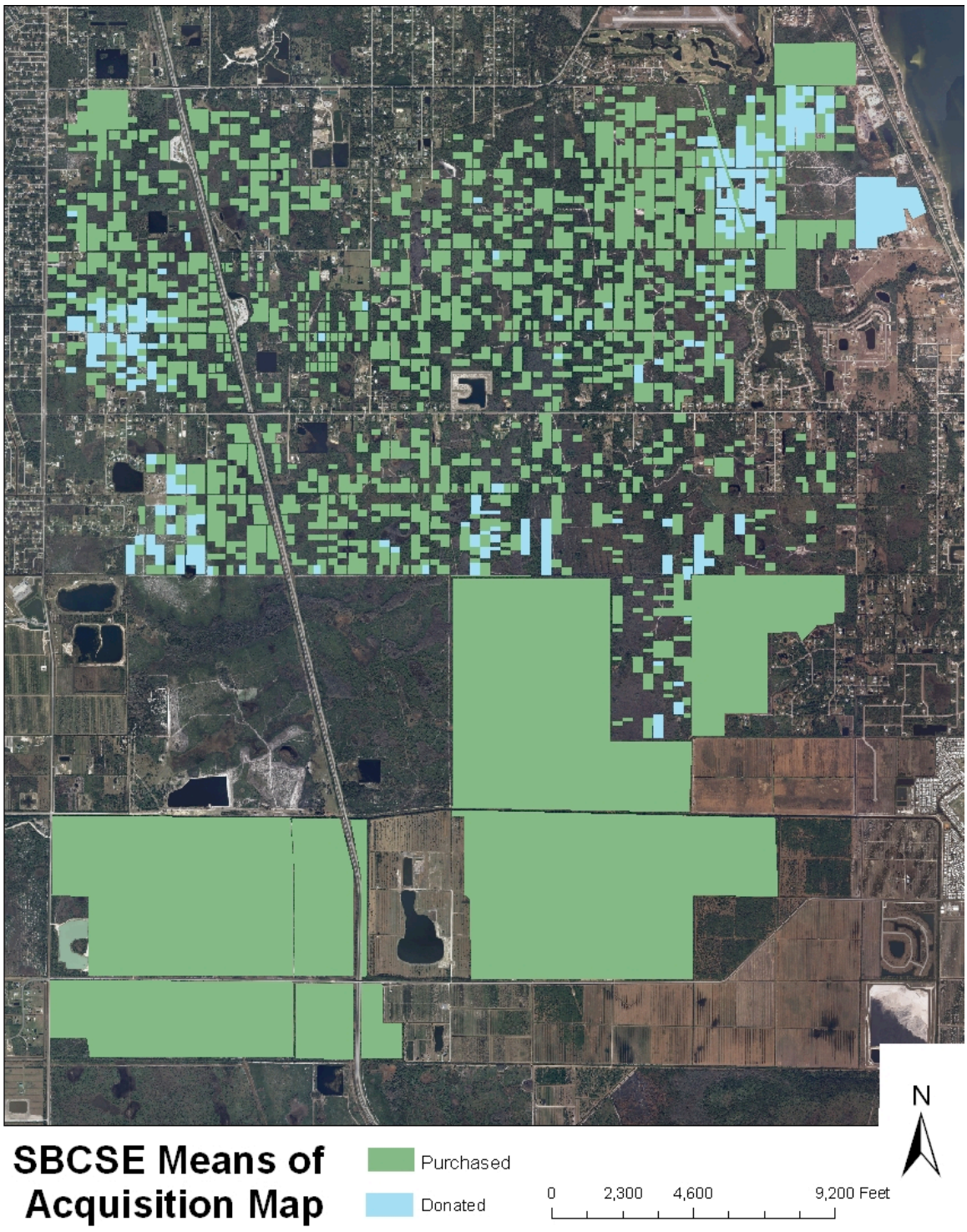

Figure 7

*Map current as of March 2014

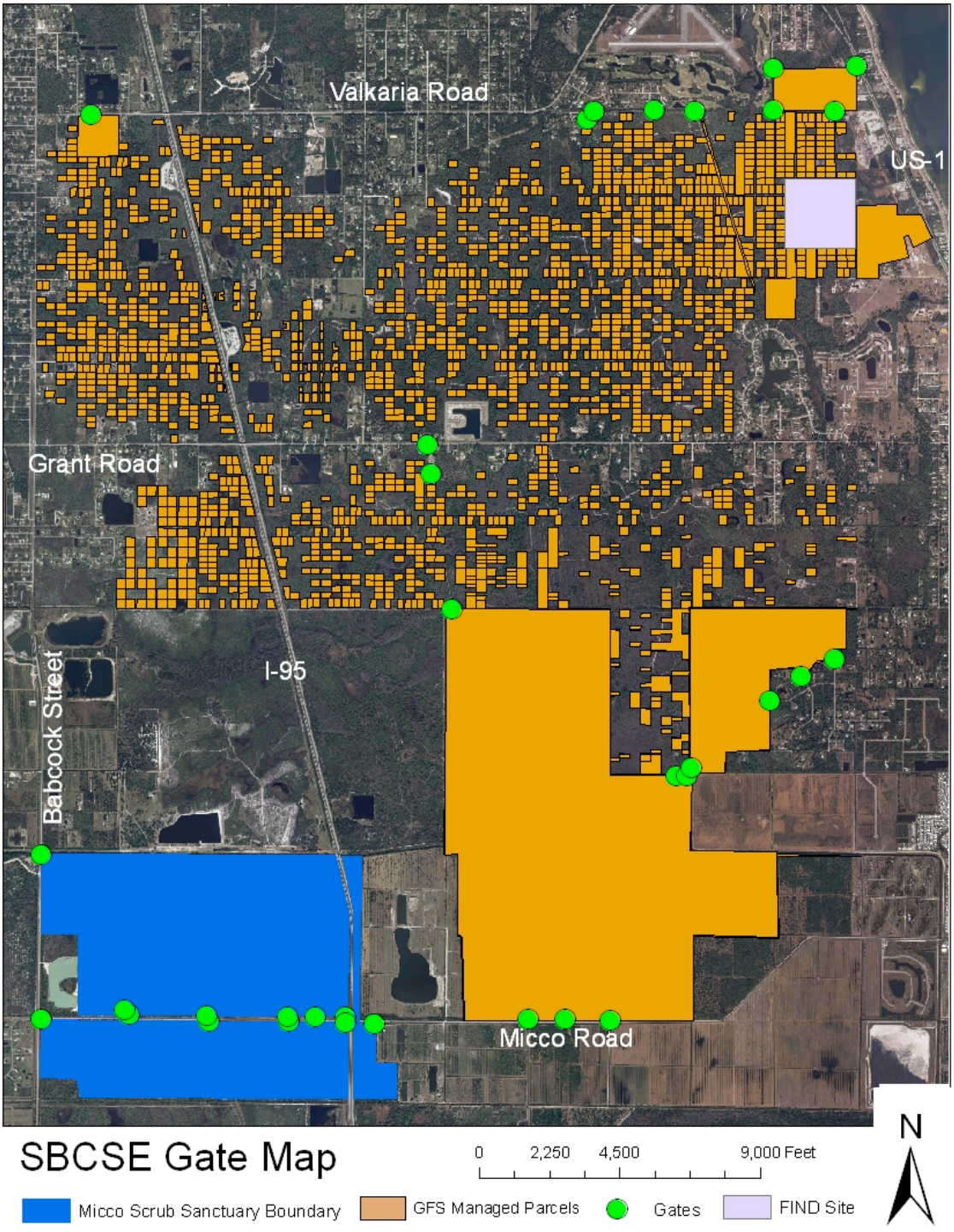

Figure 8

*Map current as of March 2014

As previously mentioned, there are currently two areas within GFS that are under the management authority of the Florida Fish and Wildlife Conservation Commission (FFWCC). The EEL Program is open to exploring a partnership in managing these areas. FFWCC land consists of 314 acres. The FFWCC management parcels are relatively small and directly adjacent to the county managed lands where resources are already being committed.

The Florida Inland Navigation District (FIND) owns a parcel in the northeastern section of GFS. This can also be seen in **Figure 8**. This parcel is particularly important to the area due to the scrub habitat and numerous families of Florida Scrub-jay (*Aphelocoma coerulescens*) located on site. The County and FIND have been exploring exchange options over a number of years, and have recently identified a conceptual exchange proposal that is under consideration.

GFS provides outstanding opportunities for nature-based outdoor recreation, environmental education, field research and guided or self-guided interpretive tours featuring central Florida's ecological diversity. Due to the sensitive nature of the resources, access will be limited to passive recreation activities such as hiking, nature study, horseback riding and environmental education. Amenities proposed for GFS include a trail system available for hiking, mountain biking, horseback riding, and a small parking area. The nature trails may feature signs to interpret the sanctuary's natural resources, and to provide information about resource management activities. A kiosk and trailhead is located at 7000 Crepe Myrtle Drive, Grant-Valkaria, Florida – 32949. A two mile hiking trail has been marked and can be accessed at the kiosk via a walkthrough at the gate (**Figure 9**). Trailhead parking and another loop trail south of the Sottile Canal are proposed along with a footbridge across the canal that will connect the southern parcel with the north.

Micco Scrub Sanctuary

The EEL Program acquired MISS (**Figure 5**) in 1994 (Kentucky Central; 1,323 acres) and 2000 (MEP; 401 acres). The State reimbursed the County for approximately 50% of the purchase price in 1999 (only the Kentucky Central parcels). This portion of MISS is titled to the state and Brevard County is the designated land management agency under lease agreement #4263. MISS consists of 1,724 acres in Micco (South Brevard County), Florida. It is situated 8 miles south of Malabar Road, located along Babcock Street. This sanctuary contains a wide diversity of natural habitats, including scrubby and mesic flatwoods, scrub, and wetlands. Protected wildlife species noted on site include the Florida Scrub-jay (FSJ), gopher tortoise (*Gopherus polyphemus*) and the eastern indigo snake (*Drymarchon couperi*). A parking area and kiosk is located at 500 Micco Road, Micco, Florida – 32976 (**Figure 10**).

There are two designated loop trails within MISS. The white trail is a 1.7-mile loop trail. The red trail is a 4.7-mile loop trail. These trails support hiking, mountain biking, and horseback riding.

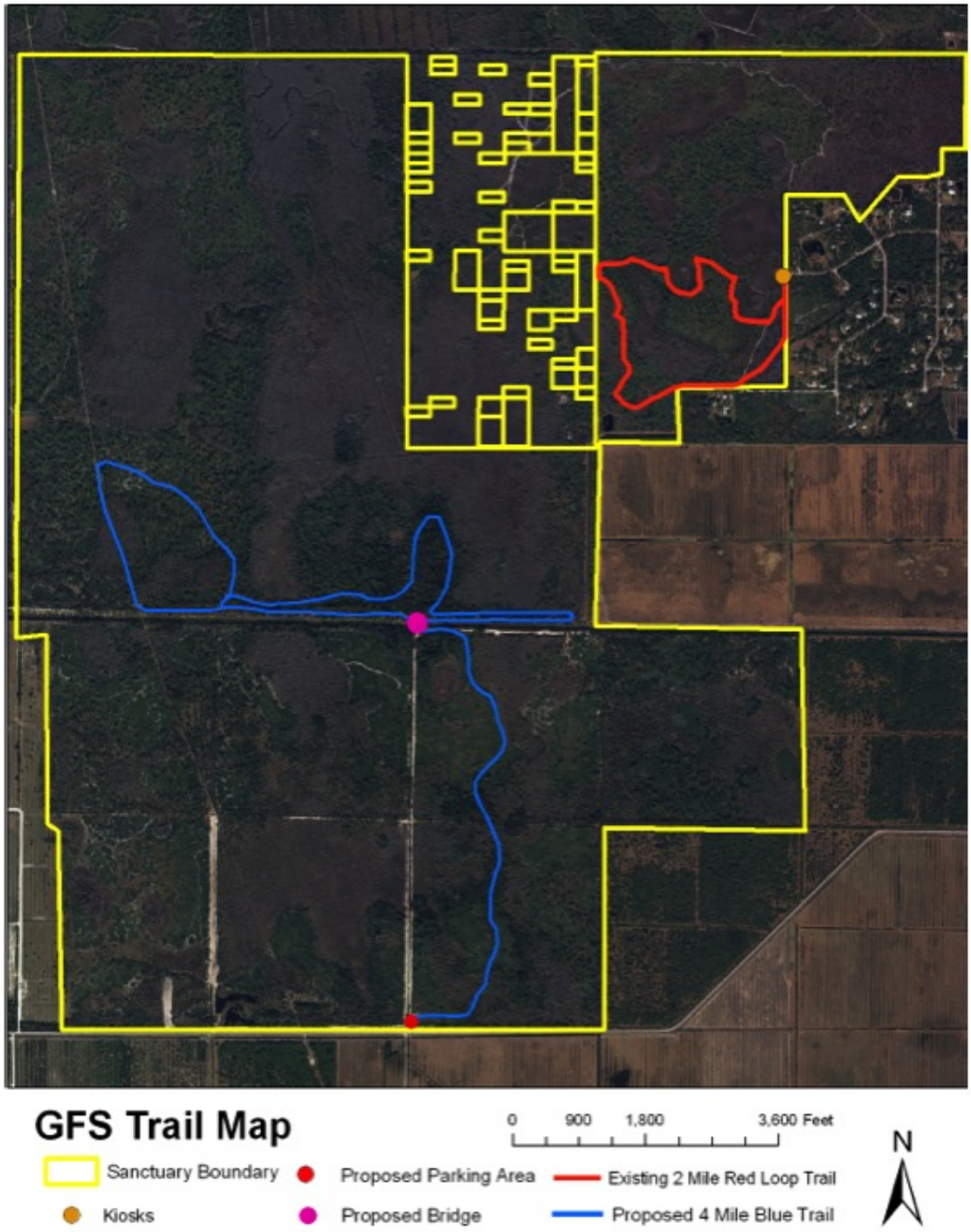
GFS Trail Map
0
900
1,800
3,600 Feet
N
Sanctuary Boundary
Proposed Parking Area
Existing 2 Mile Red Loop Trail
Kiosks
Proposed Bridge
Proposed 4 Mile Blue Trail

Figure 9

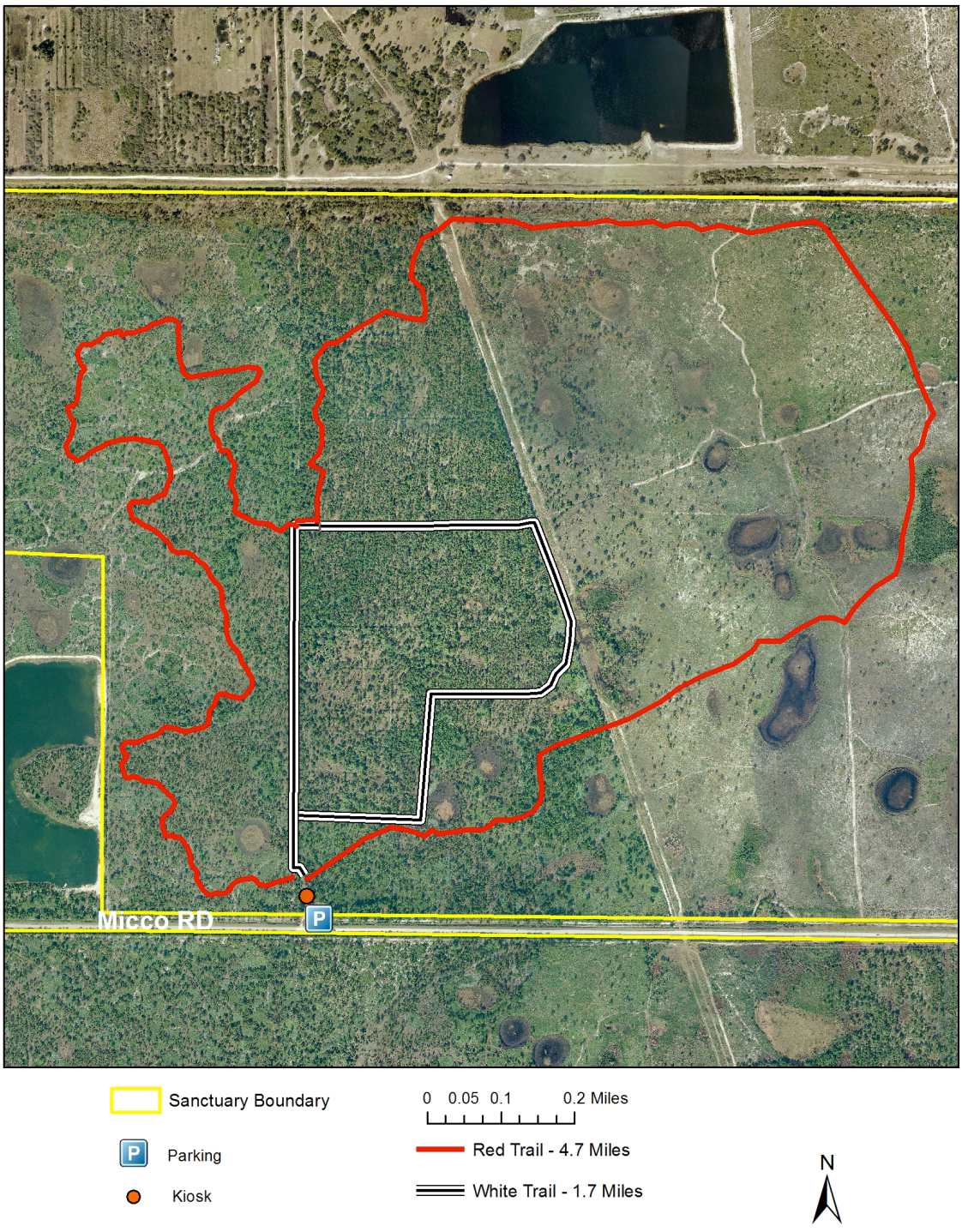
Micco RD
P
Sanctuary Boundary
Parking
Kiosk
0 0.05 0.1 0.2 Miles
Red Trail - 4.7 Miles
White Trail - 1.7 Miles
N

Figure 10

II. INTRODUCTION

In two referendums, one in 1990 and one in 2004, Brevard County voters approved funding for the Environmentally Endangered Lands (EEL) Program. 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 through acquisition and management. The EEL Program provides passive recreation and environmental education opportunities to Brevard's citizens and visitors without detracting from the 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 Program 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, management areas are geographically defined within Brevard County.

A full-time sanctuary manager will coordinate all management efforts on EEL Sanctuaries within the regional management area. EEL Sanctuaries in the South Regional Management Area include Malabar Scrub Sanctuary, Grant Flatwoods Sanctuary, Crane Creek Sanctuary, Jordan Scrub Sanctuary, and Micco Scrub Sanctuary. As outlined in the EEL Sanctuary Management Manual **(Brevard County, 1997)**, 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 systems 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 Sanctuary Management Manual of the EEL Program establishes a general framework for management of specific sites and establishes ten Principles of Conservation summarized, 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 conservation principles, this management plan provides specific goals, strategies and actions to guide management of the sanctuaries in terms of the objectives of the EEL Program. The plan is divided into the following 9 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 as well as a description of 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, special concern species, and biological diversity), and cultural resources (archeological, historical, land-use history, 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. ***Financial Considerations*** discusses funding mechanisms and projected management costs.

VIII. ***Bibliography*** cites original research and publications used to develop the Management Plan.
IX. ***Appendices*** include supplemental information.

III. SITE DESCRIPTION AND LOCATION

The SBCSE Management Plan complies with both the Town of Grant- Valkaria's comprehensive plan and Brevard County's comprehensive plan. All letters relating to compliance can be found in **Appendix D**.

GFS
The GFS consists of 5,198 acres, and is located in southern Brevard County as shown in **Figure 1**. The tax parcel IDs of the larger tracts in GFS are 30-38-07-00-00001.0-0000.00, 30-38-05-00-00001.0-0000.00, 30-38-06-00-00250.0-0000.00, 30-37-01-00-00001.0-0000.00, 30-37-12-00-00001.0-0000.00, 30-37-12-00-00750.0-0000.00, 30-37-13-00-00001.0-0000.00, 30-38-18-00-00001.0-0000.00, 30-38-07-00-00500.0-0000.00 and 30-38-08-00-00500.0-0000.00. The legal descriptions are attached in **Appendix A**. The northern parceled area of GFS includes Township 29 South, Range 37 East and Sections 22, 23, 24, 25, 26, 27, 34, 35, 36 and Township 29 South Range 38 East and Sections 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, 33, 34. Due to the conceptual nature of GFS in this Management Plan, the legal descriptions of each individual parcel would not be feasible.

Management access for GFS is available from Micco Road, Hideaway Lane, Crepe Myrtle Drive, Orchid Tree Drive, and Cottonwood Drive. Recreational access and a kiosk are located at 7000 Crepe Myrtle Drive, Grant-Valkaria, Florida – 32949. An additional recreational access will be available along Micco Road, east of I-95.

MISS
MISS consists of 1,724 acres, located along Babcock Street, west of I-95, directly north of the St. Sebastian River Buffer Preserve and is bisected by Micco Road running east/west (Sections 10, 11, 14 and 15, Township 30S and Range 37E) as shown in **Figure 1**. The tax parcel IDs are 30-37-10-00-500, 30-37-11-00-500, 30-37-11-00-750, 30-37-13-00-500, 30-37-14-00-1, 30-37-14-00-250, 30-37-14-00-500, 30-37-14-00-750, 30-37-15-00-1 and 30-37-15-00-500. The legal descriptions for MISS are attached in **Appendix A**.

Management access to the site by vehicle is available in nine locations: five along the north bound of Micco Road, three along the south bound of Micco Road, and one on the corner of Babcock Road and the Sottile Canal. These are all gated, and only one area (**Figure 10**) will serve as public parking.

IV. NATURAL RESOURCE DESCRIPTIONS

This section provides descriptions of natural resources, including physical resources (climate, geology, topography, soils and hydrology), biological resources (ecosystem function, flora, fauna, special concern species and biological diversity) and cultural resource information (archeological, historical, land-use history and public interest).

A. Physical Resources

a. Climate

The SBCSE management areas are located in east central Florida, an isothermal area at the junction of the temperate and sub-tropical climatic zone. 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 area's latitude and proximity to the Atlantic Ocean. There are reliable rainfall records from the area that span approximately 100 years, and average 53.8 inches per year. The EEL Program-South Region has gathered rain data on site since January 2008. Our records are comparable to historical averages. Wet and dry seasons are typically well defined, with the wet season occurring between May and October. Annual and seasonal rainfall is subject to large variation in both amount and distribution. During spring and summer, Brevard County experiences numerous thunderstorms often coupled with frequent lightning strikes. Historical alteration in climate in association with intermediate disturbance events such as hurricanes and lightning-induced wildfires directly and indirectly affect the composition and distribution of species and natural communities in Florida, and Brevard County is no exception.

Prevailing winds are generally from the north to northeast during the dry season (November-April) and from the east-southeast during the wet season (May-October) (**ESMC, 1989**). Weather patterns such as cold fronts and thunderstorms will affect local wind direction depending upon the time of year.

b. Geology

Since the late Oligocene, Florida has been a continuous peninsula, comprised of numerous ecosystems. The most ancient terrestrial systems are probably the mesic forests and the xeric oak/scrubby ecosystems. Scrub ridges that are present throughout Florida and Brevard County remained high and dry during historical water level fluctuations that dramatically shaped the composition of the state's rich scrub biota (**Myers, 1990**).

GFS is located between two ridges and contains portions of the Atlantic Coastal Ridge formation and the Ten Mile Ridge. MISS lies within the Ten Mile Ridge formation.

c. Topography

Elevation for MISS (**Figure 11**) ranges from approximately 21 feet in the lower flatwoods ponds up to 34 feet National Geodetic Vertical Datum (NGVD) along the higher scrub/sand ridges and ruderal berms on the north boundary. Intermittent depression areas forming wetlands and seasonal ponds exist between slightly higher sections in the scrub areas. These slight differences in elevations are enough to support the varied ecosystems present within the Sanctuary. Drainage ditches present on site may be filled in at a future time to restore more natural hydrological conditions.

Elevation for GFS (**Figure 11**) has relatively flat topography with gently rolling terrain ranging from 8 feet in Kid Creek along the Florida East Coast Railroad tracks, up to 34 feet NGVD along the higher scrub/sand dunes. Intermittent depression areas forming wetlands of cypress strands and dome swamps exist between slightly higher areas in the flatwoods communities. Drainage ditches present on site interrupt natural drainage patterns north-south, thus altering natural hydroperiods. Mitigation projects to fill this ditch network on site in southern GFS are underway.

d. Soils

The soil types within the SBCSE, defined by the Natural Resource Conservation Service (formally the Soil Conservation Service), are as follows (**Figures 12A/12B**):

GFS

Basinger Sand (Ba)
Eau Gallie Sand, Riveiera and Winder (Eu)
Malabar Sand (Ma)
Myakka Sand, depressional (MkD)
Pompano Sand (Pw)
Riviera Sand (Ri)
Wabasso Sand (Wa)
Myakka Sand, ponded (Mp)
Paola Fine Sand, 0-5 percent slopes (PfB)
Satellite Sand (Sa)
St. Lucie Fine Sand, 0-5 percent slopes (SfB)
Eau Gallie Sand (Eg)
Holopaw Sand
Myakka Sand (Mk)
Pineda Sand (Pn)
Quartzipammients, smoothed (Qt)
Samsula Muck, depressional (SmD)
Winder Loamy Sand (Wi)
Oldsmar Sand (Od)
St. Johns Sand, depressional (Sc)
Valkaria Sand (Va)

MISS

Anclote Sand
EauGallie, Winder and Felda, ponded
Floridana Sand, depressional
Myakka Sand (Mk)
Pomello Sand (Ps)
Tomoka Muck (Tw)
EauGallie Sand
Felda Sand
Immokalee Sand
Pineda Sand (Pn)
St. Johns Sand, depressional (Sc)
Wabasso Sand (Wa)

Soil Descriptions are located in **Appendix E**. Soil disturbing activities will be limited to maintaining fire lines and hiking trails. On areas that have been disturbed prior to acquisition, assessments will be made to determine if soil erosion is occurring, and, if so, the appropriate measures will be taken to stop or control the effects of the erosion.

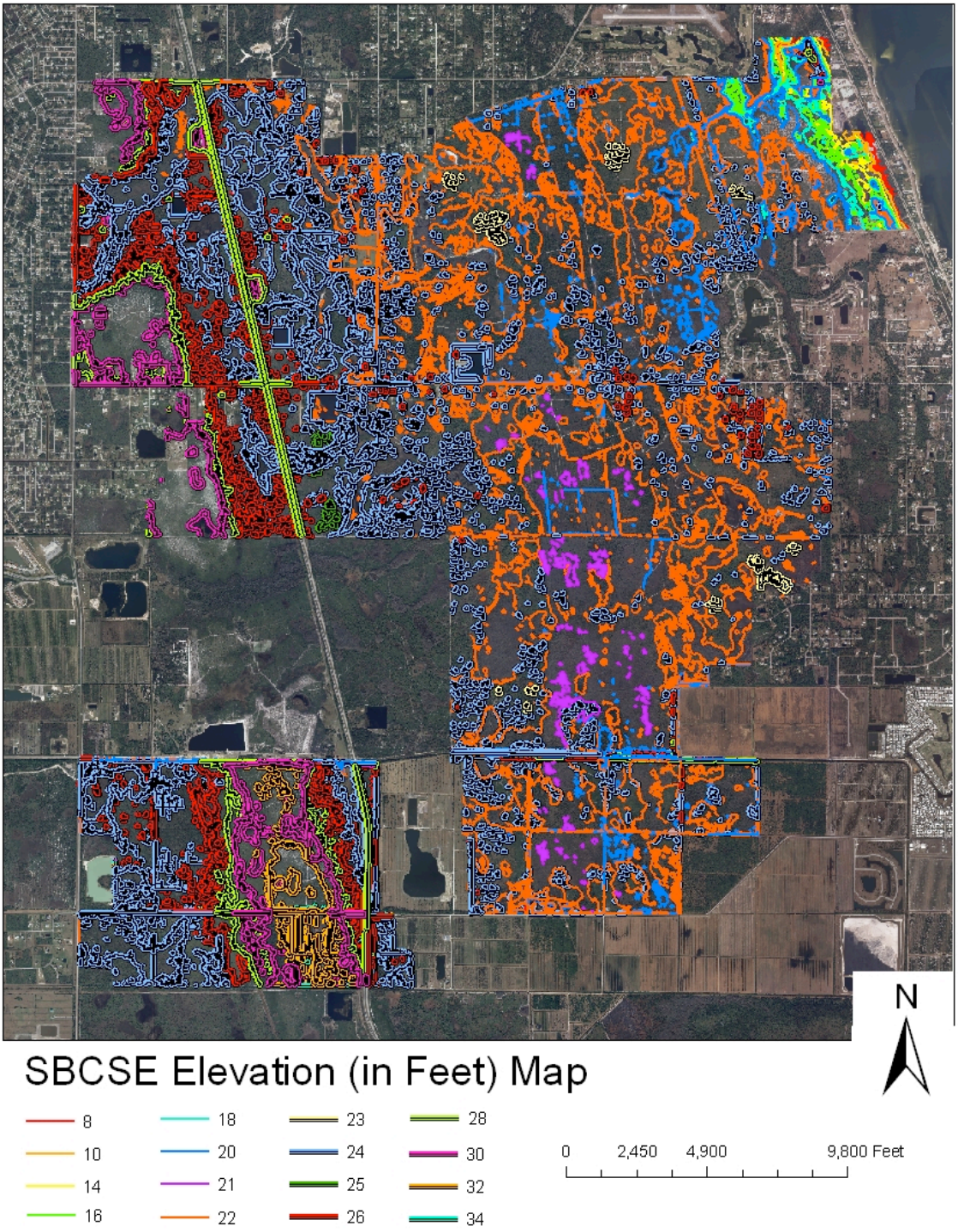

Figure 11

*The LIDAR elevation shapefile (NGVD) was received from the Brevard County Natural Resources office in 2011

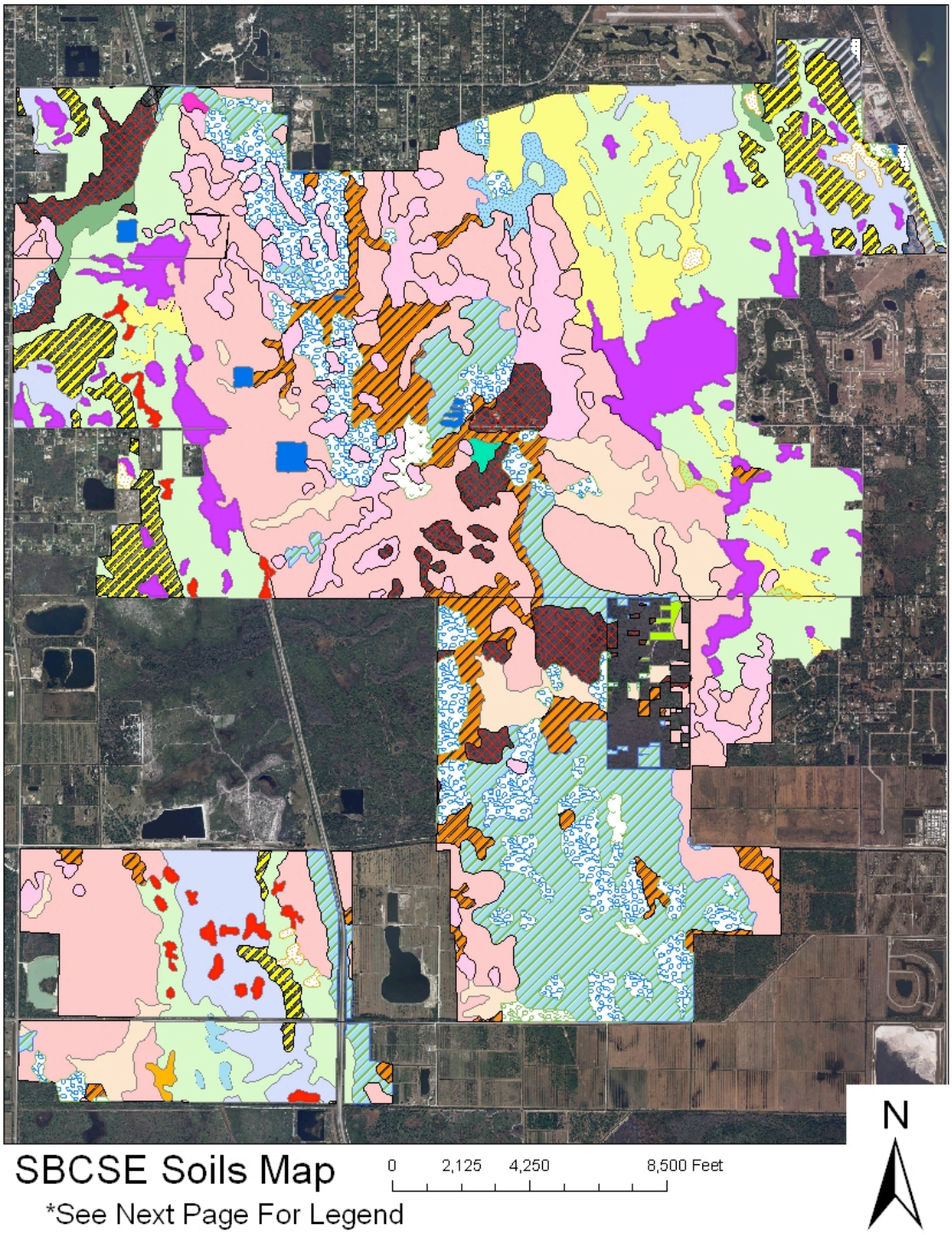

Figure 12A

* Soil shapefile received from the USGS

Figure 12B

* Soils are defined by the Natural Resource Conservation Service

e. Hydrology

FEMA flood maps can be seen in **Appendix F**. For the purpose of the following sections, northern GFS will be considered the managed area north of Grant Road and southern GFS will be the managed lands south of the road.

GFS
Northern GFS lies within parcel numbers 12009C0605E, 12009C0610F, 12009C0615E, 12009C0617F, 12009C0620E of the FEMA Flood Insurance Rate Maps dated April 3, 1989, August 18, 1992. These maps can be seen in **Appendix F**. Portions of GFS exist in flood zone X, which is outside of the 100-year flood plain elevation. Other acreage is located in flood zones A and AE within the 100-year flood plain elevation. Flood zone AE are flood prone and are subject to erosion.

The major hydrological features of northern GFS are Kid Creek, agricultural ditches and ditches on either side of the Interstate Highway I-95. Portions of this area were drained for agriculture and cattle grazing. Field ditches have a negative hydrological impact on the wetlands or depression marshes by lowering the water table. During the rainy season, because more water flows along the ditches, the lower wetlands or depression marshes becomes entirely filled and causes the water to become restricted to flow and thus causes flooding. Further hydrological impacts have also resulted from fire control lines and trails throughout the area. The Florida Forest Service (FFS), previously known as the Florida Division of Forestry (FDOF) installed the fire control lines, also known as plow lines, while containing wild fires in the area. ATV's (all-terrain vehicles) are common throughout the northern portion of the property, but are currently impossible to control due to the lack of controllable boundaries north of Grant Road as well as parcels just south of the road.

Historic aerials dated from 1943, 1958, 1972, 1983, 1993, 2000 and 20011 (Florida Department of Transportation - FDOT) were examined for evidence of changes in hydrology and habitat. The majority of northern GFS was previously mesic flatwoods and a greater portion towards the southern boundary consists of more cypress strands and cypress dome swamps. Currently these latter community types have disappeared due to the invasion of exotics and the alteration of the landscape by adjacent ditch installation.

The primary hydrologic features of southern GFS are the vast cypress dome/strand systems and the cross canals within the area south of the Sottile Canal. These cross canals, paired with the Sottile Canal, have undoubtedly adversely impacted the cypress systems on-site. Most of the cypress south of the Sottile canal are smaller than the ones to the north. The lack of standing water throughout the habitat during the wet season seems to have stunted the growth of the cypress. Restoration is needed in this area of the sanctuary to restore the sheet flow that once existed on site. Restoration projects to backfill the ditches south of the Sottile are ongoing. As of August 2012, five ditches totaling 11,095 feet have been filled through mitigation.

This southern portion of GFS lies within parcel numbers 12009C0615E and 12009C0620E on the FEMA Flood Insurance Rate Maps dated November 19, 1997.

MISS

This tract lies within Parcel Numbers 12009C0615E and 12009C0705E of the FEMA Flood Insurance Rate Maps dated November 19, 1997. Approximately 60% of the property lies in the flood zone X, outside of the 100-year flood plain. The remaining 40% of the tract lies in the AE or A flood zone. Both of these areas are within the 100-year flood elevation.

The major hydrological altering features of this site include an old ditch system present within and surrounding the planted pine area in the unit north of Micco Road. This ditch system was constructed for tomato farming in the 1960's, and even though most of the lateral ditches have filled in over time, they still negatively affect the adjacent wetlands. The culvert connecting this main ditch to the Sottile Canal to the north had collapsed but was replaced in October of 2008. This culvert allows for the release of water from the site while still providing continuous access along the northern firebreak. Similar washout areas do occur on site. Future culverts may need to be put in place. Minor washouts on existing firebreaks have been graded on site to allow for release of water and the crossing of fire related and maintenance vehicles. St. Johns River Water Management District (SJRWMD) approved these grading projects before they were conducted. All culvert projects have been and in the future will be permitted through SJRWMD and the Army Corps of Engineers.

A large canal (Sottile Canal) borders the sanctuary to the north, and a small drainage ditch runs east-west on the southern boundary, just north of the St. Sebastian River Buffer Preserve.

Aerials dated from 1943 to present were examined for evidence of changes in hydrology. Micco Road and the Sottile Canal seem to have had the greatest effect on the wetlands, with depression marshes closest to these edges either vanishing or changing in size. Small depression marshes located throughout the remainder of the property on St. Johns ponded soils form the majority of the wetlands on this tract, and most of them have remained relatively consistent in size throughout the 50 years as evidenced by the aerials examined.

As seen in the topographic map of the SBCSE, MISS is relatively flat with about ten feet separating the lowest from the highest elevation on-site.

Restoration of two wetland systems is under way through off-site wetland mitigation funding. The project involved the placement of two ditch blocks installed in May of 2001 to reduce the negative impact of the drainage ditches. The goal is to return a more natural function to the adjacent habitats by improving the water holding capacity of the wetlands. Monitoring is performed every year to judge the success of these blocks. Future projects will involve back filling the individual ditches as needed.

B. Biological Resources

Protection of the resources depends upon five key items: Reintroduction of a fire regime, restoration of any historical hydrological processes that have drastically altered plant communities, removal of exotics, limiting recreational impacts and monitoring all of the above items.

a. Ecosystem Function

GFS
GFS is made up of a mixture of scrub, flatwoods, and scrubby flatwoods. Protection and management of this property lies in the management of vegetative succession. Flatwoods communities are a result of the mixing of two powerful elements, fire and water. Their persistence is vital for the wildlife dependent upon their existence for their breeding and foraging needs. The higher and drier portions make up the scrub habitat. Lower laying areas make up a variety of wetland habitats including a number of cypress strand systems. They are some of the largest protected systems in southern Brevard County. Other upland habitats consist of various stages of oak hammock with disturbed areas along the gas pipeline and canal edges. GFS preserves a fine example of the upland and wetland communities that once covered larger areas of the southern portion of the County.

MISS
This entire property, with the exception of 175 acres of pine plantation, is a mix of flatwoods (with embedded depression marshes) and scrub. The uniqueness of this property comes not in the component communities but in the combination of these communities into a mosaic. The biodiversity of this tract will be maintained and improved through the careful application of fire and hydrological restoration. Aerials from 1943 illustrate that the flatwoods embedded depression marshes have not changed much as compared to modern aerials, so their persistence is vital for the animals that have come to depend upon their existence for their breeding and foraging needs. Designated animals recorded on-site include the Florida Scrub-jay, gopher tortoise, and eastern indigo snake.

b. Vegetation

This section describes the plant communities identified within the SBCSE. The identified vegetative communities (**Figures 13A/B**) are described using the **Florida Natural Areas Inventory's (FNAI) Guide to the Natural Communities of Florida (2010)**. The FNAI reports for the SBCSE can be found in **Appendix G**. A list of plant species encountered was recorded for SBCSE. Figure 13 was put together by staff using aerials and soil data, as well as using GIS technology to make habitat shapefiles in the field.

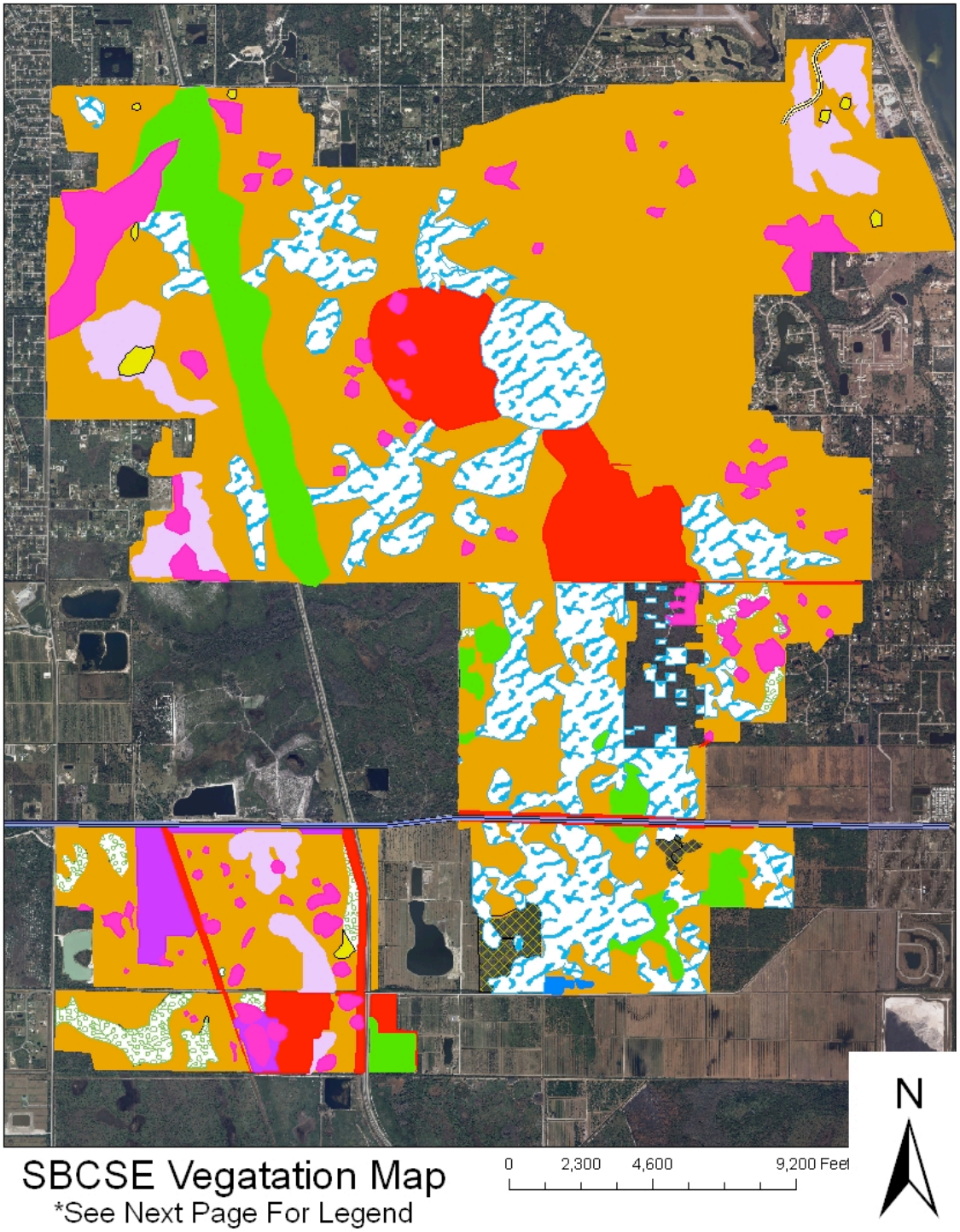
SBCSE Vegatation Map
*See Next Page For Legend
0
2,300
4,600
9,200 Feet
N

Figure 13A

Figure 13B

*Vegetative communities are described using the Florida Natural Areas Inventory's Guide to the Natural Communities of Florida

This list reflects the representative species and is not a complete floristic inventory. A plant species table generated through the compilation of data collected by members of the EEL Selection & Management Committee is included in **Appendix H**. A more complete list of flora is needed for SBCSE.

Historic aerial photographs were reviewed to determine changes to vegetative community type and structure, as well as man-induced changes, in the past fifty (70) years. Photographs from 1943, 1958, 1972, 1983, 1989, 1993, 2000, and 2011 were inspected and observations of significant changes are noted below. Aerials for the three tracts can be seen in **Appendix I.**

Northern GFS

1943: The area is relatively pristine. Valkaria Airport is visible in the northeast.
1958: US 1 and the railroad tracks can be seen in the northeast.
1972: Gas line easement is evident, as well as the missile tracking range running parallel to the east of the gas line.
1983: New development and surrounding roads are present.
1993: Babcock St and developing Palm Bay to the west can be seen.
2000: More residential development can be seen.
2011: The most recent developments can be seen.

Southern GFS

1943: Micco road is evident on the aerial, and several hunting trails/ timber trails are present as well.
1958: No major changes, light agricultural development beginning to the north and south.
1972: Gas line easement is evident, additional hunting trails present. Land to the southeast of the Anstalt site is cleared.
1983: Crepe Myrtle Drive and surrounding roads are present.
1993: New trails throughout property added. Barrow pit/ pond west of GFS is present.
2000: More residential development around Crepe Myrtle Drive can be seen.
2011: In this aerial, the most recent developments can be seen.

MISS

1943: Micco road is evident on the aerial.
1958: The main ditch running north south from what is now the MISS parking area has been put in place
1972: FPL line is up. Agricultural development can now be seen in the south east as well as the beginning of planted pines west of the FPL line.
1989: The Deer Run community to the west of Babcock Rd is developing.
2011: The most recent developments can be seen.

Northern GFS
A preliminary plant survey was undertaken by the EEL staff and volunteers. Previous floral surveys were performed by Paul A. Schmalzer and Tammy E. Foster on November 26th, 2003, March 22nd, 2004 and April 2nd, 2004 with additional surveys performed in 2007. Results are listed in **Appendix H**. Further surveys will be performed in all major habitats throughout the growing season to obtain a complete list of floral species.

The natural community component of GFS is diverse with natural community transitions. Historic aerials from 1943 to 2011 were examined to determine changes within these plant communities. The most obvious habitat changes occurred in the fire-dependent ecosystems. Historically these were more open, with less tree density than the present. Cypress strands and dome swamps were more common in previous years before timbering practices and ditch work began. Human activities have interrupted the mesic flatwoods natural cycle by both altering the fire regime and by changing the hydrology.

Southern GFS
Approximately 50 percent of GFS (**Figures 13A/13B**) is wetland habitat, from cypress strands to depression marshes. The remaining acres within GFS are uplands such as scrub, flatwoods, or some combination of the two. These uplands are pristine in some locations, but other portions are disturbed or recovering from disturbance. Plant species for the southern portion of the site can be seen in **Appendix H**.

MISS
MISS is also comprised of a variety of different vegetation types, all separated into classification types (**Figure 13A/13B**). As in GFS, these types often overlap. The natural community component of this property is rather diverse with excellent examples of the natural community transitions typical of this Ten Mile Ridge system. Aerial photographs from 1943 to the present were examined to determine what changes have occurred within these plant communities. The greatest difference is that the fire-dependant ecosystems (scrubby flatwoods) were historically more open, with less tree cover than exists at present. This is particularly evident in the central and northeast portions of MISS. Agricultural activities, from tomato farming to cattle raising, have all interrupted the pine flatwoods' natural cycle by either altering the fire regime or by changing the hydrology. Cattle grazing has kept the areas west of the power line relatively free of understory cover, while planted pines in two areas have reduced or eliminated native groundcover in the plantation areas.

The dominant plant community on-site is flatwoods, both scrubby and mesic. Slash pine and longleaf pine are the dominant tree species comprising the canopy layer. Saw palmetto, gallberry, and various oaks are most prevalent in the shrub layer. In the herbaceous layer, soil type and water availability influences composition. In the freshwater marshes, the dominant species are *Hypericum* spp.; in the sloughs adjacent to the wet marshes the dominant plant is maidencane (*Panicum hemitomon*). Plant species for MISS can be found in **Appendix H**.

The following plant communities (listed by their FNAI classification) have been documented within the SBCSE. A much more thorough ecosystem mapping project is needed within these areas.

Note: Flora and Fauna descriptions from the FNAI classification are generic and not specific to GFS or MISS. Staff has surveyed these managed areas and confirmed that these habitats are present in the general location noted in **Figures 13A/13B**.

GFS

Scrub	318 acres
Baygull	32 acres
Cypress Strand Swamp	2,136.46 acres
Mesic Flatwoods	4,389.94 acres
Hydric Hammock	761.18 acres
Dry Prairie	102.79 acres
Scrubby Flatwoods	2,028.55 acres
Basin Marsh	40.41 acres
Depression Marsh	505.70 acres
Blackwater Stream (Kid Creek)	1.00 acres
Ruderal	853.97 acres

MISS

Mesic flatwoods	898.1 acres
Scrubby Flatwoods	189.5 acres
Depression Marshes	168.9 acres
Basin Marsh	148.5 acres
Planted Pine	120 acres
Scrub	46.9 acres
Ruderal	152.1 acres

Mesic Flatwoods (4,683.04 Acres)

This plant community is found throughout GFS and MISS. Pine density and species varies, with some areas containing only longleaf pine (*Pinus palustris*), others only slash (*Pinus elliotti*) and still others a combination. Mesic flatwoods are characterized as an open canopy forest of widely spaced pine trees with little or no understory and a dense ground cover of herbs and shrubs. Typical understory vegetation consists of saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), and grasses. Portion of this habitat has been altered due to historic grazing or the interruption of historic fire frequencies. A return to a more natural fire regime is necessary for all of the mesic flatwoods on the property.

Fetterbush and or gallberry are often dominant shrubs in this ecosystem, but in many stages of mesic flatwoods saw palmetto can be dominant. Height of shrub layer accurately reflects period since last fire event. Occasional pawpaw (*Asimina reticulata*), tar flower (*Bejaria racemosa*) and redbay (*Persea borbonia*) are present. Ground cover

contains yellow-star grass (*Hypoxis juncea*), pennyroyal (*Piloblephis rigida*) and big yellow milkwort (*Polygala rugelii*).

Mesic flatwoods occur on relatively flat, moderately to poorly drained terrain. The soils typically consist of 1-3 feet of acidic sands generally overlying an organic hardpan or clayey subsoil. The hardpan substantially reduces the percolation of water below and above its surface. During the rainy seasons, water frequently stands on the hardpan's surface and inundates much of the flatwoods; while during the drier seasons, ground water is unobtainable for many plants whose roots fail to penetrate the hardpan. Thus, many plants are under the stress of water saturation during the wet seasons, and under the stress of dehydration during the dry seasons. Flatwoods in GFS and MISS are frequently under water during the wet season.

An important physical factor in mesic flatwoods is fire. This probably occurred every 1 to 8 years during the pre-Columbian times. Nearly all plants and animals inhabiting this community are adapted to periodic fires; several species actually depend on fire for their continued existence. Without frequent fires, mesic flatwoods succeed into hardwood-dominated forests whose closed canopy can essentially eliminate the ground cover herbs and shrubs. Additionally, the dense layer of litter that accumulates on unburned sites can eliminate the reproduction of pines that require a mineral soil substrate for proper germination. Thus, the integrity of the mesic flatwoods community is dependent upon frequent fires. Mesic flatwoods often grade into wet flatwoods, dry prairie or scrubby flatwoods, depending upon elevation

Historically, mesic flatwoods in northern GFS was characterized as an open canopy forest of widely spaced pine trees. It consisted of little or no understory, but a dense ground cover of herbs and shrubs existed as shown in the 1943 aerial (FDOT). This occurred due to previously burning in the area by the ranchers. This was a routine practice. Portions of this community also burned during the 1998 and 2008 wildfires. Today it consists of an open canopy of longleaf and slash pines with most of the understory dominated by saw palmetto.

Flatwoods in ideal situations should burn every 1 to 3 years to remain in maintenance condition. Maintenance condition **(FNAI,2010)** for these tracts would consist of less than 40% saw palmetto coverage with pine density ranging from 3 to 4 pine (of varying ages) per acre in scrubby flatwoods to 40 -70 sq.ft. basal area (BA) in flatwoods managed for Red Cockaded Woodpeckers (RCW). Currently, MISS is the only sanctuary that will be partially managed for the RCW.

<u>Depression Marsh (674.6 Acres)</u>
Depression marshes are the seasonally wet ponds scattered throughout the mesic flatwoods. These wetlands are essential for the conservation of many of the site's amphibians and provide breeding grounds for sandhill cranes. The marshes are ringed by dense saw palmetto with sandweed (*Hypericum fasciculatum*) as the dominant species. Sphagnum moss (*Sphagnum* sp.) occurs in some. Bloodroot (*Lachnanthes caroliniana*)

and pipeworts (*Eriocaulon* sp.) are present. This represents a natural community fast disappearing to development in Brevard County.

Fire is important in maintaining this community type by restricting invasion by shrubs and trees and in the formation of peat. Fire will need to be reintroduced in the depression marshes within the SBCSE. The natural hydrology of the depression marshes located in the flatwoods community of northern GFS has been altered since the construction of drainage ditches from previous use of the site. Re-grading these drainage ditches will allow the restoration of the natural hydroperiod and avoid shrub invasion.

Fire intervals should be consistent enough that hardwoods and fire shadows are eliminated. Burning during varying conditions, wind direction, and seasons are an important factor in reaching these goals. **FNAI (2010)** considers maintenance condition when herbaceous vegatation reaches 75% to 100%.

Cypress Strand Swamp (2,136.46 Acres)

Cypress Strand Swamps are depressional areas in the mesic flatwoods dominated by pond cypress (*Taxodium ascendens*). The dominant groundcover consists of little blue maidencane (*Amphicarpum muhlenbergianum*) in association with swamp fern (*Blechnum serrulatum*), marsh fern (*Thelypteris palustris*) and long-leaf violet (*Viola lanceolata*). Within the GFS, north of the Sottile Canal, the cypress strands are very extensive, and seem to be in good shape. The impact of the cross canals on the MEP portion of the GFS needs to be evaluated and corrective measures need to be taken to restore historic hydroperiod. The cypress trees in some of the area south of the Sottile Canal may be stunted due to the interrupted hydroperiod and drainage. The ditches that exist in the MEP section drain the area enough to stunt or dwarf the cypress, but during the wet season remain moist enough to support the cypress community. Native bromeliads (*Tillandsia* sp.) are very prolific within the strands. These ecosystems are especially sensitive to alterations in the hydroperiod. They are also subjected to periodic fires (from 30 to 200 years), which will lower the duff layer. Without this periodic fire, hardwood invasion and peat accumulation would convert these communities into bottomland forest in a few hundred years.

2008 wildfires burned through 80% to 85% of this habitat in GFS. This habitat is considered to be in maintenance condition when ground cover is less than 30% herbaceous vegetation and fire has burned through the area within the last 100 years **(FNAI, 2010)**.

Dry Prairie (102.79 Acres)

Dry prairie is characterized as a nearly treeless plain with a dense ground cover of wiregrass (*Aristida stricta*), saw palmetto, and other grasses, herbs and low shrubs. Other typical plants include pine lily (*Zephyranthes simpsonii*), stagger bush (*Lyonia fruticosa*), fetterbush, and shiny blueberry (*Vaccinium myrsinites*). Typical animals include box turtle (*Terrapene Carolina bauri*), black racer (*Coluber constrictor priapus*), turkey vulture (*Cathartes aura*), sandhill crane, Northern bobwhite (*Colinus virginianus*), and bobcat (*Lynx rufus*). The area detailed in GFS is not considered a pristine dry prairie. It

has its characteristics due to the change in hydrology by the ditches that were dug out, as well as from the agricultural use in the past. As mitigation takes place to fill these ditches, the surrounding area will most likely convert to mesic flatwoods, which surround the pocket of what is labeled dry prairie.

Maintenance condition **(FNAI, 2010)** consists of less than 10% coverage of hardwoods and 80% coverage of grasses, herbs and shrubs. Palmettos should remain low and under 20% coverage. Fire intervals should range from 2 to 5 years.

Scrubby Flatwoods (2,218.05 Acres)

Characterized as an open canopy forest of widely scattered pines with a sparse shrubby understory and numerous areas of barren white sand. The vegetation is a combination of scrub and mesic flatwoods species. Scrubby flatwoods often occupy broad transitions or ecotones between these communities. Typical plants include longleaf pine, slash pine, saw palmetto, wiregrass and shiny blueberry.

Fire is an important component of this habitats' overall health, and should be introduced in a rotational pattern to impose a mosaic formation within the community. The Florida Scrub jay uses this habitat as well as scrub. The management of this type of habitat will insure long-term Florida Scrub-jay survival.

Maintenance conditions within this habitat include fire intervals of 3 to 5 years, 70% of scrub oaks are 1.7 meters in height, and bare and sparse herbaceous vegetation would range from 10 to 30% (**Kent and Kindell, 2009**). Pine density may vary depending on surrounding habits and the presence of FSJ or the likelihood of recruitment. FWC recommends a pine density of no more than 1 to 2 pines per acre in areas important to the FSJ.

Hydric Hammock (761.18 Acres)

Hydric hammock is characterized as a well-developed hardwood and cabbage palm forest with a variable understory often dominated by palms and ferns. Typical plants include cabbage palm (*Sabal palmetto*), red maple (*Acer rubrum*), swamp bay (*Persea palustris*), wax myrtle (*Myrica cerifera*) and saw palmetto. Animals include the raccoon (*Procyon lotor*), squirrel treefrog (*Hyla squirrela*) and grey squirrel (*Sciurus carolinensis*).

The hydric hammocks within southern GFS consist of mainly cabbage palms and are found in pockets near the Sottile Canal and within the mesic flatwoods. This community type within northern GFS is mainly observed along the edges of Interstate Highway I-95, and along the edges of Kid Creek, towards the north-eastern scrub section of the property. The habitat has a dense oak overstory and a shrubby understory.

Maintenance condition for this habitat would consist of fire intervals between 50 to 100 years. The landscape would consist of a closed canopy of oaks and palms with an open understory of palms and fern (**FNAI, 2010**).

Basin Marsh (188.91 Acres)
Basin marsh is characterized as an herbaceous or shrubby wetland situated in a relatively large and irregular shaped basin. Typical plants include buttonbush (*Cephalanthus occidentalis*) and dog fennel (*Eupatorium capillifolium*). Typical animals include green treefrog (*Hyla cinerea*), bullfrog (*Rana catesbeiana*), alligator (*Alligator mississippiensis),* green water snake (*Nerodia floridana*), Great Blue Heron (*Ardea herodias*), Great Egret (*Casmerodius albus*), Snowy Egret, Bald Eagle and Northern Harrier (*Circus cyaneus*). Basin marshes within GFS are mainly concentrated in the southeastern section and frequently border the depression marshes in the area.

Fire intervals should be consistent enough that hardwoods and fire shadows are eliminated. Burning during varying conditions, wind direction, and seasons are an important factor in reaching these goals. Maintenance condition would include 75% to 100% of the vegetation being herbaceous (**FNAI, 2010**).

Scrub (364.9 Acres)
Scrub occurs in many forms; however within the SBCSE its composition is unique. Some plants observed were the Florida rosemary (*Ceratiola ericoides*), Chapman Oak (*Quercus chapmanii*), sand live oak (*Quercus geminata*), myrtle oak (*Quercus myrtifolia*) and rusty lyonia (*Lyonia ferruginea*). The scrub's loose sands drain rapidly, creating very xeric conditions for which the plants have evolved water conservation strategies. This community is essentially maintained by hot, fast burning fires, which allow for the regeneration of the scrub community. Periodic fires should be reintroduced to maintain the scrub for species survival.

Scrub within MISS occurs on the eastern side of the sanctuary. Two families of Florida Scrub jays occupy this area. Fire rotation has been reestablished to this area. Some mechanical reduction may take place in order to better establish optimal shrub height.

Fire intervals for scrub should range from 3 to 10 years. Maintenance conditions would include open sandy areas ranging from 10 to 50%. 70% of Scrub oaks should measure 1.7 meters or less in height (**Kent and Kindell, 2009**).

The FFWCC has put together a scrub management guideline in June of 2009. The EEL Program uses these guidelines in management activities and can be seen in **Appendix J**.

Baygall (35 Acres)
Baygalls are generally characterized as densely forested, peat-filled seepage depressions often at the base of sandy slopes. The canopy is composed of tall, densely packed evergreen hardwoods dominated by swamp bay (*Persea palustris*), and sweet bay (*Magnolia virginiana*). A more or less open understory of shrubs and ferns commonly occurs.

Since baygall rarely dry out enough to burn, the normal fire interval in these communities is 50-100 years or more. These communities are found in close proximity to the wet flatwoods and depression marshes within GFS.

Planted Pine (120 Acres)
This is not an FNAI defined habitat, but this feature does exist in the SBCSE. There is approximately 120 acres of planted slash pine on two sections of the MISS property with trees ranging in size from seedlings to 3-4" dbh. The understory is comprised of grasses including *Polygala rugelii* and *Coreopsis leavenworthii* interspersed throughout, both of which are listed as endemic 1 (**Florida Fish and Wildlife Conservation Commission is the listing agency**). This plantation will ideally be thinned out over time; with the goal of restoring the mesic flatwoods plant community. Ditches in the area will also need to be filled in the fully restore the area.

c. Fauna

The size and diversity of natural communities found within GFS and MISS should support a high number of animal species. There is an immediate need for extensive faunal surveys performed within the SBCSE.

Insects
General insect surveys will include the use of yearlong methods, such as Malaise and pitfall traps. These quantifiable methods of surveying will document any listed insect species and provide a survey of insects through the season. In accordance with Florida Statues Section 388.4111, all environmentally sensitive and biologically highly productive lands are required to submit an arthropod control plan. The SBCSE arthropod control plan and the known history of spraying within the SBCSE managed area can be found in **Appendix K.** Brevard County Mosquito Control will adulticide only when populations exceed the landing rate thresholds, or when a potential for a mosquito-borne disease outbreak become sufficient for disease transmission or a quantifiable increase in numbers of pestiferous mosquitoes or other arthropods. Treatments will be in upland areas only. As of this draft, the EEL Program does not possess any documentation of spaying and considers the known spray history of the SBCSE to be zero.

Birds
Birds observed in GFS and MISS are listed in **Appendix L**. There is a need for a more extensive species survey. GFS exhibits interesting bird habitat characteristics as Bald Eagles have been observed on this site. Plans for management of flatwoods in GFS and MISS will be reviewed in order to improve habitat for the possibility of re-introduction of the Red Cockaded Woodpeckers (*Picoides borealis*) also referred to as RCW's into the sanctuary over the next 50 - 100 years. The FSJ is present in both MISS and northern GFS. These areas are managed using the scrub management guidelines attached to **Appendix** J.

Reptiles and Amphibians
The reptiles and amphibians noted within the SBCSE are listed in **Appendix M**. There is a need for a more extensive species survey.

Mammals
The mammals recorded on-site are listed in **Appendix N** for both tracts. There is a need for more extensive surveys, especially for small rodents. EEL Staff has also used game cameras within the sanctuaries to identify species. A more extensive survey would need to be conducted in order to estimate numbers of an individual species such as white tail deer.

d. Designated Species

Plants
The US Fish and Wildlife Service (USFWS) and the Florida Department of Agriculture and Consumer Services (FDACS), compile lists of protected plant species. The USFWS classifies protected plants as either endangered or threatened. The FDACS lists plants that are considered State Endangered/Threatened and/or Commercially Exploited.

GFS
Paul A. Schmalzer and Tammy E. Foster surveyed northern GFS for plants on November 26th, 2003, March 22nd, 2004 and April 2nd, 2004 and more recently in 2007 (**Appendix H**). Rare scrub plants such as the threatened Florida beargrass (*Nolina atopcarpa*) and the threatened yellow butterwort (*Pinguicula lutea*) were observed as well as *Pteroglossaspis ecristata, Conradina grandiflora, and Lechea divaricata* within the area. Additional surveys will be necessary. Baseline data are considered during management practices such as creation of trails and exotics removal efforts. Other surveys have also found *Zephyranthes simpsonii, which* is listed as a threatened species. *Acacia pinetorum* is also found in two locations in the southern portion of the GFS site. Though this is not a listed species, it has not been reported previously for Brevard County, and its occurrence here is isolated from the previously known distribution in Florida (**Schmalzer and Foster, 2005**).

MISS
MISS is home to one listed plant specie. Rare plant surveys were conducted in MISS in 2003 and 2004. The occurrence of *Pteroglossaspis ecristata* (giant orchid, Florida-threatened) was documented and mapped (**Schmalzer and Foster, 200**5).

Although several plant surveys have been conducted on site, these were conducted primarily to determine the presence or absence of species. The next step will require the generation of maps and photographic series detailing the extent of coverage of these designated species. Once a baseline has been established, monitoring of land management practices can occur. The location of designated plant and animal species can be considered during the creation of public access trails and during other management efforts including exotic removal.

Animals
The USFWS and the Florida Fish and Wildlife Conservation Commission (FFWCC) also compile lists of wildlife species considered to be under the possible threat of extinction.

These species are categorized as either Endangered or Threatened. The FFWCC utilizes an additional category, called "Species of Special Concern" (SSC), for several animal species that may ultimately be listed as endangered or threatened. This classification provides the SSC listed animal with a particular level of protection that varies from species to species.

Any translocation of plant or animal species into the sanctuaries covered in this plan must follow the EEL Program Species Translocation Policy **(Appendix Z)**.

GFS

There are several protected avian species on site; these include the Florida Scrub-jay, bald eagle, wood stork and sandhill crane. These species inhabit rare communities on-site in particular the Florida Scrub-jay which have been noted on site reviews numerous times.

Historical aerials from 1943 show an abundance of Florida Scrub-jay (FSJ) habitat in the form of open scrub and scrubby flatwoods. A statewide population survey of FSJ was started by the USFWS in 1993, but information within GFS was not gathered until a colorbanding project was initiated in 1996. According to **Breininger et al., 2000**, the numbers of FSJ breeding pairs within the area were as high as 11 in 1997, but then declined to 8 in 1999 and consisted of 12 pairs in 2004 and 2006.

Northern GFS is similar to other scrubby lands throughout Brevard County in that decades of fire suppression has led to poor quality habitat. A primary cause for FSJ decline is poor demographic success associated with reductions in fire frequency (**Woolfenden and Fitzpatrick, 1984**). The physical effects of fire suppression are increases in shrub height, decreases in open space, increases in tree densities and the replacement of scrub and marshes by forests (**Duncan and Breininger, 1998**). Dense tree layers also make it difficult for the FSJ to spot potential predators such as the Cooper's hawk. Habitat in poor condition is unlikely to support a population for more than a few decades (**Breininger et al., 2001**). Many large expanses of scrub are unoccupied or are below carrying capacity because of a reduction in fire regimes, but it is these large areas such as GFS that have the greatest possibilities for population persistence if restored (**Stith, 1999**).

According to the FNAI report (**Appendix G**), one bald eagle nest is located within the GFS, which was last surveyed in 1995. EEL staff located this nest in June of 2008. At the time a juvenile was seen in the nest. Following a May 2008 wildfire, EEL staff surveyed the area and confirmed that the fire had consumed the nest. A follow up survey was done in late July. There has been no new growth on the pine tree and is assumed dead. On April 13, 2011, EEL staff observed eagles nesting in this dead tree. Additionally, another nest has been located by staff in the northeast section of the sanctuary. On Feb. 6, 2014 staff confirmed that both nests contained juvinile bald eagles. EEL staff has notified FFWCC.

MISS

MISS is home to the FSJ and a possible foraging area for the Red Cockaded Woodpecker (RCW). The RCW is not found within this Sanctuary's borders, but does exist in the adjacent St. Sebastian River Preserve State Park. The protection of old-growth longleaf pines from wildfire and insect attack on the southern portion of MISS would provide this bird with nesting sites, should their range expand northward from (SSRPSP). These considerations will be taken into account when planning prescribed fires in the section south of Micco Road.

Al Burne and Brian Toland performed a RCW survey on June 11, 1998. They investigated the area north of Micco Road and east of the powerline. Suitable foraging habitat for this bird consists of pines or pine-hardwood (50 percent or more pine) stands 30 years of age or older. The survey noted the presence of a few suitable pine trees that might harbor RCW nest cavities, but they were few and far between (greater than 300 ft. from each other). The quantity of suitable foraging pine habitat within this area was determined to be insufficient, which is the primary limiting factor for the RCW to exist in this area. To meet the RCW foraging requirements, a colony of RCW's requires 8,490 sq. ft. of pine basal area and 6,350 pine stems 10 inches or larger dbh. The area in question was estimated to be far short of these figures.

According to records compiled by **Cox (1987)**, specimens of the Florida Scrub-jay were collected from the Micco area from 1860 to 1899. 1943 aerials show an abundance of Florida Scrub-jay habitat in the form of scrub and open scrubby flatwoods. According to **Breininger et al. (2000)**, the numbers of jay breeding pairs within Micco were as high as 15 in 1996, but then declined to 3 in 1997, 2 in 1998, and consisted of 3 pairs in 2002. In 2005 Dave Breininger recorded 6 breeding pairs within MISS. These results are attributed to the amelioration of FSJ habitat through prescribed fires. However it appears after a conversation with Dave Breininger that only 4 breeding pairs remain in MISS in 2006, raising the necessity to improve scrub habitat conditions. After the 2008 Mother's Day wildfire, ELL staff could identify one remaining family. In 2012, Staff has identified 2 families and the possibility of a third family using the southern most extent of MISS where it borders the SSRPSP.

The estimate (**Breininger, 2001**) of potential Scrub-Jay territories that the area encompassing MISS and the SSRPSP can support is around 35 Florida Scrub-jay territories. This can be achieved with active management such as mechanical thinning and prescribed fire. Site-specific problems that need immediate addressing include the lack of a fire rotation, presence of tall oaks in the northeast portion of the site, and dense tree numbers in some areas. This all equates to marginal habitat. Isolation of the FSJ populations in the SSRPSP and to the north of MISS would increase local extinction probability.

Recommendations for the MISS to enhance habitat suitability for the Florida Scrub-jay include frequent fire (**Breininger et al. 2000**), the removal of the planted pines along the north edge, and hand trimming of the oaks on the eastern boundary. In June 2002, the dense xeric oak portions north of Micco Road were mechanically treated and lowered to

facilitate a prescribed fire. The prescribed fire program was initiated in January of 1999. The planned rotation of the flatwoods components is approximately 1-3 years, with burn intervals of 3 to 10 years for the more scrubby portions. Any of this can change based on the structural needs of the Florida Scrub-jay. Mosaic burns, scrub height, and open scrub habitat will determine burn intervals. Openings created by historic hunting trails served as firebreaks to facilitate the prescribed fires, and also provide openings that the Florida Scrub-jay and other scrub endemics require. Through burning, these old openings will be maintained but not used for prescribed fire lines. New, wider, safer lines have been installed.

Since MISS contains large portions of potential habitat between the scrub north of the Sottile Canal and the SSRPSP, it is imperative to keep this scrub in optimal condition. The MISS serves as a connection between the Florida Scrub-jay north of the Sanctuary and the approximately 24 territories residing in SSRPSP.

As of August 2012, the habitat in MISS – east of the power lines – is considered in fire rotation. Staff has actively burned and used selective chopping to reduce some of the larger oaks. The 2008 Mother's Day wildfire reduced pine density in the area and over time the dead pines have been falling, decreasing the "curtain effect" that had plagued the area. Staff has seen more FSJ activity and are focused on conducting a timbering project in the planted pine area as well as a scrub restoration project in the disturbed area east of the planted pine, south of Micco Road. These projects will greatly increase suitable habitat in MISS for the FSJ.

Reptiles and Amphibians

SBCSE

The gopher tortoise is currently listed as a threatened by the FFWCC. The gopher tortoise is locally (FFWCC) protected as a threatened species (T). Gopher tortoises can be found in a variety of upland habitats including scrub, scrubby and mesic flatwoods. Protections of these threatened species in endangered habitats are critical for species survival.

There are populations of gopher tortoises located throughout SBCSE, primarily in the scrub and oak scrub portions as well as along firebreaks. Staff has conducted surveys of some habitat within the SBCSE and found that populations are mainly around the edges of the fire units until a prescribed fire is conducted or a wild fire takes place. It is essential that suitable habitat is kept in fire rotation to adequately sustain the existing population.

The eastern indigo snake is listed as threatened by the United States Fish and Wildlife Service and has been observed within the sanctuary. The eastern indigo snake requires large areas up to 2,500 acres in order to maintain a stable population (**Tennant, 1997**). With the addition of the proposed acquisition of privately held lots, the SBCSE will be large enough with sufficient connectivity to support a stable population.

e. Biological Diversity

The collection of data relating to biodiversity studies is needed within the SBCSE starting with basic, complete inventories. Levels of richness and evenness (the two measures of overall diversity) vary naturally among community types. Richness refers to the number of species found within a particular community, while evenness refers to the distribution of individuals among species. With this in mind, current data need to be collected to form the baseline against which future monitoring efforts will be compared. A methodology should be selected which will provide useful data but will not be too cumbersome for staff and or volunteers to implement.

Protected wildlife species noted within SBCSE include the gopher tortoise (*Gopherus polyphemus*), Bald Eagle (*Haliaeetus leucocephalus*), Wood Stork (*Mycteria americana*), Florida Scrub-jay (*Apheloma coerulescens*), Sandhill Crane (*Grus canadensis pratensis*), and eastern indigo snake (*Drymarchon corais couperi*).

A comprehensive sampling protocol (i.e. sampling each stratum of the community) is typical, but practicality and specific use dictate that the sampling should be limited to the subcanopy/scrub layer, and to the herbaceous/ground cover layer, wherein the stronger indications of change in species diversity will be noted. Sampling these layers will provide useful management data regarding the effects of use on the plant communities. Sampling for small mammals, avian species and herptile will also be useful to the land manager in future decisions regarding trail selection and carrying capacity of the site.

Examples of sampling methodology may be found in:

Brower, J.E. ad J.H. Zar. 1984. Field and Laboratory Methods for General Ecology, 2nd Ed. Wm. C. Brown Publishers, Dubuque, Iowa.

Campbell, H.W. and S. P. Christman. 1982. Field techniques for herpetological community analysis. In N.J. Scott, ed.: Herpetelogical Communities, pp. 193-200. Fish and Wildlife Service Wildlife Research Report 13.

Corn, P.S. 1994. Straight-line drift fences and pitfalls. Pp. 109-117. in Heyer, M., A. Donnelly, R.W. McDiarmid, L.C. Hayek, and M.S. Foster. Measuring and Monitoring Biological Biological Diversity. Standard Methods for Amphibians. Smithsonian Institution Press. Washington, D.C.

Fitch, H.S. 1992. Methods of sampling snake populations and their relative success. Herpetol. Rev. 23: 17-19.

Grant, B.W., et al. 1992. The use of coverboards in estimating patterns of reptile and amphibian biodiversity. In D. McCollough and R.H. Barrett (eds): Wildlife 2001: Populations, pp. 379-403. Elsevier Science Pub. London, England.

Gysel, L.W. and L.J. Lyon. 1980. Habitat analysis and evaluation. Wildlife Techniques Manual. Pp. 305-327. S.D. Schemnitz (ed.). The Wildlife Society. Washington, D.C.

U.S. Fish and Wildlife Service. 1980. Habitat Evaluation Procedures (HEP). Ecological Services Manual 102. U.S. Department of Interior, Fish and Wildlife Service, Division of Ecology Services, Government Printing Office. Washington, D.C.

C. Cultural

a. Archaeological

In response to the request for a review of Florida Site Files (**Appendix O**), the State Historic Preservation Officer (SHPO) replied that there are recorded historical and archaeological sites recorded within and around the GFS and MISS boundaries such as the Main Sottile Canal (BR1957). This and other sites can be found in more detail within **Appendix O**. EEL staff will consult with the Division of Historical Resources (DHR) before taking actions that may adversely affect archaeological resources.

An Indian Mound listed on the State Site File (08BR00056) is located near GFS, east and slightly south of Berry Road and on US Highway 1 at Shell-Pit Road. Since it is in close proximity to the site, it suggests that the Native Americans, therefore, may have used or accessed GFS (**Appendix P**). A thorough review of GFS to determine the presence of archaeologically significant sites has not been conducted. According to the DHR review, passive management of the area is unlikely to affect cultural resources, as indicated by the 2005 cultural resources analysis for the State Lands Management Review Team.

b. Historical

EEL staff will consult with DHR before taking actions that may adversely affect historical resources. Procedures for both archaeology and historical resources can be found in **Appendix Q**.

People have inhabited Florida for 10,000 years, perhaps even longer. Paleo-Indians, the earliest Floridians, were nomadic hunters of mammoths, bison, camel and giant tortoise (**Myers and Ewel, 1990**). Brevard is one of east-central Florida's oldest counties, established in 1855 (**Eriksen J., 1994**). "A boundless land of oaks, palm and pines flanked by a clean, pristine lagoon, the county was largely without claim or improvement at the time of its creation. Marine life within the lagoon was the early resident's main form of food. By the turn of the industrial revolution, development and opportunities arose for many. Forests were cleared for agriculture. Citrus, cattle raising, timber and lumber production were mainly chosen."

Portions of GFS lay within the newly established and single incorporated Town of Grant-Valkaria as of July 25th, 2006. Since the 1880's, the villages of Grant and Valkaria have existed separately and were unincorporated within Brevard County, Florida. The EEL Program began acquiring land within GFS in 1992. GFS does not have any significant historical human use on any records from the Florida Master Site File. However, the site when observed had old ditches and crops rows, which were used for agriculture. These areas are highly disturbed. From several interviews with people who grew up in the area, cattle grazing and row cropping were also popular in the early twentieth century (**Durak C. and Durak M., 2005a**). A timber assessment report (**Appendix R**) shows that GFS was logged for pine trees in the earlier mid part of the twentieth century (**Mc Aloney, Personal Communication, 2007**). Historical aerials provided from FDOT were

examined from 1943, 1958, 1972, 1983, 1993, 2000 and 2011. There is evidence of interior roads on the property in 1943 and 1958 aerial, US Highway 1 and Valkaria Road are also present but there is no evidence of Babcock Street or Interstate Highway I-95. There is, however, evidence that the "Capron/Hernandez Trail" or "Old Ox Trail" exists.

Valkaria Airport was established as a US Army Air Corps training base during World War II. It was associated with the United States Space Program between the 1960 and 1980 and as part of NASA's Missile Tracking Annex. Pine density appears to be low in the 1943 aerial and the dominant community appears to be an open mesic flatwoods habitat. From the 1943 aerials to the 1980's, pine density greatly increased and what was once an open mesic flatwoods habitat in 1943 appears to be a dense flatwoods community in the 1980's to 90's. Development was noted along Valkaria Road and Babcock Street and only a few houses were noted along Grant Road.

In the 1958 aerial, northern portions of GFS were ditched for agricultural usage **(Appendix I)**. The Missile Tracking Annex is visible on the 1972 aerial running in a north-south direction through the north-eastern section of GFS. The Interstate Highway I-95 is also present in the 1972 aerial. Increased development along Grant Road was noted in the 1983 aerial. The more recent aerials show a very high pine density especially in the upper south eastern portion of the property. This is explained by the lack of fire during the time period (1980-1989). The 2011 aerial show the return to more open scrubby flatwoods communities, a direct result of the prescribed fires performed by the EEL Program in recent years.

Historically, portions of the SBCSE may have been used for grazing or other agricultural activities. The Kentucky Central Life Insurance Company owned two-thirds of the MISS tract with the MEP LLC the remainder prior to its purchase by the EEL Program. Before that, Brevard Groves managed this area for agricultural purposes.

c. Land-Use History

GFS
Two sections of GFS were acquired directly by the EEL Program (**Figure 5**) in 2000 (MEP Tract) and in 2001 (Anstalt Tract**)**. The MEP tract was managed for cattle under previous owners. Both tracts have been extensively hunted for many years. Ditches on site were constructed to drain the land for livestock.

The following is a historical timeline of events and activities that occurred within GFS from various authors and personal interviews conducted from families who inhabited the Town of Grant-Valkaria from the early 1900's:

Ais Indians (1000 BC-1500AD):
The first people to inhabit Florida arrived about 12,000 years ago, from the central and southern area of the North American continent, at the end of the last ice age. At this time much of the North American continent 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). At the time of European contact in the 16th century, the Ais ("Eyes") Indians were known to inhabit the mainland in the Brevard County area (**Rouse, 1951**). The Ais did not exhibit the nomadic existence of other Native Americans, as the semi-tropical climate provided for them without having to travel great distances. Native Americans utilized the Indian River Lagoon and the surrounding uplands. Spanish coins found in the Shell-Pit Road mound indicated contact with the Europeans (**Appendix P**).

Prior to the 1900's:
During the Seminole Wars, a trail labeled "Capron/Hernandez Trail" or "Old Ox Trail" ran south through Brevard County, west of Babcock Street of today through Township 29 South and Range 37 East and Section 34, but veered slightly east of and parallel to Babcock Street. The trail also follows the ancient dune line of "highest and driest land" that passes through GFS also know as the lands which scrub communities develop (**Barile, Personal Communication, 2007**). The trail was first used by the American Army during the Florida Seminole Wars of the 1830-1850's. This trail was used to herd cattle along the east side of the St. Johns River Flood Plain to new pastures or to market in the Florida south-west gulf coast (**Barile, Personal Communication, 2007).** Durak C. and Durak M. have mapped the trails located in GFS. Currently the EEL Program is researching and collecting data showing the route of the trail. Further research and maps could be used to file a Florida Master Site File Designation.

1900-1930's:
In the early 1900's, GFS was subdivided for farmland. The Indian River Land Company sold undrained lands to US immigrants (**Durak C. and Durak M., 2005b**). The Land Company was for the sole purpose of land sales and development in Brevard County, Florida. William Tubbs and A.L. Pollak, residents of Brevard County, served as local real estate agents for the Florida Corporation. Advertisements for agricultural land sales within GFS were placed in Czech, Slovak, Polish and German language newspapers and magazines read by immigrant Catholic families in the Midwest. Many families came and tried farming the wet, poor soils of the flatwoods before abandoning their dreams and farms. During the 1930's, the Shingle House Sawmill, south of Grant Road, logged and timbered pine trees throughout GFS. These activities were fairly constant throughout the years. Cattle ranchers also continued with operations within GFS until the 1980's (**Barile, Personal Communication, 2007**).

1940-1960's:
During the Second World War, the Valkaria Airport was constructed for aircraft carrier practice (take off and landing) (**Mc Aloney, Personal Communication, 2007**). According to Mc Aloney, this activity resulted in heavy security with no public access. After the war, Brevard County accepted ownership of the airport, which continues to be operated by Brevard County. A NASA Missile Tracking Annex, constructed in the 1960's south of the airport, runs through GFS in a north-south direction (**Nations, Personal Communication, 2007**). Radar antennae were installed to track satellites. Today the north-south paved tracks remains and can be seen in aerial photos.

Around the 1950's, Mr. Irie Priest a large-scale farmer, contracted with the landowners within the area for the raising of cattle and agriculture crops such as potatoes, tomatoes and watermelons. After a year he planted improved pasture grasses in the cleared area for the owners. Mr. Priest did not pay to use the land nor did he charge for the improvements. In the late 1950's, borrow pits were dug for the construction of the Interstate Highway I-95. According to personal interviews, landowners routinely and diligently burned cattle range once every 3 years. There were no rules or laws for or against burning and the landowners knew it was good for the land and natural communities on site. Burning provides a healthy environment for biodiversity, wildlife and new fresh grass for cattle grazing. In the 1980's complaints from new residents caused the landowners to stop burning.

All farming stopped within the area around the 1950 to early 1960's. In the late 1950's, the Grant Hunt Club was established (**Mc Aloney, Personal Communication, 2007**). This was a legitimate club where people joined and received a membership identification card with permission to hunt what is now GFS. After a couple years of existence, the Grant Hunt Club was abolished. However, illegal hunting has been an ongoing problem throughout GFS. People felt free to utilize the land because of its legitimacy previously.

1970's to present (2011):
According to EEL personnel, in the late 1970's and early 1980's, Florida Division of Forestry (FDOF), now known as the Florida Forest Service, put in firebreaks. In 1998 the area was overgrown (**Mc Aloney, Personal Communication, 2007**). Due to a lack of prescribed burns, the area experienced a very large wildfire (**Mc Aloney, Personal Communication, 2007**). From EEL records, wildfires occurred throughout GFS particularly in the unusually warm springs and summers of the years 1998, 2005 and 2007. A successful prescribed burn in the north-eastern mesic flatwoods community was carried out in 2007. In 2008, there were a couple of significant wildfires.

MISS
Historical aerials from 1943 to present show the changing of land use to the area. There were few interior roads throughout the property in the earlier aerials, but the planted pine zone was gridded and ditched on the south side of Micco Road. By 1969 the planted pine area was in place north of Micco Road. In 1975, the roadside was cleared, and additional trails (for hunting or access) were added. In the 1980 aerial, a hunt camp with trailers appeared on the east fence line, as well as an extra north/south trail, and some pines planted in the north zone. In 1983, more trails radiated out from the hunt camp location. In 1986, the eastern line had been widened, plus one more north/south trail added to the east portion. In 1989, the planted pines appeared in rows. No new trails were visible, and pine density increased since 1967. In 1993, all the pines were now quite visible in rows.

d. Public Interest

GFS
In the recent years prior to Brevard County's management, GFS became a popular off-road vehicle site. Consequently, the area's hydrology has been heavily affected by the numerous trails carved into the landscape. Because of impacts on the environment, the use of off-road vehicles such as ATV's, is not authorized on EEL sanctuaries. When enough boundary parcels are acquired by the county, a fence and fire line will be installed around the property. This, along with the regular presence of EEL staff members, will allow for adequate control of boundary.

As residential development increases within the Grant-Valkaria area, interest in recreational activities will grow as well. Homeowners within the GFS neighborhoods have already established activities such as hiking and horseback riding.

MISS
In the past, MISS has been set up for timbering and cattle use. Inquiries have been made about the uses of the property to learn about the past cattle leases, as well as timbering practices. EEL Staff has not identified any specific ranching or timbering groups. The EEL Program encourages passive recreation use in the form of hiking, horseback riding and bicycling within MISS.

IV. FACTORS INFLUENCING MANAGEMENT

A. Natural Trends

The main natural trends influencing the diversity of these sites are fire frequency (from lightning or arson), hydroperiod and water quality. In the absence of fire, invasion by native and non-native woody species occurs rapidly. Within the SBCSE, the natural fire regime must be re-established and maintained to insure the continuation of the flora and fauna unique to these pyrogenic natural communities.

Fire is critical in Florida ecosystems, as it creates openings for fire dependent species and removes others that cannot resist fire. Fire, breaks down complex organic molecules, which when added to the soil, enhance seed germination and regrowth of vegetation. Thus, fire changes both the composition and the density of the flatwoods forest. In the scrub, as the sand pines mature, they provide fuel for fire in the form of dead branches and resinous needles. The result is a hot fast burning fire that allows regeneration of the scrub habitat by adding minerals from the burning vegetation in the soil and helps the release of pine seeds (**FNAI, 1990**).

The primary change in the hydrologic character of land within GFS has been caused by agricultural operations and the impacts of off road vehicles. Farmers in the early 1900's determined the water table too high for crops. Drainage channels and ditches lowered water levels from the early 1920's to the present. The existing hydroperiod of the wetland has to be taken into account in the management strategies at GFS, due to its critical role

in sustaining the species within. The water level is increased and flooding occurs during the mosquito breeding season and remains lower the rest of the year. These systems naturally flood and dry out. However, low water levels and freezing temperatures during the winter season can permit the development of exotic plant species.

Any long-term management plan must include the use of prescribed fire. Habitat range of the Florida Scrub-jays is also a natural trend that is affected by human-induced trends. Continual communication with David Breininger and other local experts will insure that the Florida Scrub-jay population as a whole (throughout the County) are managed to insure long-term viability of the populations.

An important factor controlling the communities within the GFS is hydrology and more specifically the hydroperiod, particularly in the cypress strands. Changes in hydroperiod have the potential to significantly alter community structure. A decrease in hydroperiod could allow the invasion of nuisance or non-native species, while an increase in hydroperiod could surpass the inundation tolerances of the desired species present.

Investigation into the natural, as well as the existing, hydroperiod should be undertaken to better understand and enhance the natural ecological processes. Corrections should be made to the site's flow patterns in attempt to re-establish historic flow patterns where the cross canals currently exist. This is beginning to happen with the new mitigation projects that are occurring in the southern portion of GFS. Contractors are filling in the ditches, grading the area to surrounding elevation, and controlling exotic invasion while promoting natural recruitment to the area.

MISS also has hydrological issues due to ditching and the development of agricultural lands. Restoration of the scrub area in MISS south of Micco Rd will eliminate the swales in that area. Other major ditching on site will require more research in order to fill due to the possibility of flooding to the west.

B. Human-Induced Trends

Human influences on-site include:

Fire suppression/alteration of natural cycles
Naturally occurring fires have been modified during recent times through suppression actions and the fire shadowing effects of cypress and wet ecosystems. The cattle grazing activities that occurred on-site required specific fire cycles that are different than natural regimes. Management activities such as these tend to result in plant and animal compositions that are different than what might have existed under more natural regimes. A more natural cycle under the prescribed burn plan will address this problem.

Invasion of Exotic species
Invasive species such as cogon grass, Brazilian pepper and climbing ferns are mostly located along roads and ditches. An initial chemical treatment of exotic plants over GFS and MISS was completed in 2006 thanks to grant funding provided by Florida DEP (This is now known as the Invasive Plant Management grant or IPM grant). In the 2008-2009

IPM project, 372 acres within the South Region where treated through this grant. 197.63 Acres in GFS were treated and 47.07 acres within MISS were treated. In the 2011-1012 IPM project, 126 acres within the South Region was treated. 46 acres were treated in GFS and zero acres were treated in MISS. Maintenance treatments by EEL staff have been and are ongoing. Staff will designate decontamination areas during projects.

The reduction of funding needed from IPM and the reduction of exotic acreage each time the grant is applied for, proves the program is working and EEL staff's efforts in ongoing treatment are essential.

Exotic areas within northern GFS are not treated through the IPM grant due to the discontinued nature of the individual boundaries. Most areas of exotics in this area cannot be completely treated because they are not entirely on county managed land though they are within the GFS boundary. Aided with GPS, EEL staff can and does treat areas of exotics within the northern GFS boundary. The EEL Program can not have contractors hired through the IPM grant spaying exotics on private land, and therefore does not include northern GFS in the grant proposal. This eliminates any liability of the EEL Program from any unintended spaying on private land by the contractor.

EEL staff has treated Brazilian pepper along the missile tracking range within GFS. Spot treatment of cogon grass is ongoing within this tract. Cogon grass within GFS is located along the gas line, cross canals and Sottile Canal. It can spread via mowing equipment, rhizomes and wind. It will be and has been treated immediately upon discovery. Other noted exotics within the boundary of GFS include a strand of Australian pines (*Casuarina equisetifolia*) along Rambelbrook Road and a 34 acre melaleuca patch within the northern mesic flatwoods community. These two areas of exotics cannot be completely treated because they are not entirely on county managed land though they are within the GFS boundary. As more parcels are acquired, this and other areas like it will be sprayed for exotics when the extent of the treatment area falls entirely within a county managed area. Treatment before this time would not allow for an elimination of a seed source from the area.

Known faunal invasive species include the red imported fire ants (*Solenopsis invicta*) and feral pigs (*Sus scofa*). Feral hogs have been spotted within the SBCSE and are causing localized disturbances. Hog trapping methods are being pursued in order to eradicate this exotic species. There are no known feral cat populations within these the SBCSE.

Small roads/trails that run through property

These will be used as hiking, biking, and horseback trails. Trails that historically run through sensitive wetland areas will be closed off once the site is contained within a controlled boundary.

Drainage canals

These cross-canals south and north of the Sottile Canal (both GFS and MISS) affect the hydrology of the sites and the importance of correcting their impact is critical. The

history and future plans for these canals will be discussed in the habitat restoration section.

Hydroperiod alterations

The alterations by filling and draining wetlands or leveling and grading uplands have drastically altered the natural water cycle within the SBCSE. Natural ecosystem response has stabilized the vegetative community and the existing configuration. Some of the ditches need to be filled to restore the natural hydroperiod of the areas. More investigation is required to provide information on whether the natural hydroperiod of the marsh areas have been altered by the surrounding residential areas. The construction of ditches throughout the property reduces water flow between wetlands. Many of the ditches on-site due to agriculture and cattle farming connects with old ponds, sloughs and swales throughout the tracts. Therefore filling these shallow sloughs and swales will enhance wetland restoration and habitat diversity.

The EEL Program would implement necessary measures to reinstate water flow to more natural levels. Management goals and actions must be developed to reduce the impacts of human induced activities on-site. Carrying capacity studies should be implemented, with focus on studies performed by the National Park Service. Separate parameters must be considered regarding individual species, ecosystems and individual activities.

Timbering

Indications show that timbering did occur. Both pines and cypress were harvested from the SBCSE. Florida Forest Service has completed a timber assessment for the EEL Program sanctuaries (**Appendix R**). Timbering will aid in management and restoration efforts within MISS. There are no immediate needs for timbering within GFS though this management technique could be used in the future if it can be included in a restoration effort. There are plans to restore the planted pines in MISS to that of a more natural mesic flatwood habitat.

Illegal hunting

Hunting has been occurring throughout the SBCSE for many decades. After the legitimate Grant Hunt Club, located within what is now the GFS boundary, was closed in the late 1950's (**Mc Aloney, Personal Communication, 2007**) illegal activities have picked up. Eventually when large sections of lots are acquired within GFS, a fence can be installed around the perimeter, which would minimize these illegal uses. The EEL Program will work with local law enforcement to monitor these sites.

Illegal dumping

GFS and MISS site reviews shows evidence of use as a dump site for various types of debris such as heavy equipment, old furniture, vehicular parts and cars and other materials. This activity will be minimized when the entire boundaries can be fenced and controlled. Any dump sites located by staff have been cleaned up.

Planted pines
The planted pine areas within the MISS will need to be thinned out. Thinning of the planted pines and prescribed fire in combination with the restoration of fire dependent shrubs, grasses and herbs will be necessary to return these areas to their original natural community of mesic flatwoods.

Historic grazing
Although grazing is no longer allowed on EEL properties within the south region, this action has nonetheless changed the relative abundance and distribution of many plant and animal patterns within the GFS and MISS. A return to a more natural fire cycle with no grazing pressure will act to restore the flatwoods ecosystem.

Construction of a FPL powerline and Florida Gas Line
This power line and gas line affect prescribed burning plans. They must be kept mowed to eliminate fire dangers. Exotics are continually a problem in these areas due to contractor's equipment spreading seeds. Exotic grasses such as cogon grass are the biggest problem and the hardest to contain. FPL does spray their easements. They do not do this for the purpose of keeping exotics to a minimum or eliminating them. Spraying and mowing are only done when vegetation height impact their ability to service the lines. Staff does spray these easements occasionally, but it is not a high priority due to the continued seeding of the area from FPL's equipment. Staff's time is concentrated on minimizing the spreading of these exotics farther into the sanctuary from the easement area. Staff does keep in contact with FPL and works with them to keep the exotics to a minimum.

Micco Road
This road presents obvious negative influences upon the survival of many species that often cross back and forth between the north and south sections of MISS and from GFS to the SSRPSP

C. External Influences

GFS
There is a constant invasion of exotic plants and animals from outside the conservation area boundaries. There may be encroachments from adjoining property owners in the lotted portion of GFS for trash dumping. Where staff can be 100% certain that this is occurring, staff contacts the landowner and works with them to solve the encroachment.

There is illegal hunting occurring on site. Staff marks boundaries with signs and works with law enforcement officers in an attempt to solve this problem.

The site shows evidence of illegal dumping, which includes heavy equipment, cars and vehicular parts and other debris dumped within the boundary along the trails and boundary lines in most cases. Staff routinely survey the managed property and clean up any dump sites as soon as possible.

There is evidence that access by foot (from surrounding landowners) for hunting has occurred within GFS for many years. Off-road vehicles access the site from the unfenced southern boundary, so users can access practically anywhere creating numerous trails throughout GFS. The EEL Program has responded to these illegal uses by meeting with local law enforcement to review specific problem areas and illegal activities.

The northern portion of GFS is not in full management by the EEL Program and therefore cannot be fully fenced due to private ownerships. Some landowners have donated property for mitigation to fulfill development permit requirements for protected species and habitat impacts. The EEL Program is still accepting donation and mitigation parcels where feasible.

There are several hunting camps on privately owned parcels located on the western boundary of the easternmost portion, next to the Crepe Myrtle Drive entrance. The entire GFS area has historically been utilized for hunting and off-road vehicle use. Due to these activities, it is very important that boundary signs be posted along the fence line. Signs have been posted and staff continually checks these boundary signs due to vandalism and theft. When damaged or taken, staff replaces the signs. This allows law enforcement to ticket individuals for illegal activities. There are no known encroachments from adjoining property owners. There are several houses along the easternmost boundary. There is also an expected increase in residential development within the Grant-Valkaria area.

MISS
Besides the existence of exotic plants and animals encroaching from outside the sanctuaries' boundaries, there are no known encroachments from adjoining property owners on the MISS.

D & D Tractor Service is operating a sand mine adjacent to the western portion of MISS, north of Micco Road.

There is evidence that access by foot for the purposes of hunting has been occurring along the eastern boundary of the MISS for many years. Off-road vehicles have entered the site along the Micco Road fence line by cutting the fence. The EEL Program has responded to this by replacing fence sections where necessary, making sure that boundary signs are replaced when damaged or stolen, and meeting regularly with local law enforcement to review specific problems.

D. Legal Obligations and Constraints

a. Permitting

The following is a summary of permits that might be required, based on the minimal capital improvements planned for SBCSE (boardwalks or bridges over wetlands).

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) regulates wetlands connected to "Waters of the United States" and isolated wetlands pursuant to Section 404 of the Clean Water Act. Wetlands are defined as "those areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas" (33 CFR Part 328.3).

Dredge and fill activities within "Waters of the United States" will require either an Individual Permit or verification under the General or Nationwide permit program. Wetland impacts less than one-third acre will typically qualify for a General permit or can be authorized with no "Pre-Discharge Notification." The permittee will be required to provide the USACE with a copy of the State 401 water quality certification documents or waiver prior to commencement of the fill activity. Wetland impacts between one-third and three acres involving isolated wetlands or wetlands "above the headwaters" will generally qualify for verification under Nationwide Permit No. 26 (NWP 26). Impacts to wetlands connected to flowing and/or navigable waters, or wetland impacts greater than three acres will generally require a Section 404 – Individual Permit. USACE guidelines further require that all impacts "reasonably related" to a particular project be submitted for consideration under one permit application.

In reviewing the proposed activity for permit approval, USACE biologists consider the impacts to wetland function, such as water quality benefits, wildlife utilization, groundwater recharge, etc. In instances where loss of wetland function is proposed, the USACE may, and often does, require measures to compensate for such losses.
A USACE permit authorizing wetland impacts will be required prior to project development. Verification under the NWP 26 is anticipated for this project since the proposed wetland impacts are below the three-acre threshold. Verification under the NWP 26 is generally obtained within 30 days after the permit application has been completed.

Mitigation may be required by the USACE for proposed wetland impacts. Should mitigation be required, the USACE most likely will accept the mitigation that ultimately will be proposed to the St. Johns River Water Management District.

Prior to submitting an application for dredging or filling within Waters of the U.S., it is recommended that the areas proposed for impact be delineated in accordance with the 1987 "Corps of Engineers Wetlands Delineation Manual," and then reviewed and confirmed by representatives of the USACE.

In addition, USACE regulations require that an investigation must be conducted, prior to permit issuance, to evaluate whether or not the proposed activity is likely to jeopardize the continued existence of any Federally threatened or endangered species as listed or proposed for listing under the Endangered Species Act.

Finally, USACE regulations require that the State Historic Preservation Office (SHPO) of DHR must be contacted regarding the presence of any archaeological or historic properties in the area that may be impacted by the proposed development. The Compliance Review Section in the SHPO Office should also see all permits so that they can check for not only recorded archaeological and historical sites, but also so that they may check for any potential sites that may occur on the property.

St. John's River Water Management District
The St. John's River Water Management District (SJRWMD) regulates impacts to wetlands and other surface waters pursuant to Part IV, Chapter 373 of the Florida Statutes and in accordance with Chapters 62-330 of the Florida Administrative Code (F.A.C.). The 1995 Florida Wetlands Delineation Manual defines jurisdictional wetlands. The SJRWMD requires an Environmental Resource Permit (ERP) for work in a wetland unless the activity meets an exemption. Mitigation is required if the project is determined to have an adverse impact to wetland and other surface water functions. In considering wetland impacts, SJRWMD considers not only direct impacts to wetlands, but also secondary impacts that may affect wetland dependant wildlife. To minimize secondary wetland impacts, SJRWMD generally requires that applicants preserve a buffer of undisturbed upland habitat with a 15' minimum width and 25' average width around preserved wetlands [Sec. 12.2.7(a)].

Prior to submitting an application for dredging or filling within waters of the State, it is recommended that the areas proposed for impact be delineated in accordance with the Unified Wetland Delineation Methodology for the State of Florida dated 1 July, 1994 and then reviewed by SJRWMD staff.

Florida Forest Service (FFS), formally known as the Florida Division of Forestry (DOF)
The FFS issues permits for prescribed fires to EEL Staff that possess certified burn numbers.

b. Other Legal Obligations

GFS

Florida City Gas
Florida City Gas maintains an easement (natural gas pipeline) through the western side of GFS, along I-95, running north-south. This striped, approximately 30 feet wide easment transverses GFS. The gas company maintains its easement by mowing native grasses. This 30-foot easement is in favor of Houston Texas Gas and Oil Corporation to construct, maintain and operate a natural gas pipeline (See **Appendix S**).

Brevard County, Department of Transportation (DOT)
The Interstate Highway I-95 right of way is an outstanding feature of the SBCSE. The road is a barrier boundary between the east and west segment of GFS. Side ditches and lanes elevated above common grade prevent direct movement except at the highway exits or on Grant and Valkaria Road.

Town of Grant-Valkaria
Management practices will be consistent with ordinances of this municipality as they are developed. The EEL Program has worked with the Town in the development of its first Local Government Comprehensive Plan (2007).

An 80-foot drainage easement to both the County and the town of Grant-Valkaria exist along the east side of GFS. This drainage canal just south of the Crepe Myrtle Drive neighborhood drains the area south to the Sottile Canal.

Private Ownership
A third easement (an ingress- egress easement) exists in the northeast corner of GFS bordering the 10-acre Briel property.

Florida Fish and Wildlife Conservation Commission (FFWCC)
Cooperation with FFWCC is ongoing though no formal agreement with the EEL Program has been enacted. It is recommended that the two areas of conservation area now managed by FFWCC be managed by Brevard County under this management plan.

St John's River Water Management District
A conservation easement (**Appendix C**) was granted to St. John's Water Management District over land south of the Sottile Canal (1,084 acres) in August 2008. The easement was required by the St. John's River Water Management District as part of their approval to allow an on-site mitigation project for wetland enhancement. This easement was approved by the Board of County Commissioners for the county-owned portion of the sanctuary.

MISS
Florida Power and Light (FPL)
FPL maintains an easement through MISS running north and south as well as one on south of Micco Rd. The Micco Road power line run east –west. It runs from the north-south power line, east past the end of the MISS boundary.

Florida City Gas (FCG)
FCG maintains an easement just to the west of I-95 running north and south.

Brevard County
Road right-of-way along Micco Road (100 foot ROW per ORB 620 page 793) and Babcock Road (east ROW line per ORB 423 page 262). Brevard County also maintains the ditches along the roads.

E. Management and Constraints

a. Fire

Utilizing prescribed fire within the SBCSE Management Plan area will benefit ecosystems and species that have evolved under the influences of this natural process in Florida. The EEL Program's prescribed fire goals include:

- Restore or preserve fire-adapted communities with the reintroduction of fire
- Maximize biological diversity by the creation and maintenance of a vegetational mosaic
- Manage Threatened and Endangered species
- Provide educational opportunities
- Reduce fire hazards by managing fuels and fire
- Conduct safe prescribed fires
- Actively encourage cooperation between all parties with a vested interest in prescribed fire

The EEL Program Fire Management Manual is a separate document which addresses in great detail the overall fire objectives of the EEL Program, lists equipment needed to perform prescribed fires, outlines fire's effects on natural communities and Threatened and Endangered species found within the Sanctuary network and contains copies of all necessary paperwork needed to perform prescribed fires. Attached to this Management Plan as **Appendix T** is the site-specific Fire Management Plan for each of the tracts. This bridges the EEL Program Fire Management Manual and the Unit-specific Burn Prescription. This site-specific plan will include:

- Sanctuary Fire Management Goals
- Burn Unit Descriptions, Fire Regime
- Fire History and Map
- Archaeological, Cultural and Historic Resources
- Fire Sensitive Areas
- Smoke Management Issues
- Public Notification
- Wildfire Policy
- Cooperation with Other Agencies
- Fire line Maintenance
- Fire Effects Monitoring and Photo point Location

GFS
GFS has been broken up into its current burn units following the Mother's Day fires (Sunday, May 11th) in 2008. See **Figure 14** for the fire history of GFS. GFS – Valkaria Fire Unit is the only northern unit that the EEL Program has established in that area to date. **Figure 15 details** the remaining fire units in GFS.

Northern GFS has not been divided into burn units due to the conceptual nature of the plan. However, once manageable areas are joined contiguously, the EEL Program can safely conduct prescribed fires to create for the natural heterogeneity inherent in more natural fires. Burn units would be designated based on existing roads/trails. However, EEL staff has already established the need for fire within the scrub and flatwoods of southern GFS. The prescribed burns will be conducted in partnership with local and state cooperation, including the Florida Forest (FFS), the Nature Conservancy, United States Fish and Wildlife Service, the County's Public Safety Department, City Fire Departments, and Volunteer Fire Departments. EEL staff has helped FFS in the past within this area. This is noted in **Figure 14**. It is important as well as in the EEL Program's best interest to assist FFS in any burns within the GFS or any Brevard County managed sites. The Florida Forest Service is essential to the EEL Program to conduct safe prescribed burns.

There have been multiple prescribed fires conducted by the EEL Program staff within the sanctuary. Two fires were conducted in 2008. The first was conducted on 10/22/08. This 9-acre fire in the southeast corner of unit 1 consumed remaining fuel loads not included in the May 11, 2008 fire. On 11/12/2008, unit 2 (87 acres) was burned using prescribed fire. It was reburned on 10/12/13. 900 acres were also burned by prescribed fire in northeast GFS from May to October 2013. There have been four wildfires since 2004. The most recent wildfire occurred on Mother's Day in 2008. FFS put plow lines in to stop the spread of that wildfire. EEL staff rehabbed/ repaired the shallow ditches created. These bare soil lines were used as fire lines to complete the prescribed burns in the sanctuary north of the Sottile Canal. **Figure 15** shows existing fire lines, natural fire barriers, and fire lines that need to be installed in order to conduct safe, prescribed fires in the future.

MISS
The fire history can be seen in **Figure 16**. MISS has been broken up into Burn Units (**Figure 17**) that allow the EEL Program to safely conduct prescribed fires and to allow for the natural heterogeneity inherent in more natural fires to be created. These Units were chosen based on existing roads/trails.

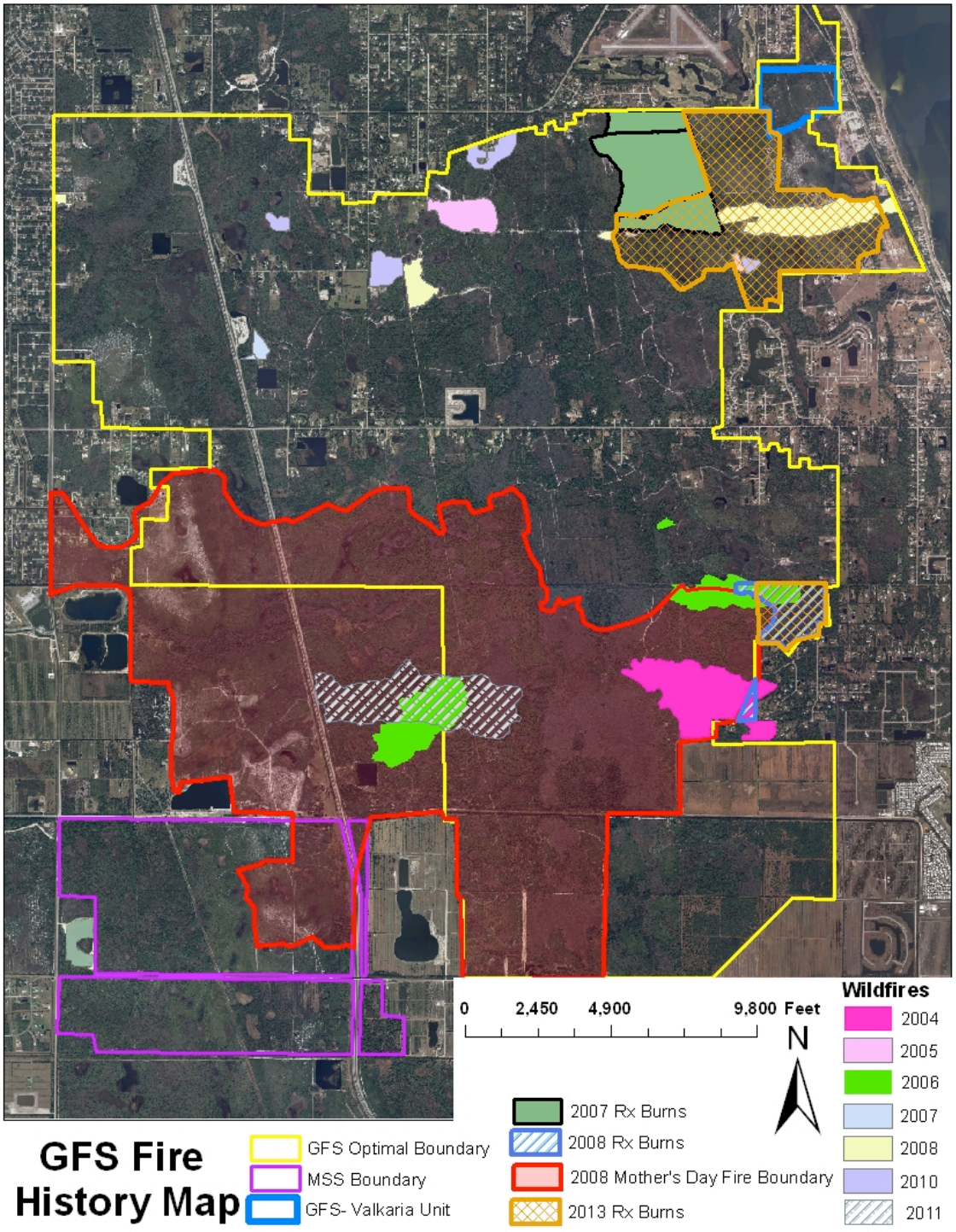

Figure 14

*MISS fire history can be seen in Figure 16

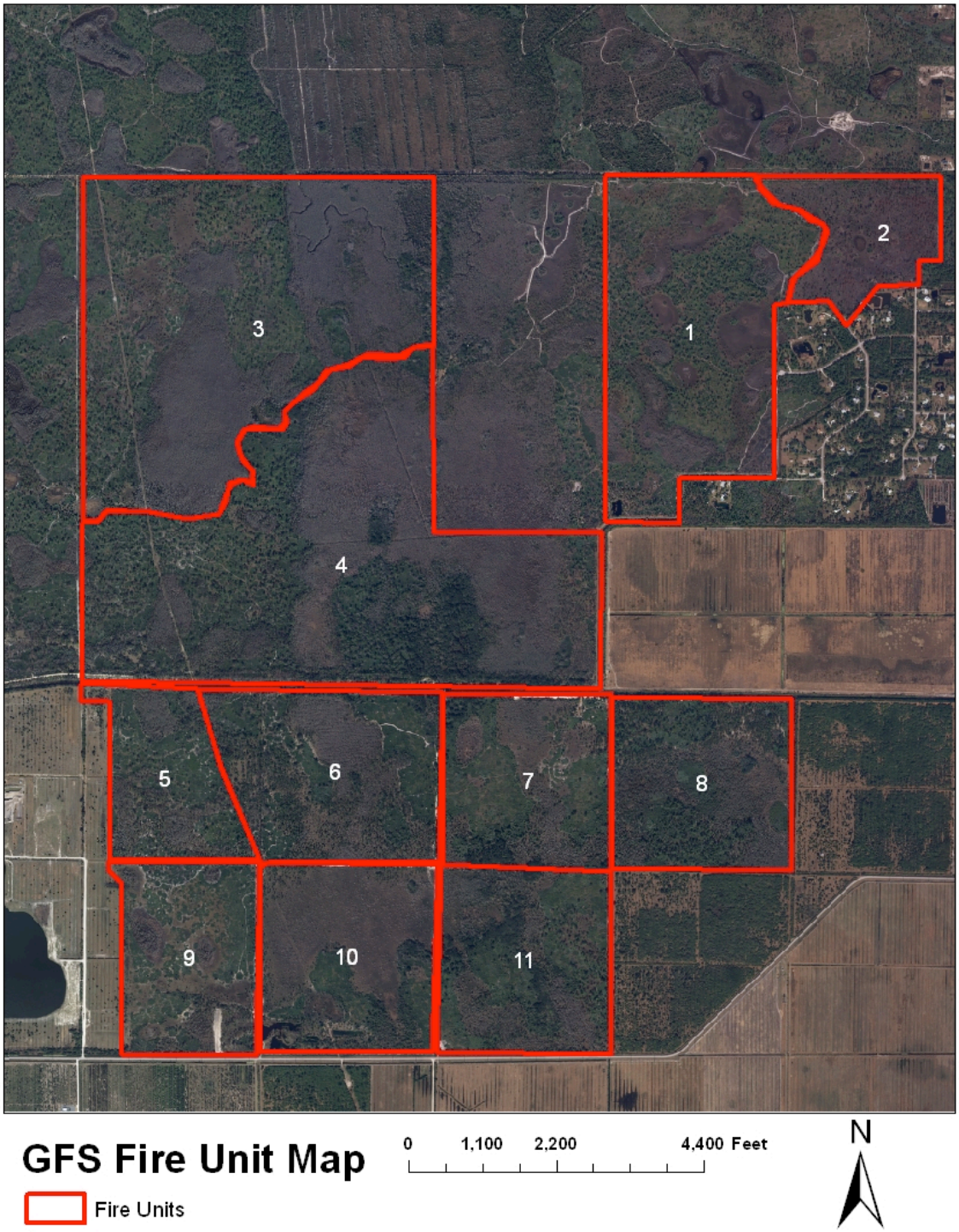

Figure 15

*Only units 1 & 2 have fully completed firebreaks as of March 2014.

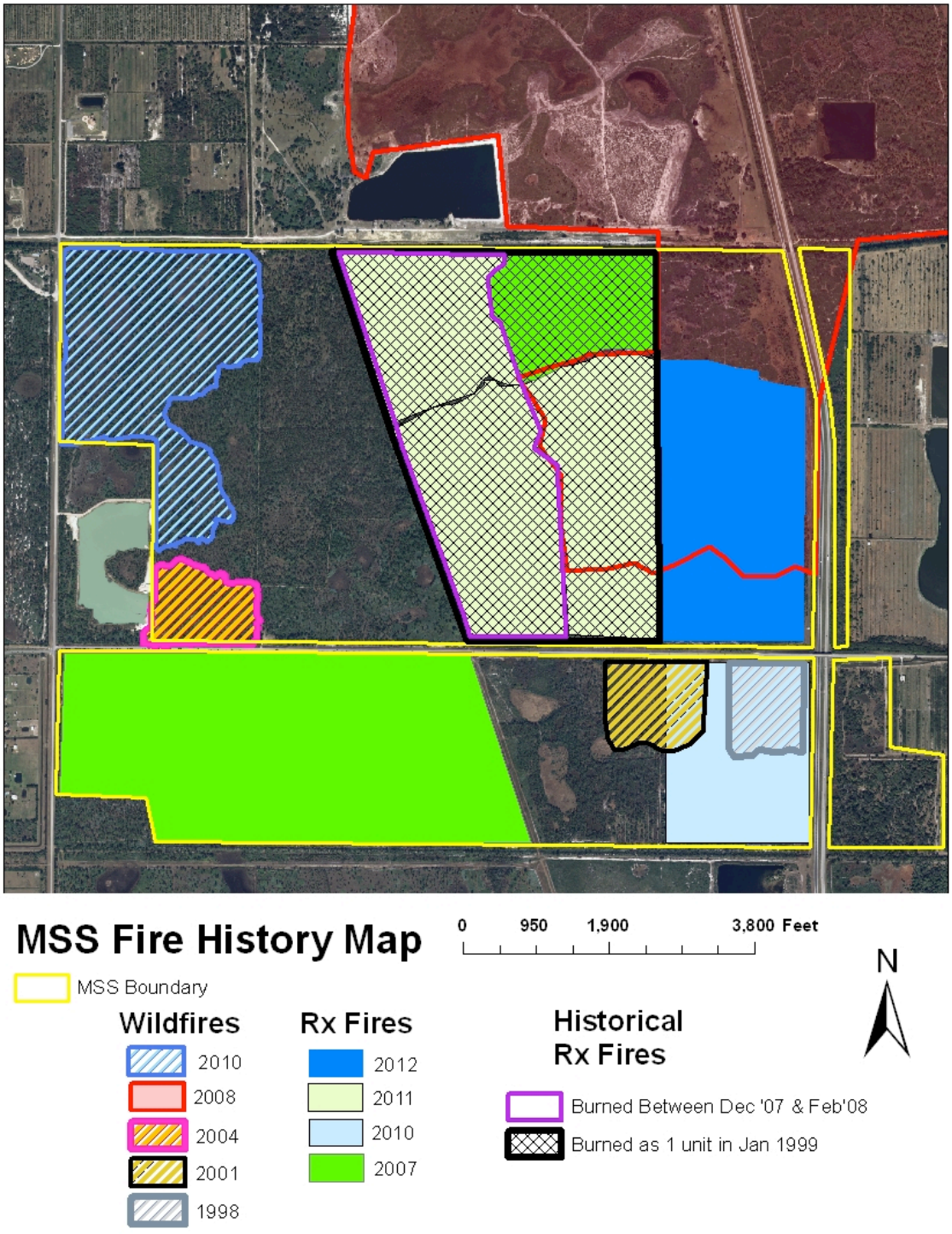
MSS Fire History Map
0 950 1,900 3,800 Feet
N
MSS Boundary
Wildfires
2010
2008
2004
2001
1998
Rx Fires
2012
2011
2010
2007
Historical Rx Fires
Burned Between Dec '07 & Feb'08
Burned as 1 unit in Jan 1999

Figure 16

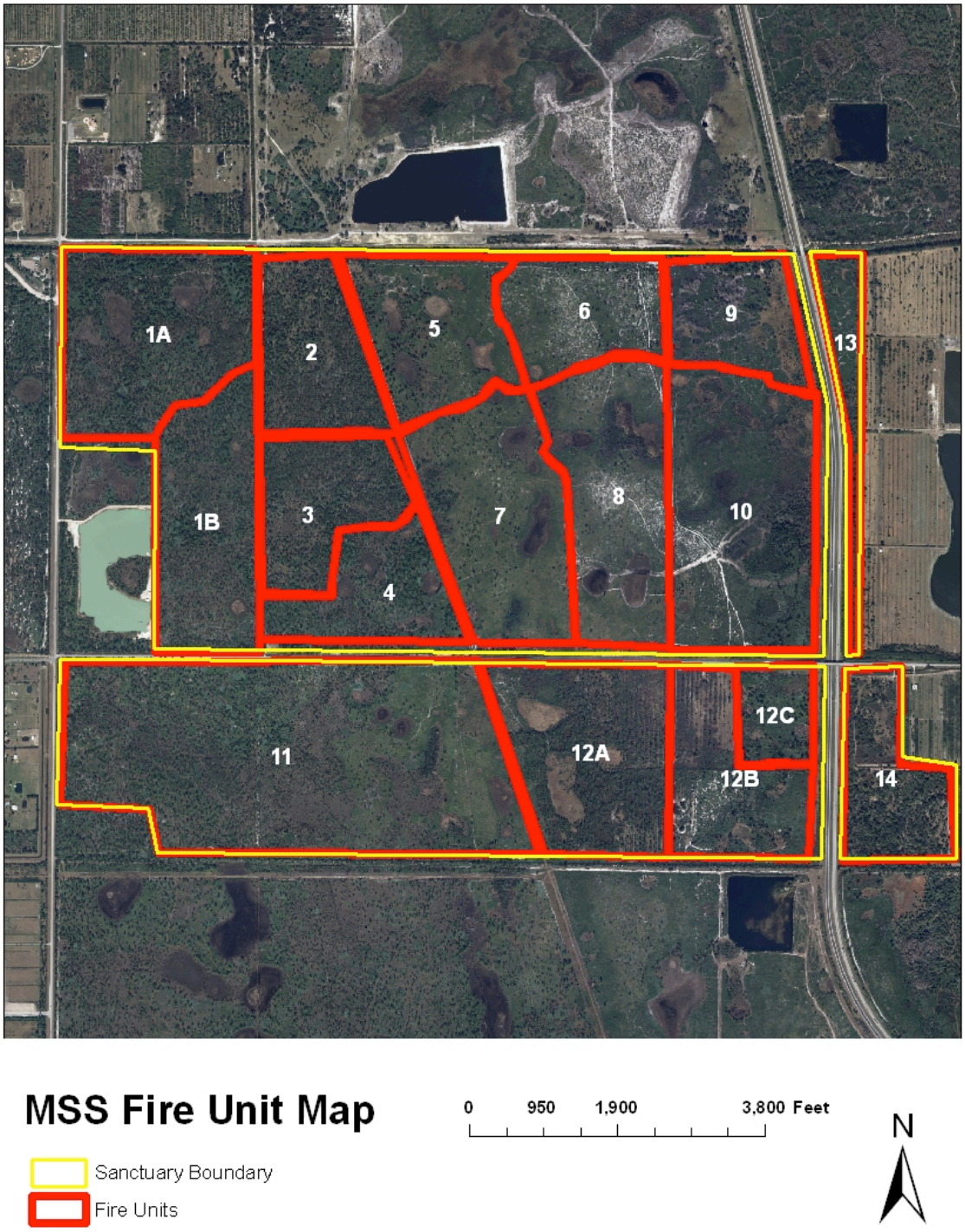
1A
2
5
6
9
13
1B
3
7
8
10
4
11
12A
12C
12B
14
MSS Fire Unit Map
0
950
1,900
3,800 Feet
N
Sanctuary Boundary
Fire Units

Figure 17

b. Exotic Control

Exotic or non indigenous species are terms used to describe plants and animals that are foreign of origin. These species may persist, thrive, harm or displace native species. These plants and/or animals alter native species and alter native ecosystem function.

Plants

Exotic plant species within these tracts are concentrated along disturbed areas created by canals, ditching, and adjacent roads. The primary invasive exotics on-site are Brazilian pepper (*Schinus terebinthifolius*), cogon grass (*Imperata cylindrica*), Japanese climbing fern (*Lygodium japonicum*), old world climbing fern (*Lygodium microphyllum*) and melaleuca (*Melaleuca quinquenervia*).

The EEL Program typically uses grant funds from the Florida Fish and Wildlife Conservation Commission's (FFWCC) Invasive Plant Management (IPM) program to hire contractors for larger treatment areas. The fund also provides chemicals to retreat these areas using existing Program staff. Smaller areas not treated through IPM are handled in house using County employees and funding.

EEL Staff uses GIS to map out exotic areas as they are found. These areas are then sprayed and monitored for re-growth. Continual monitoring will be needed to insure that these invasive- exotics are kept at very low levels on-site.

Animals

The control of the red imported fire ant (*Solenopsis invicta*) will be an on-going task, with spot treatment using Amdro or another similar chemical. They prefer to nest in disturbed habitats, the gas line, cross canals and firebreaks. The flatwoods will be monitored for new mounds.

Exotic and non-indigenous animal species also have the potential to adversely effect ecosystem function, and to significantly alter population levels of native animals through predation or displacement. The brown anole (*Anolis sagrei*) has become ubiquitous in central Florida, as has the nine-banded armadillo (*Dasypus novemcinctus*).

The feral hog (*Sus scrofa*) problem is also widespread. Their rooting can cause significant harm to the vegetation and soils. They also eat eggs of native species as well as native species themselves (ie. Frogs and lizards).

Due to the proximity of residential homes to the GFS, the impacts from feral dogs and cats as well as from domestic pets must be monitored (see Feral Cats Ordinance: Section 14-64 of Brevard County Ordinance 99-39 and Parks and Recreation Ordinances 98-53 and 96-31). Entities currently implementing exotic animal control programs such as the Florida Fish and Wildlife Conservation Commission, the U.S. Fish and Wildlife Service, the Water Management Districts, should be contacted for guidance on the development of control protocols.

Coyotes are also present in the area. They are considered an exotic specie. There are no eradication plans for coyotes within the SBCSE at this time.

c. Habitat Restoration

Since the 1950's hydrological alternations have taken place within the boundaries of GFS and MISS. The Sottile Canal (running east-west), which bisects GFS and parallels the northern boundary of MISS, disrupts the natural sheet flow of water throughout the entire parcels. As it was constructed, large amounts of spoil were placed on either side of the canal. An inquiry was made to the feasibility of restoring the large canal to historic conditions, at this time it is not feasible. The focus of the hydrological restoration work is to limit the amount water loss due to other canals and ditching. After the construction of the Sottile Canal the owners of adjoining properties created a series of ditches to remove water from their site in an attempt to improve the land for agricultural uses. The natural communities suffered due to the reduction in hydroperiod and natural sheet flows that occurred before the ditches were installed. Ditches vary in depth averaging a few feet up to 10-15 feet deep. The material removed was placed on either side of the ditch. At one point along the north bank of the Sottile canal (GFS tract) there is a breach in the spoil berm. Large amounts of water are artificially removed from the cypress strand through this breach. It is the intention of the EEL Program to re-establish natural hydrology by repairing this breach. There are a few small ditches along the northern boundary (GFS tract) that will be restored as funding and time allows.

The restoration of natural upland communities on-site is primarily focused upon the re-vegetation of areas impacted as part of the installation of canals. Mitigation options are being explored in order to restore the historical hydrology within areas of the cypress strand as well as the flatwood habitat. Restoration activities have and will likely occur in phases as schedules and funding allow. Private entities are no longer allowed to mitigate on public lands. Restoration efforts will also be bound by certain limitations such as economic feasibility, the potential for success, and the assurance of a sound scientific basis for the restoration. The areas proposed for restoration will be analyzed in the context of the vegetative community, so as to ensure that the restoration is consistent with the principles set forth by the EEL Program and the primary goal of maintaining biological diversity. Monitoring will be conducted by consultants associated with the mitigation project for a minimum of 5 years. GFS has 4 photo points, and MISS has 11 that were set up by staff. Mitigation photo points will be added to this group as projects take place.

F. Public Access and Passive Recreation

Public access and opportunities for passive recreation will be provided within SBCSE boundaries pursuant to public use and recreational policies of the EEL Program Sanctuary Management Manual adopted by Brevard County Board of County Commissioners in 1997. It has been determined that passive recreational activities best support the EEL Program goals. The EEL Program Sanctuary Management Manual (**Brevard County, 1997**) defines passive recreation as follows:

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

Members of the EEL Program’s staff have performed a recreational assessment for GFS and MISS in order to determine the best placement of hiking/ biking trails, location of parking and other recreation-related needs. A meeting of the Recreation and Education Advisory Committee (REAC) regarding MISS took place on January 12, 2006. A meeting related to GFS was held on May 11, 2006. Those minutes can be seen in **Appendix U**. Staff will continue to work with groups to improve passive recreation.

1) Hiking

GFS
Not all of the proposed hiking trails are currently designated within the GFS. EEL staff has opened the red trail loop (**Figure 9**) to hikers, bikers, and horseback riding. This and remaining proposed trails are, and will be, located to give visitors the opportunity to experience the diverse habitats within the GFS. The red trail and proposed trails will bring visitors through the diverse habitats of the GFS, from mesic flatwoods to cypress strands. Informative signs will be placed along the trails, and any research or restoration projects that may be ongoing (such as prescribed fire) will be included in the signage. With mitigation projects ongoing south of the Sottile Canal, the loop trail (in green, **Figure 9**) will only exist, if at all, where dry habitat occurs year round. There are no plans for any boardwalks at this time, though a crossing would have to be built across the Sottile Canal to connect the green south loop to the northern trail. There will be a parking area and kiosk at Micco Road to access this part of the GFS trail system.

MISS
As with GFS, these hiking trails will bring visitors through the diverse habitats of the sanctuary, from wet flatwoods to scrubby flatwoods. Informative signs will be placed along the trails, and any research or restoration projects that are ongoing (such as the transformation of the planted pine areas to a more natural flatwoods) will be included in the signage. At present time (**Figure 10**), MISS trails feature 2 loop trails.

2) Parking and public access

GFS
Parking areas for the GFS are currently not provided. One location staff is looking at for future parking is along Micco Road. A gate will be installed on the north and south side of the parking area for maintenance and prescribed fire access. Minimal vegetation will be removed to provide adequate parking for visitors. This parking area would be installed in conjunction with the loop trail that is proposed.

MISS
The only designated parking area within MISS is inside the first gate along Micco Road (**Figure 8**). This parking area will serve as starting and ending point for the hiking trails.

3) Horseback Riding
This activity is an acceptable passive recreational activity within GFS and MISS and will be allowed on the trail and firebreak systems. The EEL Program retains the ability to close off trails to this and other activities if negative impacts are observed.

4) Hunting
No hunting is proposed within the GFS and MISS unless it is required for species management in the future.

5) Bird Watching
Birding is a passive recreational activity that should be encouraged at all the Sanctuaries. Specific bird observation areas may be established along the hiking trails. MISS is included in the Florida Birding Trail system.

The central theme for environmental education at GFS will be the cypress and flatwoods ecosystems, and how those natural communities support a vast array of species. MISS will focus on the flatwoods habitat as well as the scrub ecosystem.
EEL Staff will work with area schools, school board and agencies/organizations offering education programs to augment the educational programs at GFS and MISS as staffing and operational funding allows. 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.

VI. MANAGEMENT ACTION PLANS

Although much of the proposed resource management and public access strategies have been discussed, the following is a comprehensive outline of the goals, strategies and actions necessary to manage the tracts within the SBCSE Management Plan.

A. Goals

The Sanctuary Management Manual of the EEL Program provides the following management goals for the all Sanctuaries within the EEL Program.

- 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 that are needed to meet the management goals for the SBCSE.

GOAL: DOCUMENTATION OF HISTORIC PUBLIC USE

Strategy 1: Document historic public use

Actions:

- Collect historic information (such as aerials, historic photos, interviews with previous landowners) regarding the types of activities that have occurred on-site. Completed
- Evaluate how historic public use impacted the site's natural resources. Completed
- Consider historic public use patterns in planning future public uses. Completed
- Map all existing trails using GIS/GPS. Completed

GOAL: CONSERVATION OF ECOSYSTEM FUNCTION

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

Actions:

- Research and monitor baseline conditions of natural systems. (2013-2020)
- Research the connection of on-site natural resources with adjacent resources. (2013-2020)
- Research hydrologic patterns on and off-site. (2013-2020)
- Restore natural hydrology of the area south of Sottile Canal by filling in ditches through mitigation work (GFS). (2013-2020).
- Restore natural communities to improve efforts on enhancing native diversity; (2013-2020)
- Investigate the historic hydroperiod and restore natural hydrologic patterns. (2013-2020)
- Install one photopoint in each habitat within SBCSE. (Completed)

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

- Collect data to analyze the existing community interfaces. (2013-2020)
- Restore/enhance natural communities where and as possible. (2013-2020)
- Protect communities from deleterious impacts deriving from external influences. (2013-2020)

GOAL: CONSERVATION OF NATURAL (NATIVE) COMMUNITIES

Strategy 4: Restore degraded, disturbed, or altered wetlands within SBCSE.

Actions:

- Establish baseline conditions within wetlands. (2013-2020)
- Use native plants for restoration efforts. (2013-2020)
- Consult local experts and current literature regarding best scientific methods for wetland restoration. Completed
- Prioritize the wetland communities in need of restoration based upon ease of accomplishment, expected habitat value yield, or financial considerations. Completed
- Use off-site mitigation projects to fund on-site wetland restoration (2013-2020)
- Assess possible impacts of proposed restoration on adjacent communities and offsite properties. Completed but On-Going
- Implement the selected restoration activities (i.e. remove exotic species, restore natural hydrologic flood, etc.). (2013-2016)
- Monitor the effects of the restoration activities, evaluate the success of the restoration projects, and revise the restoration plan, as necessary. (2013-2020)
- To manage invasive exotic plant species at a maintenance level (0-5%), continue to periodically treat FLEPPC cat 1 & 2 invasive exotic plant species. (2013-2020)

Strategy 5: Restore degraded, disturbed, or altered uplands within SBCSE.

- Establish baseline conditions within the upland communities. Completed
- Consult local experts and current literature regarding best scientific methods for upland restoration. Completed
- Prioritize the upland communities in need of restoration based upon ease of accomplishment, expected habitat value yield, or financial considerations. Completed
- Assess possible impacts of proposed restoration on adjacent communities and offsite properties. (2013-2020)
- Implement the selected restoration activities (i.e. remove exotic species, restore natural disturbance regime, replant native species, etc.). (2013-2020)
- Monitor the effects of the restoration activities, evaluate the success of the restoration projects, and revise the restoration plan, as necessary. (2013-2020)
- To manage invasive exotic plant species at a maintenance level (0-5%), continue to periodically treat FLEPPC cat 1 & 2 invasive exotic plant species. (2013-2020)

Strategy 6: Design and implement a "natural" fire management program.

- Identify natural communities that require prescribed fire management. Completed
- Document listed species within Sanctuary that require fire for their propagation. Completed
- Install perimeter firebreaks. (2013-2020)
- Identify and evaluate individual proposed burn management units. Completed
- Identify the goal of the application of fire to each proposed burn unit. Completed

- Incorporate all of the above into a Sanctuary-specific fire management plan to be attached to this plan as an Appendix. Completed
- Develop and implement public education campaign including programs and literature regarding the need for prescribed fires. Completed
- Meet with local citizens to help educate neighbors to the prescribed fire program. (2013-2020)
- Secure the necessary permits from the State Division of Forestry. (2013-2020)
- Begin prescribed fire management program. Started 1999
- Monitor the effects of the fire management activities, evaluate the success of the program, and revise the program strategies as needed. (2013-2020)
- Reintroduce and continue prescribed fire to ***fire adapted*** communities approximately 400 acres/yr or as needed in GFS, and 350 acres/yr or as needed in MISS. Due to the checkered board effect of county managed lands vs private land in the northern GFS portions, EEL staff will burn as much as possible with the FFS using the Hawken's Bill permitting to burn non EEL land and county property as one unit. (2013-2020)

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

Strategy 7: 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. (2013-2020)
- Survey for, and identify, designated plant and animal species. (2013-2020)
- 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. (2013-2020)
- Periodically update these baseline survey data to determine possible changes in designated species distribution or density. (2013-2020)
- Map gopher tortoise burrows post burns or once every five years. (2013-2023)
- Implement habitat resoration activities for listed species (i.e. removal of exotic/nuisance species, resoration of ecosystem function). (2013-2020)
- Review management plans for consistency with USFWS and FFWCC guidance concerning listed species. (2013-2020)
- 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. (2013-2020)

GOAL: DOCUMENTATION OF SIGNIFICANT ARCHAEOLOGICAL AND HISTORIC SITES

Strategy 8: Survey for archaeological and historic sites within SBCSE.

Actions:

- Contact the State Division of Historic Resources to conduct a Phase I survey of the site. (2013-2020)
- Review available maps and historic records for indications of past usage of the site. Completed
- Map all archaeological and historic sites for future reference. Completed

GOAL: PROVISION FOR PUBLIC ACCESS AND RESPONSIBLE PUBLIC USE

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

Actions:

- Perform Public Access Site Assessment. Completed
- Install boundary fencing (2013-2020)
- Install posting with EEL Program signage. Completed
- Coordinate recreational use with the ecological burning strategies of the EEL Program. (2013-2016)
- Minimize unauthorized trail expansion by establishing sufficient trails, along with the development of written guidelines. (2013-2016)
- Install an informational kiosk at the sanctuary entrance (end of Crepe Myrtle Drive for GFS and at 500 Micco Rd for MISS) to inform visitors. Completed
- Install educational signs along approved trails. (2013-2016)

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

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

Actions:

- Establish a methodology and record keeping system to document public use. (2013-2020)
- Conduct regular monitoring to assess impacts of public use on natural habitats. (2013-2020)
- Conduct regular "walk-throughs" over frequently used sites to assess the need for changes in routing/user types, or user intensity. (2013-2020)
- Re-route users from sensitive areas or popular sites on a regular or as-needed basis. (2013-2020)
- Re-align public use to avoid areas which observations or data indicate are too sensitive for the level of use originally planned. (2013-2020)

GOAL: PROVISION OF ENVIRONMENTAL EDUCATION PROGRAMS

Strategy 11: 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. Completed
- Design and develop signs and printed materials. Completed
- Provide a trail brochure to visitors of the sanctuary. Completed
- Include educators, friends groups and other organizations in the design, development and delivery of programs. (2013-2016)
- Develop criteria and process of evaluation for program review and refinement. (2013-2020)
- Coordinate outreach and on-site programs for school-aged children with school board and area schools. (2013-2020)
- Provide 2 guided hikes per year to school groups when requested. (2013-2020)
- Provide a "special collection" of books and other materials specifically related to the environmental and cultural character of the SBCSE. (2013-2020)

GOAL: OPPORTUNITIES FOR MULTIPLE USES AND COMPATIBILTY

Strategy 12: Provide opportunities for multiple use and compatibility when practical.

Actions:

- Use fire breaks for multi-use recreation trails when not needed for resource management. (2013-2020)
- Reroute trails, where possible off firebreaks, to provide improved access. (2013-2020)
- Include multiple benefits of natural community restoration efforts in education program. (2013-2020)

GOAL: GENERAL UPKEEP AND SECURITY OF THE PROPERTY

Strategy 13: 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 or signs clearly marking the site's boundary. (2013-2020)
- Employ full-time maintenance staff. Completed
- 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. (2013-2020)
- Coordinate daily maintenance tasks using staff and volunteers. (2013-2020)

- Based on the maintenance, security and resource management plan develop an annual budget for the SBCSE. (2013-2020)

VII. FINANCIAL CONSIDERATIONS

The Brevard County Environmentally Endangered Lands Program receives land acquisition and management revenues from ad valorem revenues collected pursuant to the 1990 and 2004 voter-approved EEL Referendum. The EEL Program allocates bond funds to capital land acquisition and one-time capital expenditures. Ad valorem revenues 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 2011. Revenues from the 2004 referendum will be collected until 2024, the sunset date of that ad valorem collection. Based on financial projections, the EEL Program shall annually appropriate a portion of the EEL Program ad valorem millage not required for bond debt services to fund annually EEL Program capital and non-capital expenditures. 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 be considering other funding options and financial resources to address the long-term management responsibilities of the EEL Program.

The following is a breakdown per tract of the general costs estimated for the annual operations within the EEL Program South Region, as well as past expenditures on capital improvements:

Annual Management for GFS

Staff Salaries (2010)

Land Manager (f.t.)	$10,100
Assistant Land Manager (f.t.)	$7,550
Land Management Technician (f.t.)	$5,600
Management Activities (prescribed fire, exotic control, fence repair)	$12,000

Annual Management for MISS

Staff Salaries (2010)

Land Manager (f.t.)	$8,400
Assistant Land Manager (f.t.)	$6,300
Land Management Technician (f.t.)	$4,850
Management Activities (prescribed fire, exotic control, fence repair)	$10,000

A land manager, assistant land manager, and land management tech are currently (March 2014) employed to oversee maintenance and resource management activities for the EEL Program South Region as part of their land management responsibilities within the program. The cost estimate for expected personnel is based on the large size of the

Program's South Area and the time expected to accomplish basic maintenance tasks such as exotic control, fire management, and boundary inspections.

Contract maintenance is expected to include annual costs for vegetation management utilizing heavy equipment, and will vary year to year.

Capital Improvement for GFS and MISS

Perimeter fencing	$65,000.00 (partially completed)
Firebreaks	$20,000.00 (partially completed)
Kiosks	$ 1000.00 (3 installed)
Gates	$ 5,000.00 (20 installed)
Interpretive signs	$ 5,000.00 (GFS and MISS)
Parking lot	$10,000.00 (GFS) proposed

Any of these costs might be adjusted depending upon the availability of assistance through grant programs and cooperative ventures with non-profit and private groups. Capital items might also be added or removed dependant upon changes in sanctuary boundaries as acquisitions continue.

The SBCSE Management Plan has gone through its 30- day public review. A copy of the notice for public review and all comments related to the review are cataloged in **Appendix V**.

This management plan process requires an advisory group. This group was set up to review this plan after public comments were received and the plan was updated. Advisory group members and their affiliations are listed in **Appendix W**. A public hearing was set up with this advisory group. **Appendix X** contains a copy of the letter sent out for that meeting; also included are the minutes from that meeting. Any other comments or minutes from public meetings reguarding this plan have been recorded in **Appendix Y**.

This Management Plan was approved by the Brevard County Board of Commisioners on April 29,2014.

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IX. APPENDICES

South Brevard Coastal Scrub Ecosystem Management Plan 2015

Appendices

*Note: Some appendices were put together before this management plan boundaries were determined. Therefore and mention of Grant-Valkaria Conservation Area (GVCA) or Grant-Valkaria Acquisition Area (GVAA) are now included within the Grant Flatwoods Sanctuary Boundary

Appendix A : Legal Descriptions

Part A

Grant Flatwoods Sanctuary
Legal Description

EXHIBIT "A"

Parcel 1:

The East ½ of Section 1, Township 30 South, Range 37 East, Brevard County, Florida.

Parcel 2:

The Northeast ¼ of Section 12, Township 30 South, Range 37 East, Brevard County, Florida, lying North of the centerline of the San Sebastian Drainage Canal.

Parcel 3:

All that part of Section 5, Township 30 South, Range 38 East, lying West and North of the following described line: Beginning at a concrete monument marking the Northeast corner of said Section 5, said point being the Point of Beginning of the following described line; thence run South 0° 02′ 45″ West, a distance of 50 feet: thence run South 89° 35′ 43″ West, a distance of 348.32 feet; thence run South 0° 02′ 45″ West, a distance of 1,250.56 feet; thence run South 89° 35′ 53″ West, a distance of 303.68 feet; thence run South 0° 02′ 45″ West, a distance of 405.56 feet; thence run South 89° 35′ 43″ West, a distance of 25.63 feet; thence run South 82° 46′ 01″ West, a distance of 626.42 feet; thence run South 43° 05′ 05″ West, a distance of 636.75 feet; thence run South 73° 08′ 55″ West, a distance of 30.75 feet; thence run North 33° 57′ 15″ West, a distance of 357.73 feet; thence run South 89° 38′ 29″ West, a distance of 781.47 feet; thence run South 0° 21′ 31″ East, a distance of 2,619.94 feet; thence run South 89° 26′ 1″ West, a distance of 1,415.07 feet; thence run South 0° 01′ 12″ West, a distance of 660.15 feet; thence run South 89° 25′ 17″ West, a distance of 1,138.69 feet to the Westerly line of the South West ¼ of Section 5 and the terminus of the described line.

BCM APPROVED
By SS Date 9.12.01

Parcel 4:

The West ½ of Section 6, Township 30 South, Range 38 East, Brevard County, Florida.

Parcel 5:

The North ½ of Section 7, Township 30 South, Range 38 East, lying North of the centerline of the San Sebastian Drainage Canal, LESS the East 50 feet thereof.

PSM APPROVED BY BS DATE 4-12-01

EXHIBIT "A"
LEGAL DESCRIPTION

PARCEL ONE:

Southeast one-quarter of Section 12, except the West 18 acres; and the Northeast one-quarter of Section 13, except the West 37 acres, all in Township 30 South, Range 37 East, Brevard County, Florida, less and except the right-of-way for Micco Road.

PARCEL TWO:

North one-half of Section 18 North of FLEMING GRANT LINE; Southwest one-quarter of Section 8, North of FLEMING GRANT LINE; and the South one-half of Section 7, all in Township 30 South, Range 38 East, Brevard County, Florida, less and except the right-of-way for Micco Road.

PARCEL THREE:

The portion of the Northeast one-quarter of Section 12, Township 30 South, Range 37 East plus the North one-half of Section 7, Township 30 South, Range 38 East; plus the Northwest one-quarter of Section 8, Township 30 South, Range 38 East, Brevard County, Florida, lying South of the centerline of the San Sebastian Drainage Canal.

Appendix A – part B

Micco Scrub Sanctuary Legal Description

Micco

Exhibit "A"

The S ½ of Section 10; the SW ¼ of Section 11; the N ½ of the N ½ of the N ½ of the NW ¼ of Section 14, all in Township 30 South, Range 37 East, Brevard County, Florida.

ALSO

All of Section 15, less the W ½ of the NW ¼, and less the S ½ of the SW ¼ of the SW ¼ as deeded in Official Records Book 1528, Page 744, Public Records of Brevard County, Florida, of Township 30 South, Range 37 East; and the W ½ of Section 14, less the N ½ of the N ½ of the N ½ of the NW ¼, Township 30 South, Range 37 East, Brevard County, Florida.

LESS AND EXCEPT:

RIGHT-OF-WAY FOR MICCO ROAD AS DESCRIBED IN OFFICIAL RECORDS BOOK 620, PAGE 793, PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA;

ALSO LESS AND EXCEPT:

RIGHT-OF-WAY FOR BABCOCK STREET AS RECORDED IN O.R. BOOK 432, PAGE 262;

ALSO LESS AND EXCEPT:

A parcel of land lying in the south half of Section 10, Township 30 South, Range 37 East, Brevard County, Florida, being more particularly described as follows:
Commence at the northwest corner of Section 10, Township 30 South, Range 37 East, and proceed South 01°11'18" East, along the west line of said Section 10, a distance of 2638.08 feet to the northwest corner of the south half of said Section 10; thence run South 89°21'04" East, along the north line of the south half of said Section 10, a distance of 177.20 feet to a point on the east maintained right-of-way line of Babcock Street; thence run South 00°46'20" West, along said east maintained right-of-way line, a distance of 45.00 feet to the Point of Beginning; thence continue South 00°46'20" West, along said east maintained right-of-way line, a distance of 2592.14 feet to a point on the south line of the south half of said Section 10; thence run North 89°04'58" West, along said south line, a distance of 36.90 feet to a point on the east right-of-way line of Babcock Street as per Official Records Book 423, Page 262 of the Public Records of Brevard County, Florida; thence run North 01°11'18" West, along said east right-of-way line, a distance of 2592.71 feet; thence run South 89°36'54" East a distance of 125.60 feet to the Point of Beginning;

ALSO LESS AND EXCEPT:

A parcel of land lying in the south half of Section 15, Township 30 South, Range 37 East, Brevard County, Florida, being more particularly described as follows:
Commence at the northwest corner of the south half of Section 15, Township 30 South, Range 37 East, and proceed South 89°09'22" East, along the north line of the south half of said Section 15, a distance of 83.97 feet; thence run South 00°11'50" West a distance of 49.62 feet to a point on the east maintained right-of-way line of Babcock Street and the Point of Beginning; thence continue South 00°11'50" West, along said east maintained right-of-way line, a distance of 1936.79 feet to a point on the north line of the south half of the southwest quarter of the southwest quarter of said Section 15; thence run North 89°12'41" West, along said north line, a distance of 46.97 feet to a point on the east right-of-way line of Babcock Street as per Official Records Book 423, Page 262 of the Public Records of Brevard County, Florida; thence run North 00°34'19" East, along said east right-of-way line, a distance of 1936.59 feet; thence run South 89°24'31" East a distance of 34.30 feet to the Point of Beginning.

5.11.99 RB
BSM

EXHIBIT "B"

That part of the former San Sebastian Drainage District canal lying in the south half of Section 10 and the southwest quarter of Section 11, Township 30 South, Range 37 East, Brevard County, Florida, being more particularly described as follows:

Commence at the northwest corner of said Section 10, Township 30 South, Range 37 East, and proceed South 01°11'18" East, along the west line of said Section 10, a distance of 2638.08 feet to the northwest corner of the south half of said Section 10 and the Point of Beginning; thence run South 89°21'04" East, along the north line of the south half of said Section 10, a distance of 5262.39 feet to the northeast corner of the south half of said Section 10; thence run South 89°23'50" East, along the north line of the southwest quarter of Section 11, Township 30 South, Range 37 East, a distance of 2677.65 feet to the northeast corner of said southwest quarter; thence run South 02°06'53" East, along the east line of said southwest quarter, a distance of 16.00 feet, more or less, to the southern top-of-bank of the former San Sebastian Drainage District drainage canal; thence run North 89°31'01" West, along the approximate southern top-of-bank of said canal, a distance of 2677.25 feet to the intersection with the west line of the southwest quarter of said Section 11; thence run North 89°36'54" West, along the approximate southern top-of-bank of said canal, a distance of 5262.16 feet to a point on the aforesaid west line of Section 10; thence run North 01°11'18" West a distance of 45.83 feet to the Point of Beginning.

5.11.99 RB
R&M

EXHIBIT "C"

A parcel of land lying in the north half of Section 15 and the west half of Section 14, Township 30 South, Range 37 East, Brevard County, Florida, being more particularly described as follows:
Commence at the northwest corner of the south half of Section 15, Township 30 South, Range 37 East, and proceed South 89°09'22" East, along the south line of the north half of said Section 15, a distance of 1328.42 feet to the southeast corner of west half of the northwest quarter of said Section 15; thence run North 00°37'26" East, along the east line of said west half of the northwest quarter, a distance of 55.88 feet to a point on the northerly right-of-way line of Micco Road, a 100 foot wide right-of-way as per Official Records Book 620, Page 793 of the Public Records of Brevard County, Florida, said point also being the Point of Beginning; thence continue North 00°37'26" East, along said east line, a distance of 20.00 feet; thence run South 89°24'31" East, parallel with and 20.00 feet north of, perpendicular measure, said northerly right-of-way line of Micco Road, a distance of 3985.47 feet to a point on the west line of the west half of said Section 14, Township 30 South, Range 37 East; thence continue South 89°24'31" East, along said parallel line,, a distance of 2656.99 to a point on the east line of the northwest quarter of said Section 14; thence run South 00°52'54" West, along said east line, a distance of 20.00 feet to a point on the aforesaid northerly right-of-way line of Micco Road; thence run North 89°24'31" West, along said northerly right-of-way line, a distance of 2656.95 feet to a point on the aforesaid west line of the west half of Section 14; thence continue North 89°24'31" West, along said northerly right-of-way line, a distance of 3985.42 feet to the Point of Beginning.

Together with,

A parcel of land lying in the south half of Section 15 and the southwest quarter of Section 14, Township 30 South, Range 37 East, Brevard County, Florida, being more particularly described as follows:
Commence at the northwest corner of the south half of Section 15, Township 30 South, Range 37 East, and proceed South 89°09'22" East, along the north line of the south half of said Section 15, a distance of 83.97 feet; thence run South 00°11'50" West a distance of 49.62 feet to a point on the east maintained right-of-way line of Babcock Street and the Point of Beginning; thence run South 89°24'31" East, along the southerly right-of-way line of Micco Road, a 100 foot wide right-of-way as per Official Records Book 620, Page 793 of the Public Records of Brevard County, Florida, a distance of 5229.21 feet to a point on the west line of the southwest quarter of said Section 14, Township 30 South, Range 37 East; thence continue South 89°24'31" East, along said southerly right-of-way line, a distance of 2656.77 feet to a point on the east line of the southwest quarter of said Section 14; thence run South 00°52'54" West, along said east line, a distance of 20.00 feet; thence run North 89°24'31" West, parallel with and 20.00 feet south of, perpendicular measure, the aforesaid southerly right-of-way line of Micco Road, a distance of 2656.74 feet to a point on the aforesaid west line of the west half of Section 14; thence continue North 89°24'31" West, along said parallel line, a distance of 5229.01 feet to a point on the aforesaid east maintained right-of-way line of Babcock Street; thence run North 00°11'50" East, along said east maintained right-of-way line, a distance of 20.00 feet to the Point of Beginning.

BSM
By RB Date 5.13.99

Appendix B : Outstanding Florida Waters Letters

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

September 28, 2009

David DeMeyer
South Region Assistant Land Manager
Brevard County Environmentally Endangered Lands Program
Parks and Recreation Department
91 East Drive
Melbourne, Florida 32904

RE: Land Use Plan for Grant Flatwoods Sanctuary

Dear Mr. DeMeyer:

Thank you for your inquiry regarding the surface water quality classifications on and near Grant Flatwoods Sanctuary in Brevard County. There are no Outstanding Florida Waters (OFW) located on or immediately adjacent to the site (section 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,

Eric R. Shaw
Environmental Manager
Standards and Assessments Section

Appendix C : GFS Conservation Easement Documentation (SJRWMD)

BREVARD County
BOARD OF COUNTY COMMISSIONERS

FLORIDA'S SPACE COAST

TAMARA J. RICARD, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 637-2001
Fax: (321) 264-6972

August 29, 2008

MEMORANDUM

TO: Don Lusk, Parks and Recreation Director Attn: Mike Knight

RE: Item III.B.2., Resolution Approving St. Johns River Water Management District (SJRWMD) Conservation Easement for Mitigation Projects on Grant Flatwoods Sanctuary

The Board of County Commissioners, in regular session on August 28, 2008, adopted Resolution and accepted Conservation Easement in favor of SJRWMD for mitigation projects on County Lands. Enclosed are two certified copies of the Resolution and the original Conservation Easement for your action.

Your continued cooperation is greatly appreciated.

Sincerely yours,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

Tamara Ricard

Tamara Ricard, Deputy Clerk

orig - Mike (w/3 enclosures)
cc: Agenda file (w/out encl)
Clerk file (w/out encl)

/jj

Encls. (3)

cc: Finance
Budget

2008 SEP -9 AM 9:44
PARKS & REC.
BREVARD CO.
COCOA, FL

RECEIVED
SEP 2008
Environmentally
Endangered
Lands Program

PRINTED ON RECYCLED PAPER

RESOLUTION NO. 2008-178

A RESOLUTION PURSUANT TO SECTION 125.38, FLORIDA STATUES, AUTHORIZING THE USE OF COUNTY PROPERTY AS A CONSERVATION EASEMENT TO ST. JOHNS RIVER WATER MANAGEMENT DISTRICT; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Brevard County, Florida (County), owns certain real property known as the Grant Flatwoods Sanctuary (Property), located in south Brevard County, Florida and the County desires to preserve the Property for the citizens and visitors to the County; and

WHEREAS, St. Johns River Water Management District (SJRWMD) is seeking to obtain a conservation easement over a portion of the Property as condition of permit #4-009-24197-3, #4-009-103610-1, #4-009-103724-1, #4-009-103720-1, #4-009-108814-1, #4-061-107199-1, #4-009-16496-31 to offset adverse impacts and prevent future impacts to natural resources, fish and wildlife, and wetland functions; and

WHEREAS, the County desires to cooperate with SJRWMD to convey the conservation easement.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF BREVARD COUNTY, FLORIDA, that:

1. The County hereby agrees to grant a conservation easement in favor of SJRWMD. A copy of the proposed easement is attached .

2. This Resolution shall become effective immediately upon its adoption.

This Resolution is PASSED AND ADOPTED this 28 day of August, 2008.

ATTEST:

Scott Ellis, Clerk

BOARD OF COUNTY COMMISSIONERS
OF BREVARD COUNTY, FLORIDA

Truman Scarborough, Chairman
As approved by the Board on: 08/28/08 .

STATE OF FLORIDA
COUNTY OF BREVARD

This is to certify that the foregoing is a true and current copy of Resolution No. 08-178 witness my hand and official seal this 5 day of September 2008

SCOTT ELLIS
Clerk Circuit Court
BY _____ D.C.

Prepared by:
Brevard County EEL Program
91 East Dr.
Melbourne, Fl 32904

Return recorded original to:
Office of General Counsel
St. Johns River Water Management District
4049 Reid Street
Palatka, FL 32177-2529

CONSERVATION EASEMENT

THIS CONSERVATION EASEMENT is made this 28 day of August, 2008 by Brevard County, Florida having an address at 2725 Fran Jamieson Way Viera, FL 32940 ("Grantor"), in favor of the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a public body existing under Chapter 373, Florida Statutes, having a mailing address at 4049 Reid Street, Palatka, Florida 32177 ("Grantee").

WITNESSETH:

WHEREAS, Grantor solely owns in fee simple certain real property in Brevard County, Florida, more particularly described in Exhibit "A" attached hereto and incorporated by this reference (the "Property");

WHEREAS, Grantor grants this conservation easement as a condition of permit #40-009-24197-3, #4-009-103610-1, #4-009-103724-1, #4-009-103720-1, #4-009-108814-1, #4-061-107199-1, #4-009-16496-13 (Additional permits may be issued within the Property if approved by the Grantor and Grantee) issued by Grantee, solely to off-set adverse impacts to natural resources, fish and wildlife, and wetland functions; and

WHEREAS, Grantor desires to preserve the Property in its natural condition in perpetuity;

NOW THEREFORE, in consideration of the above and the mutual covenants, terms, conditions and restrictions contained herein, and pursuant to the provisions of section 704.06, Florida Statutes, Grantor hereby voluntarily grants and conveys to Grantee a conservation easement in perpetuity over the Property of the nature and character and to the extent hereinafter set forth (the "Conservation Easement").

1. Purpose. The purpose of this Conservation Easement is to assure that the Property will be retained forever in its existing natural condition and to prevent any use of the Property that will impair or interfere with the environmental value of the Property.

2. Prohibited Uses. With the exception of the activities described in the utility easement granted to the Houston Texas Gas and Oil Corporation and recorded in the Official Records of Brevard County, Florida at Book 211, Page 361, any activity on or use of the Property inconsistent with the purpose of this Conservation Easement is prohibited. Without limiting the generality of the foregoing and except as otherwise authorized by the Permit, the following activities and uses are expressly prohibited:

(a) Constructing or placing buildings, roads, signs, billboards or other advertising, utilities or other structures on or above the ground except that trail roads may be maintained to their pre-existing condition. Educational materials and trail signs may be installed only if approved in writing by the Grantee. Authorized maintenance activities shall be limited to (i) removal of dead vegetation; (ii) necessary pruning and removal of hazardous trees and plants; (iii) the application of permeable materials necessary to impede erosion (e.g. sand, gravel, crushed stone); (iv) replacement of culverts; (v) grading of trail roads; (vi) maintenance of upland cut roadside ditches; (vii) controlled burning and fire line maintenance that is conducted in accordance with plans

approved in writing by Grantee; (viii) maintenance or improvement of upland areas for habitat restoration pursuant to the Environmentally Endangered Land Program Sanctuary Management Manual adopted by the Board of County Commissioners on September 23, 1997; and (ix) any additional maintenance activities specifically described and approved in writing by Grantee.

(b) Dumping or placing soil or other substance or material as landfill or dumping or placing of trash, waste or unsightly or offensive materials.

(c) Removing or destroying trees, shrubs, or other vegetation except exotic and nuisance plant species identified in the Florida Exotic Pest Plant Council's 2007 List of Invasive Plants. In addition, Grantor and its successors and assigns may undertake the following maintenance activities: (i) removal of dead vegetation; (ii) necessary pruning and removal of hazardous trees and plants; (iii) controlled burning and fire line maintenance that is conducted in accordance with plans approved in writing by Grantee; (iv) maintenance or improvement of upland areas for habitat restoration pursuant to the Environmentally Endangered Land Program Sanctuary Management Manual adopted by the Board of County Commissioners on September 23, 1997; and (v) any additional maintenance activities specifically described and approved in writing by Grantee.

(d) Excavating, dredging or removing loam, peat, gravel, soil, rock or other material substances in such a manner as to affect the surface.

(e) Surface use, except for purposes that permit the land or water area to remain predominantly in its natural condition.

(f) Activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, or fish and wildlife habitat preservation.

(g) Acts or uses detrimental to such retention of land or water areas.

(h) Acts or uses detrimental to the preservation of the structural integrity or physical appearance of sites or properties of historical, architectural, archaeological, or cultural significance.

3. Reserved Rights. Grantor reserves unto itself, and its successors and assigns, all rights accruing from its ownership of the Property, including the right to engage in or permit or invite others to engage in all uses of the Property, that are not expressly prohibited herein, including, but not limited to, management activities to enhance the ecological value of the land that are conducted in accordance with plans approved in writing by Grantee, such as controlled burning and fire line maintenance where wetland soil disturbance will not occur. The Grantor reserves unto itself, and its successors and assigns, the right to manage the Property as defined in the Environmentally Endangered Land Program Sanctuary Management Manual adopted by the Board of County Commissioners on September 23, 1997.

4. Rights of Grantee. To accomplish the purposes stated herein, Grantor conveys the following rights to Grantee:

(a) To enter upon and inspect the Property in a reasonable manner and at reasonable times to determine if Grantor or its successors and assigns are complying with the covenants and prohibitions contained in this Conservation Easement.

(b) To proceed at law or in equity to enforce the provisions of this Conservation Easement and the covenants set forth herein, to prevent the occurrence of any of the

prohibited activities set forth herein, and require the restoration of areas or features of the Property that may be damaged by any activity inconsistent with this Conservation Easement.

5. Grantee's Discretion. Grantee may enforce the terms of this Conservation Easement at its discretion, but if Grantor breaches any term of this Conservation Easement and Grantee does not exercise its rights under this Conservation Easement, Grantee's forbearance shall not be construed to be a waiver by Grantee of such term, or of any subsequent breach of the same, or any other term of this Conservation Easement, or of any of the Grantee's rights under this Conservation Easement. No delay or omission by Grantee in the exercise of any right or remedy upon any breach by Grantor shall impair such right or remedy or be construed as a waiver. Grantee shall not be obligated to Grantor, or to any other person or entity, to enforce the provisions of this Conservation Easement.

6. Grantee's Liability. The ownership or attempted enforcement of the rights held by the Grantee of this Conservation Easement does not subject the Grantee to any liability for any damage or injury that may be suffered by any person on the Property or as a result of the condition of the Property encumbered by the Conservation Easement. Each party, pursuant to Section 768.28, Florida Statutes, agrees to be fully responsible for its negligent acts of omissions or tortious acts which result in claims of suites against the Grantor and agrees to be liable for any damages proximately caused by said acts or omissions. Nothing herein is intended to serve as a waiver of sovereign immunity, if applicable. Nothing herein shall be construed as consent by a state agency or

subdivision of the State of Florida to be sued by third parties in any matter arising out of any contract.

7. Acts Beyond Grantor's Control. Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor for any injury to or change in the Property resulting from natural causes beyond Grantor's control, including, without limitation, fire, flood, storm and earth movement, or from any necessary action taken by Grantor under emergency conditions to prevent, abate or mitigate significant injury to the Property or to persons resulting from such causes.

8. Recordation. Grantor shall record this Conservation Easement in timely fashion in the Official Records of Brevard County, Florida, and shall rerecord it at any time Grantee may require to preserve its rights. Grantor shall pay all recording costs and taxes necessary to record this Conservation Easement in the public records. Grantor will hold Grantee harmless from any recording costs or taxes necessary to record this Conservation Easement in the public records.

9. Successors. The covenants, terms, conditions and restrictions of this Conservation Easement shall be binding upon, and inure to the benefit of the parties hereto and their respective personal representatives, heirs, successors and assigns and shall continue as a servitude running in perpetuity with the Property.

10. Amendment. This Conservation Easement may be amended by mutual written agreement of the parties so long as such amendment does not violate the terms of section 704.06, Florida Statutes.

11. Termination. If the fee simple interest in the Property is conveyed to the Board of Trustees of the Internal Improvement Trust Fund, this Conservation Easement shall terminate.

IN WITNESS WHEREOF, Grantor has executed this Conservation Easement on the day and year first above written.

ATTEST:

Board County Commissioners of
Brevard County, Florida
2725 Fran Jamison Way
Viera, FL 32940

Scott Ellis, Clerk

By _____
Truman Scarborough, Chairman

As approved by the Board 08/28/08

EXHIBIT "A"
LEGAL DESCRIPTION

PARCEL ONE:

Southeast one-quarter of Section 12, except the West 18 acres; and the Northeast one-quarter of Section 13, except the West 37 acres, all in Township 30 South, Range 37 East, Brevard County, Florida, less and except the right-of-way for Micco Road.

PARCEL TWO:

North one-half of Section 18 North of FLEMING GRANT LINE; Southwest one-quarter of Section 8, North of FLEMING GRANT LINE; and the South one-half of Section 7, all in Township 30 South, Range 38 East, Brevard County, Florida, less and except the right-of-way for Micco Road.

PARCEL THREE:

The portion of the Northeast one-quarter of Section 12, Township 30 South, Range 37 East plus the North one-half of Section 7, Township 30 South, Range 38 East; plus the Northwest one-quarter of Section 8, Township 30 South, Range 38 East, Brevard County, Florida, lying South of the centerline of the San Sebastian Drainage Canal.

Appendix D: Compliance Letters

Town Of Grant-Valkaria Letter

Followed by

Brevard County Letter

January 6, 2010

Mr. David Demeyer
Brevard County Parks and Recreation
Environmentally Endangered Lands Program
91 East Drive
Melbourne, Florida 32904

Re: Grants Flatwoods Sanctuary

Mr. Demeyer:

Please be advised that the Town of Grant Valkaria town council has reviewed the management plan submitted and has found that the plan is in compliance with the proposed Town of Grant-Valkaria's Comprehensive Plan. Our plan should be going to public hearings for transmittal to the state in February. Once the public hearing for transmittal are completed and the plan is approved by the State we will be having another round of public hearings for adoption. In the meantime, the Town is operating under the Brevard County Comprehensive Plan and the management plan is in compliance with that plan.

If I can provide any additional information, please do not hesitate to contact my office at your convenience.

Sincerely,

Richard Hood
Town Administrator

BREVARD COUNTY
BOARD OF COUNTY COMMISSIONERS

INTER-OFFICE MEMORANDUM

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

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

DATE: October 22, 2009

SUBJECT: Grant Flatwoods Scrub Sanctuary

The subject property is situated within the unincorporated area of Brevard County. The property is zoned RR-1 (Rural Residential). Section 62-1336 of the Zoning Regulations governing RR-1 zoning states that parks and public recreational facilities are permitted uses.

The Future Land Use Map designates this property as Public Conservation. The Public Conservation Future Land Use designation is consistent with the use as an environmentally sensitive scrub sanctuary. .

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

enclosure

Appendix E: Soil Descriptions

Note: Vegetation descriptions from the Brevard County Soil Survey are generic and not specific to EEL Sanctuaries.

Anclote Sand (An)
This is a nearly level poorly drained sandy soil with a dark colored surface layer. These soils occur in broad areas on flood plains, in marshy depressions in the flatwoods, and in poorly defined drainageways. They formed in sandy marine sediments. In most years the water table is within a depth of 10 inches for more that 6 months. In dry seasons it is deeper, but is seldom below a depth of 40 inches. During periods of high rainfall, the soil is covered by slowly moving water for periods of about 7 days to one month. Typical vegetation on this soil type may include herbaceous communities (primarily grasses).

Basinger Sand (Ba)
These soils are nearly level, poorly drained sandy soil typically found in sloughs and depressions in flatwoods. The typical natural community found on Basinger sand is saw palmetto (*Serenoa repens*), wiregrass (*Aristida stricta*) and widely spaced pines. Low areas are covered with maidencane (*Panicum hemitomon)* and St. John's-wort (*Hypericum fasciculatum*).

Eau Gallie Sand (Eg)
These soils are nearly level, very poorly drained sandy soil in broad areas in the flatwoods, on low ridges between sloughs, and in low, narrow areas between sand ridges, lakes and ponds. These soils are mainly on broad, low ridges. In most years, the water table is within a depth of 12 inches of the surface for 1 to 4 months. In other months, the water table is below 12 inches. Rarely is it above the surface. This soil is flooded for 2 to 7 days once in 1 to 5 years. Typical vegetation on this soil type may include saw palmetto, gallberry (*Illex glabra*), second growth longleaf pine (*Pinus palustris*), slash pine (*Pinus elliotti*), and wiregrass.

Eau Gallie Sand, Riviera and Winder (Eu)
This is a low, nearly level, poorly drained soil that has been bedded for citrus. The water table has been lowered by drainage and is at a depth of about 10 to 40 inches for 2 to 6 months a year.

EauGallie, Winder and Felda, ponded (Ew)
These soils are in shallow ponds and sloughs in the flatwoods that receive runoff from the surrounding soils and are flooded for more than six months in most years. Most areas are in natural vegetation of cypress and water-tolerant grasses.

Felda Sand (Fa)
This is a nearly level, poorly drained soil on broad low flats and in sloughs, depressions, and poorly drained drainage ways. The water table is within a depth of 10 inches for 2 to 6 months in most years. A large part of the acreage is in natural vegetation of sand cordgrass (*Spartina bakeri*) and scattered cabbage palm (*Sabal palmetto*).

Floridana Sand, depressional (Fn)
These soils consist of nearly level, very poorly drained soils in marshy depressions, broad flood plains and broad flats. These soils formed in sandy and loamy marine. During normal years, the water table is less than 10 inches bellow the surface for more than 6 months. The water table is above the surface for short periods after heavy rainfall. It is 10 to 30 inches below the surface for short periods during extended dry seasons. Typical vegetation on this soil type may include cordgrass, cypress or hardwoods.

Holopaw Sand
This soil is nearly level and very poorly drained and is found in depressional areas in the flatwoods. The typical high water table is 1-2 feet above the ground surface. The available water capacity is low with rapid permeability, which decreases with depth. Typical native vegetation includes cypress (*Taxodium ascendens*), sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*) and bays. Area of sparse tree growth can have an understory component dominated by cordgrass and maidencane.

Immokalee Sand (Im)
These soils consist of nearly level, poorly drained sandy soils in broad areas in the flatwoods, on low ridges between sloughs, and in low narrow areas between sand ridges and lakes and ponds. These soils formed in beds of marine sands. In normal years, the seasonal high water table is within 12 inches of the surface for 1 to 4 months. In other months, the water table is below 12 inches. Rarely is it above the surface. Typical vegetation on this soil type may include saw palmetto, gallberry, slash pine and wiregrass.

Malabar Sand (Ma)
These soils consist of nearly level, poorly drained sandy soils. These soils are in broad low areas and in sloughs, low depressions and poorly defined drainageways. All formed in sandy and loamy marine sediments. In normal years, the seasonal high water table is within 12 inches of the surface for 2 to 6 months. In other months, the water table is below 12 inches. During periods of high rainfall, the soil is covered by slowly moving water for periods of about 7 days to 1 month. Typical vegetation on this soil type may include scattered pine and cabbage palm with a ground cover of native grasses.

Myakka Sand (Mk)
These soils consist of nearly level, poorly drained soils in broad areas in the flatwoods, and in areas between sand ridges and ponds and sloughs. These soils formed in beds of marine sands. In normal years, the seasonal high water table is within 12 inches of the surface for 1 to 4 months. In other months, the water table is below 12 inches. Rarely is it above the surface. Typical vegetation on this soil type

may include second growth slash pine with an understory of saw palmetto, native grasses and gallberry.

Myakka Sand, depressional (MkD)
This is a nearly level, poorly drained, sandy soil in shallow depressions in the flatwoods. Most areas are small, only a few are larger than 50 acres. This soil is similar to Myakka sand, but it is in low places where water accumulates. In most places it is flooded for 6 to 12 months. Typical vegetation includes St. Johnswort, water-tolerant trees or maidencane. These areas are important feeding grounds for many kinds of wading birds.

Myakka Sand, ponded (Mp):
This is a nearly level, poorly drained sandy soil and is characteristic of depressions in flatwoods. Vegetation is primarily maidencane and St. Johns wort. Water-tolerant trees are found in some areas and water lilies and flags are found in deeper standing water. According to the soil and natural communities map this sand is observed within the mesic and wet flatwoods communities.

Oldsmar Sand (Od):
These consist of very deep, poorly drained and very poorly drained soils in flats and depressions of Peninsular Florida. Slopes range from 0 to 2 percent. The water table is at depths of less than 18 inches for 1 to 3 months during wet seasons in most years. It is at depths of 18 to 40 inches for periods of more than 6 months and recedes to depths of more than 40 inches during extended dry periods. Depressions are ponded for 6 to 9 months or more in most years. Vegetation on this soil type includes pine with an understory of saw palmetto, grasses and gallberry. According to the soil and natural communities map this sand is observed within the mesic and scrubby flatwoods communities.

Paola Fine Sand, 0-5 percent slopes (PfB):
This is an excessively drained soil on ridges. The water table is below a depth of 10 feet. Vegetation on this soil type includes pines with a scattered understory of palmetto. According to the soil and natural communities map this sand is observed within the mesic flatwoods.

Pineda Sand (Pn)
This is a nearly level poorly drained sandy soil on broad hammocks and in low sloughs. The water table is within a depth of 10 inches for 1 to 2 months in most years and between 10 and 40 inches for more than 6 months. In dry periods it is at a depth of more than 40 inches. This soil is generally flooded for 2 to 7 days once in 1 to 5 years. Typical vegetation on this soil type may include scattered pine and cabbage palm with an understory of native grasses.

Pomello sand (Ps)
This is a nearly level, moderately well drained sandy soil on broad low ridges. These soils formed in thick beds of marine sand, and are often very acidic. 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. Typical vegetation on this soil type includes longleaf pine with an undergrowth of live oak, saw palmetto. Pomello sand is an aquifer recharge soil.

Pompano Sand (Pw)
These consist of very deep, very poorly drained, rapidly permeable soils in depressions, drainage ways and broad flats. Slopes range from 0-2 percent. The water table is at depths of less than 10 inches for 2-6 months each year. In depressed areas, the water table is above the soil surface for more than 3 months each year. Vegetation on this soil type includes pines with an understory of saw palmetto, grasses and gallberry.

Quartzipammients, smoothed (Qt)
These are nearly level, to steep sandy soils that have been reworked or shaped by earthmoving equipment, 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 materials. Drainage and permeability are variable.

Riviera Sand (Ri)
The Riviera series consists of very deep, poorly drained, very slowly permeable soils on broad, low flats and in depressions in the Lower Coastal Plain. They formed in stratified sandy and loamy marine sediments on the Lower Coastal Plain. Near the type location, the mean annual temperature is about 75 degrees F., and the mean annual precipitation is about 62 inches. Slopes range from 0 to 2 percent. When drained, Riviera soils are used for citrus, winter truck crops, and improved pasture. Native vegetation consists of slash pine, saw palmetto, scattered cypress and maidencane.

Samsula Muck, depressional (SmD)
The Samsula series consists of very deep, very poorly drained, rapidly permeable soils that formed in moderately thick beds of hydrophytic plant remains and are underlain by sandy marine sediments. These soils are in swamps, poorly defined drainageways and flood plains. Slopes are less than 2 percent. Most areas are in native vegetation and used for water storage and as wildlife habitat. Natural vegetation is loblolly bay (*Gordonia lasianthus*) with scattered cypress, maple and pine trees with a ground cover of ferns and other aquatic plants.

Satellite Sand (Sa):
This is a nearly level, poorly drained sandy soil on broad low ridge flatwoods. The water table is within a depth of 10 to 40 inches of the surface for 2 to 6 months and it is at a depth of 60 inches for most of the year. Vegetation on these soils includes pine, scattered oak, an understory of saw palmetto, grasses and gallberry. According to the soil and natural communities map this sand is observed within the mesic flatwoods.

St. Johns Sand, depressional (Sc):
These soils are in sloughs, poorly defined drainageways and shallow intermittent ponds in the flatwoods. Individual areas are generally long and narrow, but some cover 40 acres or more. The water table is within a depth of 12 inches of the surface for 2 to 4 months and it is at a depth of 12 to 40 inches for most of the remainder of the year. Vegetation on these soils includes marsh grasses, sedges and St. Johns wort. According to the soil and natural communities map this soil is observed within the wet flatwoods and depression marsh habitat.

St. Lucie Fine Sand, 0-5 percent slopes (SfB):
This is a deep, nearly level to steeply loped, excessively drained sandy soil found on high, dune-like ridges and isolated knolls. Most areas are vegetated by sand pine (Pinus clausa) with a sparse understory of saw palmetto. According to the soil and natural communities map this sand is observed within the mesic and scrubby flatwoods communities.

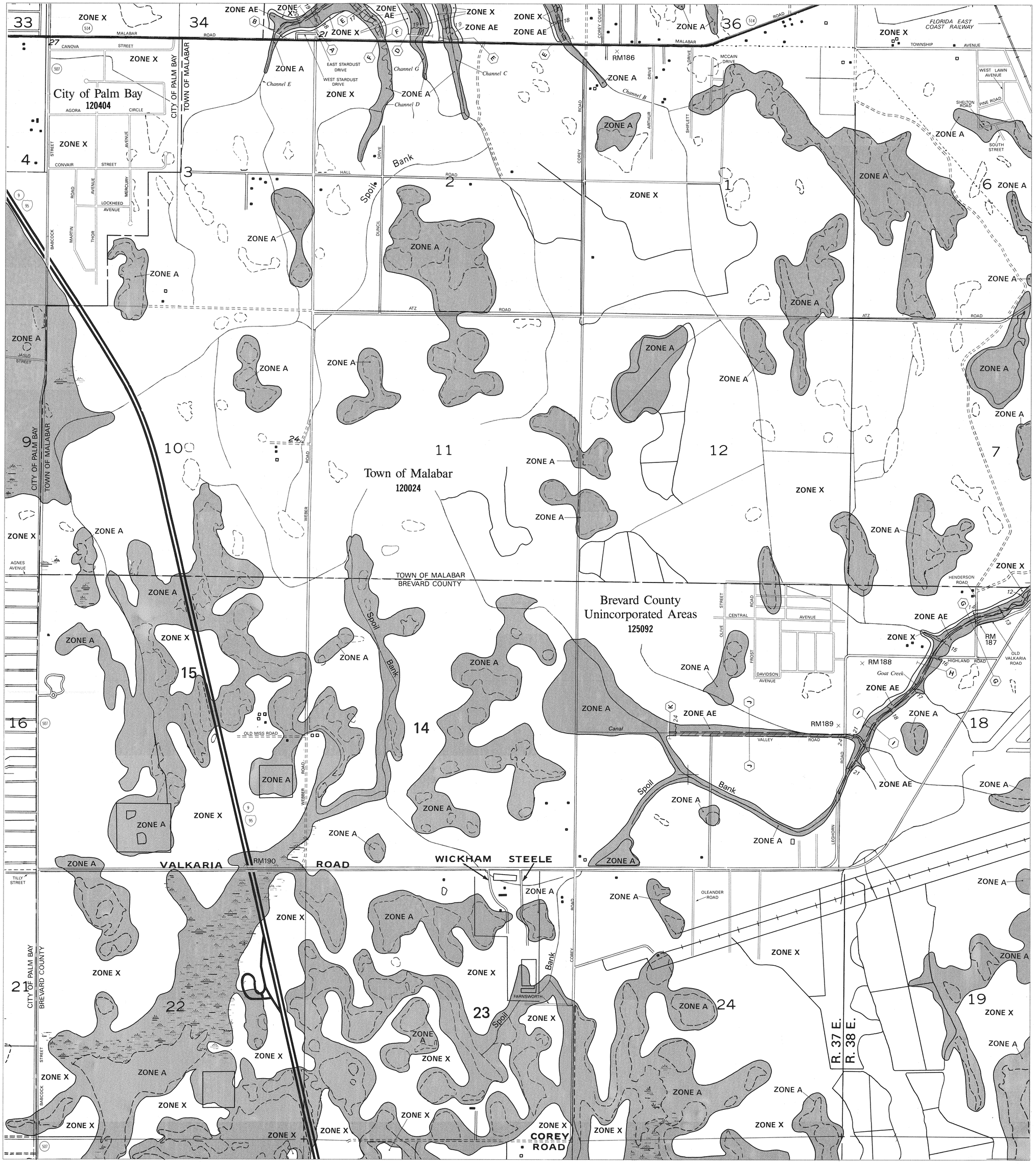
Tomoka Muck (Tw)
This is a nearly level, very poorly drained muck soil in broad flat marshes, small depressions and swamps. Sandy and loamy layers are at a depth of 16 to 40 inches. The water table is within a depth of 10 inches for 9 to 12 months in most years, and water is frequently above the surface. In dry periods it is between 10 and 30 inches. Typical vegetation on this soil type includes maidencane, sawgrass, cattails, and scattered thickets of buttonbush. A few areas are wooded with maple, bay and other wetland hardwoods.

Valkaria Sand (Va):
These consist of deep, rapidly permeable soils. These soils occur in broad, poorly defined, low gradient drainageways, depressions and low nearly level areas. Under natural conditions they are saturated at depths between 0 and 12 inches or depressional areas are covered by shallow water during the summer rainy season. Slopes are 2 percent or less. Vegetation on this soil type includes maidencane and scattered thickets of buttonbush **(***Cephalanthus occidentalis).* A few areas are wooded with maple and other wetland hardwoods. According to the soil and natural communities map this sand is observed within the flatwoods communities.

Wabasso Sand (Wa)
This is a nearly level, poorly drained, sandy soil on broad areas in the flatwoods and on the floodplains. These soils formed in sandy marine sediments over loamy materials. The water table is within a depth of 10 inches for 1 or 2 months in most years and is within 30 inches most of the time. In dry seasons it falls below 30 inches for short periods. The soil is flooded for 2 to 7 days once in 1 to 5 years. Typical vegetation on this soil type include second-growth longleaf or slash pine, an understory of saw palmetto, gallberry and native grasses.

Winder Loamy Sand (Wi)
This is a nearly level, poorly drained soil in low areas or broad ridges. The water table is within 30 inches of the surface most of the time. During short, dry periods it is below 30 inches. This soil is occasionally flooded for 2 to 7 days following heavy rains. A large part of the acreage is in broad low areas where the natural vegetation is saw palmetto and maidencane. On low ridges the vegetation is pine and live oak.

Appendix F : FEMA Flood Maps



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X — Elevation Reference Mark

•MI.5 — River Mile

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Coastal base flood elevations apply only landward of the shoreline.

Elevation reference marks are described in the Flood Insurance Study Report.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

For community panel revision history prior to countywide mapping, see section 6.0 of the Flood Insurance Study Report.

For adjoining panels, see separately printed Map Index

MAP REPOSITORY

Refer to Repository Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:

APRIL 3, 1989

EFFECTIVE DATE(S) OF REVISIONS TO THIS PANEL:

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

BREVARD COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 605 OF 727

CONTAINS:

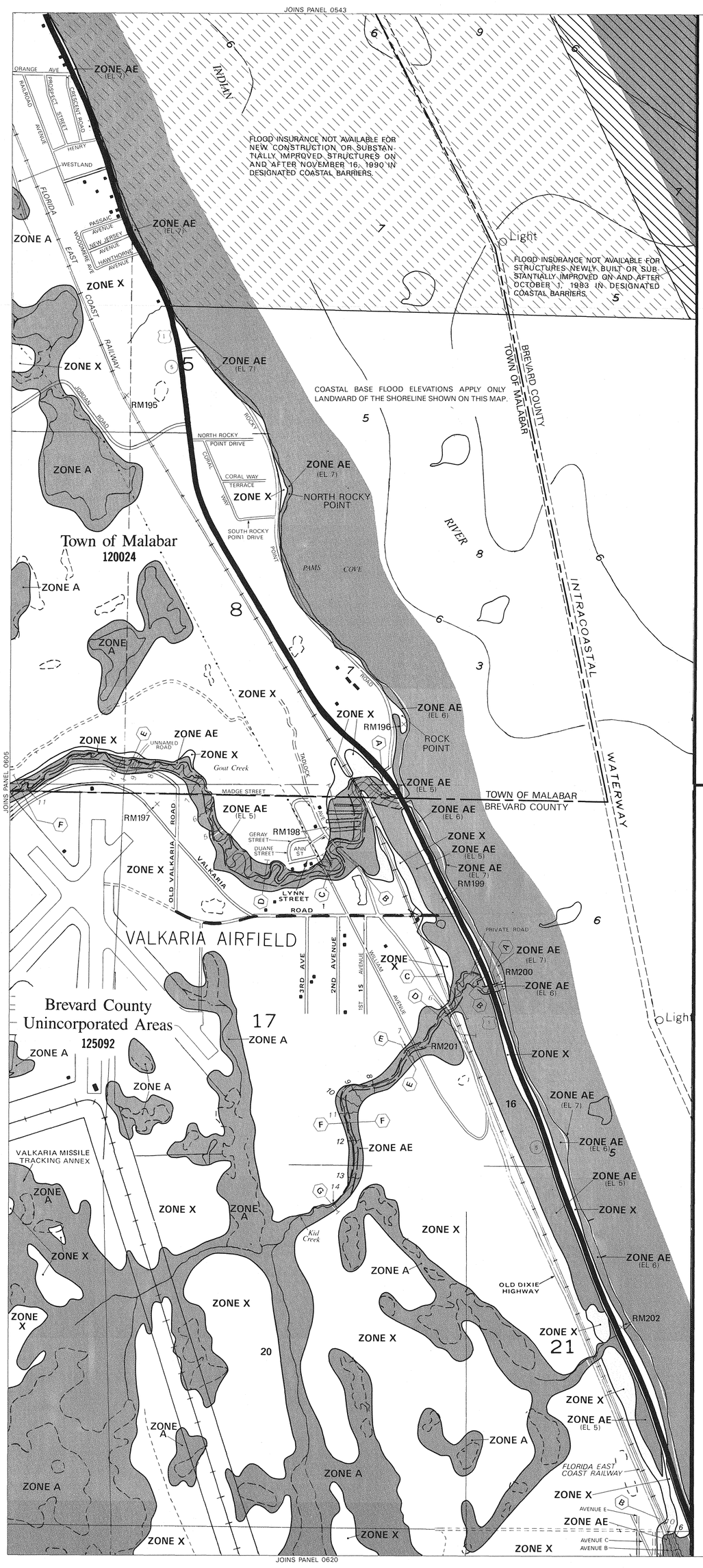
COMMUNITY	NUMBER	PANEL	SUFFIX
MALABAR, TOWN OF	120024	0605	E
PALM BAY, CITY OF	120404	0605	E
UNINCORPORATED AREAS	125092	0605	E

PANEL LOCATION

MAP NUMBER:
12009C0605 E

EFFECTIVE DATE:
APRIL 3, 1989

Federal Emergency Management Agency



THIS AREA IS SHOWN ON MAP NUMBER 12009C0607

THIS AREA IS SHOWN ON MAP NUMBER 12009C0609

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100–YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100–year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500–year flood; areas of 100–year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100–year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500–year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

- Flood Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zone.
- 567 — Base Flood Elevation Line; Elevation in Feet*
- A — A — Cross Section Line
- (EL 19) — Base Flood Elevation in Feet Where Uniform Within Zone*
- RM5 / M3.0 — Elevation Reference Mark / Mile Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all planimetric features outside Special Flood Hazard Area or all areas subject to flooding, particularly from local drainage sources of small size.

Areas of Special Flood Hazard (100-year flood) include zones, A, AE, A1–A30, AH, AO, A99, V, VE and V1–V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Coastal base flood elevations apply only landward of the shoreline.

Elevation reference marks are described in the Flood Insurance Study Report.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

For community panel revision history prior to countywide mapping, refer to Community Map History in the Flood Insurance Study Report.

For adjoining panels, see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Map Index.

EFFECTIVE DATE OF COUNTY-WIDE FLOOD INSURANCE RATE MAP:

APRIL 3, 1989

EFFECTIVE DATE(S) OF REVISIONS TO THIS PANEL:

Map revised August 18, 1992
to incorporate Coastal Barrier Resource System areas and/or otherwise protected areas.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638–6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

BREVARD COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 610 OF 727

CONTAINS:

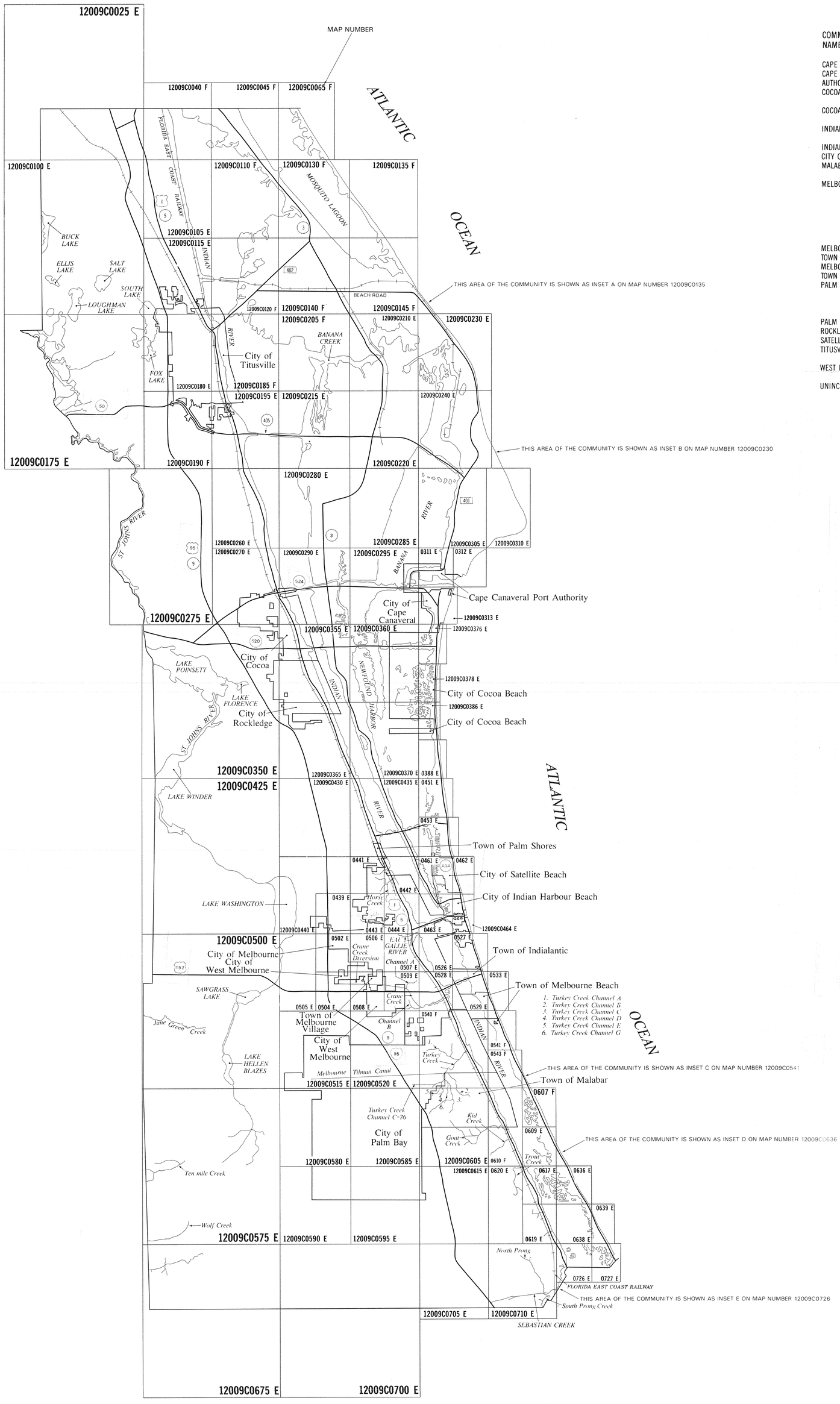
COMMUNITY	NUMBER	PANEL	SUFFIX
MALABAR, TOWN OF	120024	0610	F
UNINCORPORATED AREAS	125092	0610	F

—NOTE—

THIS MAP INCORPORATES APPROXIMATE BOUNDARIES OF COASTAL BARRIER RESOURCES SYSTEM UNIT AND/OR OTHERWISE PROTECTED AREAS ESTABLISHED UNDER THE COASTAL BARRIER IMPROVEMENT ACT OF 1990 (PL 101-591).

MAP NUMBER:
12009C0610 F
MAP REVISED:
AUGUST 18, 1992

Federal Emergency Management Agency



LISTING OF COMMUNITIES

COMMUNITY NAME	COMMUNITY NUMBER	LOCATED ON PANEL(S)	INITIAL IDENTIFICATION	POST-FIRM DATE
CAPE CANAVERAL, CITY OF	125094	0313,0376	SEP 30, 1972	DEC 31, 1974
CAPE CANAVERAL PORT AUTHORITY	120619	0295,0311,0312 0313	OCT 29, 1979	APR 3, 1989
COCOA, CITY OF	120020	0270,0290,0350 0355	FEB 15, 1974	SEP 28, 1979
COCOA BEACH, CITY OF	125097	0360,0370,0376 0378,0386	JUN 16, 1972	DEC 31, 1974
INDIALANTIC, TOWN OF	125115	0526,0527,0528 0529,0533	AUG 18, 1972	DEC 31, 1974
INDIAN HARBOUR BEACH, CITY OF	125116	0461,0462,0463 0464	JUN 16, 1972	DEC 31, 1974
MALABAR, TOWN OF	120024	0540,0543,0605 0610	MAR 1, 1974	SEP 28, 1979
MELBOURNE, CITY OF	120025	0439,0440,0441 0442,0443,0444 0461,0463,0464 0502,0506,0507 0508,0509,0520 0526,0527,0528 0529,0540	AUG 30, 1974	JUL 1, 1979
MELBOURNE BEACH, TOWN OF	125128	0529,0533,0540 0541	NOV 25, 1972	DEC 31, 1974
MELBOURNE VILLAGE, TOWN OF	120329	0506,0508	FEB 15, 1974	NOV 15, 1979
PALM BAY, CITY OF	120404	0515,0520,0528 0529,0540,0543 0580,0585,0590 0595,0605,0615	SEP 3, 1980	SEP 3, 1980
PALM SHORES, TOWN OF	120612	0435,0441,0442	AUG 31, 1979	APR 3, 1989
ROCKLEDGE, CITY OF	120027	0350,0355,0365	MAR 1, 1974	NOV 15, 1979
SATELLITE BEACH, CITY OF	120028	0453,0461,0462	FEB 22, 1974	DEC 31, 1974
TITUSVILLE, CITY OF	125152	0115,0120,0180 0185,0190,0195	JUN 16, 1972	DEC 31, 1974
WEST MELBOURNE, CITY OF	120335	0502,0504,0506 0508,0509,0520	MAR 8, 1974	MAR 18, 1980
UNINCORPORATED AREAS	125092	ALL EXCEPT 0378,0507, 0528,0529,0533 0585	SEP 22, 1972	DEC 31, 1974

REPOSITORY LISTING

(Maps available for reference only, not for distribution.)

BREVARD COUNTY (UNINCORPORATED AREAS)
Brevard County Geographic Research
2725 St. Johns Street, Building A
Viera, Florida 32940

CAPE CANAVERAL, CITY OF
Cape Canaveral City Hall
105 Polk Avenue
Cape Canaveral, Florida 32920

CAPE CANAVERAL PORT AUTHORITY
Port Office
200 George King Boulevard
Cape Canaveral, Florida 32920

COCOA, CITY OF
Cocoa City Hall
603 Brevard Avenue
Cocoa, Florida 32922

COCOA BEACH, CITY OF
Building Department
2 South Orlando
Cocoa Beach, Florida 32932

INDIALANTIC, TOWN OF
Indialantic Town Hall
216 Fifth Avenue
Indialantic, Florida 32903

INDIAN HARBOUR BEACH, CITY OF
Indian Harbour Beach City Hall
2055 South Patrick Drive
Indian Harbour Beach, Florida 32937

MALABAR, TOWN OF
Malabar Town Hall
2725 Malabar Road
Malabar, Florida 32950-0245

MELBOURNE, CITY OF
Melbourne City Hall
900 East Strawbridge Avenue
Melbourne, Florida 32901

MELBOURNE VILLAGE, TOWN OF
Melbourne Village Town Hall
555 Hammock Road
Melbourne Village, Florida 32904

MELBOURNE BEACH, TOWN OF
Melbourne Beach Town Hall
507 Ocean Avenue
Melbourne Beach, Florida 32951

PALM BAY, CITY OF
Palm Bay City Hall
120 Malabar Road, S.E.
Palm Bay, Florida 32907

PALM SHORES, TOWN OF
Palm Shores Town Clerk
151 Palm Circle
Palm Shores, Florida 32940

ROCKLEDGE, CITY OF
Rockledge City Hall
1600 Huntington Lane
Rockledge, Florida 32956-0488

SATELLITE BEACH, CITY OF
Satellite Beach City Hall
565 Cassia Boulevard
Satellite Beach, Florida 32937

TITUSVILLE, CITY OF
Titusville City Hall
Department of Planning and Zoning
555 South Washington Avenue
Titusville, Florida 32796

WEST MELBOURNE, CITY OF
West Melbourne City Hall
2285 Minton Road
West Melbourne, Florida 32904

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

BREVARD COUNTY, FLORIDA AND INCORPORATED AREAS

(SEE TABLE SHOWN ABOVE FOR LISTING OF COMMUNITIES.)

MAP INDEX

PANELS PRINTED: 25, 40, 45, 65, 100, 105, 110, 115, 120, 130, 135, 140, 145, 175, 180, 185, 190, 195, 205, 210, 215, 220, 230, 240, 260, 270, 275, 280, 285, 290, 295, 305, 310, 311, 312, 313, 350, 355, 360, 365, 370, 376, 378, 386, 388, 425, 430, 435, 439, 440, 441, 442, 443, 444, 451, 453, 461, 462, 463, 464, 500, 502, 504, 505, 506, 507, 508, 509, 515, 520, 526, 527, 528, 529, 533, 540, 541, 543, 575, 580, 585, 590, 595, 605, 607, 609, 610, 615, 617, 619, 620, 636, 638, 639, 675, 700, 705, 710, 726, 727

MAP NUMBER:
12009C0000

MAP REVISED:
JANUARY 5, 1996

Federal Emergency Management Agency

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
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- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

- Flood Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
- 513 — Base Flood Elevation Line; Elevation in Feet*
- D — D — Cross Section Line
- (EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*
- RM7X — Elevation Reference Mark
- •M1.5 — River Mile

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

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MAP REPOSITORY

Refer to Repository Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:

APRIL 3, 1989

EFFECTIVE DATE(S) OF REVISIONS TO THIS PANEL:

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

BREVARD COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 615 OF 727

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
PALM BAY, CITY OF	120404	0615	E
UNINCORPORATED AREAS	125092	0615	E

PANEL LOCATION

MAP NUMBER:
12009C0615 E

EFFECTIVE DATE:
APRIL 3, 1989

Federal Emergency Management Agency

Brevard County
Unincorporated Areas
125092

INDIAN RIVER

INTRACOASTAL WATERWAY

GRANT FARM ISLAND

MULLET CREEK

MIDDLE GAP

SHELL PIT POINT

Trout Creek

FLORIDA EAST COAST RAILWAY

RM208

RM 205

RM 206

RM 207

ZONE AE (EL 6)
ZONE AE (EL 7)
ZONE X
ZONE A
ZONE AE (EL 5)

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

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- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X — Elevation Reference Mark

•MI.5 — River Mile

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For adjoining panels, see separately printed Map Index

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 3, 1989

EFFECTIVE DATE(S) OF REVISIONS TO THIS PANEL:

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

BREVARD COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 617 OF 727

CONTAINS:

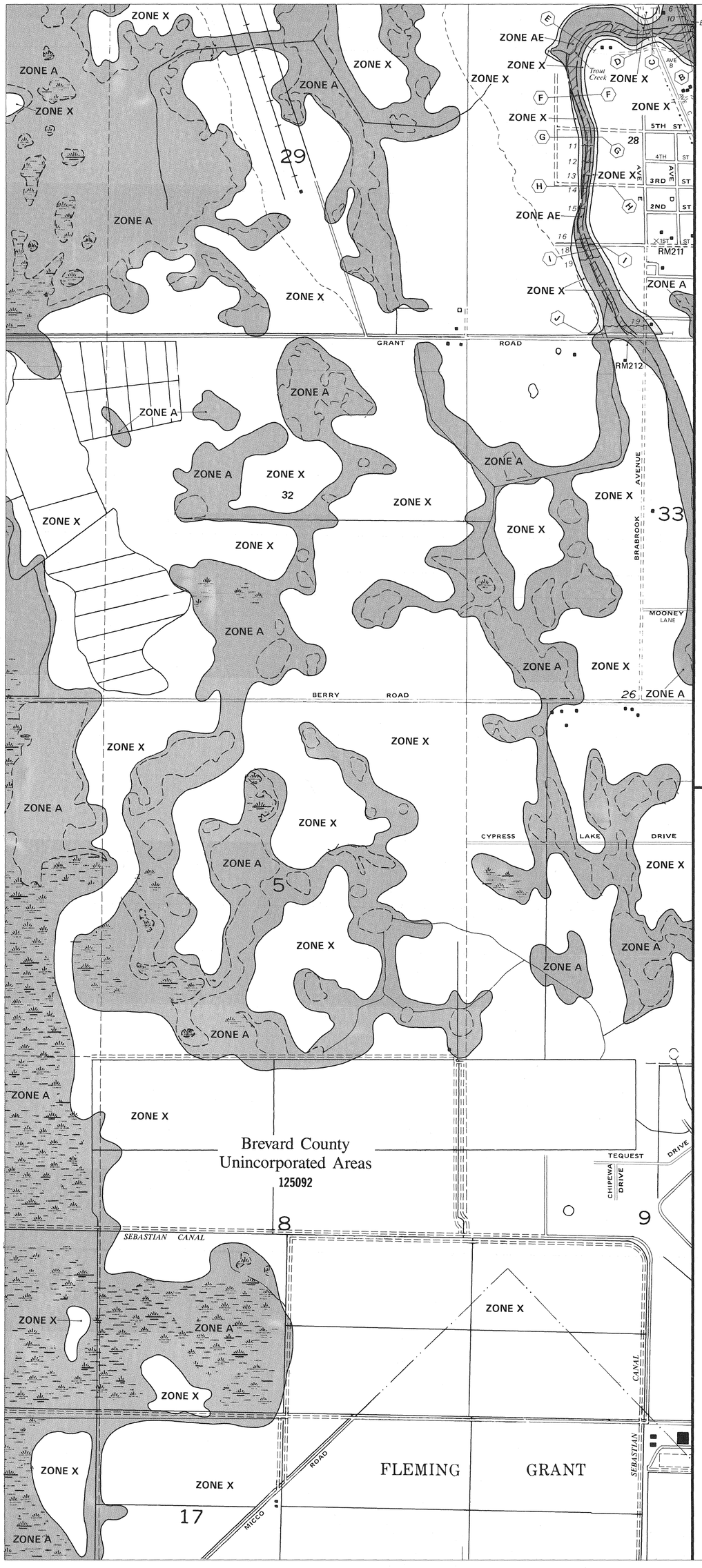
COMMUNITY	NUMBER	PANEL	SUFFIX
UNINCORPORATED AREAS	125092	0617	E

PANEL LOCATION

MAP NUMBER:
12009C0617 E

EFFECTIVE DATE:
APRIL 3, 1989

Federal Emergency Management Agency



THIS AREA IS SHOWN ON MAP NUMBER 12009C0617

THIS AREA IS SHOWN ON MAP NUMBER 12009C0619

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7X — Elevation Reference Mark

•M1.5 — River Mile

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Coastal base flood elevations apply only landward of the shoreline.

Elevation reference marks are described in the Flood Insurance Study Report.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

For community panel revision history prior to countywide mapping, see section 6.0 of the Flood Insurance Study Report.

For adjoining panels, see separately printed Map Index

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 3, 1989

EFFECTIVE DATE(S) OF REVISIONS TO THIS PANEL:

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

BREVARD COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 620 OF 727

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
UNINCORPORATED AREAS	125092	0620	E

PANEL LOCATION

MAP NUMBER:
12009C0620 E

EFFECTIVE DATE:
APRIL 3, 1989

Federal Emergency Management Agency

Appendix G : FNAI

FLORIDA
Natural Areas
INVENTORY

1018 Thomasville Road
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850-224-8207
fax 850-681-9364
www.fnai.org

November 2, 2004

Chris O'Hara
Brevard County EEL Program
5560 North US Hwy 1
Melbourne, FL 32940

Dear Mr. O'Hara:

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

Project:	Grant Flatwoods Sanctuary Land Management Plan
Date Received:	October 22, 2004
Location:	Brevard County

Element Occurrences

A search of our maps and database indicates that currently we have several Element Occurrences mapped within the vicinity of the study area (see enclosed map and 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.

The Element Occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates the precision of the element occurrence location, defined as second (within about 300 feet of the point), minute (within about one mile), or general (within about 5 miles). 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 that may no longer be extant.

Land Acquisition Projects

This site was formerly part of the Brevard Coastal Scrub Ecosystem Florida Forever BOT Project, which is part of the State of Florida's Conservation and Recreation Lands land acquisition program. For more information on this Florida Forever Project, please visit: http://www.dep.state.fl.us/lands/acquisition/FloridaForever/FFAnnual2004/default.htm

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 regulatory authority over these lands until they are purchased.

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Potential Natural Areas

Portions of the site appear to be located on or near Potential Natural Areas (PNA). These PNA are priority 2 and may include the following community types: mesic flatwoods, depression marsh, dome swamps, hydric hammock, floodplain swamp, scrubby flatwoods or scrub.

Potential Natural Areas are lands that appear to be relatively intact areas of natural vegetation based on aerial photography, as determined by FNAI scientists. Please see the enclosed explanation sheet for more information. PNAs are not a regulatory designation; they are intended for conservation planning purposes. The maps show a revised version of the PNAs, based on 1995 land use land cover data from the water management districts.

Potential Habitat for Rare Species

Portions of the site appear to be located on or near Potential Habitat for Rare Species. This potential habitat is associated with a known occurrence in the vicinity of: wood stork (*Mycteria americana*), bald eagle (*Haliaeetus leucocephalus*) and red-cockaded woodpecker (*Picoides borealis*).

FNAI Potential Habitat for Rare Species indicates areas, which based on landcover type, offer suitable habitat for one or more rare species that is known to occur in the vicinity. Potential habitat layers have been developed for approximately 250 of the most rare species tracked by the Inventory, including all federally listed species.

Potential Habitat is not a regulatory designation, and should not be confused with "critical habitat", which is an official designation made by the U.S. Fish and Wildlife Service. Information on critical habitats can be found in the Code of Federal Regulations, 50 CFR 17.95, which lists all critical habitats that have been designated. The Code of Federal Regulations can be accessed through the following website: "www.access.gpo.gov/nara/cfr/cfr-table-search.html".

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

Please visit www.fnai.org/data.cfm for county or statewide element occurrence distribution 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.

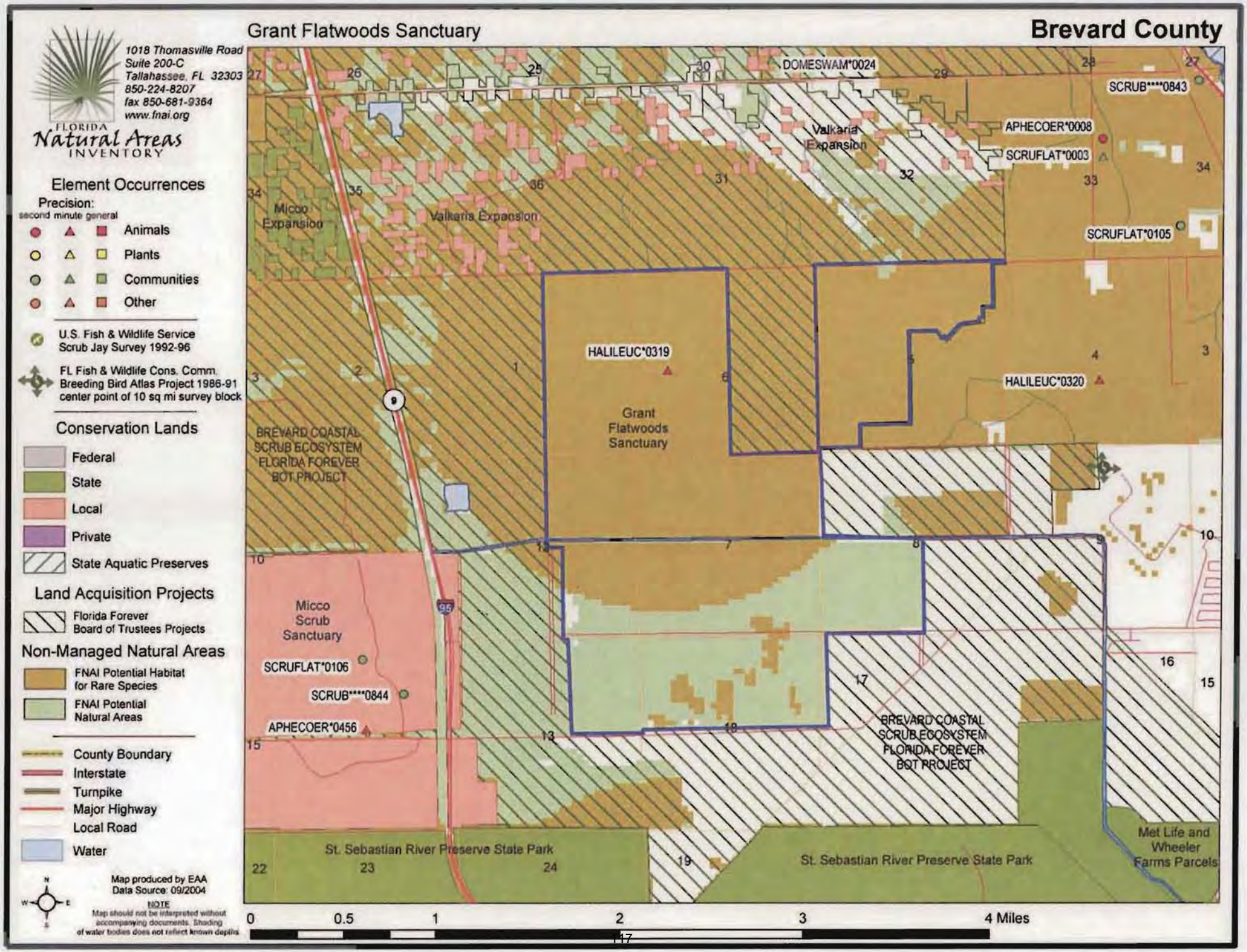
Thank you for your use of FNAI services. If I can be of further assistance, please give me a call at (850) 224-8207.

Sincerely,

Edwin A. Abbey

Edwin A. Abbey
Environmental Reviewer

encl


Grant Flatwoods Sanctuary
Brevard County
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Tallahassee, FL 32303
850-224-8207
fax 850-681-9364
www.fnai.org
FLORIDA Natural Areas INVENTORY
Element Occurrences
Precision:
second minute general
Animals
Plants
Communities
Other
U.S. Fish & Wildlife Service Scrub Jay Survey 1992-96
FL Fish & Wildlife Cons. Comm. Breeding Bird Atlas Project 1986-91 center point of 10 sq mi survey block
Conservation Lands
Federal
State
Local
Private
State Aquatic Preserves
Land Acquisition Projects
Florida Forever Board of Trustees Projects
Non-Managed Natural Areas
FNAI Potential Habitat for Rare Species
FNAI Potential Natural Areas
County Boundary
Interstate
Turnpike
Major Highway
Local Road
Water
Map produced by EAA
Data Source: 09/2004
NOTE
Map should not be interpreted without accompanying documents. Shading of water bodies does not reflect known depths.
DOMESWAM*0024
SCRUB****0843
APHECOER*0008
SCRUFLAT*0003
Valkaria Expansion
Micco Expansion
Valkaria Expansion
SCRUFLAT*0105
HALILEUC*0319
HALILEUC*0320
Grant Flatwoods Sanctuary
BREVARD COASTAL SCRUB ECOSYSTEM FLORIDA FOREVER BOT PROJECT
Micco Scrub Sanctuary
SCRUFLAT*0106
SCRUB****0844
APHECOER*0456
BREVARD COASTAL SCRUB ECOSYSTEM FLORIDA FOREVER BOT PROJECT
St. Sebastian River Preserve State Park
St. Sebastian River Preserve State Park
Met Life and Wheeler Farms Parcels
0
0.5
1
2
3
4 Miles

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

ELEMENT OCCURRENCES MAPPED ON OR NEAR GRANT FLATWOODS SANCTUARY

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
HALILEUC*0319	Haliaeetus leucocephalus	Bald Eagle	G4	S3	N	LT	1995	No general description given	NEST; 1995: PRODUCED 1 YOUNG; 1994: PRODUCED 1 YOUNG; 1993: ACTIVE, PRODUCED 0 YOUNG; 1992: ACTIVE, PRODUCED 0 YOUNG; 1979-1986, 1988 ACTIVE, 1987 GONE. FLEDGED YOUNG 1980-1982, 1985-1986, 1988. UNKNOWN FOR 1987.
HALILEUC*0320	Haliaeetus leucocephalus	Bald Eagle	G4	S3	N	LT	1984	No general description given	NEST: 1995: GONE; 1994: NEST GONE; 1993: NEST GONE; 1992: NEST GONE; 1991-89: GONE; 1979-1984 ACTIVE, USURPED 1985, INACTIVE 1986-1988. FLEDGED YOUNG 1979, 1982, UNKNOWN 1985.
APHECOER*0456	Aphelocoma coerulescens	Florida Scrub-jay	G3	S2	LT	LT	1990-08-14	SCRUB/SCRUBBY FLATWOODS.	1990-08-14: 3 ADULT JAYS REPORTED. (U91SNO01); SNODGRASS ET AL. ESTIMATED RECORD(S) (79,80,81,82,83,84,85, AND 86) TO CONSTITUTE A MEDIUM POPULATION OF 6-30 FAMILY GROUPS DURING A 1991 INVENTORY.
DOMESWAM*0024	Dome swamp		G4	S4	N	N	1992-06-19	Dome Swamp grading into Depression Marsh.	Overstory of pond cypress with a variable mixture of swamp bay, loblolly bay, sweet bay, southern red maple and blackgum. The understory contains Royal fern, chain fern, button bush, Carolina willow, wax myrtle, common arrowhead, coral greenbrier, picker
SCRUFLAT*0003	Scrubby flatwoods		G3	S3	N	N	1991	"OPEN SLASH PINE SCRUB" [=SCRUBBY FLATWOODS].	OCCURRENCE AT SITE.
APHECOER*0008	Aphelocoma coerulescens	Florida Scrub-jay	G3	S2	LT	LT	1991-07-22	"OPEN SLASH PINE SCRUB" [=SCRUBBY FLATWOODS].	1981-05-13: 5 SCRUB JAYS (U81COX01). 1991-07-22: 6 ADULT SCRUB JAYS AND 3 JUVENILE SCRUB JAYS REPORTED. SNODGRASS ET AL. ESTIMATED RECORDS 77 AND 78 TO CONSTITUTE A SMALL POPULATION OF 0-5 FAMILY GROUPS DURING A 1991 INVENTORY.
SCRUB****0844	Scrub		G2	S2	N	N	1991	No general description given	PRESCRIBED BURNS HAVE BEEN CARRIED OUT ON A 3-5 YEAR SCHEDULE.
SCRUFLAT*0106	Scrubby flatwoods		G3	S3	N	N	1991	No general description given	PRESCRIBED BURNS HAVE BEEN CARRIED OUT ON A 3-5 YEAR SCHEDULE.
SCRUB****0843	Scrub		G2	S2	N	N	1991	No general description given	OCCURRENCE ON SITE.

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

ELEMENT OCCURRENCES MAPPED ON OR NEAR
GRANT FLATWOODS SANCTUARY

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
SCRUFLAT*0105	Scrubby flatwoods		G3	S3	N	N	1991	No general description given	OCCURRENCE ON SITE.

Florida Natural Areas Inventory
Potential Natural Areas (PNA) Data Layer

POTENTIAL NATURAL AREAS (PNA)

The Potential Natural Areas data layer indicates, throughout the State of Florida, lands that are in private ownership and are not managed or listed for conservation purposes that are possible examples of good quality natural communities. These areas were determined from FNAI's scientific staff vegetative interpretation of 1988-1993 FDOT aerial photographs and from input received during Regional Ecological Workshops held for each regional planning council. These workshops were attended by experts familiar with natural areas in the region. Element occurrences in the FNAI database may or may not be present on these sites. In order to be classified as a Potential Natural Area (with the exception of internal rank PNA-5) the natural communities identified through aerial photographs must meet the following criteria:

1. Must be a minimum of 500 acres. *Exceptions*: sandhill, min. 320 acres; scrub, min. 80 acres; pine rockland, min. 20 acres; dry prairie, min. 320 acres; *or* any example of coastal rock barren, upland glade, coastal dune lake, spring-run stream or terrestrial cave.

2. Must contain at least one of the following:
   a. One or more high quality examples of FNAI state ranked S3 or above natural communities.
   b. An outstanding example of any FNAI tracked natural community.

Potential Natural Areas have been assigned ranks of PNA-1 through PNA-4 mostly based on size and perceived quality and type of natural community present. The areas included in internal rank PNA-5 (former ACI Category C) are exceptions to the above criteria. These areas were identified through the same process of aerial photographic interpretation and regional workshops as the PNA 1 through 4 ranked sites, but do not meet the standard criteria. These PNA 5 areas are considered lower priority for conservation than areas ranked PNA 1- 4, but nonetheless are believed to be ecologically viable tracts of land representative of Florida's natural ecosystems.

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FLORIDA NATURAL AREAS INVENTORY

Florida Scrub-Jay Survey and Breeding Bird Atlas Data Layers

In addition to our element occurrence database of rare species and natural community locations, the Inventory has additional data layers that have been provided by state and federal agencies.

Florida Scrub-Jay Survey - U.S. Fish and Wildlife Service

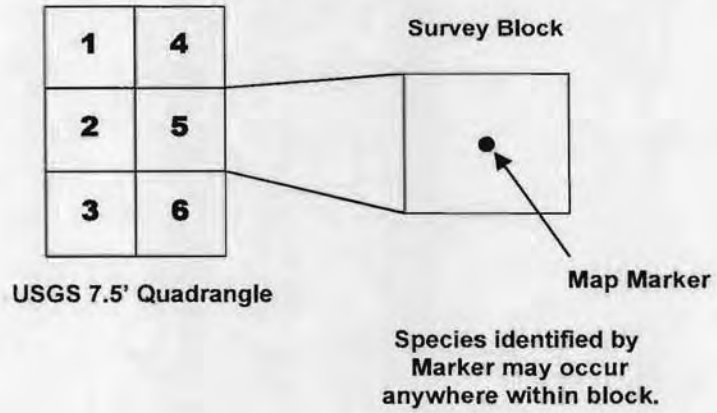
This survey was conducted by staff and associates of the Archbold Biological Station from 1992 to 1996. An attempt was made to record all scrub-jay (*Aphelocoma coerulescens*) groups, although most federal lands were not officially surveyed.

Each map point represents one or more groups.

Florida Breeding Bird Atlas Project - Florida Game and Fresh Water Fish Commission (now Florida Fish and Wildlife Conservation Commission)

This study was conducted from 1986 to 1991, (final report, *An Atlas of Florida's Breeding Birds* by Kale, Pranty, Stith, and Biggs, Nongame Wildlife Program, Florida Game and Fresh Water Fish Commission). The study divided the state into "blocks", with each block representing one-sixth of a U.S. Geological Survey 7.5 minute topographic quadrangle map. Several categories of breeding activity were recorded by observers.

Each map point is located at the center of a block, and represents species listed as Possible or Probable Breeders within the surrounding block (approximately 10 square miles in area).



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GLOBAL AND STATE RANKS

Florida Natural Areas Inventory (FNAI) defines an **element** as any rare or exemplary component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature. FNAI assigns two ranks to each element found in Florida: the **global rank**, which is based on an element's worldwide status, and the **state rank**, which is based on the status of the element within Florida. Element ranks are based on many factors, including estimated number of occurrences, estimated abundance (for species and populations) or area (for natural communities), estimated number of adequately protected occurrences, range, threats, and ecological fragility.

GLOBAL RANK DEFINITIONS

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 human 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 human 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	Occurred historically throughout its range, but has not been observed for many years.
GX	Believed to be extinct throughout range.
GXC	Extirpated from the wild but still known from captivity or cultivation.
G#?	Rank uncertain (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 subgroup; T# has same definition as G#.
G#Q	Ranked as species but there is some question as to whether it is a valid species.
G#T#Q	Same as above, but validity as subspecies or variety is questioned.
GU	Global rank unknown; due to lack of information, no rank or range can be assigned.
G?	Temporarily not ranked.

STATE RANK DEFINITIONS

State ranks (S#) follow the same system and have the same definitions as global ranks, except they apply only to Florida, with the following additions:

SA	Accidental in Florida and not part of the established biota.
SE	Exotic species established in Florida (may be native elsewhere in North America).
SX	Believed to be extirpated from state.

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FEDERAL AND STATE LEGAL STATUSES

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

FEDERAL LEGAL STATUS

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.

LE	Endangered: species in danger of extinction throughout all or a significant portion of its range.
LT	Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
E(S/A)	Endangered 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.
T(S/A)	Threatened due to similarity of appearance (see above).
PE	Proposed for listing as Endangered species.
PT	Proposed for listing as Threatened species.
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.
XN	Non-essential experimental population.
MC	Not currently listed, but of management concern to USFWS.
N	Not currently listed, nor currently being considered for listing as Endangered or Threatened.

FLORIDA LEGAL STATUSES

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.

LE	Endangered: species, subspecies, or isolated population so few or depleted in number or so restricted in range that it is in imminent danger of extinction.
LT	Threatened: species, subspecies, or isolated population facing a very high risk of extinction in the future.
LS	Species of Special Concern is a species, subspecies, or isolated population which is facing a moderate risk of extinction in the future.
PE	Proposed for listing as Endangered.
PT	Proposed for listing as Threatened.
PS	Proposed for listing as Species of Special Concern.
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.

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.
PE	Proposed for listing as Endangered.
PT	Proposed for listing as Threatened.
N	Not currently listed, nor currently being considered for listing.

WOOD STORK
Mycteria americana

Order: Ciconiiformes
Family: Ciconiidae
FNAI Ranks: G4/S2
U.S. Status: Endangered
FL Status: Endangered
U.S. Migratory Bird Treaty Act and state Wildlife Code prohibit take of birds, nests, or eggs.

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immatures © Barry Mansell

Description: Very large, white wader with black in wings and a short black tail. Soars with neck and legs extended, displaying its long, broad wings; black flight feathers contrast with white along length of wings. Legs are dark and feet are beige. Adults have bare, scaly, dark-gray heads and necks and long, heavy, decurved bills. Head and neck of immature storks have grayish brown feathering, and their bills are yellowish.

Similar Species: American white pelicans (*Pelecanus erythrorynchos*) have a similar wing pattern and also soar but have short legs, white tail, and do not fly with necks extended. White ibis (*Eudocimus albus;* see species account) is much smaller and only has black on wing tips. Great egret (*Ardea alba*) lacks black on wings.

Habitat: Nests colonially in a variety of inundated forested wetlands, including cypress strands and domes, mixed hardwood swamps, sloughs,

and mangroves. Increasingly nesting in artificial habitats (e.g., impoundments and dredged areas with native or exotic vegetation) in north and central Florida. Forages mainly in shallow water in freshwater marshes, swamps, lagoons, ponds, tidal creeks, flooded pastures and ditches, where they are attracted to falling water levels that concentrate food sources (mainly fish).

Seasonal Occurrence: Post-breeding dispersal carries large numbers from more southern locales to more northern parts of range; in winter, northern birds move south. Annual and long-term use of nesting sites is very dependent on feeding conditions, which may be affected dramatically by altered hydrologic patterns. Colonies may form late November - early March in south Florida and February - March in central and northern Florida.

Florida Distribution: Locally rare to abundant in the peninsula and Big Bend, but generally rare or lacking in panhandle and the Florida Keys. Uncommon to rare in winter in north.

Range-wide Distribution: In U.S., breeds locally in South Carolina, Georgia, and Florida (formerly west to Texas). South, locally in lowlands from Mexico and northern Central America to South America (to western Ecuador, eastern Peru, Bolivia, northern Argentina), and rarely in Cuba and the Dominican Republic. Winters throughout breeding range except in South Carolina and Georgia.

Conservation Status: Many known breeding sites occur within public and private conservation lands. Dramatic decline in the large colonies (>500 individuals) formerly found in south Florida, and trend toward fewer birds distributed among smaller, more numerous colonies in central and northern Florida. Very sensitive to manipulation of water regimes and loss of wetland habitat, which affect both nesting sites and feeding areas.

Protection and Management: Survey colony sites and important feeding areas regularly. Essential to protect wetland areas, closely monitor water quality, and manage hydrologic patterns that consider the needs of the wood stork.

Selected References: Poole and Gill (eds.) 1999, Robertson and Woolfenden 1992, Rodgers et al. (eds.) 1996, Runde et al. 1991, Stevenson and Anderson 1994.

BALD EAGLE
Haliaeetus leucocephalus

Order: Falconiformes
Family: Accipitridae
FNAI Ranks: G4/S3
U.S. Status: Threatened
(proposed for delisting in 1999)
FL Status: Threatened
U.S. Migratory Bird Treaty Act and state Wildlife Code prohibit take of birds, nests, or eggs.

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immature
© Barry Mansell

Description: Adult has white head, white tail,and large, bright yellow bill; other plumage is dark. Immatures dark with variable amounts of light splotching on body, wings, and tail; head and bill are dark. In flight wings are broad and wide and held horizontally, presenting a flat profile when soaring and gliding. Flies with slow, powerful wing-beats.

Similar Species: At a distance, in flight, eagle's size and lack of white in wings should help differentiate it from the crested caracara (*Caracara cheriway*; see species account), which also has a white head. Flattened aspect of the eagle's wings is unlike the teetering, V-shaped flight of the turkey vulture (*Cathartes aura*).

Habitat: Most commonly includes areas close to coastal areas, bays, rivers, lakes, or other bodies of water that provide concentrations of food sources, including fish, waterfowl, and wading birds. Usually nests in tall trees (mostly live pines) that provide clear views of surrounding area. In Florida Bay, where there are few predators and few tall emergent trees, eagles nest in crowns of mangroves and even on the ground.

BALD EAGLE *Haliaeetus leucocephalus*

Seasonal Occurrence: In extreme southern Florida, most adults are resident, but most birds in northern and central Florida migrate north out of state after breeding season (late May - July). Juveniles and younger birds mostly migrate north in summer and may range as far as Canada. Also, in winter, some birds from northern populations migrate to northern Florida.

Florida Distribution: Florida has largest breeding population of any state outside Alaska. Breeds throughout most of peninsular Florida and Keys, mainly along coast in eastern panhandle, and is rare in western panhandle. Greatest concentrations of nesting eagles occur around Lake Kissimmee in Polk and Osceola counties, around Lake George in Putnam, Volusia, and Lake counties, lakes Jessup, Monroe, and Harney in Seminole and Volusia counties, along Gulf coast north of Tampa, and Florida Bay and southwest peninsula area.

Range-wide Distribution: North America. Breeding range extends from Alaska, across Canada, south to Baja California, the Gulf coast and Florida Keys, although very local in the Great Basin and prairie and plains regions in interior U.S., where range has expanded to include Nebraska and Kansas. Non-breeding range is generally throughout breeding range except in far north, most commonly from southern Alaska and southern Canada southward.

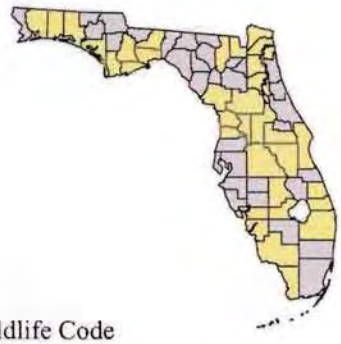
Conservation Status: Original population in Florida could be found throughout state and likely numbered well over 1,000 pairs. Population declined sharply after late 1940s, reaching a low of 120 active nests in 1973, and by 1978 was considered rare as a breeder. Use of pesticide DDT and related compounds and development of coastal habitat are probably chief causes of decline. Numbers have steadily increased, especially since 1989. In 1993, 667 active territories were reported, and in 1999, 996 active nests were recorded. Major threats include habitat loss because of development and commercial timber harvest; pollutants and decreasing food supply are also of concern.

Protection and Management: Monitored annually by Fish and Wildlife Conservation Commission (FFWCC). Continue acquisition of breeding territories and protection of foraging and roosting sites. Incorporate information known about buffer zones around nesting areas into state and local development regulations to help mitigate losses as Florida's human population continues to expand. Monitor pesticides and other environmental contaminants that affect reproduction and food supply.

Selected References: FFWCC 2001, Kale (ed.) 1978, Poole and Gill (eds.) 2000, Robertson and Woolfenden 1992, Rodgers et. al. (eds.) 1996, Stevenson and Anderson 1994.

RED-COCKADED WOODPECKER

Picoides borealis



Order: Piciformes
Family: Picidae
FNAI Ranks: G3/S2
U.S. Status: Endangered
FL Status: Threatened

U.S. Migratory Bird Treaty Act and state Wildlife Code prohibit take of birds, nests, or eggs.

Description: This small woodpecker can be distinguished by its barred, black and white back and wings, black cap and nape, and white cheek patches on each side of the head. Sexes of adults are difficult to distinguish. Red streaks or "cockades" on either side of head of adult males are rarely visible. Juvenile males can be identified by a small, circular patch of red on top of the head that is visible until early fall. This is absent in juvenile females.

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Similar Species: No other Florida woodpecker has a barred "ladder" or "zebra" back and the large, unbroken white cheek patches. Downy (*Picoides pubescens*) and hairy (*P. villosus*) woodpeckers are most likely to be confused, but these species have solid white down the middle of the back and a black triangular patch that covers much of the cheek.

Habitat: Inhabits open, mature pine woodlands that have a diversity of grass, forb, and shrub species. Generally occupies longleaf pine flatwoods in north and central Florida, mixed longleaf pine and slash pine in south-central Florida, and slash pine in south Florida outside the range of

longleaf pine. Forage in several forested habitat types that include pines of various ages, but prefer more mature pines.

Seasonal Occurrence: Nonmigratory. Maintains territories throughout year. They are cooperative breeders with young males characteristically remaining in many natal territories. Young females and non-helper males typically disperse a limited distance during their first winter in search of breeding opportunities elsewhere. Social groups or clans generally constrict the use of their home range when nestlings are present and expand their use during fall and winter after young have fledged.

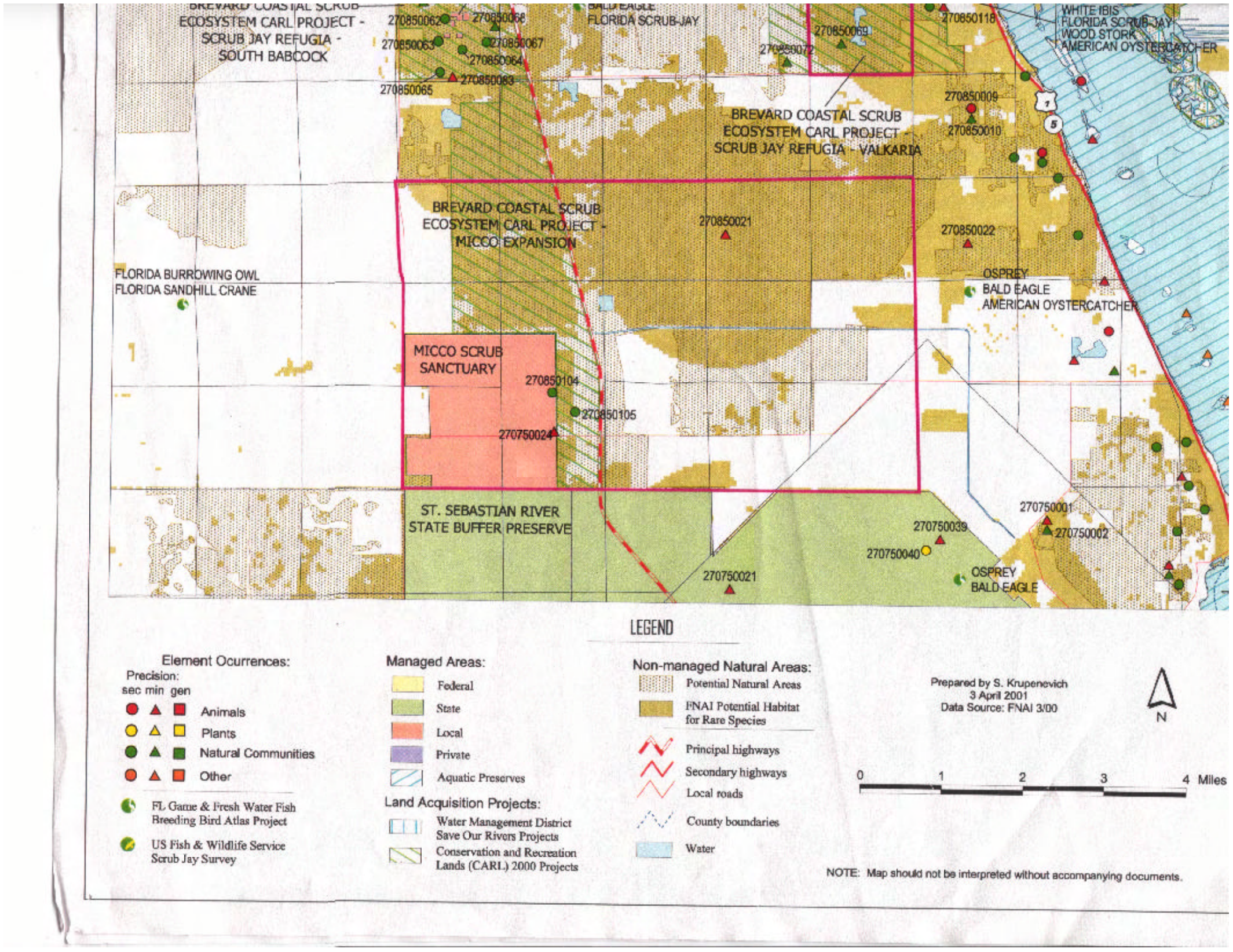
Florida Distribution: Occurs locally from the western panhandle through the peninsula to south Florida. Distribution tied to remaining areas of old-growth pine forests. Southernmost occurrence is the Big Cypress National Preserve in Collier and Monroe counties.

Range-wide Distribution: Primarily Southeastern Coastal Plain from North Carolina to Texas and southern Arkansas. Currently, populations are highly fragmented, and most are small. As of 1990, nearly 90 percent of active sites were in Florida, Georgia, the Carolinas, Louisiana, and Texas. More than half of the remaining population (9,300 birds) were found on just six sites, while the remaining birds were scattered across more than 100 sites.

Conservation Status: Florida has the largest number of active sites in the world, but increasing fragmentation and poor management of appropriate habitat is cause for concern. Largest concentrations occur on federally managed lands (ca. 80 percent of active sites), with state-owned and private lands supporting a significant number of smaller populations. Two largest populations, comprising 70 percent of active sites, occur on Eglin Air Force Base and Apalachicola National Forest, and there is evidence of declines in the latter.

Protection and Management: Federal and state agencies must aggressively manage their extensive tracts of pine forests. Habitat quality in such areas depends on fire for maintaining open, park-like conditions. Considerable variation exists in habitat parameters range-wide, resulting in variable home-range sizes depending on amount and quality of available habitat. Focus management actions on both nesting and foraging requirements. Protect additional populations on private lands to help guard against catastrophic events (e.g., hurricanes).

Selected References: James 1991, Kulhavy et al. (eds.) 1995, Poole and Gill (eds.) 1994, Robertson and Woolfenden 1992, Rodgers et al. (eds.) 1996, Stevenson and Anderson 1994.


BREVARD COASTAL SCRUB ECOSYSTEM CARL PROJECT - SCRUB JAY REFUGIA - SOUTH BABCOCK
270850062
270850066
270850063
270850067
270850064
270850065
270850063
BALD EAGLE
FLORIDA SCRUB-JAY
270850069
270850072
270850118
WHITE IBIS
FLORIDA SCRUB-JAY
WOOD STORK
AMERICAN OYSTERCATCHER
270850009
270850010
BREVARD COASTAL SCRUB ECOSYSTEM CARL PROJECT - SCRUB JAY REFUGIA - VALKARIA
BREVARD COASTAL SCRUB ECOSYSTEM CARL PROJECT - MICCO EXPANSION
270850021
270850022
FLORIDA BURROWING OWL
FLORIDA SANDHILL CRANE
OSPREY
BALD EAGLE
AMERICAN OYSTERCATCHER
MICCO SCRUB SANCTUARY
270850104
270850105
270750024
ST. SEBASTIAN RIVER STATE BUFFER PRESERVE
270750001
270750002
270750039
270750040
270750021
OSPREY
BALD EAGLE
LEGEND
Element Ocurrences:
Precision:
sec min gen
Animals
Plants
Natural Communities
Other
FL Game & Fresh Water Fish Breeding Bird Atlas Project
US Fish & Wildlife Service Scrub Jay Survey
Managed Areas:
Federal
State
Local
Private
Aquatic Preserves
Land Acquisition Projects:
Water Management District Save Our Rivers Projects
Conservation and Recreation Lands (CARL) 2000 Projects
Non-managed Natural Areas:
Potential Natural Areas
FNAI Potential Habitat for Rare Species
Principal highways
Secondary highways
Local roads
County boundaries
Water
Prepared by S. Krupenevich
3 April 2001
Data Source: FNAI 3/00
N
0 1 2 3 4 Miles
NOTE: Map should not be interpreted without accompanying documents.

FLORIDA NATURAL AREAS INVENTORY

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

April 3, 2001

Zachary A. Prusak
Brevard County
Parks & Recreation Department
2725 Judge Fran Jamieson Way
Viera, FL 32940

Dear Mr. Prusak:

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

Project: Lands currently managed by EEL Program, and desired lands to be acquired

Date Received: March 27, 2001

Location: Brevard County

Element Occurrences

A search of our maps and database indicates that currently we have several Element Occurrences mapped within one mile of the study area (see enclosed map and table).

The Element Occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates the precision of the element occurrence location, defined as second (within about 300 feet of the point), minute (within about one mile), or general (within about 5 miles). For animals and plants, Element Occurrences generally refer to more than a casual siting; they usually indicate a viable population of the species. Note that some element occurrences represent historically documented observations which may no longer be extant.

Potential Natural Areas

Portions of the site appear to be located on or near Potential Natural Areas (PNA). This PNA is a priority 2 and 4 and may include the following community types: mesic flatwoods, depression marshes, some old-growth pine, scrub, wet prairies, dome swamps, hydric hammocks-floodplain swamp, scrubby flatwoods, and flatwoods.

Potential Natural Areas are lands which appear to be relatively intact areas of natural vegetation based on aerial photography, as determined by FNAI scientists. Please see the enclosed explanation sheet for more information. PNAs are not a regulatory designation; they are intended for conservation planning purposes. The maps show a revised version of the PNAs, based on 1995 land use land cover data from the water management districts.

Potential Habitat for Rare Species

Portions of the site appear to be located on or near Potential Habitat for Rare Species. The potential habitat on this site is associated with a known occurrence in the vicinity of florida scrub-jay

(*Aphelocoma coerulescens*), bald eagle (*Haliaeetus leucocephalus*), wood stork (*Mycteria americana*), and manatee (*Trichechus manatus*).

FNAI Potential Habitat for Rare Species indicates areas which, based on landcover type, offer suitable habitat for one or more rare species which is known to occur in the vicinity. Potential habitat layers have been developed for approximately 250 of the rarest species tracked by the Inventory, including all federally listed species. Note that not all potential habitat is identified as a Potential Natural Area. This may represent lands which are somewhat disturbed (such as pine plantation or pasture), but nevertheless may serve as functional habitat for some rare species.

Potential Habitat is not a regulatory designation, and should not be confused with "critical habitat", which is an official designation made by the U.S. Fish and Wildlife Service. Information on critical habitats can be found in the Code of Federal Regulations, 50 CFR 17.95, which lists all critical habitats which have been designated. The Code of Federal Regulations can be accessed through the following website: "www.access.gpo.gov/nara/cfr/cfr-table-search.html".

The Inventory always recommends that a site specific survey be conducted to determine the current presence or absence of rare, threatened, or endangered species. Surveys should be conducted by persons familiar with Florida's flora and fauna. For your convenience, a summary of the elements recorded for Brevard County is enclosed.

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.

Thank you for your use of FNAI services. If I can be of further assistance, please give me a call at (850) 224-8207.

Sincerely,

Jonathan Oetting
Information Coordinator

JO:stk

encl

FNAI ELEMENT OCCURRENCE RECORDS ON OR NEAR SITE

GIS ID	SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS	DATE OBSERVED	DESCRIPTION	COMMENTS
270750001	APHELOCOMA COERULESCENS	FLORIDA SCRUB-JAY	G3	S3	LT	LT	1981-05-13	OPEN SLASH PINE SCRUB [=^SCRUBBY FLATWOODS^]	1981-05-13: 2 SCRUB JAYS
270750002	SCRUBBY FLATWOODS		G3	S3	N	N	1981-05-13	OPEN SLASH PINE SCRUB [=^SCRUBBY FLATWOODS^]	OCCURRENCE AT SITE
270750021	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	G4	S3	(PS)	LT	1995	NO GENERAL DESCRIPTION GIVEN	NEST; 1995: PRODUCED 2 YOUNG; 1994: PRODUCED 2 YOUNG; 1993: ACTIVE, PRODUCED 0 YOUNG; 1992: PRODUCED 1 YOUNG.
270750024	APHELOCOMA COERULESCENS	FLORIDA SCRUB-JAY	G3	S3	LT	LT	1990-08-14	SCRUB/SCRUBBY FLATWOODS	1950-08-14: 3 ADULT JAYS REPORTED. (J91SN001), SNODGRASS ET AL. ESTIMATED RECORD(S) (73,80,81,82,83 84,85, AND 86) TO CONSTITUTE A MEDIUM POPULATION OF 6-30 FAMILY GROUPS DURING A 1951 INVENTORY.
270750039	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	G4	S3	(PS)	LT	1995	NO GENERAL DESCRIPTION GIVEN	Nest. 1995: Produced 2 young.
270750040	NEMASTYLIS FLORIDANA	FALL-FLOWERING IXIA	G2	S2	N	LE	1996-10-04	TRANSITION ZONE BETWEEN MESIC FLATWOODS AND STRAND SWAMP (POSSIBLY BASIN SWAMP); ASSOCIATES INCLUDE CABBAGE PALM, SAWGRASS, SWAMP FERN, SABATIA, CARPHEPHORUS, AND WIRE GRASS. SOME PLANTS SEEN IN A RECENTLY DISTURBED FIREBREAK, MOST IN UNDISTURBED AREAS	APPROX. 100 PLANTS, FLOWERING BETWEEN 4:00 PM AND 5:15 PM. MORE PLANTS MAY BE IN VICINITY.
270850009	APHELOCOMA COERULESCENS	FLORIDA SCRUB-JAY	G3	S3	LT	LT	1991-07-22	"OPEN SLASH PINE SCRUB" [="SCRUBBY FLATWOODS"]	1981-05-13: 6 SCRUB JAYS (U81CDX01). 1991-07-22. 6 ADULT SCRUB JAYS AND 3 JUVENILE SCRUB JAYS REPORTED. SNODGRASS ET AL. ESTIMATED RECORDS 77 AND 78 TO CONSTITUTE A SMALL POPULATION OF 0-5 FAMILY GROUPS DURING A 1951 INVENTORY.
270850010	SCRUBBY FLATWOODS		G3	S3	N	N	1991	"OPEN SLASH PINE SCRUB" [="SCRUBBY FLATWOODS"]	OCCURRENCE AT SITE
270850013	APHELOCOMA COERULESCENS	FLORIDA SCRUB-JAY	G3	S3	LT	LT	1981-05-13	SAND PINE ^SCRUB^	1981-05-13: 8 SCRUB JAY
270850014	SCRUB		G2	S2	N	N	1991	SAND PINE SCRUB	OCCURRENCE AT SITE
270850018	APHELOCOMA COERULESCENS	FLORIDA SCRUB-JAY	G3	S3	LT	LT	1981-05-13	MOSTLY OAK ^SCRUB^	1981-05-13: 14 SCRUB JAYS (U81CDX01) 1991-06-15: 4 ADULT JAYS AND 3 JUVENILE JAYS REPORTED; NUMEROUS DATES: 31 ADULT JAYS AND 10 JUVENILE JAYS REPORTED (U91SN001). SNODGRASS ET AL. ESTIMATED RECORDS 76 AND 78 TO CONSTITUTE A LARGE POPULATION OF > 30 FAM

FNAI ELEMENT OCCURRENCE RECORDS ON OR NEAR SITE

GIS ID	SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS	DATE OBSERVED	DESCRIPTION	COMMENTS
270850019	SCRUB		G2	S2	N	N	1961-05-13	MOSTLY OAK "SCRUB"	OCCURRENCE AT SITE; MOST 2-4 M. OAK "SCRUB"
270850020	PICOIDES BOREALIS	RED-COCKADED WOODPECKER	G3	S2	LE	LT	ZZ	NO GENERAL DESCRIPTION GIVEN	2 ACTIVE COLONIES.
270850021	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	G4	S3	(PS)	LT	1995	NO GENERAL DESCRIPTION GIVEN	NEST; 1995: PRODUCED 1 YOUNG; 1994: PRODUCED 1 YOUNG; 1993: ACTIVE, PRODUCED 0 YOUNG; 1992: ACTIVE, PRODUCED 0 YOUNG; 1979-1986, 1988 ACTIVE, 1987 GONE. FLEDGED YOUNG 1980-1982, 1985-1986, 1988. UNKNOWN FOR 1987
270850022	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	G4	S3	(PS)	LT	1984	NO GENERAL DESCRIPTION GIVEN	NEST: 1995: GONE; 1994: NEST GONE; 1993: NEST GONE; 1992: NEST GONE; 1991-89: GONE; 1979-1984 ACTIVE, USURPED 1985, INACTIVE 1986-1988. FLEDGED YOUNG 1979, 1982, UNKNOWN 1985.
270850023	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	G4	S3	(PS)	LT	1995	NO GENERAL DESCRIPTION GIVEN	NEST; 1995: ACTIVE, PRODUCED 0 YOUNG; 1994: PRODUCED 1 YOUNG; 1993: PRODUCED 2 YOUNG; 1992: PRODUCED 1 YOUNG; 1985, 1985, 1987-1988: INACTIVE 1984, DESTROYED 1984. INCUBATION IN 1983. FLEDGED YOUNG 0 IN 1983, 1985, 1987-1988; UNKNOWN FOR 1986.
270850024	GOPHERUS POLYPHEMUS	GOPHER TORTOISE	G3	S3	(PS)	LS		NO GENERAL DESCRIPTION GIVEN	
270850050	BIRD ROOKERY				N	N	1998-10-28	DOMINANT TERRESTRIAL VEGETATION- BRAZILIAN PEPPER, AUSTRALIAN PINE, CABBAGE PALM.	NO EO DATA GIVEN
270850051	PELECANUS OCCIDENTALIS	BROWN PELICAN	G4	S3	(PS)	LS	1998-10-28	DOMINANT TERRESTRIAL VEGETATION- BRAZILIAN PEPPER, AUSTRALIAN PINE, CABBAGE PALM.	100 INDIVIDUALS; NESTING.
270850052	EUDOCIMUS ALBUS	WHITE IBIS	G5	S4	N	LS	1998-10-28	DOMINANT TERRESTRIAL VEGETATION- BRAZILIAN PEPPER, AUSTRALIAN PINE, CABBAGE PALM.	NO EO DATA GIVEN
270850053	EGRETTA THULA	SNOWY EGRET	G5	S4	N	LS	1998-10-28	DOMINANT TERRESTRIAL VEGETATION- BRAZILIAN PEPPER, AUSTRALIAN PINE, CABBAGE PALM.	NO EO DATA GIVEN

FNAI ELEMENT OCCURRENCE RECORDS ON OR NEAR SITE

GIS ID	SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS	DATE OBSERVED	DESCRIPTION	COMMENTS
270850064	BIRD ROOKERY				N	N	1987-11-24	DOMINANT TERRESTRIAL VEGETATION- BRAZILIAN PEPPER, AUSTRALIAN PINE, SEA PURSLANE, SEASHORE SALTGRASS, BLACK MANGROVE, SEA OXEYE, BEACH ELDER. OFFSHORE-SHOAL GRASS (N,E,W); MANATEE GRASS	1 NESTING GREAT BLUE HERON ALSO LITTLE BLUE HERON AND OSPREY PRESENT BUT NOT NESTING.
270850055	BIRD ROOKERY				N	N	1988-06-09	DOMINANT TERRESTRIAL VEGETATION- BRAZILLIAN PEPPER, GOLDEN ASTER, AUSTRALIAN PINE AND CABBAGE PALM. OFFSHORE	GREAT BLUE HERON ROOKERY, 2 INDIVIDUALS.
270850056	PANDION HALIAETUS	OSPREY	G5	S3S4	N	LS*	1988-06-09	DOMINANT TERRESTRIAL VEGETATION - BRAZILAN PEPPER GOLDEN ASTER, AUSTRALIAN PINE AND CABBACE PALM OFFSHORE	NESTING, 4 INDIVIDUALS.
270850062	SCRUB		G2	S2	N	N	1992-06-19	Oak scrub grading into Scrubby Flatwoods and Hydric Hammock.	This is a small, excellent quality scrub that is rather diverse for its size. The low (15'-20') canopy is composed of a dense growth of various scrub oaks including Quercus myrtifolia, Q. geminata, and Q. chapmanii mixed with a slightly lower ericaceous
270850063	SCRUBBY FLATWOODS		G3	S3	N	N	1992-06-19	Scrubby Flatwoods grading into oak scrub and Depression Marsh	Fine quality Scrubby Flatwoods with a scattered slash pine overstory and a dense ericad and mixed Scrub oak component understory. Rusty lyonia, tarflower, wiregrass and gallberry are also found at this site.
270850064	SCRUBBY FLATWOODS		G3	S3	N	N	1992-06-19	Scrubby Flatwoods grading into oak scrub and Depression Marsh	Fine quality Scrubby Flatwoods with a scattered slash pine overstory and a dense ericad and mixed Scrub oak component understory. Rusty lyonia, tarflower, wiregrass and gallberry are also found at this site.
270850065	SCRUBBY FLATWOODS		G3	S3	N	N	1992-06-19	Scrubby Flatwoods grading into oak scrub and Depression Marsh.	Fine quality Scrubby Flatwoods with a scattered slash pine overstory and a dense ericad and mixed Scrub oak component understory. Rusty lyonia, tarflower, wiregrass and gallberry are also found at this site.
270850060	HYDRIC HAMMOCK		G?	S2?	N	N	1992-06-19	Hydric Hammock ecotonal to Bayhead.	Small, good quality Hydric Hammock.
270850067	DEPRESSION MARSH		G4?	S3	N	N	1992-06-19	Depression Marsh grading into Scrubby/Mesic Flatwoods.	Little disturbance; good quality. With sand cordgrass and bushy bluestem at the periphery and mixed yellow bachelor's buttons, marsh pinks, wax myrtle, beaksnite, primrose willow, redroot, prairie iris, pepper vine, soft rush, nut grass, pipewort, maid

FNAI ELEMENT OCCURRENCE RECORDS ON OR NEAR SITE

GIS ID	SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS	DATE OBSERVED	DESCRIPTION	COMMENTS
270850068	WET FLATWOODS		G?	S4?	N	N	1992-06-19	Wet Flatwoods grading into Depression Marsh.	EO on site.
270850069	DEPRESSION MARSH		G4?	S3	N	N	1992-06-19	Depression Marsh grading into Dome and Flatwoods.	Little disturbance; good quality. With sand cord grass and bushy bluestem at the periphery and mixed yellow bachelor's buttons, marsh pinks, wax myrtle, loosestrife, primrose willow, redroot, prairie iris, pepper vine, soft rush, nutgrass, pipewort, maid
270850071	MESIC FLATWOODS		G?	S4	N	N	1992-06-19	Mesic Flatwoods grading into Scrubby/Wet Flatwoods	Understory of saw palmetto with occasional slash pines. Within the palmettos are a variety of ericad shrubs, bracken ferns and lush wiregrass.
270850072	DOME SWAMP		G4?	S3?	N	N	1992-06-19	Dome Swamp grading into Depression Marsh.	Overstory of pond cypress with a variable mixture of swamp bay, bibbity bay, sweet bay, southern red maple and blackgum. The understory contains Royal fern, chain fern, button bush, Carolina willow, wax myrtle, common arrowhead, coral greenbrier, picker
270850073	SCRUB		G2	S2	N	N	1992-06-19	Sand Pine Scrub grading into Scrubby Flatwoods that in turn grade into Mesic to Wet Flatwoods with extensively interspersed Depression Marshes.	Nearly closed canopy (ca. 60') of dense Pinus clausa with a lower ericaceous component including Lyonia ferruginea, L. fruticosa, ... lucida and Befaria racemosa. This scrub type also supports individuals of Persea humilis, Ceratiola ericoides, Vitis rotu
270850074	SCRUBBY FLATWOODS		G3	S3	N	N	1992-06-19	Scrubby Flatwoods in association with Scrub and Mesic to Wet Flatwoods	Sparse canopy of slash pine, thick saw palmetto with a significant presence of scrub oaks, rusty lyonia and tarflower. Wiregrass, gallberry, wild coco, yellow foxglove, and hairy hyssop are also found in this community.
270850075	SCRUBBY FLATWOODS		G2	S3	N	N	1992-06-19	Scrubby Flatwoods in association with Scrub and Mesic to Wet Flatwoods.	Sparse canopy of slash pine, thick saw palmetto wit a significant presence of scrub oaks, rusty lyonia and tarflower. Wiregrass, gallberry, wild coco, yellow foxglove, and hairy hyssop are also found in this community
270850076	SCRUBBY FLATWOODS		G3	S3	N	N	1992-06-19	Scrubby Flatwoods in association with Scrub and Mesic to Wet Flatwoods	Sparse canopy of slash pine, thick saw palmetto with a significant presence of scrub oaks, rusty lyonia and tarflower. Wiregrass, gallberry, wild coco, yellow foxglove, and hairy hyssop are also found in this community.

FNAI ELEMENT OCCURRENCE RECORDS ON OR NEAR SITE

GIS ID	SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS	DATE OBSERVED	DESCRIPTION	COMMENTS
270850077	SCRUB		G2	S2	N	N	1992-06-19	Sand Pine Scrub grading into Scrubby Flatwoods that in turn grade into Mesic to Wet Flatwoods with extensively interspersed Depression Marshes.	Nearly closed canopy (ca. 80') of dense Pinus clausa with a lower ericaceous component including Lyonia ferruginea, L. fruticosa, L. lucida and Befaria racemosa. This scrub type also supports individuals of Persea humilis, Ceratiola ericoides, Vitis rotu
270850078	SCRUB		G2	S2	N	N	1992-06-19	Xeric Oak-dominated Scrub.	The low (15'-20') canopy is composed of a dense growth of various scrub oaks including Quercus myrtifolia, Q. geminata, and Q. chapmanii mixed with a slightly lower ericaceous component. Occasional individuals of Pinus elliottii and/or P. palustrus are s
270850079	SCRUB		G2	S2	N	N	1992-06-19	Xeric Oak-dominated Scrub	The low (5-20') canopy is composed of a dense growth of various scrub oaks including Quercus myrtifolia, Q. geminata, and Q. chapmanii mixed with a slightly lower ericaceous component. Occasional individuals of Pinus elliottii and/or P. palustrus are sca
270850080	SCRUB		G2	S2	N	N	1992-06-19	Sand Pine Scrub grading into Scrubby Flatwoods that in turn grade into Mesic to Wet Flatwoods with extensively interspersed Depression Marshes.	Nearly closed canopy (ca. 80') of dense Pinus clausa with a lower ericaceous component including Lyonia ferruginea, L. fruticosa, L. lucida and Befaria racemosa. This scrub type also supports individuals of Persea humilis, Ceratiola ericoides, Vitis rotu
270850081	SCRUBBY FLATWOODS		G2	S3	N	N	1992-06-19	Scrubby Flatwoods in association with Scrub and Mesic to Wet Flatwoods	Sparse canopy of slash pine, thick saw palmetto with a significant presence of scrub oaks, rusty lyonia and tarflower. Wiregrass, gallberry, wild coco, yellow foxglove, and hairy hyssop are also found in this community.
270850083	APHELOCOMA COERULESCENS	FLORIDA SCRUB-JAY	G2	S3	LT	LT	1991-08-12	Scrub/Scrubby Flatwoods.	1991-07-22: 2 adult jays and 1 juvenile reported; 1991-08-12: 6 adult jays reported (L91SNO01); Snodgrass et al. estimated record(s) (25, 26, 70, 71 and 72) to constitute a large population of > 30 family groups during a 1991 inventory.
270850084	APHELOCOMA COERULESCENS	FLORIDA SCRUB-JAY	G2	S3	LT	LT	1990-12-01	NO GENERAL DESCRIPTION GIVEN	1990-12-01: 3 jays reported (U91SNO01); Snodgrass et al. estimated record(s) (25, 26, 70, 71, 72) to constitute a large population of > 30 family groups during a 1991 inventory.
270850085	SCRUB		G2	S2	N	N	199'	NO GENERAL DESCRIPTION GIVEN	At late stages of succession.
270850086	SCRUB		G2	S2	N	N	199'	NO GENERAL DESCRIPTION GIVEN	At late stages of succession.

FNAI ELEMENT OCCURRENCE RECORDS ON OR NEAR SITE

GIS ID	SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS	DATE OBSERVED	DESCRIPTION	COMMENTS
270850087	SCRUBBY FLATWOODS		G3	S3	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Occurrence on site.
270850088	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	At late stages of succession.
270850089	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	At late stages of succession.
270850090	SCRUBBY FLATWOODS		G3	S3	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Occurrence on site.
270850091	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	At late stages of succession.
270850092	SCRUBBY FLATWOODS		G3	S3	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Occurrence on site.
270850093	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	At late stages of succession.
270850094	SCRUBBY FLATWOODS		G3	S3	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Occurrence on site.
270850095	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	At late stages of succession.
270850096	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	At late stages of succession.
270850097	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	At late stages of succession.
270850098	SCRUBBY FLATWOODS		G3	S3	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Occurrence on site.
270850099	SCRUBBY FLATWOODS		G3	S3	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Occurrence on site.
270850104	SCRUBBY FLATWOODS		G3	S3	N	N	1991	NO GENERAL DESCRIPTION GIVEN	PRESCRIBED BURNS HAVE BEEN CARRIED OUT ON A 3-5 YEAR SCHEDULE
270850105	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	PRESCRIBED BURNS HAVE BEEN CARRIED OUT ON A 3-5 YEAR SCHEDULE
270850114	CONRADINA GRANDIFLORA	LARGE-FLOWERED ROSEMARY	G3	S3	N	LE	1992-06	NO GENERAL DESCRIPTION GIVEN	92-06-00: Occurrence on site (US2HIL01).
270850115	ASCLEPIAS CURTISSII	CURTISS' MILKWEED	G3	S3	N	LE	1992-06	NO GENERAL DESCRIPTION GIVEN	92-06-00: Occurrence on site (US2HIL01).
270850118	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	G4	S3	(PS)	LT	1995	NO GENERAL DESCRIPTION GIVEN	Nest; 1995: Produced 2 young.
270851424	SCELOPORUS WOODI	FLORIDA SCRUB LIZARD	G3	S3	N	N	1986-05-13	Coastal scrub	1986-05-13, K.E. Enge, GFC - Also seen on 2 August 86. See Enge et al (1986: Coop Unit Tech Rep No 26).
270851751	PELECANUS OCCIDENTALIS	BROWN PELICAN	G4	S3	(PS)	LS	1989-05-10	Cedar, palm, Australian pine.	1989/05/10: J.A. Hovis, GFC. Surveyed from helicopter. Site visited by plane on 04/28/99. *Total = D (includes GRES, BRPE, DCCO).
270852004	MUSTELA FRENATA PENINSULAE	FLORIDA LONG-TAILED WEASEL	G5T3	S3?	N	N		NO GENERAL DESCRIPTION GIVEN	C. Bossie, IND, observation. Specimen in Bossie's freezer. Plans to mount.
270852345	ARDEA ALBA	GREAT EGRET	G5	S4	N	N	1989-05-10	Spoil island with cedar, palm, Australian pine	1989/05/10: J.A. Hovis, GFC. Surveyed from helicopter. Site visited by plane on 04/28/99. *Total = D (includes GRES, BRPE, DCCO).

FNAI ELEMENT OCCURRENCE RECORDS ON OR NEAR SITE

GIS ID	SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS	DATE OBSERVED	DESCRIPTION	COMMENTS
270660003	APHELOCOMA COERULESCENS	FLORIDA SCRUB-JAY	G3	S3	LT	LT	1991-07-22	Large subdivision that was once Scrub.	1990-06-17: 10 scrub jays reported; 1991-07-22: 8 adult jays and 4 juveniles reported (U91SNO01) Snodgrass et al estimated record(s) (25, 26, 70, 71 and 72) to constitute a large population of > 30 family groups during a 1991 inventory.
280150037	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	G4	S3	(PS)	LT	1995	NO GENERAL DESCRIPTION GIVEN	NEST; 1995: PRODUCED 1 YOUNG; 1994 PRODUCED 1 YOUNG; 1993: PRODUCED 2 YOUNG; 1992 PRODUCED 1 YOUNG; 1991: PRODUCED 1 YOUNG; 1990: PRODUCED 2 YOUNG.
280150051	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Scrub layer is low, 2-3 meters, and open sandy areas are common.
280150052	SCRUBBY FLATWOODS		G3	S3	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Scrub layer is low, 2-3 meters, and open sandy areas are common.
280150053	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Scrub layer is low, 2-3 meters, and open sandy areas are common.
280150054	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Scrub layer is low, 2-3 meters, and open sandy areas are common.
280150055	SCRUBBY FLATWOODS		G3	S3	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Scrub layer is low, 2-3 meters, and open sandy areas are common
280150056	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Scrub layer is low, 2-3 meters, and open sandy areas are common.
280150057	SCRUB		G2	S2	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Scrub layer is low, 2-3 meters, and open sandy areas are common.
280150058	SCRUBBY FLATWOODS		G3	S3	N	N	1991	NO GENERAL DESCRIPTION GIVEN	Scrub layer is low, 2-3 meters, and open sandy areas are common
280150059	APHELOCOMA COERULESCENS	FLORIDA SCRUB-JAY	G3	S3	LT	LT	1991-08-14	Scrub/sand pine scrub/Scrubby Flatwoods.	1991-06-14: 1 juvenile scrub jay reported (U91SND01); Snodgrass et al. estimated record (64) to constitute a small population of 0-5 family groups during a 1991 inventory.
280160019	CROTALUS ADAMANTEUS	EASTERN DIAMONDBACK RATTLESNAKE	G4	S3	N	N	1995-01	Old established neighborhood, next to airport - canals, sandy sand pines, palmettos/some lowlands.	12 snakes seen - one approximately 1 year old, female; one newborn.

FLORIDA
Natural Areas
INVENTORY

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January 31, 2007

Teri Aking
2555 Wright Avenue
Melbourne, FL 32935

Dear Ms. Aking:

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

Project:	Valkaria Mega-Parcel
Date Received:	January 25, 2007
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 currently we have several Element Occurrences mapped within 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.

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.

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.

Florida Resources and Environmental Analysis Center

Institute of Science and Public Affairs

The Florida State University

FNAI habitat models indicate areas, which based on landcover 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 most rare 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:

J.W. Fitzpatrick, G.E. Woolfenden and M.T. Kopeny. 1991. Ecology and development-related habitat requirements of the Florida scrub-jay (*Aphelocoma coerulescens coerulescens*). Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program [Florida Fish and Wildlife Conservation Commission] Technical Report No. 8. Tallahassee, FL. 49 pp.

Managed Areas

Portions of the site appear to be located within the Ten Mile Ridge and Micco Expansion, managed by the Florida Fish and Wildlife Conservation Commission. Portions of the site also appear to be located within the South Babcock, Valkaria Expansion, and Valkaria Scrub Sanctuary, managed by Brevard County.

The Managed Areas data layer shows public and privately managed conservation lands throughout the state. Federal, state, local, and privately managed conservation lands are included.

Land Acquisition Projects

This site appears to be located within the Brevard Coastal Scrub Ecosystem Florida Forever BOT Project, 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 regulatory authority over these lands until they are purchased.

The Inventory always recommends that professionals familiar with Florida's flora and fauna should 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.

Thank you for your use of FNAI services. If I can be of further assistance, please give me a call at (850) 224-8207.

Sincerely,

Jason A. Griffin

Jason A. Griffin
Data Services Coordinator

encl

Valkaria Mega-Parcel

Site boundaries are approximate.

Brevard County

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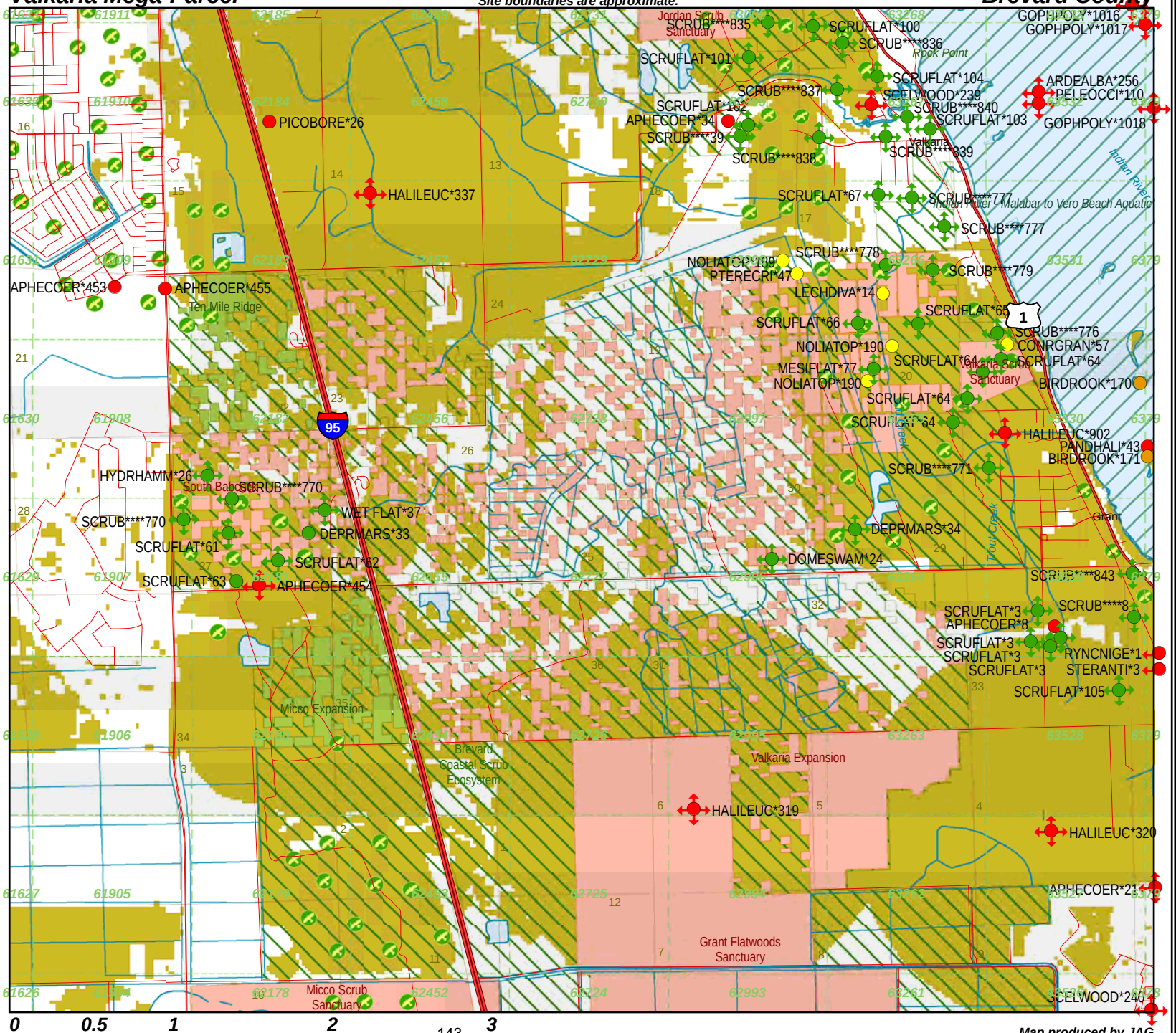
FLORIDA Natural Areas INVENTORY



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
- Water

N W E S

0 0.5 1 2 3 Miles

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NOTE
Map should not be interpreted without accompanying documents.

Map produced by JAG
Map Date: 31 JAN 2007

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Florida Natural Areas Inventory

ELEMENT OCCURRENCES DOCUMENTED ON OR NEAR *PROJECT SITE*

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MESIFLAT*77	Mesic flatwoods		G4	S4	N	N	2004	Mesic Flatwoods grading into Scrubby/Wet Flatwoods.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). Understory of saw palmetto with occasional slash pines. Within the palmettos are a variety of ericad shrubs, bracken ferns and
APHECOER*21	Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT	1991-08-12	DISTURBED SCRUB AND BURNED SAND PINE.	1981-05-13: 3-4 SCRUB JAYS (U81COX01). 1991-08-12: 4 ADULT JAYS REPORTED (U91SNO01); SNODGRASS ET AL. ESTIMATED RECORD NUMBERS 79, 80, 81, 82, 83, 84, 85 AND 86 TO CONSTITUTE A MEDIUM POPULATION OF 6-30 FAMILY GROUPS DURING A 1991 INVENTORY.
HYDRHAMM*26	Hydric hammock		G4	S4	N	N	2004	Hydric Hammock ecotonal to Baygall.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). Small, good quality Hydric Hammock.
DOMESWAM*24	Dome swamp		G4	S4	N	N	2004	Dome Swamp grading into Depression Marsh.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). Overstory of pond cypress with a variable mixture of swamp bay, loblolly bay, sweet bay, southern red maple and blackgum. The
SCRUB****39	Scrub		G2	S2	N	N	2005-08-06	2005-08-06: Mostly oak scrub with scattered Pinus clausa (PNDTAN01FLUS). 1981-05-13: MOSTLY OAK SCRUB (U81COX01FLUS).	1981-05-13: OCCURRENCE AT SITE; MOST 2-4 M. OAK SCRUB (U81COX01FLUS).
RYNCNIGE*1	Rynchops niger	Black Skimmer	G5	S3	N	LS	1976-05-20	SPOIL ISLAND; NESTING SUBSTRATE CONSISTS OF DREDGED MATERIAL	1976-05-20: 2 BREEDING BIRDS, PAIRING; NEED ADDITIONAL DATA FROM LATER IN SEASON
STERANTI*3	Sterna antillarum	Least Tern	G4	S3	N	LT	1976-05-20	SPOIL ISLAND; NESTING SUBSTRATE CONSISTS OF DREDGED MATERIAL	1976-05-20: 56 BREEDING BIRDS, INCUBATING
PELEOCCI*110	Pelecanus occidentalis	Brown Pelican	G4	S3	N	LS	1989-05-10	Cedar, palm, Australian pine.	1989/05/10: J.A. Hovis, GFC. Surveyed from helicopter. Site visited by plane on 04/28/89. "Total" = D (includes GREG, BRPE, DCCO).

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Florida Natural Areas Inventory

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DEPRMARS*34	Depression marsh		G4	S4	N	N	1992-06-19	Depression Marsh grading into Dome and Flatwoods.	Little disturbance; good quality. With sand cord grass and bushy bluestem at the periphery and mixed yellow bachelor's buttons, marsh pinks, wax myrtle, loosestrife, primrose willow, redroot, prairie iris, pepper vine, soft rush, nutgrass, pipewort, maid
ARDEALBA*256	Ardea alba	Great Egret	G5	S4	N	N	1989-05-10	Spoil Island with cedar, palm, Australian pine.	1989/05/10: J.A. Hovis, GFC; Surveyed from helicopter. Site visited by plane on 04/28/89. "Total" = D (includes GREG, BRPE, DCCO).
WET FLAT*37	Wet flatwoods		G4	S4	N	N	2004	Wet Flatwoods grading into Depression Marsh.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). EO on site.
SCELWOOD*240	Sceloporus woodi	Florida Scrub Lizard	G3	S3	N	N	1986-05-13	Coastal scrub	1986-05-13: K.E. Enge, GFC - See Enge et al (1986; Coop Unit Tech Rep No 26).
CONRGRAN*57	Conradina grandiflora	Large-flowered Rosemary	G3	S3	N	LT	1992-06	No general description given	92-06-00: Occurrence on site (U92HIL01).
APHECOER*453	Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT	1991-07-22	Large subdivision that was once Scrub.	1990-06-17: 10 scrub jays reported; 1991-07-22: 8 adult jays and 4 juveniles reported (U91SNO01); Snodgrass et al. estimated record(s) (25, 26, 70, 71 and 72) to constitute a large population of > 30 family groups during a 1991 inventory.
APHECOER*8	Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT	1991-07-22	"OPEN SLASH PINE SCRUB" [=SCRUBBY FLATWOODS].	1981-05-13: 5 SCRUB JAYS (U81COX01). 1991-07-22: 6 ADULT SCRUB JAYS AND 3 JUVENILE SCRUB JAYS REPORTED. SNODGRASS ET AL. ESTIMATED RECORDS 77 AND 78 TO CONSTITUTE A SMALL POPULATION OF 0-5 FAMILY GROUPS DURING A 1991 INVENTORY.
APHECOER*455	Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT	1990-12-01	No general description given	1990-12-01: 3 jays reported (U91SNO01); Snodgrass et al. estimated record(s) (25, 26, 70, 71, 72) to constitute a large population of > 30 family groups during a 1991 inventory.

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DEPRMARS*33	Depression marsh		G4	S4	N	N	2004	Depression Marsh grading into Scrubby/Mesic Flatwoods.	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 bachelor's buttons,
BIRDROOK*171	Bird Rookery		GNR	SNR	N	N	1988-06-09	DOMINANT TERRESTRIAL VEGETATION-BRAZILLIAN PEPPER, GOLDEN ASTER, AUSTRALIAN PINE AND CABBAGE PALM. OFFSHORE.	GREAT BLUE HERON ROOKERY, 2 INDIVIDUALS.
BIRDROOK*170	Bird Rookery		GNR	SNR	N	N	1987-11-24	DOMINANT TERRESTRIAL VEGETATION-BRAZILIAN PEPPER, AUSTRALIAN PINE, SEA PURSLANE, SEASHORE SALTGRASS, BLACK MANGROVE, SEA OXEYE, BEACH ELDER. OFFSHORE-SHOAL GRASS (N,E,W); MANATEE GRASS.	1 NESTING GREAT BLUE HERON; ALSO LITTLE BLUE HERON AND OSPREY PRESENT BUT NOT NESTING.
PICOBORE*26	Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS	ZZ	No general description given	2 ACTIVE COLONIES.
SCRUFLAT*63	Scrubby flatwoods		G3	S3	N	N	1992-06-19	Scrubby Flatwoods grading into oak scrub and Depression Marsh.	Fine quality Scrubby Flatwoods with a scattered slash pine overstory and a dense ericad and mixed Scrub oak component understory. Rusty lyonia, tarflower, wiregrass and gallberry are also found at this site.
PANDHALI*43	Pandion haliaetus	Osprey	G5	S3S4	N	LS*	1988-06-09	DOMINANT TERRESTRIAL VEGETATION - BRAZILIAN PEPPER, GOLDEN ASTER, AUSTRALIAN PINE AND CABBAGE PALM. OFFSHORE.	NESTING, 4 INDIVIDUALS.
APHECOER*34	Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT	1981-05-13	MOSTLY OAK SCRUB	1981-05-13: 14 SCRUB JAYS (U81COX01). 1991-08-15: 4 ADULT JAYS AND 3 JUVENILE JAYS REPORTED; NUMEROUS DATES: 31 ADULT JAYS AND 10 JUVENILE JAYS REPORTED (U91SNO01). SNODGRASS ET AL. ESTIMATED RECORDS 75 AND 76 TO CONSTITUTE A LARGE POPULATION OF > 30 FAM

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APHECOER*454	Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT	1991-08-12	Scrub/Scrubby Flatwoods.	1991-07-22: 2 adult jays and 1 juvenile reported; 1991-08-12: 6 adult jays reported (U91SNO01); Snodgrass et al. estimated record(s) (25, 26, 70, 71 and 72) to constitute a large population of > 30 family groups during a 1991 inventory.
APHECOER*456	Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT	1990-08-14	SCRUB/SCRUBBY FLATWOODS.	1990-08-14: 3 ADULT JAYS REPORTED. (U91SNO01); SNODGRASS ET AL. ESTIMATED RECORD(S) (79,80,81,82,83,84,85, AND 86) TO CONSTITUTE A MEDIUM POPULATION OF 6-30 FAMILY GROUPS DURING A 1991 INVENTORY.
SCELWOOD*239	Sceloporus woodi	Florida Scrub Lizard	G3	S3	N	N	1986-05-13	Coastal scrub	1986-05-13: K.E. Enge, GFC - Also seen on 2 August 86. See Enge et al (1986; Coop Unit Tech Rep No 26).
GOPHPOLY*1016	Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LS	1993	No data given in U93COA01FLUS.	Species reported as on-site by U93COA01FLUS; additional data needed.
GOPHPOLY*1017	Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LS	1993	No data given in U93COA01FLUS.	Species reported as on-site by U93COA01FLUS; additional data needed.
GOPHPOLY*1018	Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LS	1993	No data given in U93COA01FLUS.	Species reported as on-site by U93COA01FLUS; additional data needed.
NOLIATOP*189	Nolina atopocarpa	Florida Beargrass	G3	S3	N	LT	2004-03-22	2004-03-22: MESIC FLATWOODS WITH ARISTIDA STRICTA (U04SCH02FLUS).	2004-03-22: several small populations (U04SCH02FLUS).
LECHDIVA*14	Lechea divaricata	Pine Pinweed	G2	S2	N	LE	2003-11-26	2003-11-26: SANDY OPENINGS IN SCRUBBY FLATWOODS THAT HAVE BEEN BURNED AND LOGGED (U04SCH02FLUS).	2003-11-26: plants scattered (U04SCH02FLUS).
PTERECRI*47	Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT	2004-03-22	2004-03-22: BURNED SCRUB AND SCRUBBY FLATWOODS (U04SCH02FLUS).	2004-03-22: plants present in small numbers at two closely spaced sites (U04SCH02FLUS).
NOLIATOP*190	Nolina atopocarpa	Florida Beargrass	G3	S3	N	LT	2004-04-02	2004-04-02: MESIC FLATWOODS WITH ARISTIDA STRICTA, EAST OF OLD TRACKING ANNEX (U04SCH02FLUS).	2004-04-02: several small populations (U04SCH02FLUS).

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SCRUB****777	Scrub		G2	S2	N	N	2004	Sand Pine Scrub grading into Scrubby Flatwoods that in turn grade into Mesic to Wet Flatwoods with extensively interspersed Depression Marshes.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). Nearly closed canopy (ca. 60') of dense Pinus clausa with a lower ericaceous component including Lyonia ferruginea, L. frutico
SCRUFLAT*3	Scrubby flatwoods		G3	S3	N	N	2004	"OPEN SLASH PINE SCRUB" [=SCRUBBY FLATWOODS].	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). OCCURRENCE AT SITE.
SCRUB****771	Scrub		G2	S2	N	N	2004	Sand Pine Scrub grading into Scrubby Flatwoods that in turn grade into Mesic to Wet Flatwoods with extensively interspersed Depression Marshes.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). Nearly closed canopy (ca. 60') of dense Pinus clausa with a lower ericaceous component including Lyonia ferruginea, L. frutico
SCRUB****837	Scrub		G2	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). At late stages of succession.
SCRUFLAT*100	Scrubby flatwoods		G3	S3	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). Occurrence on site.
SCRUB****835	Scrub		G2	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). At late stages of succession.
SCRUB****778	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 (5-20') canopy is composed of a dense growth of various scrub oaks including Quercus myrtifolia, Q. geminata, and Q. c

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Florida Natural Areas Inventory

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SCRUB****838	Scrub		G2	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). At late stages of succession.
SCRUFLAT*66	Scrubby flatwoods		G3	S3	N	N	2004	Scrubby Flatwoods in association with Scrub and Mesic to Wet Flatwoods.	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 saw palmetto wit a significant presence of scrub oaks, rusty lyonia and tarflower. Wiregras
SCRUB****836	Scrub		G2	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). At late stages of succession.
SCRUFLAT*61	Scrubby flatwoods		G3	S3	N	N	2004	Scrubby Flatwoods grading into oak scrub and Depression Marsh.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). Fine quality Scrubby Flatwoods with a scattered slash pine overstory and a dense ericad and mixed Scrub oak component understo
SCRUFLAT*104	Scrubby flatwoods		G3	S3	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). Occurrence on site.
SCRUB****770	Scrub		G2	S2	N	N	2004	Oak scrub grading into Scrubby Flatwoods and Hydric Hammock.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). This is a small, excellent quality scrub that is rather diverse for its size. The low (15'-20') canopy is composed of a dense
SCRUB****840	Scrub		G2	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). At late stages of succession.

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SCRUB****776	Scrub		G2	S2	N	N	2004	Sand Pine Scrub grading into Scrubby Flatwoods that in turn grade into Mesic to Wet Flatwoods with extensively interspersed Depression Marshes.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). Nearly closed canopy (ca. 60') of dense Pinus clausa with a lower ericaceous component including Lyonia ferruginea, L. frutico
SCRUFLAT*62	Scrubby flatwoods		G3	S3	N	N	2004	Scrubby Flatwoods grading into oak scrub and Depression Marsh.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1992-06-19) (U05FNA02FLUS). Fine quality Scrubby Flatwoods with a scattered slash pine overstory and a dense ericad and mixed Scrub oak component understo
SCRUB****8	Scrub		G2	S2	N	N	2004	"1-2 M SECOND-GROWTH OAK SCRUB."	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). 1-2 M SECOND GROWTH OAK SCRUB.
SCRUB****839	Scrub		G2	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). At late stages of succession.
SCRUFLAT*64	Scrubby flatwoods		G3	S3	N	N	2004	Scrubby Flatwoods in association with Scrub and Mesic to Wet Flatwoods.	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 saw palmetto with a significant presence of scrub oaks, rusty lyonia and tarflower. Wiregra
SCRUB****843	Scrub		G2	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). OCCURRENCE ON SITE.
SCRUB****779	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.

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SCRUFLAT*105	Scrubby flatwoods		G3	S3	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). OCCURRENCE ON SITE.
SCRUFLAT*103	Scrubby flatwoods		G3	S3	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). Occurrence on site.
SCRUFLAT*102	Scrubby flatwoods		G3	S3	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). Occurrence on site.
SCRUFLAT*67	Scrubby flatwoods		G3	S3	N	N	2004	Scrubby Flatwoods in association with Scrub and Mesic to Wet Flatwoods.	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 saw palmetto with a significant presence of scrub oaks, rusty lyonia and tarflower. Wiregra
SCRUFLAT*101	Scrubby flatwoods		G3	S3	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). Occurrence on site.
SCRUFLAT*65	Scrubby flatwoods		G3	S3	N	N	2004	Scrubby Flatwoods in association with Scrub and Mesic to Wet Flatwoods.	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 saw palmetto with a significant presence of scrub oaks, rusty lyonia and tarflower. Wiregra
HALILEUC*319	Haliaeetus leucocephalus	Bald Eagle	G5	S3	LT,PDL	LT	2003	No general description given	Nest status 1999-2003: Active - 2003, 2002, 2000, 1999; Inactive - 2001;Status 1995-98: Continuously active. (U03FWC01FLUS). Previous data (note different format) NEST; 1995: PRODUCED 1 YOUNG; 1994: PRODUCED 1 YOUNG; 1993: ACTIVE, PRODUCED 0 YOUNG; 1992:

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HALILEUC*337	Haliaeetus leucocephalus	Bald Eagle	G5	S3	LT,PDL	LT	2003	No general description given	Nest status 1995-2003: Continuously active. (U03FWC01FLUS). Previous data (note different format) NEST; 1995: ACTIVE, PRODUCED 0 YOUNG; 1994: PRODUCED 1 YOUNG; 1993: PRODUCED 2 YOUNG; 1992: PRODUCED 1 YOUNG; 1983, 1985, 1987-1988, INACTIVE 1984, DESTROYE
HALILEUC*320	Haliaeetus leucocephalus	Bald Eagle	G5	S3	LT,PDL	LT	1984	No general description given	Nest status 1999-2003: Inactive - 2003; Unknown/not assessed - 2002, 2001, 2000, 1999; Status 1995-98: Inactive - 1998, 1997, 1996, 1995; (U03FWC01FLUS). Previous data (note different format) NEST: 1995: GONE; 1994: NEST GONE; 1993: NEST GONE; 1992: NEST
HALILEUC*902	Haliaeetus leucocephalus	Bald Eagle	G5	S3	LT,PDL	LT	2003	No general description given	Nest status 1995-2003: Continuously active. (U03FWC01FLUS). Previous data (note different format) Nest; 1995: Produced 2 young.

FLORIDA Natural Areas INVENTORY

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FNAI's Biodiversity Matrix Online

The Biodiversity Matrix Map Server is a new **screening tool** from FNAI that provides **immediate, free access** to rare species occurrence information statewide. This tool allows you to zoom to your site of interest and create a report listing documented, likely, and potential occurrences of rare species and natural communities.

The FNAI Biodiversity Matrix offers **built-in interpretation** of the likelihood of species occurrence for each 1-square-mile Matrix Unit across the state. The report includes a site map and list of species and natural communities by occurrence status: Documented, Documented-Historic, Likely, and Potential.

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Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 61906					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Matrix Unit ID: 61907					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Hydric hammock		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Scrub		G2	S2	N	N
Matrix Unit ID: 61908					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Hydric hammock		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Matrix Unit ID: 61909					
Documented					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Likely					
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Matrix Unit ID: 62180					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Matrix Unit ID: 62181					
Documented					
Scrubby flatwoods		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.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
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Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Depression marsh		G4	S4	N	N
Hydric hammock		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Scrub		G2	S2	N	N
Wet flatwoods		G4	S4	N	N
Matrix Unit ID: 62182					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Hydric hammock		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Scrub		G2	S2	N	N
Wet flatwoods		G4	S4	N	N
Matrix Unit ID: 62183					
Likely					
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Matrix Unit ID: 62454					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Matrix Unit ID: 62455					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Wet flatwoods		G4	S4	N	N
Matrix Unit ID: 62456					
Likely					
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT

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Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Wet flatwoods		G4	S4	N	N

Matrix Unit ID: 62457

Likely

Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS

Matrix Unit ID: 62726

Likely

Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS

Matrix Unit ID: 62727

Likely

Dome swamp		G4	S4	N	N
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS

Matrix Unit ID: 62728

Likely

Dome swamp		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE

Matrix Unit ID: 62729

Likely

Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Scrub		G2	S2	N	N

Matrix Unit ID: 62995

Likely

Dome swamp		G4	S4	N	N
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS

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Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 62996					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Depression marsh		G4	S4	N	N
Dome swamp		G4	S4	N	N
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Matrix Unit ID: 62997					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Depression marsh		G4	S4	N	N
Dome swamp		G4	S4	N	N
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Matrix Unit ID: 62998					
Documented					
Nolina atopocarpa	Florida Beargrass	G3	S3	N	LT
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Sceloporus woodi	Florida Scrub Lizard	G3	S3	N	N
Scrub		G2	S2	N	N
Matrix Unit ID: 63263					
Likely					
Dome swamp		G4	S4	N	N
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Matrix Unit ID: 63264					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Conradina grandiflora	Large-flowered Rosemary	G3	S3	N	LT
Depression marsh		G4	S4	N	N
Dome swamp		G4	S4	N	N
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE

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Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 63265					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Conradina grandiflora	Large-flowered Rosemary	G3	S3	N	LT
Depression marsh		G4	S4	N	N
Dome swamp		G4	S4	N	N
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Lechea divaricata	Pine Pinweed	G2	S2	N	LE
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Nolina atopocarpa	Florida Beargrass	G3	S3	N	LT
Scrub		G2	S2	N	N
Scrubby flatwoods		G3	S3	N	N
Matrix Unit ID: 63266					
Documented					
Lechea divaricata	Pine Pinweed	G2	S2	N	LE
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Ardea alba	Great Egret	G5	S4	N	N
Conradina grandiflora	Large-flowered Rosemary	G3	S3	N	LT
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Pelecanus occidentalis	Brown Pelican	G4	S3	N	LS
Sceloporus woodi	Florida Scrub Lizard	G3	S3	N	N
Scrub		G2	S2	N	N
Scrubby flatwoods		G3	S3	N	N
Matrix Unit ID: 63530					
Likely					
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Bird Rookery		GNR	SNR	N	N
Conradina grandiflora	Large-flowered Rosemary	G3	S3	N	LT
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork	G4	S2	LE	LE
Pandion haliaetus	Osprey	G5	S3S4	N	LS*
Scrub		G2	S2	N	N
Scrubby flatwoods		G3	S3	N	N
Matrix Unit ID: 63531					
Likely					

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Biodiversity Matrix Report

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Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	LT
Ardea alba	Great Egret	G5	S4	N	N
Conradina grandiflora	Large-flowered Rosemary	G3	S3	N	LT
Haliaeetus leucocephalus	Bald Eagle	G4	S3	LT,PDL	LT
Mycteria americana	Wood Stork	G4	S2	LE	LE
Pelecanus occidentalis	Brown Pelican	G4	S3	N	LS
Scrub		G2	S2	N	N

Potential from any/all selected units

Acipenser oxyrinchus oxyrinchus	Atlantic Sturgeon	G3T3	S1	C	LS
Aphelocoma coerulescens	Florida Scrub-jay	G2	S2	LT	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
Cladonia perforata	Perforate Reindeer Lichen	G1	S1	LE	LE
Conradina grandiflora	Large-flowered Rosemary	G3	S3	N	LT
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Ctenogobius stigmaturus	Spottail Goby	G2	S2	N	N
Dendroica discolor paludicola	Florida Prairie Warbler	G5T3	S3	N	N
Dicerandra immaculata	Lakela's Mint	G1	S1	LE	LE
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Eretmochelys imbricata	Hawksbill	G3	S1	LE	LE
Glandularia maritima	Coastal Vervain	G3	S3	N	LE
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LS
Halophila johnsonii	Johnson's Seagrass	G2	S2	LT	N
Harrisia simpsonii	Simpson's Prickly Apple	G2	S2	N	LE
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Lechea divaricata	Pine Pinweed	G2	S2	N	LE
Mesic flatwoods		G4	S4	N	N
Mustela frenata peninsulae	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
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	LS
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rivulus marmoratus	Mangrove Rivulus	G3	S3	C	LS
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T2	S2	LE	LE
Sceloporus woodi	Florida Scrub Lizard	G3	S3	N	N
Schizachyrium niveum	Scrub Bluestem	G1	S1	N	LE
Trichechus manatus	Manatee	G2	S2	LE	LE
Warea carteri	Carter's Warea	G3	S3	LE	LE
Zephyranthes simpsonii	Rain Lily	G2G3	S2S3	N	LT

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.

GLOBAL AND STATE RANKS

Florida Natural Areas Inventory (FNAI) defines an **element** as any rare or exemplary component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature. FNAI assigns two ranks to each element found in Florida: the **global rank**, which is based on an element's worldwide status, and the **state rank**, which is based on the status of the element within Florida. Element ranks are based on many factors, including estimated number of occurrences, estimated abundance (for species and populations) or area (for natural communities), estimated number of adequately protected occurrences, range, threats, and ecological fragility.

GLOBAL RANK DEFINITIONS

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 10,0000 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.
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.
GH	Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
GNA	Ranking is not applicable because element is not a suitable target for conservation (e.g. as for hybrid species)
GNR	Not yet ranked (temporary)
GNRTNR	Neither the full species nor the taxonomic subgroup has yet been ranked (temporary)
GX	Believed to be extinct throughout range
GXC	Extirpated from the wild but still known from captivity/cultivation
GU	Unrankable. Due to lack of information, no rank or range can be assigned (e.g., GUT2).

STATE RANK DEFINITIONS

Definition parallels global element rank: substitute "S" for "G" in above global ranks, and "in Florida" for "globally" in above global rank definitions.

FEDERAL AND STATE LEGAL STATUSES PROVIDED BY FNAI FOR INFORMATION ONLY.

For official definitions and lists of protected species, consult the relevant state or federal agency.

FEDERAL LEGAL STATUS

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.

LE Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species which is in danger of extinction throughout all or a significant portion of its range.

LE,XN An experimental population of a species otherwise Listed as an Endangered Species in the List of Endangered and Threatened Wildlife and Plants.

PE Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.

LT Listed as Threatened Species. Defined as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

LT,PDL Species currently listed threatened but has been proposed for delisting.

PT Proposed for listing as Threatened Species.

C Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants, Category 1. Taxa for which the USFWS currently has substantial information on hand or in possession to support the biological appropriateness of proposing to list the species as endangered or threatened.

PS Partial listing status (species is listed for only a portion of its geographic range).

SAT Threatened due to similarity of appearance to a threatened species.

SC Species of concern. Species is not currently listed but is of management concern to USFWS.

N Not currently listed, nor currently being considered for addition to the List of endangered and Threatened Wildlife and Plants.

FLORIDA LEGAL STATUSES

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.

Animals (Florida Fish and Wildlife Conservation Commission- FFWCC)

LE Listed as Endangered Species by the FGFWFC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future.

LT Listed as Threatened Species by the FGFWFC. 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. LT* (for Florida black bear) indicates that LT status does not apply in Baker and Columbia counties and in the Apalachicola National Forest.

LS Listed as Species of Special Concern by the FGFWFC. 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. LS* indicates that a species has LS status only in selected portions of its range in Florida.

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.

LE Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state 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, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.

PE Proposed by the FDACS for listing as Endangered Plants.

LT Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as 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 such number as to cause them to be endangered. LT* indicates that a species has LT status only in selected portions of its range in Florida.

PT Proposed by the FDACS for listing as Threatened Plants.

CE Listed as a Commercially Exploited Plant in the Preservation of Native Flora of Florida Act. Defined as species native to state which are subject to being removed in significant numbers from native habitats in the state and sold or transported for sale.

PC Proposed by the FDACS for listing as Commercially Exploited Plants.

(LT) Listed threatened as a member of a larger group but not specifically listed by species name.

N Not currently listed, nor currently being considered for listing.

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FLORIDA
Natural Areas
INVENTORY

Brevard Coastal Scrub Ecosystem

Brevard County

Group A: Full Fee
Group A: Small Holdings

Purpose for State Acquisition

The strip of coastal scrub that once paralleled the Indian River in Brevard County is now a set of small fragments surrounded by housing developments. The Brevard Coastal Scrub Ecosystem project will preserve a few of the best fragments, thus helping to ensure the survival of the endangered scrub jay and scrub itself in the county, and providing areas where the public can learn about and appreciate this unique landscape.

Manager

Brevard County will manage the original six sites, and the Fish and Wildlife Conservation Commission (FWC) will manage the six sites added in 1996.

General Description

Theproject includes twenty areas considered essential to the preservation of scrub, mesic and scrubby flatwoods, floodplain marsh and marsh lake along the Atlantic Coastal Ridge and St. John's River marshes. Acquisition and management of these core areas are imperative for the survival of the Florida Scrub Jay on the East Coast of Florida. The tracts comprising this project also support several rare vertebrates and at least eight rare plant species, including a very rare mint. All of the tracts in the project are surrounded by development and several peripheral areas are already being destroyed. The rapid encroachment of housing developments is likely to completely eliminate any unprotected scrub and adjacent flatwoods communities of Brevard County in the very near future. No archaeological sites are known from the project.

Full Fee FNAI Elements	
Scrub mint	G1/S1
Coastal hoary-pea	G1T1/S1
SCRUB	G2/S2
Pine pinweed	G2/S2
Wild coco	G2G3/S2
Sand butterfly pea	G2G3Q/S2S3
Hay scented fern	G4/S1
FLOODPLAIN MARSH	G3?/S2
32 elements known from project	

Small Holdings FNAI Elements	
SCRUB	G2/S2
Florida scrub-jay	G3/S3
Curtiss' milkweed	G3/S3
Large-flowered rosemary	G3/S3
SCRUBBY FLATWOODS	G3/S3
WET FLATWOODS	G3/S3
Bald eagle	G4/S3
DEPRESSION MARSH	G4?/S3
12 elements known from project	

Public Use

This project is designated as a wildlife and environmental area with limited public use, including picnicking and environmental education.

Acquisition Planning

On 12/10/1992, the Land Acquisition Advisory Council (LAAC) added the Scrub Jay Refugia project to the Conservation and Recreation Lands (CARL) Priority list. This fee-simple acquisition consisted of approximately 8,178 acres, several hundred parcels and landowners, and a taxable value of $53,319,683. Brevard County sponsored the project that contained 5 sites: Tico (± 2,421 acres, Grand Central a major owner, Brevard County has acquired 52 acres); Valkaria (± 2,764 acres with multiple owners, County has acquired 155 acres); Rockledge (± 2,591 acres, three major owners: Barge & Tabacchi, Duda, and Grand Central, the remainder is subdivided, County has acquired 141 acres); Condev (52 acres, two owners: Nelson and SR 405 Ltd); South Babcock (529 acres, multiple owners).

Placed on list	**1993***
Project Area (Not GIS Acreage)	**48,387**
Acres Acquired	**19,346****
at a Cost of	**$38,504,928****
Acres Remaining	**29,041**
with Estimated (Tax Assessed) Value of	**$50,655,636**

***Original project**
****** Includes acreage acquired by Brevard County & SJRWMD, Full Fee and Small Holdings**

On 7/23/1993, the LAAC approved a fee-simple, 179-acre addition (AKA Rockledge Scrub Sanctuary) to the project boundary. It was sponsored by the South Florida Water Management District (SFWMD), consisted of 6 landowners (T. Barge & M. Tabacchi, L.R. Pierce Trust, N. Schopke & M. Tabacchi, TCM Investment, Inc., A.L. & M. Jacoboski , and Florida Power & Light Co.), and a taxable value of $3,600,000.

On 3/9/1994, the LAAC approved a fee-simple, 1,322-acre addition (AKA Micco Scrub) to the project boundary. The addition was sponsored by Brevard County, consisted of one landowner, Kentucky Central Life Ins. Co., and a taxable value of $1,500,120. Brevard County has acquired this site.

On 7/14/1995, the LAAC approved a fee-simple, 1,410-acre addition to the project boundary. The addition consisted of four sites: Dicerandra Scrub, 44 acres, Malabar Scrub Sanctuary, 395 acres, Canova Beach Scrub, 138 acres, and Jordan Blvd, 833 acres. Brevard County sponsored this addition that consisted of multiple landowners, and a taxable value of $13,283,659. The County has acquired the Malabar and the Dicerandra Scrub sites.

In 1996, the LAAC combined the Coastal Scrub Ecosystem Initiative (CSEI) project with the Scrub Jay Refugia project bringing the new total acres to 27,745 with a TAV of $86,847,875, and on 12/5/1996 renamed it Brevard Coastal Scrub Ecosystem. The CSEI consisted of 6 sites: Fox/South Lake Complex - 9,189 acres; Titusville Wellfield - 972 acres; Grissom Parkway - 2,962 acres; Wickham Road - 822 acres; Micco Expansion - 1,833 acres; and Ten Mile Ridge - 529 acres, totaling 16,307 acres with a TAV of $40,780,060.

On 12/3/1998, the Land Acquisition Management Advisory Council (LAMAC) approved the transfer of the Valkaria, South Babcock, Ten Mile Ridge, and Grissom Parkway sites to the Mega-Multiparcel list. In 2001 this list was renamed Small Holdings.

On 12/19/00, the ARC approved a fee-simple, ± 9,528-acre addition to the project boundary. The addition consisted of two sites: Malabar Expansion – 959.85 acres (Bargain/Shared) and Valkaria/Micco Expansion – 4,144.48 acres (Bargain/Shared) & 4,739.48 acres (Mega/Multiparcel). Sponsored by the Brevard County EEL Program, it consisted of 2,250 landowners, and a taxable value of $23,819,800. The following sites were deleted from the project due to development/improvement, habitat fragmentation or isolation: Canova Beach - 152.34 acres; Condev – 52.52 acres; and Wickham Road Complex – 809.62 acres; & Rockledge (select properties) – 860 acres. The total TAV for these sites was approximately $35,952,477.

On 5/17/2001, the ARC approved a fee-simple, ± 3,529-acre addition to the project boundary. The addition, sponsored by the Office of Coastal and Aquatic Managed Areas (CAMA), consisted of eleven landowners, and a taxable value of $3,456,290.

On 4/25/2002, the ARC approved a fee-simple, 112-acre addition to the project boundary. The addition, sponsored by The Nature Conservancy (TNC) for Brevard County, consisted of two sites (10 Mile Ridge Expansion – 62 acres and Valkario/Micco Expansion – 50 acres), multiple landowners, and a taxable value of $199,070

On 12/5/2003, the ARC approved a fee-simple, 7,444-acre addition to the project boundary. The addition, sponsored by the Brevard County EEL Program, consisted of three landowners, Bernard Hersch – 112.25 acres; OLC, Inc/Campbell – 5,229.94 acres; and Babcock, LLC – 2,091.81 acres, and a taxable value of $2,808,217.

On 12/5/2002, ARC moved this project to Group A of the 2003 Florida Forever Priority list.

Coordination

Brevard County is an acquisition partner and has committed $10 million towards the acquisition of the project and $2.6 million for site management. The Nature Conservancy is under contract to the county to provide assistance with acquisition of the county's projects.

Management Policy Statement

The primary goals of management of the Brevard Coastal Scrub Ecosystem project are: to conserve and protect environmentally unique and irreplaceable lands that contain native, relatively unaltered flora and fauna representing a natural area unique to, or scarce within, a region of this state or a larger geographic area; and to conserve and protect significant habitat for native species or endangered and threatened species.

Management Prospectus

Qualifications for state designation Scrub on the Atlantic Coastal Ridge is one of the most endangered natural upland communities in North America. This unique scrub, with its many rare plants and animals, qualifies the Brevard Coastal Scrub Ecosystem project as a wildlife and environmental area.

Manager Brevard County proposes to manage the six original sites of the Brevard Coastal Scrub Ecosystem Project. The Fish and Wildlife Conservation Commission will manage the six sites added in 1996.

Conditions affecting intensity of management The Brevard Coastal Scrub Ecosystem Project includes low-need, moderate-need and high-need tracts. All sites are fire-maintained communities with an immediate need for fire management.

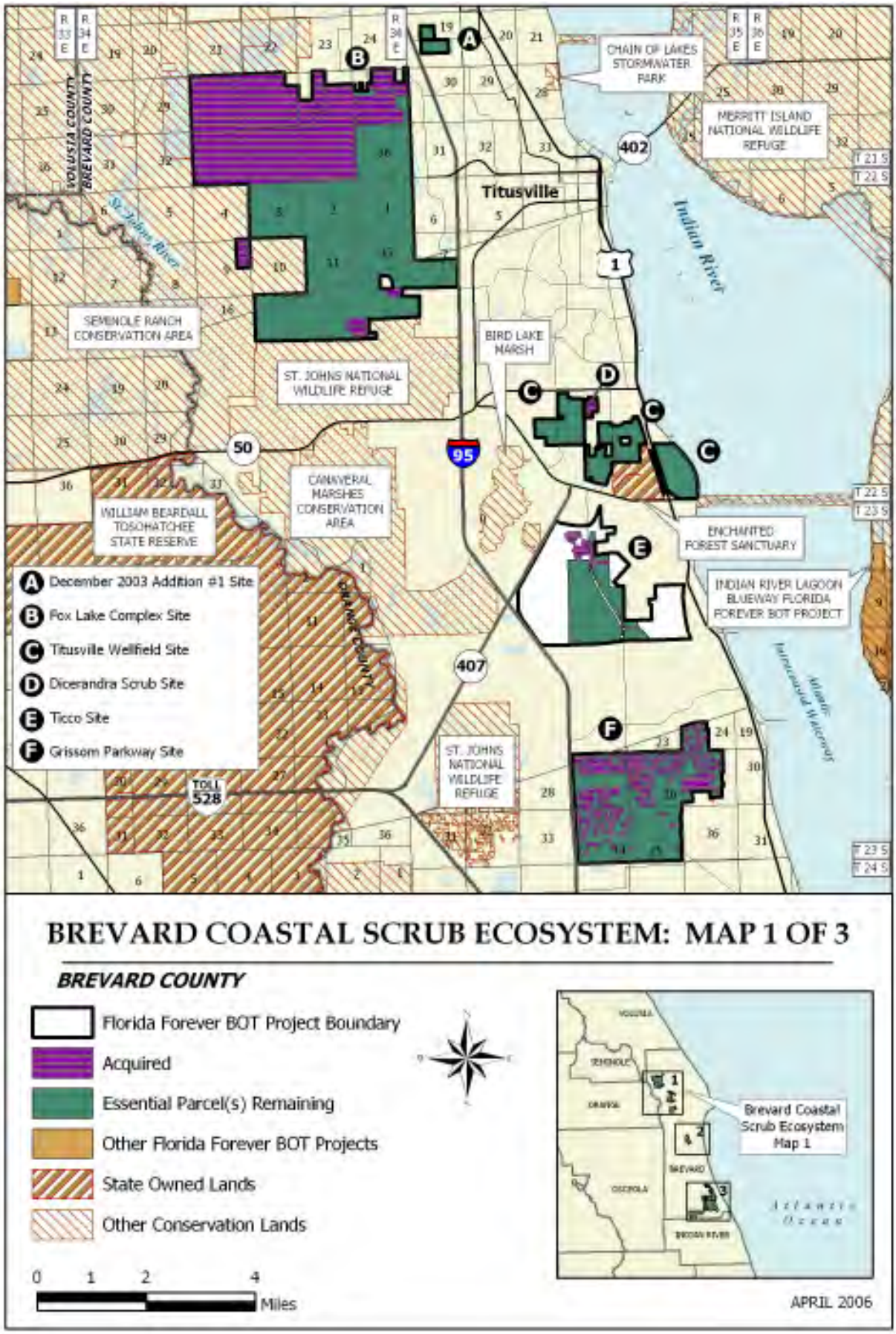
Timetable for implementing management and provisions for security and protection of infrastructure The Brevard County EEL Program is preparing a Conceptual Natural Areas Management Manual for all sanctuary sites. Once these sites are acquired, the EEL Program will work with local, state and federal agencies to develop a Comprehensive Management Plan for long-term management. Initial management activities in this project will focus on site security, burn management, determination of status of listed species, location of a core area for resource protection, identification of passive recreation areas, and the development of innovative environmental education programs.

A management plan will be developed and implemented approximately one year after the completion of this multi-parcel acquisition project, or site-specific management plans will be developed as management units are acquired. The plan will detail how each of the FNAI special elements on each site will be protected and, when necessary, restored. Fire management will be a vital component of each plan.

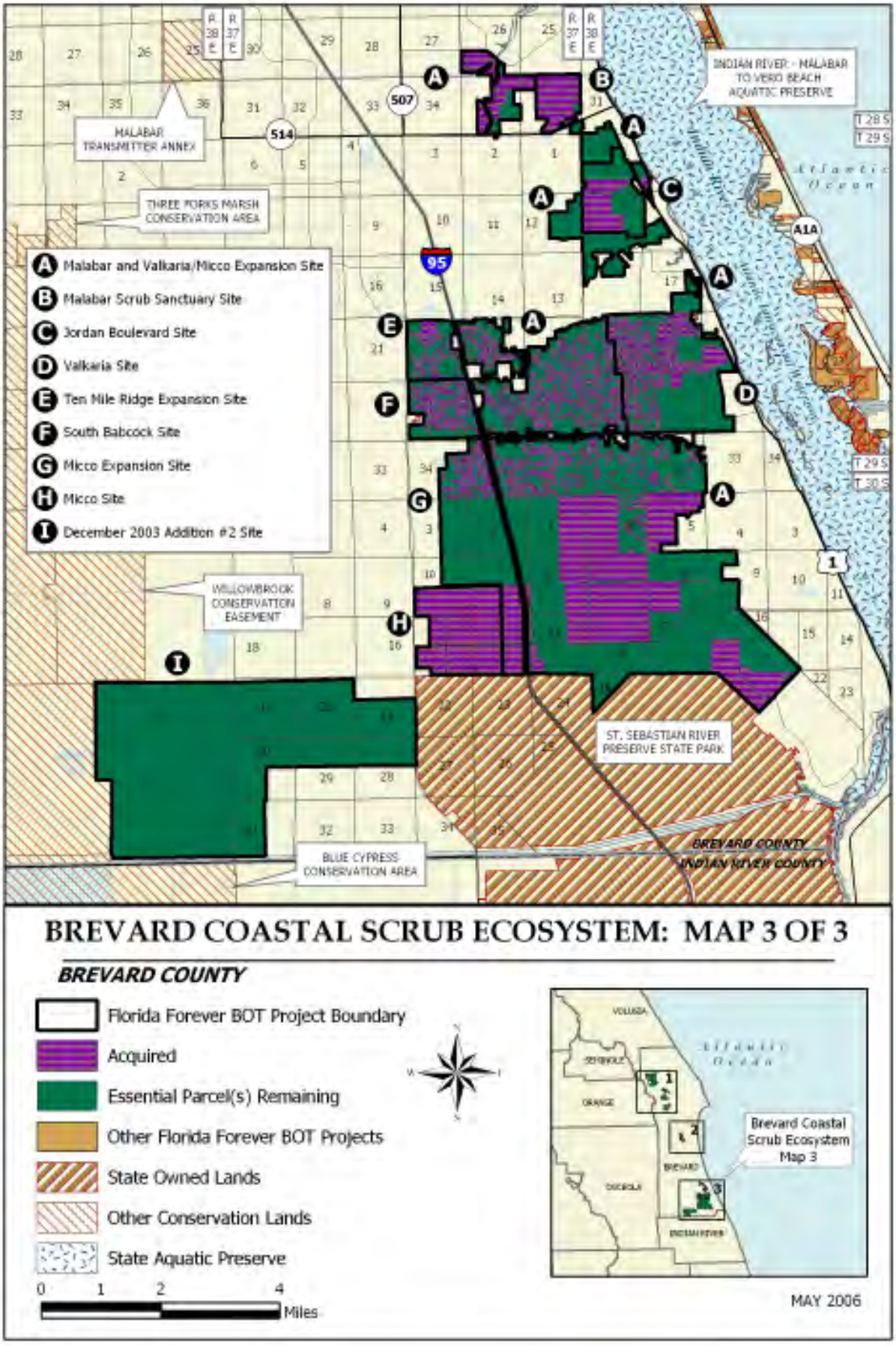
Long-range plans for this project, beginning approximately one year after acquisition is completed, will be directed towards biodiversity protection, exotic species removal, wetland restoration and enhancement, and the maintenance of links between upland, wetland and estuarine areas. Management will protect biological diversity and listed species. Specific areas will be fenced as needed. Property signs will have appropriate language to enable protection of the property. Unnecessary roads and other disturbances will be identified as areas for restoration. Firebreaks will be cleared where necessary. Infrastructure development will be confined to already disturbed areas and will be low-impact.

Continued on Page 72


SEMINOLE COUNTY
Titusville
50
JOHN F. KENNEDY SPACE CENTER
Map 1
TOLL 528
520
Merritt Island
Cocoa Beach
ORANGE COUNTY
OSCEOLA COUNTY
Map 2
Atlantic Ocean
95
1
192
Melbourne
441
BREVARD COUNTY
Map 3
Florida's Turnpike
BREVARD COASTAL SCRUB ECOSYSTEM: OVERVIEW
BREVARD COUNTY
0 5 10 20
Miles
Brevard Coastal Scrub Ecosystem
APRIL 2006


A December 2003 Addition #1 Site
B Fox Lake Complex Site
C Titusville Wellfield Site
D Dicerandra Scrub Site
E Ticco Site
F Grissom Parkway Site
Titusville
CHAIN OF LAKES STORMWATER PARK
MERRITT ISLAND NATIONAL WILDLIFE REFUGE
SEMINOLE RANCH CONSERVATION AREA
ST. JOHNS NATIONAL WILDLIFE REFUGE
BIRD LAKE MARSH
CANAVERAL MARSHES CONSERVATION AREA
WILLIAM BEARDALL TOSOHATCHEE STATE RESERVE
ENCHANTED FOREST SANCTUARY
INDIAN RIVER LAGOON BLUEWAY FLORIDA FOREVER BOT PROJECT
Indian River
St. Johns River
VOLUSIA COUNTY
BREVARD COUNTY
ORANGE COUNTY
402
50
95
407
TOLL 528
1
BREVARD COASTAL SCRUB ECOSYSTEM: MAP 1 OF 3
BREVARD COUNTY
Florida Forever BOT Project Boundary
Acquired
Essential Parcel(s) Remaining
Other Florida Forever BOT Projects
State Owned Lands
Other Conservation Lands
0 1 2 4
Miles
Brevard Coastal Scrub Ecosystem Map 1
APRIL 2006

Brevard Coastal Scrub Ecosystem - Group A/Full Fee Small Holdings


A Malabar and Valkaria/Micco Expansion Site
B Malabar Scrub Sanctuary Site
C Jordan Boulevard Site
D Valkaria Site
E Ten Mile Ridge Expansion Site
F South Babcock Site
G Micco Expansion Site
H Micco Site
I December 2003 Addition #2 Site
MALABAR TRANSMITTER ANNEX
THREE FORKS MARSH CONSERVATION AREA
WILLOWBROOK CONSERVATION EASEMENT
BLUE CYPRESS CONSERVATION AREA
INDIAN RIVER - MALABAR TO VERO BEACH AQUATIC PRESERVE
ST. SEBASTIAN RIVER PRESERVE STATE PARK
BREVARD COUNTY
INDIAN RIVER COUNTY
Atlantic Ocean
A1A
95
507
514
BREVARD COASTAL SCRUB ECOSYSTEM: MAP 3 OF 3
BREVARD COUNTY
Florida Forever BOT Project Boundary
Acquired
Essential Parcel(s) Remaining
Other Florida Forever BOT Projects
State Owned Lands
Other Conservation Lands
State Aquatic Preserve
0 1 2 4
Miles
Brevard Coastal Scrub Ecosystem Map 3
MAY 2006

Revenue-generating potential No significant revenue sources are anticipated at this time. Mitigation agreements with USFWS have generated some funds for management within the Valkaria Core area. Implementation and funding of the Scrub Conservation and Development Plan provide a potential source of management funds for these sites. Timber might be sold on some sites where habitat restoration requires thinning

Cooperators in management activities Brevard County will require support from the USFWS and other agencies (The Nature Conservancy, Division of Forestry, FWC, and others) to implement a quality management program for scrub communities.

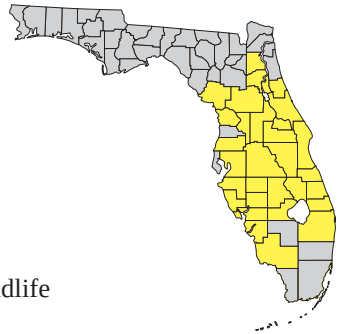
The EEL Selection Committee will aggressively seek matching funds for site management, development of environmental education programs, and for necessary research and monitoring.

Management costs and sources of revenue An interagency partnership among the participating agencies provides opportunities for revenue sharing. The Brevard County EEL Program proposed to set aside $2.6 million dollars from their excess ad valorem revenues to begin a management endowment for the EEL Program sanctuary network. The EEL Program will work to increase funds for management to be consistent with or exceed State management appropriations.

Management Cost Summary

Category	1994/95	1995/96	1996/97
Source of Funds	County	County	County/Grant
Salary	$0	$3,500	$8,750
OPS	$0	$0	$35,000
Expense	$500	$1,000	$0
OCO	$0	$0	$60,000
FCO	$0	$125,700	$120,000
TOTAL	$500	$130,200	$213,750

FLORIDA SCRUB-JAY
Aphelocoma coerulescens



Order: Passeriformes
Family: Corvidae
FNAI Ranks: G3/S3
U.S. Status: Threatened
FL Status: Threatened
U.S. Migratory Bird Treaty Act and state Wildlife Code prohibit take of birds, nests, or eggs.

© Tom Vezo

Description: Similar in size and shape to the familiar blue jay (*Cyanocitta cristata*). Crestless head, nape, wings, and tail are pale blue, and the back and belly pale gray. Juveniles have fluffy brown heads.

Similar Species: The scrub-jay lacks the crest and white spotting on wings and tail that are characteristic of the blue jay.

Habitat: Inhabits fire-dominated, low-growing, oak scrub habitat found on well-drained sandy soils. May persist in areas with sparser oaks or scrub areas that are overgrown, but at much lower densities and with reduced survivorship.

Seasonal Occurrence: Extremely sedentary.

Florida Distribution: Restricted to peninsular Florida, with largest populations occurring in Brevard, Highlands, Polk, and Marion counties.

FLORIDA SCRUB-JAY *Aphelocoma coerulescens*

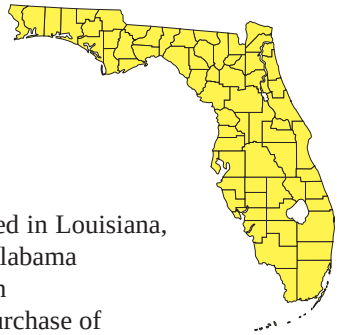
Range-wide Distribution: Same as Florida distribution.

Conservation Status: Recognized in 1995 as a distinct species from the scrub-jays in the western U.S., making it the only bird species whose entire range is restricted to Florida. Continuing loss, fragmentation, and degradation of scrub habitat has resulted in a decline of greater than 90 percent of the original pre-settlement population of Florida scrub-jays. Precipitous decline since the 1980s. A 1992 range-wide estimate gives an overall population of approximately 10,000 birds. Largest populations are found on federal lands (Merritt Island National Wildlife Refuge and Ocala National Forest), but are declining. Land management practices on these lands are of concern. Smaller populations are found scattered along Lake Wales Ridge in Polk and Highlands counties, with a major protected population at Archbold Biological Station. Cars and cats take toll on scrub-jays in developed areas. Scrub-jays are susceptible to population crashes because of catastrophic fires or disease, so protection of additional secure populations is essential.

Protection and Management: Acquire suitable xeric habitat in strategic locations among existing scrub-jay preserves to help mitigate the extensive fragmentation of this habitat. Continued existence of this species will depend on preservation and long-term management of suitable scrub habitat. Prescribed fire every 8 - 15 years that burns patchily, where few territories are burned completely, is optimal. Mechanical treatments, at least initially, may be required where fire cannot be used, although the long-term effects of this management practice are unknown.

Selected References: Fitzpatrick et al. 1991, Poole and Gill (eds.) 1996, Robertson and Woolfenden 1992, Rodgers et al. (eds.) 1996, Stevenson and Anderson 1994, Thaxton and Hingtgen 1996.

GOPHER TORTOISE
Gopherus polyphemus



Order: Testudines
Family: Testudinidae
FNAI Ranks: G3/S3
U.S. Status: None in Florida; Threatened in Louisiana, Mississippi, and western Alabama
FL Status: Species of Special Concern
Florida prohibits take, possession, sale, or purchase of tortoises or their parts except by permit.

© Dan Hipes

juvenile
© Dan Hipes

Description: A medium-sized turtle (to 10 in. = 254 mm) fully adapted for life on land. Upper shell brown and relatively flat above; lower shell yellowish, without hinge, and projecting forward, especially in male; skin brown to dark gray. Forelimbs greatly expanded for digging; hind limbs reduced, stumpy, lacking any form of webbing between toes. Lower shell of male somewhat concave. Young: scales of carapace often with yellow centers, skin yellowish to tan; approximately 2 in. (51 mm) shell length at hatching.

Similar Species: The only other native land turtle in Florida, the box turtle (*Terrapene carolina*), is distinguished by its smaller size (to 8 in. =

203 mm), less stout feet, moveable hinge on lower shell, and often but not always by black and yellow upper shell. Tortoise burrows, which are useful in determining species' presence, typically have lower, flatter profile than more rounded burrows of armadillos; this reflects differences in cross-sectional shapes of the two animals.

Habitat: Typically found in dry upland habitats, including sandhills, scrub, xeric oak hammock, and dry pine flatwoods; also commonly uses disturbed habitats such as pastures, oldfields, and road shoulders. Tortoises excavate deep burrows for refuge from predators, weather, and fire; more than 300 other species of animals have been recorded sharing these burrows.

Seasonal Occurrence: Above-ground activity is greatly reduced during cold weather, with tortoises in northern Florida remaining below ground for months. Nonetheless, burrows are relatively conspicuous year-round.

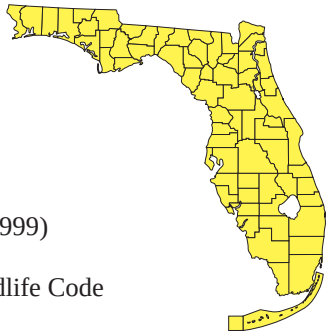
Florida Distribution: State-wide except absent from the Everglades and Keys.

Range-wide Distribution: Lower Southeastern Coastal Plain, extending from southern South Carolina southward through lower Georgia and Florida and westward through southern Alabama, Mississippi, and extreme southeastern Louisiana.

Conservation Status: Despite its widespread occurrence throughout Florida, there is considerable concern about the declining abundance of this species. Much of its native habitat has been lost to agriculture, citriculture, forestry, mining, and urban and residential development. Although protected populations occur on many state, federal, and private conservation lands, recent development of a severe respiratory disease threatens even those.

Protection and Management: Manage large, undivided tracts of upland habitat to maintain native vegetative conditions; this generally requires periodic prescribed fire beneath trees to reduce brush and favor growth of grasses and forbs. Avoid building roads and houses in xeric uplands. Because of risk of introducing tortoises infected with respiratory disease to uncontaminated populations, tortoises should not be relocated except under strictly controlled programs.

BALD EAGLE
Haliaeetus leucocephalus



Order: Falconiformes
Family: Accipitridae
FNAI Ranks: G4/S3
U.S. Status: Threatened
(proposed for delisting in 1999)
FL Status: Threatened
U.S. Migratory Bird Treaty Act and state Wildlife Code prohibit take of birds, nests, or eggs.

© Tom Vezo

immature
© Barry Mansell

Description: Adult has white head, white tail,and large, bright yellow bill; other plumage is dark. Immatures dark with variable amounts of light splotching on body, wings, and tail; head and bill are dark. In flight wings are broad and wide and held horizontally, presenting a flat profile when soaring and gliding. Flies with slow, powerful wing-beats.

Similar Species: At a distance, in flight, eagle's size and lack of white in wings should help differentiate it from the crested caracara (*Caracara cheriway*; see species account), which also has a white head. Flattened aspect of the eagle's wings is unlike the teetering, V-shaped flight of the turkey vulture (*Cathartes aura*).

Habitat: Most commonly includes areas close to coastal areas, bays, rivers, lakes, or other bodies of water that provide concentrations of food sources, including fish, waterfowl, and wading birds. Usually nests in tall trees (mostly live pines) that provide clear views of surrounding area. In Florida Bay, where there are few predators and few tall emergent trees, eagles nest in crowns of mangroves and even on the ground.

BALD EAGLE *Haliaeetus leucocephalus*

Seasonal Occurrence: In extreme southern Florida, most adults are resident, but most birds in northern and central Florida migrate north out of state after breeding season (late May - July). Juveniles and younger birds mostly migrate north in summer and may range as far as Canada. Also, in winter, some birds from northern populations migrate to northern Florida.

Florida Distribution: Florida has largest breeding population of any state outside Alaska. Breeds throughout most of peninsular Florida and Keys, mainly along coast in eastern panhandle, and is rare in western panhandle. Greatest concentrations of nesting eagles occur around Lake Kissimmee in Polk and Osceola counties, around Lake George in Putnam, Volusia, and Lake counties, lakes Jessup, Monroe, and Harney in Seminole and Volusia counties, along Gulf coast north of Tampa, and Florida Bay and southwest peninsula area.

Range-wide Distribution: North America. Breeding range extends from Alaska, across Canada, south to Baja California, the Gulf coast and Florida Keys, although very local in the Great Basin and prairie and plains regions in interior U.S., where range has expanded to include Nebraska and Kansas. Non-breeding range is generally throughout breeding range except in far north, most commonly from southern Alaska and southern Canada southward.

Conservation Status: Original population in Florida could be found throughout state and likely numbered well over 1,000 pairs. Population declined sharply after late 1940s, reaching a low of 120 active nests in 1973, and by 1978 was considered rare as a breeder. Use of pesticide DDT and related compounds and development of coastal habitat are probably chief causes of decline. Numbers have steadily increased, especially since 1989. In 1993, 667 active territories were reported, and in 1999, 996 active nests were recorded. Major threats include habitat loss because of development and commercial timber harvest; pollutants and decreasing food supply are also of concern.

Protection and Management: Monitored annually by Fish and Wildlife Conservation Commission (FFWCC). Continue acquisition of breeding territories and protection of foraging and roosting sites. Incorporate information known about buffer zones around nesting areas into state and local development regulations to help mitigate losses as Florida's human population continues to expand. Monitor pesticides and other environmental contaminants that affect reproduction and food supply.

Selected References: FFWCC 2001, Kale (ed.) 1978, Poole and Gill (eds.) 2000, Robertson and Woolfenden 1992, Rodgers et. al. (eds.) 1996, Stevenson and Anderson 1994.

Appendix H: Flora related to SBCSE

Note: species are sorted by Family

Preliminary Floristic List for Grant Flatoods Sanctuary
Paul A. Schmalzer and Tammy E. Foster
Surveys of April 27, 2004 and May 2, 2005. Include records from KSC Herbarium. Updated December 13, 2007

GENUS	SPECIES	VARIETY	CLASS	Listed
ANACARDIACEAE				
Rhus	copallinum		a	
Schinus	terebinthifolius		a	
ANNONACEAE				
Asimina	sp.		a	
APIACEAE				
Eryngium	yuccifolium		a	
APOCYNACEAE				
Sarcostemma	clausum		a	
AQUIFOLIACEAE				
Ilex	cassine	cassine	a	
Ilex	glabra		a	
ARECACEAE				
Sabal	palmetto		a	
Serenoa	repens		a	
ASTERACEAE				
Baccharis	halimifolia		a	
Chaptalia	tomentosa		a	
Cirsium	horridulum		a	
Coreopsis	leavenworthii		a	
Erigeron	quercifolius		a	
Mikania	sp.		a	
Pterocaulon	pycnostachyum		a	
Verbesina	virginica		a	
BLECHNACEAE				
Blechnum	serrulatum		p	
BORAGINACEAE				
Heliotropium	polyphyllum		a	

BROMELIACEAE		
Tillandsia	fasciculata	a
Tillandsia	usneoides	a
CAMPANULACEAE		
Lobelia	paludosa	a
CLUSIACEAE		
Hypericum	brachyphyllum	a
Hypericum	cistifolium	a
Hypericum	fasciculatum	a
Hypericum	reductum	a
Hypericum	tetrapetalum	a
CONVOLVULACEAE		
Evolvulus	sericeus	a
CUPRESSACEAE		
Taxodium	ascendens	g
CYPERACEAE		
Cladium	jamaicense	a
Fuirena	scirpoidea	a
Rhynchospora	decurrens	a
Rhynchospora	latifolia	a
Scleria	baldwinii	a
DENNSTAEDTIACEAE		
Pteridium	aquilinum	a
DROSERACEAE		
Drosera	capillaris	a
ERICACEAE		
Bejaria	racemosa	a
Lyonia	fruticosa	a
Vaccinium	myrsinites	a
ERIOCAULACEAE		
Eriocaulon	decangulare	a
Syngonanthus	flavidulus	a
EUPHORBIACEAE		
Stillingia	sylvatica	a

FABACEAE			
Acacia	pinetorum	a	
Galactia	elliottii	a	
Mimosa	quadrivalvis	a	
FAGACEAE			
Quercus	minima	a	
Quercus	virginiana	a	
GENTIANACEAE			
Sabatia	grandiflora	a	
IRIDACEAE			
Sisyrinchium	nashii	a	
ITEACEAE			
Itea	virginica	a	
LAMIACEAE			
Callicarpa	americana	a	
Scutellaria	arenicola	a	
LAURACEAE			
Persea	palustris	a	
			State
LILIACEAE			listed as
Zephyranthes	simpsonii	a	threatened (LT)
LYCOPODIACEAE			
Lycopodiella	appressa	p	
MALVACEAE			
Urena	lobata	a	
MELASTOMATACEAE			
Rhexia	mariana	a	
MYRICACEAE			
Myrica	cerifera	a	
MYRTACEAE			
Melaleuca	quinquenervia	a	
Psidium	guajava	a	
NARTHECIACEAE			
Aletris	lutea	a	

OSMUNDACEAE			
Osmunda	cinnamomea		p
Osmunda	regalis		p
PINACEAE			
Pinus	elliottii		g
Pinus	palustris		g
PLANTAGINACEAE			
Plantago	sp.		a
POACEAE			
Aristida	spiciformis		a
Aristida	stricta	beyrichiana	a
Dichanthelium	erectifolium		a
Dichanthelium	leucothrix		a
Eustachys	petraea		a
Imperata	cylindrica		a
Paspalum	praecox		a
POLYGALACEAE			
Polygala	balduinii		a
Polygala	cruciata		a
Polygala	cymosa		a
Polygala	grandiflora		a
Polygala	incarnata		a
Polygala	lutea		a
Polygala	ramosa		a
Polygala	setacea		a
RUBIACEAE			
Cephalanthus	occidentalis		a
Psychotria	sulzneri		a
RUTACEAE			
Citrus	sp.		a
SAPINDACEAE			
Acer	rubrum		a
SCHIZAEACEAE			
Lygodium	microphyllum		p

SMILACACEAE			
Smilax	auriculata		a
Smilax	sp.		a
TETRACHONDRACEAE			
Polypremum	procumbens		a
TURNERACEAE			
Piriqueta	cistoides	subsp. Caroliniana	a
VERBENACEAE			
Lantana	camara		a
VERONICACEAE			
Lindernia	dubia	anagallidea	a
Mecardonia	acuminata	subsp. Peninsularis	a
VIOLACEAE			
Viola	lanceolata		a
VITACEAE			
Vitis	rotundifolia		a
Vitis	shuttleworthii		a

LE Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species, which is in danger of extinction throughout all or a significant portion of its range.

LT Listed as Threatened Species. Defined as any species, which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Appendix A

Preliminary Floristic List for Grant-Valkaria Conservation Area (GVCA)
Paul A. Schmalzer and Tammy E. Foster (2004)
Diane Barile, Vincent Michault and Teri Aking (2007)
Surveys of November 26th, 2003, March 22nd, 2004, April 2nd, 2004, March 23rd, 2007, April 18th, 2007, May 16th, 2007 and June 13th, 2007

Note: Species are sorted by Family

CLASS	FAMILY	GENUS	SPECIES	VARIETY	State Listed
p	Blechnaceae	Blechnum	serrulatum		
p	Dennstaedtiaceae	Pteridium	aquilinum		
p	Osmundaceae	Osmunda	cinnamomea		
p	Schizaeaceae	Lygodium	microphyllum		
p	Thelypteridacea	Thelypteris	kunthii		
p	Vittariaceae	Vittaria	lineata		
g	Pinaceae	Pinus	clausa		
g	Pinaceae	Pinus	elliottii	densa	
g	Pinaceae	Pinus	palustris		
a	Agavaceae	Yucca	aloifolia		
a	Agavaceae	Yucca	filamentosa		
a	Alistamataceae	Sagittaria	lancifolia		
a	Anacardiaceae	Rhus	copallinum		
a	Anacardiaceae	Schinus	terebinthifolius		
a	Annonaceae	Asimina	reticulata		
a	Apiaceae	Eryngium	aromaticum		
a	Aquifoliaceae	Ilex	glabra		
a	Arecaceae	Sabal	palmetto		
a	Arecaceae	Serenoa	repens		
a	Asteraceae	Ageratina	jucunda		
a	Asteraceae	Baccharis	halimifolia		
a	Asteraceae	Balduina	angustifolia		
a	Asteraceae	Bidens	alba	radiata	
a	Asteraceae	Carphephorus	corymbosus		
a	Asteraceae	Carphephorus	odoratissimus		
a	Asteraceae	Chrysopsis	scabrella		
a	Asteraceae	Chrysopsis	subulata		
a	Asteraceae	Cirsium	horridulum		
a	Asteraceae	Coreopsis	floridana		
a	Asteraceae	Coreopsis	leavenworthii		
a	Asteraceae	Elephantopus	elatus		

a	Asteraceae	Eupatorium	capillifolium	
a	Asteraceae	Euthamia	caroliniana	
a	Asteraceae	Flaveria	linearis	
a	Asteraceae	Helenium	amarum	
a	Asteraceae	Helenium	pinnatifidum	
a	Asteraceae	Heterotheca	subaxillaris	
a	Asteraceae	Hieracium	megacephalon	
a	Asteraceae	Liatris	tenuifolia	quadriflora
a	Asteraceae	Lygodesmia	aphylla	
a	Asteraceae	Palafoxia	feayi	
a	Asteraceae	Pityopsis	graminifolia	
a	Asteraceae	Pterocaulon	pycnostachyum	
a	Asteraceae	Solidago	odora	chapmanii
a	Asteraceae	Symphyotrichum	dumosum	
a	Boraginaceae	Heliotropium	polyphyllum	
a	Cactaceae	Opuntia	humifusa	
a	Campanulaceae	Lobelia	glandulosa	
a	Caryophyllaceae	Stipulicida	setacea	setacea
a	Chrysobalanaceae	Licania	michauxii	
a	Cistaceae	Helianthemum	corymbosum	
a	Cistaceae	Lechea	divaricata	(LE)
a	Cistaceae	Lechea	torreyi	
a	Clusiaceae	Hypericum	brachyphyllum	
a	Clusiaceae	Hypericum	cistifolium	
a	Clusiaceae	Hypericum	reductum	
a	Clusiaceae	Hypericum	tetrapetalum	
a	Cornaceae	Cornus	foemina	
a	Cyperaceae	Bulbostylis	ciliatifolia	
a	Cyperaceae	Bulbostylis	warei	
a	Cyperaceae	Cladium	jamaicense	
a	Cyperaceae	Cyperus	retrorsus	
a	Cyperaceae	Fimbristylis	cymosa	
a	Cyperaceae	Rhychospora	colorata	
a	Cyperaceae	Rhynchospora	fascicularis	
a	Cyperaceae	Rhynchospora	latifolia	
a	Cyperaceae	Rhynchospora	megalocarpa	
a	Droseraceae	Drosera	capillaris	
a	Empetraceae	Ceratiola	ericoides	
a	Ericaceae	Bejaria	racemosa	
a	Ericaceae	Gaylussacia	dumosa	
a	Ericaceae	Lyonia	fruticosa	
a	Ericaceae	Lyonia	lucida	
a	Ericaceae	Vaccinium	myrsinites	

a	Ericaceae	Vaccinium	stamineum		
a	Ericaulaceae	Eriocaulon	compressum		
a	Eriocaulaceae	Eriocaulon	decangulare		
a	Eriocaulaceae	Lachnocaulon	beyrichianum		
a	Eriocaulaceae	Syngonanthus	flavidulus		
a	Euphorbiaceae	Chamaesyce	hirta		
a	Euphorbiaceae	Stillingia	sylvatica		
a	Fabaceae	Chamaecrista	fasciculata		
a	Fabaceae	Chamaecrista	nictitans		
a	Fabaceae	Crotolaria	purshii		
a	Fabaceae	Dalea	pinnata	adenopoda	
a	Fabaceae	Galactia	elliottii		
a	Fabaceae	Indigofera	caroliniana		
a	Fabaceae	Lupinus	diffusus		
a	Fabaceae	Mimosa	quadrivalis	angustata	
a	Fabaceae	Tephrosia	hispidula		
a	Fagaceae	Quercus	chapmanii		
a	Fagaceae	Quercus	elliottii		
a	Fagaceae	Quercus	geminata		
a	Fagaceae	Quercus	laevis		
a	Fagaceae	Quercus	minima		
a	Fagaceae	Quercus	myrtifolia		
a	Gentianaceae	Sabatia	brevifolia		
a	Gentianaceae	Sabatia	grandiflora		
a	Hypoxidaceae	Hypoxis	juncea		
a	Iridaceae	Sisyrinchium	xerophyllum		
a	Juncaceae	Juncus	repens		
a	Lamiaceae	Conradina	grandiflora		(LE)
a	Lamiaceae	Piloblephis	rigida		
a	Lamiaceae	Trichostema	dichotomum		
a	Lauraceae	Cassytha	filiformis		
a	Lauraceae	Persea	borbonia		
a	Lentibulariaceae	Pinguicula	pumila		
a	Lentibulariaceae	Utriculata	subulata		
a	Linaceae	Linum	medium	texanum	
a	Melastomataceae	Rhexia	mariana		
a	Myricaceae	Myrica	cerifera		
a	Nartheciaceae	Aletris	lutea		
a	Nartheciaceae	Aletris	sp.		
a	Olacaceae	Ximenia	americana		
a	Orchidaceae	Calopogon	barbatus		
a	Orchidaceae	Pteroglossaspis	ecristata		(LT)
a	Orobanchaceae	Buchnera	americana		

a	Osmundaceae	Osmunda	cinnamomea	
a	Poaceae	Andropogon	brachystachyus	
a	Poaceae	Andropogon	glomeratus	hirsutior
a	Poaceae	Andropogon	gyrans	
a	Poaceae	Andropogon	ternarius	
a	Poaceae	Andropogon	virginicus	glaucus
a	Poaceae	Aristida	gyrans	
a	Poaceae	Aristida	patula	
a	Poaceae	Aristida	purpurascens	purpurascens
a	Poaceae	Aristida	spiciformis	
a	Poaceae	Aristida	stricta	
a	Poaceae	Cenchrus	spinifex	
a	Poaceae	Ctenium	aromaticum	
a	Poaceae	Dactyloctenium	aegyptium	
a	Poaceae	Dicanthelium	sphaerocarpon	
a	Poaceae	Dichanthelium	erectifolium	
a	Poaceae	Eragrostis	pectinacea	pectinacea
a	Poaceae	Eremochloa	ophioroides	
a	Poaceae	Eustachys	petrae	
a	Poaceae	Muhlenbergia	capillaris	
a	Poaceae	Panicum	tenerum	
a	Poaceae	Rhynchelytrum	repens	
a	Poaceae	Saccharum	giganteum	
a	Poaceae	Setaria	parviflora	
a	Poaceae	Sorghastrum	secundum	
a	Poaceae	Spartina	bakeri	
a	Poaceae	Sporobolus	indicus	
a	Poaceae	Sporobolus	junceus	
a	Polygalaceae	Polygala	cymosa	
a	Polygalaceae	Polygala	grandiflora	
a	Polygalaceae	Polygala	incarnata	
a	Polygalaceae	Polygala	lutea	
a	Polygalaceae	Polygala	nana	
a	Polygalaceae	Polygala	rugelii	
a	Polygalaceae	Polygala	setacea	
a	Polygonaceae	Polygonella	gracilis	
a	Pontederiaceae	Pontederia	cordata	
a	Rubiaceae	Richardia	scabra	
a	Rubiaceae	Spermacoce	verticillata	
a	Ruscaceae	Nolina	atopocarpa	
a	Smilacaceae	Smilax	auriculata	
a	Tetrachondraceae	Polypremum	procumbens	
a	Theaceae	Gordonia	lasianthus	

(LT)

a	Verbenaceae	Callicarpa	americana	
a	Veronicaceae	Gratiola	hispida	
a	Veronicaceae	Lindernia	dubia	anagallidea
a	Veronicaceae	Scoparia	dulcis	
a	Violaceae	Viola	lanceolata	
a	Violaceae	Viola	palmata	
a	Vitaceae	Vitis	rotundifolia	
a	Xyridaceae	Xyris	brevifolia	
a	Xyridaceae	Xyris	smalliana	

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LT Listed as Threatened Species. Defined as any species, which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Revised Floristic List for Micco Scrub Sanctuary
EEL Records and Surveys of August 20, 2003 and March 29, 2004

State Listed

CLASS	FAMILY	GENUS	SPECIES	VARIETY
p	Blechnaceae	Blechnum	serrulatum	
p	Blechnaceae	Woodwardia	areolata	
p	Blechnaceae	Woodwardia	virginica	
p	Polypodiaceae	Phlebodium	aureum	
p	Schizaeaceae	Lygodium	microphyllum	
p	Thelypteridaceae	Thelypteris	palustris	
g	Pinaceae	Pinus	clausa	
g	Pinaceae	Pinus	elliottii	densa
g	Pinaceae	Pinus	palustris	
g	Taxodiaceae	Taxodium	ascendens	
a	Agavaceae	Yucca	filamentosa	
a	Alismataceae	Sagittaria	lancifolia	
a	Alismataceae	Sagittaria	latifolia	
a	Amarnathaceae	Iresine	diffusa	
a	Amaryllidaaceae	Hymenocallis	latifolia	
a	Anacardiaceae	Rhus	copallinum	
a	Anacardiaceae	Schinus	terebinthifolius	
a	Anacardiaceae	Toxicodendron	radicans	
a	Annonaceae	Asimina	reticulata	
a	Apiaceae	Eryngium	aromaticum	
a	Apiaceae	Eryngium	yuccifolium	
a	Aquifoliaceae	Ilex	cassine	
a	Aquifoliaceae	Ilex	glabra	
a	Aquifoliaceae	Ilex	vomitoria	
a	Arecaceae	Sabal	palmetto	
a	Arecaceae	Serenoa	repens	
a	Asteraceae	Ambrosia	artemisiifolia	
a	Asteraceae	Baccharis	halimifolia	
a	Asteraceae	Bidens	alba	radiata
a	Asteraceae	Bidens	bipinnata	
a	Asteraceae	Carphephorus	carnosus	
a	Asteraceae	Carphephorus	corymbosus	
a	Asteraceae	Chaptalia	tomentosa	
a	Asteraceae	Cirsium	horridulum	
a	Asteraceae	Conyza	canadensis	
a	Asteraceae	Coreopsis	leavenworthii	
a	Asteraceae	Elephantopus	elatus	
a	Asteraceae	Erechtites	hieracifolia	
a	Asteraceae	Erigeron	vernus	
a	Asteraceae	Eupatorium	capillifolium	
a	Asteraceae	Eupatorium	mohrii	
a	Asteraceae	Euthamia	caroliniana	

a	Asteraceae	Helenium	amarum	
a	Asteraceae	Heterotheca	subaxillaris	
a	Asteraceae	Hieracium	megacephalon	
a	Asteraceae	Liatris	chapmanii	
a	Asteraceae	Lygodesmia	aphylla	
a	Asteraceae	Marshallia	tenuifolia	
a	Asteraceae	Oclemena	reticulata	
a	Asteraceae	Palafoxia	feayi	
a	Asteraceae	Pityopsis	graminifolia	
a	Asteraceae	Pluchea	foetida	
a	Asteraceae	Pluchea	rosea	
a	Asteraceae	Pterocaulon	pycnostachyum	
a	Asteraceae	Solidago	odora	chapmanii
a	Asteraceae	Symphyotrichum	carolinianum	
a	Bignoniaceae	Campsis	radicans	
a	Brassicaceae	Lepidium	virginicum	
a	Bromeliaceae	Tillandsia	recurvata	
a	Cactaceae	Opuntia	humifusa	
a	Caryophyllaceae	Stipulicida	setacea	
a	Chrysobalanaceae	Licania	michauxii	
a	Cistaceae	Helianthemum	corymbosum	
a	Cistaceae	Lechea	deckertii	
a	Cistaceae	Lechea	torreyi	
a	Clusiaceae	Hypericum	cistifolium	
a	Clusiaceae	Hypericum	fasciculatum	
a	Clusiaceae	Hypericum	hypericoides	
a	Clusiaceae	Hypericum	reductum	
a	Clusiaceae	Hypericum	tetrapetalum	
a	Commelinaceae	Commelina	communis	
a	Cyperaceae	Bulbostylis	ciliatifolia	
a	Cyperaceae	Cyperus	retrorsus	
a	Cyperaceae	Rhynchospora	colorata	
a	Cyperaceae	Rhynchospora	megalocarpa	
a	Cyperaceae	Scleria	triglomerata	
a	Droseraceae	Drosera	capillaris	
a	Ericaceae	Bejaria	racemosa	
a	Ericaceae	Gaylussacia	dumosa	
a	Ericaceae	Lyonia	ferruginea	
a	Ericaceae	Lyonia	fruticosa	
a	Ericaceae	Lyonia	lucida	
a	Ericaceae	Vaccinium	darrowi	
a	Ericaceae	Vaccinium	myrsinites	
a	Eriocaulaceae	Eriocaulon	compressum	
a	Eriocaulaceae	Eriocaulon	decangulare	
a	Eriocaulaceae	Eriocaulon	lineare	
a	Eriocaulaceae	Lachnocaulon	anceps	

a	Eriocaulaceae	Syngonanthus	flavidulus		
a	Euphorbiaceae	Cnidoscolus	stimulosus		
a	Euphorbiaceae	Stillingia	sylvatica		
a	Fabaceae	Chamaecrista	fasciculata		
a	Fabaceae	Chamaecrista	nictitans		
a	Fabaceae	Crotolaria	rotundifolia		
a	Fabaceae	Galactia	elliottii		
a	Fabaceae	Indigofera	pilosa		
a	Fabaceae	Lupinus	diffusus		
a	Fabaceae	Mimosa	quadrivalis		
a	Fagaceae	Quercus	chapmanii		
a	Fagaceae	Quercus	elliottii		
a	Fagaceae	Quercus	geminata		
a	Fagaceae	Quercus	laurifolia		
a	Fagaceae	Quercus	minima		
a	Fagaceae	Quercus	myrtifolia		
a	Fagaceae	Quercus	virginiana		
a	Gentianaceae	Sabatia	brevifolia		
a	Gentianaceae	Sabatia	grandiflora		
a	Haemodoraceae	Lachnanthes	caroliniana		
a	Haloragaceae	Proserpinaca	pectinata		
a	Hypoxidaceae	Hypoxis	juncea		
a	Iridaceae	Sisyrinchium	angustifolium		
a	Iridaceae	Sisyrinchium	nashii		
a	Iteaceae	Itea	virginica		
a	Juncaceae	Juncus	marginatus		
a	Lamiaceae	Piloblephis	rigida		
a	Lamiaceae	Trichostema	dichotomum		
a	Lauraceae	Persea	borbonia		
a	Lentibulariaceae	Uticularia	subulata		
a	Malvaceae	Urena	lobata		
a	Melastomataceae	Rhexia	mariana		
a	Melastomataceae	Rhexia	nuttallii		
a	Myricaceae	Myrica	cerifera		
a	Nartheciaceae	Aletris	lutea		
a	Olacaceae	Ximenia	americana		
a	Onagraceae	Gaura	angustifolia		
a	Onagraceae	Ludwigia	maritima		
a	Onagraceae	Ludwigia	peruviana		
a	Onagraceae	Ludwigia	suffruticosa		
a	Orchidaceae	Pteroglossaspis	ecristata		(LT)
a	Orobanchaceae	Agalinus	filifolia		
a	Orobanchaceae	Seymeria	pectinata		
a	Phytolaccaceae	Phytolacca	americana		
a	Poaceae	Amphicarpum	muhlenbergianum		
a	Poaceae	Andropogon	virginicus	glaucus	

a	Poaceae	Aristida	palustris	
a	Poaceae	Aristida	patula	
a	Poaceae	Aristida	spiciformis	
a	Poaceae	Aristida	stricta	
a	Poaceae	Cenchrus	spinifex	
a	Poaceae	Ctenium	aromaticum	
a	Poaceae	Eragrostis	elliottii	
a	Poaceae	Eustachys	petrae	
a	Poaceae	Panicum	hemitomon	
a	Poaceae	Paspalum	urvillei	
a	Poaceae	Setaria	parviflora	
a	Poaceae	Spartina	bakeri	
a	Polygalaceae	Polygala	cruciata	
a	Polygalaceae	Polygala	cymosa	
a	Polygalaceae	Polygala	grandiflora	
a	Polygalaceae	Polygala	lutea	
a	Polygalaceae	Polygala	nana	
a	Polygalaceae	Polygala	ramosa	
a	Polygalaceae	Polygala	rugelii	
a	Polygalaceae	Polygala	setacea	
a	Polygonaceae	Polygonella	ciliata	
a	Pontederiaceae	Pontederia	lanceolata	
a	Rosaceae	Rubus	cuneifolius	
a	Rubiaceae	Diodia	teres	
a	Rubiaceae	Houstonia	procumbens	
a	Rubiaceae	Spermacoce	assurgens	
a	Rubiaceae	Spermacoce	vericillata	
a	Rutaceae	Zanthoxylum	clava-herculis	
a	Sapindaceae	Acer	rubrum	
a	Sapotaceae	Sideroxylon	tenax	
a	Smilacaceae	Smilax	auriculata	
a	Smilacaceae	Smilax	bona-nox	
a	Smilacaceae	Smilax	laurifolia	
a	Tetrachondraceae	Polypremum	procumbens	
a	Theaceae	Gordonia	lasianthus	
a	Turneraceae	Piriqueta	cistoides	subsp. caroliniana
a	Typhaceae	Typha	latifolia	
a	Verbenaceae	Callicarpa	americana	
a	Verbenaceae	Lantana	camara	
a	Verbenaceae	Phyla	nodiflora	
a	Veronicaceae	Gratiola	ramosa	
a	Veronicaceae	Linaria	floridana	
a	Veronicaceae	Scoparia	dulcis	
a	Violaceae	Viola	lanceolata	
a	Violaceae	Viola	primulifolia	
a	Vitaceae	Parthenocissus	quinquefolia	

a	Vitaceae	Vitis	rotundifolia	
a	Xyridaceae	Xyris	ambigua	
a	Xyridaceae	Xyris	caroliniana	
a	Xyridaceae	Xyris	fimbriata	

LE Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species, which is in danger of extinction throughout all or a significant portion of its range.

LT Listed as Threatened Species. Defined as any species, which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Appendix I : Historical Aerials Related to SBCSE

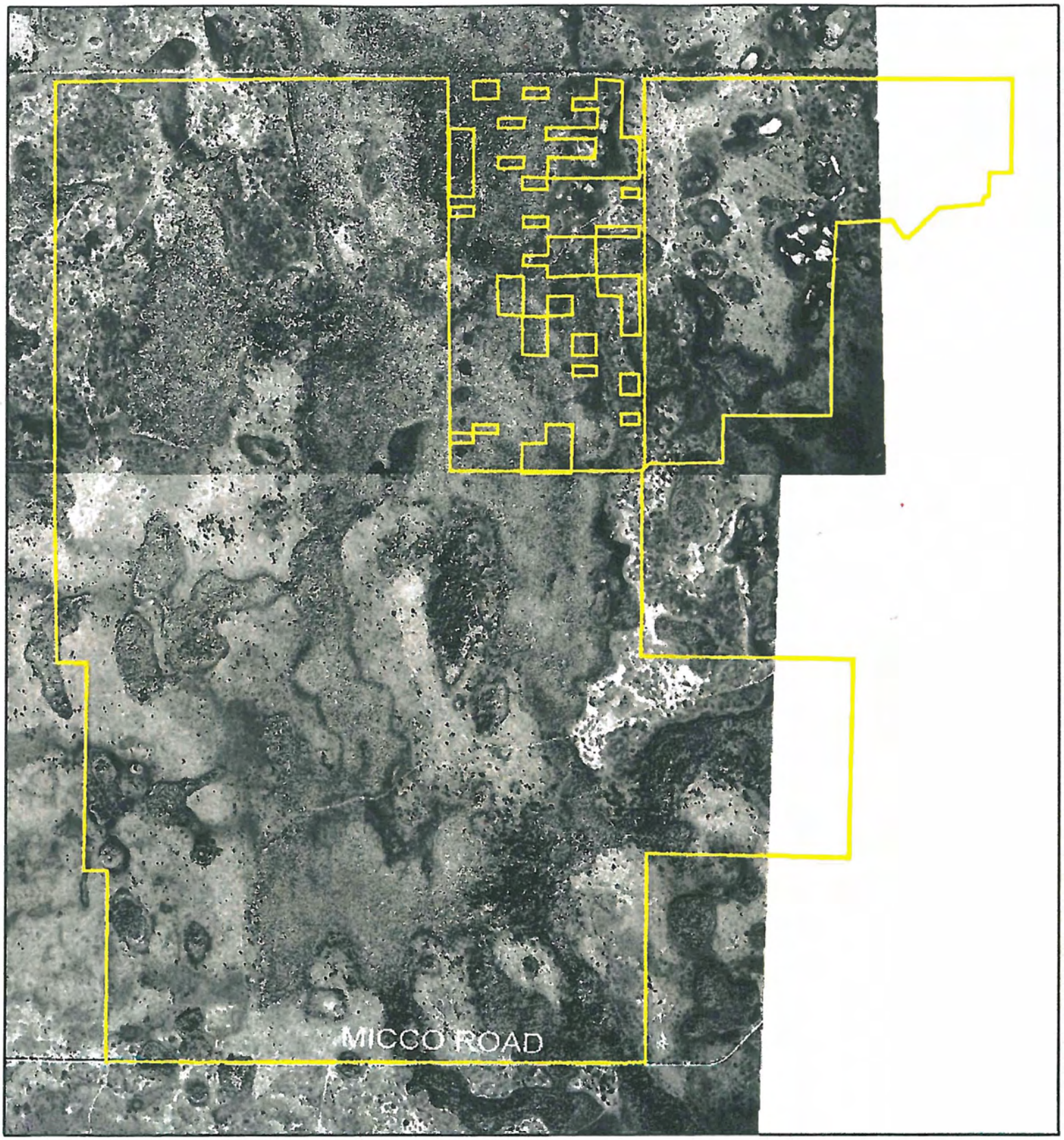
Grant Flatwoods Sanctuary - south

Followed by

Grant Flatwoods Sanctuary – north

Followed by

Micco Scrub Sanctuary



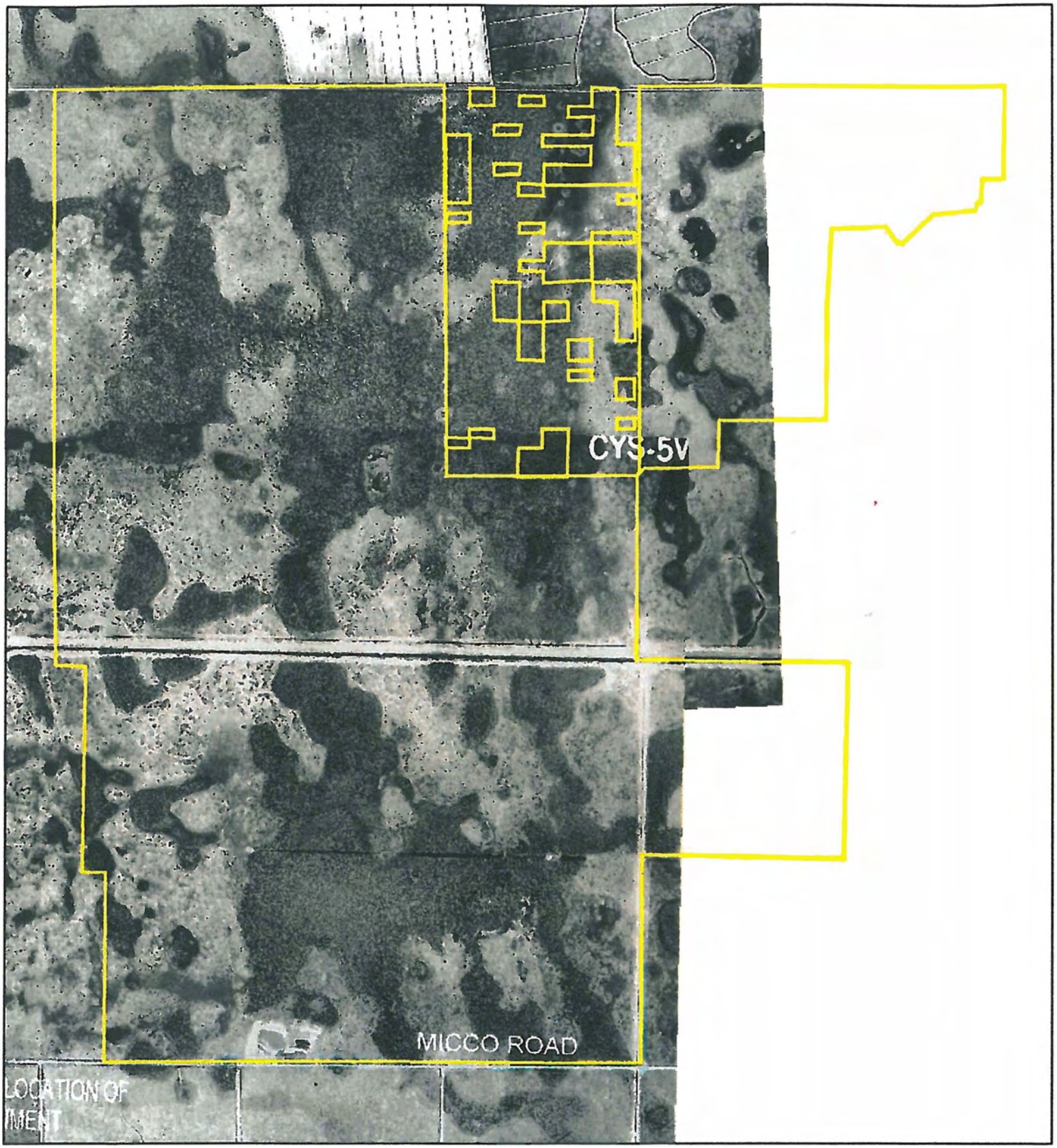
*Note: Aerial incomplete to the east

GFS Boundary

0 1,750 3,500 7,000 Feet

N

1943 Sanctuary Aerial



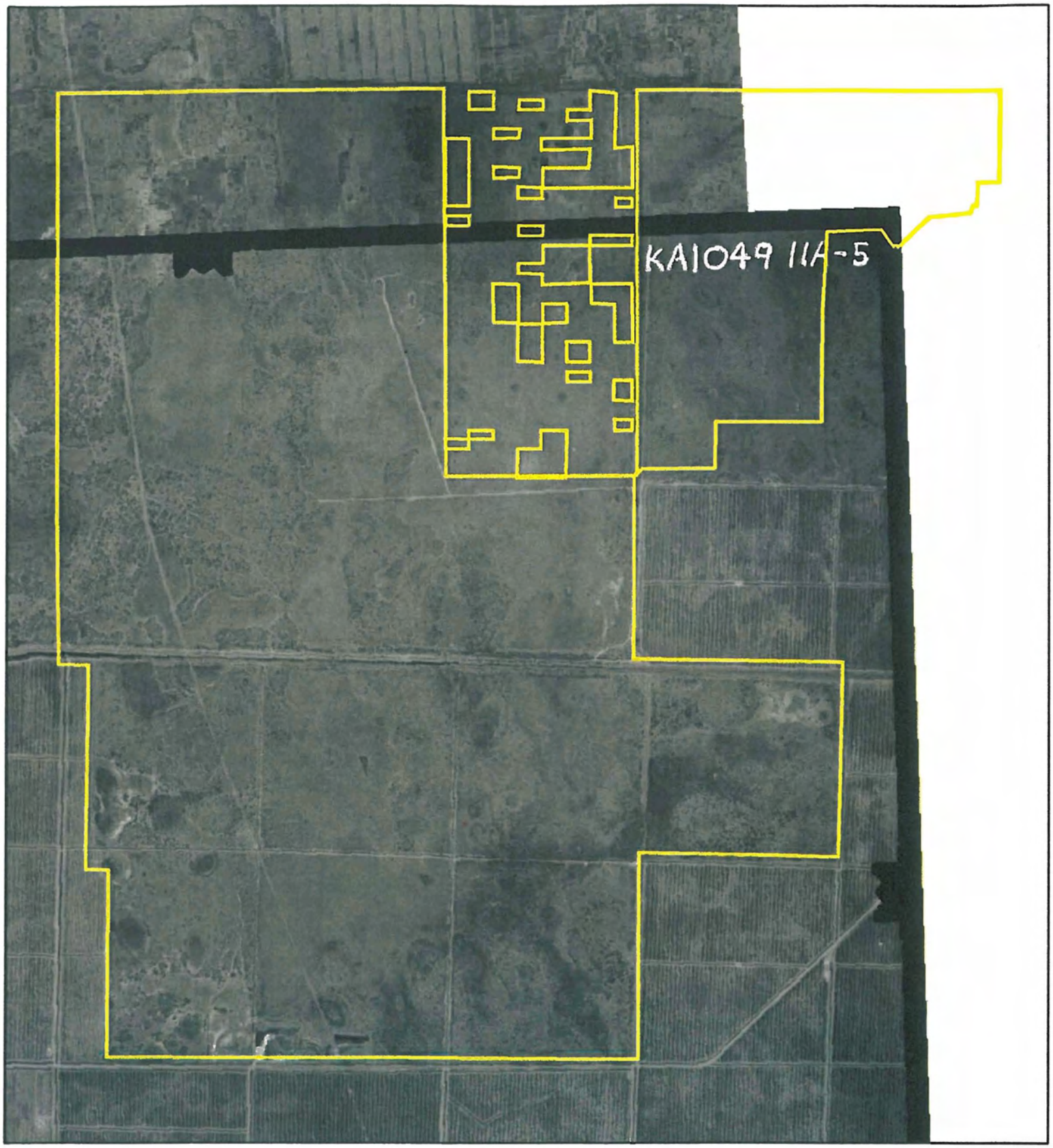
*Note: Aerial incomplete to the east

GFS Boundary

0 1,700 3,400 6,800 Feet

N

1958 Sanctuary Aerial



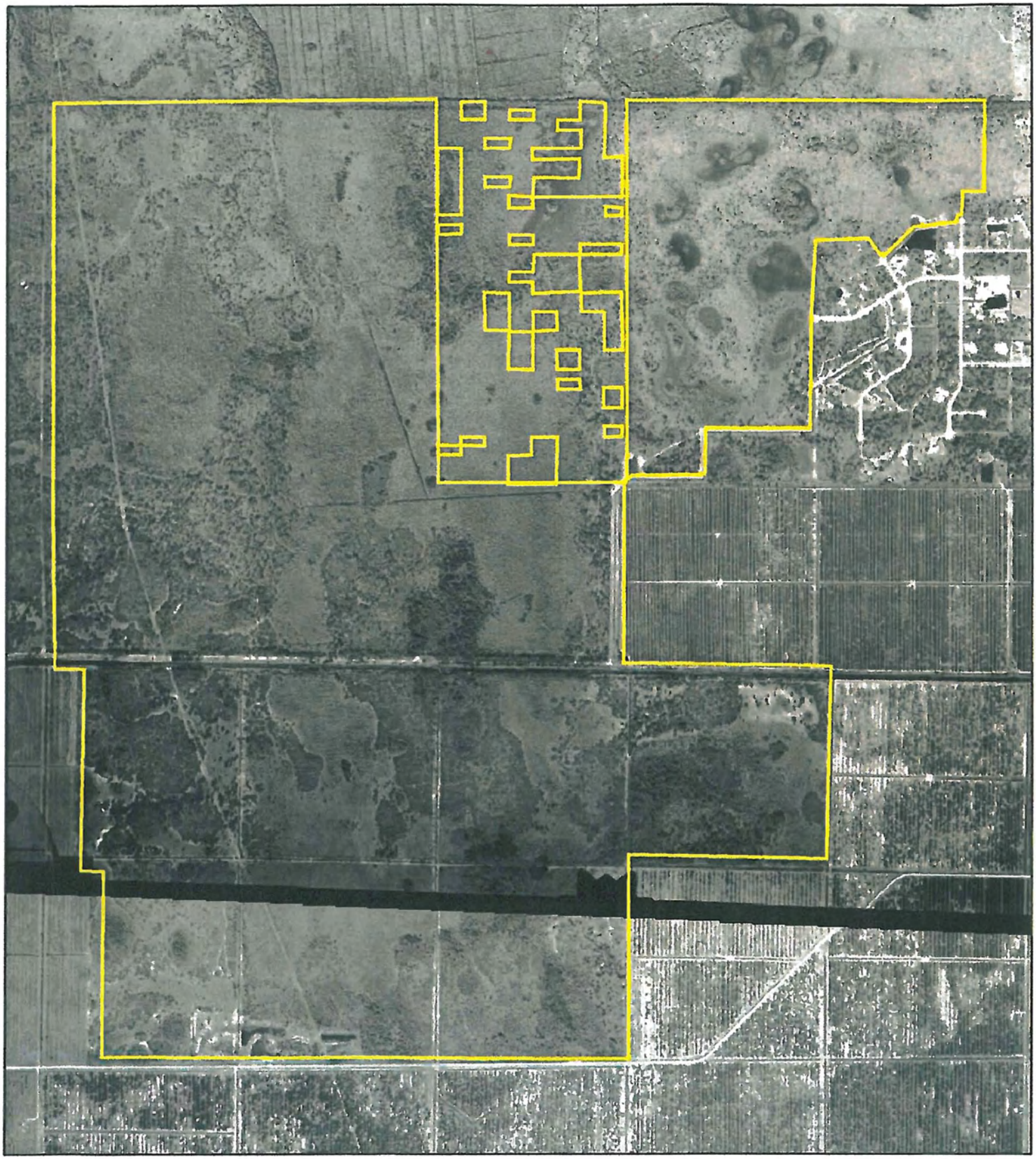
*Note: Aerial incomplete to the north east

GFS Boundary

0 1,750 3,500 7,000 Feet

N

1972 Sanctuary Aerial

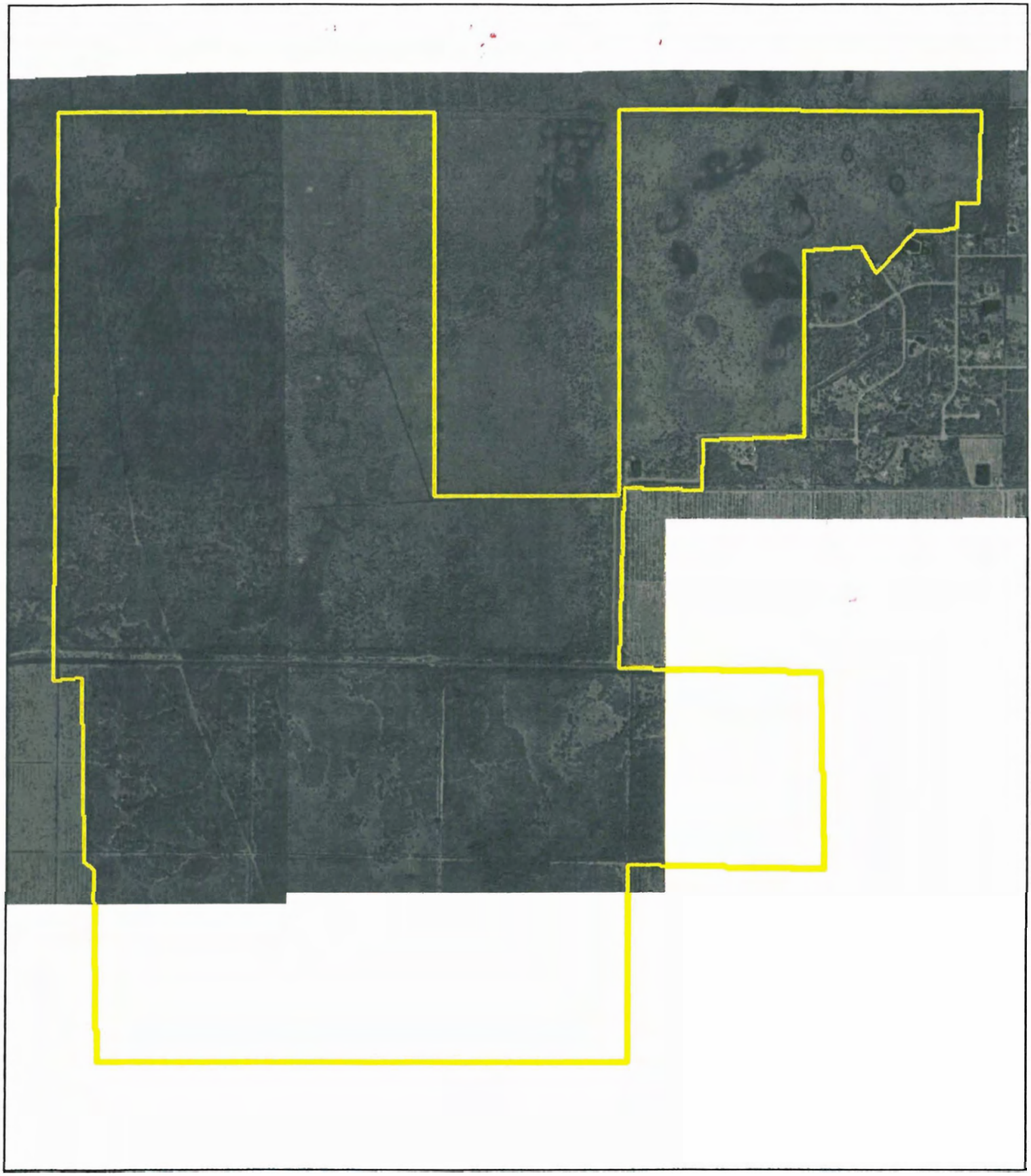


GFS Boundary

0 1,750 3,500 7,000 Feet

N

1983 Sanctuary Aerial



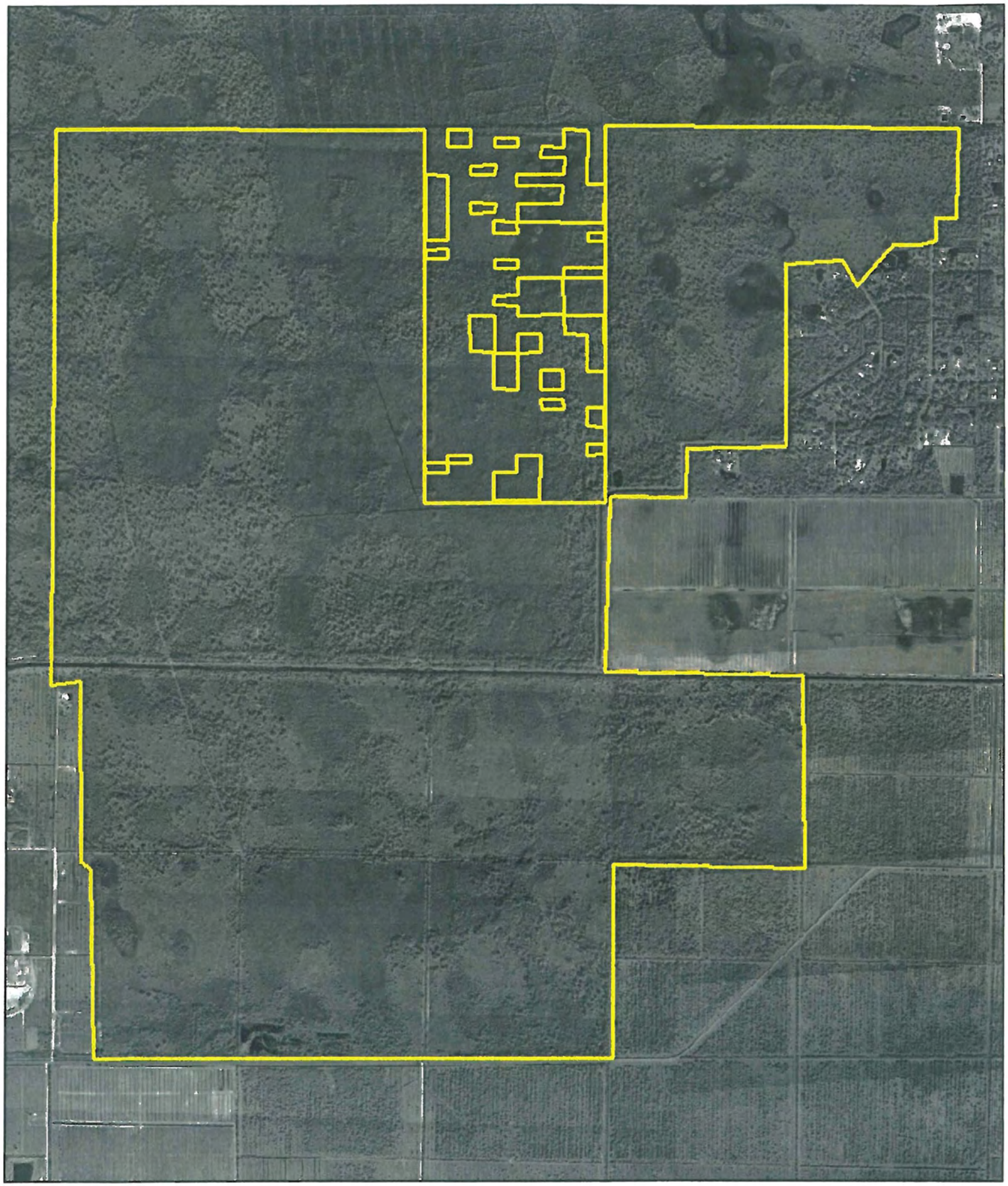
*Note: Aerial incomplete to the south/ south east

GFS Boundary

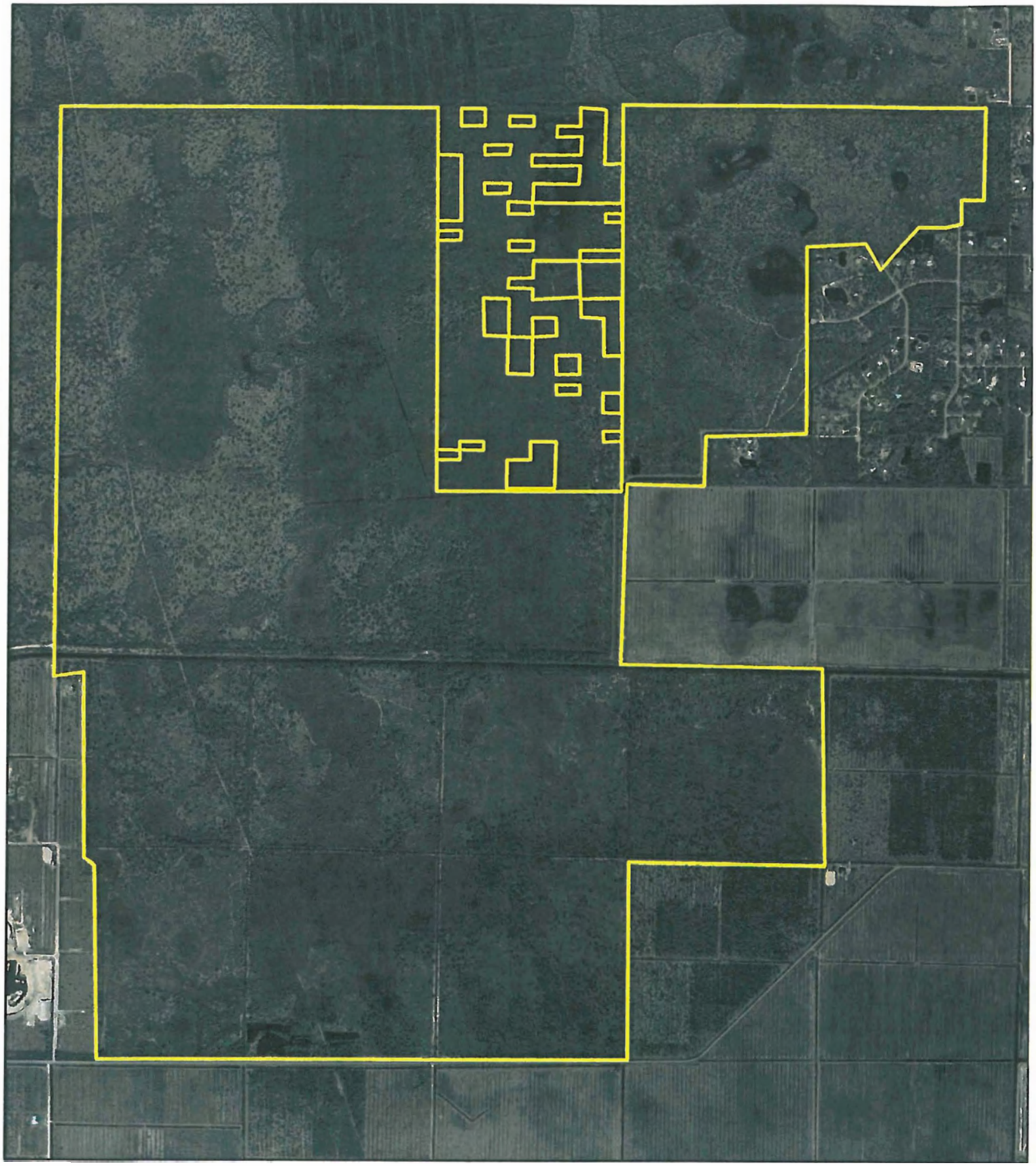
0 1,100 2,200 4,400 Feet

N

1993 Sanctuary Aerial



2000 Sanctuary Aerial

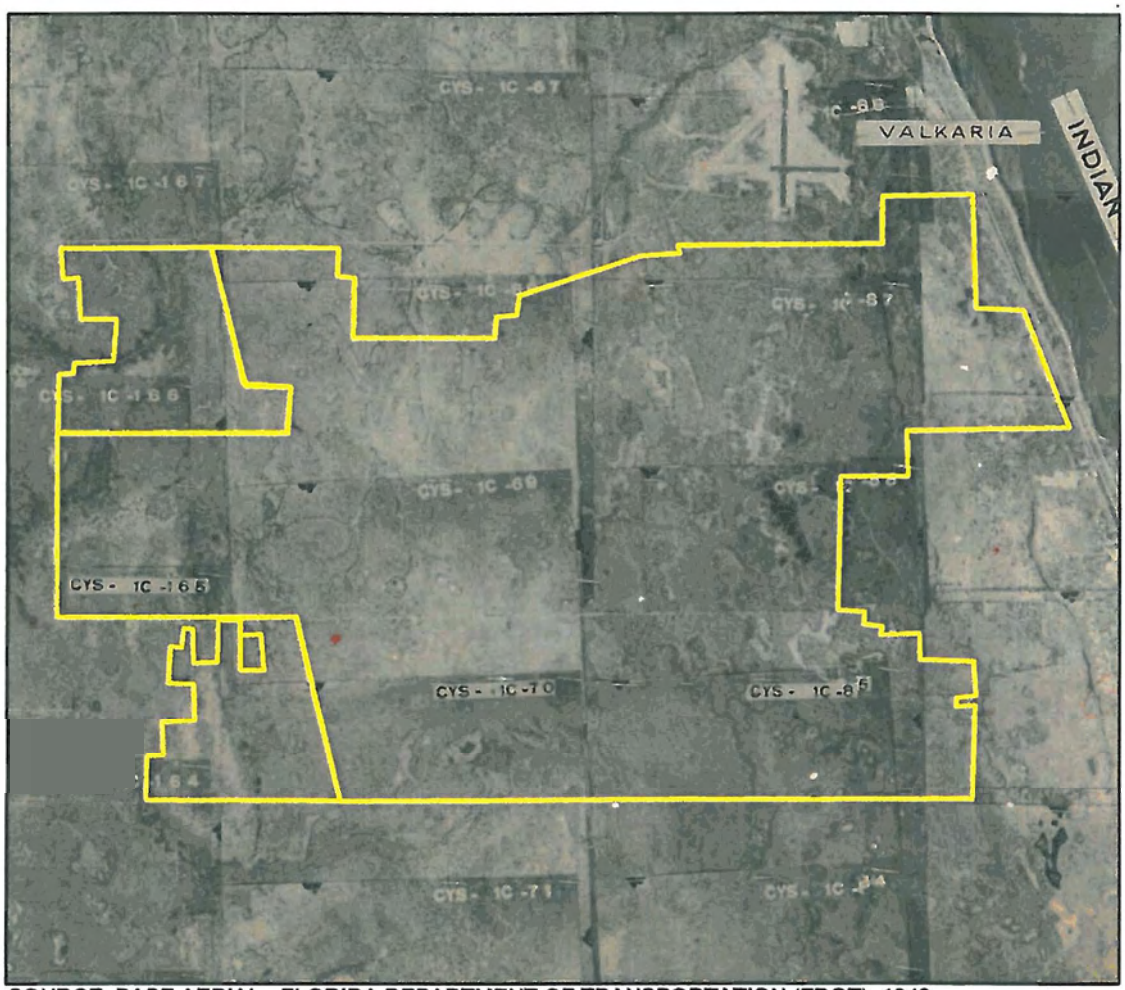


GFS Boundary

0 1,100 2,200 4,400 Feet

N

2006 Sanctuary Aerial

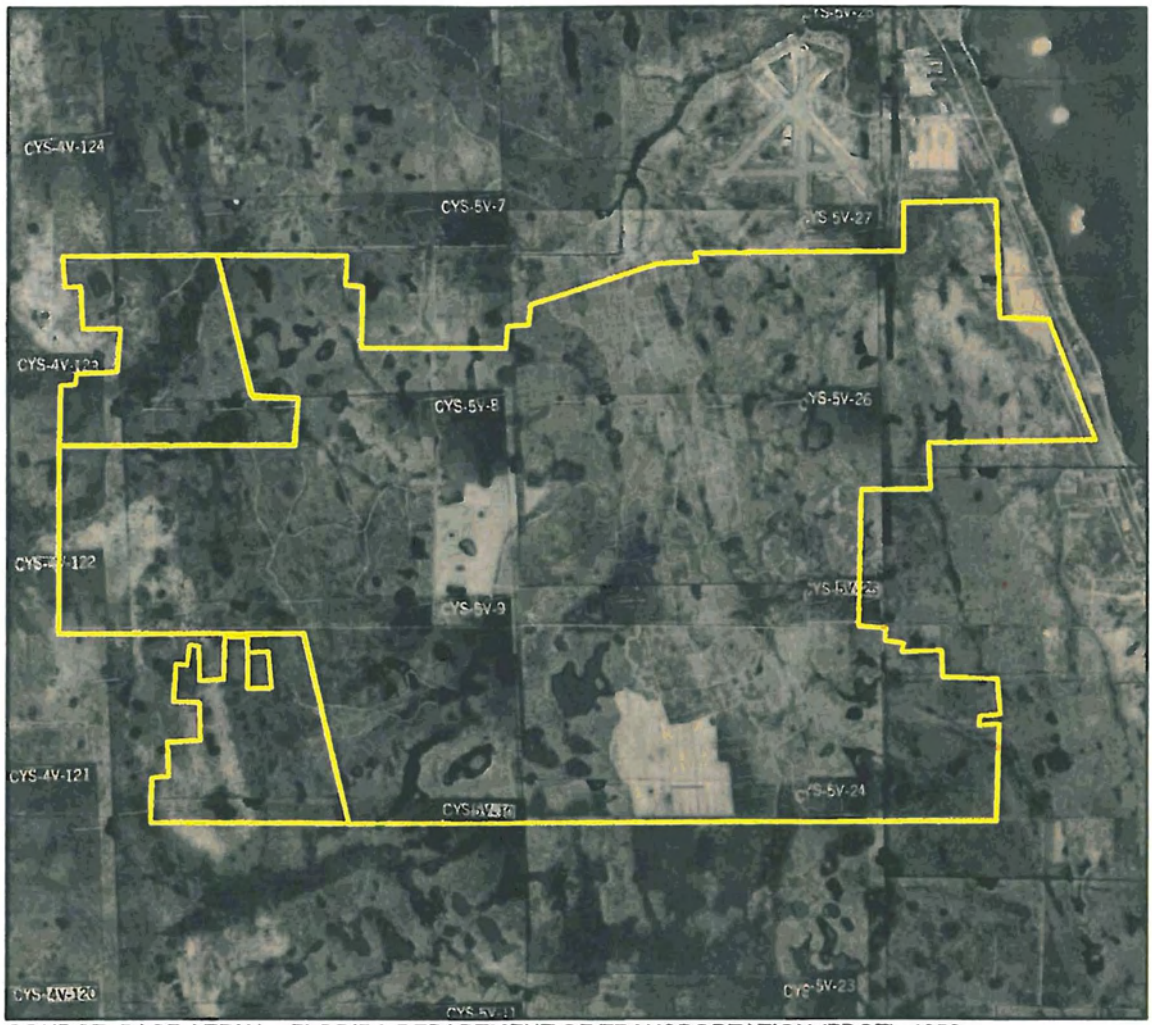


SOURCE: BASE AERIAL - FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT), 1943

0 0.5 1 2 Miles

N
W E
S

Boundary

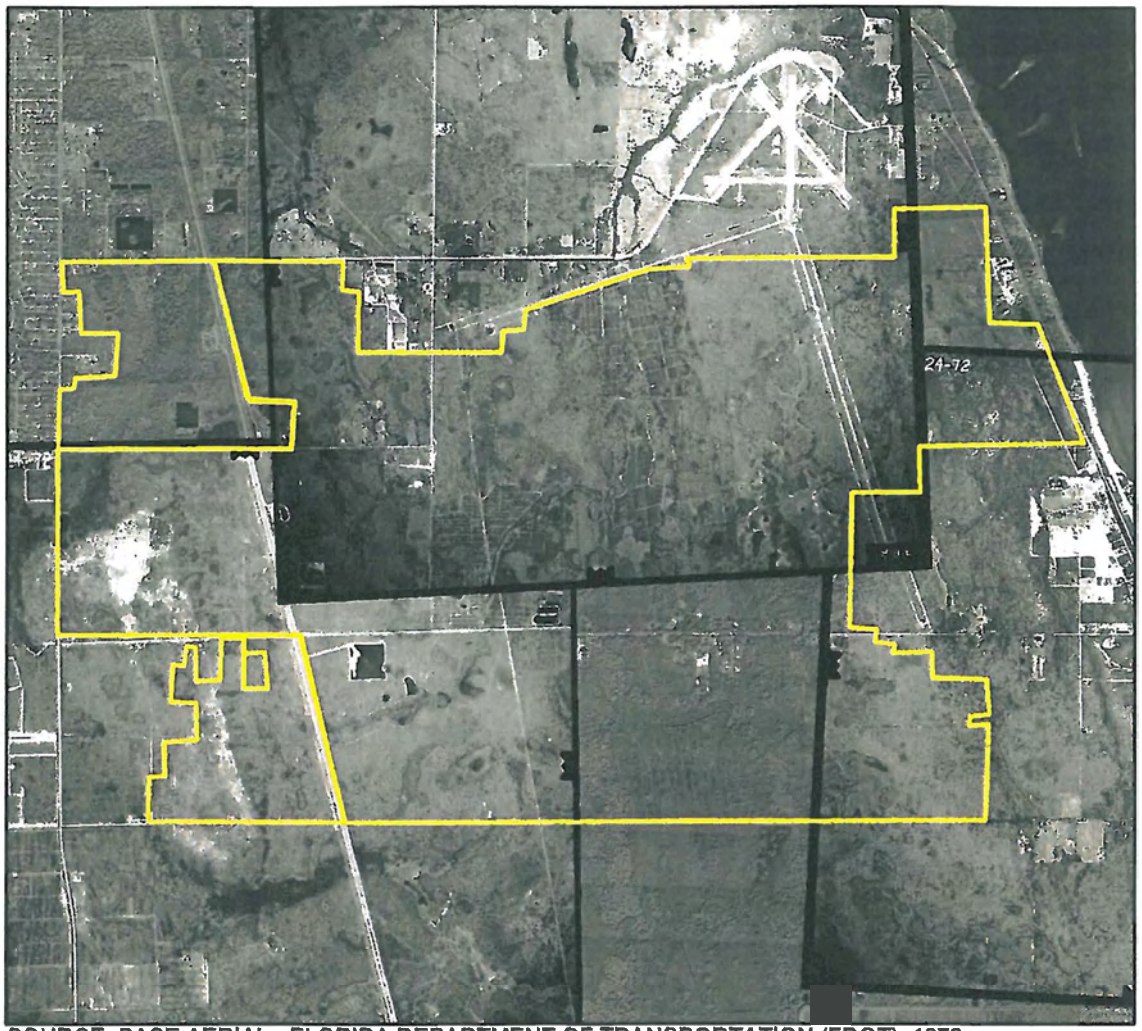


SOURCE: BASE AERIAL - FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT), 1958

0 5,600 11,200 Miles

N
W E
S

Boundary

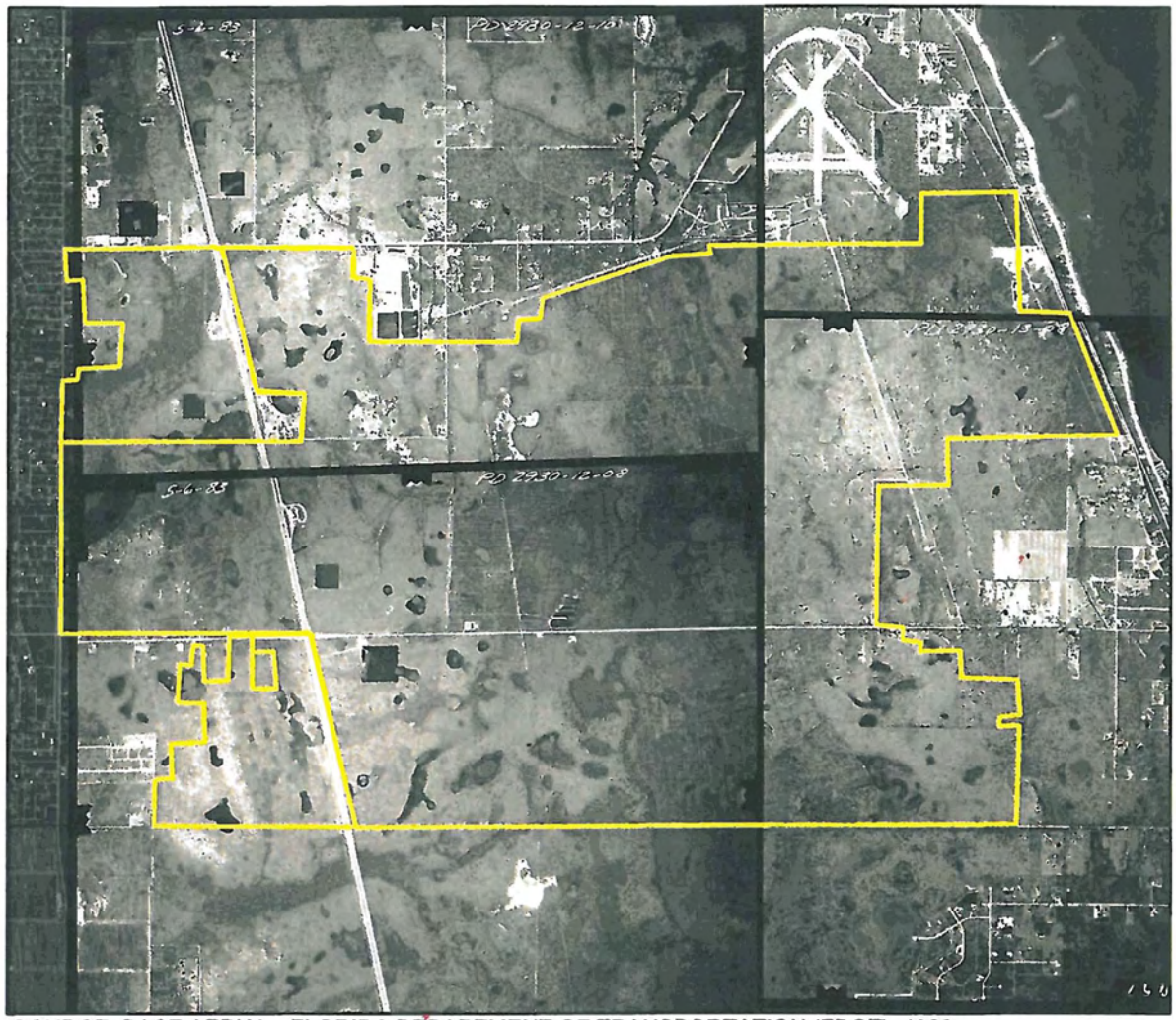


SOURCE: BASE AERIAL - FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT), 1972

0 0.5 1 2 Miles

N
W E
S

Boundary

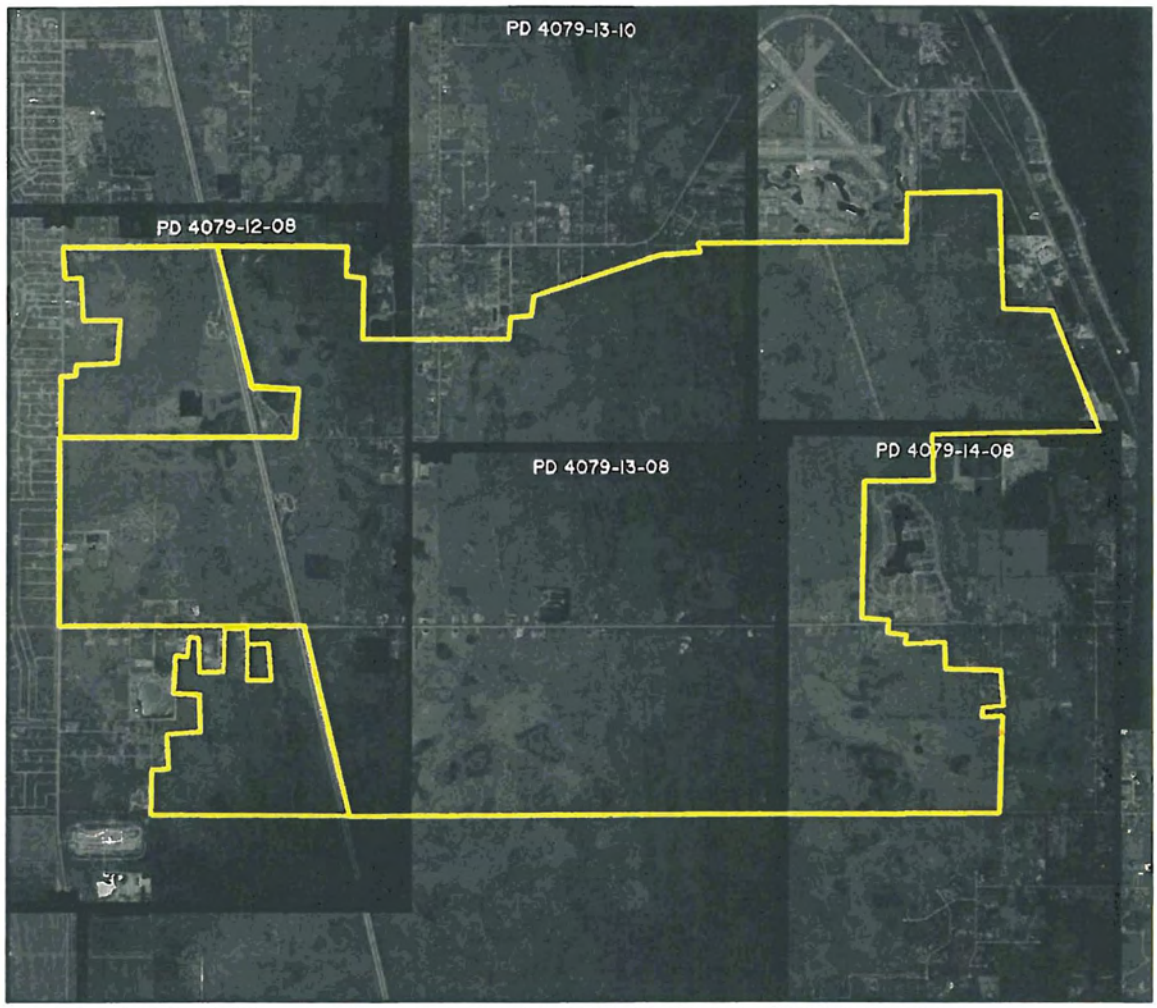


SOURCE: BASE AERIAL - FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT), 1983

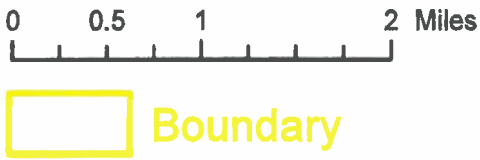
0 0.5 1 2 Miles

N
W E
S

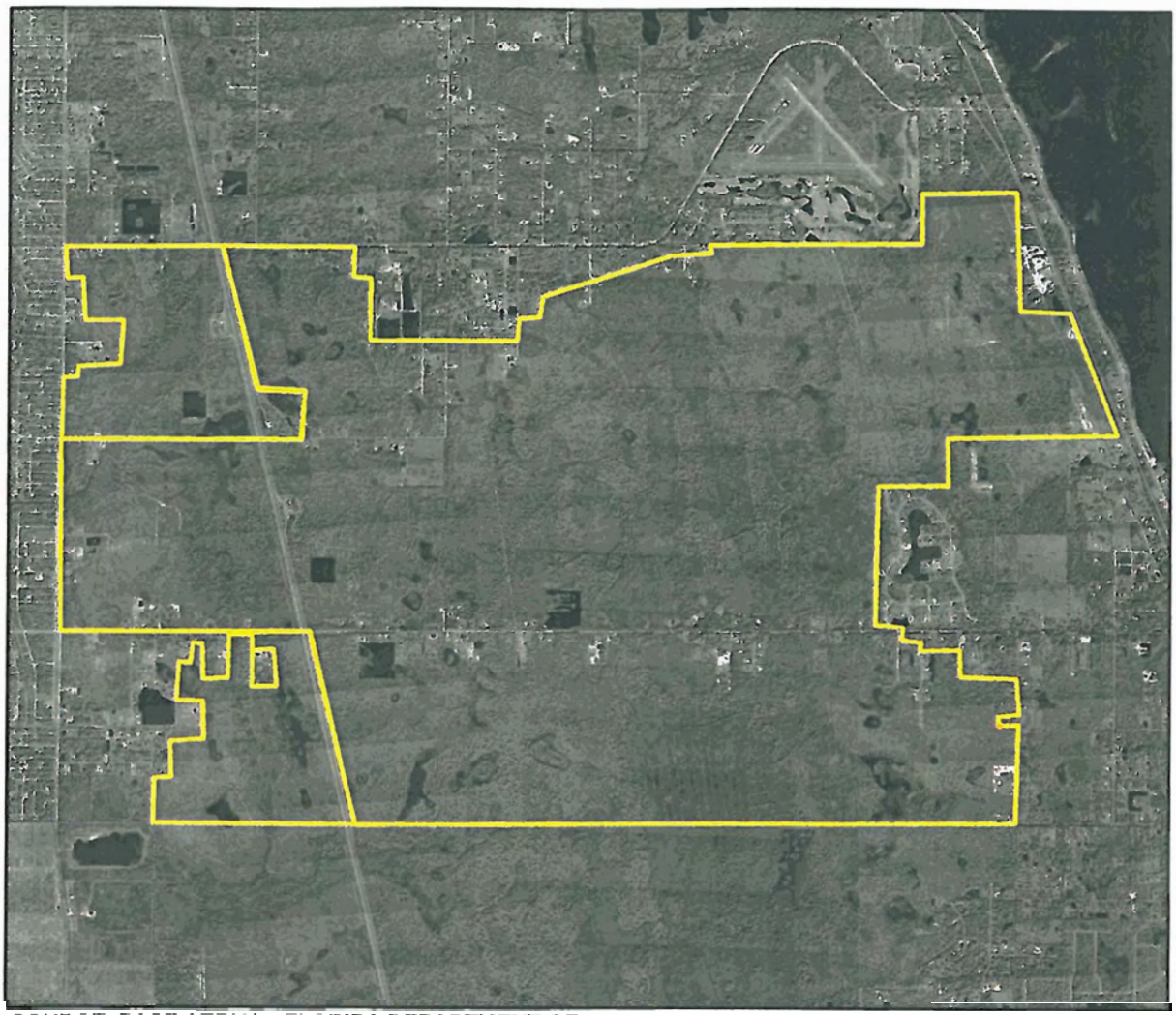
Boundary



SOURCE: BASE AERIAL - FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT), 1993



Boundary

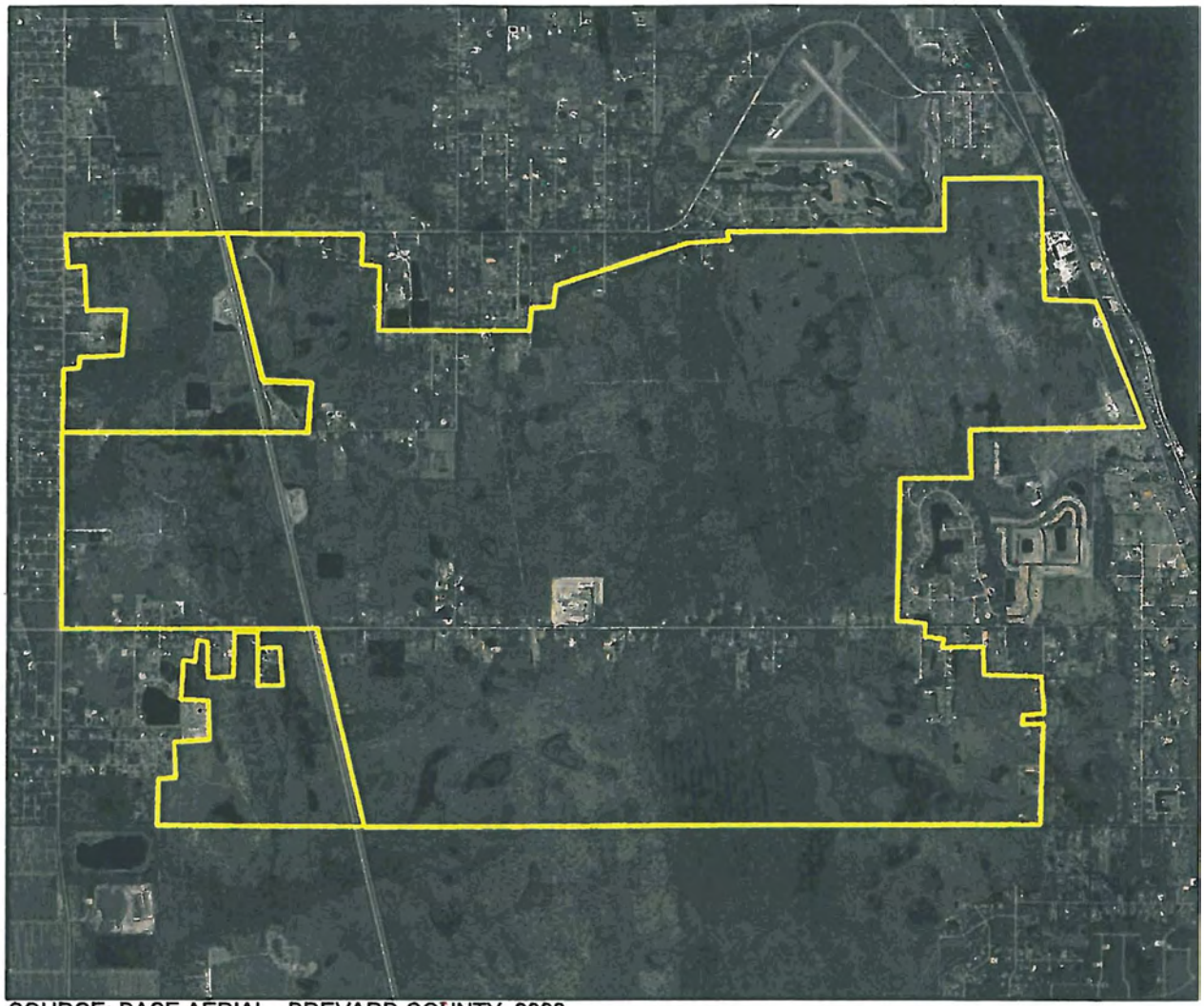


SOURCE: BASE AERIAL - FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT), 2000

0 0.5 1 2 Miles

N
W E
S

Boundary

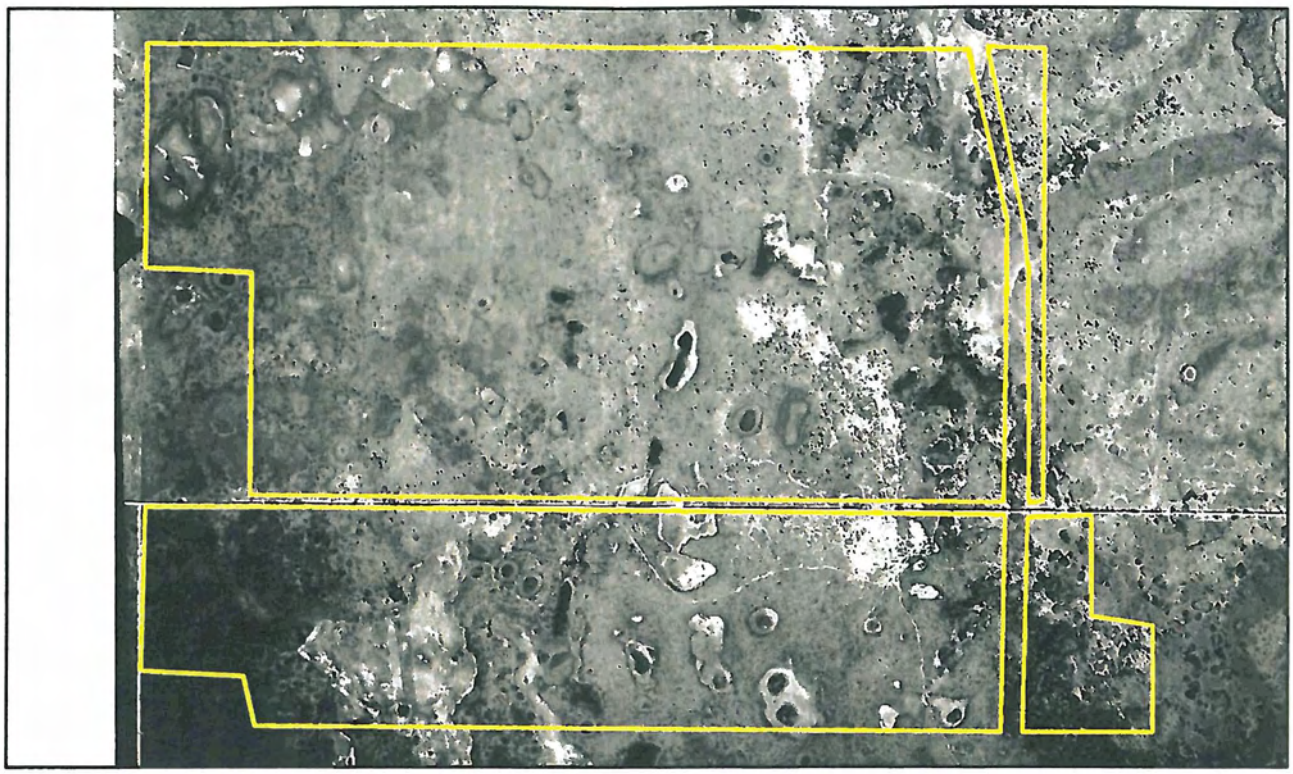


SOURCE: BASE AERIAL - BREVARD COUNTY, 2006

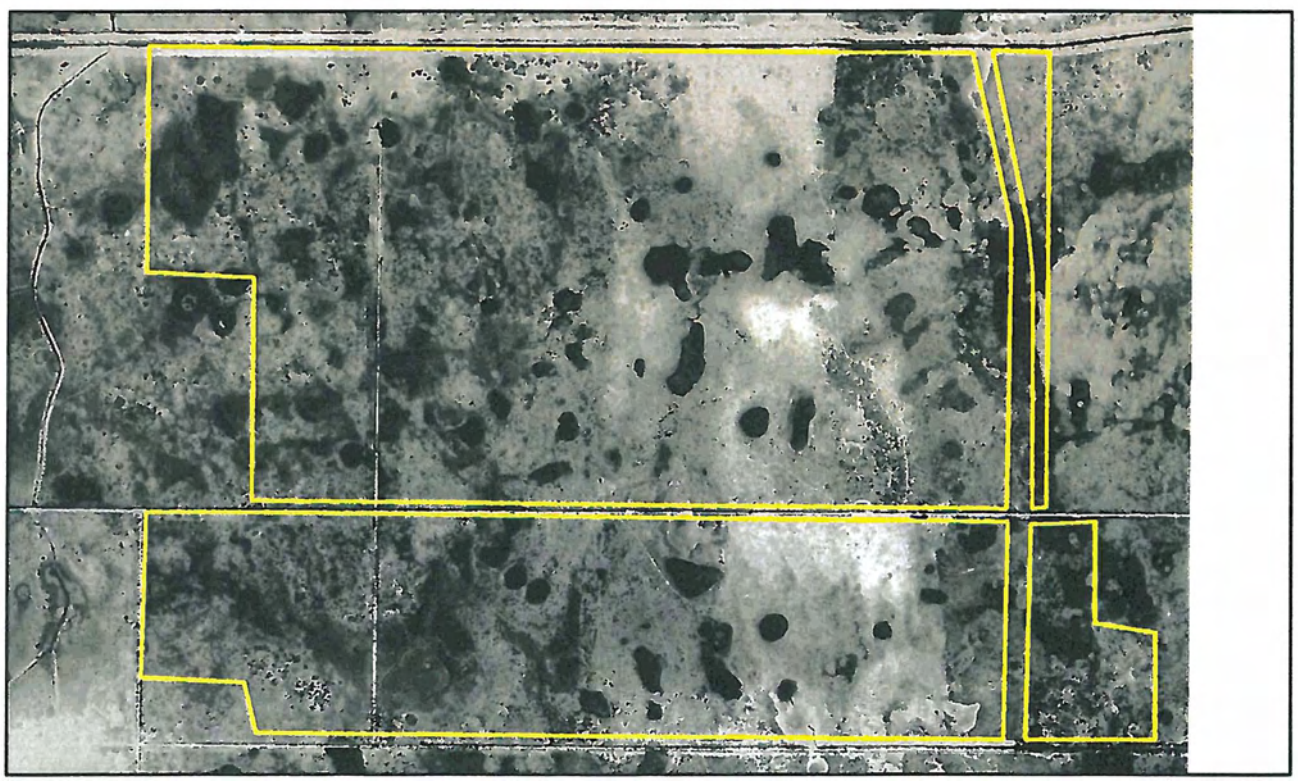
0 0.5 1 2 Miles

N
W E
S

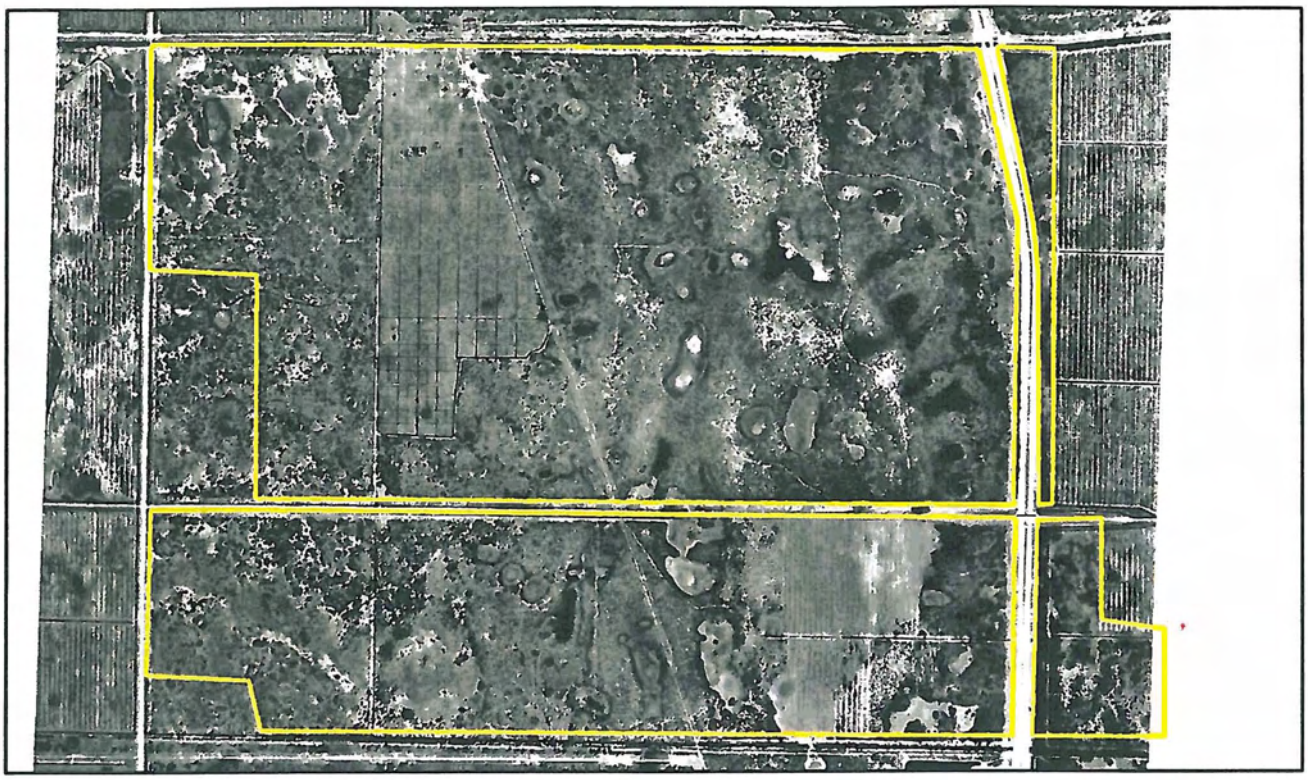
Boundary



1943



1958



1972

1989

Appendix J : Scrub Management Guidelines

Florida Fish and Wildlife Conservation Commission
620 South Meridian Street, Tallahassee, FL 32399-1600

AGENCY GUIDELINE DOCUMENT

Title: Scrub Management Guidelines for Peninsular Florida: Using the Scrub-Jay as an Umbrella Species
D.O.: Division of Habitat and Species Conservation
Date: June 2009
Note: This document is subject to update after further review.

SUMMARY:

This document provides management guidelines using Florida scrub-jay habitat requirements as the basis for the restoration and management of scrub habitats in the Florida peninsula (defined as the mainland south of an imaginary line from Cedar Key on the Gulf Coast to Jacksonville on the Atlantic Coast). The Florida scrub-jay can serve as an umbrella species (see Appendix 1) for Florida's peninsular scrub because the scrub-jay's habitat requirements encompass those of a majority of scrub-specialized plants and animals, which require a patchy mosaic of low vegetation heights and open patches of bare sand. If followed, these guidelines should benefit most scrub plant and animal species. Many scrub habitats in Florida have experienced fire exclusion or unnaturally infrequent fire regimes. Restoration of scrub habitats to a condition most beneficial to scrub-jays and most other scrub plants and animals will require re-establishment of the historical fire regime.

FULL TEXT:

These guidelines for the management of scrub habitats in peninsular Florida use the Florida scrub-jay (*Aphelocoma coerulescens*) as an umbrella species. Management actions that create the low, open structure of scrub favorable for scrub-jays likely benefit most other scrub-associate species such as the Florida scrub lizard (*Sceloporus woodi*), the threatened southeastern beach mouse (*Peromyscus polionotus niveiventris*; Suazo et al. in press; US Fish and Wildlife Service, 1989) more than 100 species of arthropods (Mark Deyrup, pers. comm.), and many species of plants (Menges 2007). These recommendations also will benefit more widely distributed species such as gopher tortoises (*Gopherus polyphemus*; Diemer 1986, Breininger, et. al 1994, Ashton and Ashton 2008), white-tailed deer (*Odocoileus virginianus*; FWC 2007), wild turkey (*Meleagris gallopavo*; David Nicholson, Florida Fish and Wildlife Conservation Commission [FWC], pers. comm., Brian Zielinski, National Wild Turkey Federation, pers. comm.), and various declining bird species (MacAllister and Harper 1998, FWC 2005). In the absence of compelling reasons to do otherwise such as alternative management objectives, we recommend that managers of scrub habitats in peninsular Florida aim to create conditions that meet general requirements for the Florida scrub-jay, even if scrub-jays are absent from a property.

These guidelines provide general information for planning and goal-setting. Though management for scrub-jays creates the low, open habitat suitable for a majority of scrub species, these guidelines are not

intended to replace local knowledge of other effective management strategies or to override management for other rare species or native habitats. Managing for pyrodiversity (defined in Appendix 1) provides a bet-hedging strategy to ensure benefits for the maximum number of species (Menges 2007). Given regional variation in scrub habitats, we recommend that land managers network and discuss management experiences, particularly with regard to specific requirements of rare plants and methods for restoring long-unburned scrub. Regional working groups provide one forum for addressing these topics with neighboring land managers and other experts.

Types of Scrub

There are various types of scrub habitats in peninsular Florida, including oak scrub, yellow sand (or oak-hickory) scrub, sand pine scrub, coastal scrub, and rosemary scrub (FNAI 2008). However, all of these scrubs usually contain one or more species of shrubby oaks, including sand live (*Quercus geminata*), myrtle (*Q. myrtifolia*), Chapman's (*Q. chapmanii*), and on the central ridge, scrub oak (*Q. inopina*; Woolfenden and Fitzpatrick 1996).

USING POTENTIAL SCRUB-JAY TERRITORIES TO GUIDE MANAGEMENT

We recommend that, in the absence of other ecologically justified conservation goals such as the maintenance of red-cockaded woodpecker (*Picoides borealis*) clusters, vegetation be managed to promote optimal (see Table 1) scrub-jay habitat within potential scrub-jay territories (see Appendix 1), regardless of whether the birds currently occupy those areas. These conditions replicate what was most likely the historical condition of the landscape and provide good habitat for the majority of other scrub-adapted species.

Scrub-jays maintain territories averaging 25 acres in optimal habitat (Breininger 2004). In addition to scrub habitats, optimal scrub-jay territories often incorporate a variety of other habitats including scrubby flatwoods, sandhills (high pine), prairie, wetland margins, and open mesic flatwoods. Scrubby flatwoods, which may constitute all or the majority of scrub-jay territories in some areas, usually contain a higher percentage of saw palmetto (*Serenoa repens*), fetterbush (*Lyonia lucida*), and wiregrass (*Aristida stricta*) and often have a sparse overstory of slash (*Pinus elliottii*) or longleaf pine (*P. palustris*). Scrub-jays may occur in areas that completely lack scrub or scrubby flatwoods, but scrub-jays are unlikely to persist long term in these areas without immigration from habitat that contains at least some scrub or scrubby flatwoods (Breininger 2004).

Visualizing a grid overlay of 25-acre cells is a useful way to estimate the number of potential territories at a site. On a given property, the goal would be to maintain 70% of these potential territories in optimal condition (see Table 1). The remaining 30% would be too short (i.e., average shrub height < 4ft and < 1 acre of optimal height shrubs) due to recent management or slightly too tall (i.e., average shrub height slightly above 5.5 feet). We recognize that especially on some larger properties it may not be feasible to achieve this 70% to 30% ratio of optimal versus suboptimal territories due to the size of burn units and other management constraints; every site is unique.

Optimal Florida Scrub-Jay Habitat Overview

Optimal scrub-jay habitat is that in which scrub-jays achieve maximum demographic performance, in other words, maximum combined survivorship of adults, juveniles, nestlings, and eggs. This habitat consists of mostly treeless open expanses of low shrubs interspersed with bare sandy patches. Oaks and other shrubs are generally low enough that a person approximately 6 feet tall can see over most of the landscape (Figure 1). Table 1 describes these habitat conditions in more detail. The vegetation characteristics outlined in Table 1 benefit the maximum number of scrub-endemic plant and animal

species, as well as many widespread species. We acknowledge that more research is necessary to determine many Florida scrub-jay habitat specifics such as maximum number of snags per territory and maximum number and size of tall scrub oak patches.

Figure 1: Optimal scrub at Savannas Preserve State Park. Note low structure, sandy openings and sparse tree cover (photo by Chris Vandello).

See this website for more habitat photos:
http://share2.myfwc.com/scrubjay/Habitat%20Photos/Forms/AllItems.aspx

Table 1. Optimal Florida scrub-jay habitat characteristics per territory. Adapted from Breininger (2004), Breininger et al. (1998) and, Burgman et al. (2001).

Vegetation height	At least 10% of each potential scrub-jay territory (25 acre unit) should have shrubs that average 4 to 5.5 feet high to provide cover and produce acorns. The rest of the vegetation should be shorter, with no more than 1 acre of vegetation taller than 5.5 feet per unit.
Tree (>15 foot tall) overstory	If present at all, less than 1 tree per acre.
Distance to forest edge	Maintain a 1,000 foot non-forested (<1 tree per acre) buffer between a scrub-jay territory and forest (Burgman et al. 2001).
Open ground	10-50% bare sand or sparse herbaceous vegetation

Vegetation Heights

Vegetation height within a territory is one of the most important factors influencing demographic success of scrub-jays (Breininger and Carter 2003, Breininger and Oddy 2004, Breininger et al. 2006). The optimal average height of the shrub layer for scrub-jays is 4 to 5.5 feet (Breininger and Carter 2003). This average shrub height also provides appropriate habitat for the majority of other scrub-adapted species. Scrub-jay numbers, as well as numbers of scrub-endemic plants, quickly decline in areas where the shrub layer averages taller than 5.5 feet (Breininger et al. 1998). When average vegetation height becomes too tall, managers can reduce the height of the shrub layer using fire or a

combination of mechanical means and fire. Ideally, all jay territories will have access to some optimal scrub, even when portions of their territory have been burned or mechanically treated. Options include treating only a portion of each jay territory or leaving small patches of oaks (4 to 5.5 feet tall) within each territory that can provide escape and roosting cover, nesting sites, and acorns. Given that the ecological role of taller scrub (taller than 5.5 feet) is not well understood, it may be beneficial to leave a small percentage of taller scrub (see Table 1) on the landscape (Kevin Enge, FWC, pers. comm.). Historic fire shadows (Appendix 1), for example, provide an opportunity to maintain some taller patches on a property.

Tree Overstory

Scrub-jays generally avoid heavily forested areas and do best in areas with no more than one tree per acre (Breininger 2004). A thick overstory also results in less light reaching the ground, resulting in reduced habitat suitability for most scrub-adapted species. In areas managed for scrub-jays and other scrub associate species, thinning of dense pine through frequent burning and mechanical removal may be necessary to restore scrub. Moreover, thinning in adjacent non-scrub habitats maximizes available space for scrub-jays, which incorporate seasonal wetlands and pine flatwoods into their territories provided these habitats have a sparse pine canopy. Most dense stands of pine today occur in areas where fires have been unnaturally excluded for decades.

For scrub-jay territories that occur entirely in non-scrub habitats and for non-scrub lands within the 1,000 foot buffer (Table 1), the amount of tree thinning is ultimately at the discretion of the land manager. Managers must weigh the benefits to scrub-jay population survival at a site against the habitat needs of other species in non-scrub areas considered for thinning.

Distance of Scrub-Jay Territory from Forest Edge

Areas of otherwise suitable habitat within 1,000 feet of a forest may constitute lower quality habitat for Florida scrub-jays (Burgman et al. 2001, D. R. Breininger, Dynamac Corporation, pers. comm.). For example, scrub-jay daily nest survival rates showed a declining trend as far as 800 yards from dense forests during a 20 year period at a study site on Merritt Island in Brevard County (G. C. Carter, Dynamac Corporation, unpublished data). Scrub-jays may avoid these 'tree shadows' (see Appendix 1) because potential predators such as hawks pose a threat in these areas. Thinning of patches of pinelands to <1 tree per acre within 1000 feet of scrub patches will maintain maximum habitat suitability for scrub-jays within these areas (Burgman et al. 2001). However, we do not recommend the compromise of natural non-scrub habitat of other rare species.

In some cases, the ability of scrub-jays to disperse across a landscape (the 'permeability' of the landscape – see Appendix 1) may be enhanced by thinning trees to produce a more open forest (i.e., to pre-fire exclusion tree densities). Scrub-jays may be reluctant to disperse through thick, tall forest (tree curtains – see Appendix 1) as narrow as 100 yards wide (D. R. Breininger, Dynamac Corporation, pers. comm.). Isolated optimal habitat patches surrounded by dense upland forests may remain unoccupied permanently, especially in areas with low numbers of dispersing scrub-jays. We recommend managers view their site's scrub-jay population within a regional context and coordinate with their neighbors to maximize permeability of the upland landscape.

Open Ground

Many scrub plant and animal species depend on maintenance of open areas where sunlight reaches the ground (Campbell and Christman 1982, Hawkes and Menges 1996, Menges and Kimmich 1996). Optimal scrub-jay habitat contains 10% to 50% open ground with either bare sand or grass ≤6 inches tall (Breininger 2004). Scrub-jays use these open areas to cache acorns and search for insects; individual

scrub-jays buried an average of 6,500 to 8,000 acorns during one fall in a study at Archbold Biological Station (DeGange et al. 1989). Endemic scrub herbs, especially in the Lake Wales Ridge scrub, and other scrub associate species (e.g., lichens and sand skinks) also require bare sand patches.

APPROACHES TO SCRUB MANAGEMENT

Fire

Historically, scrub habitats were maintained in conditions suitable for scrub associate species by low frequency, high intensity fires occurring under extreme burning conditions with high wind, low humidity, and low fuel moisture (Myers 1990). Repeated applications of lower intensity fires (such as many winter burns) may not achieve the same ecological function as a more natural burn regime. Whenever possible, we recommend the application of growing season burns, the season when most fires naturally occurred. However, low intensity fires are better than none at all; when weather conditions prohibit a planned growing season burn, it may be beneficial to conduct a winter burn rather than waiting for optimal conditions during subsequent growing seasons. Varying the season, frequency, and spatial extent of burns helps to create diverse landscapes that benefit a large number of species. While mechanical treatments do not have the same ecological effect as fire (Menges and Gordon in preparation, Suazo et al. in press, Weekley et al. 2008), they could be used in combination with fire to manipulate vegetation stature and create a similar structural effect as fire.

We recommend managers use vegetation height to determine when to burn. To maintain a low, open scrub structure, fires must be frequent enough to keep average shrub height generally below 5.5 ft, but leave vegetation heights variable enough to allow continuous acorn production within a territory. Scrub oaks generally begin producing acorns three years after being top-killed by a severe burn (Fitzpatrick et al. 1991), but this may vary among sites. Allowing prescribed fires in adjacent flatwoods or sandhills or other habitats to burn into scrub may achieve this desired mosaic (see Appendix 1) if fires burn into the scrub far enough to create openings and low vegetation, but not so severely that all vegetation at optimal height is lost (Breininger et al. 2002). However, if a site is severely fire-suppressed and unsuitable for most scrub-associate species, managers may wish to use extensive 'restoration' burns (see Appendix 1) to restore the entire area as quickly as possible.

We do not recommend a fixed prescribed fire return interval because of the high degree of variation in scrub types and site conditions, including an individual site's burn history. For example, fire return intervals between 8 and 15 years have been recommended as optimal for maintaining Florida scrub-jay populations in *Quercus inopina*-dominated scrub (Woolfenden and Fitzpatrick 1996). An 8 to 15 year fire return interval may be too long on central Florida's Atlantic coast, where openings in scrub disappear within 3 to 5 years (Schmalzer 2003, Schmalzer and Hinkle 1992, Breininger et al. 2002). Menges (2007) recommended a 5 to 12 year fire return interval for oak-hickory scrubs for scrub plants, and he notes that some scrubby flatwoods and oak-hickory scrubs may be ready to burn as soon as 3 years post fire. By contrast, rosemary scrub has a minimum fire return interval of 15 years (Menges 2007). Some species associated with rosemary scrub, such as Florida rosemary (*Ceratiola ericoides*) and some invertebrates, respond poorly to frequent fire. Therefore, patches of rosemary scrub may need special consideration during management activities. Even when burned infrequently, rosemary scrub maintains the low structure optimal for scrub-jays.

Scrubby flatwoods burn more readily than scrub and may recover more quickly as a result of a higher vegetation density (USFWS 1999). Long unburned scrub may resprout with great vigor and require

more frequent burning in the initial stages of restoration to maintain optimal conditions (Schmalzer and Hinkle 1992, Schmalzer et al. 1999, Schmalzer and Adrian 2001).

Burning Occupied Scrub-Jay Habitat

The strategy for burning in occupied scrub-jay habitat will depend on the size of the area and how many occupied territories it contains. If the property is large and contains many occupied territories, an entire territory may be burned at once. On smaller properties with limited habitat, care should be taken to avoid burning entire territories at once. Conducting a mosaic burn in an occupied territory should ensure that some optimal habitat remains for resident scrub-jays. However, in some instances, it may be logistically desirable, necessary, or unavoidable to burn entire territories that are occupied. Ideally, in these instances, adjacent lands should offer suitable habitat to which birds can relocate.

Mechanical treatments (see Appendix 2)

While the goal of management should be to restore fire to scrub habitats, mechanical treatments prior to burning may be useful to speed up restoration, create ignition strips, reduce fuel height to maintain prescribed fire safety, or maintain fuel height in areas where fire is not possible. However, mechanical treatments do not provide an ecological substitute for fire and should be followed by prescribed fire if possible (Menges and Gordon in preparation, Suazo et al. in press, Weekley et al. 2008). Mechanical treatments are usually more expensive than burning alone and often involve heavy equipment that may result in soil disturbance and ecological damage such as harming fossorial animals and introducing exotic plant material. Mechanical equipment and tools that have minimal soil disturbance are preferable. Examples of those types of equipment include chainsaws, track vehicles, and single pass empty roller drums.

If mechanical treatments use heavy equipment to prepare a site for fire, we recommend management techniques and operating methods that minimize soil disturbance and foster mosaic burns. The use of 'sloppy' (see Appendix 1) methods of treatment produce an uneven and more natural landscape after fire (J. Hinchee, U.S. Forest Service, pers. comm., Kevin Enge, FWC, pers. comm.). Alternatively, treating strips through a unit may achieve a more complete but still mosaic burn. The use of tracked vehicles usually results in less soil disturbance than using vehicles of a similar weight that have tires (Stefanie M. Nagid, City of Gainesville Nature Operations Division, pers. comm.). An empty roller drum pulled by a track vehicle in a single pass method will push vegetation down instead of digging into the soil. If the goal is to create the desired safety conditions for a burn, it may be possible to mechanically treat only the perimeter of a unit (Doren et al. 1987). These methods can reduce the potential negative impacts of mechanical treatments while providing enhanced opportunity to control prescribed burns.

Effects of mechanical treatments on lichens, soil crusts, and many focal species have not been adequately studied. If gopher tortoises are present, mark and avoid burrows during mechanical treatments where possible, and consider treating areas during winter, when animals are most likely to be underground and out of harm's way, then following up with a spring/summer burn. Consider the effects on rare plants and other localized special features in the mechanical treatment footprint.

Managers using mechanical treatments have reported the possibility that these treatments caused infestations of invasive plants, such as Natal grass (*Rhynchelytrum repens*). These infestations may result from neighboring exotic plant populations spreading into areas with disturbed soil, from severe fires in deep mulch created by mechanical methods (E. Egensteiner, Florida Park Service, pers. comm., K. Main, Archbold Biological Station, pers. comm.), or from seed brought in on equipment. To minimize the chance of spreading invasive seeds, wash equipment (or ensure contractors have washed equipment) before and after each use. Treatment of nuisance and exotic vegetation within a manager's

control surrounding the area prior to mechanical restoration may reduce the possibility of wind blown seeds dispersing into the restoration area.

While mechanical treatments are often useful to restore vegetation, these areas should still be burned, preferably less than three months following treatment. Beyond six months, the mulch layer starts breaking down and the increasing shrub height retards wind and creates shade, all of which decrease the flammability. Mechanically treated scrub may not carry fire well after more than a year without a follow-up burn (S. Morrison, The Nature Conservancy, pers. comm., Weekley et al. 2008). There is no ecological substitute for fire – it is essential for the maintenance of plant species richness in scrub habitat and likely has other benefits as well (Menges and Gordon in preparation, Weekley et al. 2008, Williges et al. 2006). Mechanical treatments are best used sparingly, preferably only initially to start the prescribed burning cycle or as one component of the burn process. The results of mechanical treatments should be monitored.

Assess Results

These guidelines should improve the structure of scrub on a given property, thereby benefiting rare species such as the Florida scrub-jay and other scrub associate plants and animals. However, only by monitoring the responses of native and rare species will a manager know whether or not the treatments are beneficial. Habitat management is the first step in the stewardship of Florida's scrub resources; monitoring of target species can provide the appropriate feedback to land managers as to the success of their program.

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Appendix 1: Terminology used in this paper

Fire shadow: An area that remains unburned for long periods of time while the surrounding landscape is burned. Usually due to fire behavior associated with a landscape feature such as a wetland.

Mosaic burn: A burn that results in a landscape of variable burn intensities and vegetation heights, with some patches left unburned.

Permeability: Used to describe the degree to which a scrub-jay may pass through a landscape.

Pyrodiversity: The temporal and spatial variation of fire on a landscape that results in fires of different intensities and burn areas and maintains optimal habitat requirement for a large variety of species. Managers can increase pyrodiversity on a property by varying seasonal ignition times, time since fire, and methods of ignition while conducting mosaic burns.

Tree curtains: Heavily forested landscapes surrounding more open habitats. Tree curtains may decrease permeability and provide cover for predators such as raptors.

Tree shadow: An area of reduced survival or reproductive success adjacent to a forested area in otherwise suitable habitat. Alternatively, an area of otherwise suitable habitat that remains unoccupied due to proximity to a forest edge.
Scrub-jay territory: The area defended by a scrub-jay family group. Scrub-jay family groups defend areas that average 25 acres, but the size of any one territory is highly variable and depends on site characteristics and each individual territory's history. In areas with a low density of scrub-jays, individual scrub-jay families may defend very large areas
'Sloppy' treatment: a means of mechanically treating an area in which some small patches are left untreated to give the resulting landscape a diversity of shrub heights. Sometimes referred to as the sloppy chop if a rollerchopper is involved.
Restoration burn: An intense, complete burn across the entire area of unoccupied habitat, or of occupied habitat provided there is ample optimal unoccupied habitat nearby. A restoration burn is often necessary in long unburned areas.
Umbrella species: A species whose habitat requirements are also requirements of a wide range of other species; managing for an umbrella species will create habitat conditions that will also benefit many other species.

Appendix 2: Mechanical methods for vegetation reduction
For all of mechanical methods, minimize soil disturbance and opportunities for invasive plant intrusion, and maximize the mosaic burn effect by utilizing 'sloppy' cuts. The goal of all these treatments should be, when possible, to return fire to the landscape ideally from 3 months to a year after the mechanical treatment.

Chain Saw: The least damaging method to reduce vegetation due to minimal soil disturbance and chance of invasion by exotic plants. Trees and/or tall shrubs should be cut at or near ground level to reduce the chance of vehicles getting caught on stumps. Piling felled trees creates hotspots during subsequent burns and can be used to promote openings.
Cutting/Chopping/Grinding: Used to reduce shrubs and trees by various methods of cutting, chopping, or grinding vegetation. Examples include the Brown Tree Cutter, Gyro-Trac, Kershaw Klearway, Fecon Bull Hog, and Brontosaurus. Using a coarse cut or only cutting the tops of vegetation will reduce the amount of mulch generated and create more desirable conditions for burning. Finer fuels may be hard to burn or may burn too severely due to long smoldering time.
Roller Chopping: The number of drums, number of passes, and weight of drums will vary between sites, but the most appropriate selection will include only the minimum needed to reduce vegetation height while causing the least amount of soil disturbance. Vehicles towing drums should avoid sharp turns that create rutting.
Root Raking: Causes substantial soil disturbance and should only be used where there are no other vegetative reduction methods available due to the possibility of invasive plant introduction and other potentially negative consequences of soil disturbance.
Timber Harvest: May be a suitable management approach for reducing or eliminating some canopy trees.

Appendix K : Arthropod Plan

RECEIVED
01/19/10
Environmentally Endangered Lands Program

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

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 (Altosid)
- ☒ Non-Petroleum Surface Film
- ☐ Other, please specify:

Please specify the following for each larvacide:

Chemical or Common name: BTI =VectoBac, Bs = Vectolex, (S) methoprene = Altosid

☒ Ground ☒ Aerial

Appplication rate/s must be according to applicable, site specific label rates and conditions for each product; for example:

Rate/s of application: 12 lb-18lb/acre = VectoBac (BTI) Granules

5lb-20lb/acre = Vectolex (BS) Granules

2.5lbs-10lb/acre = Altosid pellets [(s) methoprene]

7-21.5lb/acre = Agnique MMF G (non-petroleum surface film)

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 population controls are determined by Brevard Mosquito Control District (BMCD) thresholds that are legally based, including: Florida Administrative Code 5E-13.036 requirements, with adult landing rate surveillance counts in surrounding urban areas, triggering at 3 mosquitoes per minute and for surrounding rural areas, triggering at 5-7 per minute . Also, aerial application of adulticides within the areas defined as "Beaches and Bay shores" (areas within 1,500 feet landward of high tide mark), require a three-fold confirmed increase to adult mosquito population backgrounds in order to commence adulticide applications.

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

The Brevard Mosquito Control District policy is to operate all managed impoundments, when possible, on a Rotational Impoundment Management (RIM) program. RIM, essentially, is elevating the water levels inside the impoundment to an elevation adequate to inundate the high marsh areas during mosquito breeding seasons. This action eliminates the egg laying sites for the salt marsh mosquito and controls mosquito breeding in an environmentally friendly manner. This elevated water level number is ~1.50 feet above mean sea level. This water level elevation action takes place from approximately May 15th through October 15th. This activity requires yearly pumping and constant monitoring of water levels within the impoundment network. The impoundments are left open, to decrease water elevations, during other yearly times.

Chronologically, the Brevard Mosquito Control District activities are as follows:

- January- Mowing the deck and bush hogging the side growth.
- January through May- Repairing storm damage if any. Larviciding as necessary.
- May 15th- All boards in, culverts and flaps closed. Begin pumping if Lagoon level is adequate. (>.5 ft mean sea level).
- May 15th through October 15th- Pump in order to maintain 1.3-1.5 ft mean sea level inside impoundment. Larvicide as necessary (helicopter monitoring). Monitor culverts for tampering three days per week.
- June- Mow deck and bush hog side growth.
- October 15th- Pumping stops. Boards removed and flap gates opened."

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:

1/22/10
Signature of Lands Manager or Representative Date

1-13-10
Signature of Mosquito Control Department Director Date

1-13-10
Signature of Mosquito Control District Director Date

Appendix L: Avian Species Observed By Staff Within SBCSE as of Novemeber 2014

Common Name	Scientific Name
ACCIPITRIDAE	
Coopers hawk	Accipiter cooperli
Sharp-shinned hawk	Accipiter striatus
Red-tailed hawk	Buteo jamaicensis
Red-shouldered hawk	Buteo lineatus
Broad-winged hawk	Buteo platypterus
Northern harrier	Circus cyaneus
American swallow-Tailed kite	Elanoides forficatus
Bald eagle	Haliaeetus leucocephalus
ALCEDINIDAE	
Belted kingfisher	Megaceryle
ARDEIDAE	
Great blue heron	Ardea herodias
Cattle egret	Bubulcus ibis
Great egret	Casmerodius albus
Snowy egret	Egretta thula
Tricolored heron	Hydranassa tricolor
Yellow-crowned Night heron	Nyctanassa violacea
BOMBYCILLIDAE	
Cedar waxwing	Bombycilla cedrorum

CAPRIMULGIDAE

Chuck Will's widow	Caprimulgus carolinensis
Common nighthawk	Chordeiles minor

CARDINALIDAE

Northern cardinal	Cardinalis cardinalis
Painted bunting	Passerina ciris
Indigo bunting	Passerina cyanea

CATHARTIDAE

Turkey vulture	Cathartes aura
Black vulture	Coragyps atratus

CHARADRIIDAE

Killdear	Charadrius vociferous

CICONIIDAE

Wood stork **(FE)**	Mycteria American

COLUMBIDAE

Morning dove	Zenaida macroura

CORVIDAE

Florida scrub-jay **(FT)**	Aphelocoma coerulescens
Fish crow	Corvus ossifragus
Blue jay	Cyanocitta cristata

EMBERIZIDAE

Eastern towhee	Pipilo erythrophthalmus
Chipping sparrow	Spizella passerina

FALCONIDAE

American kestrel	Falco sparverius

GRUIDAE

Sandhill crane **(ST)**	Grus Canadensis pratensis

ICTERIDAE

Red-winged blackbird	Agelaius phoeniceus
Common grackle	Quiscalus quiscala

MELEAGRIDIDAE

Wild turkey	Meleagris gallopavo

MIMIDAE

Grey catbird	Dumetella carolinensis
Northern mocking bird	Mimus polyglottos

PANDIONIDAE

Osprey	Pandion haliaetus

PHASIANIDAE

Northern bobwhite	Colinus virginianus

PICIDAE

Pileated woodpecker	Dryocopus pileatus
Red bellied woodpecker	Melanerpes carolinus

STRIGIDAE

Barred owl	Strix varia

TROGLODYTIDAE

Carolina wren	Thryothorus ludovicianus

TURDIDAE

American robin	Turdus migratorius

Listed by the state of Florida as of 11/15/2014
Federally-designated Endangered **(FE)**
Federally-designated Threatened **(FT)**
State-designated Threatened **(ST)**
State Species of Special Concern **(SSC)**

Appendix M: Reptile and Amphibian Species Observed By Staff Within SBCSE as of Novemeber 2014

Common Name	Scientific Name
COLUBRIDAE	
Southern black racer	Coluber constrictor priapus
Eastern indigo snake **(FT)**	Drymarchon couperi
ELAPIDAE	
Coral snake	Micrurus fulvius
EMYDIDAE	
Florida box turtle	Terrapene Carolina bauri
HYLIDAE	
Green tree-frog	Hyla cinerea
Pinewoods tree-frog	Hyla femoralis
Squirrel tree-frog	Hyla squirrela
PHRYNOSOMATIDAE	
Scrub lizard	Sceloporus woodi
SCINCIDAE	
Southeastern five- lined skink	Eumeces inexpectatus
Ground skink	Scinellis laterale
TEIIDAE	
Six-lined racerunner	Cnemidophorus s. sexlineatus

TESTUDINAE

Gopher tortoise **(ST)**	Gopherus polyphemus

VIPERIDAE

Water moccasin	Agkistrodon piscivorus
Eastern diamondback rattle snake	Crotalinae adamanteus
Pigmy rattle snake	Sistrurus miliarius

Listed by the state of Florida as of 11/15/2014
Federally-designated Endangered **(FE)**
Federally-designated Threatened **(FT)**
State-designated Threatened **(ST)**
State Species of Special Concern **(SSC)**

Appendix N: Mammal Species Observed By Staff Within SBCSE as of Novemeber 2014

Common Name	Scientific Name
ARTIODACTYLA	
White-tailed deer	Odocoileus virginianus
CANIDAE	
Coyote	Canis latrans
CARNIVORA	
Bobcat	Lynx rufus
Racoon	Procyon lotor
LAGOMORPHA	
Eastern cottontail rabbit	Sylvilagus floridanus
Marsh rabbit	Sylvilagus palustris
MARSUPIALIA	
Opossum	Didelphis marsupialis
RODENTIA	
Eastern grey squirrel	Sciurus carolinensis
SUIDAE	
Feral pig	Sus scrofa
XENARTHRA	
Nine-banded armadillo	Dasypus novemcinctus

Listed by the state of Florida as of 11/15/2014
Federally-designated Endangered **(FE)**
Federally-designated Threatened **(FT)**
State-designated Threatened **(ST)**
State Species of Special Concern **(SSC)**

Appendix O : Master Site Files for Acreage within SBCSE

FLORIDA MASTER SITE FILE

R. A. Gray Building
500 South Bronough
Tallahassee, Florida 32399-0250

Office Number (850) 245-6440 (FAX) Number (850) 245-6439

FAX Cover Page

To: (Fax Number) - 321 - 255 - 4499

Date 1/30/07 Pages 8 (including this sheet)

Please deliver these pages to:

Name: Teri A King

Company: Brevard County Environmentally Endangered Lands Program

Sender: Name: Celeste Ivany

Message:

In case of a problem with any portion of this transmission, please call (850) 245-6440

FLORIDA DEPARTMENT of STATE

CHARLIE CRIST
Governor

KURT S. BROWNING
Secretary of State

January 30, 2007

Teri Aking
Brevard County Environmentally Endangered Lands Program
91 East Drive
Melbourne, Florida 32904
Fax: 321-255-4499

In response to your inquiry of January 29, 2007, the Florida Master Site File lists one previously recorded archaeological site, and no standing structures in the following parcels of Brevard County:

T29S, R37E, Sections 01- 36

In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites or historical structures.**
- **While many of our records relate to historically significant properties, the entry of an archaeological site or an historical structure on the Florida Master Site File does not necessarily mean that the structure is significant.**
- **Since vandalism is common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **As you may know, federal and state laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,

Celeste Ivory

Celeste Ivory
Archaeological Data Analyst,
Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

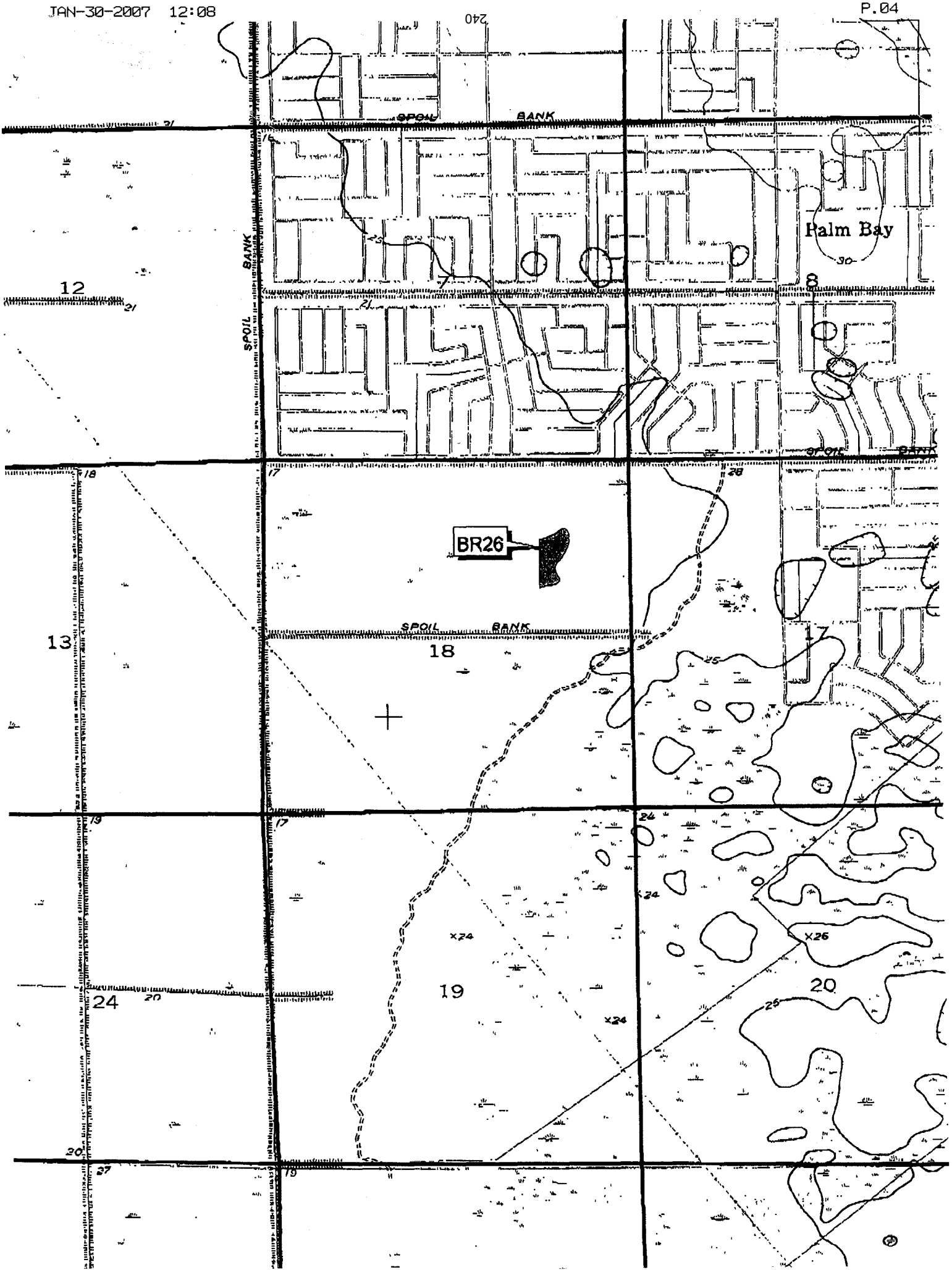
Phone: 850-245-6440
Fax: 850-245-6439
Email: *sitefile@dos.state.fl.us*
Web: *http://flheritage.com/preservation*
http://dhr.dos.state.fl.us/comments/

CULTURAL RESOURCES REPORT

SITEID	FORMNO	T-R-S	CR	SITENAME	NRLIST	SURVEY	LOCATION	OTHER
R00026	200505	29S/37E/18	AR	GOBBLERS HEAD		11618	Map: FNW	Culture: PREC Sitetype: EXTR, LAND

. site(s) evaluated; 1 form(s) evaluated. (1 AR)
rint date: 1/30/2007 9:20:50 AM

JAN-30-2007 12:08 P.03


240
SPOIL BANK
Palm Bay
12
8
BR26
13
18
17
19
24
20

FLORIDA DEPARTMENT of STATE

CHARLIE CRIST
Governor

KURT S. BROWNING
Secretary of State

January 30, 2007

Teri Aking
Brevard County Environmentally Endangered Lands Program
91 East Drive
Melbourne, Florida 32904
Fax: 321-255-4499

In response to your inquiry of January 29, 2007, the Florida Master Site File lists thirteen previously recorded archaeological sites, and no standing structures in the following parcels of Brevard County:

T29S, R38E, Sections 22- 27 & 31- 36

In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites or historical structures.**
- **While many of our records relate to historically significant properties, the entry of an archaeological site or an historical structure on the Florida Master Site File does not necessarily mean that the structure is significant.**
- **Since vandalism is common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **As you may know, federal and state laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,

Celeste Ivory

Celeste Ivory
Archaeological Data Analyst,
Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone: 850-245-6440
Fax: 850-245-6439
Email: *sirefile@dos.state.fl.us*
Web: *http://flheritage.com/preservation*
http://dhr.dos.state.fl.us/comments/

R. A. Gray Building • 500 South Bronough Street • Tallahassee, Florida 32399-0250
Telephone: (850) 245-6500 • Facsimile: (850) 245-6125
www.dos.state.fl.us

SITEID	FORMNO	T-R-S	CR	SITENAME	NRLIST	SURVEY	LOCATION	OTHER
R00121	MELD	29S/38E/26	AR	NN			Map: GRAN	Culture: PREH Sitetype: MDSH
R00122	MELD	29S/38E/36	AR	CASUARINA MOUND			Map: SBNW	Culture: MAL2 Sitetype: MDBU
R00123	MELD	29S/38E/36	AR	WILD BOAR MIDDEN			Map: SBNW	Culture: UNSP Sitetype: MIDD
R00195	MELD	29S/38E/25	AR	DUKE, THE			Map: SBNW	Culture: PREH Sitetype: INUN, PALE
R00196	MELD	29S/38E/25	AR	KENWORTHY, THE			Map: SBNW	Culture: HIST, PREH Sitetype: INUN, SCAR
R00198	197601	29S/38E/36	AR	BALLARD PINES WRECK/BRASS TELESCOPE WREC			Map: SBNW	Culture: HIST Sitetype: WREC
R00775	199105	29S/38E/36	AR	ST ANDREWS VILLAGE			Map: SBNW	Culture: AMER, DEPR, SJ1, SJ1A, SJ1B, SJ Sitetype: MDSH, MIDD, SCDE, VADE, WELL
R01615	199211	29S/38E/36	AR	BALLARD COVE			Map: SBNW	Culture: SJ1, SJ1A, SJ1B Sitetype: CAMP, EXTR, MDSH, MIDD, SCDE,
R01856	200306	29S/38E/25	AR	OLD OAK LODGE HAMMOCK			Map: SBNW	Culture: 19TH, 20TH, PREC Sitetype: BLDG, CAMP, EXTR, HABI, HOME,
R01862	200308	29S/38E/23	AR	MAYA		9296	Map: GRAN	Culture: OTHR, SJ2 Sitetype: MDSH, OTHR
R01863	200308	29S/38E/23	AR	MAYA BURB		9296	Map: GRAN	Culture: SJ Sitetype: MDSH
R01864	200308	29S/38E/23	AR	MAYA BURB II		9296	Map: GRAN	Culture: INDE Sitetype: MDSH

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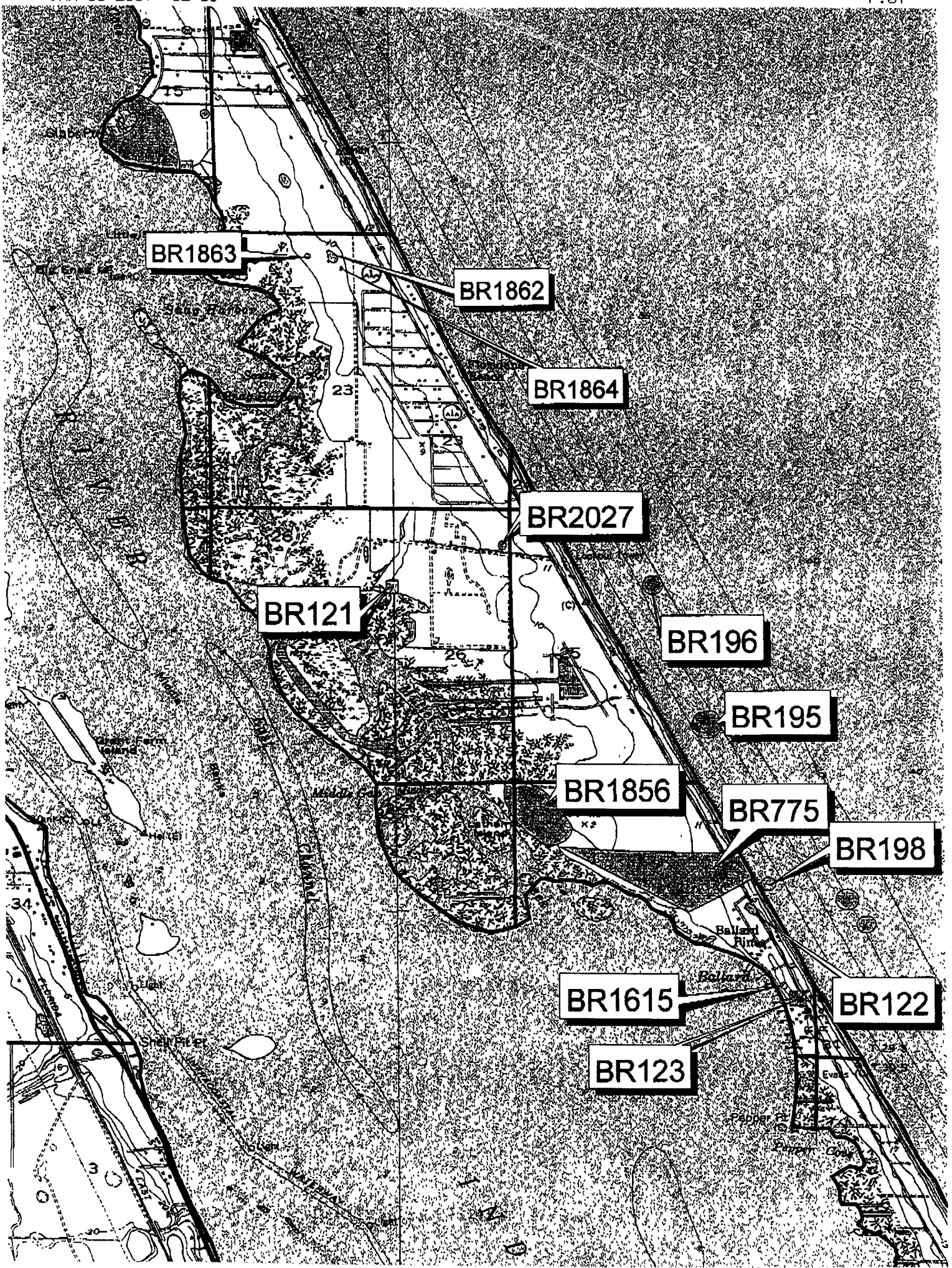
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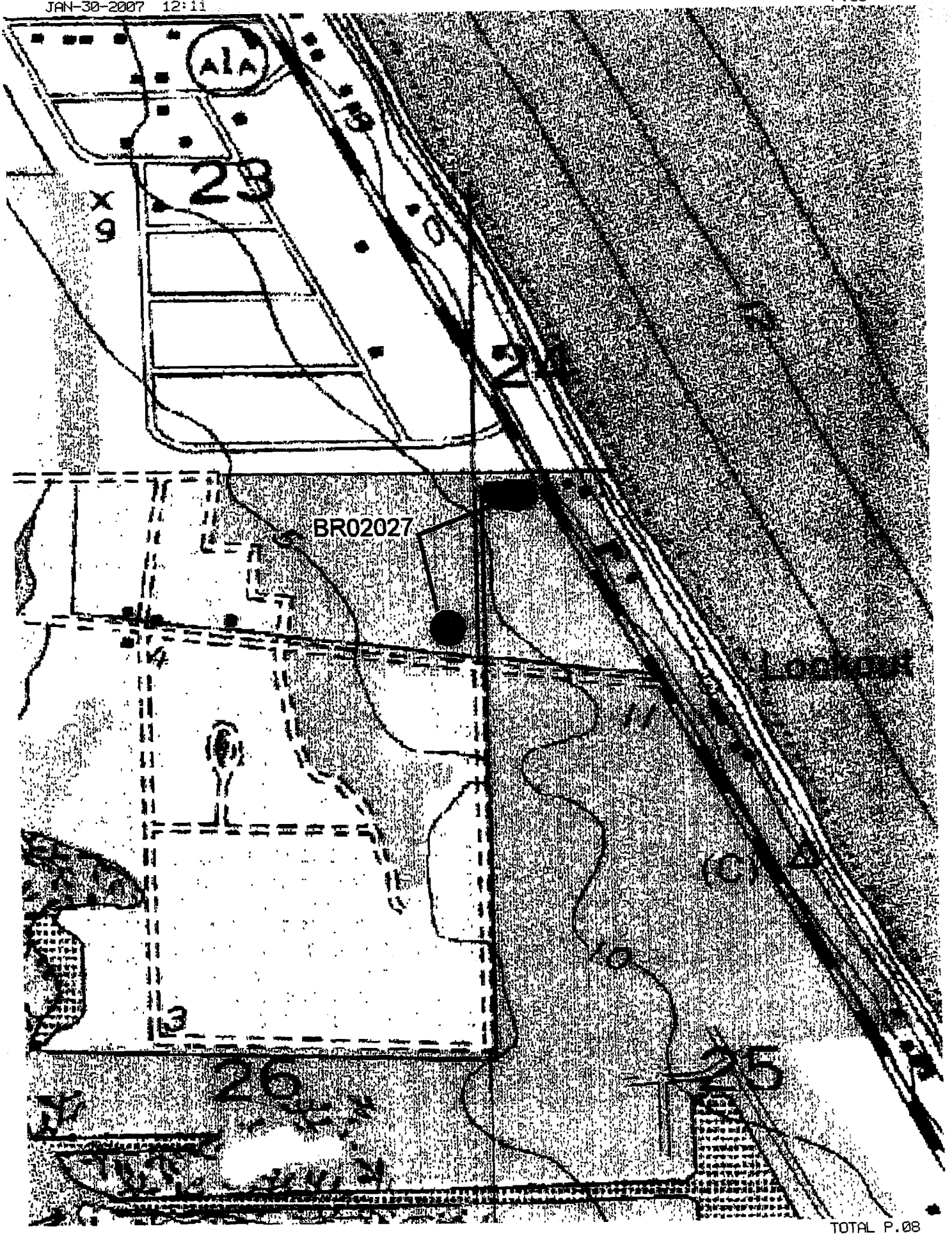
BR195
BR1856
BR775
BR198
BR1615
BR122
BR123


A1A
23
BR02027
26
25

FLORIDA MASTER SITE FILE

R. A. Gray Building
500 South Bronough
Tallahassee, Florida 32399-0250

Office Number (850) 245-6440 (FAX) Number (850) 245-6439

FAX Cover Page

To: (Fax Number) - 321 - 255 - 4499

Date 6/14/07 Pages 5 (including this sheet)

Please deliver these pages to:

Name: Teri Aking

Company: Environmentally Endangered Lands, Brevard County

Sender: Name: Celeste Ivory

Message:

In case of a problem with any portion of this transmission, please call (850) 245-6440

FLORIDA DEPARTMENT of STATE

CHARLIE CRIST
Governor

KURT S. BROWNING
Secretary of State

June 14, 2007

Teri Aking
Environmentally Endangered Lands, Brevard County
91 East Drive
Melbourne, FL 32904
Fax: 321-255-4499

Dear Ms. Aking:

In response to your inquiry of June 14, 2007, the Florida Master Site File lists no previously recorded cultural resources in the following parcels:

T29S, R37E, Sections 22, 23, 24, 25, 26, 27, 34, 35 & 36

In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites, unrecorded historically important structures, or both.**
- **As you may know, state and federal laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review of cultural resources. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,

Celeste Ivory

Celeste Ivory
Archaeological Data Analyst,
Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone: 850-245-6440
Fax: 850-245-6439
Email: sitefile@dos.state.fl.us
Web: http://flheritage.com/preservation
http://dhr.dos.state.fl.us/comments/

FLORIDA DEPARTMENT of STATE

CHARLIE CRIST
Governor

KURT S. BROWNING
Secretary of State

June 14, 2007

Teri Aking
Environmentally Endangered Lands, Brevard County
91 East Drive
Melbourne, FL 32904
Fax: 321-255-4499

In response to your inquiry of June 14, 2007, the Florida Master Site File lists three previously recorded archaeological sites, and one standing structure in the following parcels of Brevard County:

T29S, R38E, Sections 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, 33 & 34

In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites or historical structures.**
- **While many of our records relate to historically significant properties, the entry of an archaeological site or an historical structure on the Florida Master Site File does not necessarily mean that the structure is significant.**
- **Since vandalism is common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **As you may know, federal and state laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,

Celeste Ivory

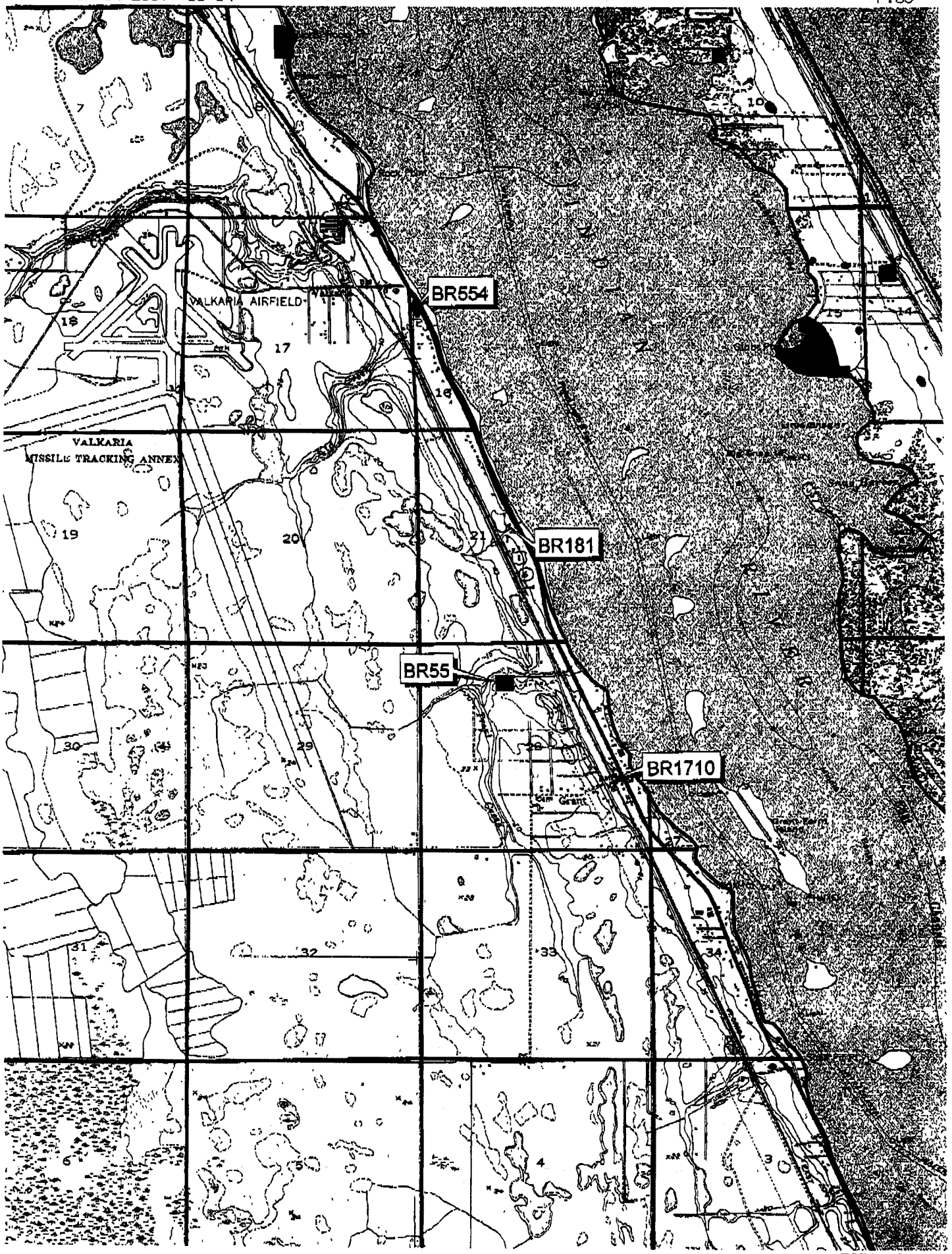
Celeste Ivory
Archaeological Data Analyst,
Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone: 850-245-6440
Fax: 850-245-6439
Email: *sitefile@dos.state.fl.us*
Web: *http://flheritage.com/preservation*
http://dhr.dos.state.fl.us/comments/

SITEID	FORMNO	T-R-S	CR	SITENAME	NRLIST	SURVEY	LOCATION	OTHER
R00055	MELD	29S/38E/28	AR	NN			Map: GRAN	Culture: PREH Sitetype: MDSH
R00181	197599	29S/38E/21	AR	SOUTH OF VALKARIA			Map: GRAN	Culture: SJ, TRAN Sitetype: MIDD
R00554	198905	29S/38E/16	AR	KID CREEK			Map: GRAN	Culture: 20TH, ARCL, MODE, SJ1A, SJ1B, S Sitetype: MDSH, MIDD, REFU, SCDE
R01710	199905	29S/38E/28	SS	JORGENSEN'S GENERAL STORE	Listed		5390 U.S. 1 HWY, GRANT	Uses: SHOP, SHOP Built: 1894

site(s) evaluated; 4 form(s) evaluated. (3 AR, 1 SS)
rint date: 6/14/2007 10:40:27 AM

JUN-14-2007 11:13 P.04


BR554
VALKARIA AIRFIELD
VALKARIA
MISSILE TRACKING ANNEX
BR181
BR55
BR1710

TOTAL P.05

FLORIDA DEPARTMENT OF STATE
David E. Mann
Secretary of State
DIVISION OF HISTORICAL RESOURCES

Mr. Vincent Michault
Brevard County Parks and Recreation
Environmentally Endangered Lands Program
5560 North U.S. Highway 1
Melbourne, Florida 32940

December 15, 2005

RE: DHR Project File Number: 2005-11901 (2004-11364)
Received by DHR November 14, 2005
Environmentally Endangered Lands Program Land Management Plan
Grant Flatwoods Sanctuary
Brevard County

Dear Mr. Michault:

In accordance with this agency's responsibilities under Sections 253.034(5) and 259.032(3)(h), *Florida Statutes*, we have reviewed the information in the Florida Master Site File to determine whether any historic properties are recorded in the referenced management area, and also to determine the potential for such resources, which are presently unrecorded to be located within it.

A review of the Florida Master Site File indicates that there are no recorded archaeological or historical sites within the project boundaries. It is the opinion of this agency that there is a low to medium probability of significant archaeological or historical sites being present. However, we note that there will not be any land clearing or ground disturbing activities within the property. Therefore, based on the information provided, it is the opinion of this office that no historic properties will be affected.

We have enclosed for your use a copy of Management Procedures for Archaeological and Historic Sites and Properties on State-Owned or Controlled Lands. This document should be referred to where appropriate in your land management plan, and attached to it.

If you have any questions concerning our comments, please contact Scott Edwards or Susan Harp at 850-245-6333 or 800-847-7278.

Sincerely,

Frederick P. Gaske, Director, and
State Historic Preservation Officer

Enclosure

500 S. Bronough Street • Tallahassee, FL 32399-0250 • http://www.flheritage.com

❒ Director's Office (850) 245-6300 • FAX: 245-6436
❒ Archaeological Research (850) 245-6444 • FAX: 245-6436
☑ Historic Preservation (850) 245-6333 • FAX: 245-6437
❒ Historical Museums (850) 245-6400 • FAX: 245-6433
❒ Southeast Regional Office (954) 467-4990 • FAX: 467-4991
❒ Northeast Regional Office (904) 825-5045 • FAX: 825-5044
❒ Central Florida Regional Office (813) 272-3843 • FAX: 272-2340

FLORIDA DEPARTMENT OF STATE
Glenda E. Hood
Secretary of State
DIVISION OF HISTORICAL RESOURCES

October 28, 2005

Vincent Michault
Brevard County- EEL Program
5560 North US Hwy. 1
Melbourne, FL 32940
Fax: 321.255.4499

Dear Mr. Michault:

In response to your inquiry on October 27, 2005, the Florida Master Site File lists no previously recorded archaeological site(s), and four standing structure(s) in the following parcels of Indian River County:

T30S, R37E, Sections 1,12,13; T30S, R38E, Sec. 5,6,7,8,18

In interpreting the results of our search, please remember the following points:

- **Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites or historical structures.**
- **While many of our records relate to historically significant properties, the entry of an archaeological site or an historical structure on the Florida Master Site File does not necessarily mean that the structure is significant.**
- **Since vandalism is common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **As you may know, federal and state laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.**

If you have any further questions concerning the Florida Master Site File, please contact us as below.

Sincerely,

Taylor Pontius,
Historic Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Phone 850-245-6440, Fax: 850-245-6439
State SunCom: 205-6440
Email: *fmsfile@ dos.state.fl.us*
Web: *http://www.dos.state.fl.us/dhr/msf/*

CULTURAL RESOURCES REPORT

SITEID	FORMNO	T-R-S	CR	SITENAME	NRLIST	SURVEY	LOCATION	OTHER
IR00127	198903	30S/38E/7	SS	11225 N OLD DIXIE HWY		1893	11225 N OLD DIXIE HWY, SEBASTI	Uses: RESI Built: C1925
IR00129	198903	30S/38E/7	SS	11405 N OLD DIXIE HWY		1893	11405 N OLD DIXIE HWY, SEBASTI	Uses: RESI Built: C1925
IR00404	198903	30S/38E/7	SS	11089 N OLD DIXIE HWY		1893	11089 N OLD DIXIE HWY, SEBASTI	Uses: RESI, RESI Built: 1920C
IR00407	198903	30S/38E/7	SS	11465 N OLD DIXIE HWY		1893	11465 N OLD DIXIE HWY, SEBASTI	Uses: RESI, RESI Built: 1925C

4 site(s) evaluated; 4 form(s) evaluated.
Print date: 10/26/2005 8:59:20 AM

OCT-28-2005 09:32 P.06

Continuation of Appendix O :

** The Following surveys were added to this plan on 10/08/14. They were received from the Division of Historical Resources (DHR) by email as part of their response to the final review. The surveys were partially located within the two tracts (GFS and MISS) that Brevard County manages.

MISS

OBJECTID	SurvNum
2425	4383
4167	6794
4892	7649
9229	12777
13389	18028

GFS

OBJECTID	SurvNum
3794	8554
4892	7649
13389	18028

Micco Scrub Sanctuary Area Survey

Title
Phase I Cultural Resources Investigation of the Proposed 30 IN O.D. Mainline Loop South
Portion in the Florida Gas Transmission Company Phase III Expansion Project [Draft Report]
Cultural Resource Assessment Survey for the Interstate 95 PD&E Study from State Road 514 to State Road 50, Brevard County, Florida
An Archaeological and Historical Survey of the Proposed Fleming Grant Tower (20501-010) Location in Brevard County, Florida
Cultural Resource Assessment Survey Report I-95 from North of CR 512 to South of SR 514 (Babcock Street) Indian River and Brevard Counties, Florida
Cultural Resource Assessment Survey Report I-95 at the Palm Bay Parkway Southern Interchange
Project Development and Environment (PD&E) Study from Micco Road to Babcock Street, Brevard County, Florida

Grant Flatwoods Sanctuary Area Survey

Title
An Archaeological and Historical Survey of the Grant/ Palm Bay Tower Location in Brevard County, Florida
An Archaeological and Historical Survey of the Proposed Fleming Grant Tower (20501-010) Location in Brevard County, Florida
Cultural Resource Assessment Survey Report I-95 at the Palm Bay Parkway Southern Interchange
Project Development and Environment (PD&E) Study from Micco Road to Babcock Street, Brevard County, Florida

Pub_Da	Author1	Author2
1993	ATHENS, WILLIAM P.	COHEN, JENNIFER
2001	JANUS RESEARCH	
2001	AMBROSINO, MEGHAN L.	
2006	Archaeological Consultants, Inc.	
2010	Deming, Joan	Lumang, Marielle

Pub_Da	Author1	Author2
2001	Sims, Cynthia L.	
2001	AMBROSINO, MEGHAN L.	
2010	Deming, Joan	Lumang, Marielle

Author3	Sponsor	Num_	Num_	CratNum
DRAUGHON, RALPH, JR.	Florida Gas Transmission Co.	3		199300810
	CH2MHILL	4		200200862
	ENVIODESIGN ASSOCIATES, INC.			200101799
	Kittelson & Associates	3	2	200603816
Newman, Christine	Florida Dept. of Transportation, District 5	0	1	201100504

Author3	Sponsor	Num_	Num_	CratNum
	GeoSyntec Consultants, Inc.	0	2	200112277
	ENVIODESIGN ASSOCIATES, INC.			200101799
Newman, Christine	Florida Dept. of Transportation, District 5	0	1	201100504

Arch	Stru	Mari	Cell	Shape_Leng	Shape_Area
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YES	YES			1.92438819122	0.00275533988
YES	YES		YES	0.09697072212	0.00074307502
YES	YES			0.59156221191	0.00029209885
YES				0.29398637015	0.00012032692

Arch	Stru	Mari	Cell	Shape_Leng	Shape_Area
YES	YES		YES	0.09706458324	0.00074556677
YES	YES		YES	0.09697072212	0.00074307502
YES				0.29398637015	0.00012032692

x Original
☐ Update
Give site# at right

Resource Group Form

Districts, Landscapes, Building Complexes
Florida Master Site File
Version 2.0 April, 2005

Site # BR1957
Recorder#
Field Date 12/21/05
Form Date 04/03/06

NOTE: Use this form to document the resources described in the box below. In each case, multiple contributing (and non-contributing) cultural resources should also be documented individually at the Site File. *Do not use this form for NR multiple property submissions:* NR multiple property submissions (MPSs) are treated as Site File manuscripts, while individual NR resources and districts listed under a given MPS cover each have the MPS manuscript number in the "*Survey #*" field.

Check the ONE box that best describes the Resource Group:

A ☐ ***Historic district*** (coded "district" on NR Nomination): buildings and NR structures only: NO archaeological sites
B. ☐ ***Archaeological district*** (coded "district" on NR Nomination): archaeological sites only: NO buildings or NR structures
C ☐ ***Mixed district*** (NR category "district"): includes more than one type of cultural resource (example: archaeological sites and buildings)
D. ☐ ***FMSF building complex*** (coded "building(s)" on Nomination): multiple buildings in close spatial and functional association
E. ☐ ***Designed historic landscape*** (coded "district" or "site" on NR Nomination): can include multiple resources (see *National Register Bulletin 18*, page 2 for more detailed definition and examples: e.g. parks, golf courses, campuses, resorts, etc.)
F. x ***Rural historic landscape*** (coded "district" or "site" on NR Nomination): can include multiple resources and not formally designed (see *National Register Bulletin, Guidelines for Evaluating and Documenting Rural Historic Landscapes* for more detailed definition and examples: e.g. farmsteads, fish camps, lumber camps, traditional ceremonial sites, etc.)

Resource Group Name Main Sottile Canal *Multiple Listing [DHR only]*
Project Name Cultural Resource Assessment Survey I-95 From North of CR512 to South SR 514 (Babcock Street) FMSF Survey # 12777
National Register Category (please check one): ☐ building(s) ☐ structure ☐ district x site ☐ object

LOCATION & MAPPING

Address (if applicable, include N,S,E,W; #; St., Ave., etc.)
Nearest City/Town within 3 miles In Current City Limits? ☐yes x no ☐unknown
County or Counties (do not abbreviate) Brevard
Ownership (Please check one): ☐private-profit ☐private-individual ☐city ☐county ☐Native American ☐ various ☐private-nonprofit ☐private-unspecified x state ☐federal ☐foreign ☐unknown
Name of Public Tract (e.g., park)
1) Township 30S Range 37E Section 7-12 ¼ section: ☐NW ☐SW ☐SE ☐NE ☐Irregular-name: center
2) Township 30S Range 38E Section 7-9 ¼ section: ☐NW ☐SW ☐SE ☐NE ☐Irregular-name: center
3) Township Range Section ¼ section: ☐NW ☐SW ☐SE ☐NE ☐Irregular-name:
4) Township Range Section ¼ section: ☐NW ☐SW ☐SE ☐NE ☐Irregular-name:
USGS 7.5' Map Name(s) & Date(s) (boundaries must be plotted on attached photocopy of map; label with map name and publication date) Grant
Plat, aerial, or other map (map's name, originating office with location)
Landgrant
Verbal Description of Boundaries (description does not replace required map) For the purposes of this designation, the Main Sottile Canal begins in Section 7 of Township 30S/Range 37 E and continues eastward through Sections 8, 9, 10, 11, and 12. It continues eastward into Section 7 of Township 30S/Range 38E and continues through Sections 8 and half of 9.

DHR USE ONLY OFFICIAL EVALUATIONS DHR USE ONLY

NR DATE ___/___/___
DELIST DATE ___/___/___
NR Reference Number

KEEPER-NR ELIGIBILITY ☐yes ☐no Date ___/___/___
SHPO-NR ELIGIBILITY: ☐yes ☒no ☐potentially elig. ☐insufficient info Date 05/30/2006
LOCAL DESIGNATION: Date ___/___/___
Local office
NR Criteria for Evaluation ☐a ☐b ☐c ☐d If covered by MPS, FMSF manuscript #

Resource Group Form

Florida Master Site File
Version 2.0

Site # ___BR1957___

DESCRIPTION & HISTORY

Construction date: Exactly_____(year) Approximately 1920s (year) Earlier than_____(year) Later than_____(year)
Architect/Designer(last name first): ___Sebastian Drainage District_____ Builder(last name first): _____
Total number of individual resources included in this Resource Group: # of contributing____1_____# of non-contributing_____
Time period(s) of significance (for prehistoric districts, use archaeological phase name and approximate dates; for historical districts, use date range(s), e.g. *1895-1925*)
American Twentieth Century (1920s) _____
Narrative Description (*National Register Bulletin 16A* pp. 33-34; fit a summary into 3 lines, but attach supplementary sheet[s] if a longer description is also needed) _____
The Sottile Canal was one of several canals built in the 1920s to divert water from the Upper St. Johns River Basin. The Sottile Canal was built by the Sebastian Drainage District. _____

RESEARCH METHODS (Check all choices that apply; if needed write others at bottom)

x formal archaeological survey	x past surveys search at FMSF	☐ local library research	☐ Sanborn maps
x informal archaeological inspection	x past sites search at FMSF	x non-local library research	☐ subdivision maps
☐ Public Lands Survey (DEP)	☐ FL Archives (Gray Building)	☐ building permits	x plat maps
☐ tax records/property deeds	☐ FL Photo Archives (Gray Building)	☐ demolition permits	☐ local newspaper files
☐ tax records only	x occupant/owner interview	☐ commercial permits	
☐ interior inspection	☐ neighbor interview	☐ occupation permits	

x other methods (specify) Interviews with knowledgeable individuals _____

SURVEYOR'S EVALUATION OF RESOURCE GROUP (Check one choice on each line)

Potentially eligible for local register? ☐yes: name register at right x no ☐insufficient info Name of local register if eligible:_____
Eligible as National Register district? ☐yes x no ☐insufficient info _____
Area(s) of Historical Significance (see *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
Engineering, Agriculture_____

Explanation of Evaluation (required; see *National Register Bulletin 16A* p. 48-49. Attach longer statement, if needed, on separate sheet.) _____
The Sottile Canal is one of several canals built during the early 1900s in Florida. Its purpose was to drain lands for agricultural endeavors. Through the years the canal has been subjected to significant non-historic alterations. The canal was constructed using typical 20th century construction methods and it does not appear to have any distinctive historical association. _____

FURTHER INFORMATION

Bibliographic References (use Continuation Sheet, give FMSF Manuscript # if relevant) Clapp, David A., and Harold A. Wilkening, 1984, Technical Publication SJ 84-10 Interbasin Diversion in the Upper St. Johns River Basin, SJRWMD, Palatka. _____

Location of important records not submitted to the Site File (e.g., planning department file; photo negatives; field notes)
Field notes, additional photographs – Archaeological Consultants, Inc., St. Augustine and Sarasota offices_____

RECORDER

Name (last name first) / Address / Phone / Fax / Email / Affiliation Newman, Christine, ACI, St. Augustine, 904/829-9100 _____
ACI/8110 Blaikie Court, Suite A, Sarasota, FL 34240/941-379-6206/ACIFlorida@comcast.net_____

REQUIRED

(1) Photocopied USGS 7.5' map with district borders in red
(2) Street map or plat or aerial, at least 1"=400' scale; resources mapped & labeled

RESOURCE GROUP FORM

Site #8 BR1957

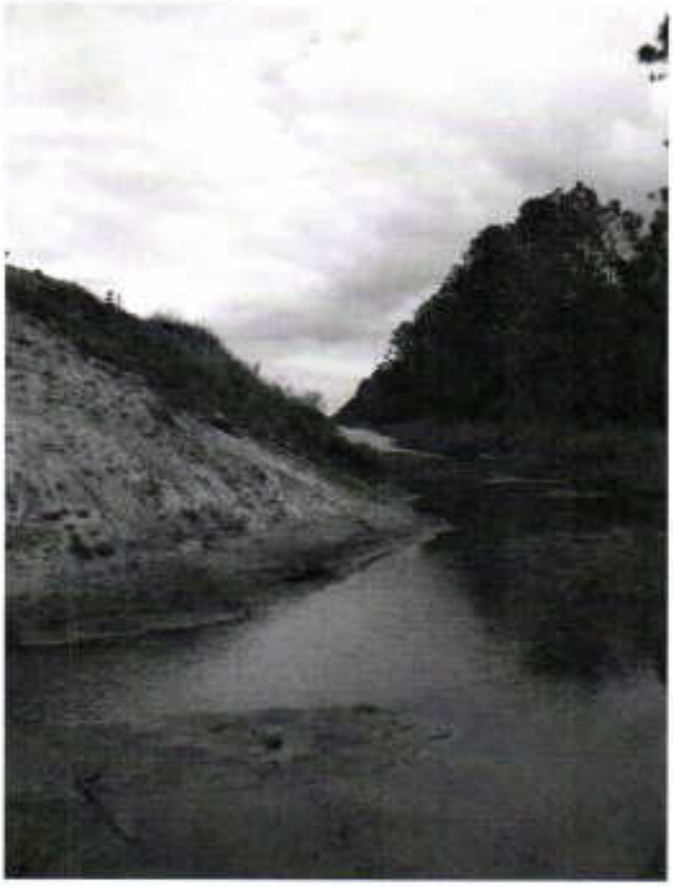
USGS MAP

Fellsmere NW, Fla. 1953, PR 1970; Grant, Fla. 1949, PR 1970

RESOURCE GROUP FORM

PHOTOGRAPHS

Site #8 BR1957

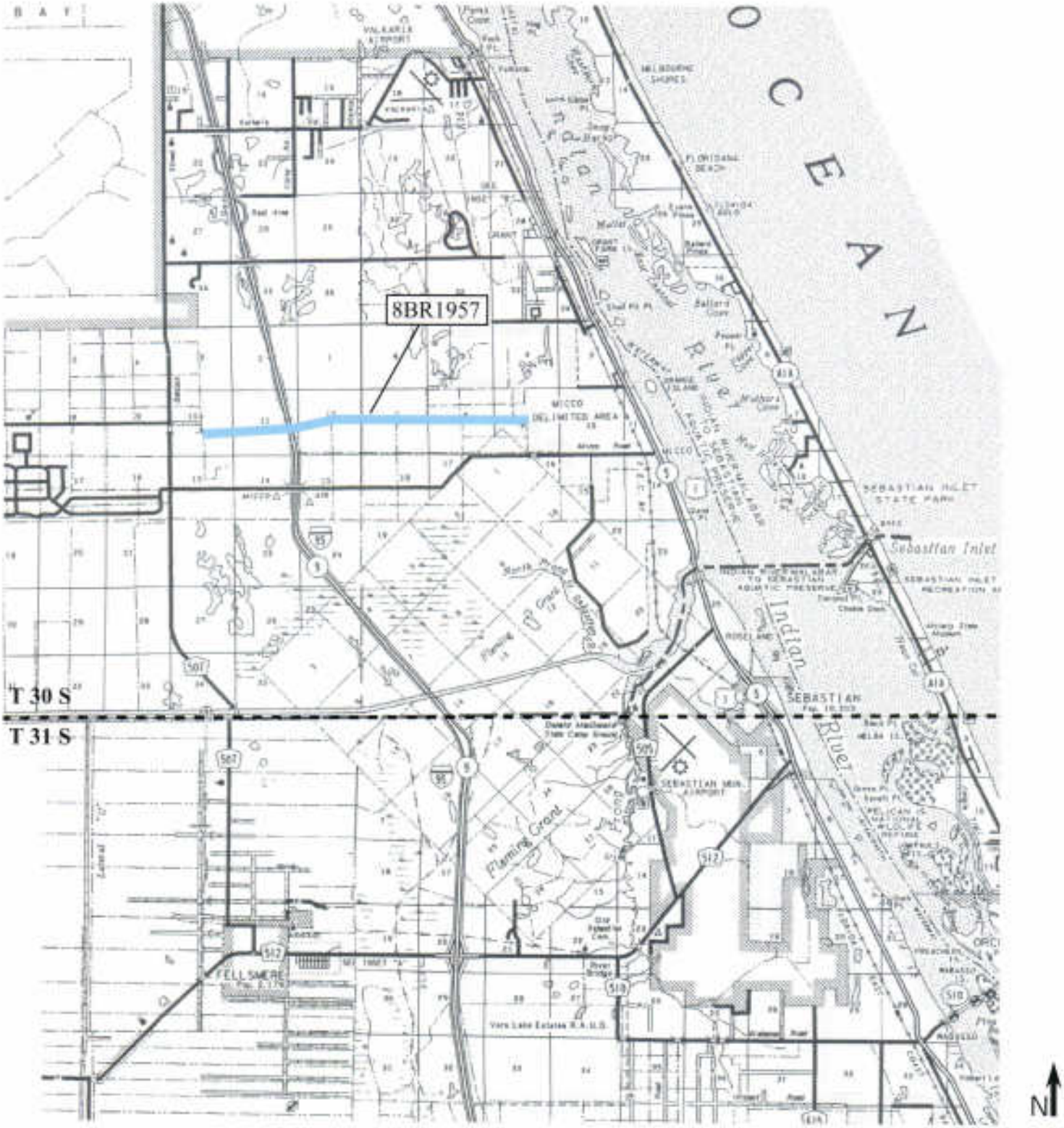


RESOURCE GROUP FORM

Site #8 BR1957

DOT State Mapping Office

Indian River County 1998; Brevard County 1996



ARCHAEOLOGICAL CONSULTANTS INCORPORATED

Page 1

☐ Original
X Update

RESOURCE GROUP FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Site #8 BR 1957
Recorder# _____
Field Date 12 / 10 / 07
Form Date 02 / 25 / 08

NOTE: Use this form to document districts, landscapes and building complexes as described in the box below. Cultural resources contributing to the Resource Group should also be documented individually at the Site File. **Do not use this form for National Register multiple property submissions** (MPSs). National Register MPSs are treated as Site File manuscripts and are associated to the individual resources included under the MPS cover using the Site File manuscript number.

Check ONE box that best describes the Resource Group:

- ☐ **Historic district** (NR category "district"): buildings and NR structures only: NO archaeological sites
- ☐ **Archaeological district** (NR category "district"): archaeological sites only: NO buildings or NR structures
- ☐ **Mixed district** (NR category "district"): includes more than one type of cultural resource (example: archaeological sites and buildings)
- ☐ **FMSF building complex** (NR category usually "building(s)"): multiple buildings in close spatial and functional association
- ☐ **Designed historic landscape** (NR category usually "district" or "site"): can include multiple resources (see *National Register Bulletin #18*, page 2 for more detailed definition and examples: e.g. parks, golf courses, campuses, resorts, etc.)
- ☐ **Rural historic landscape** (NR category usually "district" or "site"): can include multiple resources and resources not formally designed (see *National Register Bulletin #30, Guidelines for Evaluating and Documenting Rural Historic Landscapes* for more detailed definition and examples: e.g. farmsteads, fish camps, lumber camps, traditional ceremonial sites, etc.)
- X **Linear resource** (NR category usually "structure"): Linear resources are a special type of rural historic landscape and can include canals, railways, roads, etc.

Resource Group Name **Main Sottile Canal** Multiple Listing [DHR only] _____
Project Name **Babcock Street (SR 507) Widening Project** FMSF Survey # 15205
National Register Category (please check one): ☐ building(s) X structure ☐ district ☐ site ☐ object
Linear Resource Type (if applicable): X canal ☐ railway ☐ road ☐ other (describe): _____
Ownership: ☐private-profit ☐private-nonprofit X private-individual ☐private-nonspecific ☐city X county X state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Address (if applicable, include N,S,E,W; #; St., Ave., etc.) _____
City/Town (within 3 miles) _____ In Current City Limits? ☐yes X no ☐unknown
County or Counties (do not abbreviate) **Brevard**
Name of Public Tract (e.g., park) _____
1) Township **30S** Range **37E** Section **7-12** ¼ section: ☐NW ☐SW ☐SE ☐NE ☐Irregular-name: _____
2) Township **30S** Range **38E** Section **7-9** ¼ section: ☐NW ☐SW ☐SE ☐NE ☐Irregular-name: _____
3) Township _____ Range _____ Section _____ ¼ section: ☐NW ☐SW ☐SE ☐NE ☐Irregular-name: _____
4) Township _____ Range _____ Section _____ ¼ section: ☐NW ☐SW ☐SE ☐NE ☐Irregular-name: _____
USGS 7.5' Map Name(s) & Date(s) (boundaries must be plotted on attached photocopy of map; label with map name and publication date) _____
Grant
Plat, Aerial, or Other Map (map's name, originating office with location) _____
Landgrant _____
Verbal Description of Boundaries (description does not replace required map) **The Main Sottile Canal begins in Section 7 of Township 30S, Range 37 E and continues eastward through Sections 8, 9, 10. 11, and 12. It continues eastward into Sections 7 through 9 of Township 30 S, Range 38 E. It bisects both I-97 and SR 507**.

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date ___/___/___ ☐ Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☑insufficient info Date 6/2/08 Init. AMW KEEPER – Determined eligible: ☐yes ☐no Date ___/___/___ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

RESOURCE GROUP FORM

Site #8 BR 1957

HISTORY & DESCRIPTION

Construction date: Exactly_____(year) Approximately_____(year) Earlier than 1929 (year) Later than 1919 (year)
Architect/Designer(last name first): Sebastian Drainage District Builder(last name first): Sebastian Drainage District
Total number of individual resources included in this Resource Group: # of contributing 1 # of non-contributing 0
Time period(s) of significance (for prehistoric districts, use archaeological phase name and approximate dates; for historical districts, use date range(s), e.g. *1895-1925*)
1919-1920s
Narrative Description (*National Register Bulletin 16A* pp. 33-34; fit a summary into 3 lines or attach supplementary sheets if needed) The Sottile Canal was one of several canals built in the 1920s to divert water from the Upper St. Johns River Basin. The Sottile Canal was built by the Sebastian Drainage District and may be part of the Melbourne Tillman Canal System. The canal was significant for its drainage of land to be used for agriculture and to attract settlement to the area. The canal played a significant role in the development of southern Brevard County

RESEARCH METHODS (check all that apply)

X FMSF record search (sites/surveys)	X library research	☐ building permits	☐ Sanborn maps
X FL State Archives/photo collection	X city directory	☐ occupant/owner interview	X plat maps
X property appraiser / tax records	X newspaper files	☐ neighbor interview	X Public Lands Survey (DEP)
X cultural resource survey	X historic photos	☐ interior inspection	X HABS/HAER record search

X other methods (specify) Environmental Data Resources , Inc. historic topo report, EDR historic aerials report, NWI maps, USFWS land cover maps, cattle dipping vat database
Bibliographic References (use Continuation Sheet, give FMSF Manuscript # if relevant) A Cultural Resources Assessment Survey of the Proposed Babcock Street (SR 507) Widening, Brevard County, Florida

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? X yes ☐no ☐insufficient information
Potentially eligible as contributor to a National Register district? X yes ☐no ☐insufficient information
Explanation of Evaluation (required, see *National Register Bulletin 16A* p. 48-49. Attach longer statement, if needed, on separate sheet.) The Sottile Canal was one of several canals built in the 1920s to divert water from the Upper St. Johns River Basin. The Sottile Canal was built by the Sebastian Drainage District and may be part of the Melbourne Tillman Canal System. The canal was significant for its drainage of land to be used for agriculture and to attract settlement to the area. The canal played a significant role in the development of southern Brevard County
Area(s) of Historical Significance (see *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
Engineering, Community Planning & Development, Significant to local history, Criteria A, C, and D

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents that are permanently accessible: For each separately maintained collection, describe (1) document type(s),* (2) maintaining organization,* (3) file or accession nos., and (4) descriptive information.
All documents on file, Thomas Penders and Associates

RECORDER INFORMATION

Recorder Name Penders, Thomas E.,
Recorder Contact Information (Address / Phone / Fax / Email) 3365 Heather Drive, Titusville, Florida 32796
Recorder Affiliation Thomas Penders and Associates

Required Attachments

- PHOTOCOPY OF USGS 7.5' MAP WITH DISTRICT BOUNDARY CLEARLY MARKED
- LARGE SCALE STREET, PLAT OR PARCEL MAP WITH RESOURCES MAPPED & LABELED
- TABULATION OF ALL INLCUDED RESOURCES (name, FMSF #, contributing? Y/N, resource category, street address or township-range-section if no address)
- PHOTOS OF GENERAL STREETSCAPE OR VIEWS (Optional: aerial photos, views of typical resources)

Photos may be archival B&W prints OR digital image files. If submitting digital image files, they must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital images must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Fellsmere Grade Road (8 IR 1085)

The Fellsmere Grade Road (8 IR 1085) and the Fellsmere Main Canal (8 BR 1960 and 8 IR 1162) were constructed in 1911 and completed two years later as part of a development project called the Fellsmere Farms Company. This development encompassed approximately 118,000 ac (47,752 ha) of land to make it useful for agriculture. The spoil from the canal excavation was used to construct a dike on the south side of the canal. A photograph from 1912 shows temporary housing for laborers working on the Fellsmere Main Canal (Figure 27). The workers are shown standing on the spoil pile which would become the dike. Later, in the 1930s this dike would have a road constructed by convict labor (Dickinson and Wayne 2004; ACI 2006; Patterson 1977:6; Clapp and Wilkenberg 1984). The road and canal both are visible on aerial photograph from 1943 (Figure 28). ACI stated the section within their project area was relatively unchanged except for some erosion. They felt the road was significant at the local level as a historic road and maintains its integrity. Research by Thomas Penders and Associates failed to find any new information which would change the determination of eligibility. The Fellsmere Grade Road is located on the north side of the Fellsmere Main Canal. It appears in good condition and observations found this road is still in use. It is the opinion of Thomas Penders and Associates that based on research alone the Fellsmere Grade Road meets criteria A, C, and D for listing on the NRHP.

It was unclear whether the project would have any impacts on the Fellsmere Grade Road. Thomas Penders and Associates recommends that any construction occurring at this site should be cognizant that the canal is NRHP eligible. Since the proposed plans as of this date are suppose to be limited to the existing ROW the site has already been impacted in this section. Once plans are finalized a consultation with SHPO is recommended to minimize impacts to this site. Current conditions of the site are illustrated in Figures 63 and 64. Location information is illustrated in the USGS map for the area (Figure 65) and a current aerial photograph (Figure 66). FMSF forms are located in Appendix B.

Main Sottile Canal (8 BR 1957)

The Main Sottile Canal (8 BR 1957) crosses Babcock Street. The canal was constructed in the 1920s using typical twentieth century methods by the Sebastian Drainage District. The Sebastian Drainage District, while no longer in existence, was created as a result of Chapter 291, Florida Statute. The District, like other- throughout the slate, was formed in 1919 to create acreage suitable for agriculture (Clapp and Wilkenberg 1984). The Main Sottile Canal is one of at least 13 canals which cross the Atlantic Coastal Ridge. This canal, like others, was built daring the early 1900's to either supply water or function as drainage for the Upper St. Johns River Basin. Through the years the canal has been subjected to a number of alterations including a plug placed in the canal. The best photograph of the canal dates to 1951 (Figure 29). Presently it drains approximately 2833 ha (7000 ac) of improved pasture, citrus, and undeveloped land. It is approximately 13.7 km (8.5 mi) in length and varies in width and depth along its length. ACI determined the canal was not NRHP eligible in their study and SHPO concurred (ACI 2006). Thomas Penders and Associates disagrees with the ACI assessment. Though the section crossed by I-95 may have been substantially altered the portions east and west of Babcock Street appear to be intact except for the addition of some culverts. Furthermore, the canal is associated with the early twentieth century development of southern Brevard County. This was one of several canals used to drain land to encourage agricultural development in the region. It could also be associated with the Melbourne-

Tillman Canal District. For this reason, based on research alone the Main Sottile Canal portion from west of I-95 to west of Babcock Street is NRHP eligible under criteria A, C, and D.

Thomas Penders and Associates visited the site as part of this survey. While ACI stated the segment at I-95 has been significantly altered this was not the case where Babcock Street crosses canal. There has been some installation of culverts and impacts at the crossing point. Otherwise the canal is intact. Current conditions of the site are illustrated in Figures 67 and 68. Location information is illustrated in the USGS map for the area (Figure 69) and a current aerial photograph (Figure 70). Site forms are located in Appendix B

Palm Bay Florida Power and Light Substation (8 BR 2196)

A newly documented site is the Florida Power and Light Substation (8 BR 2196). This was an electrical power substation built in 1954 (Brevard County Property Appraiser 2007). The oldest image of the facility is an aerial photograph from 1969 (Figure 30). It appears to be a typical electric power facility. Inquiries by Thomas Penders and Associates to Florida Power and Light (FPL) went unanswered. There is no data to suggest the site is NRHP eligible. It does not meet any of the criteria other than being older than 50 years.

The site consists of the original 1950s component which was a substation consisting of a transformer yard and small building. The building was rectangular in plan and setting on a poured concrete foundation. The walls were concrete block on which sat a built up roof of asphalt and gravel. A single metal slab door provides entry to the structure. To the northwest was a second transformer yard which did not have a support building. To the east and northeast was a large fenced yard with a gravel surface. In this area were stored transformers, wooden poles, and miscellaneous equipment. Several small prefabricated sheds were observed in the yard, as were FPL vehicles. Current conditions of the site are illustrated in Figures 71 through 74. Location information is illustrated in the USGS map for the area (Figure 75) and a current aerial photograph (Figure 76). FMSF forms are located in Appendix B.

SUMMARY AND RECOMMENDATIONS

Summary

A review of the literature was performed as the first step in preparation of the archaeological and historical study. Copies of archaeological and historical survey reports for Brevard County and the project area were obtained from the FSMSF of the DHR in Tallahassee. The reports were reviewed to become familiar with the current state of research for the site area and Brevard County. Archaeological publications for the area were reviewed and literature searches were also conducted at the Tebeau Field Library of Florida History and University of Central Florida for documents and references that may have relevance to the project area. The files of the Brevard County Historical Society, Brevard County Planning Office, Brevard County Property Appraiser's Office, and Tebeau Library of Florida History were reviewed for the parcels and adjoining parcels. This research included land records, maps, genealogical records, historic documents, and aerial photographs of the area. A search was conducted of the Title and Records Section, FDEP for historic records and information from previous surveys conducted in the project area. Additional research included research of the HABS/HAER database for historic properties. Thomas Penders & Associates utilizes the services of Environmental Data Resources, Inc (EDR). EDR conducts research primarily for environmental assessments. Their databases include

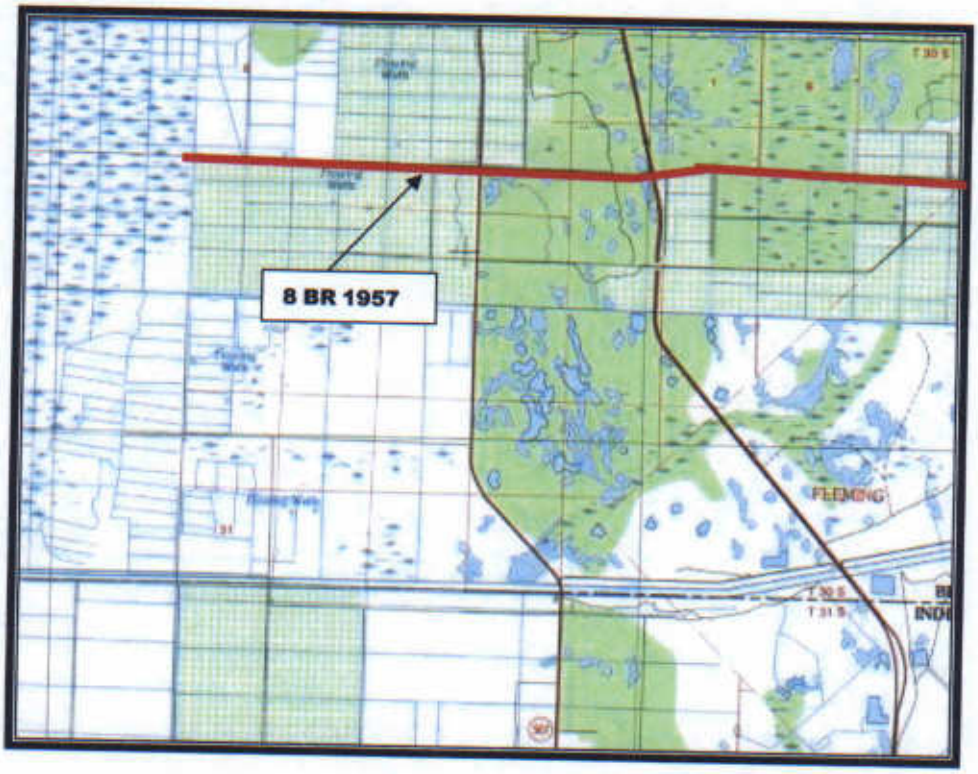


Figure 69. USGS map showing the location of the Main Sottile Canal

Figure 70. Current aerial photograph of the Main Sottile Canal

Appendix P : History of SBCSE

BR56

An Agreement Relating to Archeological Excavation at the Grant Mound, Sebastian, Florida

Cultural Resource Management, Inc. proposes to undertake salvage archeological excavations at a burial mound and midden site known as the Grant Mound at Sebastian, Florida. The work will be carried out in accordance with recognized sound archeological procedures and is designed to recover a maximum amount of information, including artifacts, before the site is destroyed by commercial development.

Any artifacts found during the project remain the property of the landowners who hereby agree to donate them to a responsible institution with facilities for adequate curation. Artifacts shall be made available to the archeologist for analysis for a reasonable time, either by the owners or the institution.

Cultural Resource Management, Inc. will not be responsible for liability of volunteers on the site, however, every normal precaution for safety of personnel on the site will be observed. Cultural Resource Management, Inc. will not be responsible for theft from the site or storage area, although, again, normal and reasonable precautions will be taken to safeguard material.

The site archeologist shall have absolute authority on the site regarding safety, access of volunteers and visitors, as well

as archeological techniques to be followed, and all contact with the press shall be through the archeologist. The owners agree to restrict clearing, construction, and other work to those portions of the tract not containing archeological remains.

The Florida Division of Archives, History and Records Management has agreed to assist in the project in certain specific ways, principally by providing tools, laboratory space, and temporary care of excavated material, and may be consulted from time to time to insure professional adequacy of the investigation. This agreement in no way obligates the state to additional responsibilities.

Payment for work shall be made in the amount of $2000 at the beginning of the project and the remainder as invoiced with records of time and expenses. The total shall not exceed $5000 without further authorization.

_____

James F. Miller, President
Cultural Resource
Management, Inc.

_____

_____

_____
Witness

1

BR56

FLORIDA DEPARTMENT OF STATE
George Firestone
Secretary of State
Ron Levitt
Assistant Secretary of State

DIVISION OF ARCHIVES, HISTORY
AND RECORDS MANAGEMENT
L. Ross Morrell, Director
(904) 488-1480

By this statement it is hereby acknowledged that I David Swindell III have received and assume responsibility for one (1) Honeywell Pentax Model SP 1000, 35 mm SLR camera (serial number 5818920-S.O.S. number 7769) with 55 mm/f2 lens (serial number 8090294); I have received the above camera this date 9/10/80 in good and working condition for use on Grant Site Salvage (8BR56), an archaeological project undertaken in the interests of the citizens of the State of Florida by Cultural Resource Management, Inc., P.O. Box 2182, Alexandria, VA 22301. Such responsibility shall include reasonable care and cleaning while in the field and in the event of loss or damage to lens or camera - such lens or camera or both shall be repaired to working condition or replaced with other lens or camera or both of like value to that above described.

David E. Swindell III
Project Archeologist
Cultural Resource Management, Inc.

Management

Field Equipment loaned to Cultural Resources, Incorporated to be used during the excavation of 8 Br 56, the grant site located near Grant, Florida. This equipment was placed in the care of Mr. David Swindell, archaeologist forthe company on Sept. 10, 1980. This equipment will be returned once this project is completed.

	quantity:
large lopping shears	2
small prunning shears	4
roll of duct tape	1
can of W. D. 40	1
9' by 12' drop cloths	3
roll 10' by 25' plastic sheating	3
20" bow saw	1
small round brushes	5
2 and one half gal. gas can	1
8 " mill file	2
6 " wire brushes	2
rolls of nylon twine	2
Wheel barrow	1
20 ft. chain with hooks	1
engine oil quarts	3
2 and one half gal. water cooler	1
small latex brushes(one inch)	5
5 and one half inch marshalltown trowels	9
No. 2 galvenized wash tub	1
galvenized one gallon tubs	4
metal survey pens	5
shaker screen bearings	2
wide brush	1
flat blade shovel	12
one box of 6" by 15" plastic bags	1
large cloth bags	11
metal mapping grid	1

Mound

From Page 1A

He indicated that the landowner, through his trustee, is doing some of the funding of the project. There are hopes by Swindell that other funding may be obtained.

"We have received cooperation from the Department of the State Division of Archives, History and Records Management in Tallahassee. The department has provided equipment and will also be providing laboratory space in Tallahassee where items found in the mound will be evaluated."

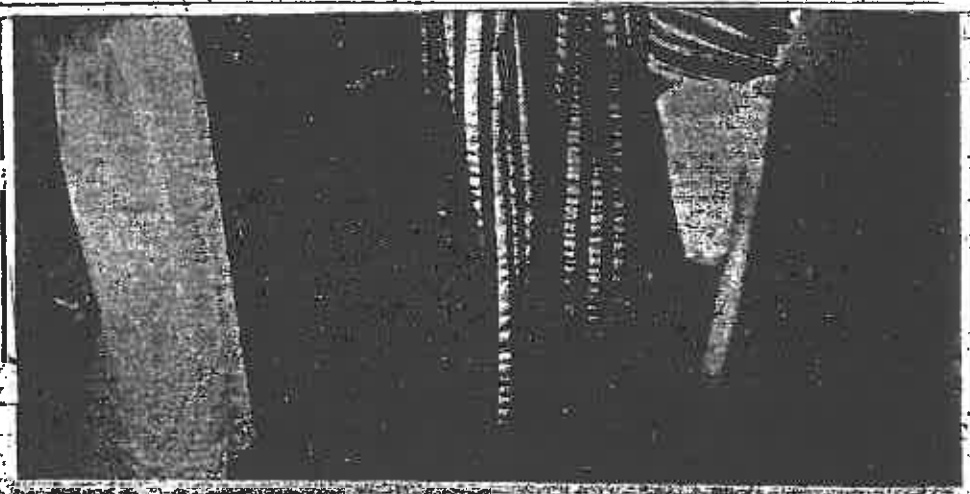
Swindell is a graduate of Florida State University where he received a masters degree in anthropology. He has worked previously with the Division of Archives, History and Records Management and has done archeological surveying as well as archeological planning for preservation and historic preservation.

Benton has a BA degree in anthropology from Florida State University. The Spanish-Colonial period is his specialty.

The archeological site is protected 24 hours a day by armed guards.

Says Swindell, "We will be working a regular eight-hour day, including weekends."

Knowledgeable volunteers who have had experience in site excavation are welcome, but should first check with Swindell. Even amateur archeologists without prior experience may be used, but they, too, should first check with Swindell. He is staying at the Sandrift Motel in Sebastian and can be reached by calling 589-4546.



Uncle Sam

Uncle Sam makes his way through the crowd on stilts at the Harris Semiconductor open house last Saturday. Family members of Harris employees viewed exhibits and toured

By KATHY GRANT

8Br56

lassified, all other departments 723-7681

Volume 6, Number 3
Wednesday, September 24, 198

n of ancient burial site begins

r bulldoze the property. Cato interceded in an effort to save the mound's contents and to find what secrets it might hold. Cultural Resource Management Inc., whose president lives in Alexandria, Va., has contracted with the trustee of the landowner "to salvage as much as possible of the site," says David Swindell.

e s l Swindell is senior site archeologist at the Grant excavation site. Dale Benton, another employee of Cultural Resource Management Inc., is assistant project archeologist. Both young men are Tallahassee based, as are other employees of the small firm. "The president of the firm just happens to live in Alexandria, Va.," says Swindell.

Volunteers from the Indian River Chapter (Cocoa) of the Florida Anthropological Association are assisting archeologists at the site.

"The mound could go to 1200 AD. St. Johns check stamp pottery has been found here," says Swindell. He notes that much that has been said and printed about the mound "is speculation." He is cautious in choosing his words about what he believes may be found at the ancient site.

The triple-layer mound is explained by Swindell as being a top, or historical layer, then a shell cap, a sand layer, a second shell cap and then a third layer.

The burial mound has had long usage "or possibly re-usage," says Swindell. He indicates the goal of Cultural Resource Management is "to get as much information as we can in the least amount of time."

See MOUND, 2A

ues

oposal upport

Greco said DeBartolo's regional mall in Altamonte Springs is surrounded by multi-family development. "The development acts as a buffer between single family housing and the mall," he said

Samuel J. Foosaner, a retired tax lawyer and resident of New Jersey as well as a Brevard County property owner, sold the property to DeBartolo. He said Monday that he purchased two acres back for his grandchildren and retained 300 by 30 feet on Evans Road and Hibiscus Boulevard, but he would neither confirm nor deny a report that he intends to build office complexes on the corner property

Site Name _____ County BREVARD

Site No. BR 56 ARCHEOLOGICAL SITE SURVEY

Other Names NONE UNIVERSITY OF FLORIDA

Other Nos: NONE Long. ° ' " Lat. ° ' "

Part of Sec. BREVARD COUNTY FLEMING GRANT Sec. 22 Twn. 30S Rng. 38E

Location (how to reach): 2550' NORTH OF SOUTH LINE OF TWP 30S, AND 50' WEST OF WESTBANK OF ST SEBASTIAN RIVER JUST NORTH OF CITRUS GROVE AT TOP OF RIVER BLUFF, MOST READILY ACCESSIBLE BY BOAT ON ST. SEBASTIAN BAY

Period of site ST. JOHNS? POSSIBLY ST. AUGUS

Classified by _____

Date _____

Nature of site: BURIAL MOUND OF AIS INDIANS (NOT SHELL MIDDEN) POST COLUMBIAN

Size of site: APP. 3 ROWS BY 4 ROWS (175'x264')

Present condition of site: LIMITED RECENT EXCAVATION

Soil type: FINE GRAY SAND

Vegetation and general physiographic situation: SUB TROPICAL HAMMOCK TALL OLD SENTINEL PALMS + RECENT HICKORY AND BAY

Owner: FRED BASS (RANCHER)

Tenant:

Attitude toward excavation: LIMITED TO STATE ARCHAEOLOGIST AND HOMER N. CATO

Referred to site by:

Field Party:

Recorder: _____ Date: _____

Frequency of material:

Material collected:

Other materials and location:

Published references:

Remarks:

Map used for reference:

Past owners and dates: DON GEORGE FLEMING (1919) INDIAN RIVER LAND & IMP. CO. (1888)
LESTER HANSHAW (1926 - 35)

Rev. 1-51

BR5Le

ST. PETERSBURG TIMES ■ SUNDAY, AUGUST 3, 1980 15B

Indian mound may hold remains of the first Europeans in Florida

United Press International

SEBASTIAN — Professional and amateur archaeologists suspect that an Indian mound near Sebastian may contain the skeletal remains of the first Europeans to set foot in Florida.

Researchers believe European shipwreck survivors may have lived with the Ayz (pronounced "eyes") tribe at least three years prior to the founding of St. Augustine, the United States' oldest city.

"IT'S AN ancient monument that took centuries to build and contains the people who built it," Calvin Jones, chief archaeologist for the state, said.

Those people may include European captives.

Dr. Eugene Lyon, a researcher known for a large treasure find near Key West, said the Sebastian mound may be "the most important excavation in the country."

The find was reported Friday in *Treasure Coast Magazine and Guide*, an area publication.

Lyon and Homer Cato, president of the South Brevard Historical Society, said documents in Spanish archives indicate that Frenchmen and Spaniards who survived shipwrecks between 1500 and 1550 were taken captive by the Ayz Indians.

TESTIMONY by two men picked up by French ships indicated that they lived with the barbaric tribe in 1562, three years prior to the settlement of St. Augustine, Cato said.

A large cross of conch shells over the grave of the chief indicates that the Indians had some introduction to Christianity, researchers said.

Archaeologists also suspect that an epidemic wiped out the Ayz tribe — possibly a venereal disease carried by the European captives against which the Indians had no resistance.

Florida officials have known about the mound for 12 years.

STATE OF FLORIDA
DEPARTMENT OF STATE
Division of Archives, History
and Records Management
DS-HSP-3A Rev. 5-75

FLORIDA MASTER SITE FILE

FDAHRM 802==

Site No. 8 BR 56 1009==

Site Name Grant Mound 830==

Other Name(s) for Site 930==

Other Nos. for Site 906==

NR Classification Category: 916==

County 808==

Instructions for locating site (or address) 813==

Owner of Site: Name 902==

Address 903==

Occupant, Tenant, or Manager:
Name 904==

Address 905==

Reporter (or local contact):
Name 816==

Address 817==

Recorder:
Name & Title 818==

Address 819==

Survey Date 820== Type Ownership 848==

Inventory Status 914==

Previous Survey(s), Excavation(s) or Collection(s): (*enter title of survey; date; whether federal, state, county or local; location of survey report(s); and material collected*).

839==

Recording Station 804==

Specimens (Inventory Numbers) 870==

Specimens (Present Repository of Materials) 880==

Date of Visit to Site 828== Recording Date 832==

Photographic Record Numbers

SEE SITE FILE STAFF FOR ORIGINAL PHOTO(S) OR MAP(S) 860==

Location of Site (Specific):

Map Reference (incl. scale & date) USGS GRANT 7.5' N 1944 (PR 1973) 809==

Township	Range	Section	¼ Sec.	¼ ¼ Sec.	¼ ¼ ¼ Sec.	
T30S 29S	R38E 38E	S03 34	NW	NE	SW	812==

LATITUDE AND LONGITUDE COORDINATES DEFINING A POLYGON LOCATING THE PROPERTY

Point	LATITUDE Degrees	Minutes	Seconds	LONGITUDE Degrees	Minutes	Seconds
	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"

OR

LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES

27° 54' 23"N		80° 31' 13"W (GPS)		800==

UTM Coordinates: 17 (Zone) 579210 (Easting) 3086760 (Northing) 890==

Description of Site:

Original Use(s) of Site 838==

Site Size (approx. acreage of property) 833==

Condition of Site:

Check one

- ☐ Excellent 863==
- ☐ Good 863==
- ☐ Fair 863==
- ☐ Deteriorated 863==
- ☐ Ruins 863==
- ☐ Unexposed 863==

Integrity of Site:

Check one or more

- ☐ Altered 858==
- ☐ Unaltered 858==
- ☐ Destroyed 858==
- ☐ Restored () Date: () 858==
- ☐ Moved () Date: () 858==
- ☐ Original Site 858==

Condition of Site (Remarks): 863==

Threats to Site: 878==

2

STATE OF FLORIDA
DEPARTMENT OF STATE
Division of Archives, History
and Records Management
DS-HSP-3C Rev. 9-74

Site No. 9Be56

Site Name GRANT MOUND

ARCHAEOLOGICAL SITE DATA SUPPLEMENT

Description of Site (cont.)

Landform EASTERN VALLEY 814==

Elevation 20-25 824== Est. Depth of Deposit 837==

Drainage OFF INDIAN RIVER, UNN STREAM 810==

Soil Type(s)/Association(s) PAOLA-POMELLO - ASTATULA; POMELLO SAND 836==

Vegetation 5; SAND PINE, SCRUB FORESTS 834==

Water Source STREAM 831==

Visible Site Features 876==

Artifacts Collected or Observed 875==

Cultural Classification:

Culture/Phase 840==

Period/Stage 842==

Probable Dates: Beginning 844== Ending 846==

Remarks and Recommendations 835==

Major Bibliographic References 920==

2

FLORIDA ARCHAEOLOGICAL SURVEY

Site No. Br 56
Site Name Grant Mound
Photo Nos.

Location 1 mile South Town Grant not Moores Grant.

Recorded on

Owner Address

Local history

Plowing history Vegetation

Type of soil Erosion

Part of Sec. Sec. Twn. Rng. Long Lat.

Remarks: Mexia's map shows village in area.

Sketch Map

Show relationship to nearby sites, access roads, streams, and major landmarks.

Observer Date

RECORD OF MATERIALS

Collected by survey Brass Bell - Period Friendship.

.....

.....Acc. No.....

Subsequent Collections

Collector .....Date..... Acc. No.....

Collector .....Date..... Acc. No.....

Collector .....Date..... Acc. No.....

Private Collections

Owner ..... Address .....

Type of Material .....

.....

.....Photo No. .....

Excavation Record

Supervisor .....Date..... Acc. No.....

Supervisor .....Date..... Acc. No.....

Published Record

.....

.....

CULTURAL AFFINITY

Preliminary Classification .....

.....

Subsequent Observations .....

.....

.....

.....

FBC Form 68

5

FLORIDA ARCHAEOLOGICAL SURVEY

Site No. BR 56
Site Name GRANT MOUND
Photo Nos.

Location ABOUT 1 MILE SOUTH OF GRANT

Recorded on

Owner Address

Local history

Plowing history Vegetation

Type of soil Erosion

Part of Sec. Sec. Twn. Rng. Long Lat.

Remarks: SHELL AND BURIAL MOUNDS - BRASS BELL FOUND.

Sketch Map

Show relationship to nearby sites, access roads, streams, and major landmarks.

Observer Date

6

RECORD OF MATERIALS

Collected by survey .....

.....

..... Acc. No. .....

Subsequent Collections

Collector ..... Date ..... Acc. No. .....

Collector ..... Date ..... Acc. No. .....

Collector ..... Date ..... Acc. No. .....

Private Collections

Owner ..... Address .....

Type of Material .....

.....

..... Photo No. .....

Excavation Record

Supervisor ..... Date ..... Acc. No. .....

Supervisor ..... Date ..... Acc. No. .....

Published Record

.....

.....

CULTURAL AFFINITY

Preliminary Classification .....

.....

Subsequent Observations .....

.....

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.....

FBC Form 68

7

Br 56: Grant mound. This site, which is situated about a mile south of the town of Grant, should not be confused with the better known Grant mound on the lower St. Johns River (Moore, 1894*b*: 200–4). It is primarily a shell heap, with an accompanying burial mound, and lies in a hammock transversed by the Florida East Coast Railway, which is along a small stream a short distance west of U.S. Highway 1 (Anderson and Singleton, personal communication).

The Florida State Museum contains a collection of pottery made at the site prior to 1915 by H. L. Grant (29912). The following sherds are included: 15 St. Johns Plain, 21 St. Johns Check Stamped, 1 Dunns Creek Red, 6 Glades Plain, and 5 Belle Glade Plain. In addition, there is a complete vessel of the Sarasota Incised type. Since the latter is presumably derived from the protohistoric Englewood complex on the Gulf Coast (Willey, 1948: 212–13), it confirms the evidence of the check stamped sherds that the collection represents the Malabar II culture.

In the U.S. National Museum is a collection of potsherds made by J. W. Gidley on December 17 and 18, 1924, during his first visit to Melbourne (363171), which is catalogued as follows: "From surface of Mound No. 1, on west bank of Indian River, 14 miles south of Melbourne. Mound is about 200 by 700 feet; cuts show depth of over 12 feet. Main circular mound nearby is undisturbed." While the name is not mentioned, this is assumed to be Grant mound, since the latter is just 14 miles south of Melbourne.

8

Gidley apparently revisited the site in 1926, for he published a photograph of it in his report of that year's work (Gidley, 1927: 173, Fig. 176), although without mentioning it in the text. It should be noted, however, that the caption to his photograph agrees in part with the catalogue entry cited above: "Remnant of great Indian shell mound at Grant, Florida. This mound, before being excavated for road building, was about 1,000 ft. long, more than 200 ft. wide, and in places 14 ft. deep. . . ." Moreover, the catalogue entries for two crania presumably collected on this trip (Gidley turned them over to the Department of Anthropology of the National Museum in 1926), refer to the Grant site as being 12 miles south of Melbourne instead of 14 (331407, 415). These facts cast doubt on the identification of the 1924 specimens. Nevertheless, Gidley's two collections will be treated as a unit since it seems unlikely that there would be two sites so close together with such similar characteristics.

The two crania are both male. The second (331415) has been studied by Hrdlička (1940: 327, 333), who finds that it is of the Near Indian River type, having a cranial index of 87.2. The pottery is another Malabar II assemblage: 7 St. Johns Plain, 13 St. Johns Check Stamped, 3 Glades Plain, and 3 Belle Glade Plain sherds.

Singleton (personal communication) adds further to the confusion concerning the nature of the site by reporting that it consists of a "breastwork" three-quarters of a mile long, made mostly of shells, with a shell mound inside. It is possible that this is what was left of the original midden after the removal of material for use in building roads. According to Singleton, his brother found a brass bell in the center of the mound while taking out shells.

9

Anderson (personal communication) has also investigated the site. He has received a human femur from it prior to our 1944 visit, but time did not permit his taking us there. Subsequently, in August, 1944, he dug a test pit at the site and reports that "I found check stamped sherds to a depth of four feet and a considerable amount of plain below this. Also exposed was cemented refuse of bone, sand, and shell with the shells showing a larger variety than I have formerly laid eyes upon. Of interest also is that [despite the cementation] they lay fairly well above the present sea level."

It is unfortunate that the writer was unable to visit the site in order to resolve the discrepancies among the descriptions quoted above. We can only say that there was an unusually large shell heap and possibly also a burial mound, and that the site was inhabited during both the Malabar I and II periods. The reported discovery of a bell suggests that occupation continued into historic times, possibly into the Period of Friendship, since Mexia's map (this paper, Fig. 15) shows a village in the vicinity.

10

Site Name Grant Mound County Brevard

Site No. Br 56 ARCHEOLOGICAL SITE SURVEY

Other Names UNIVERSITY OF FLORIDA

Other Nos. Long. ° ' " Lat. ° ' "

Part of Sec. Sec. Twn. Rng.

Location (how to reach):

Period of site

Classified by

Date

Nature of site:

Size of site:

Present condition of site:

Soil type:

Vegetation and general physiographic situation:

Owner: Tenant: Attitude toward excavation:

Referred to site by: Rouse (1951: 168-70) Field Party:

Recorder: J. Granberry Date: 15 May, 1953

11

1256

Frequency of material:

Material collected:

Other materials and location:

Published references: Rouse (1951:168-70)

Remarks:

Map used for reference:

Past owners and dates:

Rev. 1-51

12

Site Name Grant Mound County Brevard

Site No. Br 56 ARCHEOLOGICAL SITE SURVEY

Other Names UNIVERSITY OF FLORIDA

Other Nos. Long. ° ' " Lat. ° ' "

Part of Sec. Sec. 29 Twn. 27S Rng. 37E

Location (how to reach):

Period of site

Classified by

Date

ture of site:

Size of site:

esent condition of site:

Soil type:

etation and general physiographic situation:

r: Tenant: Attitude toward excavation:

13

red to site by: Rouse (1951:168-70) Field Party:

ler: J. Granberry Date: 15 May, 1953

Frequency of material:

Material collected:

Other materials and location:

Published references: Rouse (1951: 168-70)

Remarks:

Map used for reference:

Past owners and dates:

14

Rev. 1–51

8 Br 56

Shell Mound near Grant

FSM. 26191

Belle Glade Plain
Dunns Creek Rod

Fla. V, p.32

FSM. 26190

Shell Mound near Grant

Brevard County

Pottery: 2 Belle Glade Plain

Fla. V, p.32

15

Shell Mound near Grant Br 56

FSU. 26189-26191

Potsherds. (From H. I. Grant)

Fla. V, p.19

Shell Mound, Grant, Florida.

FSU. 26913

[illegible], St. Johns Plain. Half of vessel and all of rim fragments. St. Johns Incised.

Fla. V, p.17

(Collected by H. I. Grant, 1913)

Shell Mound near Grant

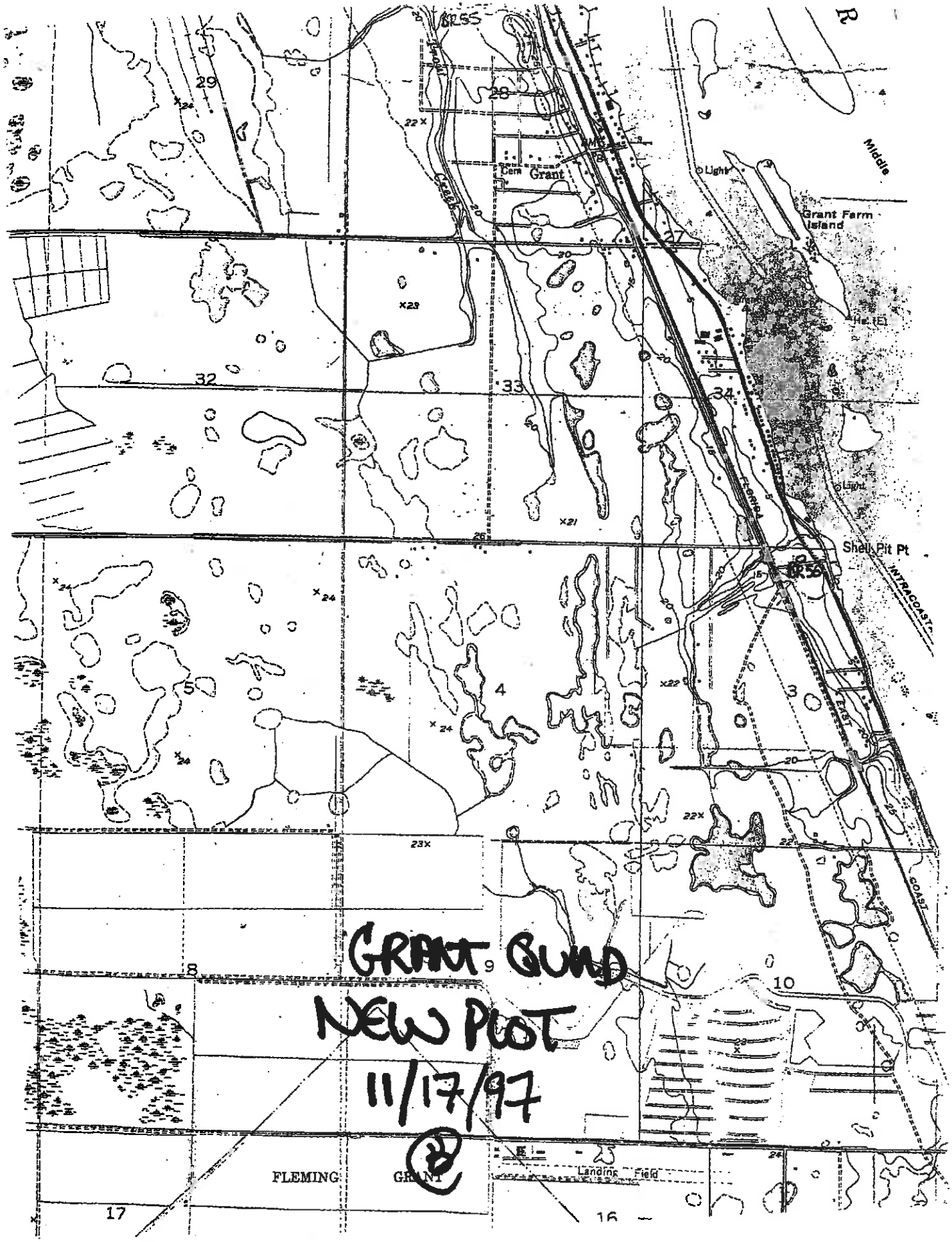
FSU. 26190

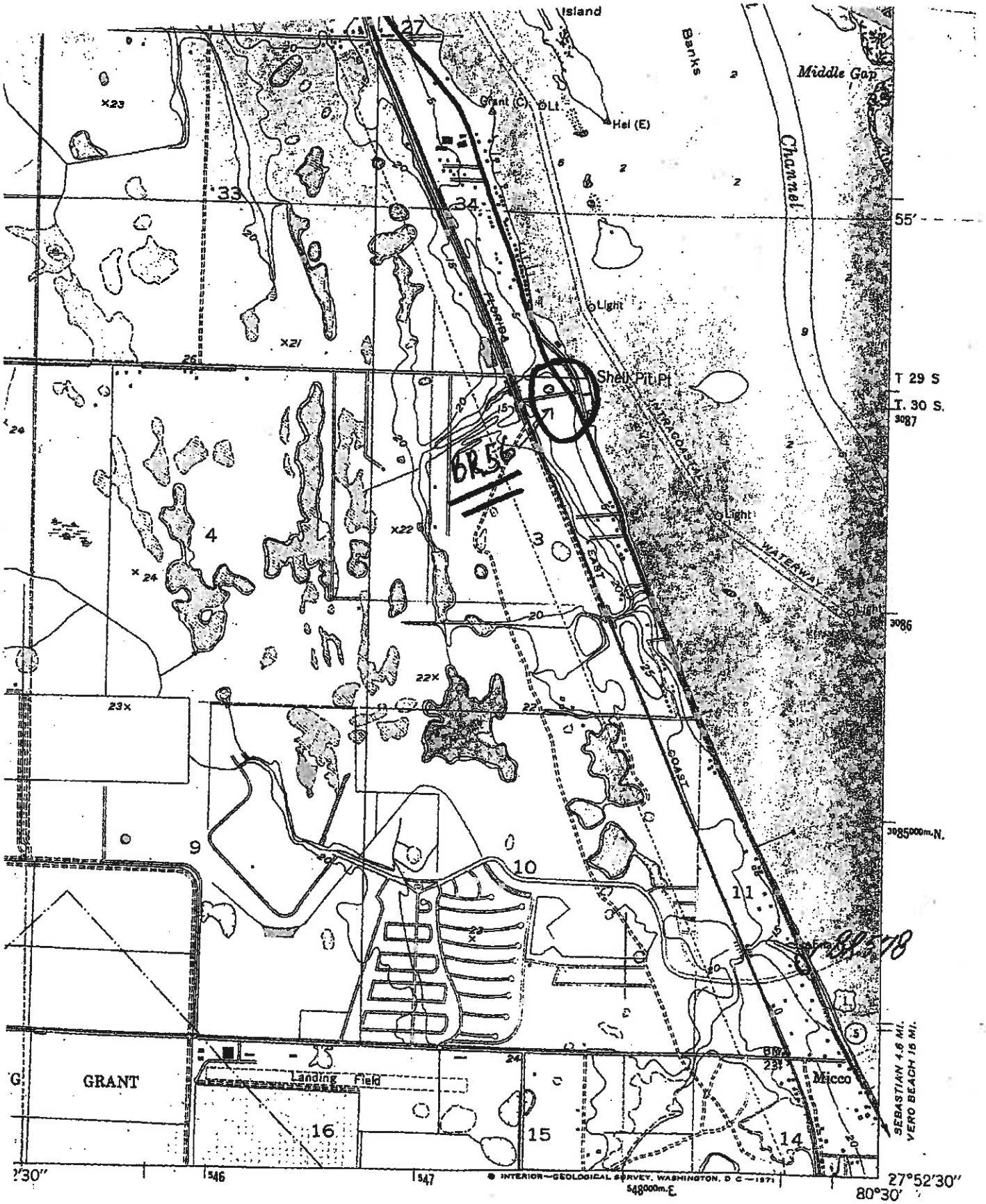
Potsherds: 2 Belle Glade Plain

Fla. V, p.33

16

186


GRANT GUND
NEW PLOT
11/17/97
(2)
Grant
Grant Farm Island
Middle
Shell Pit Pt
INTRACOASTAL
FLEMING
GRANT
Landing Field
29
28
27
32
33
34
5
4
3
8
9
10
17
16



OLD PLOT
11/17/97

188

8Br56

Viewpoint

Grant needed to preserve area history

By TIM DERATANY
State Rep., District 47

Editor's note: The following letter was sent to Secretary of State George Firestone by State Rep. Tim Deratany, R-Indialantic, in an effort to secure state funds to preserve an archeological discovery in the Grant area of South Brevard. Deratany told The Times, "Many previously discovered Ais Indian sites have been destroyed through construction, and with them went part of our history. It is important that we uncover as much of our nation's beginnings as possible before any more is lost. This particular discovery can help fill the big gap between Columbus' discovery of America in 1492 and the settlement at Jamestown in 1607."

A truly outstanding archeological find is being developed in South Brevard County, a discovery that could change our current understanding of the history not only of Florida, but of the United States as well.

Mr. Homer Cato, local historian and amateur archeologist and his partner, Dr. Eugene Lyon, have uncovered what is believed to be the earliest remains of the first European settlers in the United States — Spaniards who were shipwrecked off the coast of Brevard County quite some time before settlement of St. Augustine and long before Jamestown. Artifacts and relics in the graves of the Europeans and Indians at this site bear out this claim.

Partial excavation of this historical discovery has already taken place; however, the property is privately owned and it is the owners' intentions, as I understand it, to develop the land.

At present the owners have stopped all development activity and according to Mr. Cato, have indicated a willingness to spend several thousand dollars to continue excavation. However, Mr. Calvin Jones of the department of Historical Sites and Properties, has indicated a need for approximately $20,000 to recover all that the experts believe is contained in this site.

According to Mr. Jones, Mr. Jim Miller, a professional extractor, is available to conduct the research; however, the funds provided by the property owners will cover excavation of only about one-third of the mound.

I realize that state funds and personnel time, no doubt, have been budgeted for this fiscal year. However, in view of the importance of this discovery to the history of Florida, I am requesting that you allocate contingency funds or grant monies to be used to continue the excavation. It is our understanding that a total of approximately $20,000 will be required for continuation.

Quite a bit of publicity surrounds this discovery, and according to Mr. Cato, CBS has produced a documentary on this subject and it will be televised in the Fall. It would be a tragedy if excavation had to stop and Florida's history be ultimately buried under the developer's bulldozers for a mere $20,000.

Your early reply and indication of assistance will be appreciated.

19

Sun., Aug. 17, 1980, Vero Beach, Fla., PRESS-JOURNAL 24A

8Br 56

Learning About Ancien

Local Ar
Saves Bu
From

By BARBARA HEGARTY

In quest of the "lost century," archeologists will soon begin excavation in the Sebastian River Area of the "earliest European-Indian Christian burial mound in the U.S."

This site contains the remains of the fierce Ayz Indians who inhabited the Indian River Area for about 3,000 years, and the remains of Spanish shipwreck survivors taken in by the Indians in the mid-1500s. The find, made by land developer and advanced amateur archeologist Homer Cato of Sebastian 12 years ago, bridges the gap between Columbus' discovery of the New World in 1942 and the English settlement of Jamestown in 1607.

A few weeks ago the owners of the land containing the mound planned to bulldoze the commercially zoned land which will be utilized as a tax shelter by its owners. Cato interceded in a "last chance" effort "before human remains were used as swamp fill," he said.

The State of Florida is without the money and sufficient personnel to excavate the land, said Cato. However, the owners of the land have agreed to fund the project privately. This was achieved through negotiations between Cato and owner Robert Covey through Thomas E. Shine, their mutual attorney.

The dig will be carried out by Cultural Resource Management Inc., a group from Alexandria, Va., that was hired by Dade County Metro for a $360,000 excavation of an archeological site at the mouth of the Miami River.

Monitoring the excavation will be state officials from the Florida Division of Archives, History and Records Management, under the supervision of chief archeologist Calvin Jones.

Jones terms the find "one of the largest and most important Ayz sites in the area." He said that many such sites have already been destroyed through construc tion, and there is no law to protect them.

Twelve years ago Cato found the over 9-feet-high and 160-feet long mound.

278

Upon further investigation he discovere a cross, suggesting the mound's co tents. The cross, 16 feet wide and 21 fe long, was made of conch shells — ove 400-year-old conch shells marking th graves of centuries of Indians plus 16t century Spaniards and half bree children.

Cato has made three trips to Spain i search of evidence to document th discovery. He came back with maps o the Indian River and Sebastian River then called Rio Dulce, marked with th sites of Indian settlements. He searche through rare book stores to find books o the time, telling of the brutal Indians One book dated 1568 said the Spanis didn't know whether these wild being were even human. It took them half century to decide they were ever "rational animals."

The Spaniards, experienced wit Mexico's Aztec Indians, called the Ay "inhuman and barbaric — the world' worst Indians."

Cato, who has already uncovered 10 skeletons from the mound, sees the othe side of the coin. "They had huma feelings and emotions. They carefull put away their dead and had a definit belief in the hereafter."

Their pottery was simple, but suitable he said. And their art objects show th same degree of quality and work manship as those of the Spanish.

So far he has found some jewelry artifacts and precious metals, in som small degree, in the mound.

"Life consisted of raids" for thes Indians in the 1500s. Their food suppl was plentiful — fish, deer, shellfish an birds. "They had so much time on thei hands they thought only of one thing – war," Cato explained. There were a fe thousand Indians in the area but the stayed in groups of 65 to 100.

Their idea of fun was to interrupt th marriage of a chief of another tribe, kil the men of the wedding party and stea the women, said Cato.

The Ayz were "somewhat can nibalistic, but in ritual form, not as regular diet," said Cato.

Many of the Spanish shipwreck sur vivors did not find kindness as one of th

Yesterdays

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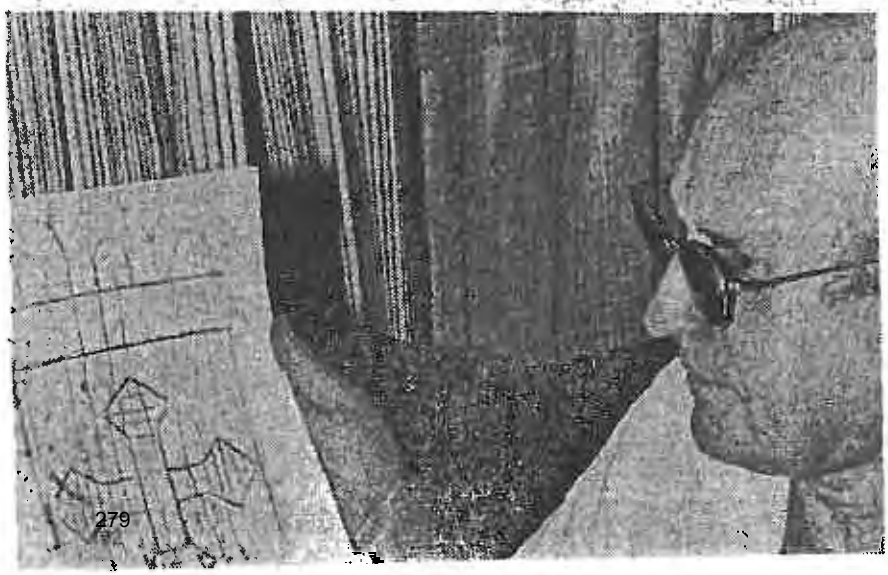

degree of understanding to the Indians would be allowed to live.

"They were allowed to live in a village and gradually were accepted."

In fact many of the Indians were converted to Christianity by the Spaniards as evidenced by the cross marking the grave and several engravings etched on the bone hairpins worn by the Indians. The hairpin would have a cross on it in addition to the more traditional Indian markings.

Beneath the top layer of the mound containing Europeans along with the Indians, the archeologists expect to find graves of Indians dating back to 1200 A.D. or earlier.

"We will have the whole picture of Florida peoples before Columbus' discovery and that missing century discovery," said Cato of the time the area was first inhabited until 1492.

"The Sebastian River area was the central focal point of Spanish shipwrecks," said Cato. For that reason the Ayz Indians were the first treasurer salvagers.

The Indians used the treasure to make jewelry for themselves. "Each girl of any importance was buried with a neck pendant," said Cato, who has placed any findings in a safety deposit box. Eventually all artifacts will go to state museums.

Two security guards are stationed at the site day and night. Because of possible vandalism the location of the mound cannot be revealed now.

The Spanish were finally the downfall of the reign of the Ayz along the Indian River. Between 1612 and 1617 smallpox, brought over by the Spanish, wiped out from 75 to 90 percent of the Ayz.

Excavation of the mound and a lesser one nearby will begin in about 10 days to two weeks, said Cato, and will take from 30 to 60 days to complete.

The local Alliance for the Arts will participate in the dig, providing needed manpower.

Cato, the past president of the South Brevard Historical Society, plans to write a book detailing the "people part" of the find — where they lived and died, their water holes, cooking areas and their general lifestyle.

N TODAY, Thursday, August 21, 1980

The Space Coast

State may help unearth India

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By DAVID BAILEY
TODAY Staff Writer

A final appeal is being made to the state of Florida for funds to excavate Grant Mound, a 4-century-old grave site where early Indians and European shipwreck victims are buried together.

In a letter to Secretary of State George Firestone, Rep. Tim Deratany, R-Indialantic, asked the state for $20,000 to excavate the 9-foot-high and 160-foot-long burial mound in the Grant area.

"Its absolute uniqueness should not be allowed to go beneath the blade of a bulldozer for swamp fill," said Homer Cato, an amateur archaeologist who has over the years been the site's unofficial caretaker.

The mound's owners are preparing to develop the property and have pledged $10,000 for excavation, Cato said. But he said additional money from the state would make the difference between a limited dig and a full-fledged excavation of the area.

Cato has unearthed a 16-foot-wide, 21-foot-long conch-shell cross that marks the graves.

"We'll have to sift every inch around the cross to the maximum depth to ground level," Cato said. He estimated the work would take one to two months.

Cato also said for every penny spent on excavation, an equal sum would be needed for recording and analyzing the results of the dig. The dig will be carried

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"It would
excavation ha

8Br56

Editorials TODAY

"Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances."

— First Amendment to the U.S. Constitution

Vince Spezzano, Publisher
Buddy Baker, Executive Editor
Anne Saul, Managing Editor
Nick White, Editorial Page Editor

Excavation of mound is worthwhile investment

The Space Coast's history is a tapestry of conflict, conquest and accommodation.

Centuries ago the same silver beaches we enjoy today were trod by Indians who flourished amid the abundance offered by the sea and the sandy soil. When Europeans came, there were clashes, but there also were periods of peaceful coexistence during which native Americans and conquistadors learned to communicate and to trust each other.

As the explorers and soldiers were replaced by settlers, the Indians drew further into the wilderness. Many tribes vanished, and now the history of those people who lived on Florida's east-central coast is a patchwork held together by archaeological fragments and a lot of speculation.

What knowledge we have about early Florida is largely due to archaeologists who have scoured the state looking for signs of defunct settlements. Because Florida was a crossroads for explorers and adventurers, there are many such sites here. In fact, some of the most noteworthy discoveries in the history of American archaeology have been scooped from Florida sand and dredged up from the state's crystal-clear springs.

In Brevard, a pile of dirt called the Grant Mound is generating much excitement among local historians. The mound, 9 feet high and 160 feet long, contains the remains of hundreds of Indians and European shipwreck victims buried centuries ago. There is little doubt the remains and the objects buried with them would yield a treasure-trove of archaeological data.

But like everything else, excavating a large mound is expensive. Painstaking care must be taken in uncovering and removing the remains and artifacts. Trained people and expensive equipment are needed.

The local archaeology buffs interested in having the site excavated need a $20,000 grant from the state to carry out the task. Half that amount already has been pledged by the site's owners.

Indialantic's Rep. Tim Deratany has written to Secretary of State George Firestone requesting the grant, but so far officials in Tallahassee have been reluctant to pledge any financial aid.

That is unfortunate, and reflects an inadequate appreciation of Florida's history and of the science of archaeology. In the multibillion-dollar ocean of the state's budget, $20,000 is an insignificant drop — a drop that could illuminate life on the Space Coast as it was 400 years ago and provide invaluable historic insights that would be appreciated for generations.

We hope the officials in Tallahassee will see the wisdom in granting the grant request.

Merger study sensible

The Palm Bay City Council's decision ... minded change to be "anti-police de...

Inquiri Photogr

ROBERT BOSCOVICH
Student
Grant

Positive. It brings cer
tain people who don't know
what's going on in the world
certain information that wil
help them.

Your O

Jack And a Fifth Colu

By CHARLES B. M
Melbourn

Had you nothing better
other than the tripe put tog
columnist Jack Anderson, wh
creditable job of selling it t
right out of the Bible? He co
the journalists of The New Y
his idiocy.

He has to draw comme
House, and make headlines
business. He has to be the pi
for any and all detractors o
try.

He only knows how muc
Carter, and vilifies the m
turns them into something h

It is sad that your editor
back rather than publish th
edition, or any other edition

What is bei for migrant

By RUTH

Skulls, bones, tools and pottery found at the Grant archeological site in 1934

Melbourne Times 9-24-80

Exploration of Grant mound began almost 52 years ago

By WEONA CLEVELAND
Times Staff Writer

The Grant archeological site, purportedly "discovered" 12 years ago by Homer Cato, was actually explored and excavated some 52 years ago by Charles Phelps Singleton, a Melbourne land developer well-known for his archeological activities in South Brevard.

Singleton, who came to this area in 1910 from Louisiana, was a member of a pioneer family who settled in the Rockledge area in the 1890s. At one time, according to his neice, Mrs. Mikiel Brower, he had a "shell mine" in the Grant and Micco area. Shells from the "mine" were used to pave the early road of the area.

Whether it was during the time he was "mining" shells or whether he probed the Indian burial mound in Grant with the express purpose of archeological exploration is not known, but Singleton did considerable digging at the mound site, the Indian village and the kitchen midden just south of the current mound under exploration. This was during the 1928-29 period, some four years after he had done archeological work on the banks of Crane Creek and Shirttail Creek in Melbourne.

"Skeletons he found at the Grant site in 1928-29 are now in the American Museum of Natural History in New York," says C. W. Scott, a friend of Singleton. Scott has also explored the Grant site in 1934, along with Hollis Bottomley and Dr. G. E. Blumer, both well-known Melbourne residents, now deceased.

Scott says there was an earth works surrounding the Indian village, burial mound and kitchen midden at one time, most of which was destroyed when the railroad was put through and the present U.S. 1 highway was built. Some of the earth works on the south side of the kitchen midden is still there he contends.

When Scott, Bottomley and Blumer worked the site in 1934 they found five complete skeletons which they treated with shellac and alcohol then covered back up with the intention of going back at a later date. When they returned, the site had been destroyed by indiscriminate digging. "It was a mass burial site, with bodies piled on top of each other, criss-crossed," says Scott.

The trio also found human jaws and skulls, hip bones, leg bones, lower spine bones and basket-weave pottery as well as a shell tool.

Scott says they found dirt from one of the ancient fireplaces at an approximate five to six foot depth. "There were dog bones, fish bones and human bones in the fireplace. This was in the kitchen midden."

Contending that skeletons he found "were not the Indians who were here when the white men came," Scott says most of the tools and bones came from the upper part of the mound and he estimates date back some 2,000 years. Scott also is of the opinion that there are no burials of Europeans in the mound.

8Br56

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Destined for conc

Clues to the New World's earliest settlements may South Brevard county, where history and progress ha lided over a six-acre site filled with — of all things — d

Article
by Bill Belleville

Under a cover of sabal palms and Spanish moss, archeologist Dave Swindell runs his finger tips over the front incisors of a well-preserved but sallow human skull, trying to determine its precise racial heritage. The skull is in a sandy grave, part of a sprawling Ayz Indian village and burial mound that may be as old as 1200 A.D. It is a massive archeological site, replent with scores of ancient burials, early Indian and Spanish artifacts including pottery shards, polished bone hair pins and semi-precious gems, and — the most unusual find of all — crucifixion symbols hinting at Christian interment.

It is on this site, hidden in a hammock of sub-tropical vegetation just off of U.S. 1 in the laid-back southern Brevard hamlet of Mieco, that amateur archaeologist Homer Cato claims a major discovery. This Ayz (pronounced "eyes" and also spelled Ais) village, Cato says, bears the remains of the first European-Indian settlement in the New World. Here, European survivors of offshore shipwrecks lived with the normally hostile Ayz, married, and had half-breed children years before the Spanish established St. Augustine in 1565.

It is also here that the owners of the land plan their own excavation — although a less scientific one.

Unless eleventh-hour funds can be raised to continue the professional digging, the land owners say they will commercial into a more contemporary nomadic village.

It will become an asphalt park for recreational vehicles.

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The study of history and archeology is an oddity, a distinct anomaly in a state with a dedicated frenzy for anything smacking of growth and development. The new, improved, faster version always seems more credible, somehow more real than the old, slower method. Quaintness and history, antiquities and tradition are okay in their place as long as they don't interfere with life in the fast lane. The consideration of "stones and bones," as archeologists self-effacingly refer to their trade, is viewed by many as more of a leisure art than a science. Museums and archives are toys and games for our entertainment, but don't let them get in the way of the real quest, the true bottom line of life.

"We Americans, by Western tradition aren't very philanthropic," says State Archaeologist Calvin Jones, of Florida's Department of History and archives. "If we can't translate it into a buck, it ain't worth a damn."

Florida, Jones says, has a particularly rich history, and much of that is evident in the inordinate amount of villages and mounds that our prehistoric aborigines, the Indians, left behind in what is now the Sunshine State. "We know there were at least 200,000 sites here at one time," says Jones. "Yet, we have only recorded 14,000 of those today."

The disparity is partially explained by remote sites that are

The Ayz Indian mound, which is a particulary rich one in terms of history and what that history can tell us about a forgotten time, has yielded numerous skeletons, jewelry, hand-engraved artifacts and trade goods. Yet, its destined to become just one more missing page in regional history.

Jones stresses that his department is interested more in recording the history about a site than preserving every artifact that a mound or village or midden (refuse) area produces. But, although they are lawfully designated to "locate, inventory and protect" historic sites in Florida, he admits that they've really never received funding for the protection from the Legislature.

"Whenever something comes up, we have to go out and scrounge around and talk with the land owner and do whatever we can possibly do just to record the site before they bring the excavation machinery in."

Only those Indian mounds and village reminants on state or federal land is protected from plunder or destruction, although a recent federal law does require local governments to have an archeological site survey made on any land developed with the help of federal revenue sharing funds. If reminants are located, the local project builders must either relocate their road, sewer or building site, or pay for a complete archeological excavation.

Other than those stipulations, the only legislation that even marginally applies to protection of Indian mounds is a state statute affecting grave destruction. "That was from the 1800s and it

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sure there are a lot of tourists who would be interested in attractions built around early Indian and Spanish history here," Jones says.

There were less than a half dozen different Indian groups who lived here in the centuries before the Spanish first cast a sail off the North American continent (not including the Seminoles, who migrated here in the 18th century). Some of them were farmers, like the tribes to the north, and some, like the Ayz, were hunters and fisherman and gatherers. Many lived along major waterways — just like modern Floridians — and chose beach and river front property to make their homes. "They liked Florida for the same reasons we do," Jones says. "That's why the most important, the best and the most permanent sites are usually the first ones to go."

The Ayz only ranged from Cape Canaveral southward to the St. Lucie River in what is today Brevard and Indian River counties. Since there was no "visual history" recorded of their activities prior to Spanish arrival, historians have to project what their lives were like in this pre-contact or pre-Columbian era. Two centuries after the first Spanish came, the Ayz vanished, victim of Old World diseases and slavery.

The historic projections, then, must come from the evaluation of the remaining village sites. Once Europeans made contact with the tribes, they recorded their observations in written narratives, detailed maps and

fied researchers are issued an "investigators' card" by the Archives to poke about in its musty cloisters for as long as their American dollars permit. Dr. Eugene Lyon has one investigators' card. He's a Vero Beach historian who fitted together pieces of early historic puzzles to help pinpoint the Atotcha location off the Dry Tortugas for the Fisher treasure expedition. Homer Cato, a Micco land developer with a lifelong obsession for the past and its people, has another.

Researchers who study at the Archives are forced to wade through voluminous files, making whatever sense they can of the byzantine record-keeping inventory there. Although the historical reports of the 15th and 16th century Spanish exploits exist in the Archives, their presence doesn't automatically ensure widespread public knowledge.

Lyon, who succeeded in locating the Atotcha historically when others failed archeologically, is a good example of how one individual, properly skilled and motivated, can pull back the curtain of the past and peer into another time for a brief moment. Lyon, who made frequent visits to the Archives to research early off-shore treasure activities, was sometimes joined by Cato, who was eager to study all he could about the land-bound activities of the same era.

Cato has had a particular interest in the site since 1966 when he located the mound on an outdated 19th-century topographical map drawn by the U.S.

ing of St. Augustine. When the men were found they were unclothed, with long hair and beards, indicating they had been with the tribe for some time.

The connotation was obvious. For whatever reason, the normally ferocious Ayz would sometimes collect shipwreck survivors as well as their treasures, and take them into their lives. When they died, they were accorded a "Christian" burial with cross. Says Jones: "Historically, we know of documents showing Indians and Spanish living together. In 1566, (Pedro) Menendes encountered a Spaniard who had spent 17 years with the Calusa Indians in Southwest Florida. But, archeologically, things like that are more difficult to prove."

One sure way of showing Europeans lived and died at the site would be to uncover Spanish pottery that the explorers made only for themselves, and not for trade. (Because of its fragile nature, pottery would not normally be a wreck-salvageable item). Another way would be to actually find a non-Indian skelton buried there.

But Cato even went that qualification a few marks better. In 1966 and 1967, during the excavation of some 100 Indian burials in the mound, he uncovered small fragments of the non-trade version of Spanish pottery. And, he found an Indian hairpin carved from deer bone. Engraved on the flat, white, 5-inch-long pin were a series of small iron crosses, showing a distinct Christian influence and establishing the site as post-Columbian. The pottery, the pin, and, most of all, the large shell crucifix marking the mound, seemed to add up to one conclusion: This was the village in which Spanish records reported that shipwrecked Europeans and Indians had lived, and died, together.

Sure as he was about the connection, Cato kept quiet about the find. At the time, the owner of the property had taken little interest in the site excavation and neither encouraged nor prevented others from digging there. A public announcement of the discovery could touch off a massive invasion from wild-eyed diggers looking for Spanish "treasure."

Then, almost a year ago, the six acres of land was sold to a group of investors who bought the property in a "blind trust." They remained anonymous, and appointed Indialantic accountant Ralph Covey to act as their agent. Covey, in turn, contacted Cato and asked him to look at the site. Cato, in turn, asked Swindell to look at the site.

Swindell, who had been working on a contract basis for the Florida Bureau of Archeological Research, had been in the process of completing a report on the Ayz site. He had been waiting for an overseas parcel that he had requested months before from the Archives. It contained detailed color transparencies of early Spanish maps made of the area. The Ayz village was clearly marked on the drawing, and it was the same site that was cross-referenced in other written Spanish accounts of the late 16th century. Aerial flights over the area aligned present site with transparency, fitting together the last piece of the Ayz history. Cato then surfaced publicly with this information in an effort to head off the impending development of the site.

The developers had been aware that their property contained the burial mound, but seemed unaware of any European connection. "They just considered all that material to be 'old Indian stuff,' " says Cato. "They looked on it as junk, worthless except for fill for the low area."

Finally, using his documentation, Cato was able to persuade the owners, via Covey, to at least make an archeological survey of the site. Says Covey, "The owners are, of course, anxious to develop the land. It has just been sitting there and they just wanted to put it back where it came from."

But, faced with impending public embarassment if they were to pave over a site of this magnitude, the owners paid Swindell's private archeological firm $5,000 to come in and take a look at the site.

The painstaking professional work began in early September with the two trained archeologists and a handful of local amateurs under their direction, gradually cutting into the mound.

They began by surveying the area, determining the exact gradient, then marking it with a series of identifying posts. From there, they could make a grid of the site and, within that, smaller grids.

When the dirt is moved away from the mound, it is done slowly, using the edge of a shovel to scrape away an inch of soil at a time. Small trowels and brushes are used to uncover any object found in the course of the digging. The digging results are graphically transferred to paper, with each foot of earth recorded on a ratio of one foot to one inch.

When artifacts, or an actual burial is found, a smaller wooden-framed grid with cross-wires is placed over the find, and is

Swindell, staff. A grid over the mound.

nature, archeology is a destructive science. If we don't take our record-keeping seriously, we're no different from the people who run the bulldozers."

In the few weeks that Swindell's crew had been on the job, they uncovered pottery shards, small pieces of green "European trading beads," polished bone hair pins, and at least 35 skeletons that were placed in apparent burial positions.

The large mound seems to be divided into three strata, Swindell says, with the pre-historic periods at the bottom and the European or contact period in the top four feet. "Much of the base of the mound was 'basket fill' brought by the Indians in from the surrounding area," says Swindell, indicating the topographical depression surrounding the mound. "We've been working seven days a week, until sundown, every day that we've been here and we've really just started. It would take about six months to properly evaluate this area."

For that reason, Swindell hesitates to make an on-site appraisal of the European settlement theory. "Archaeological research is divided into two parts: field work and laboratory analysis. Everything we find is catalogued, washed and sent to (state labs) in Tallahassee for examination."

The ultimate analysis, he says, relies heavily on other sciences such as chemistry, physics, and geology. "A physical anthropologist can do a series of 200 structural landmarks on the (human) remains to determine things as race, sex, height and weight and diseases."

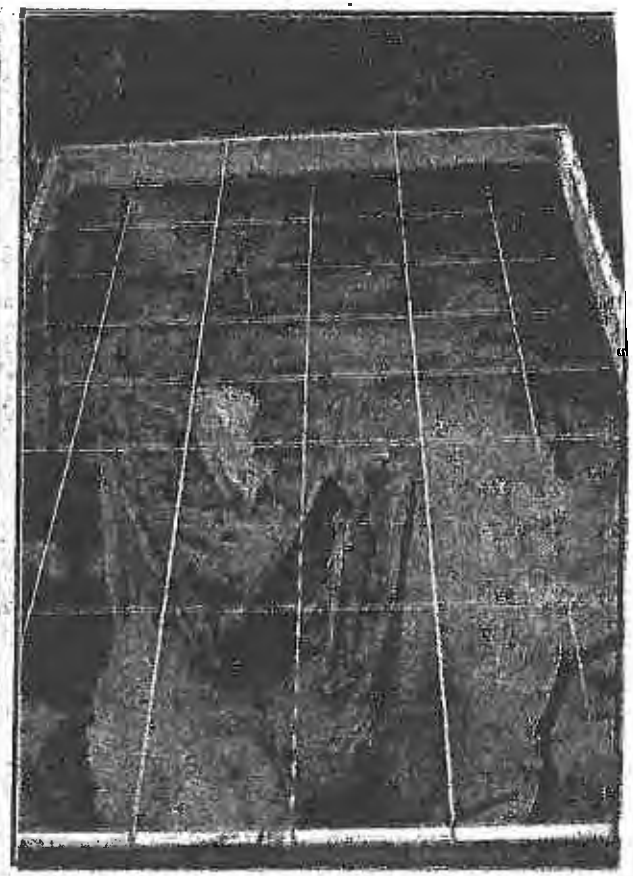
In the field, the archeologist can get a general idea of those elements but can make no final determination until all the reports are in.

Excavation of the midden areas are also valuable in that they not only determine the type of foods the group ate, but how long those foods could sustain the group on any particular area. Mechanized "shakers" take excavated dirt and screen out even the smallest elements for cleaning and recording. Seeds, nut remnants, fish bones and charcoal, such as were found in this midden site, are all duly collected.

Burial artifacts "grave goods" — of which there were actually very little on this site — are removed from the mound and

Archeologist Dale Benton gently brushes dirt away from artifact.

Amateur diggers from Titusville help professional staff.



A grid over the burial determines the location and slope of the mound.

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Photos by Bill Belleville

Homer Cato unearthed this skull and cross-inscribed hair pin on the site in the late 1960s.

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FLORIDA MAGAZINE
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FLORIDA ARCHEOLOGICAL DISCOVERY REVEALS LOST CIVILIZATION, TREASURES

By JULIE ENDERS

A new and startling disclosure of a burial mound and remains of an Ayz Indian village in Sebastian that may contain millions of dollars worth of Spanish treasure and the skeletal remains of the first European settlers in the United States was revealed this week in an exclusive interview with THE TREASURE COAST magazine and guide.

"It's an ancient monument that took centuries to build and even contains the people who built it. It will be tragic if it is not excavated," commented Calvin Jones, chief archeologist for the State of Florida.

Evidence that a tribe of barbaric, head-hunting cannibals were Florida's first treasure salvors and lived with captive French and Spanish shipwreck survivors was found in the Spanish archives by Treasure Coast residents Homer Cato and Dr. Eugene Lyon, a respected researcher already famous for the huge Spanish treasure find off Key West.

(continued on page 4)

HOMER CATO STANDS atop an ancient monument that took about eight centuries to build and even contains the people who built it. Cato, president of the South Brevard Historical Society, says the mound also contains priceless treasure and the secrets of a lost civilization. (Photo by Julie Enders)

LOGICAL DISCOVERY REVEALS

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Skulls vary, Cato said, and there are marked differences between the skulls of the Ayz and their European captives; The Indian skulls have a marked and noticeable depression on the upper back of the skull and are thicker than the skulls of the Europeans.

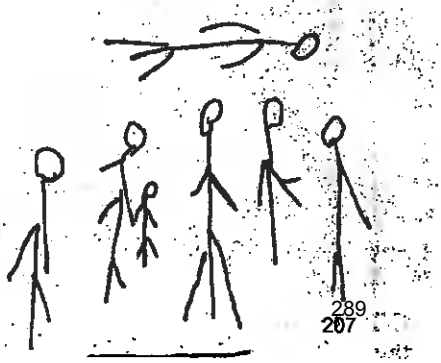
Cato's favorite recovered skull is that of a half-breed whose perfect teeth indicate she died at the age of 25. The position of her body, in a mass burial, indicates she was the favored woman of the village's main chief.

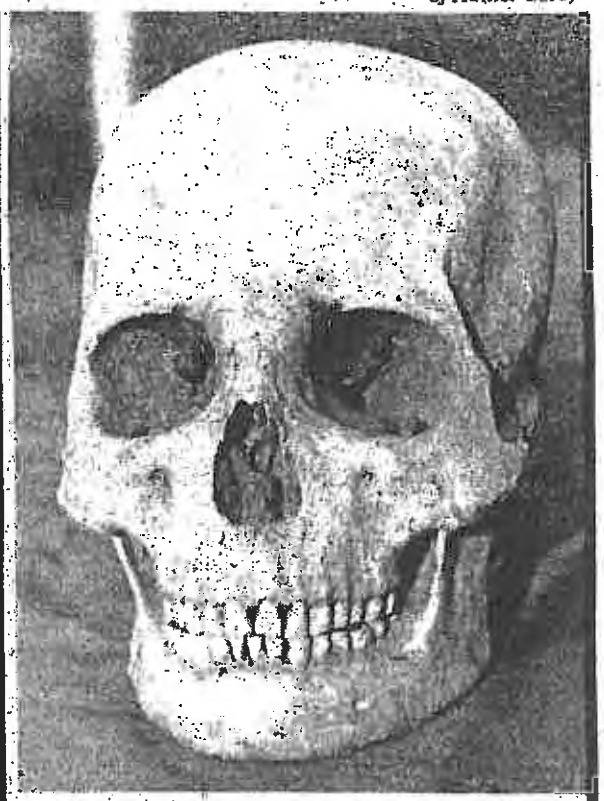
Buried with the woman, and now safely ensconced in a remote safety deposit box, is a fortune in jewels — precious stones and metals. Cato has photographs taken during the exploration of the mound that yielded the skull and jewels. He photographed their recovery as a young boy, the son of a member of the historical society, gently extracted the skull and its treasure from the surrounding Florida sand of the Sebastian burial mound.

"There has been all of this excitement over the wrecks and nobody has stopped to ask, 'What were the head-hunting cannibals doing during all this?' " Cato said. "They were enjoying 100 years of prosperity as the world's first and most successful treasure hunters. Here you have a race of people who, while recovering treasure from the wrecked galleons, were experiencing an instant change from the stone age into the age of metals."

The body of the jeweled young woman, Cato said, as he hastily sketched out a diagram of the position of the skeletons laid to rest in mass burial, was laid at the feet of the chief. On either side of the chief two other young women were buried, one of them with a four-month-old child. An Ayz warrior was also included in the mass burial. His body was placed a few feet from the central grouping, parallel to that of the young woman.

While assimilating French and Spanish captives, the Ayz adopted certain aspects of their culture and religion. Cato's first major find in the burial mound, placed to mark the grave of the chief, his women and the warrior, was a huge cross of connected conch shells — religious homage constructed of native material.





(Photo from the collection of Homer Cato)

CATO'S FAVORITE SKULL — with good reason. This young woman, who evidently died of natural causes during an epidemic that wiped out an entire civilization, was presumably the favorite woman of an Ayz chief and was buried with her personal share of salvaged Spanish treasure.

The symbol of Christianity also etched on exquisite bone hairpins found in the burial mound, Cato said, and on other artifacts that bear resemblance to Mayan and Caribbean art.

There is no evidence, however, that Christianity or possession of millions of dollars worth of treasure altered the barbaric lifestyle of the Ayz.

In the Spanish archives, during one of his research missions, Cato, who, along with Dr. Lyon, reads ancient Spanish, found a description of the Ayz written by Archbishop Juan Atamirano who visited some coastal Florida Indian villages.

Producing photocopies of his findings, Cato read aloud from the document, describing total barbarians who do "'. . . not adore the sun or the moon nor anything else . . . wandered naked like beasts in the wood . . . ate raw fish and shellfish.'"

"In other words, he had a rough trip," Cato said, laughing.

"They were the world's fiercest, the world's worst people." Cato said. "They lived a simple life style

ARCHEOLOGICAL DISCOVERY

(continued from page 1)

"We (state officials) are working with Mr. Cato to see that funding is obtained for the excavation. It is a major archeological site," Jones said.

Research, by Dr. Lyon and Cato, in formerly undisturbed sections of the Spanish archives indicates European men and women were captured by the fierce Ayz tribesmen and lived the rest of their lives as members of the tribe.

The fateful shipwrecks occurred between 1500 and 1550. Two Frenchmen later rescued by vessels attempting salvage of gold, silver and priceless jewels told of living with the Indians in 1562, three years even before the settlement of St. Augustine.

Although some of these first European residents of the New World were picked up, used as interpreters for negotiations with the Indians by both French and Spanish military officers, and then returned to their home countries, most were not.

"It's an ancient monument that took centuries to build and even contains the people who built it. It will be tragic if it is not excavated," commented Calvin Jones, chief archeologist for the State of Florida.

"There were hundreds upon hundreds of these European shipwreck survivors and only a mere handful returned to Europe. Most of them lived out their lives with the Ayz Indians. Menendez (Pedro Menendez, the founder of St. Augustine) lost a son to the Indians and searched diligently but never found him," Cato said.

During research, he explained, he came across a document quoting the Spanish governor of Florida in early 1604 as saying he had ransomed and returned over 800 shipwreck survivors who had been discovered living with the Indians in villages along the southern coast of Florida.

Of the huge majority who lived out their lives with the Ayz, bearing half-breed children, many were probably happier in their New World situation than they would have been back in France or Spain.

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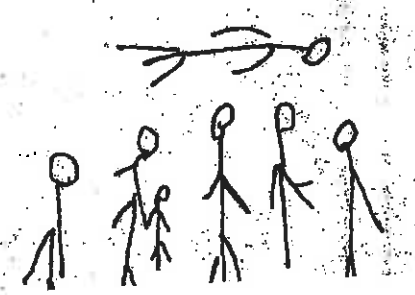

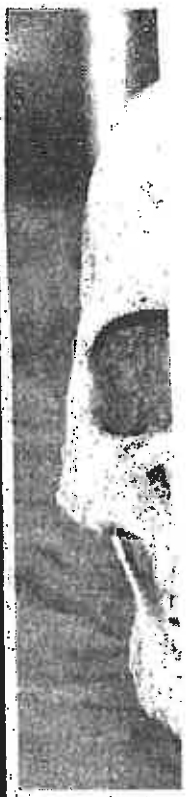

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LOST CIVILIZATION AND TRE

question in the memoirs of D. d'Escalante Fontaneida, written in Spain in 1755 when he was a very old man.

"Fontaneida described the Ayz laughing and distributing it among friends and later reworking it in ornaments of Indian style . . . He wrote the Ayz were 'rico sala de la mar' (rich only by the sea) and it was great wealth, worth millions. The women wore neck pendants and around their (naked) middles, strips of gold and silver. He wrote about bars of silver and gold. The women survivors and their half-breed children never had it that good in old Spain," Cato said.

Important documentation of the Sebastian burial mound and village was this written testimony of men who were picked up by French ships under a Jean Ribaut — men who were used as interpreters because they became familiar with the Ayz language while slaves of the Indians in the 1560's.

During attempts to salvage treasure lost at sea along the Florida coast, Spanish authorities described and mapped the coast from St. Augustine to the "Bar of Ayz" in Sebastian.

State of Florida officials have known about the burial mound and village in the Sebastian area for about 12 years, Cato said, and ". . . the State's lack of attention to the Bar of Ayz is inexcusable, much like their disregard of the "Nuestra Senora de la Atocha" discovery off the Keys.

Cato credits this "lack of attention" to ". . . the remoteness of our east coast area from Tallahassee and the environs of Gainesville."

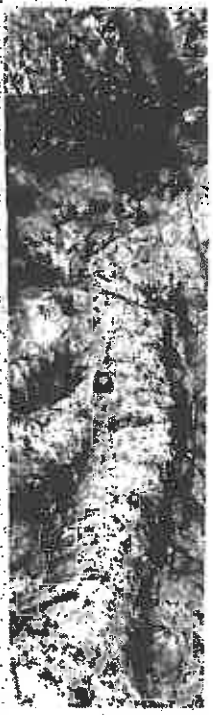
"But it is pretty terrific we have, now, for the first time, the proper interest from the state," Cato added.

Both Calvin Jones, Florida's chief archeologist, and Cato are concerned about security of the five-acre site once the story is revealed in this issue of The Treasure Coast magazine and guide.

"This is the world's richest archeological area. This is not kid stuff. This is not treasure hunter stuff and is something the state is totally unprepared for," Cato observed.

Cato and his group of 50 to 150 amateur archeologists, most of them volunteers, are hoping their dig — to begin in a month or so — will be protected from greedy treasure hunters due to the implications of a fairly recent state law dealing with trespass. The legislature, reportedly concerned

(Photo from th



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Dr. Lyon is ac Florida-Spanish philosophy and Florida, for a Florida documer state archives.

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The story of our Sebastian River Area

You will find what you want in the SEBASTIAN RIVER AREA, on the CENTRAL EAST COAST. Semi Tropical scenery, fishing so good that it draws anglers like a magnet, boating, water skiing, swimming at nearby ocean beaches, all this unspoiled part of Florida, where commercialism has not encroached upon MOTHER NATURE. Yet, you are only a few minutes away from the City attractions of Melbourne to the north and Vero Beach to the south, and, in 10 to 15 minutes with your boat through the SEBASTIAN INLET, you can be fishing on the ATLANTIC OCEAN.

Enjoy quiet residential living with all the advantages of City services and deliveries, local Churches, Clubs, Civic and Fraternal Organizations, yet be free of the hustle and the traffic found in larger urban areas.

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This is the land where the Tropics become alive, yet there is a delightful sense of the changing of the seasons

...RIZATION AND TREASURES

(Photo from the collection of Homer Cato)

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GOLD AND SILVER coins, such as these, littered the ocean floor following shipwrecks of Spanish galleons along our Treasure Coast. Experts now suspect the majority of treasure lost in the Atlantic was salvaged, hundreds of years ago, by now-extinct savage Ayz Indians. (Treasure Coast Guide Photo)

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FLORIDA ARCHEOLOGICAL DISCOVERY REVEALS LOST CIVILIZATION, TREASURES

By JULIE ENDERS

A new and startling disclosure of a burial mound and remains of an Ayz Indian village in Sebastian that may contain millions of dollars worth of Spanish treasure and the skeletal remains of the first European settlers in the United States was revealed this week in an exclusive interview with THE TREASURE COAST magazine and guide.

"It's an ancient monument that took centuries to build and even contains the people who built it. It will be tragic if it is not excavated," commented Calvin Jones, chief archeologist for the State of Florida.

Evidence that a tribe of barbaric, head-hunting cannibals were Florida's first treasure salvors and lived with captive French and Spanish shipwreck survivors was found in the Spanish archives by Treasure Coast residents Homer Cato and Dr. Eugene Lyon, a respected researcher already famous for the huge Spanish treasure find off Key West.

(continued on page 4)

HOMER CATO STANDS atop an ancient monument that took about eight centuries to build and even contains the people who built it. Cato, president of the South Brevard Historical Society, says the mound also contains priceless treasure and the secrets of a lost civilization. (Photo by Julie Enders)

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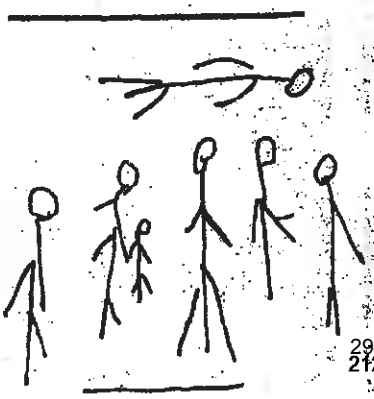
Cato's favorite recovered skull is that of a half-breed whose perfect teeth indicate she died at the age of 25. The position of her body, in a mass burial, indicates she was the favored woman of the village's main chief.

Buried with the woman, and now safely ensconced in a remote safety deposit box, is a fortune in jewels — precious stones and metals. Cato has photographs taken during the exploration of the mound that yielded the skull and jewels. He photographed their recovery as a young boy, the son of a member of the historical society, gently extracted the skull and its treasure from the surrounding Florida sand of the Sebastian burial mound.

"There has been all of this excitement over the wrecks and nobody has stopped to ask, 'What were the head-hunting cannibals doing during all this?'" Cato said. "They were enjoying 100 years of prosperity as the world's first and most successful treasure hunters. Here you have a race of people who, while recovering treasure from the wrecked galleons, were experiencing an instant change from the stone age into the age of metals."

The body of the jeweled young woman, Cato said, as he hastily sketched out a diagram of the position of the skeletons laid to rest in mass burial, was laid at the feet of the chief. On either side of the chief two other young women were buried, one of them with a four-month-old child. An Ayz warrior was also included in the mass burial. His body was placed a few feet from the central grouping, parallel to that of the young woman.

While assimilating French and Spanish captives, the Ayz adopted certain aspects of their culture and religion. Cato's first major find in the burial mound, placed to mark the grave of the chief, his women and the warrior, was a huge cross of connected conch shells — religious homage constructed of native material.



(Photo from the collection of Homer Cato)

CATO'S FAVORITE SKULL — with good reason. This young woman, who evidently died of natural causes during an epidemic that wiped out an entire civilization, was presumably the favorite woman of an Ayz chief and was buried with her personal share of salvaged Spanish treasure.

The symbol of Christianity also etched on exquisite bone hairpins found in the burial mound, Cato said, and on other artifacts that bear resemblance to Mayan and Caribbean art.

There is no evidence, however, that Christianity or possession of millions of dollars worth of treasure altered the barbaric lifestyle of the Ayz.

In the Spanish archives, during one of his research missions, Cato, who, along with Dr. Lyon, reads ancient Spanish, found a description of the Ayz written by Archbishop Juan Atamirano who visited some coastal Florida Indian villages.

Producing photocopies of his findings, Cato read aloud from the document, describing total barbarians who do ". . . not adore the sun or the moon nor anything else . . . wandered naked like beasts in the wood . . . ate raw fish and shellfish."

"In other words, he had a rough trip," Cato said, laughing.

"They were the world's fiercest, the world's worst people," Cato said. "They lived a simple life style

ARCHEOLOGICAL DISCOVERY

(continued from page 1)

"We (state officials) are working with Mr. Cato to see that funding is obtained for the excavation. It is a major archeological site," Jones said.

Research, by Dr. Lyon and Cato, in formerly undisturbed sections of the Spanish archives indicates European men and women were captured by the fierce Ayz tribesmen and lived the rest of their lives as members of the tribe.

The fateful shipwrecks occurred between 1500 and 1550. Two Frenchmen later rescued by vessels attempting salvage of gold, silver and priceless jewels told of living with the Indians in 1562, three years even before the settlement of St. Augustine.

Although some of these first European residents of the New World were picked up, used as interpreters for negotiations with the Indians by both French and Spanish military officers, and then returned to their home countries, most were not.

"It's an ancient monument that took centuries to build and even contains the people who built it. It will be tragic if it is not excavated," commented Calvin Jones, chief archeologist for the State of Florida.

"There were hundreds upon hundreds of these European shipwreck survivors and only a mere handful returned to Europe. Most of them lived out their lives with the Ayz Indians. Menendez (Pedro Menendez, the founder of St. Augustine) lost a son to the Indians and searched diligently but never found him," Cato said.

During research, he explained, he came across a document quoting the Spanish governor of Florida in early 1604 as saying he had ransomed and returned over 800 shipwreck survivors who had been discovered living with the Indians in villages along the southern coast of Florida.

Of the huge majority who lived out their lives with the Ayz, bearing half-breed children, many were probably happier in their New World situation than they would have been back in France or Spain.

"You have to understand how it was back in

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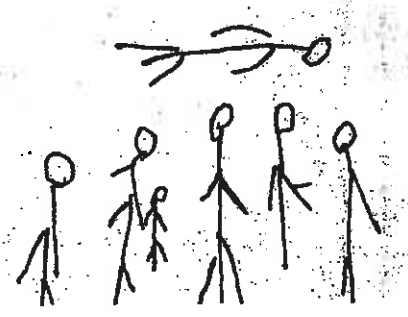

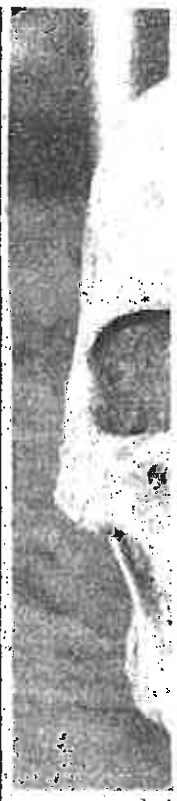

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LOST CIVILIZATION AND TRE

question in the memoirs of D. d'Escalante Fontaneida, written in Spain in 1755 when he was a very old man.

"Fontaneida described the Ayz laughing and distributing it among friends and later reworking it in ornaments of Indian style . . . He wrote the Ayz were 'rico sala de la mar' (rich only by the sea) and it was great wealth, worth millions. The women wore neck pendants and around their (naked) middles, strips of gold and silver. He wrote about bars of silver and gold. The women survivors and their half-breed children never had it that good in old Spain," Cato said.

Important documentation of the Sebastian burial mound and village was this written testimony of men who were picked up by French ships under a Jean Ribaut — men who were used as interpreters because they became familiar with the Ayz language while slaves of the Indians in the 1560's.

During attempts to salvage treasure lost at sea along the Florida coast, Spanish authorities described and mapped the coast from St. Augustine to the "Bar of Ayz" in Sebastian.

State of Florida officials have known about the burial mound and village in the Sebastian area for about 12 years, Cato said, and ". . . the State's lack of attention to the Bar of Ayz is inexcusable, much like their disregard of the "Nuestra Senora de la Atocha" discovery off the Keys.

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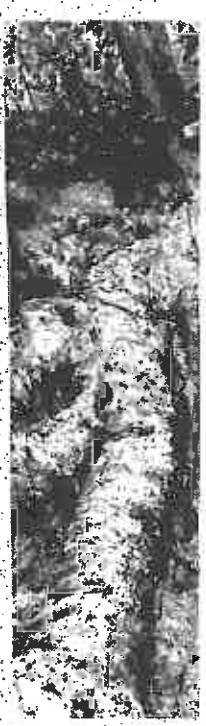
(Photo from t



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Appendix Q : Historical Procedures

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties
(revised March 2013)

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. General Discussion

Historic resources are both archaeological sites and historic structures. Per Chapter 267, Florida Statutes, '*Historic property' or 'historic resource' means any prehistoric district, site, building, object, or other real or personal property of historical, architectural, or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state."*

B. Agency Responsibilities

Per State Policy relative to historic properties, state agencies of the executive branch must allow the Division of Historical Resources (Division) the opportunity to comment on any undertakings, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the project, permit, grant, etc.

State agencies shall preserve the historic resources which are owned or controlled by the agency.

Regarding proposed demolition or substantial alterations of historic properties, consultation with the Division must occur, and alternatives to demolition must be considered.

State agencies must consult with Division to establish a program to location, inventory and evaluate all historic properties under ownership or controlled by the agency.

C. Statutory Authority

Statutory Authority and more in depth information can be found at:
http://www.flheritage.com/preservation/compliance/guidelines.cfm

D. Management Implementation

Even though the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual. Specific information regarding individual projects must be submitted to the Division for review and recommendations.

Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. Recommendations may include, but are not limited to: approval of the project as submitted, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions, exterior alteration, or related new construction regarding historic structures must also be submitted to the Division of Historical Resources for review and comment by the Division's architects. Projects involving structures fifty years of age or older, must be submitted to this agency for a significance determination**.** In rare cases, structures under fifty years of age may be deemed historically significant. These must be evaluated on a case by case basis.

Adverse impacts to significant sites, either archaeological sites or historic buildings, must be avoided. Furthermore, managers of state property should make preparations for locating and evaluating historic resources, both archaeological sites and historic structures.

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at:
http://www.flheritage.com/preservation/compliance/docs/minimum_review_documentation_requirements.pdf .

* * *

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Deena S. Woodward
Division of Historical Resources
Bureau of Historic Preservation
Compliance and Review Section
R. A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

Phone: (850) 245-6425

Toll Free: (800) 847-7278
Fax: (850) 245-6435

Appendix R : SBCSE Timber Assessments

BREVARD COUNTY ENVIRONMENTALLY ENDANGERED LANDS PROGRAM PROPERTIES
TIMBER MANAGEMENT ASSESSMENT

Prepared by James Roberts
State Lands Silviculturist
and
John T. Marshall
Region 5, Other Public Lands Forester
Florida Division of Forestry
February 2007

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 18,000 acres of environmentally sensitive lands across the county have been purchased since 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 and Tico Scrub Sanctuary.

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 dependant 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 dependant 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 S : SBCSE Gas Line Documentations

EASEMENT GRANT

REC 211 PAGE 361

220

KNOW ALL MEN BY THESE PRESENTS:

THAT FOR AND IN CONSIDERATION of the sum of One Dollar ($1.00) and other good and valuable considerations to it in hand paid by HOUSTON TEXAS GAS AND OIL CORPORATION, a Delaware corporation, hereinafter sometimes called Grantee, and of the performance of the obligations, stipulations, and agreements hereinafter set forth to be done and performed by the Grantee herein, SOUTH DADE FARMS, INC., hereinafter sometimes called Grantor, does hereby grant, bargain, sell, and convey unto said HOUSTON TEXAS GAS AND OIL CORPORATION, its successors and assigns, subject to the reservations conditions and stipulations herein stated, a right-of-way and easement to construct, maintain, operate, inspect, protect, repair, replace, change the size of and remove a pipeline for the transportation of natural gas, oil petroleum products or any other liquids, gases, or substances which can be transported through a pipeline, together with appurtenances and equipment thereto, together with the right of ingress and egress to and from the same for the purposes aforesaid, over, under, through and across the properties owned in fee by Grantor in Brevard County, Florida, more particularly described as follows, to-wit:

A strip of land thirty ft. in width extending fifteen (15) feet Northeasterly and fifteen (15) feet Southwesterly from the following described survey line and traversing all of Sections 1 and 12, Township 30 South, Range 37 East, and all of Sections 7 and 18, Township 30 South, Range 38 East, Brevard County, Florida, more particularly described as follows, to-wit:

Beginning at a point in the South line of the above described property. Said point being 444 feet Westerly from the southeast corner of SW 1/4 of Section 18, Township 30 South, Range 38 East; and running thence North 20° 21' West

a distance of 3,154 feet to a point; thence North 22° 21' West a distance of 4,777 feet to a point; thence North 18° 01' West a distance of 2,962 feet to a point; thence North 09° 16' West a distance of 5,790 feet to its point of exit in the North line of said Section 1, Township 30 South, Range 37 East. Said right-of-way being also shown on that certain plat which is attached hereto marked Exhibit "A" and expressly made a part hereof.

In addition to the above, Grantor also grants to Grantee an additional temporary working area twenty (20) feet wide extending along the southwesterly side of the above described right-of-way easement grant, said twenty (20) foot strip to be used by Grantee in the construction of Grantee's pipeline, provided, however, that all rights in and to said twenty (20) foot working space shall revert to the Grantor upon completion of the construction of said pipeline or the expiration of a period of one (1) year from the date of these Presents, whichever event occurs first.

Provided, however, Grantee, or its successors and assigns, cease to use the above described property for operation of a pipeline for a period of six (6) consecutive months, then the easement and right-of-way hereby granted shall ipso facto terminate and all rights granted hereunder to Grantee, its successors and assigns, shall likewise terminate.

It is agreed that the pipeline or pipelines to be laid under this grant shall be constructed at sufficient depth below the surface of the ground to permit normal cultivation, and Grantor shall have the right to fully use and enjoy the above described premises, subject to the rights herein granted, including, but not limited to, the right to cut all trees and other growth, provided that Grantee at its expense shall have the right to keep the lands described within the limits of the easement herein granted clear of all trees and other growth and obstructions which would interfere with the normal operation and maintenance of said line.

In the exercise of its right to ingress and egress to and from said lands in the easement herein granted, Grantee, its successors and assigns, shall use, wherever it does not involve great inconvenience to Grantee, such route or routes as shall be designated by Grantor, its successors and assigns, and shall interfere as little as is reasonably possible with the operations of Grantor, its successors and assigns, to whom all damages done to roads, bridges, and property shall be promptly reported, and the Grantee, its successors or assigns, shall promptly repair same, or pay to Grantor the reasonable cost of repairing same.

Grantor, its successors and assigns, together with any other person, firm or corporation with whom they conduct business, shall have the right to cross said strip at any time, without notice to or consent of Grantee, its successors and assigns, with roads, sidewalks, pipelines, drainage ditches, water and sewer lines, other types of public utilities, teams, trucks, or other means of transportation, and the right to use said strip for any other purpose not inconsistent with the rights the Grantee, its successors and assigns, may from time to time exercise hereunder, but the Grantee, its successors and assigns, assumes the risk of any exercise of such rights, and shall take, at its own expense, all necessary measures to prevent any loss or damage to the person or property of it, its successors and assigns, Grantor, its successors and assigns, or any other person, firm or corporation due to, caused by, or arising out of any exercise of such rights. In construction and maintaining any road parallel to or along and upon the aforesaid right-of-way, Grantor agrees to so construct and maintain such road or roads so that the edge of the pavement or traveled portion thereof shall be at least ten (10) feet from the center line of the actual pipeline as constructed, provided, however, that the foregoing requirement with respect to the construction of any road or roads along and upon said right-of-way shall in nowise be a limitation upon the construction by the Grantor of roads crossing over said right-of-way.

(3)

The Grantor expressly reserves all merchantable timber and trees now on said right-of-way, but hereby agrees that it will promptly remove or cause to be removed same therefrom.

In making its installation, or in conducting any other acts authorized herein, if any fence or fences of Grantor are removed or damaged, the Grantee shall, at its expense, restore the same to the same condition as existed prior to such damage, or removal: the Grantor may, however, install gates or cattleguards in same so as to allow Grantee, and other authorized persons, access along said right-of-way.

Any and all lines laid by the Grantee herein, its successors or assigns, shall be laid to a depth of not less then thirty (30) inches below the surface of the ground and the trench shall be back filled. Where same crosses any existing drainage structure, either natural or artificial, such line shall be laid under the same or over the same, at the Grantee's option, in such manner as will not prevent the normal use and operation of such drainage structure. In the event that Grantor proposes to dig additional drainage ditches or canals across the route of the herein-granted right-of-way, Grantor shall notify Grantee in writing of the location of such proposed ditches or canals and Grantee may lower its pipeline below such ditches or canals or leave its pipeline above the surface at its discretion. It is further agreed that if, prior to the construction of the pipeline, Grantor proposes to dig additional drainage ditches or canals across the route of the herein granted right-of-way, and if Grantor is able to locate the position and boundaries of said proposed ditches or canals prior to construction of the pipeline, Grantor shall notify Grantee, in such a case, in writing of the location of such proposed ditches or canals and Grantee agrees that it will bridge its pipeline over such located area or areas so that Grantor shall be able in the future to construct said ditches or canals under the pipeline.

Grantee, its successors and assigns, in further consideration of this grant, covenants and agrees to hold the Grantor, its successors and assigns, harmless from any and all loss, cost, expense or damage to it or them, its or their property, any third party or the property of any third party caused by, due to or arising out of the use or enjoyment of the easement and other rights herein granted, such indemnity to include but not be limited to the payment of any and all increases in ad valorem taxes on account of the pipeline or lines and appurtenances constructed hereunder.

All of the rights of the Grantee hereunder may be assigned to a trustee or trustees under a deed of trust and mortgage as security for indebtedness of the Grantee and such rights may be further assigned in the enforcement of any such deed of trust and mortgage; provided, however, that the obligations hereunder of the Grantee may be performed by such trustee or trustees or any further assignee without releasing the Grantee therefrom but neither such assignment, the acceptance thereof nor any performance hereunder by such trustee or trustees or other assignee shall obligate such trustee or trustees or further assignee to perform such obligations prior to the enforcement of any such deed of trust and mortgage.

(AA)

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals this 11 day of May, 1959.

OFF REC 211 PAGE 366

SOUTH DADE FARMS, INC.

(Corporate Seal)

By _____
President

Attest:

_____
Asst Secretary

HOUSTON TEXAS GAS AND OIL CORPORATION

(Corporate Seal)

By _____
Vice President

Attest:

_____
Asst Secretary

(5)

OFFC PEGE 211 PAGE 367

STATE OF Florida
COUNTY OF Dade

I, Jennie D Johnson, a Notary Public, in and for said State and County, hereby certify that James Sattill Jr, whose name as President, and Mary N. Feitner whose name as Asst Secretary, of South Dade Farms, Inc., a corporation, are signed to the foregoing instrument, and who are known to me, acknowledged before me on this day that, being informed of the contents of said Instrument, they, as such officers, and with full authority, executed the same voluntarily, for and as the act of said corporation.

Given under my hand and official seal this 11 day of May 1959.

Jennie D Johnson
Notary Public

STATE OF Florida
COUNTY OF Pinellas

I, [illegible] Roberts, a Notary Public, in and for said State and County, hereby certify that W. B. Jordan whose name as [illegible], and E. P. [illegible] whose name as [illegible], of Houston Texas Gas and Oil Corporation, a corporation, are signed to the foregoing instrument, and who are known to me, acknowledged before me on this day that, being informed of the contents of said instrument, they, as such officers, and with full authority, executed the same voluntarily, for and as the act of said corporation.

Given under my hand and seal this 11th day of May, 1959.

[illegible] Roberts
Notary Public

OFFICIAL RECORDS 211 PAGE 368

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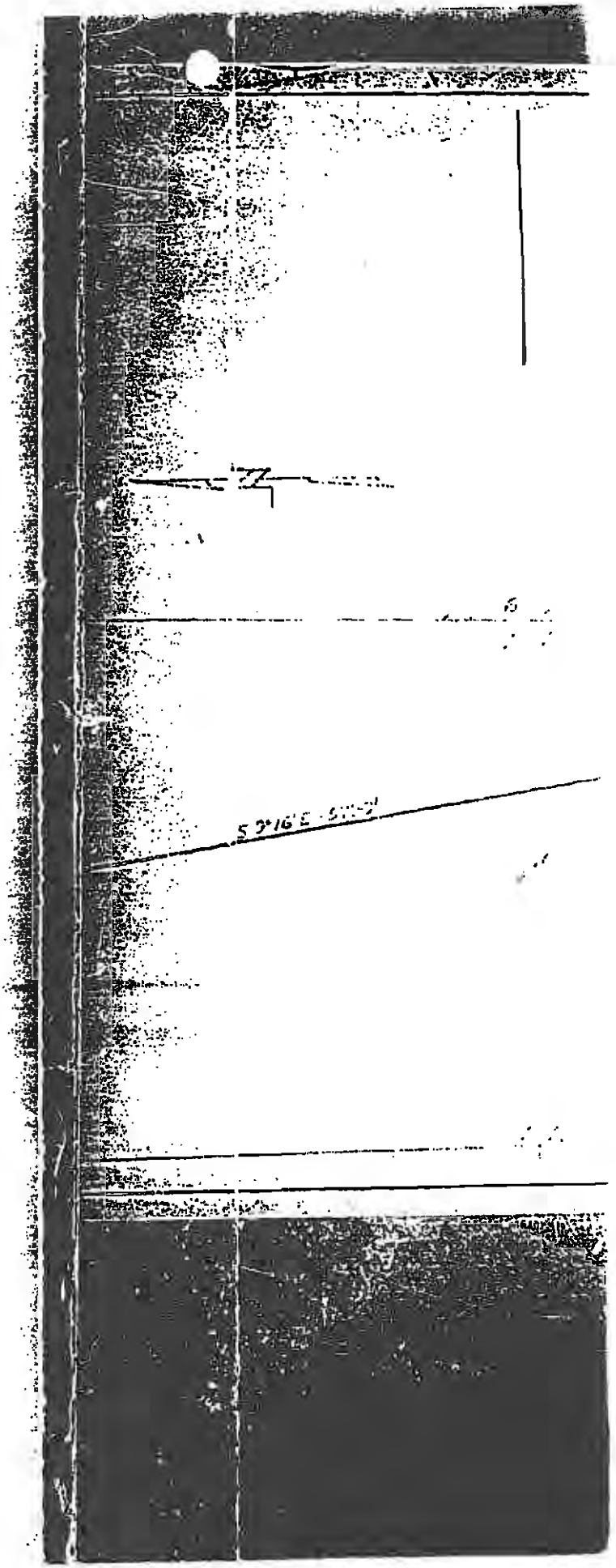
HOUSTON TEXAS GAS AND OIL CORPORATION
ST PETERSBURG FLORIDA



CIRCUIT COURT MINUTES BOOK 32 PAGE 515

DEED RECS 200 PAGE 346 IN THE CIRCUIT COURT, IN AND FOR BREVARD COUNTY, FLORIDA AT LAW NO. 4523

HOUSTON TEXAS GAS AND OIL CORPORATION, a corporation,

Petitioner,

vs.

UNIVERSAL LOAN CORP., et al

Defendants.

ORDER OF TAKING

THIS CAUSE coming on this day to be heard upon the Declaration of Taking, the Report of Appraisers, and the Court having taken and considered such testimony as the respective parties have offered herein, and upon consideration of the premises, and the Court finding that the Petitioner is entitled to exercise the authority delegated to it in the taking of the property described in this proceeding; and the Petitioner, having in all respects complied with the provisions of the applicable sections of Chapter 74, Florida Statutes 1957, it is, therefore,

Ordered and Adjudged that the Petitioner, Houston Texas Gas and Oil Corporation, a corporation, is entitled to take and acquire an easement for right of way purposes for the construction, maintenance and operation of transmission lines over and upon the lands and property described in the Declaration of Taking and particularly described as follows:

CIRCUIT COURT MINUTES BOOK 32 PAGE 516 OFF. RECS 200 PAGE 347

Parcel 1

A strip of land 50 feet in width extending 15 feet easterly and 35 feet westerly from the following described survey line and traversing the NW¼ of NE¼ of Section 23, Township 28 South Range 36 East, Brevard County, Florida more particularly described as follows, to wit:

Beginning at a point in the West line of the NW¼ of the NE¼ of said Section 23. Said point being 220 feet more or less southerly from the northwest corner thereof; and running thence S 46° 56' E a distance of 1615 feet to its point of exit in the South line of the NW¼ of the NE¼ of said Section 23, Township 28 South, Range 36 East.

Being lands owned by Universal Loan Corporation (a Florida Corporation), 1024 Central Avenue, St. Petersburg, Florida, and identified as Line List No. 5-BREV-15.

Parcel 2

A strip of land 50 feet in width extending 15 feet northerly and 35 feet southerly from the following described survey line and traversing Lots 17, 18, 19 and the West 25 feet of Lot 16 of Block 2 of Melbourne Poultry Colony Addition #1. All being a part of the SW¼ of the NW¼ of Section 24, Township 28 South, Range 36 East, as shown in Plat Book 7, Page 12 of the current public records of Brevard County, Florida more particularly described as follows, to wit:

Beginning at a point in the West line of the above described property situate in said Section 24. Said point being 1277 feet southerly from the northwest corner thereof; and running thence S 65° 56' E a distance of 433 feet to its point of exit in the South line of the above described property in said Section 24, Township 28 South, Range 36 East.

Being lands owned by C. F. Kunze, 64 North Court Street, Orlando, Florida, and identified as Line List No. 5-BREV-16.

Parcel 3

A strip of land 50 feet in width extending 15 feet easterly and 35 feet westerly from the following described survey line and traversing all of Lots 16 and 17 in Florida Indian River Land Company's Subdivision of Section 9, Township 29 South, Range 37 East, according to plat thereof recorded in Plat Book 1, Page 165 of the current public records of Brevard County, Florida, more particularly described as follows, to wit:

Beginning at a point in the North line of the above described property situate in said Section 9. Said point being 50 feet more or less westerly from the northeast corner thereof; and running thence S 44° 51' E a distance of 101 feet to its point of exit in the East line of the above described property situate in said Section 9, Township 29 South, Range 37 East.

Being lands owned by Peter J. Cichozki, P.O. Box 95, Stone Lake, Wisconsin and Betty Lenore Gates and spouse, if married, P.O. Box 95, Stone Lake, Wisconsin, and identified as Line List No. 5-BREV-23.

Parcel 4

A strip of land 50 feet in width extending 15 feet easterly and 35 feet westerly from the following described survey line and traversing all of Sections 1 and 12, Township 30 South Range 37 East and all of Sections 7 and 18, Township 30 South, Range 38 East, Brevard County, Florida more particularly described as follows, to wit:

Beginning at a point in the South line of the above described property, said point being 444 feet Westerly from the southeast corner of SW¼ of Section 18, Township 30 South, Range 38 East; and running thence N 20° 21' W a distance of 3139 feet to a point; thence N 22° 21' W a distance of 4878 feet to a point; thence N 18° 01' W a distance of 2869 feet to a point; thence N 09° 16' W a distance of 5781 feet to its point of exit in the North line of said Section 1, Township 30 South, Range 37 East.

Being lands owned by South Dade Farms, Inc., a Florida Corporation, P.O. Box 425, Homestead, Florida, and identified as Line List No. 5-BREV-40.

Parcel 5

A strip of land 50 feet in width extending 15 feet easterly and 35 feet westerly from the following described survey line and traversing all of fractional Section 19, Township 30 South, Range 38 East, containing 144 acres, more or less, all North of Grant Line, as recorded in the current public records of Brevard County, Florida more particularly described as follows, to wit:

Beginning at a point in the North line of said Section 19. Said point being 1200 feet more or less westerly from the northeast corner thereof; and running thence S 20' 21' E a distance of 877 feet to its point of exit in the southeasterly line of said Section 19, Township 30 South, Range 38 East.

Being lands owned by Herbert W. Stanton, 432 South McCadden Place, Los Angeles 5, California, and identified as Line List No. 5-BREV-41.

Order of Taking - 2

CIRCUIT COURT MINUTES BOOK 32 PAGE 518 DEED RECS 200 PAGE 349

It is further Ordered and Adjudged that the Petitioner be, and it hereby is required to deposit in the Registry of this Court the respective sums as hereinafter set forth opposite and with respect to each respective parcel:

PARCEL NO.	OWNER	AMOUNT
1	Universal Loan Corp.	$ 920
2	C. F. Kunze	$ 510
3	Peter J. Cichocki, et al	$ 50
4	South Dade Farms, Inc.	$ 3840
5	Herbert W. Stanton	$ 150

LAW 4523 Brevard County, Fla. The Sum of $5,470.00 was deposited in Registry of Court Funds Feb. 16, 1959. Clerk Circuit Court Brevard County, Florida.

FILED AND RECORDED BREVARD COUNTY, FLA. VERIFIED

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1959 MAY 18 AM 9 47

which amounts the Court determines will fully secure and compensate the defendants by the final judgment of the Court in this proceeding; and, upon making of the deposit as required hereby, and within the time prescribed by law, the Petitioner, Houston Texas Gas and Oil Corporation, a corporation, may take and possess an easement for right of way purposes for the construction, maintenance and operation of transmission lines over and upon the lands and property described above and for the purposes described in the Petition and Declaration of Taking, and the title to same shall thereupon vest in the said Petitioner, Houston Texas Gas and Oil Corporation, as provided by law.

DONE AND ORDERED at Titusville County of Brevard State of Florida, this 16th day of February, A. D 1959.

FEB 16 1959

CIRCUIT JUDGE

No. 47652 FILED AT 4:10 O'CLOCK PM. RECORDED IN THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, IN THE BOOK AND PAGE NOT. D ABOVE. G. M. SIMMONS, CLERK CIRCUIT COURT BY Elizabeth Page DEPUTY CLERK

OFFL' RECS 200 PAGE 345

C E R T I F I C A T E

STATE OF FLORIDA

COUNTY OF BREVARD

I, G. M. SIMMONS, Clerk of the Circuit Court for Brevard County, Florida, DO HEREBY CERTIFY that the attached is a true and correct copy of ORDER OF TAKING IN LAW NO. 4523.

HOUSTON TEXAS GAS AND OIL CORPORATION, a corporation,

Petitioner,

vs.

UNIVERSAL LOAN CORP., et al

Defendants.

Recorded in CIRCUIT COURT MINUTE BOOK 32, Page 515.

IN WITNESS WHEREOF I have hereunto set my hand and seal of said Court this the 14th day of May, A. D. 195 9.

G. M. Simmons
Clerk Circuit Court
Brevard County, Florida

By: Elizabeth Page
Deputy Clerk

(CIRCUIT COURT SEAL)

Appendix T : SBCSE Fire Management Plan

Fire Management Manual
For SBCSE

As part of the Brevard County Environmentally Endangered Lands (EEL) Sanctuary Management Plans, the site specific Fire Management Manuals are designed to outline the natural communities within the area that respond favorably to the application of fire.

It is widely recognized that prescribed fire, applied in established frequencies typical of each ecosystem, is an important land management tool to promote biodiversity as well as reintroducing fire to dependent ecosystems. In addition, prescribed fire adds to the lowering and maintenance of fuel loads, mitigating the behavior and effects of wildfires that start in or outside the sanctuaries.

Utilizing prescribed fire within SBCSE will benefit ecosystems, as well as the individual plant and animal species that have evolved under the influences of this natural process in Florida. The EEL Program's prescribed fire goals include:

*Restore or preserve fire-adapted communities with the reintroduction of fire
*Maximize biological diversity by the creation and maintenance of a vegetation mosaic
*Manage threatened and endangered species
*Provide educational opportunities
*Reduce fire hazards by managing fuel loads and fire
*Conduct safe prescribed fires
*Actively encourage cooperation between all parties with a vested interest in Rx fire

The EEL Program Fire Management Manual is a separate document that addresses in detail the overall fire objectives of the EEL Program and contains the burn unit plans necessary to perform prescribed fires. It outlines fire's effects on natural communities including threatened and endangered species found within the sanctuary network and lists equipment needed to perform prescribed fires.

This site-specific plan includes:

1 Fire Management Goals
2 Fire Dependent Ecosystem
3 Fire Issues
4 Species of Special Concern
5 Fire Sensitive Areas
6 Smoke Management Issues
7 Fire Regime
8 Public Notification
9 Archaeological, Cultural and Historic Resources
10 Wildfire Policy and Fire lines
11 Fire Effects Monitoring and Photo point Location
12 Fire Units

SBCSE Fire Management Goals

The SBCSE fire management plan addresses natural communities within the Sanctuaries that respond favorably to the application of fire. The mosaic of wetland and upland communities within the SBCSE reflects a combination of differences in soil type, historical fire effects, and anthropogenic influences. The EEL Program will strive to preserve this mosaic by placing the fire-dependent upland communities on specific fire-return intervals, while protecting sensitive wetlands during times of drought.

In general, vegetation in the flatwood communities will increase in density without frequent natural or prescribed fire within the Sanctuary. Understory fuels build up in the flatwoods ecosystems in the absence of fire, resulting in the potential for high intensity wildfire.

Exotic plants such as Brazilian pepper, currently found along the gas line easements, Sottile Canal, the FLP easements as well as disturbed areas within the sites, will become well-established and spread into these native plant ecosystems if fire is excluded.

The presence of the Florida Scrub-jay also will affect the fire management. Details have to be clear so as to leave scrub for the jays to occupy. Goals will be adjusted so that the scrub habitat can remain in fire rotation while at the same time not burning everything at once. In the past Red Cockaded Woodpeckers foraged within MISS boundaries. Every effort will be made to enhance the flatwoods to improve habitat for RCW nesting.

SBCSE Fire-Dependent Ecosystems

The EEL Program will strive to preserve the fire-dependent upland communities on specific fire-return intervals, while protecting sensitive wetlands during times of drought. In general, all vegetation communities within the SBCSE have increased in density given the reduced fire frequency in the area in the past decades.

Historically, wildfire within SBCSE (please refer to wildfire history maps (Figures 14 and 16) emphasizes the ongoing need to mitigate for wildfire on site. Wildfire mitigation work by the Florida Forest Service (FFS) along side the EEL Program's efforts are making surrounding communities safer from wildfire threat while achieving management goals that the EEL Program has outlined regarding habitat restoration and management.

The following are habitats found within SBCSE that are fire dependent:

Scrub

The 364.9 acres of scrub ecosystem that exists within SBCSE is found primarily on the relic dune system associated with the most recent Pleistocene shoreline. Scrub occurs in many forms, but is often characterized as an open canopy of pine with dense clumps or vast thickets of scrub oaks and other shrubs dominating the understory. Ground cover is generally sparse, being dominated by ground lichens with open patches of barren soil common. Listed animals that utilize the scrub ecosystem include the Florida Scrub-jay (FSJ), gopher tortoise and the Eastern indigo snake.

Historically, scrub habitat has a natural fire return interval that can extend from 5 to 50 years. Optimally, the oak scrub habitat within SBCSE **should be burned on an interval of 5-10 years**. This frequent burning maintains a more open scrub structure, providing the short shrubs and the open spaces the FSJ need in order to survive.

Maintaining these areas within the SBCSE with prescribed fire will encourage a healthy habitat for expanding the gopher tortoise population and encourage FSJ population re-establishment in areas with a historic occurrence.

Scrubby Flatwoods

The 2,218.05 acres of scrubby flatwoods found within the SBCSE is essentially a mix of mesic flatwoods and scrub communities, representing an ecotone between flatwoods and scrub habitats. Since this ecotone covers large areas in parts of Florida, it is recognized as a separate association. The pine canopy is open with widely scattered pines and a shrub understory ranging from thick to sparse with numerous areas of barren white sand. The white sandy soil is several feet deep and drains rapidly. Even though the water table is unlikely to be very deep, scrubby flatwoods occur on flat, well drained terrain that normally does not flood, or hold standing water for very long, following significant rain events. Typical vegetation includes longleaf pine, slash pine, sand live oak, Chapman's oak, myrtle oak, saw palmetto, staggerbush and, wiregrass (**FNAI, 1990**).

Fire frequently passed through scrubby flatwoods every 4-15 years in a spotty manner, leaving a mosaic of lightly burned, intensely burned and unburned areas. Strong winds during drought conditions appreciably increase burn coverage and intensity. A moderate-intensity prescribed fire occurring during normal rainfall conditions should **burn every 4-6 years**. This will insure a burn mosaic mimicking naturally occurring fire, though even hot fires do little to alter the vegetation pattern because the oaks and most shrubs simply re-sprout following the fire, rapidly restoring the community to its pre-burn composition. Fire exclusion within this habitat often results in the subsequent invasion of sand pine and various scrub shrubs.

Mesic Flatwoods

The 5,288.04 acres of mesic flatwoods found though out the SBCSE is characterized as an open canopy forest of widely spaced pine trees with little or no understory but a dense ground cover of herbs and shrubs. Mesic flatwoods occur on relatively flat, moderately to poorly drained terrain. During rainy seasons, water frequently stands on the surface and briefly inundates much of the flatwoods. During drier seasons, ground water is unobtainable for many plants whose roots fail to penetrate the hardpan. Thus, many plants are under the stress of water saturation during wet seasons and under the stress of dehydration during the dry seasons.

Fire is an important physical factor in mesic flatwoods, occurring every 1 to 3 years during pre-Columbian times. Prescribed fire within the SBCSE mesic flatwood community should take place **no longer than every three years**. Nearly all plants and animals inhabiting this community are adapted to periodic fires, and several species depend on fire for their continued existence. Without relatively frequent fires, mesic

flatwoods succeed into hardwood-dominated forests whose closed canopy can essentially eliminate the ground cover herbs and shrubs. Typical plants include St. Johns-wort, dwarf huckleberry, fetterbush, dwarf wax myrtle, stagger bush, and cutthroat grass.

Hydric Hammock

Hydric Hammock (761.18 acres) is characterized as a well-developed hardwood and cabbage palm forest with a variable understory often dominated by palms and ferns. Hydric hammock occurs on low, flat, wet areas where soils are sands with considerable organic material that, although generally saturated, are only briefly inundated for short periods following heavy rainfall. The normal hydroperiod is usually less than 2 months per year. Because of their generally saturated soils and the scarcity of herbaceous ground cover, **hydric hammocks rarely burn**.

Typical plants include cabbage palm, red cedar, swamp bay, sweetbay, water oak, southern magnolia, needle palm, hackberry, sweetgum, androyal fern.

Depression Marsh and Basin Marsh

Depression marshes (674.6 acres) and basin marshes (188.91) are scattered throughout the SBCSE. Historic disturbances to these habitats within SBCSE include logging, ditches, off-road vehicle traffic and cattle grazing. Larger drainage systems such as the Sottile Canal have affected the hydrology of nearby marshes. Due to the relatively small size and scattering of depression marshes, they are often incorporated into larger prescribed fire burn units. Basin marshes are also included into the burn units. When they are dry enough to burn, they will do so in rotation with the fire unit they reside in. If the basin marsh is wet, staff will burn the dry portions of the unit and attempt to burn the marshes again in the next burn cycle.

Depression marshes are typically small, rounded wetlands, dominated by herbaceous species, and are **maintained by frequent fires**. Depression marshes often dry out during periods of low rainfall, and as a result, burn more frequently and completely than basin marshes. Depression marshes are similar in vegetation and physical features as well, but are generally smaller than basin marshes. Some common species of these marshes include pickerelweed, bull tongue, arrowhead, maidencane, southern cattail, wax myrtle, water toothleaf, broomsedge bluestem, and pipeworts.

Cypress Strands/ Dome Swamps

Cypress strands/ Dome Swamps (2,136.46 acres) are characterized as shallow, forested, usually circular depressions that generally present a dome profile because smaller trees grow in the shallower waters at the outer edge, while bigger trees grow in deeper water in the interior. Fire is essential for the maintenance of a cypress dome community. Without periodic fires, hardwood invasion and peat accumulation would convert the dome to a bottomland forest or bog. Strands dominated by bay trees are close to this transition. Fire frequency is greatest at the periphery of the dome and least in the interior where long hydroperiods and deep peat maintain high moisture levels. **The normal fire cycle could be as short as 5 years along the outer edges to as long as 100 years near the strand's center**.

The cypress strands are common throughout GFS but only occur in one acre of MISS. They have been impacted by historic logging operations, ditching, hydrological changes and fire suppression. Pond cypress, swamp tupelo, and slash pine are common plants. Other typical plants include red maple, dahoon holly, swamp bay, fetterbush, chain fern, poison ivy, Spanish moss, royal fern, cinnamon fern, maidencane, orchids, wax myrtle, St. John's wort, sawgrass, and redroot.

Baygall

Baygalls compromise approximately 32 +/- acres of SBCSE and are generally characterized as densely forested, peat-filled seepage depressions often at the base of sandy slopes. They typically develop at the base of a slope where seepage maintains a saturated peat substrate. They may also be located at the edges of floodplains or in other flat areas where high water tables help maintain soil moisture. Since baygalls rarely dry out enough to carry fire, **the normal fire interval in these communities is around 25-50 years or more**.

The canopy is composed of tall, densely packed, evergreen hardwoods dominated by bay species. A more or less open understory of shrubs and ferns commonly occurs, while sphagnum mats are often interlaced with convoluted tree roots. Other typical plants include fetterbush, male-berry, myrtle-leaved holly, large gallberry, wax myrtle, poison ivy, cinnamon fern, chain fern, wild grape, netted chain fern, cypress, and needle palm.

Dry Prairie

Dry prairie habitat consists of 102.97 acres found within GFS. They are made up of nearly treeless habitat with dense ground cover of wiregrass and other grasses along with low shrubs and palmetto. As with the mesic flatwood habitat, the dense grass coverage and palmetto call for a **burn rotation of between 2-5 years.**

Ruderal

Ruderal (disturbed) areas comprise approximately 1,006.07 acres of the SBCSE and are found along road right of ways, ditch banks, hunting and ATV trails, and in former pasture and agricultural fields in the middle of GFS. Vegetation in ruderal areas is often comprised of opportunistic native species such as winged sumac, fetterbush, grape vine, broom sedge, or exotics such as Brazilian pepper, Australian pine and melaleuca. The alteration of habitat and the interruption of historic fire frequencies contribute to the degraded ecological value of this community. Prescribed fires are needed to produce a more natural fire regime that will be integral in the restoration of these ruderal areas.

Prescribed Fire Issues

A primary goal of prescribed burning is to mimic the conditions provided by a natural burning regime employing specific (prescribed) weather conditions while minimizing the fire's impact upon nearby interests. The desire is to restore and maintain plant community structure and biodiversity within the natural communities while maintaining or expanding public perception of and support for prescribed fire.

Northern GFS does not have a continuous border (i.e. a fence and fire line as MISS) and contains many privately owned parcels of land within its conceptual outline, making fire management decisions much more difficult than in other conservation areas.

Residential developments in and around GFS and MISS may be impacted by smoke that could aggravate neighbor's allergies and respiratory problems. There are also 4 heavily-traveled transportation corridors within the SBCSE as well as many secondary roads scattered throughout the area that make smoke management extremely challenging and critically important.

Currently, northern GFS is not divided into burn units due to the number of outparcels that still exist. Staff has only been able to establish a fire line around 100 acres in the northeast section as of this draft. The Florida Forest Service (FFS) has been constructing fire lines in the parceled area in an effort to better deal with wildfire situations that may arise. Staff will work with the FFS to burn in these parceled areas where EEL land will be burned at the same time. Burn unit delineation should utilize existing roads/trails and natural fire barriers. Individual burn unit acreage/size should be established with careful consideration for fuel loads as well as smoke management, given the proximity of Interstate 95, other roadways, and scattered rural residences located within the GFS boundary.

In the parceled section of GFS, EEL staff will apply for authorization for EEL land and the FFS will pull the necessary permits for private land under the Hawkins Bill authority. Following establishment of burn units, the FFS has the authority under the Hawkins Bill (1977) to conduct prescribed burns on private property. The Hawkins Bill contains procedures that allow the FFS to prescribe burn hazardous accumulations of wild land fuels on private land (FS 590.125(4). The intent of the law was to reduce fuel loads and wild land hazards on absentee land holdings where fuel reduction is not practiced The FFS may conduct fuel reduction initiatives such as burning and mechanical treatment on any area of wild land within the state which is reasonably determined to be in danger of wildfire in accordance with the following procedures:

a) Describe the areas that will receive "fuel" treatment to the affected local government entity.
b) Publish a treatment notice, including a description of the area to be treated, in a conspicuous manner in at least one newspaper of general circulation in the area of the treatment not less than 10 days before the treatment.
c) Prepare a notice, included with the county tax collector's annual tax statement, to be sent to all landowners in each township designated by the division as a wildfire hazard area. The notice must describe the area to be treated and the tentative date or dates of the treatment and must list the reasons for and the expected benefits from the wildfire hazard reduction.

d) Consider any landowner objections to the "fuel" treatment of his or her property, and allow the landowner to apply to the division for a review of alternative methods of fuel reduction on the property.

The burns may then be conducted in partnership with EEL, Brevard County Fire Rescue, the Nature Conservancy, United States Fish and Wildlife Service, City and Volunteer Fire Departments and the Florida Park Service.

Smoke management issues are of paramount importance due to the multiple interests potentially impacted by prescribed fire activity. Establishment of a prescribed fire regime within SBCSE management boundaries requires careful planning because of the vast acreage of fire maintained wild land vegetation located within the urban interface.

The heavily traveled/high-speed Interstate 95 running north-south through this management plan area, the moderately traveled two-lane roads of Valkaria Road, Grant Road, Micco Road and Babcock Street, along with US Highway 1are always major elements in deciding how and when to burn acreage within the SBCSE. The rural residential neighborhoods within the GFS boundary, residents of Palm Bay to the west of Babcock, and the densely developed Barefoot Bay subdivision one mile due east of southern GFS all require detailed pre-burn planning and post-burn mop-up and monitoring. Valkaria Airport is located to the north of GFS. Smoke management is paramount here. The airport will be notified of burns in the area.

Species of Special Concern
The Florida Scrub-jay is present within the MISS and GFS, and is a species very dependent upon a consistent fire regime. Red Cockaded Woodpeckers (RCWs) are also present foraging on site within MISS, but the pines cannot yet support RCWs nest cavities. Every effort will be made to restore the historic range of RCWs on this parcel. The gopher tortoise is located on both sites and will benefit from any burning activity. The success of the gopher tortoise will benefit other species due to the dependence of some species on the burrows that the tortoise makes.

Fire Sensitive Areas
There are numerous fire sensitive wetland areas in GFS and MISS and fire vehicles should avoid driving on the interior edges due to the potential impact on scattered gopher tortoise burrows.

Fire activities must avoid impacting the underground 36-inch natural gas transmission line parallel to the west of Interstate 95 in MISS, as well as a natural gas transmission line running NNW-SSE through the western half of GFS. FPL also has overhead power lines found throughout the two areas.

Smoke Management Issues
The main areas of smoke impact to roads are I-95, Babcock Street to the west of SBCSE as well as US-1, Valkaria Road, Grant Road, and Micco Road. An FPL powerline also

runs through the middle of MISS. Smoke should not be placed on the line. Smoke management around Valkaria Airport is very important.

Fire Regime

There are three main elements dictating the fire regime of MISS: Florida Scrub-jay, RCWs and the flatwoods dominance. The EEL Program will maintain the mosaic effect of MISS by rotating fires between units, allowing for enough scrub necessary for the continuation of the FSJ within the MISS.

Each natural community has many elements that respond differently to different fire frequencies, fire seasons, etc. A fire regime would then be defined as all planned fire return intervals, which fall between two pre-determined upper and lower limits. These fire regimes can be selected by habitat or burn unit, and must include fuel management/wildfire considerations if sanctuaries are adjacent to houses and other structures.

These frequencies can be based upon the vegetation type and structure. If, for example, the goal is to keep scrubby flatwoods at a certain height for FSJ, then this would require a short fire return interval that trends toward the lower limit of the habitat. If the fuel loading is heavy due to the exclusion of several fire return intervals, then the fire frequencies may be short initially, and within different seasons until the fuel amount is at a safe level. Fire regimes may also be planned in order to keep many different ecosystems at a pre-set stage, preserving ecosystem-level diversity within a given Sanctuary.

All fire regimes will be based on an initial evaluation of existing ecosystems, their present condition, past conditions based on aerials and research, and goals of specific plants and animals. Since ecosystems are very dynamic, the monitoring of any changes within plant or animal composition will be important, leading to the potential change in fire regimes.

Both GFS and MISS have a rich fire history. Ignition from wildfire, burning related to agriculture (cattle grazing), as well as wildlife forage improvement for enhancement of hunting game have all added to the fire history. Historical aerial photography covering a period of 65 years details the gradual loss of open space due to reduced fire frequency as the surrounding area developed.

Previous fire management involved containment and suppression of wildfires by both the landowners and the FFS. Fire management under the EEL Program will shift the emphasis away from strictly winter burning to include growing season burns. This will mimic natural fire from lightning to achieve the desired fire return interval for the GFS and MISS natural communities.

Public Notification

Coordinated notification providing information on planned prescribed burns will be made to any resident in advance of every prescribed burn conducted in the SBCSE. A press release is put out the day before a burn. People can be added to the list of recipients upon request.

Archaeological, Cultural and Historic Resources

Archaeological, cultural or historic resources within SBCSE are found in **Appendix O**.

Wildfire Policy and Maintenance

The intense large wildfires occurring in Southern Brevard County in May 2008 emphasizes the ongoing need to manage for wildfire in pyrogenic communities. The San Fillipo Wildfire burned over 5,000 acres, destroyed 50 homes and businesses, and damaged over 200 more homes in South Brevard County before firefighting efforts reduced the threat.

When wildfires occur within GFS, first responders are usually the FFS and Brevard County Fire/Rescue. The EEL Program works closely with these fire agencies to control wildfire in the Sanctuary though the FFS has the lead on any operation once they show up on a wild fire situation. It is very important for the regional land manager responsible for the GFS and MISS properties to maintain communication with wildfire cooperators and to provide them with updated gate combinations and local knowledge of the firebreaks and fuels as needed.

As part of an active and aggressive prescribed fire program, the EEL program will maintain existing firebreaks and install additional fire lines where needed to provide an adequate buffer to control fire within MISS and GFS. Firebreaks should be maintained throughout the year, more often during the summer growing season.

Fire Effects Monitoring and Photopoint Location

There are photopoints on site in each habitat type. Photo points will be maintained by EEL staff as a means to monitor both short-term and long-term post-fire effects. These photo points, placed in each distinct community, will monitor vegetative response to fire as well as other management practices. The Fire Manager may also photo-document pre and post burn fuels to determine the impact of fire intensity and frequency on vegetation structure and fuel loads.

Micco (MISS) Burn Units

Unit 1A and 1B: Unit 1A is 128.5 acres and Unit 1B is 107.1 acres. They are comprised mostly of mesic flatwoods with areas of depression marshes throughout. Several areas have been disturbed by previous land uses and Bahia grass has been able to establish in these areas. These units are bordered by a borrow pit to the south-east which is not owned by the program. To the north of unit 1A is the Sottile Canal. The western border of fire unit 1A is a raised access road. The southern boundary of 1B is Micco Road. This unit can be burned in a 1-3 year rotation.

Unit 2 & 3: Unit 2 is 76.3 acres and Unit 3 is 72.3 acres. They are comprised of an old planted pine plantation with canals and swales throughout. The understory is a mix of emergent shrubs, typical flatwoods understory and bahia grass. To the north of unit 2 is the Sottile Canal. The southern boundary of unit 2 and 3 are both old logging trails. The eastern boundary of these units is the FPL power-line easement that is mowed regularly. The western boundary of the units is comprised of a canal with a raised road. The unit will be logged in a planned restoration project. The unit will be restored to pine flatwoods and be burned as such at that point. This unit will be maintained as a pine flatwoods ecosystem and be burned in a 1-3 year rotation.

Unit 4: Unit 4 is 67.7 acres. It is comprised of pine flatwoods with intermittent depression marshes. The understory is comprised of typical flatwoods understory, which is considerably overgrown due to lack of fire regime. The northern boundary of the unit is the same trail described as the southern boundary in unit 3. The southern boundary is Micco Road, which has a canal along the side of the road. The eastern and western boundaries are defined in the previous two units. This unit will be burn on a 1 to 3 year rotation. Fuel reduction is needed.

Unit 5, 6, 7, & 8: Unit five 88.1 acres, Unit six 69.3 acres, Unit seven 125.6 acres, & Unit eight 121.4 acres. Total acreage is 404.4 acres. They are all comprised of similar flatwoods habitat with more scrubby flatwoods characteristics toward the eastern portion of these units (6 & 8). Several depression marshes and a small bayhead are intermittent within the unit. A small area along the north boundary is planted pines and will be restored to more historic habitats. The flatwoods in these units are in good health with the understory slightly overgrown. The western boundary of this block (units 5 & 7) is the FPL is power line easement described previously. The southern boundary (units 7 & 8) is Micco Road. Within the units, 15-foot firebreaks bisect the units both east-west and north-south. This allows the block to be broken into smaller units if necessary. These units will be burned in a 1-3 year rotation. Routine prescribed fire that is burned into the bayhead community will allow for this habitat to improve from its present condition.

Unit 9: Unit 9 is 63.1 acres. This unit is comprised of a large wetland and basin marsh area with areas of flatwoods and scrubby flatwoods. The northern boundary has the Sottile canal. This was previously plowed by the FFS in a wildfire event. Staff rehabbed the plowed line and made it into a useable firebreak. The eastern boundary is paralleled by I-95 and a utility easement that remains wet several months of the year.

Unit 10: Unit 10 is 159.4 acres. This unit is mostly scrub in the southwest corner with open areas that will not carry fire on a regular basis. To the east, it gets more into a flatwood type community. The northern unit is the wetland areas described in unit 9.

Unit 11: Unit 11 is 316.4 acres. This unit is comprised of both pine flatwoods and a basin marsh. To the north of this unit is Micco Road, which has a ditch adjacent to the road. To the east of the unit is a FPL power-line easement, which is maintained annually. To the south of this unit is another FPL power-line easement, which lies within the St

Sebastian River Preserve State Park. To the west is Babcock Street with a ditch adjacent to it. There is an out parcel in the southwest corner. The pine flatwoods need to be burned on a 1-3 year cycle.

Unit 12A,B, and C: Unit 12A is 118.2 acres, Unit 12B is 79.4 acres, and Unit 12C is 33.7 acres. These units (231.3 acres total) are very disturbed parcels that have an old tomato farm, planted pines and scrub within it. To the north of this block is Micco Road. The south boundary has a canal and borders the St Sebastian River Preserve State Park. The east boundary is I-95 and a utility easement the borders the highway. The west boundary is the FPL power-line easement that is described in Unit 11. With the mix of disturbed habitats and scrub, it is hard to put this unit on a regular fire regime but with considerable restoration it should be restored into scrub that will be burned 5 to 15 year rotation to maintain the best height for the Florida scrub-jay. This block has been burned as three separate units. All burns reduced fuel loads and are considered a success by staff.

Unit 13: Unit 13 is 37.4 acres. This is a disturbed area that consists of remnant pine flatwoods and hardwood swamp features. To the west of the unit is the I-95 corridor. This area has been disturbed over the years and is not considered in any burn plans. There are no firebreaks installed and at the time of this draft there are no plans to put one in. The northern 2/3 of the unit burned in the big 2008 wildfire.

Unit 14: Unit 14 is 60.1 acres. This unit has a lack of fire history and is disturbed due to past agricultural uses in the area. Large oak hammocks have formed due to the lack of fire. This area will not carry fire except in severe drought years. There is no plan to burn this unit as of now, but as funding can be gathered, firebreaks will be installed. A restoration project is needed in this unit to reduce large oaks and eliminate large areas of grapevine that may negatively affect the ability of fire to carry over the unit.

GFS Burn Units

GFS is broken up into 12 individual burn units. Burnable acreage within GFS will vary based on the presence and hydration levels of the strand swamps, hydric hammock, depression marshes, and basin marshes.

While the network of existing roads, trails, natural barriers and the newly installed interior and perimeter fire lines within GFS provide a framework to accomplish many fire management objectives, additional fire lines are needed to safely conduct prescribed burning.

Northeast Units of GFS. The burn units in the northeast of GFS are 1109.8 acres. These units have established fire lines around the perimeter of the units. Approximately 900 acres have been burned between May and October of 2013. The northern most unit has been roller chopped in a restoration project to reduce fuel height. Vegetation throughout the unit is made up of scrub. This unit has not been burned as of this plan. It is a priority. Burn rotation should be in the 5-8 year range for the northern most unit.

Unit 1 is 294.1 acres. It is comprised mostly of mesic flatwoods with areas of depression marshes and strand swamps throughout. Most of the unit burned during the May 2008

wildfire in a slow-moving, ecologically desirable backing fire at night and into the early morning hours of May 13th. This unit has adequate fire lines installed and should remain in burn rotation. This unit should burn at least every 3 years.

Unit 2 is 89.5 acres. It is comprised mostly of mesic flatwoods with a several depression marshes. Unit 2 did not burn in the 2008 wildfire, but was burned later that year. It was also burned again on 10/2/13. This unit has adequate fire lines installed and should remain in burn rotation. This unit should burn at least every 3 years.

Unit 3 is 489.9 acres. It is comprised mostly of a large area of strand swamp bracketed by mesic flatwoods. All but a small portion of the northeast corner of the unit burned in the 2008 Mother's Day wildfire. Portions of Unit 3 are difficult to access, and the east side of the unit is bordered by private land that is wet in many areas. This makes fire line construction difficult. A northwest wind direction will be needed to keep smoke from impacting I-95 (approximately one mile to the west). Fire lines will need to be established before any prescribed burning can take place.

Unit 4 is 581.5 acres. It is comprised mostly of mesic flatwoods with areas of strand swamp, basin marsh and hydric hammock. The entire unit burned in the 2008 Mother's Day wildfires. Additional perimeter fire line work will be needed before burning in the future.

Unit 5 is 109.9 acres. It is comprised of a large finger of mesic flatwoods nearly surrounded by an equal acreage of strand swamp. Most of the unit burned during the May 2008 wildfire. This unit is one of the closest to I-95 of all of the GFS units, located approximately one half mile east of the Interstate, so it will require a wind direction a few degrees either side of west-southwest the day of the burn, with minimal chance of a wind shift to an easterly component for several days following.

Unit 6 is 189.4 acres. It is comprised mostly of strand swamp with several large NW to SE running fingers of mesic flatwoods along the east and west sides. Most of the unit burned in the 2008 wildfire. This unit should be burned without any easterly component, favoring a south wind direction since the Sottile Canal anchors the entire north side.

Unit 7 is 149.9 acres. It is comprised of strand swamp and mesic flatwoods, with a large area of dry prairie near the center. Unit 7 did not burn in the 2008 wildfire. This unit should be burned favoring a south wind direction since the Sottile Canal anchors the entire north side.

Unit 8 is 159.7 acres. It is comprised of nearly equal acreages of strand swamp, hydric hammock and mesic flatwoods, with a small finger of scrubby flatwoods extending into the unit from in the north portion. Unit 8 did not burn in the 2008 wildfire. This unit should be burned favoring a south to south-southeast wind direction.

Unit 9 is 138.7 acres. It is comprised of nearly equal areas vegetated with strand swamp and dry prairie with a small pocket of mesic flatwoods near the middle of the north side.

Most of the unit burned during the May 2008 wildfire. This unit is very close to I-95, located less than 3,000 feet due east of the Interstate, and adjacent to Micco Road, so it will require a wind direction a few degrees either side of southwest the day of the burn, with minimal chance of a wind shift to an easterly or northerly component for several days following.

Unit 10 is 173.5 acres. It is comprised mostly of strand swamp throughout the northern two thirds of the unit with several large NW to SE running fingers of mesic flatwoods along both the east and west sides. Most of the unit burned in the 2008 wildfire. This unit should be burned without an easterly component, favoring a south to southwesterly wind direction due to Micco Road located adjacent to the south side of the unit.

Unit 11 is 166.9 acres. It is a diverse unit comprised of strand swamp, hydric hammock, scrubby and mesic flatwoods. Unit 11 did not burn in the 2008 wildfire. Prescribed wind direction should range within a few degrees either side of due south because of Micco Road located adjacent to the south side of the unit.

Appendix U : REAC Meeting Minutes Related to SBCSE

Micco Scrub Sanctuary
Meeting on January 12, 2006

Followed by

*Grant Flatwoods Sanctuary
Meeting on May 11, 2006

ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
RECREATION AND EDUCATION ADVISORY COMMITTEE
January 12, 2006
Attendance List

RECREATION AND EDUCATION ADVISORY COMMITTEE MEMBERS

Murray Hann
Karen Hill
Mark Nathan
Eve Owens
Beverly Pinyerd
Paul Saia
Dorn Whitmore

SUB-COMMITTEE MEMBERS

Barbara Meyer, Brevard County, Bicycle/Pedestrian Trail Program Coordinator
Paul Schmalzer, Selection and Management Committee

EEL PROGRAM STAFF

Laura Clark
Judy Gregoire
Brad Manley
Chris O'Hara

GUESTS

Susan Gosselin, Brevard County Natural Resources Management Office

January 12, 2006
Approved February 9, 2006

ENVIRONMENTALLY ENDANGERED LANDS PROGRAM
RECREATION AND EDUCATION ADVISORY COMMITTEE
January 12, 2006
Meeting Minutes

CALL TO ORDER:

Murray Hann called the meeting to order at 6:02 PM.

PUBLIC COMMENT:

None

MINUTES:

The November 10, and December 8, 2005 draft minutes were presented for approval.

Murray asked for comments to the minutes.

Karen Hill stated she had attended both the November and December meetings, but had not been included on the Attendance Lists.

Eve Owens stated that on the November minutes, under New Business, Jordan Scrub Proposed Public Access Plans, the beginning of the second paragraph read "This Plans" which should be changed to "The Plans"; and, the time of adjournment for that meeting should be changed from 6:08 PM to 8:08 PM.

No additional changes were required to the November or December minutes.

MOTION ONE:
Eve moved to approve the November 10 and December 8, 2005 minutes as amended.
Dorn Whitmore seconded the motion.
The motion carried unanimously.

OLD BUSINESS:

Other Conservation Lands Map

Brad commented that including all of the items suggested by committee members became a difficult project when applied to all areas of the County. Staff will work to include the additional information on a local level as individual Recreation Plans are reviewed. A copy of the current draft map was presented at the meeting for members' review and comment.

EEL Sites Field Trip

Brad suggested that the Committee take several field trips with the first one covering the North, and possibly Central areas of the County. The group discussed possible dates for a trip. Staff will poll absent committee members to determine if February 18th would be a good date.

Old Business Continued

Mark Nathan mentioned that during the last meeting, the group had reviewed and approved a motion of support for the draft Recreational Plan at the Pine Island Conservation Area (PICA). Mark and other members of the Committee expressed further concern that the PICA Stormwater Project could negatively impact the rookeries in the pond areas. The Committee expressed their desire to see the rookeries maintained.

NEW BUSINESS:

Dicerandra Scrub Sanctuary Public Access Plan

Judy Gregoire, Land Manager for the North Region provided information on the existing Dicerandra Scrub Sanctuary and associated Public Access Plan. The Dicerandra Scrub Sanctuary is named after a rare species of mint found only in the Titusville and North Brevard area. There are other rare plants, along with Indigo snakes, gopher tortoises, and scrub lizards on the Sanctuary as well. Acquired in 1993, this 44± property is a Category III (Primary Conservation and Research) Site. This designation provides enhanced conservation benefits to sites with exceptional resource values or vulnerabilities and provides public access at levels that will not disturb on-going resource management and research projects.

The current Public Access Plan has changed slightly from the Conceptual Plan that was originally submitted to the State as staff has gained knowledge of the area and mapping capabilities have improved. The main entrance to the Sanctuary is located within an existing neighborhood on Marie Street in Titusville. Recent EEL staff and volunteer efforts to remove debris and exotic plants from the trail head have been supported by the neighborhood. A one-mile loop hiking trail provides opportunities to view scrubby flatwoods and a small depression marsh. The Dicerandra Scrub Sanctuary is adjacent to the Titusville well fields conservation area, which increases the potential for conservation.

Motion Two
Dorn Whitmore moved to support the Dicerandra Scrub Sanctuary Public Access Plan as presented by staff.
Mark Nathan seconded the motion.
The motion carried unanimously.

Micco Scrub Sanctuary Public Access Plan

Chris O'Hara, Land Manager for the South Region provided information on the Micco Scrub Sanctuary and Draft Public Access Plan. This 1,735± acre site is located along Micco Road in southern Brevard County and includes scrub, scrubby flatwoods, and pine flatwoods. Much of the site has been wet during the last few months. Opportunities for

as fire breaks. One trail will be one and one-half mile long, the other will be three miles long. It is anticipated that the main users will be horse back riders and hikers. There are plans to build a small footbridge across the wet area with a possible boardwalk near the Bay Head depression marsh.

Chris reported that public access south of Micco Road is not being planned at this time as Red-cockaded Woodpeckers, which are a federally listed endangered species, have recently been relocated from Georgia to other conservation lands to the south and have been seen foraging at the Micco Scrub Sanctuary. This small woodpecker inhabits old growth pines in open areas and this type of habitat is rapidly declining. This is the only location in Brevard County where the Red-cockaded Woodpecker is known to exist. There are also active Scrub-Jay populations in the area.

Murray mentioned that there have been discussions of providing a connection to the St. Johns Buffer Preserve for the Greenways and Trails South Brevard Linear Trail Project. It was determined that when plans were further along and support for a connection of this type could be received from the Buffer Preserve, the topic could be re-addressed.

Motion Three
Eve Owens moved to support the Micco Scrub Sanctuary Draft Public Access Plan as presented by staff and encourage staff to be open to the concept of connecting to the St. Johns River Buffer Preserve.
Karen Hill seconded the motion.
The motion carried unanimously.

NEXT MEETING:

The next meeting will be held on February 9, 2006.

ADJOURNED:

The meeting was adjourned at 8:05 PM.

SUMMARY OF MEETING MOTIONS:

- Motion to approve the November and December 2005 minutes as amended.
- Motion to support the Dicerandra Scrub Sanctuary Public Access Plan as presented by staff.
- Motion to support the Micco Scrub Sanctuary Draft Public Access Plan as presented by staff and encourage staff to be open to the concept of connecting to the St. Johns River Buffer Preserve.

ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
RECREATION AND EDUCATION ADVISORY COMMITTEE
May 11, 2006
Attendance List

RECREATION AND EDUCATION ADVISORY COMMITTEE MEMBERS

Bob Champaigne
Murray Hann
Karen Hill
Mark Nathan
Beverly Pinyerd
Paul Saia

SUB-COMMITTEE MEMBERS

Paul Schmalzer, Selection and Management Committee

EEL PROGRAM STAFF

Laura Clark
David Drake
Brad Manley
Chris O'Hara

GUESTS

Susan Gosselin, Brevard County Natural Resources Management Office
Linda Mason, Citizen

ENVIRONMENTALLY ENDANGERED LANDS PROGRAM
RECREATION AND EDUCATION ADVISORY COMMITTEE
May 11, 2006
Meeting Minutes

CALL TO ORDER:

Murray Hann called the meeting to order at 6:04 PM.

PUBLIC COMMENT:

Linda Mason, citizen from the Grant area, spoke of her concerns for the protection of the natural areas near Grant.

MINUTES:

The March 9, 2006 minutes were presented for approval.

Murray asked for comments to the March minutes.

MOTION ONE:
Beverly Pinyerd moved to approve the March 9. 2006 minutes as presented.
Bob Champaigne seconded the motion.

The motion carried unanimously.

ADMINISTRATIVE REVIEW:

Brad Manley reviewed the Administrative Review.

OLD BUSINESS:

EEL Sites Field Trip

The group discussed options for an additional field trip to visit some of the EEL Program Sanctuary Sites.

Staff will poll members of the REAC Committee to determine if June 24th would be a convenient date.

Al Tuttle Trail Update

Brad reviewed the REAC motion from March 9, 2006 meeting regarding the Al Tuttle Trail. He explained that Barbara Meyer was not able to attend this meeting as she has been out sick, but that there has been communication with the MPO regarding the trail.

Murray stated he felt there was a need for a formal process that would confirm when REAC motions were formally presented to the SMC along with feedback to the REAC Committee once the motions were presented. Brad explained that REAC motions on Public Access Plans are included in the Public Access portion of each sanctuary's Management Plan, but that the Management Plan review process can be quite lengthy. Information confirming SMC review of Management Plans will be provided to the REAC committee when the plans are presented to the SMC for approval.

Murray stated he also felt that there was a need for a formal process that would confirm when motions that were not specific to Public Access Plans were presented to the SMC for their consideration.

Additional discussion continued on the Al Tuttle Trail Update. It was the opinion of one of the REAC Committee members that the EEL Program has not exhibited a cooperative effort in this project, which has hindered the Trail's development. Clarification was provided that the EEL Program is open to communication on the project, but that concerns outlined in the August 2005 REAC minutes remain unresolved. The concerns were listed in the August 2006 minutes as:

- Protection of the natural resource while including passive recreational and educational opportunities
    - Protection or improvement of hydrology of the trail as well as the surrounding area by not impeding the sheet-flow of water between the various plant communities
    - Minimizing the amount of new trail construction
    - Avoiding impacts to wetlands
    - Working within FWS guidelines on mitigation parcels
- Identify the agency responsible for maintenance of the proposed Trail. The EEL Program does not currently have the staff to maintain a trail of this size in this region.
- Appropriate use and agency responsible for monitoring of the trails will need to be addressed, as the EEL Program does not currently have the staff to monitor the area. In addition, until further acquisition have been completed in this area, it will not be possible to secure the boundary to control access and use of the trail.

Clarification was provided that providing passive recreation and educational opportunities are secondary goals of the EEL Program and that the Mission of the Program is: *Protecting and preserving biological diversity through responsible stewardship of Brevard County's natural resources.*

The importance of trail monitoring and maintenance was also discussed.

Staff will continue to work with the MPO on the Al Tuttle Trails Project.

NEW BUSINESS:

Grant Flatwoods Sanctuary Proposed Pubic Access Plan

Chris reviewed the proposed public access plan for the Grant Flatwoods Sanctuary:

- Parking and Public Access
- Hiking
- Horseback riding
- No Hunting (unless agreed upon by special permit)
- The central theme for environmental education will be cypress and flatwoods ecosystems, and how those natural communities support a vast array of species.
- EEL staff will work with area schools, school board and agencies/organization offering education programs to augment the educational programs offered at the Grant Flatwoods Sanctuary.

Clarification was provided that there are plans to include mountain biking opportunities at this sanctuary.

MOTION TWO:
Bob Champaigne moved to approve the Grant Flatwoods Sanctuary Proposed Public Access Plan as presented by staff, with the clarification that there are plans to include mountain biking opportunities on site. A possible observation platform may be considered for this sanctuary in the future.
Mark Nathan seconded the motion.

The motion carried unanimously.

NEXT MEETING:

The next meeting will be held on June 8, 2006. Location to be determined.

ADJOURNED:

The meeting was adjourned at 8:10 PM.

SUMMARY OF MEETING MOTIONS:

- Motion to approve the March 9, 2006 minutes as presented.
- Motion to approve the Grant Flatwoods Sanctuary Proposed Public Access Plan as presented by staff, with the clarification that there are plans to include mountain biking opportunities on site. A possible observation platform may be considered for this sanctuary in the future.

Appendix V : 30- Day Public Review Notice

*Staff received ZERO comments during the 30-day public review period.

BREVARD County
BOARD OF COUNTY COMMISSIONERS

FLORIDA'S SPACE COAST

PARKS AND RECREATION DEPARTMENT
Environmentally Endangered Lands Program
91 East Drive
Melbourne, Florida 32904

Telephone: (321) 255-4466
Fax: (321) 255-4499
http://www.eelbrevard.com

May 21, 2013

Re: Public Comments

The website listed below is the May 2013 draft of the South Brevard Coastal Scrub Ecosystem (SBCSE) Management Plan. The state of Florida requires a 30-day review of the plan by the public and managing agencies involved with the sanctuary. Following the review, comments will be added and a public hearing will take place.

The draft plan can be viewed at the following website:

www.brevardcounty.us/EELProgram/ManagementPlans/
Then Select the South Brevard Coastal Scrub Ecosystem management plan (PDF).

You can also reach the link by going to our website – www.eelbrevard.com and clicking on the "management plans" tab located on the left hand side of the page. Then Select the South Brevard Coastal Scrub Ecosystem management plan (PDF).

Comments can be mailed in to our office at:

Environmentally Endangered Lands Program
91 East Drive
Melbourne, FL 32904

Comments can also be emailed to: david.demeyer@brevardparks.com or faxed to 321-255-4499, Attention David DeMeyer

I would appreciate all comments back by close of business (5PM) Wednesday July 3rd, 2013.

Thank you for your participation and cooperation in this process.

Sincerely,

David DeMeyer
Assistant Land Manager
South Region
EEL Program

Appendix W : Advisory Group Members

2013 SBCSE Management Plan: Advisory Group Members

1. Chris O'Hara, South Area Land Manager
   Brevard County Environmentally Endangered Lands Program

2. Thomas Allenbaugh, Local Private Property Owner

3. Pat Brian, Grant-Valkaria, Local Elected Official

4. Susan Moor (smoor@sjrwmd.com), St Johns River Water Management District

5. David Millard, Soil and Water Conservation District

6. Mark Wallace, President: Space Coast Audubon Society

7. Sam Mcgee, Immediate Sanctuary neighbors, St. Sebastian River Buffer Preserve State Park

Appendix X : Advisory Group Notice, Letters, and Minutes

BOARD OF COUNTY COMMISSIONERS

Parks and Recreation Department
Environmentally Endangered Lands Program
91 East Drive
Melbourne, FL 32940

FOR IMMEDIATE RELEASE
Date: September 19, 2013

* * * NOTICE OF PUBLIC MEETING * * *

A meeting of the **EEL Program's South Brevard Coastal Scrub Ecosystem (SBCSE) Management Plan Advisory Committee** will be held on:

Monday, October 7, 2013
6:00 PM – 8:00 PM
EEL Program Office
91 East Drive
Melbourne, Florida 32904

The purpose of this meeting is to provide an opportunity for SBCSE Management Plan Advisory Committee review and comment on the South Brevard Coastal Scrub Ecosystem Management Plan, which covers the Grant Flatwoods Sanctuary and Micco Scrub Sanctuary areas.

Any questions regarding this meeting should be directed to Laura Clark (321) 255-4466 or Laura.Clark@brevardparks.com."If a person desires to appeal any decision made by this board, agency or commission (as appropriate) with respect to any matter considered at this meeting or hearing, such a person will need a record of this proceeding and that, for such purposes, such person may need to ensure that a verbatim record of this proceeding is made, at his/her own expense, which record includes testimony and evidence upon which any such appeal is to be based."

"In accordance with the Americans with Disabilities Act and Section 286.26, F.S., persons needing accommodations or any interpreter to participate in the proceeding should contact Laura Clark, EEL Program Administrative Secretary, no later than 48 hours prior to the meeting, at 255-4466."

ENVIRONMENTALLY ENDANGERED LANDS PROGRAM
South Brevard Coastal Scrub Ecosystem Management Plan
Advisory Group Public Meeting
October 7, 2013

CALL TO ORDER:
Chris O'Hara, EEL Program South Region Land Manager, called the meeting to order at 6:06 PM.

PUBLIC COMMENT:
None.

PRESENTATION:
Chris explained that the Environmentally Endangered Lands (EEL) Program was created by the passing of a 1990, 20-year referendum to protect and preserve biological biodiversity through responsible stewardship of Brevard County's Natural Resources. The Program has been quite successful and has acquired over 20,000 acres, which also provide opportunities for passive recreation and environmental education. The EEL Program currently receives funding from the passing of a second referendum in 2004.

There are 4 Regions, with three Management and Education Centers (Enchanted Forest in Titusville, Sams House at Pine Island Conservation Area on Merritt Island, Barrier Island Center in Melbourne Beach). The Program protects 20 different habitats which provide habitat for 65 threatened or endangered plants and animal species.

Sanctuaries in the South Brevard Coastal Scrub Ecosystem (SBCSE) also received partial funding through the State from the Florida Forever Project, and are therefore in State title. The Management Plan Advisory Group public meeting is one of the requirements of the State's Acquisition and Restoration Council which facilitates the Florida Forever Program. The meeting is held in order to receive Advisory Committee comments on the Management Plan.

After this meeting, the plan will be submitted for approval to the EEL Program's Selection and Management Committee, the Brevard County Board of County Commissioners, and the State's Acquisition and Restoration Council. A land management plan review will be done in 5 years from the date of ARC approval, and a management plan update will be required 10 years after the date of the ARC approval.

Draft copies of the SBCSE Management Plan were e-mailed to the Advisory Group prior to the meeting.

David DeMeyer, South Region Assistant Land Manager, gave a presentation on the Management Plan:

- SBCSE Management Plan includes two EEL Program Sanctuaries in the southern most areas of the County. It is anticipated that these areas will have different primary user groups.
    - Grant Flatwoods Sanctuary
        - 5,198 acres
        - Trail Systems
            - Red Loop – existing at end of Crepe Myrtle Road, 2 miles
            - Blue Loop – in progress, includes boardwalks, approximately 4 miles
        - Proposed "bridge" to cross Sottile Canal to connect north and south portion.
        - No established parking existing. Parking is planned along Micco Road.
        - Vegetation is primarily pine flatwoods, with some cypress strand swamp and depression marshes. Also includes a bit of scrub and hydric hammock with some disturbed areas including one man made pond.
        - Southern GFS 11 Fire Units – Units 1 & 2 have existing fire breaks.
        - Northern GFS 11 miles of fire lines placed over existing ATV trails were installed at no charge to the Program by the Department of Forestry (DOF) due to proximity of neighborhoods. 1,100 acres burned during prescribed fires during the last 6 months.
        - Exotic Species Management primarily by staff and frequently using Bureau of Invasive Plant Management grant funding. Invasive, exotic species include feral hogs, coyotes, cogon grass, and Brazilian pepper. Volunteer off-duty police are assisting with hog control.

    - Micco Scrub Sanctuary
        - 1,724 acres
        - Trail Systems
            - White Loop – existing, 2 miles
            - Red Loop – in progress, completion anticipated soon, approximately 2 miles
            - Lots of equestrian use
        - Kiosk and designated parking area already installed
        - Vegetation is primarily pine flatwoods, some scrub, basin marsh, along with planted pines and some disturbed areas.
        - 17 Fire Units – most have firebreaks.
        - Land Management, including the use of prescribed fires, helped stop the Mother's Day fires in 2008, from spreading into nearby neighborhoods.
        - Exotic Species Management primarily by staff and frequently using Bureau of Invasive Plant Management grant funding. Invasive, exotic species include feral hogs, coyotes, cogon grass, and Brazilian pepper. Volunteer off-duty police are assisting with hog control.

Public Comment

- Samantha McGee - Prescribed Fire Plans: It is important that fire planning within management plans include the ecological needs of the systems, whether an organization is able to achieve the desired number of prescribed fires, or not.
    - Staff relayed that they are working hard to maintain the lands that have already been restored while working on areas that still need major restoration.
- Thomas Allenbaugh - Bicycle Trail Plans: Requested information on future plans for bike pathways in South Brevard and spoke in support of working with trail planners, when possible. Also stated that Murray Hann had contacted him, requesting that he relay Murray's concerns that he had not seen much information related to building or maintenance of bike trails, and that bicycle trail plans for the Al Tuttle Trail's connection to the southern end of the paved trail at the Malabar Scrub Sanctuary did not seem to be moving forward.
    - Staff provided clarification that the paved trail at the Malabar Scrub Sanctuary was approved as a pilot project and no other approvals have been issued.
    - Staff provided clarification that trail planners had drawn preliminary lines on maps without having detailed knowledge of property ownerships, or habitats, and that it was discovered that some of the lines had been drawn on private property, and/or through wetlands. A public meeting was held earlier in the year to receive comments from citizens and conservation agencies. Updated potential trail locations have not been distributed since that meeting.
    - It was noted that although the trail project has been a long term goal for many years, there is no funding available at this time. It was also noted that sometimes when many agencies are working on a large project, it can be difficult for one agency to have full knowledge of what other agencies are doing.
    - A suggestion was received to include wording in the management plan which clarifies that the Program is supportive of working with trail planners whenever possible.
- Mark Wallace - Valkaria Megaparcel: asked if there were plans to consolidate ownership in the megaparcel area.
    - Staff provided clarification that it is hoped that this can be accomplished in the future, although it will be a challenging process as the land is in State title.
- Thomas Allenbach - Single Track trail at Grant Flatwoods: Requested clarification regarding whether or not plans for the single track trail at the Grant Flatwoods Sanctuary are included in the management plan.
    - Staff confirmed that the blue loop trail discussed earlier in the meeting is planned as a single track bike trail. It was noted that there have been issues at the Malabar Scrub Sanctuary East related to multi-use trails.
- Samantha McGee - Invasive Exotics: Suggested consideration of decontamination sites at all sanctuaries. Noted that although DOF fire lines are installed at no charge, they sometimes may not have time to wash off exotic plants or seeds between locations, which may result in transfer of invasive exotics.
- A question was received regarding the plans for fencing at these two sanctuaries.

- Staff noted that EEL Program sanctuaries are never totally fenced off to prevent access. Clarification was provided that most sanctuaries have several access points. Specific access points are created to guide visitors to an appropriate entrance points which allows for safe entry and privacy for the sanctuary's neighboring homeowners. In addition specific access points also help reduce inappropriate activity within the sanctuary. An access point is planned for the blue loop in the southern portion of the Grant Flatwoods Sanctuary for bike riders.

- Samantha McGee, Grant/Valkaria Mega Parcel: Requested clarification of strategy behind acquisition of non-contiguous small parcels.
    - Staff explained that early in the EEL Program's history, the Selection and Management Committee identified several areas in south Brevard as important for conservation and this was one of them. The State agreed, and the area was included in the Brevard Coastal Scrub Ecosystem Project. The State has provided 50% partnership funding in some cases, and 100% of acquisition funding in others. Additional parcels have been received through mitigation donations, although recent changes in mitigation donation requirements may make future mitigation donations extremely complicated.

      Approximately 54% of the area has been placed in conservation. It was acknowledged that the scattered ownership does create some challenges for folks who are interested in conservation, and those who are interested in development.

- Mark Wallace - Florida Scrub-Jays: Requested clarification of whether or not there are Scrub-Jays in the area.
    - Staff confirmed that there are Scrub-Jays in the area and it appears that the population is expanding as a resulted of land management efforts.

- Samantha McGee - ATV use in Grant/Valkaria Mega Parcel Area: The group discussed the damage that can be caused to conservation areas by illegal ATV use. Samantha expressed her support for the creation of locations where ATVs can be ridden legally.
    - Staff noted that there are State funds available for this purpose, but site location and liability issues appear to be difficult hurdles to cross.
    - It was also noted that an ATV dealer had been handing out maps of the Grant/Valkaria area to folks who purchased ATVs and the dealership had also been telling customers it was an appropriate place to ride their ATVs, which is inaccurate.

Chris thanked everyone for coming and stated that if anyone had additional comments, they could e-mail them to him, or to David.

The meeting was adjourned at 7:00 PM.

Appendix Y : Additional Comments, Notices, Letters, and Minutes

The following are minutes taken from Pubic Meetings with the Brevard County EEL Program's Selection and Management Committee (SMC) regarding the SBCSE MP.

ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
SELECTION & MANAGEMENT COMMITTEE (SMC)
April 23, 2013
Attendance List

SELECTION & MANAGEMENT COMMITTEE MEMBERS
Mark Bush
Dave Breininger
Ross Hinkle
Randy Parkinson
Paul Schmalzer
Kim Zarillo

EEL PROGRAM STAFF
Jenny Ashbury
Laura Clark
Mike Knight
Jennifer Howell
Katrina Morrell

GUESTS
Jack Masson, Director, P&R
Larry Wojciechowski, Finance Manager, P&R
Mike Smith, Procedures Committee
Jabez Coggan III, citizen
Vince Lamb, Procedures Committee
Susan Murphy, citizen
Shane Murphy, citizen
Martha Pessaro, Friends of the Enchanted Forest
Abbey Toomer, citizen

ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
SELECTION & MANAGEMENT COMMITTEE (SMC)
April 23, 2013
Meeting Minutes

CALL TO ORDER:
Randy Parkinson called the meeting to order at 1:05 PM.

PUBLIC COMMENT:
Vince Lamb noted that the Brevard Wildlife Corridor Event, which was held April 16th – 21st, had gone very well. He noted that many EEL Program staff had been tremendously helpful in making the event a success.

MOTION ONE
Ross Hinkle made a motion to recognize Vince Lamb and the Brevard Nature Alliance for conducting the expedition which provided information on Brevard County's natural resources, and especially for their contribution to highlighting the Environmentally Endangered Lands Program's properties.
Paul Schmalzer seconded the motion.
The motion carried unanimously.

MINUTES:
The January 28, 2013 minutes were presented for approval.

Paul noted that these minutes had been tabled at the last meeting for incorporation of Ray's presentation on the South Beach Region. He added that the new information was a good summary of the presentation. In addition: Page 3 - capitalize *Glandularia,* Page 4 – clarify acquisition history of Maritime Hammock Sanctuary, Page 5, 5th bullet – correct typo in number ($29,476,432, not $29.476.432).

MOTION TWO:
Ross Hinkle moved to approve the January 28, 2013 minutes as amended.
Kim Zarillo seconded the motion.
The motion carried unanimously.

The March 6, 2013 minutes were presented for approval.

MOTION THREE:
Ross Hinkle moved to approve the March 6, 2013 minutes as presented.
Dave Breininger seconded the motion.
The motion carried unanimously.

ADMINISTRATIVE REVIEW:
The Administrative Review was reviewed.

<u>BOCC Pending</u>
Requests to renegotiate two billboard leases at the Jordan Scrub Sanctuary were submitted for consideration by the BOCC on May 14th.

Town of Malbar Spring Fest

On April 13th the Town of Malabar held their annual Spring Fest event at the Malabar Community Park. The EEL Program assisted the Town with the organization of their annual Cowbell 5K Run / Walk, and 10K Trail Run. Approximately 130 runners participated, and many more people attended the Spring Fest event. A great time was had by all, and we received many wonderful comments about the trail network within the Malabar Scrub Sanctuary.

Fox Lake Scrub Sanctuary VolksSport Event

On April 30th, a group of walkers from the VolksSport Association Convention in Orlando will be hiking the trails at the Fox Lake Scrub Sanctuary. It is anticipated that between 300 – 500 participants will be attending. Staff is working hard to get the trails in good shape for the event.

EEL Program Funding Update

Jack Masson, Director of Parks and Recreation, stated that he felt that everyone was aware of the funding concerns now facing the EEL Program and he wanted to give an update on the results of the many phone calls, meetings, and e-mails which had occurred. He noted that one bit of good news is that an agenda report has been submitted for the April 30th Board of County Commissioners (BOCC) meeting requesting approval to refinance the existing unpaid bonds from the 2005 bonding at a lower interest rate. It is anticipated that the refinance could save the Program about $140,000 annually.

Mike also noted the following:

- Historically, the EEL Program has always operated under the principle that bond proceeds could only be used for land acquisition and first time capital expenses.
- Federal regulations indicate that if bonds have been retired (paid), unused bond proceeds can be used for any lawful purpose of a program; the State's regulations do not address this issue.
- The debate of whether or not the $3 million that the Brevard County Finance Department transferred out of the EEL Program's operations account early last February, can be transferred back to operations continues.
- The Finance Department operates under the Clerk of the Court.
- The focus for the request to return the $3 million has shifted away from the Federal regulations which states the retired bond proceeds can be used for any lawful purpose of the program to a new perception that a certain amount of repetitive land management costs, especially those that relate to capital purchases and capital maintenance, (i.e., continued disking of fire lines, prescribed burning operations, and control of invasive exotic species) could have come from bond funds, when they were charged to operations.

  Staff is currently pulling information from a report that EEL Program employees complete which shows how much time each employee spends doing different activities, in order to determine the expenses for those areas, and to provide justification for a request that a portion of the $3 million be released.

Larry Wojciechowski from Parks & Recreation provided the following information:

- It is anticipated that approximately $370,000, which represents the amount received from FEMA for the reconstruction of the caretaker facility (formerly known as the Yotti House) at 358

the Maritime Hammock Sanctuary can be included in the justification of the request to release a portion of the $3 million.

- It is also anticipated that approximately $300,000 in capital purchases, which previously came from operations, can be included in the justification of the request to release a portion of the $3 million.

Larry noted that he felt fairly comfortable stating that even if the entire $3 million was not transferred back to operations right away, it was anticipated that over time, enough money could be moved back to operations to sustain the EEL Program through some time during Fiscal Year 2014–2015.

Paul asked if it was felt that the EEL Program would have sufficient funding to complete Fiscal Year 2012–2013 and Fiscal Year 2013-2014.

Larry said yes.

Paul asked if the discussions included the options, which were presented during the January and February meetings, of transferring $917,313 currently available in Land Acquisition funding and $694,666 in the South Region building construction fund, for future operations.

Jack confirmed they have not approached that yet, as it is believed that the immediate focus should be on the return of the $3 million. He added that after he and Stockton have an opportunity to review the information currently being worked up by staff, they will be meeting with a high ranking member of the Finance Department next week for discussion purposes. He added that the Program was not out "of the woods" yet, but it was anticipated that there would be funding for the remainder of this year, and next year, assuming all goes the way they are hoping.

Jack also noted that the Program still has a large funding void during Fiscal Year 2015-2016. He explained that he, Mike, Vince Lamb, and a group of citizens met with Commissioner Nelson recently to discuss opportunities, options and the status of the EEL Program. He noted that he thought it had been a good meeting.

Mark Bush asked if there was a possibility of getting the EEL Program moved under the General Fund.

Jack explained that would be above his decision level, and he noted that there is no funding source for Golf Operations, which also operates out of Parks & Recreation, which was another issue he was dealing with.

Randy stated his feeling that if it is expected that the EEL Program will run out of money in 2015, then a plan needs to be worked on now, and that he was very concerned about the viability of the Program.

<u>Public Comment</u>
Vince Lamb, Procedures Committee Chairman, said that he, Doug Sphar, Recreation and Education Committee Chairman, Darlene Hunt from the Pine Island Preservation Society, Bob Day, and Gary Appleson from the Sea Turtle Conservancy met with Commissioner Nelson the previous Friday, where the following was noted:

- It was his opinion that there does not appear to be any better solution to the EEL Program funding issue than a maintenance referendum to cover the cost of land management and operations of the Centers.

- A special election will not be possible, so the next opportunity will be the general election during the fall of 2014.
- The group has asked Stockton Whitten for clarification on the process for conducting a 2014 referendum.
- The *Friends of Ulumay* is being elevated to a 501(3)(c) named *Preserve Brevard* to help build support for the EEL Program.

Jack noted that he felt it might be better to wait for a referendum until 2015.

Ross noted that he had some ideas related to EEL Program funding, although he recognized that the current meeting might not be the best time to discuss them. He noted that the EEL Program has an immediate funding concern, in addition to long term funding issues. Ross said that he speaks with folks at national meetings and other conservation programs who see the EEL Program as a model of how things should be done.

Jack noted that it is anticipated that a School Board and an Infrastructure Referendum will be scheduled for 2014. He also noted that he and Mike have been preparing information on what the impacts to the Program will be if the Program's funding issues are not resolved.

Confirmation was provided that collections on the 2004 EEL Program referendum will continue until 2024.

Ross asked if ball park figures were available related to costs for prescribed fire and control of invasive exotics.

Jack confirmed staff is in the process of gathering that information now. Additional information will be provided as it becomes available.

Randy stated his feeling that a trust needed to be established for the management of all EEL Program sites.

Ross noted that he wanted to thank Jack, Mike, and Larry, on behalf of the SMC, for their efforts.

Additional Discussion – Order of Agenda Items
It was determined that the Land Acquisition Status Report would be moved up in the agenda so that Jack could be present for this part of the discussion.

Land Acquisition Status Update

Mike noted that there had not been much change on the spreadsheet, but there were two items which needed to be discussed. The following was noted:

Land Donations

- Mitigation Donations: Interest in development is picking back up and staff has received a few calls. Changes to Florida Law resulting from the passage of House Bill 599 require that effective October 1, 2013, a trust fund must be established to ensure funding for continued management of mitigation properties. It is anticipated that the one time management fee could be doubled from what is currently being collected. In addition, there is a requirement which states that the dollars in the trust fund must be increased by 2% each year, for every year the land is in conservation. Staff is in the process of getting clarification on the requirements.

- Private Donations: A few calls have been received from out of state landowners who no longer wish to continue paying taxes on small sites in the mega-parcel area. Staff is concerned about possible criticism if additional land is brought into the sanctuary network when the Program is facing such severe funding issues.
- Although it is generally felt that the only way to increase species protection in the mega-parcel area will be through the acceptance of land donations. Eventually the issue will need to be readdressed. No donations are moving forward at this time due.
- Paul stated that if donations not related to mitigation, were pending, they needed to be brought forward so they could be presented to the Board of County Commissioners who needed to approve them or decline them.
- Mike provided confirmation that current inquiries regarding mitigation land donations were specific to wetlands. Dave Breininger suggested that staff contact the State Supervisor for the Endangered Species Office for additional information.
- Kim asked if Natural Resources might be able to provide information they learned during their research into establishing Regional Offsite Mitigation Areas.

Florida Inland Navigation District (FIND) Land Swap

- Negotiations have reached the point where they will be making determinations on things like due diligence and design costs. Staff is reluctant to start moving things forward and will be meeting with Jack and Stockton to discuss the aspect of getting something like that to the BOCC for approval because it will not be an easy train to move forward. Item presented for discussion.
- Paul noted that the FIND site is a critical acquisition which has been pursued for 20 years and if there is an opportunity to do it now, regardless of how difficult it might appear, his view was it should move forward.
- Kim noted the property meets the USAF partnership requirements for scrub habitat.
- Jenny stated her estimate that total cost for swap, due diligence, redesign, and acquisition of the additional 10 acres which would need to be acquired from FIND could come to approximately $500,000.
- Paul noted that there was approximately $260,000 left over from the sale of the TICO property, and that those funds were restricted to acquisition of scrub habitat.
- Kim stated her feeling that the Program is at a disadvantage in the negotiations because staff does not have experience negotiating with Federal agencies.

SMC REPORTS

REAC Update

Mike explained that at the last Recreation and Education Advisory Committee (REAC) meeting, the Committee finalized a letter to the Board of County Commissioners related to EEL Program funding issues. The Committee requested that staff hold the letter until staff felt it was appropriate to present.

Mike also noted that the REAC had begun a discussion on evaluations for regulating events and quidelines related to not having pets on EEL Program sanctuaries. Staff is working on preliminary processes to address these issues

STAFF REPORTS:

Education – Sams House and North Region

Katrina Morrell, EEL Program Education Coordinator, explained that she would be doing the presentations for the North and Central Regions.

Enchanted Forest Sanctuary Management and Education Center, Titusville

- Currently open 6 days per week. Last fiscal year's visitation on sign in sheets and for program attendance was 23,969. There have been over 16,000 visitors since October 1, 2012, which is higher than the same timeframe last year.
- Activities include study trips, homeschool programs, scouting programs, night hikes, Sunday Funday, Swamp Hikes and other special events. This year's Earth Day Celebration on April 20th included 800 people even with unfavorable weather. Over 300 people attended the Sanctuary's first Creepy Crawly Day.

Sams House Management and Education Center at Pine Island Conservation Area, Merritt Island

- Currently open Thursday, Friday, and Saturday. This year they have had almost 7,000 visitors to the Management and Education Center. The number does not include the visitors to the Pine Island Conservation Area which has trail runners twice a week, equestrian use, and fishermen.
- Now offering youth group camping at $4 per person per night. Sams House is outfitted for service groups. Several have attended so far and they have others planned.
- Monthly education programs focus on a different topic each month. Nature hikes, Owl Prowl.
- Pine Island Preservation Society (PIPS) volunteer group for PICA assisted with the 2nd annual Pioneer Day which brought in over 1,400 people.
- Citizens can now sign up for the Sams House newsletter through the County's web site.

Education – South Beach Region

Jennifer Howell, the South Beach Region Naturalist, provided information on the South Beach Region.

- Study Trips – 1,738 visitors: Habitat Detectives, Sea Turtle Academy, Manatee Grass Mystery, Dune to Lagoon Hike
- New programs: Habitat Detectives, Sea Turtle Academy II, Outreach, Scouts
- Public Programs – 523 visitors: Touch Tank, Story Time, Sea Turtle Obstacle Course, Little Hatchlings
- Walk In Visitors to the Management and Education Center March 2012 – March 2013: 15,579
- This does not count visitors to the Barrier Island Sanctuary, or the other South Region Sanctuaries.

Additional Discussion

Ross stated that each time he hears visitation numbers he is very impressed and he noted the importance of documenting attendance at EEL Program centers and sanctuaries.

Discussion ensued regarding what is currently being done and other processes that might be implemented to obtain information on attendance. Kim mentioned that she thought that the Park Service has a methodology for estimating visitation. Randy stated he felt it was very important to

of the plan for 30 day public review. The interim management plans for these sanctuaries were previously approved by the SMC and the new plan was distributed for review by the SMC prior to this meeting. Comments received during the most recent SMC review are being incorporated by staff.

SMC/PC Letter to the Board of County Commissioners
The group discussed the most recent version of the SMC/PC letter to the Board of County Commissioners. It was determined that the information should be rearranged, without changing any of the actual text and if the Procedures Committee wished to send a separate letter, that would be an option they could pursue.

Mike mentioned that Sue Hann had indicated she did not feel a letter of this type was within the responsibility of the SMC as Sue was not present at the meeting.

MOTION SIX
Paul Schmalzer moved to approve the SMC/PC letter to the Board of County Commissioners as amended.
Dave Breininger seconded the motion.
The motion carried unanimously.

NEXT MEETING:
The next meeting will be scheduled for May 30, 2013.

ADJOURNED:
The meeting was adjourned at 4:05 PM.

SUMMARY OF MEETING MOTIONS:
1. **Motion to recognize Vince Lamb and the Brevard Nature Alliance for conducting the expedition which provided information on Brevard County's natural resources, and especially for their contribution to highlighting the Environmentally Endangered Lands Program's properties.**
2. **Motion to approve the January 28, 2013 minutes as amended.**
3. **Motion to approve the March 6, 2013 minutes as presented.**
4. **Motion to approve the Scottsmoor Flatwoods Sanctuary Management Plan as amended and to forward it to the Board of County Commissioners for final approval.**
5. **Motion to approve the Fox Lake Sanctuary Management Plan as amended and to forward it to the Board of County Commissioners for final approval.**
6. **Motion to approve the SMC/PC letter to the Board of County Commissioners as amended.**

MEMORANDUM

TO: Brevard County Board of County Commissioners

FROM: Brevard County Environmentally Endangered Lands Program Selection and Management Committee and Procedures Committee

REFERENCE: Environmentally Endangered Lands Program Operational Funding

The recent removal of approximately $3 million from the EEL operations budget by the Finance Department has placed the Program in a position of not having enough operational funds to make it through the current fiscal year without experiencing a significant budget shortfall. Both the EEL Selection and Management Committee and the EEL Procedures Committee wish to urge the County Commission to find a quick resolution to this short-term financial situation, and to work diligently to ensure that all long-term funding options are explored. Without adequate funding for long-term land management and facility operations, the EEL Program will not be able to adequately carry out the conservation directive put in place by the citizens of Brevard County.

Since 2007, the EEL Program's annual operational budget has been reduced by 35%, which has resulted in a backlog of management actions that are very important to the ecological health of local and regional wildlife species and habitats. The current staffing structure of 28 employees has made it far more difficult to adequately implement the referendum mission and land management plan objectives. Current revenue projections indicate the Program's operations budget will need to be further reduced by an additional 60% within Fiscal Year 2013 / 2014. If these reductions occur as anticipated, the EEL Program will no longer be able to adequately implement the mission of the voter-approved referendum.

The currently forecasted reductions would likely only support a staff structure of approximately 8 employees to carry out all program activities throughout the County. A staff structure of this size could only perform limited prescribed fire operations, and would not allow for the operation of the three environmental education centers (Enchanted Forest, Barrier Island and Sams House), exotic species management, site security, or adequate maintenance of nearly 60 miles of public use trails throughout the County.

The intent of the two EEL referendums was to protect and manage these natural landscapes for the long-term protection of our ecosystems, wildlife species and the enjoyment of future generations of Brevard's citizens and visitors. Adequate long-term funding is critical to ensure that these goals are achieved. These properties are key natural resources owned by the citizens of Brevard County and they must be maintained like any other capital asset.

A common misperception is that natural landscapes can manage themselves, and that human intervention is not critical for long-term preservation. Most Florida habitats and species are dependent upon recurring fire cycles, which play a significant role in providing quality habitat conditions and food sources for wildlife species. A landscape without regular fire will soon become overgrown and become ecologically less productive and inaccessible by visitors. In Brevard, many of these landscapes border highly populated residential areas, where residential fire risk can be greatly increased by unmanaged conservation lands.

The specific impacts to natural habitat quality, threatened and endangered species populations, wildfire protection, and the provision of passive recreation and environmental education opportunities, resulting from the anticipated loss in operational revenue are further described in the attached Summary Document.

As approved by the EEL Selection and Management Committee
On April 23, 2013.

Selection and Management Committee Chairman

Randy Parkinson _____ **Date** 5/10/13

As approved by the EEL Procedures Committee
On May 2, 2013.

Procedures Committee Chairman

Vince Lamb _____ **Date** 5/21/13

Summary Document:

The EEL Selection and Management Committee was established under the Environmentally Endangered Lands (EEL) Program voter approved referendum to act as a scientific advisory committee to the Board of County Commissioners and EEL staff, for providing recommendations related to the acquisition and management of lands acquired under the EEL Program. The EEL Procedures Committee was established as an advisory committee to the Board, County staff, and the Selection and Management Committee regarding policies, procedures, and funding sources for land acquisition and management. Both Committees wish to express their concerns regarding the anticipated funding reductions to EEL Program operations and ecological land management activities.

The Mission of the Brevard County Environmentally Endangered Lands Program as established by Brevard County's voters and the Board of County Commissioners is to *Protect and Preserve our Biological Diversity Through Responsible Stewardship of Brevard County's Natural Resources.* The Vision Statement, which was formally approved by the Board of County Commissioners states that *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 the primary conservation goals of the program. The EEL Program encourages active citizen participation and community involvement.*

Fire Management

Prescribed fire is one of the most important and least expensive land management tools used to maintain habitat and protect neighboring properties from uncontrolled wildfires. Without the resources to maintain an adequate prescribed burn program, the habitat quality of scrub and other fire-dependent communities will decline. This will lead to a reduction in plant and animal populations dependent on fire maintained habitats. For the Florida Scrub-Jay, species recovery hinges on their success in Brevard County. In the absence of proper land management, the progress made towards species recovery over the past two decades will quickly be undone and the impacts thus expanded beyond the local level. There is a risk of extirpation of local populations of Florida Scrub-Jays and other species if the habitat is not maintained. Regulatory compliance with the Endangered Species Act will be compromised if populations that have begun to recover decline.

In 2011, Brevard County and the Florida Division of Forestry coordinated a multi-agency effort to develop the **Brevard County Community Wildfire Protection Plan (CWPP)** whose purpose was to complete an *"assessment of the community's wildfire vulnerability, local organizations and resources available to assist with the wildfire mitigation and response, and an action plan for reducing wildfire vulnerability in the*

County." The agencies involved in the development of the plan included, the Florida Division of Forestry, Brevard County Emergency Management, Brevard County Fire Rescue, Brevard County Planning and Zoning, City of Cocoa, Town of Palm Shores, Town of Malabar, City of Rockledge, St. Johns River Water Management District, and the Brevard County Environmentally Endangered Lands Program. This report recognized the importance of the fuel management and prescribed burning done by the EEL Program in reducing wildfire risk as exemplified by the 2008 Mother's Day fire in Palm Bay and the 2011 Wildhorse fire in Scottsmoor. *"In both situations, the pre-burned areas stopped the wildfire from reaching the developed residential and commercial areas adjacent to the EEL managed lands."* Without sufficient operational funding to maintain prescribed burning the wildfire risk will increase in the wildland-urban interface Many EEL Program Sanctuaries required fuel reduction, fire breaks, and other treatment when first acquired. It is much more cost-effective to maintain sites through regular prescribed burning than to risk having to repeat this work.

Invasive Exotic Species Management
A large investment has been made by Brevard County's citizens to ensure our natural landscapes are protected for future generations to enjoy. Significant local and State grant funds have been invested to control the spread of exotic plant and animal species that invade and threaten these native landscapes. Ongoing monitoring and management of these exotic species is critical to ensure they do not regain a foothold, compromising the significant investments of money and time that have already been made. Maintenance is far more cost-effective than if the initial control actions have to be repeated.

Public Use and Ecotourism
The active management of EEL conservation lands has contributed significantly to the growth of ecotourism in Brevard County (e.g. Space Coast Birding and Wildlife Festival, kayak tour industry, 2013 Brevard Wildlife Corridor Expedition Event, etc.). Additionally, Brevard is becoming a destination for hikers, trail runners, mountain bikers and horseback riders looking for unique trail experiences along the Space Coast. Over 60 miles of multi-use trails are currently maintained throughout Brevard County under the EEL Program that cater to this wide variety of visitors.

Three environmental education centers (Enchanted Forest, Barrier Island Center and Sams House) provide visitor experiences to over 70,000 citizens and visitors annually, including nearly 4,500 local school children attending field trips. If the anticipated funding reductions occur, the Program would no longer be able to support operations of the three education centers, or the regular maintenance of the trails network throughout the County.

Safety and Security
Without regular monitoring, unsupervised conservation lands become subjected to inappropriate activities including wildlife poaching, fence and gate vandalism which leads to illegal dumping, homeless camps, and off-road vehicle impacts to the habitats. A tremendous effort was required to conduct initial trash removal following acquisition of

the properties, and to control other illegal uses. Proper signage must be maintained, along with boardwalks and bridges along the trails. A regular presence on the lands by staff helps to ensure that visitors feel safe and that the resources are adequately protected.

County Site Management Commitments

Since the inception of the EEL Program in the early 1990's, the County has received well over $30 million in land acquisition funds from the State of Florida, St. Johns River Water Management District, United States Fish and Wildlife Service, Florida Fish and Wildlife Conservation Commission, The Nature Conservancy, and other grant resources, on the condition that the County would provide long-term management of the resources being acquired. The County manages lands acquired with the State of Florida under management lease and management plans for these sites require State approval. Failure to carry out management will violate terms of these leases. Other granting agencies and organizations will have similar concerns if Brevard County does not maintain management and fulfill terms of grants. The County has also received many mitigation land donations and free site management through mitigation permits that were approved with the understanding that long-term site management would be carried out by the County. Without the ability to carry out management, new mitigation donations may not be accepted. Additionally, the County has utilized significant acquisition and management funding from the United States Air Force in support of the scrub habitat protection that supports ongoing military and space operations on the Cape Canaveral Air Force Station.

Current Funding Outlook

Finding a long-term funding solution that ensures the ongoing management and public use of EEL sanctuaries as established by the two EEL referenda is a critical issue that needs to be addressed by our elected officials. The utilization of residual bond interest and proceeds from the now retired 1991 bonds for program operations is a logical initial step to ensure ongoing management while longer-term funding options are evaluated. This short-term funding approach was implemented by the County Commission as part of the annual budget approval process. Both the Bond Counsel and the County Attorney were in agreement with this approach.

ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
SELECTION & MANAGEMENT COMMITTEE (SMC)
January 13, 2014
Attendance List

SELECTION & MANAGEMENT COMMITTEE MEMBERS
Dave Breininger
Sue Hann
Ross Hinkle
Paul Schmalzer
Laurilee Thompson
Kim Zarillo

EEL PROGRAM STAFF
Jenny Ashbury
Laura Clark
Mike Knight

GUESTS
Leeanne Saylors, Procedures Committee
Bonnie Wilbanks, Town of Malabar 369

ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
SELECTION & MANAGEMENT COMMITTEE (SMC)
January 13, 2014
Meeting Minutes

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

PUBLIC COMMENT:
None,

MINUTES:
The September 30, 2013 Gopher Tortoise Workshop minutes were presented for approval. It was noted that the draft was completed just prior to the beginning of the November 18, 2013 meeting, so they were not presented for approval at that time.

Paul Schmalzer noted two items:

- Page 2, Paragraph 2 notes the summary information from the workshop needs to be included as part of the minutes and they were not included in the draft version.
- Page 5, Paragraph 4 needs a period at the end of the sentence.

MOTION ONE
Paul Schmalzer moved to approve the September 30, 2013 Gopher Tortoise Workshop minutes, as amended.
Kim Zarillo seconded the motion.
The motion carried unanimously.

The December 5, 2013 SMC meeting minutes were presented for approval.

MOTION TWO
Paul Schmalzer moved to approve the December 5, 2013 SMC minutes as presented.
Dave Breininger seconded the motion.
The motion carried unanimously.

Additional Discussion
Paul Schmalzer commented on the information shown on page 4 in the 2nd paragraph of the Land Acquisition Report for the December 5, 2013 minutes: *"Jenny stated the information is still at FIND and when they respond to her, she and Mike will make a decision as to where to go from there."* He noted that when the information is received from FIND, it will need to be come back to the SMC if there has been any change in the exchange property footprint, or the other arrangements previously approved by the SMC.

Mike stated that he believed that the statement had possibly related to minor negotiation issues. Kim stated she thought that it could have just been a misstatement, and she thanked Paul for the clarification.

Sue Hann joined the meeting after the first two motions were approved.

ADMINISTRATIVE REVIEW

Board of County Commission Items

- BOCC 1/17/2014: Request to approve donation of DiChristopher property (Sykes Creek) – Approved.
- Hog Point Cove Submerged Lands Lease Renewal – State is revising, BOCC date unknown.
- Interagency Cooperative Fire MOU - (TNC revising, BOCC date unknown)

Land Zoning Code Revision

A revised version of the language which directly incorporated the SMC comments from the November 18, 2013 meeting when this item was first discussed, was distributed during the meeting. Mike noted that he had posed the question of whether or not the SMC's comments needed to go through some sort of County Administration filter, but Cindy Fox from Planning and Zoning stated that in her mind, the recommendations should go to the Board as they were stated by the SMC. Mike explained that he had reviewed the information and it looked good to him. He added that it was possible that the Board might change the language, but the SMC recommendations were being forwarded to the Board without change. He suggested that the SMC review the information during the current meeting's break to ensure everything was incorporated as requested, noting that if there were any concerns, they could be discussed later in the meeting.

Confirmation was provided later in the meeting that the January 13, 2014 communication from the Planning and Transportation Department looked appropriate. A copy of the information is provided as an attachment to this e-mail. During the discussion Kim requested that staff follow up on the Local Planning Agency (LPA) review process.

BCC-85 Gopher Tortoise Translocation Revisions

Mike explained that EEL Program staff met with folks from the Department of Natural Resources (NRMO) to provide the motions and other comments on this topic originally discussed by the SMC on November 18, 2013. He added that it was his understanding that the SMC would receive a revised document once NR has the opportunity to prepare one.

Request for Theatrical Event at Enchanted Forest Sanctuary

Mike explained that he and Jack Masson, Director of Parks & Recreation (P&R) met with the person wanting to hold the play on site at the Enchanted Forest. He noted that they have shifted gears and come up with a plan that they think will work.

Kim noted that Erna Nixon Park, in Melbourne, does moonlight walks.

Paul stated that he agreed with night hikes, as long as they weren't done all the time, but he felt that a theatrical event is more of a concern. He noted that consideration of having the event held within the amphitheater, instead of in the butterfly garden, was good news, but that bringing in a large number of people, bleachers, a sound system and extensive lighting would be very disruptive and that he did not see a theatrical event as an appropriate use of the Sanctuary.

Ross asked for additional information on the event.

Mike explained that the play is called "Into the Woods". He added that the Disney Corporation holds the rights to the play and the event is supposed to coincide with a Disney movie that will be coming out. Mike provided confirmation that this is considered a commercial use and that the group will be selling tickets. Part of the proceeds from the ticket sales will come back to the Program to cover some of the Program's costs associated with the event. He noted that staff's concern is where to draw the line regarding the types of events which would be appropriate.

Paul stated that the primary Mission of the EEL Program is the protection of biodiversity; passive recreation and environmental education are important secondary goals, and the theatrical event did not appear to fit

any of those categories. He added that EEL Program sanctuaries are not parks and they have worked since the beginning of the Program to be sure they are not treated as parks.

Ross agreed. He noted the importance of educational outreach and asked if the play could have an educational outreach component. He added that he was concerned about the commercial aspect of the event because it could set a precedent which could create multiple long term issues.

Mike stated the event was originally denied at the staff level but he was directed to reconsider the event by County Administration. Mike noted that relocating the event to the amphitheater had addressed his primary concern and now he could see that the event might work, but there were still concerns about the future if something is not established and approved at the Board level, staff would not have much leeway in denying requests for use of the sites.

Laurilee Thompson asked if this topic is something the SMC needs to review and start acting on before things get out of control.

Ross noted that it's always good to go back to the Mission and the purposes of the organization which is in this case are conservation, passive recreation, and education of conservation. He added that he understood that ecotourism to some degree, is a commercial activity, but there was some justification for that because of the environmental education component. He asked if the Program charged fees for ecotourism events.

Mike confirmed that the EEL Program does not charge ecotourism vendors any fees at this time, but the topic is under review.

Kim stated that she feels that any additional costs for materials, or staff time needed to be recouped.

Mike confirmed that staff is in the process of establishing an inexpensive annual fee for kayak vendors.

Dave asked how many people would be involved in the theatrical event.

Mike confirmed that the original request had been for 120-150, but now it would probably be less than 100.

Ross noted he thinks it boils down to the Mission of the Program and how to deal with commercial utilization of the sites. He added that he feels they should be more strongly concerned with the environmental impacts, and whether there is an educational outreach value.

Ross stated that he feels the group should register a reservation regarding the theatrical event.

Mike said that the item would come up again later in the meeting.

Kim noted that if the committee agreed, she thought a motion would be needed as a formal communication, and that perhaps they could do that later in the meeting.

Space Coast Birding and Wildlife (SCBWF) Field Trips

The EEL Program will be hosting 15 of the 54 field trips offered through the 2014 SCBW Festival. Almost all of the EEL Program trips are full, and many have waiting lists. All of the EEL Program trips are being offered free of charge to festival participants. Ross noted that 28% of the Festival trips were to EEL Program sites. Laurilee Thompson noted that everyone at the Brevard Nature Alliance really appreciated all the help from the Program.

Thank you letter to Dr. Randy Parkinson

Staff sent Dr. Parkinson an appreciate letter for his many years of service to the County as a member of the Selection and Management Committee.

SMC REPORTS:

Dave Breininger reported that the Adaptive Resource Management Workshop would be held at Kennedy Space Center on February 24 & February 25th. He will be distributing additional information via e-mail to persons who plan to attend.

STAFF REPORTS:

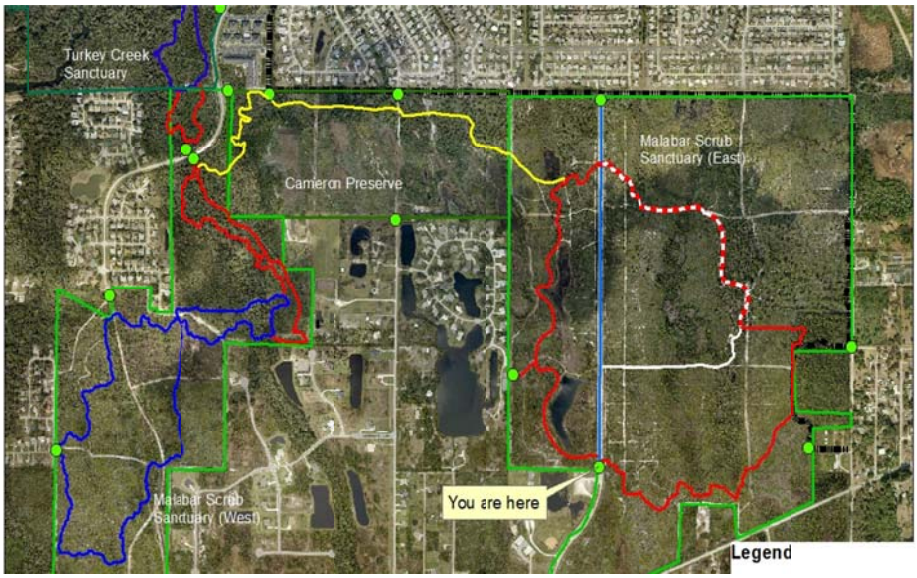
South Region Update

Chris O'Hara, South Region Land Manager, noted that his last presentation to the SMC was done in May of 2012 and he provided a review of events from the area since that time:

Major Accomplishments

- Completion of Al Tuttle Trail aka Paved Trail at Malabar Scrub Sanctuary
  - 1 mile paved extension of the North Boundary Canal Trail
  - Ribbon cutting held May 8, 2013, well attended.
  - No negative impacts seen yet, still working on arrangements for long term upkeep

MALABAR SCRUB SANCTUARY TRAIL MAP



Grant Flatwoods Wetlands Restoration

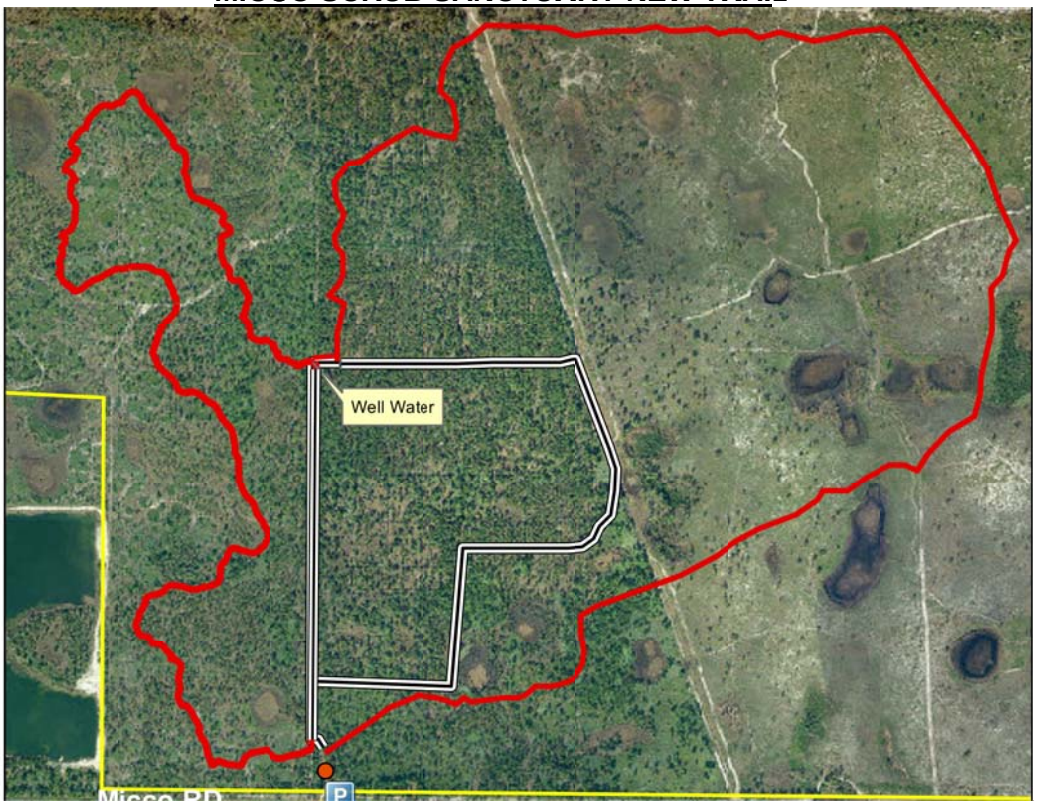
- 2,100 linear feet of ditches backfilled
- Improved wetlands and uplands
- Mitigation to fill ditches

GRANT FLATWOODS DITCH RESTORATION

Summer Burns in Grant/Valkaria mega-parcel area

- Mosaic of 950 acres burned in Valkaria area with assistance from Department of Forestry. Scrub-Jays responding well.

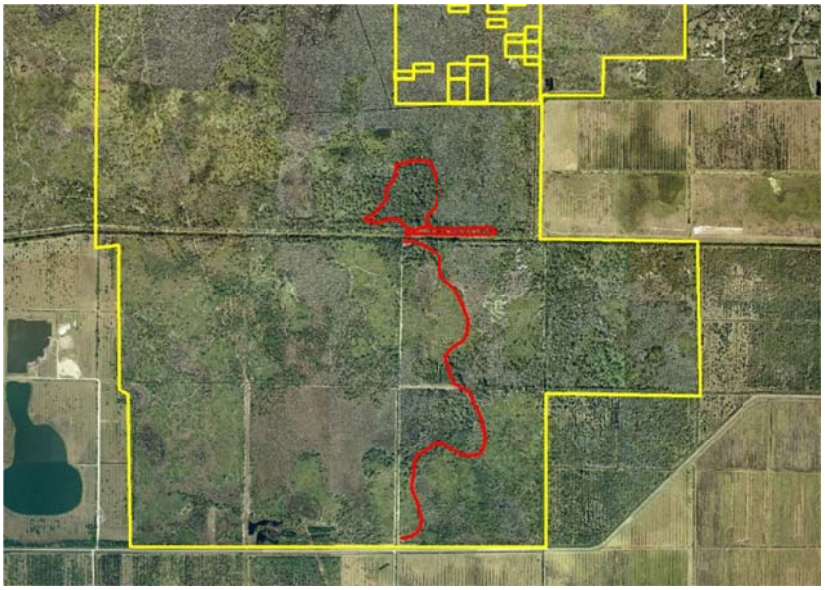
MICCO SCRUB SANCTUARY NEW TRAIL



New Grant Flatwoods Sanctuary Trail

- New parking area on Micco Road
- Hands on Brevard volunteer day
- Southwest Middle School volunteer day
- Began work on new trail

GRANT FLATWOODS TRAIL MAP



NEW GATE AT JORDAN SCRUB SANCTUARY

Additional Discussion – Malabar Paved Trail

Mike provided additional information on the growth of vegetation along the portion of the Al Tuttle Trail which is within the Malabar Scrub Sanctuary. He noted that they have clarified since the beginning of the project that the EEL Program would be maintaining the paved trail as a fire line, and they are doing that, but their activity does not remove the low vegetation which is creeping across the paved surface.

Mike added that the issue of who would be maintaining the trail was supposed to be resolved before the trail was put in and that maintenance of the vegetation along the trail would be extremely time-consuming. This item is unresolved. The EEL Program does not have sufficient staff to herbicide or edge the pavement, nor does it have funds for repair or replacement of the pavement. He reminded the group that the paved trail is a pilot project. It it is hopeful that the issue can be resolved quickly.

Kim noted that the process for the trail's installation had taken a very long time and the trail maintenance issue had received lengthy discussion.

Sue Hann stated that it was important to work this out quickly because the trail looks bad. She stated that the public doesn't care which branch of government is mowing the vegetation, but it is encroaching and looks terrible, especially by the Town of Malabar Park trail head, so she would encourage staff to work things out, adding that she did not think the work would be extremely time-consuming.

Mike stated that he would be really reluctant to take on any of the regular, excessive maintenance but they could mow the edges. However, the mower will only go 3-4" above ground, which will not take care of the low growth on the pavement, and will not provide a clean edge.

Sue stated that would help.

Additional Discussion – Staff Reports

Paul Schmalzer commented that Chris had indicated that it has been more than a year since the last report from the South Area and he noted that at one time, staff had provided recaps of events in each region on a monthly basis. He noted that they do not want to burden staff with a lot of extra work, but that he felt it would be beneficial if that process could be reinstated.

Discussion ensued regarding the previous schedules for presentations and possible reasons for presentation delays.

Ross Hinkle suggested consideration of having two meetings per year dedicated specifically to presentation of all regions on a landscape view in order to provide the information in a big picture format.

Additional discussion ensued regarding possible options for staff presentations. Dave Breininger noted that the big picture presentation schedule might be beneficial, because if he remembered correctly, the Central Region Land Management Report had been delayed for three meetings in a row before it could be addressed.

Mike noted that he was supportive of having two meetings each year, about six months apart, which would be dedicated to regional presentations. He noted that arrangements will need to be made to incorporate information on environmental education, passive recreation, volunteers, and prescribed fire into the reports.

Clarification was requested to determine if the request for a written recap of each area's activities on a monthly basis was going to be part of the plan.

Kim stated that the information from each area could be included in each meeting's Administrative Review.

Additional discussion ensued regarding the possible benefits of extending additional invitations to the bi-annual meetings. No motions were made.

Additional Discussion South Region Presentation

- Wetlands Restoration at Grant Flatwoods Sanctuary (backfilling ditch) has not required additional plantings. Staff's plans to use area as fire break conflicts with mitigant's need to ensure native plants are established. Consideration of conflict will be worked into future projects.
- Kim noted that including numbers of volunteer hours for the region within the presentation would be beneficial.
- Ross mentioned that it could be beneficial to contact the folks at the Harris Corporation to determine if they might be interested in volunteering at the Jordan Scrub Sanctuary.
- Two new trails at Micco Scrub Sanctuary are receiving equestrian use.
- All trails reviewed during presentation are included in the appropriate Management Plans.
- Boardwalks placed over Sottile Canal.

Land Acquisition Status Update
Florida Inland Navigational District (FIND) Property Exchange

Mike noted that staff was waiting for information from the folks at FIND. Jenny Ashbury stated that she had been told to expect something after the holidays and she is expecting to receive information by the end of January.

Additional Discussion

Laurilee Thompson asked for information on the Florida Water and Land Conservation Amendment.

Clarification was provided that a petition is currently being circulated to place a constitutional amendment on the 2014 ballot to amend the State's constitution to dedicate funding for water and land conservation, management and restoration by setting aside one-third (33 percent) of Floridas' existing documentary stamp tax revenues and guarantees that these funds can be used only for conservation purposes. The EEL Program has several properties which could be eligible for partial reimbursement of acquisition costs if this amendment passes including the Fox Lake Sanctuary, the Indian River Sanctuary, and the additions to the Indian Mound Station Sanctuary.

Ross noted that the EEL Program has long recognized the importance of protecting the Indian River Lagoon shoreline in order to protect the lagoon's water quality and there have been multiple properties acquired as part of this effort, on both sides of the lagoon in the North Indian River Lagoon through and along the eastern edge of the lagoon in the South Beaches Region. In addition, the EEL Program's Pine Island Conservation Area, which was purchased in partnership with the St. Johns River Water Management District, covers 950 acres adjacent to the lagoon on the west side of Merritt Island.

AGENDA ITEMS:

South Brevard Coastal Ecosystem Management Plan (SCBE MP)

David Demeyer, South Region Assistant Land Manager, explained that this management plan was being presented to the SMC for their final approval before being submitted to the Board of County Commissioners (BOCC).

Mike stated that he believes this is the last of the original management plans and that staff will begin the management plan update process soon. Some of the properties covered under this management plan were acquired a long time ago, and staff had begun work on individual management plans for each sanctuary when they received a request from the State to combine both the Grant Flatwoods Sanctuary and the Micco Scrub Sanctuary plans into a single plan. Once the SBCSE Management Plan is approved by the SMC and the BOCC, it will be submitted to the Acquisition and Restoration Council in Tallahassee for final approval as the State was an acquisition partner for many of the properties in the SBCE footprint.

It is anticipated that the Enchanted Forest Sanctuary Management Plan will be the first one to be updated.

David provided additional overview information:

- Grant Flatwoods Sanctuary - 5,198 acres, including Grant/Valkaria mega-parcel area
    - Existing Red Loop – 2 miles
    - Proposed Blue Loop – 4 miles, in progress
    - Proposed "bridge" to cross the Sottile Canal
- Micco Scrub Sanctuary – 1,724 acres
    - Will include Red Loop – 4.7 miles
    - Existing White Loop – 1.7 miles
    - Designated parking area and kiosk already installed
- Optimal Boundary Map Revised
- Changes since the last time the SMC reviewed the plan were included in the presentation:

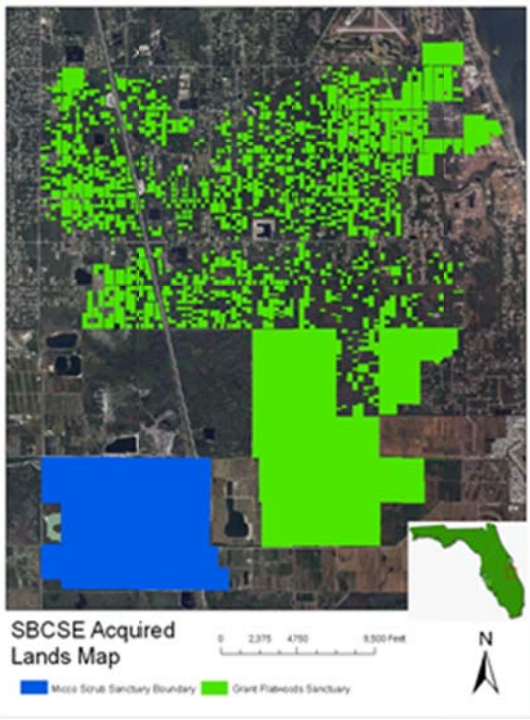

SBCSE Management Plan Includes:
Grant Flatwoods Sanctuary
Micco Scrub Sanctuary

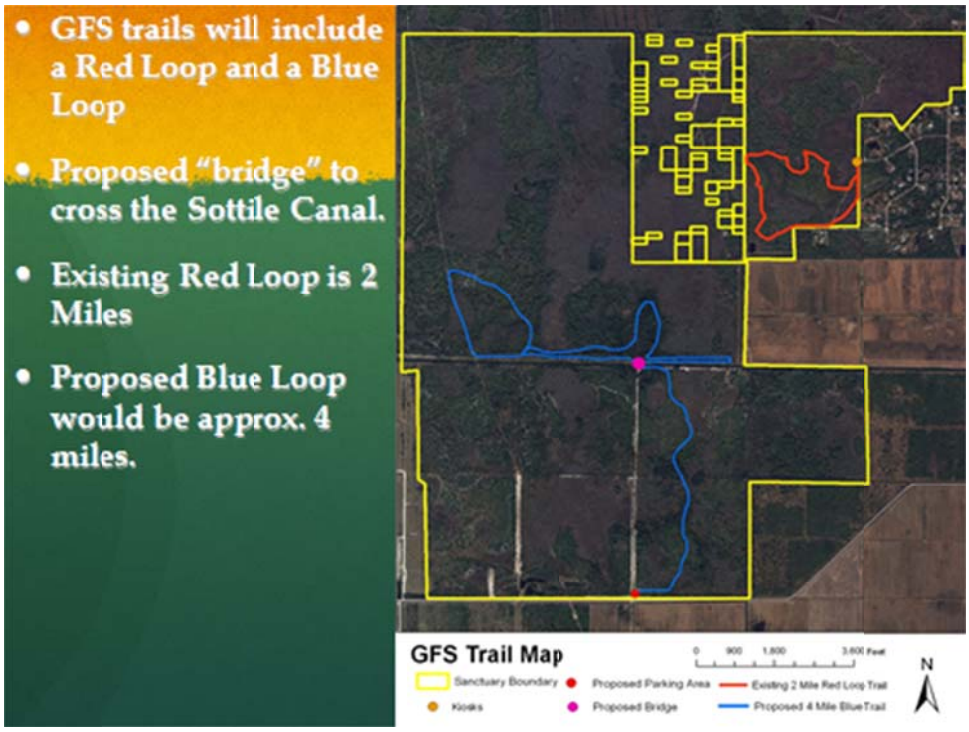

SBCSE Management Plan Includes:
Grant Flatwoods Sanctuary
Micco Scrub Sanctuary

- MISS trails will include a Red Loop and a White Loop
- Existing White Loop is 1.7 Miles
- Red Loop is approx. 4.7 miles.
- There is a designated parking area and kiosk already installed.

GFS
5,198
Acres

MISS
1,724
Acres

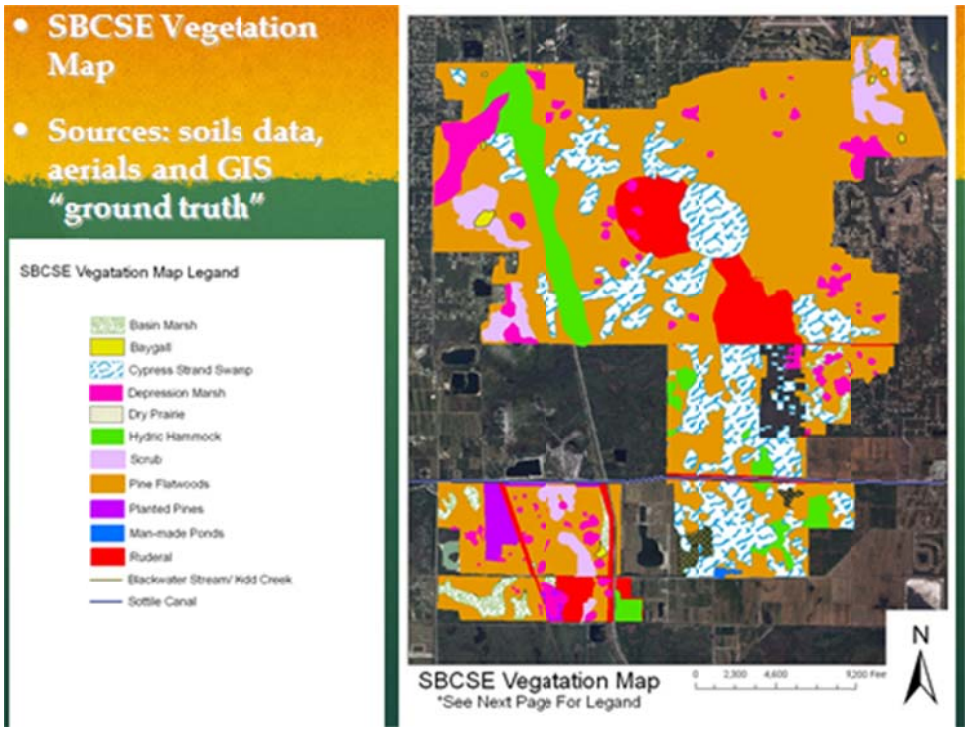



GFS trails will include a Red Loop and a Blue Loop
Proposed "bridge" to cross the Sottile Canal.
Existing Red Loop is 2 Miles
Proposed Blue Loop would be approx. 4 miles.
GFS Trail Map
Sanctuary Boundary
Kiosks
Proposed Parking Area
Proposed Bridge
Existing 2 Mile Red Loop Trail
Proposed 4 Mile Blue Trail
N


GFS Blue Trail
Building in Progress

7

7


SBCSE Vegetation Map
Sources: soils data, aerials and GIS "ground truth"
SBCSE Vegetation Map Legend
Basin Marsh
Baygall
Cypress Strand Swamp
Depression Marsh
Dry Prairie
Hydric Hammock
Scrub
Pine Flatwoods
Planted Pines
Man-made Ponds
Ruderal
Blackwater Stream/ Kidd Creek
Sottile Canal
SBCSE Vegatation Map
*See Next Page For Legand
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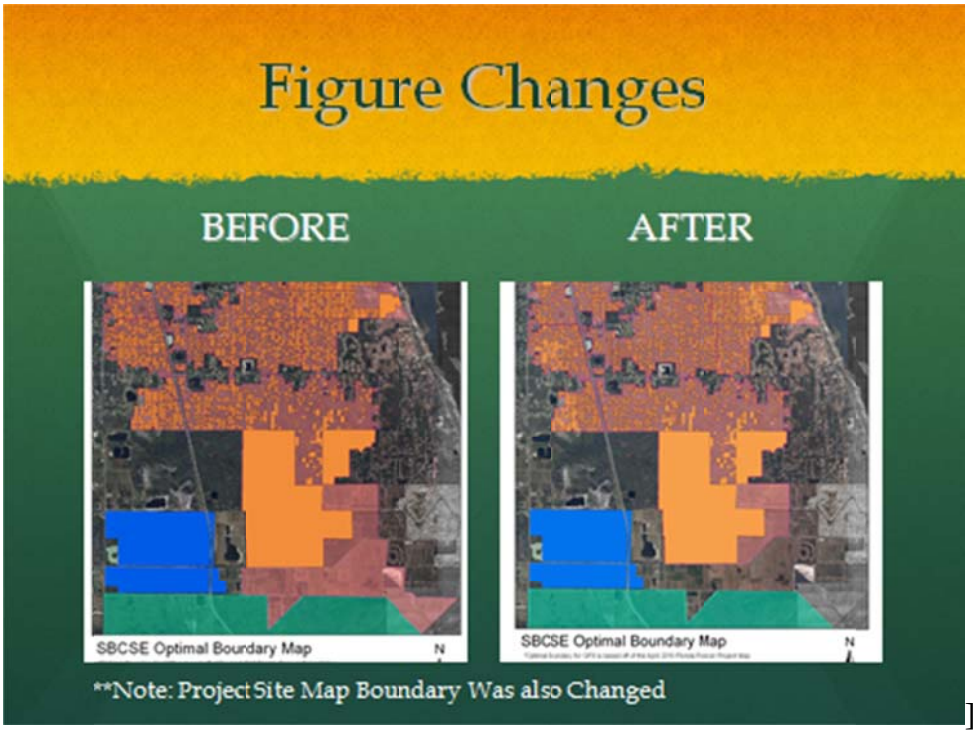


Figure Changes
BEFORE
AFTER
SBCSE Optimal Bourdary Map
N
SBCSE Optimal Boundary Map
N
**Note: Project Site Map Boundary Was also Changed

]

Text Changes:

*Text change on page…31

-Changed flatwoods burn interval from 3-5 years to 1-3 years…

*Text addition on page…47

Invasion of Exotic species
Invasive species such as cogon grass, Brazilian pepper and climbing ferns are mostly located along roads and ditches. An initial chemical treatment of exotic plants over GFS and MISS was completed in 2006 thanks to grant funding provided by Florida DEP (This is now known as the Invasive Plant Management grant or IPM grant). In the 2008-2009 IPM project, 372 acres within the South Region where treated through this grant. 197.63 Acres in GFS were treated and 47.07 acres within MISS were treated. In the 2011-1012 IPM project, 126 acres within the South Region was treated. 46 acres were treated in GFS and zero acres were treated in MISS. Maintenance treatments by EEL staff have been and are ongoing. Staff will designate decontamination areas during projects.

*Text addition on page…62

Members of the EEL Program's staff have performed a recreational assessment for GFS and MISS in order to determine the best placement of hiking/ biking trails, location of parking and other recreation-related needs. A meeting of the Recreation and Education Advisory Committee (REAC) regarding MISS took place on January 12, 2006. A meeting related to GFS was held on May 11, 2006. Those minutes can be seen in **Appendix U**. Staff will continue to work with groups to improve passive recreation.

Additional Discussion - SBCE Management Plan

- Some references to vegetation types were changed to provide for more consistency.
- Project Site Map Boundary was revised as a result of a comment from a landowner who did not want his property included within the project footprint.
- Kim noted that it would be beneficial to spell out all acronyms the first time they are used.
- Micco Sanctuary Page 3 western portion of trail installed a few months ago.
- Trail maps are placed on aerials from 2010 or 2011, but all the existing trails are on the maps.
- Ross suggested that providing information on groundwater recharge areas in future versions of all management plans could be beneficial. Kim noted that the St. Johns River Water Management District should have groundwater recharge area information in their directories.
- It is hoped that the backfilling of the large ditches will improve the quality of some of the wetland areas.
- Minutes from all public meetings related to the management plan will need to be included, and if they are not available at the time the plan is presented for a vote, a placeholder will need to be added to the document so they can be added once the minutes have been approved.

Paul noted that the SMC had received the link to review this plan on January 6, 2013 and he had not had an opportunity to complete his review of the plan at that time.

MOTION THREE
Paul Schmalzer moved to table approval of the South Brevard Coastal Scrub Ecosystem Management Plan until the following meeting to allow time for further review.
Kim Zarillo seconded the motion.
Additional Discussion
Kim asked if there was a need for additional discussion. No questions or concerns were received.384
The motion carried unanimously.

Public Comment

Leanne Saylors, Procedure Committee member, asked if the on-line maps include updated information on the trails.

Mike explained that all the maps in this management plan are current and could be obtained using the management plan link.

Event Guidelines and Trail Monitoring Protocols

Kim suggested consideration of discussing the event guidelines first. The group agreed.

Event Guidelines

Kim asked if staff had reviewed information from other conservation agencies, as it was her understanding that the National Parks, the Merritt Island National Wildlife Refuge, and The Nature Conservancy all have these types of guidelines.

Mike stated that they had done a lot of research on line to try to find documentation they would call event guidelines, but they kept finding information on carrying capacity within conservation areas, and much of that information was pretty old. He added that they would continue that research, but the carrying capacity documents they did locate all included a variable based on how many people were appropriate for the individual site's goals. They also located very specific "dos and don'ts lists", like the one from Orange County which referenced things that are, or are not allowable, in certain categories of locations, but none of the EEL-type programs they contacted within the State of Florida have guidelines of this type.

Mike stated that the need for events guidelines had bubbled up because of concern received about trail running, particularly competitive events.

Ross noted that the EEL Program has already begun the process of clarifying which events are appropriate at each site with the implementation of the Category I, II, or III, as defined within the Sanctuary Maintenance Manual and that passive recreation is specifically defined in the manual, as well.

Mike agreed. He stated that he feels the Sanctuary Maintenance Manual may not be specific enough, using running as an example, because "hiking" does not specify speed. He added that he feels that whatever they came up with needs to be submitted for approval to the BOCC because it wouldn't do any good to come up with guidelines if they couldn't be enforced.

Ross stated that he feels the Program has some pretty good guidelines established which meet the need of conserving the areas, but there are challenges as to whether they should be broader or not, which was based in politics.

Kim agreed.

Mike said that one of the things he saw in the research they had done was the notation that political influences were always a part of the process.

Ross mentioned that the culture of the current environment is always something that needs to be considered, and it is also something that could change over time, but to him the one thing that needs **to** stay firm is the maintenance of the biological and ecological integrity of the site.

Mike confirmed that when they were originally looking at defining events, they understood that they needed to work within the definition of passive recreation, which is well defined, but they were trying to address the large groups of people who descend on sanctuaries at one time, especially at night. He noted that many of the larger events were situated inside, or very near to, Management and Education Centers, which limits the impacts to wildlife, but they understood that events occurring on trails in the more isolated areas can have a much more significant impact on the wildlife in the area. He added that frequency is also an important consideration in addition to length of time, and impact to other visitors.

Ross noted that he was on the Green Places Committee in Orange County, as a representative from the University of Central Florida, and that extensive work was done to establish those guidelines. He said that the guidelines might be a good point of departure for the EEL Program process.

Mike stated that another issue is that most events will take up staff time and he was not able to pull someone off their normal schedule and use them as support for the event. He added that even if the staff is willing to work overtime, the way the County fee structure is set up, you never really fully recoup those costs.

Kim noted that impact to biological diversity seems to be the primary nugget here, and she asked how staff would determine that one event was appropriate and another was not.

Mike noted that staff had considered using a formula – perhaps saying the sanctuary should be available 70% for the species for which they were acquired, and 30% could be set for public use.

Mike explained that they originally started out defining an "event" as something that included more than 100 people and lasted more than 2 hours, while using the trails in the undeveloped portions of the site.

Ross stated his opinion that staff could go crazy trying to use those types of definitions. Mike asked Ross what he would suggest.

Ross said that he felt they should clarify what the limitations are from regulatory and legal perspective and stay firm on the maintenance of the biological and ecological integrity of the site. Kim agreed.

Ross asked about the regulations for commercial activity. Kim agreed.

Mike explained that commercial activity is allowed, as long as a permit is issued and that Jack Masson, Director of Parks and Recreation (P&R), is designated as the permit approver for that department.

Ross asked what would happen if one group wanted a permit and it was denied, and one group wanted a permit and received it.

Kim noted she felt that the P&R guidelines don't necessarily meet the needs of the EEL Program.

Laurilee suggested establishing guidelines and limiting participation to whoever completed the forms and paid the fees first.

Sue stated that conversations about special events can be dicey and if they planned to limit frequency, they'd better have some very strong, rational reasons for doing so because if Running Club A gets a permit and Running Club B doesn't, it can be more than just a political consideration, it can become a legal action.

Ross stated that since the guidelines do not exist at this time, it is better to error on the side of caution. Several members of the group agreed.

Mike said staff was considering expanding the definition of passive recreation to identify types of things that are OK and types of things that are not.

Bonilyn Wilbanks mentioned they have similar issues in their area. She noted that saying "yes" with a list of requirements was sometimes an option, although she felt that the EEL Program had stronger reasons to limit activities because of the biological and ecological impacts to the sanctuaries which were acquired for the protection of biodiversity. She added that not defining impacts would allow more leverage to the options.

Sue agreed that approach could have its benefits.

Mike said staff usually works with the County Attorney on these kinds of issues.

Ross noted that to follow up on what Bonilyn had mentioned, once you set a precedent, it's there, so the best thing to do is not set the precedent.

Public Comment

Leanne Saylors stated that she appreciated the fact that taxpayer's dollars went into the purchase of the sanctuaries, but we need to remember that EEL Program sanctuaries are not parks, they are endangered lands, and we are trying to protect them. She explained that she understood some of the activities could be acceptable but she is concerned that we are opening a flood gate and everyone needs to remember the Mission of the Program.

Additional Discussion

Mike said that staff could easily say no, but there was always the potential they would be overridden.

The group discussed the differences between EEL Program sponsored events and Non-EEL Program sponsored events. The following was noted:

- The Space Coast Birding and Wildlife Festival is a commercial event, but the focus of the festival is the appreciation of wildlife, so it has a strong educational value.
- A car show was suggested as an example of a non-EEL Program sponsored activity.
- Running events are considered to be in the gray area between EEL-sponsored and non-sponsored, especially if they are competitive.
- Awareness and appreciation of the EEL Program can be expanded by holding activities that bring folks to the sanctuaries who might otherwise not visit.
- Even appropriate activities can become a problem if they are held too frequently. Example: Thousand Islands issues.

Kim asked if the theater group has filled out a permit application. Mike confirmed that they have not and the play is not expected to be held until October, if it does occur.

Kim asked the committee if a non-sponsored event which was held within the building would be a different situation than a play in the amphitheater.

It was noted that some groups can pay any fee requested, if they really want to use the facility.
Mike stated that staff had previously attempted to restrict the rental of Management and Education Center classrooms to groups aligned with the Mission of the Program but they were told by upper management that those restrictions could not be applied.

Ross asked how many people the theatrical group wanted to bring in to the amphitheater area and he asked how many people the area would hold.

Mike stated that the group is currently thinking about 100 people and that the amphitheater area might hold 100 people now, but the group wants to rearrange the benches and bring in some additional seating. He added that staff didn't mind if they moved things around, as long as they kept within the confines of the space.

Bonilyn asked if there are fire department regulations for the amphitheater area. Mike said he didn't know, but could look into it.

Kim noted that a group of that size would need access to the building in order to use the restrooms.

Dave suggested consideration of having the group do a peer-reviewed environmental assessment before, during, and after each event, adding that the assessment would require a protocol.

Kim mentioned that if they wanted to do something to protect the sanctuary, it needed to be something that would be approved by the Board.

Mike stated staff was considering using the "What is a sanctuary" information on the Program's web site as a filter when evaluating requests. It was noted that the impact to wildlife was an important consideration.

The group discussed the possibility of using other locations for the theatrical event, including Fox Lake Park, which has a large raised stage, along with plenty of covered seating and lots of parking. Mike stated the group specifically wants to use the Enchanted Forest because that name is part of the play.

Mike noted that they were not under any serious pressure to have something figured out soon and staff could come back with some drafts for additional discussion. He added that they have put all the running events previously being planned, on hold, because they didn't want to have a large number of runs scheduled if they were not going to continue.

Paul stated the filter idea sounded like it was worth exploring. Kim agreed. She stated that first you find out if it is philosophically appropriate or not, and if so, the permit process should include the necessary constraints. Laurilee mentioned the importance of frequency and impact to the wildlife and natural areas.

Kim asked if the conversation had been beneficial to staff. Mike said that it had and that he would come up with a filter process and see how that flows through the committee process.

Trail Monitoring

Mike explained that when staff had contacted other environmental groups in the area, none of them had established trail monitoring protocols, although everyone had been interested in seeing what the EEL Program develops. He added that the trail monitoring protocols he was using as a starting point were from the Adirondacks, which dealt with terrain and erosion issues, which were not big issues in Brevard County, but the format seemed appropriate for a starting point.

The following was noted:

- The draft guidelines, which are provided as an attachment to these minutes, include 4 classes of trail condition descriptions which give a general concept of the trail condition, rather than evaluation by monitoring specific things like monitoring trail widening.
    - Class 1 Minimal Impacts
    - Class 2 Moderate Impacts
    - Class 3 Heavy Impacts
    - Class 4 Severe Impacts
- "Acceptable" level needs to be more specific because it is used as a condition, and as a description of a condition, which is circular.
- It is understood that trail conditions change seasonally.
- Paul mentioned that he felt is important to know the original dimensions of a trail in order to determine if the trail was being widened by excessive or inappropriate use.
- Kim suggested including pictures of reference sites with the definitions.
- Mike stated one of their issues was they didn't know when it was appropriate to close a trail, as opposed to adding a plank walk, or rerouting the trail.
- Ross noted that he felt that "unacceptable" would be when the use of a trail influences, or impacts the integrity of the surrounding areas; does the change open up an area that should be closed? Is it allowing light, or invasive species to infiltrate the natural area? Is it disrupting the path of wildlife?
- Sue stated that her husband had suggested working with user groups when doing the trail monitoring surveys because some of them used the areas more frequently than staff had the opportunity to see them.
- Mike said he would have a hard time imagining a situation where they would close a trail; they would just add a boardwalk, or reroute the trail. He added that the concern is going to be that they want the trails to be reasonable width for the vegetation, easy to maintain, and appropriate for each area.
- Paul stated that he agreed that closing a trail should be a last resort, but that should always be maintained as a possibility, in the event that the fixes didn't work, or the trail was not receiving sufficient use which prevented excessive trail maintenance work by staff.

- Kim noted that the Florida Natural Areas Inventory (FNAI) web site has lots of trail photos.

Public Comment
None.

LAND ACQUISITION MANUAL

The group discussed the most recent version of the retyped LAM. The following was noted:

- The links between the document and the Land Acquisition Process chart appear to be functional.
- The inside cover page should be revised to include the members of the SMC and PC at the time the revisions were approved. In addition to the original members who served when the LAM was created.
- Page numbering issues should be resolved; use i, ii, iii… for first few pages.
- Dates of all revisions should be listed.
- Dates and committee members listed on some of the pages should be reviewed, and corrected, if necessary.

It was the general consensus of the group that the items being discussed were editorial changes which did not require a motion of approval from the SMC, or the Procedures Committee (PC).

Mike will incorporate these comments into the latest version and the revisions will be forwarded to the PC for their information.

NEXT MEETING:
It is anticipated that the next meeting will be held on February 11, 2014.

ADJOURNED:
The meeting was adjourned at 3:55 PM.

SUMMARY OF MEETING MOTIONS:

1. **Motion to approve the September 30, 3013 Gopher Tortoise Workshop minutes, as amended.**
2. **Motion to approve the December 5, 2013 SMC minutes as presented.**
3. **Motion to table approval of the South Brevard Coastal Scrub Ecosystem Management Plan until the following meeting to allow time for further review.**

EEL Trail Monitoring Protocols

The objective of the following Trail Monitoring Protocols is to provide a consistent process for monitoring visitor trail use impacts on EEL managed lands. The protocols have been designed to apply within all habitat types where trails are located. At all sanctuary sites, monitoring of natural resources and visitor impact analyses will be used to evaluate trends in resource quality and quality of visitor experiences. *At a minimum, the trails on each site shall be evaluated annually.*

According to the EEL Sanctuary Management Manual, The EEL Program shall provide a range of public use opportunities that are consistent with the conservation and protection goals of the voter-approved referendum. Finding a balance between public-use impacts and natural resource protection is a key challenge to implementing effective land protection and stewardship. Public use of the EEL Sanctuary sites shall be consistent with the following definition of passive recreation.

"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."

Site Name: _____

Trail Name: _____

Staff / Volunteer Completing Evaluation: _____

Date of Evaluation: _____

Starting & Ending Points: _____
_____
_____

Estimated Use Level (High, Medium, Low) relative to other trails: _____

Estimate the number of users per week based on available data and onsite observations: Peak Season: _____ Off-Season: _____

Use Type (Hike, Horse, Bike): _____

Identify the most appropriate Impact Class (see descriptions below) that best describes the overall condition of the segment of trail being evaluated:
Class 1: ___ Class 2: ___ Class 3: ___

Additional Comments regarding trail conditions (boardwalks, benches, kiosks, mud holes, signage, litter, etc.): _____
_____
_____
_____
_____
_____

Impact Classification Descriptions

Class 1:
Minimal Impacts
- Main trail impact zone is appropriate width for existing uses.
- Path is distinguishable
- Use is limited
- Overall Impacts are well below acceptable levels

Class 2:
Moderate Impacts
- Path is well worn, with minimal compaction and at appropriate width for existing uses.
- Moderate use
- Overall Impacts are mostly within and in some areas still below acceptable levels
- Limited signs of increased root exposure and damage.

Class 3:
Heavy Impacts
- Path is well worn, with significant signs of compaction and some widening beyond what is needed for existing uses.
- Some signs of increased root exposure and damage
- Heavy use, but within acceptable levels.
- Overall impacts are mostly within acceptable levels with some areas may require rerouting or modification to prevent higher levels of impacts.

Class 4:
Severe Impacts:
- Path is severely worn with significant signs of compaction.
- Increased wet areas due to soil / root compaction and damage.
- Path width is significantly wider than what is needed for existing uses due to users going around areas in poor condition.
- Overall impacts are mostly above acceptable levels requiring significant rerouting, modification and / or closure.

ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
SELECTION & MANAGEMENT COMMITTEE (SMC)
February 11, 2014
Attendance List

SELECTION & MANAGEMENT COMMITTEE MEMBERS
Mark Bush
Dave Breininger
Paul Schmalzer
Laurilee Thompson
Kim Zarillo

EEL PROGRAM STAFF
Jenny Ashbury
Laura Clark
Mike Knight

GUESTS
Linda Behret, Procedures Committee
Ernie Brown, Director, Natural Resources Management Department
Sue Gosselin, Natural Resources Management Department
Bonilyn Wilbanks, Town of Malabar

ENVIRONMENTALLY ENDANGERED LANDS (EEL) PROGRAM
SELECTION & MANAGEMENT COMMITTEE (SMC)
February 11, 2014
Meeting Minutes

CALL TO ORDER
Kim Zarillo, Chairman, called the meeting to order at 1:10 PM.

PUBLIC COMMENT
None.

MINUTES
December 5, 2013 SMC/PC Minutes

The December 5, 2013 SMC/PC draft minutes were presented for approval.

MOTION ONE:
Paul Schmalzer moved to approve the December 5, 2013 SMC/PC minutes, as presented, noting that he had one comment on their content, which he would provide after the minutes were approved.
Laurilee Thompson seconded the motion to approve the minutes.
The minutes were approved, as presented.

Additional Discussion

Paul noted that on page 4 of the minutes, a presentation slide related to responsibilities of the Selection and Management Committee states: "Advisory to staff for management plan development". He clarified that the SMC's role includes approval of each Management Plan before it can be submitted to the Board of County Commissioners (BOCC).

January 13, 2014 SMC Minutes

The January 13, 2014 minutes were discussed.

Paul noted one area on the bottom of page 8 which required correction, and he provided suggested language for the Committee's consideration as follows: "Clarification was provided that a petition is currently being circulated to ~~request that the State Legislature consider amending the State's Constitution to approve this amendment which will~~ **place a constitutional amendment on the 2014 ballot to amend the State's constitution to** dedicate funding for water and land conservation, management and restoration by setting aside one-third (33 percent) of Florida's existing documentary stamp tax revenues and guarantees that these funds can be used only for conservation purposes. The group voiced their support for the suggested revision.

MOTION TWO
Paul Schmalzer moved to approve the January 13, 2014 SMC minutes as amended.
Laurilee Thompson seconded the motion.
The motion carried unanimously.

Additional Discussion

A request was received to have the discussion on BCC-85 Gopher Tortoise Translocation Policy as the next topic in the meeting. No concerns were received related to this request.

AGENDA ITEMS
BCC-85 Gopher Tortoise Translocation Policy
Ernie Brown, Director of Brevard County Natural Resources Management (NRM), attended the meeting and the group discussed this topic.

The following was noted during the discussion:

- The County has recieved inquiries from private entities who desire to relocate Gopher Tortoises to public lands, and in August 2013, the BOCC directed staff to update and revise the County's BCC-85, "Gopher Tortoise and Endangered Species Relocation" policy to allow private sector interests or individuals to relocate gopher tortoises to County managed or owned lands, and to bring the revisions back to the Board for future consideration.
- Clarification was provided that the current BCC-85 provides for species translocations from public entities to public lands, but does not include private entity transfers.
- The SMC has been asked to provide comments related to future revisions in BCC-85.
- On November 18, 2013, the SMC discussed this topic and the following occurred or was noted:
    - Information from the Florida Fish and Wildlife Conservation Commission (FWC) related to Gopher Tortoise density levels is based on Sandhill habitat. There is no Sandhill habitat in Brevard County. Published scientific literature indicates that appropriate Gopher Tortoise density levels for habitats in Brevard County should be much lower than FWC standards, because the FWC guidelines are based on completely different habitats.
    - An SMC motion was approved to include the Gopher Tortoise translocation guidelines, which were based on the discussions of the September 30, 2013 Gopher Tortoise Workshop and revised during the meeting, as Appendix I to the EEL Program's Species Translocation Policy.
    - An SMC motion was approved to recommend that the EEL Program Species Translocation policy should be included as part of BCC-85.
    - Confirmation was provided that the EEL Program Species Translocation Policy now states that Gopher Tortoise carrying capacities for EEL Program sites should be based on FWC guidelines for "Conservation Land" instead of the FWC "Long-Term Gopher Tortoise Reciepeint Site" guidelines, which have a much higher density.
    - An SMC motion was approved indicating that "a determination based on the managing entity's translocation policy" should be recommended for inclusion in BCC-85.
    - The SMC confirmed their continued support for the idea of relocating endangered species to EEL Program sanctuaries, when it can be determined to be beneficial for both the new arrivals and the existing population.

A document containing suggested draft language for revisions to BCC-85, including a title change to "Listed Species Translocation" was distributed to the SMC for review during the meeting. The document was not dated. Kim Zarillo requested that the current date be included as part of the documents. A copy of the draft BCC-85 is provided as an attachment to these minutes.

Additional discussion ensued. The following was noted:

- Clarification was requested regarding the definition of Public Interest.
    - The three main criteria are economic, environmental, and social benefit. The official definition is located in the County's Comprehensive Plan.
- Clarification was provided that the department managing the property would be determining if potential relocation sites were available.
- Concern was expressed regarding the potential for developer's consultants coming to NRM with the expectation that they can follow FCW stocking densities when the SMC guidelines indicate that the carrying capacity should be based on soil types and habitats found in Brevard County.
- Ernie suggested that the SMC compile scientific data for EEL Program sanctuaries to support their recommendations regarding survey methods and carrying capacities, so the Board of County Commissioners can review the information during their determination process.
    - Paul Schmalzer will prepare a draft document for the SMC to review.

    - It was determined that the document does not need to be completed by the time that BCC-85 is returned to the Board for their consideration.
    - It was suggested that the SMC's guidelines could be provided to anyone who was interested in transferring species to EEL Program sites, at the time of their original inquiry at NRM.
- Dave Breininger emphasized that the State standards are based on sandhill habitat which is not found in Brevard County. He added that the research he has been involved indicates population levels and carrying capacities in Brevard County should be much lower than the numbers given for sandhill habitats.
- It was noted that all projects must meet State and Federal guidelines as a minimum, or they won't receive a permit.
- It was noted that determining current populations of Gopher Tortoises at all EEL Program sites ahead of time was beyond staff's ability due to reduced staffing levels.
- State guidelines currently require surveying a minimum of 15% of a site's appropriate habitat.
- The population survey methodology for both the North Buck Lake and the Micco Scrub Sanctuaries exceeded the State's 15% survey methodology.
- It was noted that it can be very expensive for developers to move Gopher tortoises to locations outside Brevard County.
- It was also noted that carrying capacities will change as a result of land management efforts, or lack of land management.
- Clarification was requested regarding whether or not the County is considering relocating any Gopher Tortoises, or other species, to any site outside the EEL Program network.
    - Ernie stated that NRM has a couple hundred acres previously referred to as Acosta Groves that may have some capacity for translocations, but staff has not reviewed the site to see if it meets translocation criteria. He added that most folks will want to come to the EEL Program.
- Current Gopher Tortoise population studies will be the responsibility of the permit applicant.
- Concerns were expressed that some EEL Program sites could become dumping grounds for more animals than the sanctuary has the ability to sustain.
- It was suggested that State guidelines could benefit from the inclusion of information on additional types of habitats.
- Clarification was provided that the official "entry point" for these requests will be different for some municipalities, as they follow their own building permit processes.
- Clarification was requested regarding the appropriate way to handle requests that generate from outside Brevard County.
- Paul asked for clarification if NRM had received the information generated by the SMC during their November 18th meeting.
    - Confirmation was provided that NRM has received the information.
- Discussion ensued regarding the differences between BOCC policies and internal EEL Program policies.
- Confirmation was provided that a copy of the original EEL Program Species Translocation Policy was included in the May 2008 Board Agenda Report package for revisions to the EEL Program Sanctuary Management Manual. The revisions to the Sanctuary Management Manual were approved by the BOCC. An SMC motion to include Appendix I as an amendment to the Policy was approved by the SMC on November 18, 2013.

- Ernie stated that the revised guidelines indicate that all future translocations to Brevard County sites will follow FWC Stocking Densities for Conservation Lands, not Long Term Reciepient Sites. In addition, each sanctuary receiving translocated species will be covered by a conservation easement in favor of FWC.
- Ernie stated that at the time the EEL Program's North Buck Lake Sanctuary was designated as a Long Term Gopher Tortoise Reciepeint site, the FWC did not have a Conservation Land Gopher tortoise density category.
- The 2013 request for Gopher Tortoise translocation to the Micco Scrub Sanctuary was briefly discussed including:
    - The applicant had requested to move more than 300 tortoises to a site that was considered by the SMC to already be very close to capacity because it had an established population as a result of significant land management efforts for a considerable period of time.
    - The SMC had suggested that the applicant consider other EEL Program sanctuaries for the translocation effort. The applicant indicated that the other locations would not meet their needs at this time.
    - The translocation request to the Micco Scrub Sanctuary was declined by the SMC.
    - Ernie noted that because future County Gopher Tortoise translocations will be based on criteria for conservation lands, the previous request to move tortoises to Micco Scrub, which was declined by the SMC, would still not be approved based on the number of existing tortoises already at that site.
- It was noted that mitigation banks will need to follow the same guidelines as local governmental agencies related to endangered species translocations.
- Ernie stated that the Florida Scrub-Jay translocation to the EEL Program's South Lake Conservation Area by the Brevard Zoo, and other projects of this type are exempt from this approval process because a "take" permit has already been issued for the birds.
- Mike Knight raised the question of whether or not translocation of species which are outside the threatened and endangered categories, such as bio-controls for exotic species, need to have Board approval.
    - Kim stated that she felt those topics should be considered research projects.
    - Ernie stated that if he did anything that was not articulated in a current management plan on a piece of land that the County owns, he felt he needed to get concurrence from someone above him. He added that he did not feel that topic was something that should be addressed through BCC-85.
    - Mike noted that could be a hard line to draw.
- Clarification was provided that scientific data, like engineering studies, is considered appropriate reference material when using the best available science in determining flood plain footprint.
- Additional information was suggested for inclusion in the next draft of BCC-85
    - Add reference related to review of scientific literature to the section on determination of stocking levels and appropriate method for doing survey.
- Kim stated that it is important to have the information about using scientific data in the policy now, even if the information isn't available at this moment.

Clarification was requested regarding the next step.

Ernie stated that today's discussion was for information sharing and that he did not expect a decision during the current meeting. He added that he had already identified a couple of things that needed to change, so he could make those changes and send the document back out so the SMC could review his changes.

Ernie added that ideally, he would like to have something to say the SMC supports the changes, so whatever tweaks they needed to make could be discussed - as long as it was understood that the Gopher Tortoise Information in Appendix I, from the November 18, 201 SMC meeting as not going to be included in BCC-85.

Discussion ensued regarding possible options for the next step. Ernie noted that he would like to be able to get started on the next agenda report around the end of March.

Mark Bush suggested consideration of a motion which indicated that the SMC would be supportive of the revised BCC-85 in principle, as long as it included the changes which were discussed at the current meeting.

Kim noted she felt it was important for the SMC to review the final language.

It was determined that the group could finalize the motion after Ernie left the meeting, due to his time constraints. Ernie thanked the group for their time and they thanked him for attending the meeting.

Additional discussion ensued related to the appropriate wording for a motion and the specific items that the motion should address. Clarification was provided regarding the SMC's input and changes to the most recent version of the policy as follows:

- The SMC will compile scientific data for EEL Program Sanctuaries to support their recommendations regarding survey methods and carrying capacities, so the Board of County Commissioners can review the information during their determination process.
    - Paul Schmalzer will prepare a draft document for the SMC to review.
    - It was determined that the document does not need to be completed by the time that BCC-85 is returned to the Board for their consideration.
    - It was suggested that the SMC's guidelines could be provided to anyone who was interested in transferring Gopher Tortoises to EEL Program sites, at the time of their original inquiry at NRM.
- Changes to draft policy BCC-85
    - Add reference to use of scientific papers related to carrying capacity determination.
    - Add apostrophe to "projects" in Directives III C, 1st sentence – clarify language.
    - Marked up version: Directives III A, 1st sentence should be restructured.

MOTION THREE
Mark Bush made a motion to indicate that the relocation policy language proposed by Ernie Brown on February 11, 2014 and revised as per the current meeting's discussion noted above is conceptually supported by the Selection and Management Committee.
Paul Schmalzer seconded the motion.
The motion carried unanimously.

Mike confirmed the group would get an updated draft from the NRM as soon as it becomes available. It was noted that the anticipated timeframe for this action is two weeks.

Jack Masson stated that he felt it is important for the SMC to review the revised draft language.

Additional Discussion
Clarification was provided that Dave Breininger arrived at the meeting during the Gopher Tortoise Translocation discussion and prior to the motion and vote.

ADMINISTRATIVE REVIEW

SMC Member Advertisement
Mike thanked Kim for her assistance in resolving the page numbering issue in the reformatted Land Acquisition Manual (LAM). It is expected that the SMC member opening advertisement will be distributed as soon as the links to the Process Chart are added back into the document, and the file can be posted to the EEL Program's Web site. All EEL Program Citizen Advisory Committee members will be provided with

a copy of the advertisement once it has been distributed. The advertisement is expected to run for three weeks.

Pioneer Day
The 3rd Annual Pioneer Day was held at the Sams House Management and Education Center at the Pine Island Conservation Area on February 8th. Approximately 950 people attended the event, despite the threatening weather conditions.

BOCC Items
- Hog Point Cove Submerged Lands Lease Renewal (State is revising, BoCC date unknown)
- Interagency Cooperative Fire MOU (TNC revising, BoCC date unknown)

Space Coast Birding and Wildlife Festival Field Trips
EEL Program field trips offered during the festival were mostly full, and largely successful. Staff is in the process of pulling together total attendance numbers for submission to the festival organizers.

Request for Theatrical Event at Enchanted Forest Sanctuary
Mike provided confirmation that the individual who had expressed an interest in doing a 3 night theatrical event at the Enchanted Forest has not been back in touch with staff since he received the fee schedule.

Fox Lake Kayak Landing Ramp
The kayak landing ramp has been installed at Fox Lake Sanctuary. Visitors can now park a boat or land kayaks on the sanctuary side of Fox Lake across from the County park. This provides an additional access point to the sanctuary trails.

Additional Discussion – Types of Events
Mike noted that during the PC's most recent meeting, a question was raised about a self-defense class which was being advertised in the Barrier Island Center's February events flyer. This class is no longer being offered.

Additional Discussion – 2014 Brevard Expedition Event
It was also noted that an event, similar to the last year's Brevard Wildlife Corridor Expedition is planned by the Brevard Nature Alliance during April. During the 2014 Brevard Expedition Event, the EEL Program will be offering hikes and trips similar to the activities held during the recent Space Coast Birding and Wildlife Festival. It is possible that a small fee will be charged for the EEL Program activities.

Additional Discussion – Event Guidelines
Kim requested clarification of the status of the events guidelines which were discussed during the January SMC meeting.

Mike explained that there will be a REAC meeting on February 13th and it is anticipated the group would be reviewing conceptual information on the filtering concept discussed by the SMC in January at that meeting.

SMC REPORTS
ARM Workshop
Dave Breininger reported that they are finalizing plans for the Adaptive Resource Management Workshop being held at KSC on February 24-25th and that anyone who wished to attend needs to be sure to register as soon as possible if they have not already done so.

Public Lands, Public Waters, Public Trust Conference
Kim reported that she attended the Public Lands, Public Waters, Public Trust Conference sponsored by the Barry University School of Law in Orlando on February 7th. She stated she felt the conference had been very informative and suggested committee members check the web site as the conference will be posting excerpts from some of the presentations.

It was noted that Mike was a speaker at the conference.

STAFF REPORTS
None.

Land Acquisition Status Update

Jenny Ashbury, EEL Program Support Services Specialist, stated that staff is still in the negotiation stages with representatives from the Florida Inland Navigational District (FIND) regarding the potential land exchange and that she has not yet received a counter offer from them.
Mike confirmed staff was following up with them on a monthly basis, and that the e-mail communication received that morning had stated the folks at FIND had not had an opportunity to review the last set of information they had received from the EEL Program.

AGENDA ITEMS con't

Report on North Buck Lake Gopher Tortoise Recipient Site

Sue Gosselin, from NRM provided slides which represent her original Gopher tortoise burrow survey from 2011 and information gained from her most recent visit to the site.

The following was noted:

- Red icons represent burrows located during original survey.
- Green icons represent burrows located during recent survey. Some of the original red burrows are no longer present.
- Approximately 39 burrows were located during the recent survey.
- Unable to complete survey due to need for land management, and because of time constraints with other projects.
- The two areas outlined in red on the second slide were recently checked.
- Widening of fire lines has resulted in pile up of dirt and vegetation along the fire lines which juvenile tortoises are unable to cross.
- Regrowth since the last prescribed fire has been substantial. Strong need for additional prescribed fire. May need chopping first.
- 68 tortoises have been moved so far.
- It is possible that a feral dog pack, or a large coyote population is present at this site. These animals present a long term management problem to gopher tortoises residing in scrub. As the canopy closes, the tortoises either have to forage further from their burrows or leave the scrub patches. The presence of these animals increase the likelihood that tortoises will be lost when they forage or attempt to move to new burrows.
- Representatives from the State have also visited the site and agree that it needs to be burned.
- Florida Scrub-Jay activities have been noted near the location for the planned I-95 Welcome Center.
- Additional follow up will be scheduled after the site can be burned again. It is hoped that the North Buck Lake Sanctuary can be burned again sometime this summer.

Additional Discussion

Mike stated that staff could place wildlife cameras in the area to assist in determining whether there are feral dogs, or coyotes at the site. He asked Sue to recap her observations in an e-mail to him.

Paul noted that oaks are very sensitive to spring rains and water levels and that they could have a wide range of growth rates, especially after a fire.

Mike stated that staff is considering getting a small roller chopper in house to assist in these situations.

Paul reminded staff that you need to be careful with roller choppers because they can damage the saw palmetto rhizomes and the palmettos help to carry fire across the landscape.

Additional information will be provided when NRM staff has the opportunity to review the site in the future and a copy of the report that NRM submits to the State will be provided to the SMC.

Original Survey

Recent Survey

South Brevard Coastal Scrub Ecosystem Management Plan

Chris O'Hara, South Region Land Manager, explained that at the last meeting, the SMC had requested additional time to review the updated Plan. He added that Paul and Kim have provided additional comments.

A few specific points from the comments were discussed:

- Chris asked for clarification of where Paul thought it might be best to include the updated translocation policy. Paul indicated he did not have a strong preference, as long as the information was included.
- Paul noted that it has been 6 years since the 2008 wildfires in the south part of Brevard County and longer times between burns results in increased fuel loads. Chris agreed and stated they were working hard to maintain the areas now in rotation and then add in new areas when possible.
- Paul noted there was one place where a figure and the text did not coincide. Chris agreed and noted they would be fixing the page.
- Kim stated that most of her comments were related to formatting. She also requested clarification of a reference where FWC has ownership of a couple of parcels in the mega parcel area, but the EEL Program could eventually take over management of the parcels, without providing a time frame for this action. Chris explained that this discussion has been ongoing for some time. Mike explained that Board approval will be required for the EEL Program to take over management of an area where someone else had the responsibility to manage, but it may be possible that some management of the general area could be provided through cooperative efforts under the Hawkins Bill. Dave suggested consideration of working through Species Recovery Action.
- Kim noted that information regarding comparison of historical aerials for the purpose of determining whether or not wetlands have changed in size could benefit from being more precise. Dave noted that he is concerned that the 1940's imagery already contains a lot of fire shadows. Chris confirmed they have GIS information for the areas.
- Clarification was provided that MEP referred to MEP America, the company who owned the land which was purchased by the EEL Program, but it was not known where the initials originated.
- Chris asked if the SMC wanted another round of reviews after the changes that had been received were completed, of if the SMC wanted to consider approving the Plan, contingent on the changes being made.

MOTION FOUR
Paul Schmalzer moved to approve the South Brevard Coastal Scrub Ecosystem Management Plan upon completion of the changes discussed.
Laurilee Thompson seconded the motion.

Additional Discussion

Kim Zarillo asked if the motion could be reworded to indicate that the plan would be approved after completion of all the changes which had been submitted since the last distribution, as the group hadn't taken the time to discuss each of the changes individually during the current meeting.

The motion was reworded as follows:

Paul Schmalzer moved to approve the South Brevard Coastal Scrub Ecosystem Management Plan upon completion of the changes which were submitted since the last distribution for review.

Laurilee Thompson agreed with the change in the motion.

The motion carried unanimously.

Additional Discussion

Chris noted that staff will send out the revised management plan so SMC members can have the opportunity to review the final plan.

EEL Program Reorganization Discussion

Mike explained that Scott Taylor, Central Region Land Manager, will be retiring at the end of the month. He noted that staff is considering reallocating the funds from Scott's position to other positions, instead of hiring a new Central Region Land Manager.

A flow chart showing possible staffing structure options was distributed. The primary changes are:

- Changing from 4 Land Managers to 3 Land Managers
    - South and South Beach Regions may be combined, which could help bring the total number of acres under each Land Manager to a more evenly distributed number.
    - Education Coordinator may go from part time to full time and may assume responsibility for staffing and scheduling special programs at Centers, along with supervising all of the Program's Naturalists and Sanctuary Stewards. Education Coordinator may also assume responsibility for Public Relations for the Program.
    - Land Managers will still have onsite responsibility for Centers, but should have additional time to work in the field if the Education Coordinator is coordinating events and staffing.
    - One additional Land Management Tech may be hired as a floater between regions.
    - Changes referenced above require the reallocation of all funds being used for Scott's position, plus an additional $20,000, annually. It is expected that the additional funds will be pulled from the EEL Program's reserve funds.

Other considerations regarding possible EEL Program changes were also discussed:

- The flow chart presented does not provide for a Management and Education Center in the South Region. Development of a Center in the South Region is still under consideration.
- Selling the building at 91 East Drive in Melbourne and moving the EEL Program Administrative Staff back to the Viera Government Complex.
- Establishing an alternate location for South Region equipment and staff.
- Working with the Town of Malabar in a cooperative effort to build a Center at the Malabar Scrub Sanctuary that might be staffed by the Town.
- It was noted that the building at 91 East Drive currently houses several staff members, plus equipment from the Central and South Region, along with fire equipment which is used by all regions. This equipment will need to be relocated if the staff moves to Viera.

<u>Additional Discussion – Management and Education Centers.</u>

Mike noted that the original plans for an EEL Program Management and Education Center in the South Region were scaled back by the BOCC to an Erna Nixon Park style facility with equipment storage capabilities. Since that time, some additional funds have been allocated for a building in the South Region, but in staff's mind, most of that money was going to be focused towards a field station for management, as opposed to a full blown education center.

Kim noted that the Town of Malabar's desire for a Center in their area was discussed during the most recent Procedures Committee meeting and that some folks were under the misunderstanding that there had been plans for a South Region education center, not a management and education facility.

Mike stated that the SMC did not need to take any action, but he would appreciate input. He added that they could e-mail comments to him if there was not sufficient time in the current meeting for additional discussion and he provided clarification that Jack Masson and Venetta Valdengo will be involved in consideration of options.

The following was noted:

- Paul stated that he realizes that it may not be possible to find a new Central Region Land Manager as capable as Scott, but he is concerned about the potential loss of a Land Manager position,

because of the significant amount of knowledge and experience that Scott has been able to provide - not only for the Pine Island Conservation Area wetlands and Cruickshank Sanctuary scrub habitat restorations, but as a mentor to assist land managers and junior staff. He added that Land Management Techs do not have the scientific knowledge base or experience as Land Managers and he is concerned about the Program's overall reduction in the number of personnel who have the understanding of what needs to be done and the experience to accomplish the project.

- Mike provided clarification that it is expected that the two land management tech positions which have been open for an extended period of time, will be advertised soon.

Management Reporting Schedule

Mike asked for clarification of how the SMC desired to receive reports from staff.

It was determined that EEL Program Managers will provide presentations to the SMC twice yearly during meetings set aside for that specific purpose, and that they will also provide information on what is happening in a regional basis each month as part of the Administrative Review. Target dates for the semi-annual reviews will be April and October.

PUBLIC COMMENT

None.

NEXT MEETING

It is anticipated that the next SMC meeting will be scheduled for March 13, 2014.

ADJOURNED:

The meeting was adjourned at 4:06 PM.

SUMMARY OF MEETING MOTIONS:

1. **Motion to approve the December 5, 2013 SMC/PC minutes as presented.**
2. **Motion to approve the January 13, 2014 SMC minutes as amended.**
3. **Motion to indicate that the relocation policy language proposed by Ernie Brown on February 11, 2014 and revised as per the current meeting's discussion as noted above is conceptually supported by the Selection and Management Committee.**
4. **Motion to approve the South Brevard Coastal Scrub Ecosystem Management Plan upon completion of changes which were submitted since the last distribution for review.**

BOARD OF COUNTY COMMISSIONERS

POLICY

NUMBER: **BCC-85**

TITLE: Listed Species Relocation

CANCELS **12/16/08**

DRAFT DOCUMENT FOR SMC REVIEW FEB 11 2014

APPROVED:

ORIGINATOR: **Natural Resources**

REVIEW:

I. OBJECTIVE

To regulate the relocation of gopher tortoises and other Listed species to property owned or controlled by Brevard County.

II. DEFINITIONS AND REFERENCES

A. "Gopher tortoise" - a member of the species Gopherus polyphemus.

B. "Relocation/Translocation" - The act of removing gopher tortoises or other endangered species from one property then releasing these animals on another property.

C. “Permitted taking" - The destruction of listed species authorized by the Florida Fish and Wildlife Conservation Commission or U.S. Fish and Wildlife Service.

III. DIRECTIVES

A. Brevard County shall not allow the relocation by private firms, groups, or individuals of gopher tortoises or other listed species to property owned or controlled by the County with the exception of relocation projects determined by the Board of County Commissioners to be in the public interest or relocation projects. The Director of the Natural Resources Management Department (NRM)is authorized and delegated to approve projects where the following criteria are met:

1. The sending property or project is a public project; and
2. The managing office or department has provided written approval to receive said species; and
3. The proposed receiving public land is dedicated to conservation purposes; and
4. All State and Federal permits and/or approvals are in place.

The Board shall hear appeals relating to any administrative decision or determination concerning implementation or application of the provisions of this Policy.

B. Where relocation to property owned or controlled by the County is requested by private firms, groups or individuals, the Board shall consider the request as follows:

1. Requests for relocations are submitted to NRM; and
2. NRM coordinates with appropriate county departments to identify potential relocation sites; and
3. NRM seeks a Preliminary Public Interest Determination by the Board for relocation/translocation to county lands.

If the Board does not approve the project-No Further Action. If the Board approves the proposed request – move to Step 4.

4. Applicant completes carrying capacity survey of identified sites according to State/Federal standards, where applicable, or recent published scientific papers; and
5. Survey Results are reviewed by NRM and the department managing the identified lands. Comment shall be compiled for Board review; and
6. NRM submits recommendation to the Board for a Final Public Interest Determination for the relocation/translocation.

Board approval shall be contingent upon the applicant obtaining all applicable state and federal permits and the recipient site being placed under conservation easement.

C. Relocation/translocation of listed species that are not intended to meet any projects regulatory requirements may be approved by the managing Department with the concurrence of NRM. In the event that the above activity is on EELs land, said non regulatory relocation/translocation may be approved by the SMC as long as it is consistent with an approved Land Management Plan.

IV. RESERVATION OF AUTHORITY

The authority to issue and/or revise this policy is reserved to the Board of County Commissioners.

Attest:

Scott Ellis, Clerk	Board of County Commissioners Brevard County, Florida
	As approved by the Board of County Commissioners on

Appendix Z : EEL Program Species Translocation Policy

Approved by EEL Program Selection and Management Committee on June 27, 2007
Updated to include Appendix I - Gopher Tortoise Translocations on November 18, 2013

Brevard County
Environmentally Endangered Lands Program
Species Translocation Policy

EEL Program
91 East Drive
Melbourne, FL 32904
321-255-4466
www.eelbrevard.com

While the value and feasibility of translocation or relocation of wildlife is highly debated and much research is yet to confirm the viability of such activities, there may be occasions where such actions are reasonable and justifiable. Restocking of reclaimed or repaired habitat, especially in areas too isolated for natural restocking, may be a viable management mechanism for establishing populations of extirpated species or those that have been severely limited by disease or catastrophic events which threaten the long term sustainability of a population. In general, translocation of species should be used as a management tool at the request of the Brevard County Environmentally Endangered Lands (EEL) Program, part of the EEL Program long term management plan, or for purposes of scientific research to test the viability of such a program.

The EEL Program has created this policy to guide the process for third party requests and internal EEL Program requests for plant and animal species translocations to Sanctuaries managed by the EEL Program. 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 the following policy to guide the process of considering and deciding upon such activities. The EEL Program Selection and Management Committee favors a conservative, science-based approach when considering requests for translocation. EEL Program Land Managers will work towards including potential translocation sites and species into the site specific management plans.

Terms and Definitions

1. **Translocation** - the movement by humans of living organisms from one area with free release in another.
2. **EEL Program Sanctuary** – any Sanctuary that is managed by the Brevard County Environmentally Endangered Lands Program, regardless of the agency that holds the title to the property (i.e., Brevard County, Florida State, etc.).
3. **Listed Species**
    a. **Fauna -** those animal species identified as Endangered, Threatened, or Species of Special concern by the United State Fish and Wildlife Service (USFWS) and/or the Florida Fish and Wildlife Conservation Commission (FFWCC).
        i. ***United State Fish and Wildlife Service definitions***:

1. *Endangered species* – species that are in danger of extinction within the foreseeable future throughout all or a significant portion of its range
2. *Threatened species* – those animals and plants likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges
3. *Species of special concern* - although the species is not endangered or threatened, it is extremely uncommon or has unique or highly specific habitat requirements and deserves careful monitoring of its status; species on the periphery of their range; species that were once threatened or endangered but now have increasing or protected, stable populations.

ii. ***Florida Fish and Wildlife Conservation Commission definitions***:

1. *Endangered species* - as designated by the Commission, a species, subspecies, or isolated population of a species or subspecies which is so few or depleted in number or so restricted in range or habitat due to any man-made or natural factors that it is in imminent danger of extinction, or extirpation from Florida
2. *Threatened species* **–** as designated by the Commission, a species, subspecies, or isolated population of a species or subspecies which is facing a very high risk of extinction, or extirpation from Florida,
3. *Species of special concern* - as designated by the Commission, a species, subspecies, or isolated population of a species or subspecies which is facing a moderate risk of extinction, or extirpation from Florida,

b. **Flora** – those plant species identified as Endangered, Threatened, or Commercially Exploited by Florida Department of Agriculture and Consumer Services (FDACS) or those species identified as Endangered or Threatened by the USFWS under the Endangered Species Act (see definitions listed under **Fauna**).

i. Florida Department of Agriculture and Consumer Services definitions:

1. *Endangered species* - species of plants native to the state 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, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.
2. *Threatened species* - 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 such number as to cause them to be endangered.
3. *Commercially Exploited species* - species native to state which are subject to being removed in significant numbers from native habitats in the state and sold or transported for sale.

4. **Non-native/exotic species** – introduced species not native or endemic to the area in question; for most purposes, those species not occurring within Florida (Central Florida, Brevard County, etc.) prior to European contact, according to the best available scientific and historical documentation.

5. **Rehabilitated wildlife** – wildlife that has received human assistance for injuries or illness with the ultimate goal of release back into the wild
6. **Re-introduction** – the intentional movement of an organism into a part of its native range from which it has disappeared or become extirpated in historic times as a result of human activities or natural catastrophe.
7. **Restocking** – the movement of numbers of plants or animals of a species with the intention of building up the number of individuals of that species in an original habitat.

Translocation Guidelines

A. When considering translocation of any plant or animal species to an EEL Program Sanctuary, the *EEL Program Conservation Principles and Directives* (Sanctuary Management Manual, 1997) will be taken into consideration.
    a. When considering translocation, EEL Program Land Managers shall ensure that sufficient scientific rationale exists for relocating the plant(s) or animal(s). Scientific principles, current or proposed conditions at the original site, historic ecosystem conditions at the proposed EEL Program Sanctuary translocation site, historical presence of the species at the proposed EEL Program Sanctuary translocation site, disease control, genetic drift and population carrying capacity shall all be taken into consideration. Rationale for supporting translocation may include, but are not limited to, conditions at the original site threatening the viability of the species or conditions at the EEL Program Sanctuary translocation site being suitable for increasing the overall viability of the species in its range.
    b. To the extent possible, the factors which limit a species' distribution and abundance in its native range will be thoroughly studied and understood by biologists/ecologists and its probable dispersal pattern appraised.
B. All state and/or federal regulations shall be examined prior to an internal EEL Program review of a translocation request. All state and/or federal regulations shall be examined for species that are listed as Endangered, Threatened, Species of Special Concern, or Commercially Exploited on a state and/or federal level. The EEL Program shall monitor ongoing changes in the status of listed species and changes in the state and federal management goals for these listed species.
C. All Brevard County Board of County Commission (BoCC) regulations shall be examined prior to translocation and prior to consideration of these EEL Program guidelines. In addition to FFWCC requirements, the EEL Program shall follow the guidelines established by the BoCC when considering translocation of gopher tortoises (*Gopherus polyphemus)*. Whenever possible, commensal species shall also be taken into consideration when translocating gopher tortoises.
D. No known invasive non-native plant or animal species shall be translocated to an EEL Program Sanctuary. Exceptions may be made in the case of biological control agents for exotic pest organisms after appropriate scientific and agency review has determined to be safe for release.
E. No rehabilitated animals shall be translocated to an EEL Program Sanctuary. It is difficult to assure that these animals have not imprinted on humans, have lost their fear of humans and/or have the ability to live as a naturally wild animal.

F. No organisms shall be translocated to an EEL Program Sanctuary that does not have a completed, approved management plan in place as per Florida state and EEL Program Management Plan Guidelines.
G. Relocations shall not be authorized solely for humanitarian reasons.
H. This policy is not meant to serve as a means to provide public lands as "safe havens" for listed species in a way that would encourage habitat loss across private and public holdings. Third parties requesting translocations should educate developers and encourage habitat preservation throughout newly developed areas through strategic planning prior to development.
I. The EEL Program may determine that
    a. translocation is appropriate at the proposed EEL Program Sanctuary,
    b. translocation is appropriate at an alternate EEL Program Sanctuary,
    c. translocation is appropriate at an alternate property managed by another local agency, if the management entity of the agency approves of the translocation or
    d. translocation is not appropriate at any EEL Program Sanctuary.
J. If all Translocation Guidelines are met, the individual or organization proposing the translocation shall complete the EEL Program Species Translocation Application. When considering translocation, many variables will exist for each request and each request shall be considered on a case-by-case basis. The Species Translocation Application shall be submitted to the appropriate Regional Land Manager for the proposed recipient EEL Program Sanctuary. The land manager shall consult with the EEL Program Manager, with other Land Mangers (i.e., EEL Program Land Managers, FFWCC Land Managers, SJRWMD Land Managers, etc.), with members of the EEL Program Selection and Management Committee (SMC), and/or with biologists/ecologists with extensive experience studying the proposed species for additional guidance and input. All information that is collected through these consultations shall be presented to the SMC. A majority vote by the SMC is required for approval of the translocation.
K. In the event that a Monitoring Plan is required by the regulatory agency responsible for the listed species (USFWS, FFWCC, FDACS), the third party shall provide the Monitoring Plan to the EEL Program. The EEL Program may decide that a Monitoring Plan is required for non-listed species; the third party shall provide such a Monitoring Plan to the EEL Program. Monitoring may be required for individual(s) organisms and/or the population after release onto an EEL Sanctuary. In addition, management fees and/or exotic species removal (e.g., feral hogs, invasive plant species) may be required for future management of the species and the habitat.
L. A third party requesting a translocation to an EEL Program Sanctuary shall be responsible for obtaining and compliance with any permits required for translocation of a listed species.
M. The EEL Program is not responsible for loss of animals or plants after translocation.
N. The EEL Program reserves the right to refuse any translocation proposal for lands managed by the EEL Program.
O. For management purposes, the EEL Program may consider re-introduction of an organism to an EEL Program Sanctuary. Re-introductions should only take place where the original causes of extirpation at the site have been removed. Re-introductions should only take place where the habitat requirements of the species are satisfied. There should be no re-introductions if a species became extirpated because of habitat change which

remains un-remedied or where significant habitat deterioration has occurred since the extinction.

P. For management purposes, the EEL Program may consider restocking of an organism to an EEL Program Sanctuary. Restocking with the aim of conserving a dangerously reduced population should only be attempted when the causes of the reduction have been largely removed and natural increase can be excluded. Before deciding if restocking is necessary, the capacity of the area it is proposed to restock should be investigated to assess if the level of population desired is sustainable. If the population is sustainable, then further work should be undertaken to discover the reasons for the existing low population levels. Action should then be taken to help the resident population expand to the desired level, and restocking should be used if these actions fail.

Q. The EEL Program reserves the right to request that a veterinarian certify that the animals to be translocated are disease free. Any costs associated with this veterinarian approval will be the burden of the third party requesting the translocation.

R. In the event of a proposed translocation request of a listed plant or animal for mitigation purposes to an EEL Program Sanctuary where no population survey has been completed for the existing population at the site, the applicant may be required to:
    a. Hire a consultant/biologist to survey the proposed translocation site to establish the conditions of any existing population. The study parameters and methodology shall be approved in advance by the EEL Program and include a full assessment of the carrying capacity of the site with close consideration being given to the EEL Program goals of biological diversity.
    b. If translocation is deemed appropriate, the applicant shall:
        i. obtain and comply with all required permits (SJRWMD, FFWCC, USFWS, FDACS, etc.)
        ii. pay a per acreage fee to the EEL Program for future management of the species or of the habitat required for the species
        iii. monitor the existing population on the site after the translocation. Monitoring protocols and time frame shall be approved in advance by the EEL Program, with guidance from the EEL Program Selection and Management Committee (SMC) and from the state and/or federal agencies responsible for the guidelines set for the listed species. Monitoring Reports shall be submitted to the EEL Program and SMC for review and approval.

S. This policy shall be updated as new information becomes available.

Appendix I. Specific requirements for translocation of gopher tortoises

Any proposed translocation of gopher tortoises to EEL Program Sanctuaries must meet all Florida standards as determined by the Florida Fish and Wildlife Conservation Commission (FFWCC). However, the EEL Program has determined that additional criteria will apply to ensure that translocation is of conservation benefit.

- Translocations will be allowed only under the Conservation Land Permit process of FFWCC. This process is intended to allow for natural expansion of gopher tortoise populations, consistent with the biodiversity mission of the EEL Program.

- Translocations will be allowed only in sites that have been restored and are in good habitat condition but where gopher tortoise populations are absent or, if present, population densities are low compared to habitat specific gopher tortoise densities from scientific literature.

- The organization or individual proposing gopher tortoise translocation is responsible for conducting a tortoise population survey that meets or exceeds state standards. SMC approval of survey is required before survey is conducted.

- Permission to conduct a gopher tortoise population survey does not mean that a translocation will be approved. Survey results are needed to determine if a translocation is appropriate.

- Numbers of gopher tortoises that can be moved to a site will be determined by site and habitat conditions, population survey results, and habitat specific gopher tortoise population densities. For scrub and flatwoods in Brevard County, habitat specific gopher tortoise population densities are lower that State stocking densities.

- Any proposal to translocate gopher tortoises to an EEL Program Sanctuary requires approval of the SMC following the established EEL Program Translocation Policy.

- Reporting requirements on success or failure of gopher tortoise translocations to EEL Sanctuaries may be more frequent and detailed than state standards.

Appendix AA : Land Management Plan Compliance Checklist and Reviews

*The Following Appendix clarifies and/or completes the State Management Plan Compliance Checklist requirements.

Section A: Acquisition Information Items

Item #6: An *assessment* as to whether the property, or any portion, should be declared surplus. Provide information regarding assessment and analysis in the plan, and provide corresponding map.

**As stated within the plan, there are no portions of the SBCSE management plan that should be declared surplus. Exhibit 1 in this Appendix (AA) is a document that states the purpose for purchases within the SBSCE, the descriptions of the sites, and maps of the area.

Section C: Public Involvement Items

Item #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. *Include* manager's replies to the team's findings and recommendations.

Item #30: Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.

Item #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.

**This is the initial review for the management plan related to the SBCSE. A previous area review (2009) is included in Appendix AA. As the plan moves forward through review during the next decade, content regarding Item numbers 29-31 will be add to this Appendix (AA). At this time there is nothing to add regarding Item numbers 29-31.

Section D: Natural Resources

Item #36: Location and description of known and reasonably identifiable renewable and non-renewable resource of the property regarding beaches and dunes.

** The SBCSE does not contain FNAI defined habitats that can be defined as or resemble beaches or dunes, therefore regarding Item #36 – There are no known locations or descriptions of renewable or non-renewable resource on the property regarding beaches or dunes.

Item #37: Location and description of known and reasonably identifiable renewable and non-renewable resource of the property regarding mineral resources such as oil, gas & phosphate, etc.

** The SBCSE does not contain any known renewable or non-renewable resources within the property regarding mineral resources such as oil, gas & phosphate, etc. If resources are identified in the future, they will be added to this Appendix (AA).

Brevard Coastal Scrub Ecosystem

Brevard County

Partnerships

Purpose for State Acquisition

The strip of coastal scrub that once paralleled the Indian River in Brevard County is now a set of small fragments surrounded by housing developments. The Brevard Coastal Scrub Ecosystem project will preserve a few of the best scrub fragments in the county, which will aid survival of the endangered scrub jay and provide areas where the public can appreciate and learn about this unique landscape.

Manager

Brevard County will manage the original six sites, and the Valkaria/Micco Expansion Site added in 2002. The Fish and Wildlife Conservation Commission (FWC) will manage the six sites added in 1996, and the Ten Mile Ridge site added in 2002. The Office of Coastal and Aquatic Managed Areas (CAMA) will manage one site added in 2001. The City of Titusville will manage the Falcon Woods portion added in 2008.

General Description

The project includes twenty areas considered essential to the preservation of scrub, mesic and scrubby flatwoods, floodplain marsh and marsh lake along the Atlantic Coastal Ridge and St. John's River marshes. Acquisition and management of these core areas are imperative for the survival of the Florida scrub jay on the east coast of Florida. The tracts comprising this project also support several rare vertebrates and at least eight rare plant species, including a very rare mint. All of the tracts in the project are surrounded by development and several peripheral areas are already being destroyed. The rapid encroachment of housing developments is likely to completely eliminate any unprotected scrub and adjacent flatwoods communities of Brevard County in the very near future. No archaeological sites are known from the project.

Brevard Coastal Scrub Ecosystem FNAI Elements	
Florida Scrub-jay	G2/S2
Eastern Indigo Snake	G3/S3
Gopher Tortoise	G3/S3
Titusville Balm	G1Q/S1
Celestial Lily	G2/S2
Tampa Vervain	G2/S2
Giant Orchid	G2G3/S2
Hay Scented Fern	G4/S1
Wood Stork	G4/S2
Florida Beargrass	G3/S3
Large-flowered Rosemary	G3/S3
Gopher Frog	G3/S3
15 rare species are associated with the project	

Public Use

This project is designated as a wildlife and environmental area with limited public use, including picnicking and environmental education.

Acquisition Planning

On 12/10/1992, the Land Acquisition Advisory Council (LAAC) added the Scrub Jay Refugia project to the Conservation and Recreation Lands (CARL) Priority list. This fee-simple acquisition consisted of approximately 8,178 acres, several hundred parcels and landowners, and a taxable value of $53,319,683. Brevard County sponsored the project that contained 5 sites: Tico (± 2,421 acres, Grand Central a major owner, Brevard County has acquired 52 acres); Valkaria (± 2,764 acres with multiple owners, County has acquired 155 acres); Rockledge (± 2,591 acres, three major owners: Barge & Tabacchi, Duda, and Grand Central, the remainder is subdivided, County has acquired 141 acres); Condev (52 acres, two owners: Nelson and SR 405 Ltd); South Babcock (529 acres, multiple owners).

Placed on List	**1993***
Project Area (GIS Acres)	**40,929**
Acres Acquired (GIS)	**17,769***
at a Cost of	**$86,085,773***
Acres Remaining (GIS)	**23,160**

with Estimated (Tax Assessed) Value of $38,395,620

***Includes acreage acquired and funds spent by Brevard County and the St. Johns River Water Management District (SJRWMD). The donation by TNC is valued at $40,000.**

*Note: **1,667 acres were removed from the project boundary per landowners' request in December 2009.** 3877 acres were removed in April 2010 due to residential/commercial infrastructure/development and 1 owner's request.*

On 7/23/1993, the LAAC approved a fee-simple, 179-acre addition (AKA Rockledge Scrub Sanctuary) to the project boundary. It was sponsored by the South Florida Water Management District (SFWMD), consisted of 6 landowners (T. Barge & M. Tabacchi, L.R. Pierce Trust, N. Schopke & M. Tabacchi, TCM Investment, Inc., A.L. & M. Jacoboski , and Florida Power & Light Co.), and a taxable value of $3,600,000.

On 3/9/1994, the LAAC approved a fee-simple, 1,322-acre addition (AKA Micco Scrub) to the project boundary. The addition was sponsored by Brevard County, consisted of one landowner, Kentucky Central Life Ins. Co., at a taxable value of $1,500,120. Brevard County has acquired this site.

On 7/14/1995, the LAAC approved a fee-simple, 1,410-acre addition to the project boundary. The addition consisted of four sites: Dicerandra Scrub, 44 acres, Malabar Scrub Sanctuary, 395 acres, Canova Beach Scrub, 138 acres, and Jordan Blvd, 833 acres. Brevard County sponsored this addition that consisted of multiple landowners, at a taxable value of $13,283,659. The County has acquired the Malabar and the Dicerandra Scrub sites.

In 1996, the LAAC combined the Coastal Scrub Ecosystem Initiative (CSEI) project with the Scrub Jay Refugia project bringing the new total acres to 27,745 with a TAV of $86,847,875, and on 12/5/1996 renamed it Brevard Coastal Scrub Ecosystem. The CSEI consisted of 6 sites: Fox/South Lake Complex - 9,189 acres; Titusville Wellfield - 972 acres; Grissom Parkway - 2,962 acres; Wickham Road - 822 acres; Micco Expansion - 1,833 acres; and Ten Mile Ridge - 529 acres, totaling 16,307 acres with a TAV of $40,780,060.

On 12/3/1998, the Land Acquisition Management Advisory Council (LAMAC) approved the transfer of the Valkaria, South Babcock, Ten Mile Ridge, and Grissom Parkway sites to the Mega-Multiparcel list. In 2001 this list was renamed Small Holdings.

On 12/19/2000, the ARC approved a fee-simple, ± 9,528-acre addition to the project boundary. The addition consisted of two sites: Malabar Expansion – 959.85 acres (Bargain/Shared) and Valkaria/Micco Expansion – 4,144.48 acres (Bargain/Shared) & 4,739.48 acres (Mega/Multiparcel). Sponsored by the Brevard County EEL Program, it consisted of 2,250 landowners, at a taxable value of $23,819,800. The following sites were deleted from the project due to development/improvement, habitat fragmentation or isolation: Canova Beach - 152.34 acres; Condev – 52.52 acres; and Wickham Road Complex – 809.62 acres; & Rockledge (select properties) – 860 acres. The total TAV for these sites was approximately $35,952,477.

On 5/17/2001, the ARC approved a fee-simple, ± 3,529-acre addition to the project boundary. The addition, sponsored by the CAMA, consisted of eleven landowners, and a taxable value of $3,456,290.

On 4/25/2002, the ARC approved a fee-simple, 112-acre addition to the project boundary. The addition, sponsored by The Nature Conservancy (TNC) for Brevard County, consisted of two sites (10 Mile Ridge Expansion – 62 acres and Valkario/Micco Expansion – 50 acres), multiple landowners, and a taxable value of $199,070. On 12/5/2002, ARC moved this project to Group A of the 2003 Florida Forever Priority list.

On 12/5/2003, the ARC approved a fee-simple, 7,444-acre addition to the project boundary. The addition, sponsored by the Brevard County EEL Program, consisted of three landowners, Bernard Hersch – 112.25 acres; OLC, Inc/Campbell – 5,229.94 acres; and Babcock, LLC – 2,091.81 acres, and a taxable value of $2,808,217.

On 9/21/2006, the DSL purchased in Valkaria section at tax deed sale 5.52 acres (Oxford Finance Co./$83,000).

In 6/2007 Brevard County acquired 41 acres from Vero-Pittsburgh Partners LLC and added it to the Enchanted Forest Sanctuary.

On 6/13/2008, ARC approved the 94-acre Falcon Woods Florida Forever project, and incorporated it into the boundary of the existing Brevard Coastal Scrub Ecosystem project. The Falcon Woods portion has a tax value of $4,556,000 and is proposed for fee-simple acquisition. The site includes 7 parcels under one ownership. The City of Titusville sponsored the project, and will also act as manager for the site. Falcon Woods consists primarily of imperiled sand pine scrub habitat. In 9/2008, the Division of State Lands purchased 1.29 acres of the Hightower/Frasier ownership at Grissom Parkway for $5,500. The FWC will manage this section. In 10/2008, TNC donated 2.71 acres, valued at

$40,000, which will be managed by the Brevard County Environmentally Endangered Lands program.

On 6/12/2009 ARC accepted the request from the applicant/County to change the name of the Falcon Woods addition to Tortoise Ridge. At the landowners' requests, ARC on 12/11/2009 recommended that 1,667 acres be removed from the boundary--ownerships requesting: John S./John D. Copanos (20 ac.); John Copanos/Sebastian Resources 400, LP (902 ac.); Nick Dionisio/ Brevard Landvest, LLC (745 ac.); all located within the Malabar Expansion and Valkaria/Micco Expansion.

In 4/2010, ARC voted to remove 3,694 acres due to residential/commercial infrastructure and development plus 183 acres at the request of Mr. Wilton Banack, landowner, for total acres removed 3,877.

Coordination

Brevard County, an acquisition partner, committed $10 million towards the acquisition of the project and $2.6 million for site management. The Nature Conservancy is under contract to the county to provide assistance with acquisition of the county's projects.

Management Policy Statement

The primary goals of management of the Brevard Coastal Scrub Ecosystem project are to conserve and protect environmentally unique and irreplaceable lands that contain native, relatively unaltered flora and fauna representing a natural area unique to, or scarce within, a region of this state or a larger geographic area; and to conserve and protect significant habitat for native species or endangered and threatened species.

Management Prospectus

Qualifications for state designation Scrub on the Atlantic Coastal Ridge is one of the most endangered natural upland communities in North America. This unique scrub, with its many rare plants and animals, qualifies the Brevard Coastal Scrub Ecosystem project as a wildlife and environmental area.

Manager Brevard County proposes to manage the six original sites of the Brevard Coastal Scrub Ecosystem. The FWC will manage the six sites added in 1996 and will manage the Ten Mile Ridge site added on April 25, 2002. The City of Titusville will manage the Falcon Woods portion added in 2008. On May 16, 2001, 3,529 acres were added that are to be managed by CAMA.

Conditions affecting intensity of management The Brevard Coastal Scrub Ecosystem Project includes low-need, moderate-need and high-need tracts. All sites are fire-maintained communities with an immediate need for fire management.

Timetable for implementing management and provisions for security and protection of infrastructure The Brevard County Environmentally Endangered Lands Program is preparing a Conceptual Natural Areas Management Manual for all sanctuary sites. Once these sites are acquired, the EEL Program will work with local, state and federal agencies to develop a Comprehensive Management Plan for long-term management. Initial management activities in this project will focus on site security, burn management, determination of status of listed species, location of a core area for resource protection, identification of passive recreation areas, and the development of innovative environmental education programs.

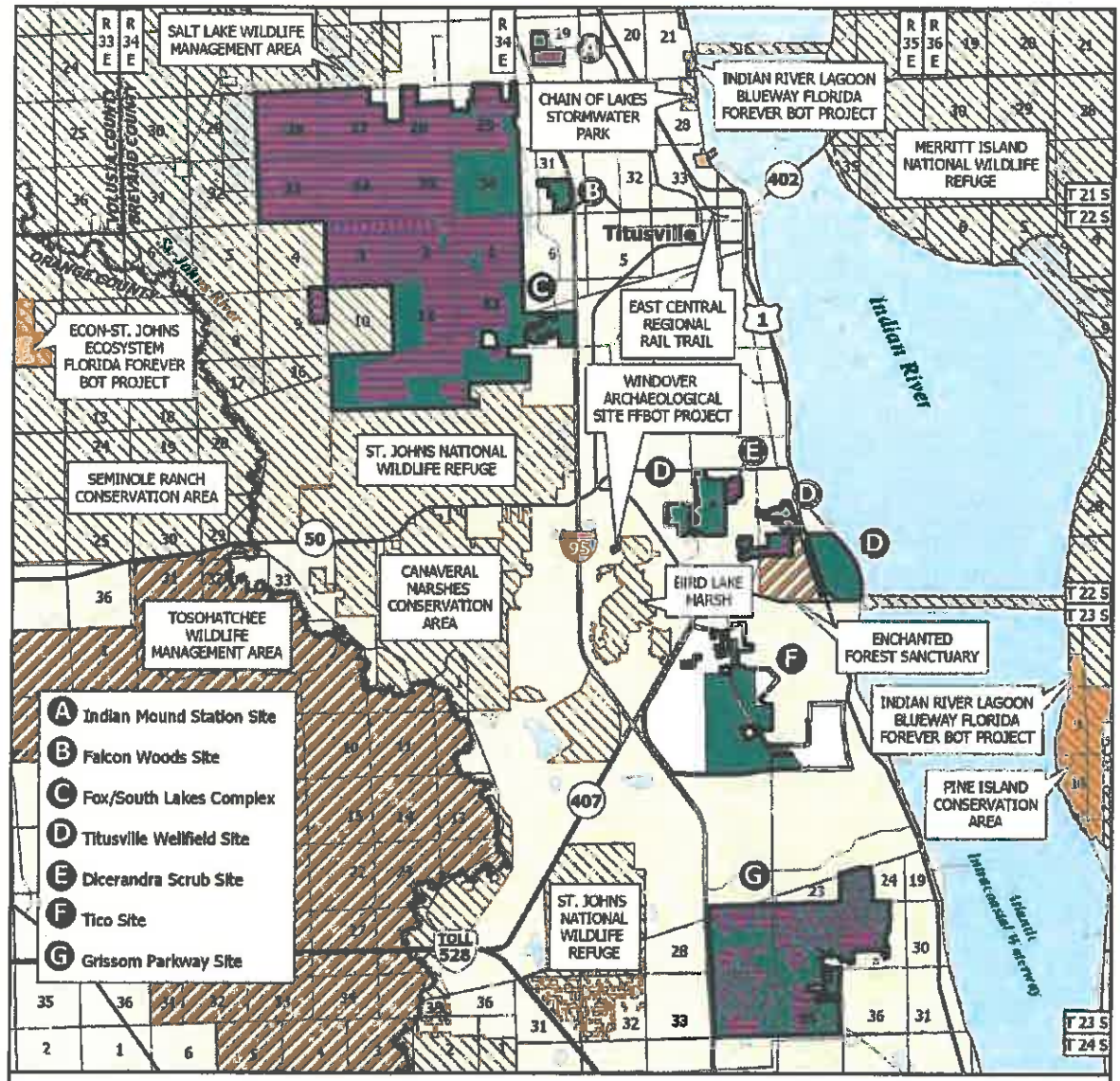
A management plan will be developed and implemented approximately one year after the completion of this multi-parcel acquisition project, or site-specific management plans will be developed as management units are acquired. The plan will detail how each of the FNAI special elements on each site will be protected and, when necessary, restored. Fire management will be a vital component of each plan. Long-range plans for this project, beginning approximately one year after acquisition is completed, will be directed towards biodiversity protection, exotic species removal, wetland restoration and enhancement, and the maintenance of links between upland, wetland and estuarine areas. Management will protect biological diversity and listed species. Specific areas will be fenced as needed. Property signs will have appropriate language to enable protection of the property. Unnecessary roads and other disturbances will be identified as areas for restoration. Firebreaks will be cleared where necessary. Infrastructure development will be confined to already disturbed areas and will be low-impact.

Revenue-generating potential No significant revenue sources are anticipated at this time. Mitigation agreements with USFWS have generated some funds

Brevard Coastal Scrub Ecosystem

BREVARD COASTAL SCRUB ECOSYSTEM: OVERVIEW

BREVARD COUNTY



BREVARD COASTAL SCRUB ECOSYSTEM: MAP 1 OF 3

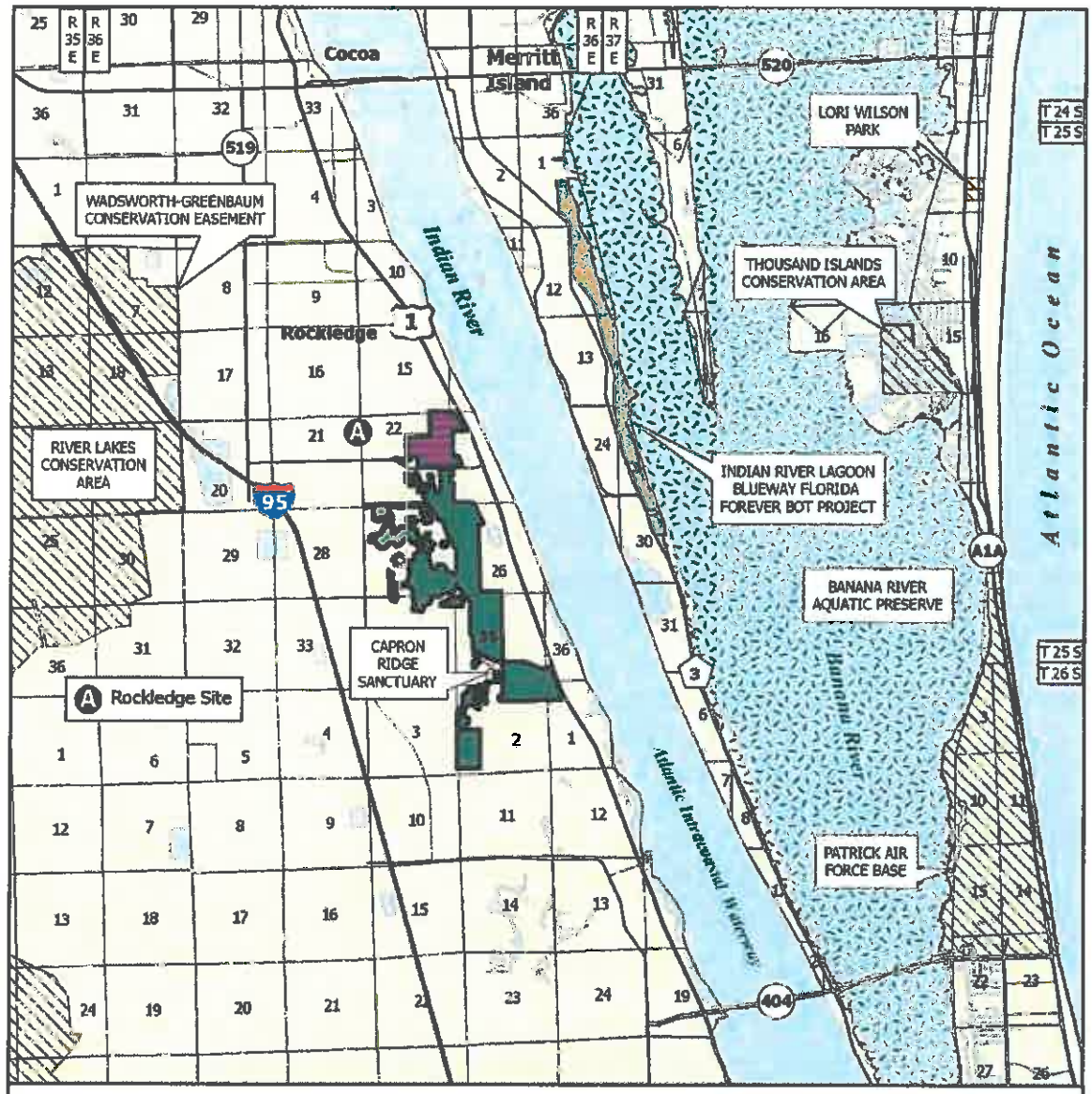
BREVARD COUNTY

- Florida Forever BOT Project Boundary
- Acquired for Conservation (Fee Simple)
- Acquired for Conservation (Less-Than-Fee)
- Essential Parcel(s) Remaining
- Other Florida Forever BOT Projects
- State Owned Lands
- Other Conservation Lands

0 1 2 4 Miles

APRIL 2010

Brevard Coastal Scrub Ecosystem



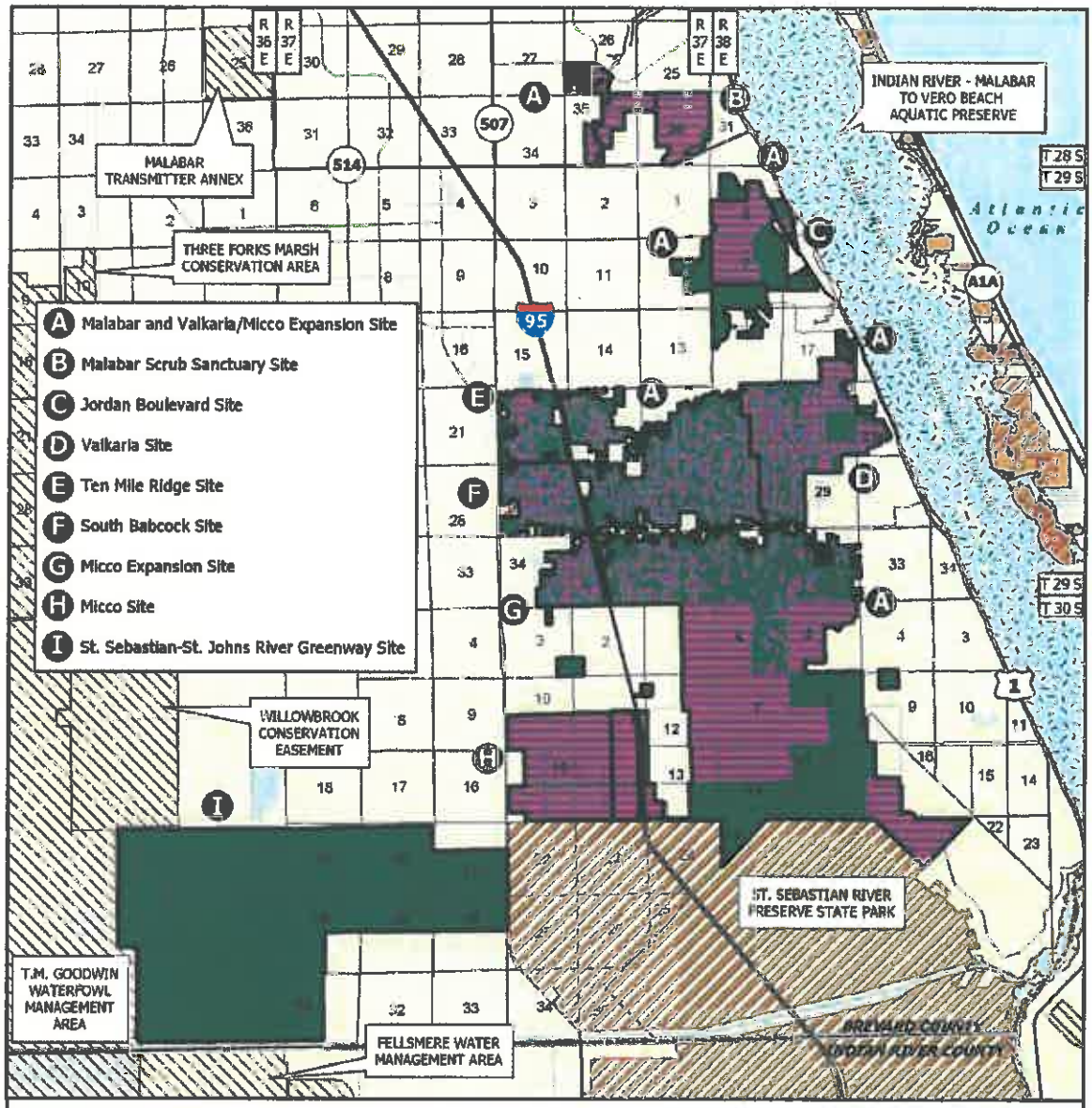
BREVARD COASTAL SCRUB ECOSYSTEM: MAP 2 OF 3

BREVARD COUNTY

- Florida Forever BOT Project Boundary
- Acquired for Conservation (Fee Simple)
- Essential Parcel(s) Remaining
- Other Florida Forever BOT Projects
- Other Conservation Lands
- State Aquatic Preserves

0 1 2 4 Miles

APRIL 2010



BREVARD COASTAL SCRUB ECOSYSTEM: MAP 3 OF 3

BREVARD COUNTY

- Florida Forever BOT Project Boundary
- Acquired for Conservation (Fee Simple)
- Essential Parcel(s) Remaining
- Other Florida Forever BOT Projects
- State Owned Lands
- Other Conservation Lands
- State Aquatic Preserves

0 1 2 4 Miles

APRIL 2010

for management within the Valkaria Core area. Implementation and funding of the Scrub Conservation and Development Plan provide a potential source of management funds for these sites. Timber might be sold on some sites where habitat restoration requires thinning.

Cooperators in management activities Brevard County will require support from the USFWS and other agencies (The Nature Conservancy, Division of Forestry, FWC, and others) to implement a quality management program for scrub communities. The EEL Selection Committee will aggressively seek matching funds for site management, development of environmental education programs, and for necessary research and monitoring.

Management costs and sources of revenue An interagency partnership among the participating agencies provides opportunities for revenue sharing. The Brevard County EEL Program proposed to set aside 2.6 million dollars from their excess ad valorem revenues to begin a management endowment for the EEL Program sanctuary network. The EEL Program will work to increase funds for management to be consistent with or exceed State management appropriations.

Updated 12/1/2011

Management Cost Summary

Category	1994/95	1995/96	1996/97
Source of Funds	County	County	County/Grant
Salary	$0	$3,500	$8,750
OPS	$0	$0	$35,000
Expense	$500	$1,000	$0
OCO	$0	$0	$60,000
FCO	$0	$125,700	$120,000
TOTAL	$500	$130,200	$213,750

Land Management Review (2009)

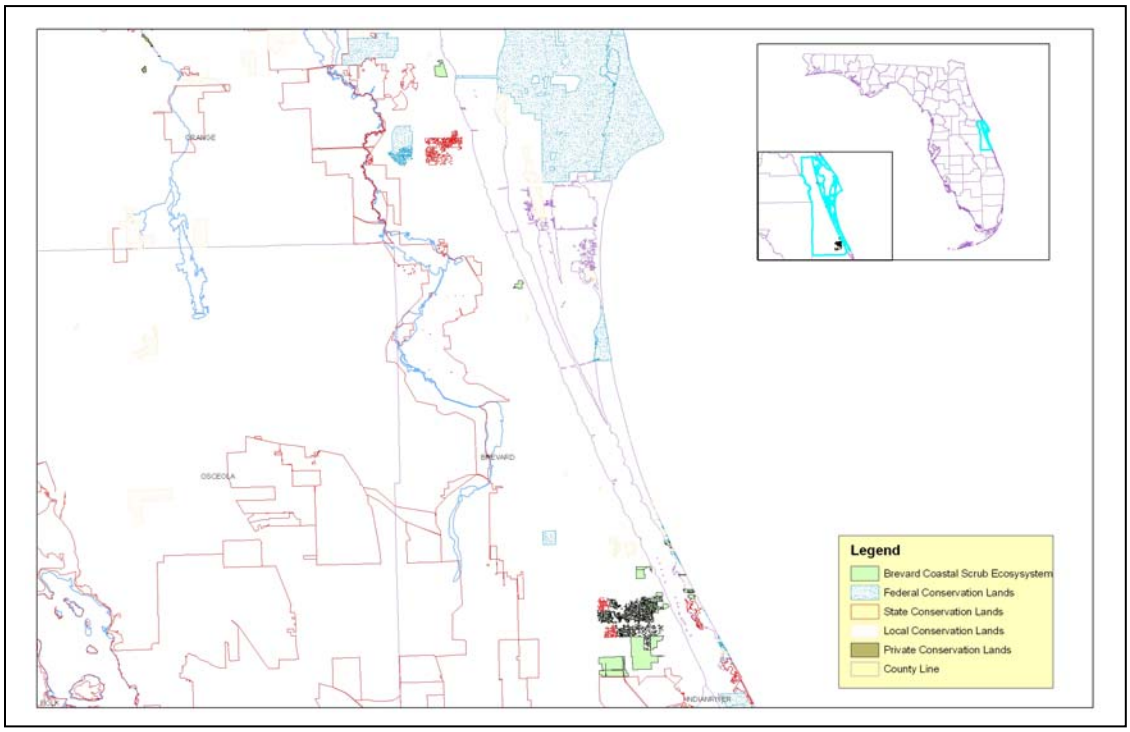
Brevard County's previous approach was to have multiple land management plans for various smaller properties under State Lease #4263, but are now consolidating these into two land management plans for the Northern and the SBCSE. The 2009 Land Management Review of the Northern and SBCSE (Appendix AA) found that Brevard County was managing the area in accordance with the purpose(s) for acquisition and that the individual management plans were sufficiently protecting the resources, but recommended that the lands within the SBSCE be consolidated under a single management plan. The recommendations of the LMR were considered and addressed in the development of this consolidated Management Plan, including the development of management intent language, goals and objectives, the identification of management challenges and the development of solution strategies.

Name of Site: Brevard Coastal Scrub Ecosystem **County:** Brevard County

Managed by: Brevard County
Environmentally Endangered Lands Program

Acres: 1,324.97 Acres

Review Date: 12/3-4/09



Review Team Determination

Managed in accordance with acquisition purpose? Yes = 7, No = 0

Management practices, including public access, in compliance with the management plan? Yes =4, No = 3

Categories	Management Plan Review	Field Review
Natural Communities	0.14	3.30
Listed Species	0.31	3.68
Natural Resource Survey	0.34	3.54
Cultural Resources	0.29	1.67
Prescribed Fire	0.33	2.24
Restoration	0.29	3.71
Exotic Species	0.37	3.32
Hydrology	0.14	3.15
Surface Water Monitoring	0.14	2.50
Resource Protection	0.46	3.50
Adjacent Property Concerns	0.14	2.86
Public Access & Education	0.31	3.99
Management Resources	N/A	N/A
Managed Area Uses	0.97	N/A
Buildings, Equipment, Staff & Funding	N/A	3.71

Consensus Commendations to the Managing Agency

The following commendations resulted from discussion and vote of the review team members.

1. The team commends the staff for the approach being taken to provide and encourage public access to these properties, including the maintenance of visitor kiosks and interpretive signs. (VOTE: 5+, 0-)

2. The team commends the staff on the continuing work on science-based scrub jay demographic studies to guide management. (VOTE: 5+, 0-)

3. The team commends the excellent restoration and burning program at Cruickshank Sanctuary, which serves as a good example for habitat restoration on other sanctuary properties. (VOTE: 5+, 0-)

4. The team commends the manager for their perseverance of treating exotic invasive plants on the property and securing outside grant funding for treatments. (VOTE: 5+, 0-)

Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The management plan must include responses to the recommendations identified below.

1. The team finds that the completion of the management plan that addresses the majority of the property's acreage have not been completed. Therefore, the team recommends that the County completes and submit the management plan to the DSL immediately and the team finds that the DSL should take a more proactive approach to ensure compliance with the terms of the lease. (VOTE: 7+, 0-)

Managing Agency Response: Brevard County is continually working on completing management plans and should have a significant amount for ARC review by the end of the 2010.

2. The team recommends that an additional commitment is needed to achieve established ecological prescribed fire goals necessary to restore and maintain natural communities. (VOTE: 5+, 0-)

Managing Agency Response: The County is working hard to implement site restoration plans, which are often slow to coming to fruition due to heavy scrutiny by neighbors and site visitors. The program must spend significant time educating citizens about the importance of site restoration efforts.

3. The team recommends that the manager make the restoration of the rare sandhill community a priority. (VOTE: 5+, 0-)

Managing Agency Response: This project has proven to be increasingly difficult due to delays in the management plan for this area, as well as a passionate user group. Recent budget cuts will likely delay the implementation of the restoration plan.

4. The team recommends that the staff establish uniform success criteria for each natural community. (VOTE: 5+, 0-)

Managing Agency Response: The program will complete this and include the success criteria in future management plans.

5. The team is encouraged by the progress being made to acquire the Florida Inland Navigation District site and recommends the County continue its efforts to make that transfer a reality. (VOTE: 5+, 0-)


Managing Agency Response: This is a top priority and the program will continue to pursue this.

6. The team recommends the staff explore opportunities for wildlife and rare plant inventories and research. (VOTE: 5+, 0-)


Managing Agency Response: The County will continue to work with colleges and researchers to assist with these inventories.

Checklist Findings

The following items received high scores on the review team checklist, which indicates that management actions exceeded expectations.

- Restoration of Ruderal Areas, regarding Depression Marsh.
- Managed Area Uses, regarding Hiking, Horseback Riding, Bicycling, Wildlife Viewing, Environmental Education and Fishing.

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review (FR) were not considered sufficient (less than 2.5 score on average), or that the text noted in the Management Plan Review (PR) does not sufficiently address this issue (less than .5 score on average.). The management plan must include responses to the checklist items identified below:

1. Discussion in the management plan regarding Natural Communities, specifically depression marsh, mesic flatwoods, scrub, scrubby flatwoods, basin marsh, hydric hammock, sandhill (FR), strand/dome swamp, wet prairie (FR), baygall and seepage stream. (PR)
Managing Agency Response: This will be addressed when the management plans are submitted to ARC. Descriptions will also be discussed in the establishment of success criteria / desired conditions.

2. Discussion in the management plan regarding Listed Species, specifically animal inventory, scrub jay, gopher tortoise, and plant inventory. (PR)
Managing Agency Response: The County staff will work closely with NGO's to help conduct regular surveys. This will allow the program to expand the species inventories.

3. Discussion in the management plan regarding Natural Resources Survey, specifically listed species and habitat monitoring, other non-game species or habitat monitoring (FR), fire effects monitoring, other habitat management effects monitoring, invasive species survey and monitoring. (PR)
Managing Agency Response: County staff is working on a long term monitoring plan that would help to measure the success criteria set for each habitat. The County has a long established invasive species monitoring through GIS. Monitoring of the Florida Scrub-Jay is on-going with a successive banding program.

4. Discussion in the management plan regarding Cultural Resources, specifically cultural resource survey. (PR,FR)
Managing Agency Response: The County has contacted the DHR to start the process for a Phase 1 review for the entire management lease.

5. Discussion in the management plan regarding Resource Management, specifically area being burned (FR), frequency (FR), and quality. (PR)
Managing Agency Response: Each sanctuary management plan to be submitted will have a fire management plan included.

6. Discussion in the management plan regarding Restoration of Ruderal Areas, specifically basin marsh, mesic flatwoods, and sandhill (FR). (PR)

Managing Agency Response: County staff has researched the best mode of restoration for each habitat and is included in the pending management plans.

7. Discussion in the management plan regarding Non-Native, Invasive & Problem Species, specifically prevention and control of plants, animals and pests/pathogens. (PR)
Managing Agency Response: Each sanctuary management plan discusses the non-native species for the specific site. This includes which exotic species and how to remove the problem.

8. Discussion in the management plan regarding Hydrologic/Geologic Function, specifically roads/culverts, ditches, hydro period alteration and water level alteration. (PR)
Managing Agency Response: The County works closely with the local Water Management District to establish potential mitigation projects to restore natural hydrology to the County managed lands. Historic aerials along with topographic maps are used to identify hydrological changes. Site specific issues are addressed in the pending management plans.

9. Discussion in the management plan regarding Surface Water Monitoring, specifically surface water quantity. (PR, FR)
Managing Agency Response: The County will establish success criteria for each habitat and will add measure water quality where applicable.

10. Discussion in the management plan regarding Resource Protection, specifically boundary survey, gates/fencing, signage and law enforcement presence (FR). (PR)
Managing Agency Response: Due to new county acquisition adjacent Jordan Scrub Sanctuary the north boundary is vulnerable to illegal access. Funds will be allocated next FY to install fencing along the boundary safe-guarding against illegal access issues. The County will work with local and state LE to insure the protection of the resources.

11. Discussion in the management plan regarding Adjacent Property Concerns, specifically expanding development, inholdings/additions. (PR) and inholding issues (FR).
Managing Agency Response: With proposed roads and new development planned on adjacent lands it is essential that the County work with developments to help continue the prescribed fire program. With future acquisition funds uncertain the State and County have to look at consolidation of the mega-parcel acquisition area into manageable areas.

12. Discussion in the management plan regarding Public Access & Education, specifically parking, wildlife, invasive species, habitat management activities, interpretive facilities and signs, recreational opportunities, and management of visitor impacts. (PR)
Managing Agency Response: The County has established several parking areas for access to trails. The County has new parking areas planned that are described within the pending management plans. Monitoring of specific visitor impacts has not been established, however the County will include this in the resource monitoring plan. A facility is planned for Malabar Scrub Sanctuary, it is described in the management plan recently sent to ARC. The construction of this facility is currently on hold pending a change in the economy. Recreational opportunities are limited to passive recreation to minimize user impacts to the resource.

13. Discussion in the management plan regarding Managed Area Uses, specifically paved bicycle trail. (PR)
Managing Agency Response: A paved section of trail is included in the Malabar Scrub Sanctuary Management Plan submitted to ARC recently. The current plans for the paved trail take it south as an un-paved trail. While planning is ongoing for the overall paved trail throughout the south region of Brevard County no plans or proposals have been by County staff or review committees.

APPENDIX A:

PLAN REVIEW		1	2	3	4	5	6	7	AVERAGE
Natural Communities (I.A)									
Depression Marsh	I.A.1	0	0	0	0	1	0	0	0.14
Mesic Flatwoods	I.A.2	0	0	0	0	1	0	0	0.14
Scrub	I.A.3	0	0	0	0	1	0	0	0.14
Scrubby Flatwoods	I.A.4	0	0	0	0	1	0	0	0.14
Basin Marsh	I.A.5	0	0	0	0	1	0	0	0.14
Hydric Hammock	I.A.6	0	0	0	0	1	0	0	0.14
Sandhill	I.A.7	0	0	0	0	1	0	0	0.14
Strand/Dome Swamp	I.A.8	0	0	0	0	1	0	0	0.14
Wet Prairie	I.A.9	0	0	0	0	1	0	0	0.14
Baygall	I.A.10	0	0	0	0	1	0	0	0.14
Seepage Stream	I.A.11	0	0	0	0	1	0	0	0.14
Listed species:Protection & Preservation (I.B)									
Animal Inventory	I.B.1	0	0	0	0	1	0	1	0.29
Scrub Jay	I.B.1.a	0	0	0	0	1	0	1	0.29
Gopher Tortoise	I.B.1.b	0	0	0	1	1			0.40
Plant Inventory	I.B.2	0	0	0	0	1	0	1	0.29
Natural Resources Survey/Management Resources (I.C)									
Listed species or habitat monitoring	I.C.2	0	0	0	0	1	0	1	0.29
Other non-game species or habitat monitoring	I.C.3	1	0	0	0	1	0	0	0.29
Fire effects monitoring	I.C.4	0	0	0	1	1	0	1	0.43
Other habitat management effects monitoring	I.C.5	0	0	0	0	1	0	1	0.29
Invasive species survey / monitoring	I.C.6	0	0	0	1	1	0	1	0.43
Cultural Resources (Archeological & Historic sites) (II.A,II.B)									
Cultural Res. Survey	II.A	0	0	0	0	1	0	1	0.29
Resource Management, Prescribed Fire (III.A)									
Area Being Burned (no. acres)	III.A.1	0	0	0	0	1	0	1	0.29
Frequency	III.A.2	0	0	0	0	1	0	1	0.29
Quality	III.A.3	0	0	0	1	1	0	1	0.43
Restoration of Ruderal Areas (III.B)									
Basin Marsh (Concrete Weir)(Malabar)	III.B.1	0	0	0	0	1	0	0	0.14
Depression Marsh (Jordan Scrub)	III.B.2	1	0	1	1	0	0	1	0.57
Mesic Flatwoods (Pine Plantations)	III.B.3	0	0	0	0	1	0	0	0.14
Sandhill	III.B.4	0	0	0	0	1	0	0	0.14

Non-Native, Invasive & Problem Species (III.E)									
Prevention									
prevention - plants	III.E.1.a	0	0	0	0	1	0	1	0.29
prevention - animals	III.E.1.b	0	0	0	0	1	0	1	0.29
prevention - pests/pathogens	III.E.1.c	0	0	0		1	0	1	0.33
Control									
control - plants	III.E.2.a	0	0	0	1	1	0	1	0.43
control - animals	III.E.2.b	0	0	0	1	1	0	1	0.43
control - pest/pathogens	III.E.2.c	0	0	0	1	1	0	1	0.43
Hydrologic/Geologic function Hydro-Alteration (III.F.1)									
Roads/culverts	III.F.1.a	0	0	0	0	1	0	0	0.14
Ditches	III.F.1.b	0	0	0	0	1	0	0	0.14
Hydro-period Alteration	III.F.1.c	0	0	0	0	1	0	0	0.14
Water Level Alteration	III.F.1.d	0	0	0	0	1	0	0	0.14
Surface Water Monitoring (III.F.3)									
Surface water quantity	III.F.3.b	0	0	0	0	1	0	0	0.14
Resource Protection (III.G)									
Boundary survey	III.G.1	0	0	1	1	1	0		0.50
Gates & fencing	III.G.2	0	0	1	1	1	0		0.50
Signage	III.G.3	0	0	1	1	1	0		0.50
Law enforcement presence	III.G.4	0	0	1	0	1	0		0.33
Adjacent Property Concerns (III.H)									
Land Use									
Expanding development	III.H.1.a	0	0	0	1	1	0	0	0.29
I-95/ Smoke Management	III.H.1.b	0	0	0	0		0	0	0.00
Inholding issues (Grant Flatwoods)	III.H.1.c	0		0	0				0.00
Inholdings/additions	III.H.2	0	0	0	1	1	0	0	0.29
Public Access & Education									
Public Access									
Parking	IV.1.b	1	0	0	0	1	0	0	0.29
Environmental Education & Outreach									
Wildlife	IV.2.a	0	0	0	1	1	0	0	0.29
Invasive Species	IV.2.b	0	0	0	1	1	0	0	0.29
Habitat Management Activities	IV.2.c	0	0	0	1	1	0	0	0.29
Interpretive facilities and signs	IV.3	0	0	0	1	1	0	0	0.29
Recreational Opportunities	IV.4	0	0	1	1	1	0	0	0.43
Management of Visitor Impacts	IV.5	0	0	0	1	1	0	0	0.29
Managed Area Uses									
Existing Uses									
Hiking	VI.A.1	1	1	1	1	1	1		1.00
Horseback Riding	VI.A.2	1	1	1	1	1	1		1.00
Bicycling	VI.A.3	1	1	1	1	1	1		1.00

Wildlife Viewing	VI.A.4	1	1	1	1	1	1		1.00
Environmental Education	VI.A.5	1	1	1	0	1	1		0.83
Proposed Uses									
Fishing	VI.B.1	1	1	1	0	0	1		0.67
Paved Bicycle Trail	VI.B.2	0	0	0	0	0	1		0.17
FIELD REVIEW		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**AVERAGE**
Natural Communities (I.A)									
Depression Marsh	I.A.1	3	4	2	3	4	4	4	3.43
Mesic Flatwoods	I.A.2	3	4	2	4	3	3	4	3.29
Scrub	I.A.3	4	4	2	4	4	4	5	3.86
Scrubby Flatwoods	I.A.4	2	3	2	2	3	3	4	2.71
Basin Marsh	I.A.5	4	4	3	4	4	4	5	4.00
Hydric Hammock	I.A.6	4	5	4	5	4	4	5	4.43
Sandhill	I.A.7	1	1	1	1	1	2	1	1.14
Strand/Dome Swamp	I.A.8	2	3	3	1	3	4	2	2.57
Wet Prairie	I.A.9	2	2	2	2	3	3	3	2.43
Baygall	I.A.10	4	4	3	5	5	5	4	4.29
Seepage Stream	I.A.11	4	4	2	5	5	5	4	4.14
Listed species:Protection & Preservation (I.B)									
Animal Inventory	I.B.1	3	2	3	3	4		5	3.33
Scrub Jay	I.B.1.a	4	5	4	4	5	5	4	4.43
Gopher Tortoise	I.B.1.b	4	4	3		5	3		3.80
Plant Inventory	I.B.2	3	2	3	4	3	3	4	3.14
Natural Resources Survey/Management Resources (I.C)									
Listed species or habitat monitoring	I.C.2	4	4	3	3	3	5	5	3.86
Other non-game species or habitat monitoring	I.C.3	3	2	1	2	3	1	3	2.14
Fire effects monitoring	I.C.4	3	4	3	4	4	4	5	3.86
Other habitat management effects monitoring	I.C.5	4	4	3	3	4	2	5	3.57
Invasive species survey / monitoring	I.C.6	4	4	4	3	5	5	5	4.29
Cultural Resources (Archeological & Historic sites) (II.A,II.B)									
Cultural Res. Survey	II.A	2	2	1	1	3	1	X	1.67
Resource Management, Prescribed Fire (III.A)									
Area Being Burned (no. acres)	III.A1	2	1	1	2	1	2	2	1.57
Frequency	III.A.2	2	1	1	2	1	4	2	1.86
Quality	III.A.3	2	4	3	3	3	3	5	3.29
Restoration of Ruderal Areas (III.B)									
Basin Marsh (Concrete Weir)(Malabar)	III.B.1	5	5	4	4	5	4	5	4.57
Depression Marsh (Jordan Scrub)	III.B.2	4	2	3	4	5	5	5	4.00
Mesic Flatwoods (Pine Plantations)	III.B.3	2	3	2	3	4	2	2	2.57

Sandhill	III.B.4	2	2	1	1	2	3	2	1.86
Non-Native, Invasive & Problem Species (III.E)									
Prevention									
prevention - plants	III.E.1.a	4	2	3	3	4	3	4	3.29
prevention - animals	III.E.1.b	4	X	3	2	2	3	4	3.00
prevention - pests/pathogens	III.E.1.c	3	X	3	3	3	X	4	3.20
Control									
control - plants	III.E.2.a	4	5	3	5	4	4	5	4.29
control - animals	III.E.2.b	3	2	3	3	4	3	4	3.14
control - pest/pathogens	III.E.2.c	3	X	3	3	3	X	3	3.00
Hydrologic/Geologic function Hydro-Alteration (III.E.1)									
Roads/culverts	III.F.1.a	3	3	2	3	4	3	3	3.00
Ditches	III.F.1.b	3	3	3	4	4	3	3	3.29
Hydro-period Alteration	III.F.1.c		3	4	3	4	3	3	3.33
Water Level Alteration	III.F.1.d		3	3	2	4	3	3	3.00
Surface Water Monitoring (III.E.3)									
Surface water quantity	III.F.3.b	2	3	3	2	3	2	X	2.50
Resource Protection (III.F)									
Boundary survey	III.G.1	4	4	4	5	5	3	5	4.29
Gates & fencing	III.G.2	4	3	4	4	4	4	4	3.86
Signage	III.G.3	3	3	4	3	5	4	3	3.57
Law enforcement presence	III.G.4	2	2	3	2	2	2	3	2.29
Adjacent Property Concerns (III.G)									
Land Use									
Expanding development	III.H.1.a	2	3	4	2	4	3	4	3.14
I-95/ Smoke Management	III.H.1.b	3	3	4	X		3	4	3.40
Inholding issues (Grant Flatwoods)	III.H.1.c	1		1	2				1.33
Inholdings/additions	III.H.2	3	1	4	4	4	5	4	3.57
Public Access & Education									
Public Access									
Parking	IV.1.b	4	4	3	3	4	4	4	3.71
Environmental Education & Outreach									
Wildlife	IV.2.a	4	4	4	5	5	4	4	4.29
Invasive Species	IV.2.b	3	4	4	4	5	3	5	4.00
Habitat Management Activities	IV.2.c	4	4	4	5	5	4	3	4.14
Interpretive facilities and signs	IV.3	4	4	4	5	5	4	4	4.29
Recreational Opportunities	IV.4		4	4	4	5	4	5	4.33
Management of Visitor Impacts	IV.5		4	3	2	3	3	4	3.17
Management Resources									
Infrastructure									
Buildings	V.2.a	3	4	5	5	5	3	4	4.14
Equipment	V.2.b	3	4	4	4	4	3	4	3.71
Staff	V.3	3	4	4	4	3	2	3	3.29
Funding	V.4	3	3	5	5	4	3	3	3.71

APPENDIX B:

I.A. Natural Communities

- Large areas of mesic flatwoods have been burned at least once as well as receiving mechanical treatments such as roller chopping. However, there is still considerable need for additional fire and in some areas more roller chopping. Palmetto rims of depression marshes require mowing or roller chopping. Natural community mapping was not available for all tracts. Sandhill is heavily covered with sand pine and lacks any recent fire as well. Restoration is overdue because of aesthetic concerns raised by bicyclists. Good amount of wiregrass is present. Wet prairies looked pretty good in many cases but staff stated in many cases in the megaparcels area damage from four-wheelers is ongoing. Strand swamps appeared very dehydrated with a significant pine component. Hydrological enhancements may be possible in some areas. Staff needs to develop standards for each natural community related to what is the desired range of vegetative structure and composition to the border to know what success looks like.
- Some hardwood encroachment in depression marsh should be cut; need to address water loss from cypress; need to address difficulty managing grant Valkaria (needs fencing and fire).
- Need approved management plan. Need desired future conditions for scrubby/mesic flatwoods increase growing season prescribed fire.
- Set up success criteria for managing ecosystems. Get more growing season fire on the landscape.
- The lack of complete plans makes this section difficult to comment on.
- BMP management condition with fire. Pine density range (2 regions) 40% growing season- fuel reduction. Scrubby Flatwoods need roller chopping to do successful fires.

I.B. Listed Species

- Good efforts at banding and monitoring jay populations which has shown a decline over recent years. Post burns surveys are done for active gopher tortoise burrows generally.
- Florida scrub jay monitoring is excellent and adaptive resource management model would be ideal for evaluating the effects of management actions on scrub jays and adaptive management.
- There has been a decline in the population of scrub jays even though caused by wildfire past burn studies have been conducted for active gopher tortoise holes.
- Keep up with the jay monitoring throughout all management units and implement more plant surveys in species list.
- Monitoring movement is consistent and systematic. Inventory not complete.

I.C. Natural Resources Survey/Management Resources

- Excellent work monitoring for invasive plants and tracking populations and success of treatments.
- Invasive species monitoring and treatment great but there is a need for hog monitoring and management.
- Recommend that staff increase wildlife surveys.
- No sport fishing group took out NRS/MR. no full completed habitat monitoring. Invasive species removal was not specified in management plan.
- Great photo point monitoring effort. Standardize your exotic species effort. Great effort in treatment of exotics.
- Need specific written plans for exotic species monitoring.

II.A.B. Cultural Resources

- No listed sites. No staff is trained as an archeological site monitor.
- No known but needs to request phase 1 survey and would be worthwhile to get staff trained.
- Properties have not been surveyed; protection and preservation have not been developed.
- Contact DHR for phase 1. Get at least one individual on staff archeological training.
- Need to request a phase 1 survey from DHR.
- Sites not surveyed in Valkaria. Contact phase one archeological site inspection.

III.A. Prescribed Fire

- Greater efforts are needed to organize priorities and burn execution among land management staff and the fire coordinator. Annual burning accomplishments should be around 1700 acres (3yr rotation) but instead are only roughly 200 acres per year. Burning is limited to just three days per week. Priority of burning needs to refocus on land managers concern for ecological needs. Suggest

that it's more important to continue to burn habitats already in maintenance condition, especially with growing season fire, than to tackle sites in backlog.

- Needs to burn more a year to catch up and need to burn Grant Valkaria (Hawkins Act?). Is there a way to increase number of days land managers can burn (make it a priority); prioritize burning to maintain habitat that is in good condition (not those in worst); what was burn seemed to be good quality.
- Need to increase acres frequency with the use of prescribed fire. Recommend more growing season burns on mesic/scrubby flatwoods. Need quantifiable vegetative management.
- 5000 out of 7213 can be burned on 3-5 year rotation but it's being based instead by judgment call mostly 2-4 years.
- Increase the amount of acreage burned in the growing season. Increase in house commitment to completing burn objectives. Keep up effort to reduce backlog acreage.
- Need to find ways to accomplish more burning.

III.B. Restoration

- An outstanding project installing a weir at the north end of a de-watered basin marsh on the Malabar east property has successfully restored this community to its more natural hydric condition. Another excellent wetland restoration project was observed in the Jordan Scrub parcel where a north-south ditch/road that ran through a depression marsh system just south of Jordan Blvd. was removed and the natural depression grade resolved. Either culverts under Jordan Blvd or a hard rock low water crossing is still needed in order to fully connect this restored marsh to the wetland system north of the boulevard. This project does not appear however to have been addressed in the plan.
- Not in management plan.
- 3 and 4 are still in a planning stage.
- Work on developing a plan for the boulevard so if a restoration/mitigation project comes up you will be ready to implement it.

III.E. Non-native, Invasive & Problem Species

- Clean equipment to prevent spreading of exotics- can come up with protocol and write into contracts. Communicating with others in region can alert to emerging problems. Excellent invasive plant control and discovery of new grass; need better hog control.
- Need maps and documentation of herbicide usage to show quantifiable and measurable goals prove a decline in invasive/exotic plants.
- Ongoing monitoring report. Spent $700,000 in the control of the spread of plants.
- Continue efforts on reducing coverage of exotics and increase hog efforts.

III.F. Hydrologic/Geologic Function

- Good work to restore hydro period in basin swamps. More effort is needed to establish plan to restore greater period in the strand swamps.
- Jordan east-west road impact to hydrology needs investigation. Micco ditch culvert needed. Improvement to hydro-periods at Malabar. The impact of those ditches needs to be studied.
- Need hydro period alteration and water level described in the management plan.
- Collapsed culvert has not been repaired yet, also a few mentions of blow out in other parts of the property.
- Water control needs to be studied.

III.G. Resource Protection

- North end of Jordan lacking fence. Grant-Valkaria unfenced and a lot of trespassing is happening. Grant Flatwoods trespasser/habitat destruction needs to be dealt with.
- Need to find legal support to remove access to the trespasser in Grant Flatwoods.
- Lack of law enforcement.

III.H. Adjacent Property Concern

- Need to institute HOA convenants for proposed subdivisions south of Micco Road regarding fire, smoke and limiting exotic plants, etc. necessary to manage the adjacent conservation lands. More effort is needed to restrict trespass by inholding tenant on Grant Flatwoods parcel.
- Consider adding fire management in new development notification; inholdings at Grant-Valkaria challenge management and require addressing; Grant Flatwoods inholding with illegal mailbox,

destruction of habitat with mowed roads installed, culvert filled in without permit, must be stopped because it is not protecting resource; encouraged by movement to include find site.
- Burn issue becomes more present with increase in development.
- Grant inholding- resolve issue with trespasser asap.
- Get burn fuel reduction interchange.

IV. Public Access and Education

- Very nice kiosks at parking area. Trails had excellent interpretive signage at key viewing points. Try to get a better handle and reoccurring number and type of visitors. The trailheads sign in clipboards showed to be helpful in this regard.
- Add "do not feed scrub jays" (with reasons that it is harmful to them); great signs and kiosks with wonderful info; adding pavement for biking is not recommended.
- Consider primitive camping on some sites where appropriate- consider using a backcountry- use permit for primitive camping.

V. Infrastructure/ Management Resources

- Need new mulching machine.
- Get the mulching machine and look into increasing number of staff to meet management needs of the resource.
- Purchase of new mulching machine is strongly recommended.

VI. Managed Area Uses

- Adding pavement for biking would be detrimental to habitat protection.
- Paved bicycle trail not in the plan but not approved.

Management Review Determination

- Yes, however the following reservations to this scoring are as follows: Five years ago, at the date of the last LMR, the County had not yet completed a management plan on any of the state-owned properties. At that time, the LMR team was unable to make a determination as to whether management practices were in compliance with the management plan – since there wasn't one. Team members documented their concerns over this in their reviewer comments. Five years later, this situation isn't much improved. Only the 350-acre Jordan Scrub Sanctuary plan has been completed and approved by ARC/DEP. The remaining nearly 7,000 acres of Trustees-owned state land, most of which I believe were purchased 5+ years ago, remain with no management plan – being managed under state interim management guidelines. The County is developing a separate management plan for each parcel and local political issues related to trail locations, restoration practices, etc. have impeded progress. This situation is unique to anything I've seen in doing LMRs for over 10 years throughout the state of Florida. It is entirely unacceptable and it seems that DEP is also remiss in allowing the situation to drag on, and on. A more forceful approach is needed by DEP to bring closure to this long delay and to insist on a timely completion of these management plans for these state-owned properties that were acquired long ago.
- There is only one management plan available for Jordon Scrub while most of parcels do not and should have management plans.
- Must produce an approved management plan. Recommend DSL send letter to the EEL Program to prompt the Program to have an approved management plan. Jordan management plan is insufficient to cover all properties covered in this lease.
- The level of maintenance that is of concern. Control fire burning is far more behind than acceptable range.
- A lot of locations is still not available to public use. Either no public access point or lack of recreational activities of structures (bathroom, trash can, etc.). Management plans have not been passed through the chains due to political issues.
- Yes, with heavy reservations: we only had one approved, and multiple draft, management plans available for multiple units. Either develop (and get approved) 1 management plan to cover all units or get the current draft plans approved.
- The land management of much of this area is excellent.
- Based upon Jordan Scrub land management plan solely.